

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSIONCentral Vermont Public
Service CorporationProject No. ~~2490-001~~
VermontORDER ISSUING SUBSEQUENT LICENSE
(MINOR PROJECT)Introduction

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On December 31, 1991, Central Vermont Public Service Corporation (CVPSC) filed an application under Part I of the Federal Power Act (FPA) for a subsequent license to continue to operate and maintain the 0.5-megawatt (MW) Taftsville Hydroelectric Project, located on the Ottauquechee River in the Village of Taftsville, Windsor County, Vermont.^{1/}

Background

Notice of the application has been published. On August 31, 1992, the Vermont Agency of Natural Resources (VANR) filed a timely motion to intervene. VANR does not oppose the relicensing of the project. Comments received from interested agencies and individuals have been fully considered in determining whether, or under what conditions, to issue this license.

On April 7, 1994, the Federal Energy Regulatory Commission's (Commission) staff issued a draft environmental assessment (DEA) for this project. Comments on the DEA have been addressed in the final environmental assessment (EA), which is attached to this license. The staff also prepared a safety and design assessment (S&DA) for this project, which is available in the Commission's public file.

Project Description

The existing constructed Taftsville Project consists of a concrete gravity dam approximately 220 feet long and 16 feet high; a spillway section, 194 feet long with a crest elevation of 637.12 feet mean sea level (msl), topped by 1.5-foot-high flashboards. The crest elevation is approximately 16 feet above the foundation of the dam. The impoundment has a surface area of

^{1/} The Ottauquechee River is a tributary of the Connecticut River, a navigable waterway of the United States. Power produced from the project is fed directly into an interstate grid. A turbine/generator unit was installed in 1943. Since the project is located on a river over which Congress has jurisdiction under the Commerce Clause, affects interstate commerce through its connection to an interstate power grid, and was constructed after 1935, it is required to be licensed pursuant to Section 23(b)(1) of the FPA.

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20.5 acres, with a usable storage capacity of 30 acre-feet. An integral intake/powerhouse is located along the right bank of the river parallel to the flow. There is a rectangular concrete penstock 11 feet high, 6 feet and 8 inches wide, and about 36 feet long. The powerhouse is equipped with one vertical Kaplan hydroelectric generating unit with a capacity of 503 kilowatts (kW) and a hydraulic range of 95 to 370 cubic feet per second (cfs). The project tailrace enters the river below the dam, creating a bypass reach approximately 100 feet long and 190 feet wide. There are no primary transmission lines included in the project. A more detailed project description can be found in ordering paragraph (B)(2).

The project's original license, issued on June 3, 1966, permitted the licensee to operate the project as a daily peaking facility and to use all inflow to generate hydropower. That is, there was no requirement to provide any spillage over the dam crest to protect area aesthetics and aquatic resources in the project's bypass reach.

From June 3, 1966, until July 1988, CVPSC operated the Taftsville Project as a peaking facility without dam spillage. In July 1988, however, CVPSC voluntarily agreed to change project operation to run-of-river (inflow equals outflow instantaneously) and to provide a continuous spillage averaging 15 cfs over the dam/flashboards to the bypass reach.

CVPSC proposes to continue operating Taftsville as a run-of-river project with a continuous spillage averaging 15 cfs. In addition, when the project turbine does not operate, all inflows would be spilled over the dam/flashboards.

Applicant's Plans and Capabilities

In accordance with Section 10(a)(2)(C) of the FPA, the staff evaluated CVPSC's record as a licensee in the following area: conservation efforts. I accept the staff's findings, discussed below, pertaining to Section 10.

1. Section 10(a)(2)(C): Conservation Efforts

In August 1993, CVPSC submitted to the Vermont Public Service Board a report, Conservation and Load Management, which includes quantitative information regarding CVPSC's specific conservation and load management goals and accomplishments for the first 6 months of 1993. Its programs affect residential, commercial, and industrial consumers.

My staff, after reviewing this document, concludes that CVPSC has made a satisfactory good faith effort to comply with Section 10(a)(2)(C) of the FPA and to support the objectives of the Electric Consumers Protection Act of 1986. I concur.

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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 1 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 applicants comply with specific portions of the CWA and with appropriate requirements of state law.

On December 27, 1991, CVPSC filed a request with the Vermont Agency of Natural Resources, Water Quality Division (Vermont WQD), for CWA water quality certification for the Taftsville Project. CVPSC subsequently withdrew its request and refiled it on October 2, 1992. Vermont WQD issued the project certification on September 29, 1993. CVPSC appealed the certification, and its appeal is currently pending before the Vermont Water Resources Board.

The October 2, 1992 certification included 13 conditions, labeled A through M. As stated in Tunbridge Mill Corporation, 68 FERC ¶ 61,078 (1994), under Section 401(d), states may lawfully impose only conditions related to water quality. In examining the conditions proposed here, I follow the principles laid out and discussed in Tunbridge.

Condition A requires CVPSC to operate and maintain the project pursuant to the conditions of the certificate. Because some of these conditions are beyond the scope of Section 401 and will not be included in the license, Condition A will become a part of the license only to the extent that it requires compliance with conditions within the scope of Section 401.

Condition B requires operation in a run-of-river mode, except during the repair or replacement of flashboards. This condition will become a part of the license. I note that the project has been operated as a run-of-river project since 1988,

^{2/} 33 U.S.C. § 1341.

^{3/} 33 U.S.C. § 1341(a)(1).

^{4/} 33 U.S.C. § 1341(d).

that the licensee intends to continue the run-of-river operation, and that Article 401 of the license ensures such operation.

Condition C requires an instantaneous minimum flow of 15 cfs. It specifies that if instantaneous flows fall below the hydraulic capacity of the turbine unit plus this spillage requirement, all flows shall be spilled at the dam. Condition C will become part of the license. Also, Article 402 of the license contains a requirement for a continuous minimum flow of 15 cfs or inflow, whichever is less.

Condition D requires that, during the repair or replacement of flashboards, the impoundment is to be drawn to the dam crest and the project operated in a true run-of-river mode, and that after installation is complete, the impoundment shall be refilled by reducing downstream flows, but to no less than 100 cfs. Condition D adds that if project inflows are less than 200 cfs, flashboard replacement shall be postponed until inflows increase above 200 cfs. Condition D will become a part of the license. Also, Article 401 contains these conditions concerning flows during repair or replacement of flashboards.

Condition E requires CVPSC to investigate alternatives to enable the continuous passage of 15 cfs during flashboard replacement and alternative flashboard designs or replacement strategies that would reduce replacement time. Condition E also sets the period during which flashboards must be removed, and limits the period for flashboard replacement in the event a feasible means of providing the 15 cfs minimum flow cannot be identified and implemented. The alternatives analysis and any proposal are to be filed with the state for review and approval. This condition will become part of the license.

Condition F requires CVPSC to file for state review and approval a plan for monitoring impoundment levels and instantaneous flow releases at the project. This condition will become part of the license. In addition, Article 403 of the license requires the licensee to develop, in cooperation with the state, a plan for monitoring inflow, outflow, and minimum flows at the project. The plan is to be filed with the Commission for its approval.

