

UNITED STATES OF AMERICA 71 FERC ¶ 62,008
FEDERAL ENERGY REGULATORY COMMISSION

Central Vermont Public Service
Corporation

Project No. 2489-003
Vermont

ORDER AMENDING LICENSE AND APPROVING PLAN AND SCHEDULE FOR
INSTALLATION OF DOWNSTREAM FISH PASSAGE FACILITY

(Issued April 4, 1995)

On December 19, 1994, Central Vermont Public Service Corporation (licensee) filed a downstream fish passage plan, functional design drawings, and a schedule for facility installation, pursuant to article 406 of the license for the Cavendish Hydroelectric Project and as prescribed by the Secretary of the Interior under Section 18 of the Federal Power Act (FPA).¹ The project is located on the Black River in Windsor County, Vermont.

Article 406 requires the licensee to file a plan and schedule for installing downstream fish passage facilities at the project, primarily for the safe emigration of Atlantic salmon smolts. Article 406 also requires that the licensee consult with the U.S. Fish and Wildlife Service (FWS) and the Vermont Agency of Natural Resources (VANR) on the plan and schedule. Further, because the project, including the dam, is eligible for inclusion on the National Register of Historic Places and pursuant to license article 412, the licensee is also required to consult with the State Historic Preservation Officer (SHPO).²

Licensee's proposed plan and schedule

The licensee's proposed downstream fish passage facility would consist of a transition box in the spillway adjacent to the penstock intake. Inflow to the box would be controlled by a

¹ Section 18 of the FPA provides the Secretary of the Interior the authority to prescribe fishways at Commission-licensed projects.

² Part III of the Programmatic Agreement among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, and the Vermont State Historic Preservation Officer, for Managing Historic Properties that may be Affected by Licenses Issued to Central Vermont Public Service Corporation for the Continued Operation of the Cavendish and Taftsville Hydroelectric Projects in the State of Vermont requires consultation with the SHPO regarding the impact of any new construction, demolition, or rehabilitation of project facilities. License article 412 requires implementation of that programmatic agreement.

motor-operated gate, allowing variable flow up to 20 cubic feet per second (cfs). Stoplogs would be installed to form the back of the box to maintain a minimum water depth. Fish would enter the box and pass down the spillway on a 3-foot-wide chute. Polyethylene will be used to cover the concrete spillway. A three-foot-deep plunge pool would be excavated at the bottom of the dam, with a channel at the downstream end to channel the flow into the bypass channel.

To facilitate operation of the downstream fish passage facility with and without flashboards, the licensee proposes to install an inflatable rubber dam on the spillway between new abutments. This spillway modification will operate under a plan to be filed pursuant to licensee article 404.³

The downstream passage facility has been designed to operate at flows ranging from 10 to 20 cfs during the periods April 1 through June 15 and September 15 through November 15.

The licensee proposes to initiate construction by July 15, 1995 and complete construction by September 15, 1995.

Agency comments

The SHPO, the FWS, and VANR provided comments on the downstream fish passage proposal and schedule in letters dated November 17, November 23, and December 15, 1994, respectively.

The SHPO stated that the proposed fish passage facility, including the rubber dam installation, would not affect the qualities that make the project property eligible for the National Register of Historic Places (Register). The SHPO further concluded that the proposed project would have no adverse effect on any properties of historic, architectural or

³ Article 404 requires the licensee to maintain the project impoundment level no lower than 6 inches below the crest of the flashboards, except for when the project's control system is not functioning or the flashboards have failed. When the control system is not functioning, the impoundment is required to be maintained no lower than 12 inches below the crest of the flashboards. The licensee is also required to manage the impoundment such that changes in excess of minus 2 feet from the normal operating level are eliminated. A plan that describes measures to be used to manage impoundment levels must be filed with the Commission by May 4, 1995.

archeological significance that are listed or eligible for inclusion in the Register.⁴

The VANR and the FWS expressed concern over the lack of a guidance screen as part of the facility. The agencies recommend that the effectiveness of the facility without such a screen be determined. If studies show that the bypass sluice alone does not provide efficient passage, then the guidance screen would probably be required.

The FWS stated that other options for improving attraction to the downstream bypass would include restricted generation during low-flow periods and/or increasing the bypass flows. In any event, efficiency studies for the final facility configuration are recommended. The agencies also suggested that artificial lighting be installed at the bypass entrance to enhance salmon passage.

The VANR approves of the licensee's plans, provided the polyethylene material to overlay the spillway chute area is strong, durable, and affixed with countersunk bolts to be flush to the surface. In addition, the VANR states that the functional design drawings should be modified to reflect the comments of the FWS and the headpond drawdown for construction be limited in time and scope.

With respect to the functional design drawing of the facility, the FWS in its review of an earlier drawing recommended, among items previously noted, changes to the size of the transition box and the plunge pool. The FWS also expressed concern about the flow over the weir boards onto the polyethylene liner, and requested confirmation of the tailwater rating curve along with staff gages to confirm water depths and flow in the plunge pool and transition box.