Condition G requires CVPSC to provide VANR with a copy of the project's turbine rating curves. This condition will become part of the license.

Condition H requires CVPSC to submit for the state's review and approval a plan for proper disposal of debris associated with project operation, including trashrack debris. This condition will become part of the license.

Condition I requires CVPSC to file for the state's prior review and approval, any proposals for project maintenance or repair work involving the river, including desilting of the dam impoundment, impoundment draw-downs to facilitate repair or maintenance work, and tailrace dredging. The state has no authority to halt or order maintenance and repair of the Taftsville Project. Section 401 provides that a state may issue its certification, at which point the federal licensing or permitting agency is responsible for making the certification a part of the license or permit. Section 401 gives the state no further role in the federal process. Condition I, which would give the state the ability to control the timing of activities under a federal license, is thus beyond the scope of Section 401 and will not become part of the license.^{5/}

Condition J requires access for state personnel to inspect facilities to determine compliance with the terms of the water quality certification. Condition K requires that a copy of this certification be prominently posted within the facility. These conditions shall become part of the license.

Condition L requires any changes to the project, including project operation, that would have a significant or material effect on the certificate to be submitted to VANR for prior review and approval. Section 401(a)(3) of the CWA sets out the exclusive manner in which state certifications may be modified and makes clear that that process is to be initiated by the federal licensing or permitting agency, not the state.^{6/} Thus, the Commission determines whether proposed license amendments require new water quality certification.^{7/} Condition L, which gives the state authority beyond that provided for in the CWA, is beyond the scope of Section 401 and thus will not be included in the license.

^{5/} See Tunbridge, supra at p. 12.

^{6/} See Tunbridge, supra at p. 11.

^{7/} Our regulations, 18 C.F.R. S 4.38(7)(iii) (1993), provide that, if an applicant seeks to amend its application or license, it must make a new request for water quality certification if the amendment would have a material adverse impact in the discharge from the project. We make the determination as to whether a material adverse impact will result from the amendment and, thus, whether a new certification is necessary. See, e.g., Joseph M. Keating, 57 FERC ¶ 61,261 (1991), reh'g denied, 61 FERC ¶ 61,215 (1992).

Condition M states that VANR may request, at any time, that the Commission reopen the license to consider modifications to the license necessary to assure compliance with Vermont water quality standards. This condition will become a part of the license.

Section 18 of the FPA

Section 18 of the FPA provides the Secretary of the Interior the authority to prescribe fishways at Commission-licensed projects. Interior, by letter dated July 19, 1993, stated that, although fish passage facilities are not needed at this present time, they may be needed in the future if and when the Ottauquechee River is stocked with salmon fry. Interior, therefore, recommends that the license be conditioned to reserve the authority under Section 18 to prescribe fish passage facilities when they are needed.

Future fish passage needs and management objectives cannot always be predicted at the time of license issuance. Although fishways may not be recommended by Interior at the time of project licensing, upon receiving a specific request from Interior, it is appropriate for the Commission to include a license article that reserves authority to require construction, operation, and maintenance of fishway in the future. Therefore, Article 406 reserves the Commission's authority to require fishways that Interior may prescribe.

Recommendations of Fish and Wildlife Agencies

Section 10(j) of the FPA requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies for the protection, mitigation of adverse impacts to, and enhancement of fish and wildlife resources. Pursuant to Section 10(j) of the FPA, staff determined that the recommendations of the federal and state fish and wildlife agencies are consistent with the purposes and requirements of Part I of the FPA and applicable law. Staff has addressed the concerns of the federal and state fish and wildlife agencies in the EA, and the license includes conditions consistent with the recommendations of the agencies.

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.

Under Section 10(a)(2), federal and state agencies filed a total of 28 comprehensive plans that apply to Vermont of which

staff identified 13 plans that are applicable.^{8/} No conflicts were found.

Comprehensive Development

Sections 4(e) and 10(a)(1) 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 project, the recreational, fish and wildlife resources, and other nondevelopmental values of the involved waterway are considered equally with power and other developmental values. In determining whether, and under what conditions, a hydropower license should be issued, the Commission must weigh the various economic and environmental tradeoffs involved in the decision.

A. Recommended Alternative

Staff considered several environmental enhancement measures including: run-of-river operation, spillage flows, recreational enhancements, landscaping, and downstream fish passage.

From staff's independent analysis of the environmental and economic effects of the alternatives, I have selected the applicant's proposed operational procedures and environmental enhancement measures plus staff-recommended enhancement measures as the preferred alternative. I have selected this alternative because implementation of these measures will: enhance aesthetics, water quality, fisheries, and recreational resources; increase public access to the river in the project area; and will provide for future fish passage.

The required enhancement measures will include:

- (1) using an instantaneous run-of-river operation;
- (2) releasing a year-round average spillage of 15 cfs over the dam;
- (3) providing additional plantings for visual screening of the substations;
- (4) constructing, operating, and maintaining various recreational facilities;
- (5) developing and implementing procedures to minimize bank erosion during the construction of recreational facilities;

^{8/} For a list of these plans, see Section XI of the attached EA.

- (6) implementing CVPSC's existing plan for the management of cultural resources; and
- (7) installing a downstream fish passage facility when appropriate.

B. Developmental and Nondevelopmental Uses of the Waterway

The project will generate an estimated 1.768 gigawatt-hours (GWh) annually of relatively low-cost electricity from a renewable energy resource for use by CVPSC customers. Positive, long-term benefits to water quality, aquatic habitat, area aesthetics, recreational resources, and cultural resources also will result from operating the project with my recommended enhancement measures. Though the cost of these measures will reduce the existing power benefits of the project, the project will still have net benefits over the new license term compared to the least-cost alternative.

The primary costs associated with the required enhancements will be: (1) operation of the project in run-of-river mode at an annual levelized cost of \$7,000; (2) the loss of approximately 82 MWh in yearly generation associated with providing an average spillage of 1 inch of water (15 cfs average flow) over the dam crest at a yearly levelized cost of \$7,000; (3) development of new recreational facilities at an annual levelized cost of \$3,000; (4) provision of aesthetic enhancements, other than the spillage flow, at an annual levelized cost of \$1,000; and (5) installation and operation of downstream fish passage in the year 2000 at an annual levelized cost of \$6,000.

In total, the required enhancement measures will reduce the project's levelized annual net benefits from \$78,000 to \$54,000 or by \$24,000.

C. Economic Costs of Additional Water Quality Certificate Conditions

Two conditions included in VANR's WQC for the Taftsville Project that will affect project economics were considered unwarranted by my staff. These conditions, which will be included in any license for the project, are: (1) provision of a continuous minimum flow rather than an average spillage flow of 15 cfs, which will reduce average annual generation by an additional 68 MWh, at a yearly incremental levelized cost of about \$7,000; and (2) conducting studies and installing a sluiceway to provide minimum flows during flashboard replacement or maintenance events at an annual levelized cost of \$5,000. These two required measures, therefore, will decrease the project's annual net benefits by an additional \$12,000, resulting in yearly net benefits of \$42,000.

Based on review of the agency comments filed on this project, and on staff's independent analysis and assessment of the project pursuant to sections 4(e), 10(a)(1), and 10(a)(2) of the FPA, I find that the Taftsville Project with the required environmental enhancement measures is best adapted to a comprehensive plan for the proper use, conservation, and development of the Ottauquechee River and other project-related resources.

Project Retirement

The Commission has issued a Notice of Inquiry (NOI), dated September 15, 1993, requesting comments that address numerous issues involving the potential decommissioning of licensed hydropower projects at some future time, based on project-specific circumstances.^{9/} The NOI states that the Commission is not proposing new regulations at this time, but is inviting comments on whether new regulations may be appropriate. Alternatively, the Commission may consider issuing a statement of policy addressing the decommissioning of licensed hydropower projects or take other measures.

The Taftsville Project may be affected by future actions that the Commission takes with respect to issues raised in the NOI. Therefore, the license includes Article 202, which reserves authority to the Commission to require the licensee to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project in appropriate circumstances.

By including Article 202, I do not intend to prejudge the outcome of the NOI. I am simply including the article so that the Commission will be in a position to make any lawful and appropriate changes in the terms and conditions of this license, which is being issued during the pendency of the NOI, based on the final outcome of that proceeding.

Term of License

In 1986, the Electric Consumers Protection Act modified Section 15 of the FPA to specify that any license issued under Section 15 shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years. We are following the same guidelines in issuing

^{9/} Notice of Inquiry, Project Decommissioning at Relicensing, Docket No. RM93-23-000, September 15, 1993, 58 FR 48,991 (1993).

subsequent licenses.^{10/} Generally, we issue 30-year relicenses for projects that include no substantial new construction or power-generating expansion. We issue relicenses for 40 years or more for projects that include substantial new construction or capacity increases. We issue licenses of longer duration to ease the economic impact of the new costs and to encourage better comprehensive development of the renewable power-generating resource. For the same reason, we may issue longer duration licenses for projects that include substantial or costly environmental mitigation and enhancement measures. Licenses of longer duration in these instances encourage license applicants (1) to be better environmental stewards, and (2) to propose more balanced and comprehensive development of our river basins.

CVPSC does not propose new development at the existing project facilities. In light of the relatively modest environmental mitigation and enhancement costs involved, the subsequent license for the Taftsville Project will be for a term of 30 years, effective the first day of the month in which this license is issued.

Summary of Findings

The EA issued for this project includes background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with engineering safety standards. The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the S&DA prepared for the Taftsville Project and available in the Commission's public file for this project.

I conclude that the Taftsville Project does not conflict with any planned or authorized development, and it is best adapted to the comprehensive development of the Ottauquechee River for beneficial public uses.

The Director Orders

(A) This license is issued to the Central Vermont Public Service Corporation (CVPSC) for a period of 30 years, effective

^{10/} A subsequent license is issued for a minor project whenever Sections 14 and 15 of the FPA were waived in the project's original license.

the first day of the month in which it is issued. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the Licensee's interests in those lands, shown by the following exhibits, which were included in the application for subsequent license, filed on December 31, 1991.

<u>Exhibit No.</u>	<u>FERC No. 2490</u>	<u>Showing</u>
A	Part (1)	Project facilities.
F-1		Existing conditions, plan and elevation, spillway section.
F-2		Existing conditions, powerhouse section.
G-1		Project map.

(2) Project works consisting of: (a) a 220-foot-long and 16-foot-high concrete gravity dam consisting of, from left to right looking downstream, (1) a concrete abutment section, (2) a spillway section 194-feet-long with a crest elevation of 637.12 feet mean sea level (msl), topped by 1.5-foot-high flashboards, and (3) an integral intake structure; (b) an integral intake structure containing a manually-operated head gate; (c) a concrete water passage to the powerhouse 11-feet high, 6-feet 8-inches-wide, and 36-feet-long; (d) a powerhouse, housing one 503-kilowatt (kW) vertical Kaplan turbine; (e) a 20.5-acre impoundment having a usable storage capacity of 30 acre-feet at 638.6 feet msl; and (f) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F recommended for approval.

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The Exhibits A, F, and G described above are approved and made part of the license.

(D) The following sections of the FPA are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(e), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the FPA that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

(E) This license is subject to the articles set forth in Form L-12 (October 1975), entitled "Terms and Conditions of License for Constructed Minor Project Affecting the Interests of Interstate or Foreign Commerce", and the following additional articles:

Article 201. The Licensee shall pay the United States an annual charge, effective the first day of the month in which this license is issued, for the purpose of reimbursing the United States for the cost of administration of Part I of the FPA, as determined by the Commission. The authorized installed capacity for that purpose is 670 horsepower.

Article 202. The Commission reserves authority, in the context of a rulemaking proceeding or a proceeding specific to this license, to require the Licensee at any time to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project. The terms of this article shall be effective unless the Commission, in Docket No. RM93-23, finds that the Commission lacks statutory authority to require such actions or otherwise determines that the article should be rescinded.

Article 401. The Licensee shall operate the project in a run-of-river mode for the protection of resources in the Ottauquechee River.

The Licensee at all times shall minimize fluctuations in the surface elevation of the Taftsville impoundment by maintaining a discharge from the project such that, at any point in time, flows, measured immediately downstream from the project tailrace and bypass reach, shall approximate inflow to the project impoundment.

During the repair or replacement of flashboards, the impoundment shall be drawn down to the dam crest, and the project operated continuously in a run-of-river mode. After the installation is complete, the impoundment shall be refilled by reducing downstream flows, but to no less than 100 cubic feet per second (cfs).

Run-of-river operation may be temporarily modified, if required by operating emergencies that are beyond the control of

the Licensee, or for short periods upon mutual agreement between the Licensee, the Vermont Agency of Natural Resources, and the U.S. Fish and Wildlife Service. If the flow is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 10 days after such incidents occur.

Article 402. The Licensee shall release from the Taftsville dam into the bypassed reach of the Ottauquechee River a continuous minimum flow of 15 cubic feet per second (cfs) (about 1.0-inch), or inflow, whichever is less. This release shall be uniformly spilled over the dam crest at all times to enhance the aesthetics and aquatic habitats of the project area.

If the instantaneous inflow falls below the hydraulic capacity of the turbine unit plus the spillage requirement, all inflows shall be spilled at the dam.

The bypass flow may be temporarily modified, if required by operating emergencies beyond the control of the Licensee, or for short periods upon agreement among the Licensee, the U.S. Fish and Wildlife Service, and the Vermont Agency of Natural Resources. If the flow is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 10 days after such an incident occurs.

Article 403. Within 6 months of license issuance, the Licensee shall file with the Commission, for approval, a plan to monitor inflow to the project and outflow from the project both below the tailrace and in the bypassed reach to document compliance with the run-of-river operation as required by Article 401, and the 15 cfs minimum instantaneous flow in the bypassed reach, as required by Article 402. The plan shall also describe how the impoundment level and spillage from the dam will be monitored.