Licensee's response to agency comments

The licensee did not include a guidance barrier or screen in the design because the top of the turbine intake is 12 feet below the surface of the impoundment and, according to the licensee's references, salmon smolts move in the upper 6 feet of the water column. The licensee agrees, though, to monitor the effectiveness of the facility.

With respect to the FWS comment on increasing the flow through the bypass, the licensee notes that operation of the

⁴ The programmatic agreement allows the licensee to proceed with any agreed-upon treatment measures or conditions if the licensee and the SHPO agree that the activity will not adversely effect Historic Properties.

downstream passage facility with flows greater than 20 cfs may not be in compliance with condition I of the water quality certificate issued for the project by the VANR on October 7, 1993, or license article 409.⁵

With respect to FWS comments on specifics of the functional design drawing showing the downstream fishway and the proposed inflatable rubber dam, revisions were made to reflect FWS' comments.

Conclusions and recommendations

The licensee's proposed plan, drawing, and schedule for construction of the downstream fish passage facility generally meet the requirements of article 406 and should be approved. The design is similar to the type most often implemented for small hydro projects in New England.

Whether the facility functions efficiently without the guidance screen will be determined by studies required by license article 407.⁶ With respect to the flows needed for operation of the facility and for attraction of fish to the facility, we expect that the study required under article 407 will provide the answer to that question as well. Further, the operating efficiency of the facility during the September 15 through November 15 period will be determined, in part by the outcome of the bryophyte study required by article 409.

These studies and any conflict between flow requirements and restrictions will be addressed in subsequent Commission orders.

⁵ Condition I stipulates that during the September 15 through November 15 period, the downstream fish passage facility has to be operated using 10 cfs until sufficient information is available to determine whether operation at greater flow would be detrimental to Scapania umbrosa, a bryophyte found below the project dam in the Cavendish Gorge. Article 409 requires the licensee to file a plan for assessing the impact of alternative bypass flows on the bryophyte for five years following license issuance. Article 409 also reserves authority to the Commission to increase the bypass flow up to 20 cfs if the results of the study indicate such a flow would not significantly effect the bryophyte.

⁶ Article 407 requires the licensee to file by November 4, 1995, for Commission approval, a plan for operating, maintaining, and monitoring the effectiveness of the downstream fish passage facility.

With respect to the inflatable rubber dam modification, we have reviewed the agency comments, rehabilitation plan, and procurement documents, and find that the licensee's proposal to install a 6-foot high inflatable rubber dam in place of the 6-foot high flashboards will not effect the integrity of the project structures or their ability to perform their intended functions. However, the quality control management procedures for the rubber dam system should provide for specifications to be met by the device under ice pressure and during ice evacuation. Further, special provisions for protecting the control system against icing should be included in the specifications.

We will also amend the project description herein to include the rubber dam modification, and require: (1) the licensee provide final contract drawings and specifications for the pertinent features of the revised project to the Commission's New York Regional Office (NYRO) and the Director, Division of Dam Safety and Inspections (Director), for review prior to start of construction; (2) the licensee submit to the NYRO and to the Director copies of the approved cofferdam construction drawings and specifications and a copy of the letter(s) of approval by the licensee of any contractor-designed cofferdams and deep excavations prior to the start of construction to ensure that construction of any cofferdams and deep excavations is consistent with the approved designs; and (3) the licensee submit as built drawings after the proposed installations are completed.

The Director orders:

(A) The downstream fish passage plan, functional design drawings, and a schedule for facility installation, filed on December 19, 1994, pursuant to article 406 of the license for the Cavendish Hydroelectric Project, FERC No. 2489, are approved.

(B) The license for the Cavendish Hydroelectric Project, FERC No. 2489, is amended as provided by this order, effective the first day of the month in which this order is issued.

(C) Ordering paragraph (B) (2) of the license is revised, in part, as follows:

"Project works consisting of: (1) a 111-foot-long concrete gravity dam consisting of (a) a 90-foot-long, 25-foot-high north section topped with a 6-foot-high inflatable rubber dam ..."

(D) The licensee, at least 60 days prior to the start of construction, shall submit one copy to the Commission's New York Regional Director and two copies to the Director, Division of Dam Safety and Inspections, of the final contract drawings and specifications for the pertinent features of the project. The Director, Division of Dam Safety and Inspections, may require

changes to the plans and specifications in order to assure a safe and adequate project.

(E) The licensee shall review and approve contractor-designed cofferdams and deep excavations prior to the start of construction and shall ensure that construction of the cofferdams and deep excavations is consistent with the approved design. At least 30 days prior to start of construction of the cofferdam, the licensee shall submit to the Commission's New York Regional Director and to the Director, Division of Dam Safety and Inspections, one copy of the approved cofferdam construction drawings and specifications and a copy of the letter(s) of approval.

(F) Within 90 days of completion of the modifications to the spillway and fishway, the licensee must file, for Commission approval, revised exhibit drawings to describe and show the modifications as built.

(G) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. §385.713.

J. Mark Robinson
Director, Division of Project
Compliance and Administration