The plan shall include, at a minimum, the following items: a schedule for installing all gages, the planned location of the gages, the design of the gages, the method of flow data collection, and provisions for providing data to the regulatory agencies in a timely manner. The plan shall include a provision that the Licensee will furnish a turbine-rating curve to the Vermont Agency of Natural Resources, within 1 year of license issuance.

The Licensee shall prepare the plan after consultation with the U.S. Fish and Wildlife Service and the Vermont Agency of Natural Resources. The Licensee must include with the plan documentation of agency consultation, copies of comments and recommendations on the completed plan after it has been provided to the agencies, and specific descriptions of how agency comments are accommodated by the plan.

The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a particular agency recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 404. Within 6 months of license issuance, the Licensee shall file with the Commission, for approval, a plan for the proper disposal of debris associated with project operation, including trashrack debris. The Licensee shall prepare the plan after consultation with the Vermont Agency of Natural Resources (VANR). The Licensee shall include with the plan documentation of consultation with VANR and copies of agency comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how agency comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agency to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on site-specific conditions.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 405. Within 6 months of license issuance, the Licensee shall file with the Commission, for approval, a plan for any proposals for project maintenance or repair work involving the river, including desilting of the dam impoundment, impoundment drawdowns to facilitate repair/maintenance work, and tailrace dredging.

The Licensee shall prepare the plan after consultation with the Vermont Agency of Natural Resources (VANR). The Licensee shall include with the plan documentation of consultation with VANR and copies of agency comments and recommendations on the completed plan after it has been prepared and provided to the agency, and specific descriptions of how agency comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agency to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on site-specific conditions.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 406. Authority is reserved by the Commission to require the Licensee to construct, operate, and maintain, or to provide for the construction, operation, and maintenance of, such fishways as may be prescribed by the Secretary of the Interior under Section 18 of the Federal Power Act.

Article 407. At least 90 days before the scheduled start of land-disturbing or land clearing activities associated with the construction of recreation facilities, the Licensee shall file with the Commission, for approval, a plan to control erosion, and to minimize the quantity of sediment resulting from the construction and operation of recreational facilities.

The Licensee shall prepare the plan after consultation with the Soil Conservation Service and the Vermont Agency of Natural Resources. The Licensee must include with the plan documentation of agency consultation, copies of comments and recommendations on the completed plan after it has been provided to the agencies, and specific descriptions of how agency comments are accommodated by the plan.

The Licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a particular agency recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 408. Within one year of license issuance, the Licensee shall construct and make available to the public the following recreational enhancements at the project: (1) an improved parking area near the powerhouse with room for eight vehicles; (2) a picnic and fishing area on the west shore of the impoundment with two picnic tables; (3) an impoundment boat access area for the launching of car top boats; (4) a canoe take-out, put-in, and portage trail around the dam on the east side of the Ottauguechee River; (5) an interpretative sign; and (6) road signs, public notices, and other forms of advertising to direct the public to the recreation facilities. The Licensee's design of recreational facilities shall conform to the national standards established by the Architectural and Transportation Barriers Compliance Board pursuant to the Americans with Disabilities Act of 1990.

Within 15 months of license issuance, the Licensee shall file a report with as-built drawings of the recreational enhancements, and at a minimum, the following information: (1) a discussion of how the constructed recreation facilities conform to the requirements of the Americans with Disabilities Act of

1990; (2) the proposed dimensions and wording, and a map showing the planned location of the interpretation sign; (3) the proposed dimensions and wording, and a map showing the planned locations of the proposed road signs to direct the public to the recreation facilities; (4) a description of the proposed public notices and advertising to inform the public of access opportunities; and (5) a copy of the easement agreement between the Licensee and the land owner for the construction and operation of the canoe portage trail and put-in on private property.

The Licensee shall develop items (2), (3), and (4) listed above after consultation with the Vermont Agency of Natural Resources and the Village of Taftsville. The Licensee must include with its filing documentation of consultation, copies of comments and recommendations regarding these items from the two consulted entities, and a discussion of how the entities' comments are accommodated by the Licensee's plans.

The Licensee shall allow a minimum of 30 days for the entities to comment and to make recommendations before filing the information with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the proposed signs, public notices, and advertising. Upon Commission approval, the Licensee shall implement the measures, including any changes required by the Commission.

Article 409. Within 6 months of license issuance, the Licensee shall file with the Commission, for approval, a landscaping plan to reduce the visual intrusiveness of the substations located adjacent to the project. The plan shall include diagrams indicating the locations of proposed landscaping and a schedule for implementation of the plan.

The Licensee shall prepare the plan after consultation with the Vermont Agency of Natural Resources and the Village of Taftsville. The Licensee shall include with the plan documentation of consultation, copies of comments from consulted entities on the completed plan, and specific descriptions of how the entities' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the Licensee shall implement the plan, including any changes required by the Commission.

Article 410. The Licensee shall implement the provisions of the "Programmatic Agreement Among the Federal Energy Regulatory Commission, The Vermont Division of Historic Preservation, and the Advisory Council on Historic Preservation for Managing Historic Properties Affected by Continuing to Operate the Taftsville Project, Project No. 2490". The Commission reserves the right to require changes to the Cultural Resources Management Plan incorporated as part of the Programmatic Agreement at any time during the term of the license.

Article 411. (a) In accordance with the provisions of this article, the Licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The Licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the Licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the Licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the Licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and water for which the Licensee may grant permission without prior Commission approval are:

- (1) landscape plantings;
- (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings;
- (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and

- (4) food plots and other wildlife enhancement.

To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the Licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The Licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the Licensee shall:

- (1) inspect the site of the proposed construction;
- (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and
- (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline.

To implement this paragraph (b), the Licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the Licensee's costs of administering the permit program. The Commission reserves the right to require the Licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The Licensee may convey easements or rights-of-way across, or leases of, project lands for:

- (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained;
- (2) storm drains and water mains;
- (3) sewers that do not discharge into project waters;
- (4) minor access roads;
- (5) telephone, gas, and electric utility distribution lines;

- (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary;
- (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and
- (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir.

No later than January 31 of each year, the Licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed. If no conveyance was made during the prior calendar year, the Licensee shall so inform the Commission and the Regional Director in writing no later than January 31 of each year.

(d) The Licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for:

- (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained;
- (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained;
- (3) other pipelines that cross project lands or waters but do not discharge into project waters;
- (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained;
- (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina;
- (6) recreational development consistent with an approved Exhibit R or approved report on

recreational resources of an Exhibit E; and

- (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d) (7) in any calendar year.

At least 60 days before conveying any interest in project lands under this paragraph (d), the Licensee must submit a letter to the Director, Office of Hydropower Licensing, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the Licensee to file an application for prior approval, the Licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

- (1) Before conveying the interest, the Licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

- (2) Before conveying the interest, the Licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved exhibit R or approved report on recreational resources of an exhibit E; or, if the project does not have an approved exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

- (3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to insure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the Licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised exhibit G or K drawings would be filed for approval for other purposes.

(g) The authority granted to the Licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(F) The Licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order is issued under authority delegated to the Director and 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. section 385.713. The filing of a request to rehearing does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically ordered by the Commission. The Licensee's failure to file a request for rehearing shall constitute acceptance of this order.



Fred E. Springer
Director, Office of Hydropower Licensing

**ENVIRONMENTAL ASSESSMENT
FOR HYDROPOWER LICENSE**

**Taftsville Hydroelectric Project
FERC Project No. 2490-001
Vermont**

**Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Review
825 North Capitol Street
Washington, DC 20426**

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SUMMARY

On December 31, 1991, Central Vermont Public Service Corporation, Inc. (CVPSC or applicant) filed an application for a subsequent license for the existing 0.5-megawatt (MW) Taftsville Hydroelectric Project. The applicant supplemented its application with additional information in November 1992 and March 1993. The project is located on the Ottauquechee River at river mile 10.8 in the Village of Taftsville, Windsor County, Vermont. The current license expired on December 31, 1993. CVPSC proposes no new capacity at the project.

This environmental assessment prepared for the Taftsville Project evaluates the effects associated with the issuance of a subsequent license for the existing hydropower development and recommends terms and conditions to become a part of any license issued. For any license issued, the Federal Energy Regulatory Commission (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 development purposes for which licenses are issued, the Commission must give equal consideration to the purpose of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife resources, and the protection of recreational opportunities. The EA for the Taftsville Project reflects the Commission staff's consideration of these factors.

Based on our consideration of all developmental and nondevelopmental resource interests related to the project, we, the Commission staff, recommend that CVPSC implement the proposed action and our additional enhancement measures to protect and enhance environmental resource values. The resulting enhancement measures are as follows: (1) operate run-of-river; (2) provide a spillage flow of 15 cfs; (3) develop and maintain a parking area, picnic facilities, impoundment access, relevant signage, and canoe portage; (4) develop and implement procedures to minimize bank erosion during construction; (5) provide visual screening of the substations; (6) construct and operate upstream and downstream fish passage facilities when prescribed by the Department of the Interior, pursuant to Section 18 of the Federal Power Act (FPA); and (7) implement a Programmatic Agreement.

We estimate that these measures will cost CVPSC about \$24,000 per year to implement. Adopting these measures would provide substantial benefits to the environment that justify the cost of the measures, yet will not hinder CVPSC's ability to operate the project economically over the license term. Implementing statutory requirements of the WQC that we do not agree with will cost an additional \$12,000 per year.

These environmental measures would protect or enhance fisheries resources, water quality, recreational and aesthetic resources, and existing and undiscovered properties listed on or eligible for listing on the National Register of Historic Places. In addition, the electricity generated by the project would be beneficial, because it would continue to reduce the use of fossil-fueled electric generating plants, conserve non-renewable energy resources, and reduce atmospheric pollution.

No reasonable action alternatives to the project have been identified for assessment. The no-action alternative, which would preserve existing conditions, has been considered and is addressed in the environmental analysis and the comprehensive development sections of this EA. Denial of the license would mean that about 1,691,000 kilowatthours of electric energy generation per year at the Taftsville Project would be lost, and no measures would be implemented to protect and enhance existing environmental resources.

On December 27, 1991, pursuant to Section 401 of the Clean Water Act, CVPSC applied to the Vermont Agency of Natural Resources (VANR) for a Water Quality Certificate (WQC) for the project. CVPSC, subsequently, withdrew and refiled its application on October 2, 1992. The VANR issued the WQC on September 29, 1993, with conditions. Based on the Commission's past practice, the conditions of the WQC (discussed in Section IV.D of the EA) considered within the scope of Section 401 become part of the license.

Section 10(j) of the FPA requires the Commission to include license conditions that are based on the recommendations of the Federal and state fish and wildlife agencies for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife resources. We have determined that the recommendations of the Federal and state fish and wildlife agencies for the Taftsville Project are consistent with the purposes and requirements of Part I of the FPA and applicable law. We have addressed their concerns and made recommendations consistent with those of the agencies.

Pursuant to Section 18 of the FPA, the Department of Interior (Interior) requested the Commission to reserve Interior's authority to prescribe the construction, operation, and maintenance of upstream and downstream fishways in the future. We recommend that the license include an article reserving Interior's authority to prescribe fishways at the project.

Based on our independent analysis, including our consideration of all relevant economic and environmental concerns, we conclude in the EA that: (1) the Taftsville Hydroelectric Project, with our recommended environmental

measures and other special license conditions, would be best adapted to a comprehensive plan for improving or developing the Ottauguechee River; and (2) issuance of a subsequent license for the Taftsville 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 PROJECT REVIEW

**Taftsville Hydroelectric Project
FERC No. 2490-001 - Vermont**

INTRODUCTION

The Federal Energy Regulatory Commission issued the Taftsville Hydroelectric Project Draft Environmental Assessment (DEA) for comment on April 1, 1994. In response, we received 3 comment letters. Those commentors are listed in Section IV.C., Comments on the Draft EA. All comment letters were reviewed by the staff. The sections of the DEA that have been modified as a result of comments received are identified in the staff responses at the right of the letters, in Appendix A.

I. APPLICATION

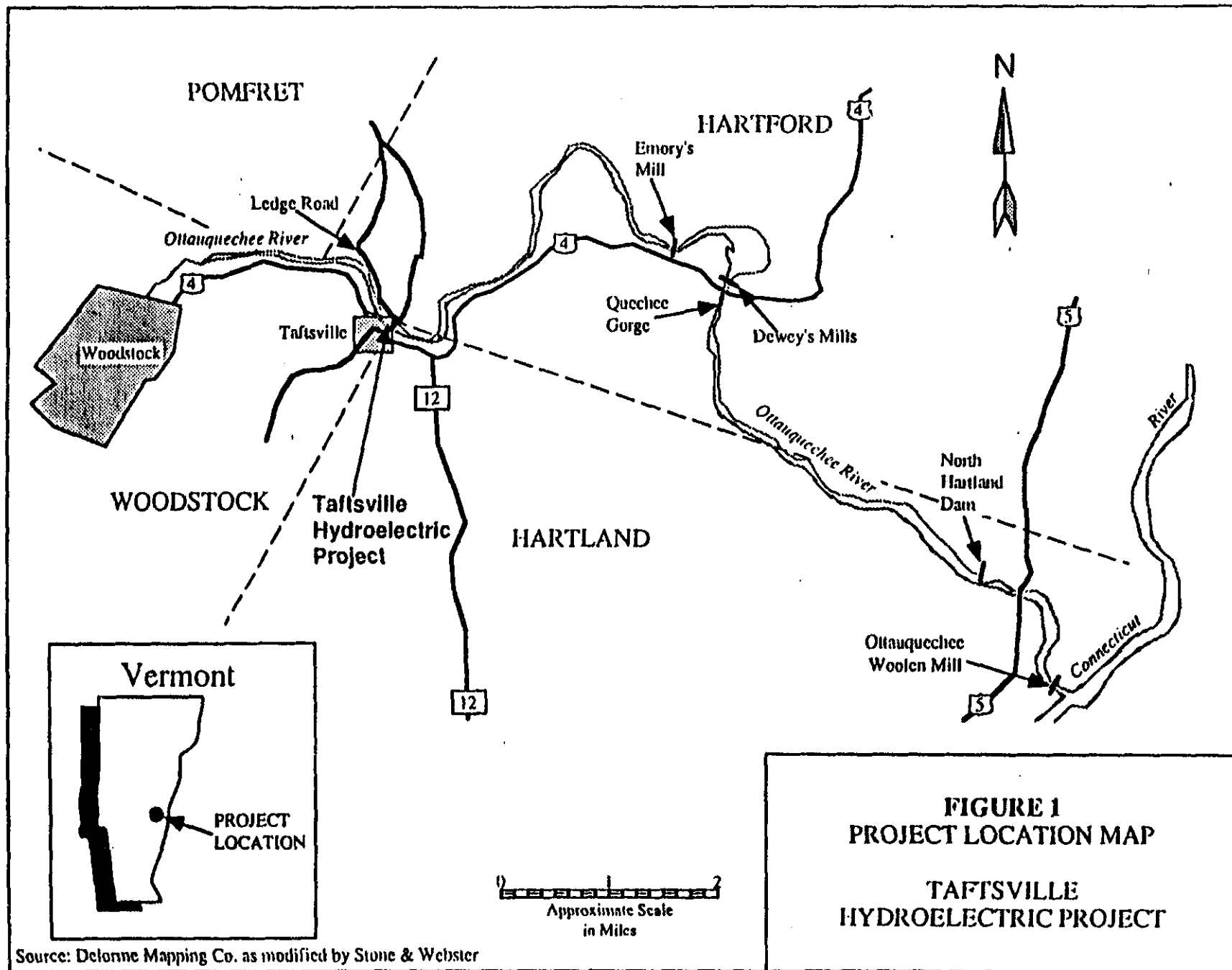
On December 31, 1991, Central Vermont Public Service Corporation, Inc. (CVPSC or applicant) filed an application with the Federal Energy Regulatory Commission (Commission or FERC) for a subsequent license for the existing Taftsville Hydroelectric Project. The applicant does not propose to increase the project's existing hydraulic or nameplate capacity. The 0.5-megawatt (MW) project is located on the Ottauquechee River in the Village of Taftsville, Windsor County, Vermont (see Figure 1). The project does not occupy any United States lands.

II. PURPOSE AND NEED FOR ACTION

A. Purpose of Action

This environmental analysis assesses the impacts associated with issuing a subsequent license for the constructed project or alternatives to the proposed project, and makes recommendations to the Commission on whether to issue a license, and, if so, recommends terms and conditions to become 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.

In deciding whether to issue any license, 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 purposes of energy conservation, the protection,



mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality.

Issuing a subsequent license for the project would allow CVPSC to continue to own and operate the Taftsville Project for the term of the license, making electric power from a renewable resource available to its customers. The project generates an average of about 1,691,000 kilowatthours (kWh) of energy annually.

In this environmental assessment, we, the Commission staff, assess the environmental and economic effects of operating the project:

- (1) as proposed by CVPSC,
- (2) as required by conditions included in the project's Water Quality Certificate (WQC),
- (3) with fish passage facilities in the future, when required by the U.S. Department of the Interior's (Interior) Section 18 fishway prescription, and
- (4) with our additional recommended environmental measures.

We also consider the effects of the no-action alternative (continued operation of the project with no changes or enhancements).

B. Need for Power

The Taftsville Project is located in the New England Power Pool (NEPOOL) area of the Northeast Power Coordinating Council (NPCC) Regional Electric Reliability Council region. As reported in the June 1992 Electricity Supply & Demand report, issued by the North American Electric Reliability Council (NERC), NEPOOL is forecasting an average increase in peak energy demand of 1.9 percent during the summer and 1.7 percent during the winter for the 1992-2001 planning period. During the same time period, NEPOOL is forecasting a 0 percent average growth rate in planned capacities. The 0 percent growth rate is primarily due to the retirement of facilities offsetting planned facilities.

The existing project's estimated average annual generation of 1,691,000 kWh will be reduced to about 1,541,000 kWh with CVPSC's proposal and our recommended enhancements. Generation would be further reduced to 1,530,000 kWh if the downstream fish passage facilities are installed.

The power from the project would help meet the need for power projected by the NPCC, Regional Electric Reliability Council. The project would continue to displace fossil-fueled power generation in the NPCC region, thereby conserving

nonrenewable fossil fuels and reducing the emissions of noxious byproducts caused by the combustion of fossil fuels.

III. PROPOSED ACTION AND ALTERNATIVES

A. Proposed Action

1. Project Description

The Taftsville Hydroelectric Project, which has been in operation since 1910, is located in the Town of Woodstock, Village of Taftsville, Vermont, 10.8 miles upstream from the Ottauquechee's confluence with the Connecticut River. The drainage area upstream of the project is approximately 200 square miles. The project is owned and operated by CVPSC.

The constructed Taftsville Project consists of a concrete gravity dam approximately 220 feet long and 16 feet high, including a spillway section, 194 feet long with a crest elevation of 637.12 feet mean sea level (msl), topped by 1.5-foot-high flashboards. The crest elevation is approximately 16 feet above the foundation of the dam. The impoundment has a surface area of 20.5 acres, with a useable storage capacity of 30 acre-feet.

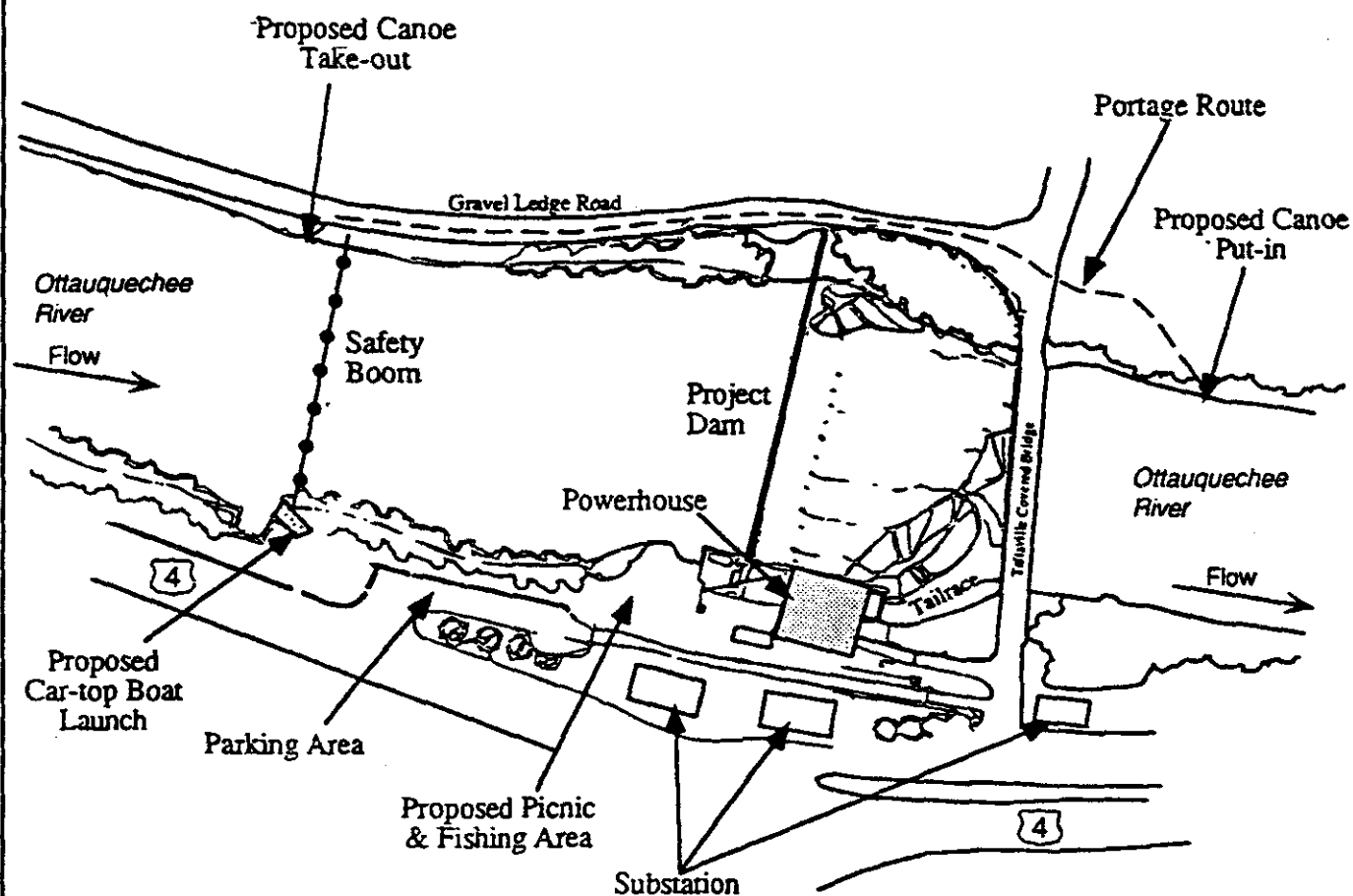
An integral intake/powerhouse is located along the right bank of the river parallel to the flow. There is a rectangular concrete penstock 11 feet high, 6 feet eight inches wide, and approximately 36 feet long. The powerhouse is equipped with one vertical Kaplan hydroelectric generating unit with a capacity of 500 kilowatts (kW) and a hydraulic range of 95 to 370 cubic feet per second (cfs).

The project tailrace enters the river below the dam, creating a bypass reach approximately 100 feet long and 190 feet wide. The bypass reach has a rocky shoreline, many large rock outcrops, a deeper channel, and a few rocky pools.

There are no primary transmission lines included in the project (see Figure 2).

The project's original license, issued on June 3, 1966, permits the licensee to operate the project as a daily peaking facility and to use all inflow to generate hydropower. That is, there is no requirement to provide any spillage over the dam crest to protect area aesthetics and aquatic resources in the project's bypass reach.

From June 3, 1966, until July 1988, CVPSC operated the Taftsville Project as a peaking facility without dam spillage. In July 1988, however, CVPSC voluntarily agreed to change project operation to run-of-river (inflow equals outflow instantaneously)



Approximate Scale
in Feet

FIGURE 2
PROJECT FACILITIES

TAFTSVILLE
HYDROELECTRIC PROJECT

Source: CVPSC 1992, modified by Stone & Webster

and to provide a continuous spillage averaging 15 cfs over the dam/flashboards to the bypass reach. CVPSC proposes to continue operating Taftsville as a run-of-river project with a continuous spillage averaging 15 cfs. In addition, when the project turbine does not operate, all inflows would be spilled over the dam/flashboards.

The only interruption of the proposed continuous 15 cfs average flow over the spillway would be during routine maintenance, inspections, and repairs, and when reservoir inflow is less than the designated minimum flow.

To implement maintenance procedures, CVPSC draws down the impoundment to the crest of the concrete dam, allowing workers to safely access the dam. During this procedure, the entire river flow is passed through the powerhouse and tailrace. When maintenance activities are complete, the turbine-generator unit is cut back 50 percent to allow the impoundment to refill.

CVPSC removes the project's flashboards before winter and replaces them in late spring. In addition, routine flashboard replacement due to storm events occurs 2 or 3 times each year. For the most part, the plant operates automatically and unattended, the load being monitored via remote control from CVPSC's dispatch center in Rutland, Vermont.

Since the turbine operating at full capacity produces more power than the generator produces at the nameplate rating, the generator rating of 500 kW will be used as the project's installed capacity for licensing purposes.

2. Applicant's Proposed Environmental Measures

CVPSC proposes to implement the following measures:

- enhance water quality, fisheries, and aesthetics by operating the project in an instantaneous run-of-river mode with a continuous spillage averaging 15 cfs;
- expand recreational opportunities by developing a portage trail around the Taftsville dam, constructing a picnic and parking area, and providing an impoundment access site; and
- provide plantings to enhance the visual character of the project site, especially in proximity to the substation.

B. Alternatives to the Applicant's Proposed Project

1. Staff's Alternative

After evaluating the applicant's proposal and reviewing recommendations from resource agencies, we considered what, if any, additional protection or enhancement would be necessary and appropriate to include in a subsequent license. Our alternative consists of CVPSC's proposal with the following additions or modifications:

- development and implementation of sediment and erosion control measures to minimize bank erosion during construction of canoe portage facilities and the impoundment access site; and
- implementation of a Programmatic Agreement for the protection of cultural resources.

2. No-Action Alternative

Under the no-action alternative, the project would continue to operate under the terms and conditions of the original license, with no change in existing environmental conditions. Because no participant advocates continuing the status quo, we use this alternative to establish baseline environmental conditions for comparison with other alternatives. The alternative of license denial and project decommissioning is discussed below in Section 3.

3. Alternatives Considered But Eliminated From Detailed Study

We considered two decommissioning alternatives to the applicant's relicensing proposal but eliminated them from detailed study because they are not reasonable in the circumstances of this case. Project decommissioning could be accomplished with or without dam removal. Either alternative would involve denial of the subsequent license application and surrender or termination of the existing license with appropriate conditions.

No participant has suggested that dam removal would be appropriate in this case, and we have no basis for recommending it. While it is true that removing the dam would eliminate a blockage to fish movements, only resident fish would benefit from this action since presently there are no anadromous species in the project area. Life history requirements are being met for resident species under present conditions. The restoration of natural stream flows to the 100-foot bypass would represent a small gain in habitat in exchange for the relatively large cost associated with the loss of hydroelectric generation. VANR did

note that a restored natural flow would benefit upstream chemical water quality conditions in the project area. However, the record does not contain any evidence that water quality is a problem in this area.

In sum, the run-of-river mode of operation, the minimum flow requirements for the bypass, and the fact that the impoundment remains within the river's banks, minimize the impacts caused by the presence of the dam. Finally, the dam and covered bridge provide a point of interest along the river. There is considerable aesthetic value to the dam with a continuous spillage flow. Thus, dam removal is not a reasonable alternative to relicensing the project with appropriate mitigation and enhancement measures.

The second decommissioning 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 has stepped forward, and no participant has advocated this alternative. Nor have we any basis for recommending it.

Because the power supplied by the project is needed, a source of replacement power would have to be identified. In these circumstances, we don't consider removal of the electric generating equipment to be a reasonable alternative.

IV. CONSULTATION AND COMPLIANCE

A. Agency Consultation

The following entities commented on the application subsequent to the public notice, which was issued on June 8, 1993. All comments become part of the Commission's record and are considered in our analysis of the project.

<u>Commenting Entity</u>	<u>Date of Letter</u>
Department of the Interior	July 19, 1993
Vermont Agency of Natural Resources	August 5, 1993

CVPSC did not respond to these filings.

B. Intervention

In addition to providing comments, organizations and individuals may petition to intervene and become a party to any subsequent proceedings. The following party filed for and was granted intervenor status on the Taftsville Project:

Vermont Agency of Natural Resources
(not in opposition)

August 31, 1992

This intervention was submitted to allow the VANR to keep informed about the license issuance proceedings.

C. Comments on the Draft Environmental Assessment

The respondents commenting on the DEA are as follows:

<u>Commentor</u>	<u>Date</u>
Central Vermont Public Service Corporation	April 27, 1994
State of Vermont: Agency of Natural Resources	May 6, 1994
Peter J. DesMeules	May 19, 1994

Staff's responses to these comments are contained in Appendix A of this EA.

D. Water Quality Certification

The VANR received CVPSC'S original application for water quality certification on December 27, 1991. The applicant subsequently withdrew and refiled its application on October 2, 1992.

On July 2, 1993, VANR issued a draft water quality certificate for the project. On August 3, 1993, VANR held a hearing on the certificate, and on September 29, 1993, VANR issued a WQC for the Taftsville Project to CVPSC.

On October 14, 1993, CVPSC sent a Notice of Appeal of the Certificate to VANR. The appeal states that the Certificate is in error relative to various points of law. In general, CVPSC claims that requirements of the Certificate exceed VANR's authority.

Our past 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. Based on the Commission's Order Issuing License issued July 15, 1994, for the Tunbridge Mill Project, only those measures included in a water quality certificate, considered to be within the scope of Section 401, become part of any license issued.^{1/}

^{1/} Tunbridge Mill Corporation, 68 FERC ¶ 61,078 (1994).

The State of Vermont's water quality certificate for the Taftsville Project lists 13 terms and conditions, labeled "A" through "M". They are listed below:

- Condition A. The applicant shall operate and maintain this project as set forth in the text of the WQC and these conditions.
- Condition B. Except as allowed in Condition D below, the facility shall be operated in a true run-of-the-river mode where instantaneous flows below the tailrace shall equal instantaneous inflow to the impoundment at all times. When the facility is not operating, all flows shall be spilled at the dam.
- Condition C. When available from inflow, a minimum instantaneous flow of 15 cfs (about 1.0 inch) shall be uniformly spilled over the dam crest at all times. If the instantaneous inflow falls below the hydraulic capacity of the turbine unit plus this spillage requirement, all flows shall be spilled at the dam. The applicant shall file for review and approval, within 90 days of the issuance of this certificate, a description, hydraulic design calculations, and plans for the measure to be used to pass this minimum flow. The filing shall address conditions with and without the flashboards in place.
- Condition D. During the repair or replacement of flashboards, the impoundment shall be drawn to the dam crest and the project operated continuously in a true run-of-the-river mode. After the installation is complete, the impoundment shall be refilled by reducing downstream flows, but to no less than 100 cfs; if project inflows are less than 200 cfs, flashboard replacement shall be postponed until inflows increase above 200 cfs.
- Condition E. In order to prevent violations of the water quality standards in the bypassed reach during flashboard repair or replacement, the applicant shall:
1. fully investigate alternatives that would enable the continuous passage of 15 cfs at the dam; such alternatives shall include the installation of a

slide gate or stoplog section in the dam for use during flashboard replacement;

2. fully investigate alternative flashboard designs or replacement strategies that would reduce replacement time, such as hinged boards and assignment of additional personnel;
3. remove the flashboards during the period November 16 through May 14; and
4. in the event a feasible means of providing the 15 cfs minimum bypass flow cannot be identified and implemented:
 - a. only undertake flashboard replacement during periods when inflows are in the range of 200 to 300 cfs in order to minimize the storage manipulation time, and
 - b. complete the operation during the period 3 pm to 12 pm in the months of June through September.

The alternatives analysis and proposal will be filed with the Department within six months of the date of issuance of this certification for review and approval.

Condition F. The applicant shall file for review and approval, within 90 days of the issuance of this certificate, a plan for monitoring impoundment levels and instantaneous flow releases at the project, both in the bypass and downstream of the project. Following approval of the monitoring plan, the applicant shall then measure impoundment levels and instantaneous flows and provide records of discharges at the project on a regular basis as per specifications of the Department. Upon receiving a written request from the applicant, the Department may waive, all or in part, this requirements for monitoring provided the applicant satisfactorily demonstrates that the required flows will be discharged at all times.

Condition G. The applicant shall provide the Department with a copy of the turbine rating curves, accurately depicting the flow/production

relationship, for the record within one year of the issuance of this certificate.

- Condition H. Within 90 days of the issuance of this certification, the applicant shall submit a plan for proper disposal of debris associated with project operation, including trashrack debris, for written approval by the Department.
- Condition I. Any proposals for project maintenance or repair work involving the river, including desilting of the dam impoundment, impoundment drawdowns to facilitate repair/maintenance work, tailrace dredging, shall be filed with the Department for prior review and approval.
- Condition J. The applicant shall allow the Department to inspect the project area at any time to monitor compliance with the conditions of this certification.
- Condition K. A copy of this certification shall be prominently posted within the facility.
- Condition L. Any change to the project that would have a significant or material effect on the findings, conclusions, or conditions of this certification, including project operation, must be submitted to the Department for prior review and written approval.
- Condition M. The Department may request, at any time, that FERC reopen the license to consider modifications to the license necessary to assure compliance with Vermont Water Quality Standards.

We are of the opinion that Conditions B-H, J, K, and M are related to protection and enhancement of water quality. Condition A is partially within the scope of Section 401, but Conditions I and L are considered beyond the scope of Section 401. The technical merits of these conditions are discussed in Section V.D.

E. Section 18 Fishway Prescriptions

Section 182/ of the FPA provides the Secretary of the Interior the authority to prescribe fishways at Commission-licensed projects. On July 19, 1993, Interior provided the following Section 18 fishway prescription:

"The Secretary of the Interior's authority to prescribe the construction, operation and maintenance of upstream and downstream fishways under Section 18 of the Federal Power Act, 16 U.S.C., Section 811, is reserved. We request that a notification of this reservation be placed in any new license."

In the same letter, Interior stated that downstream passage facilities would be required if and when the Ottauquechee River is stocked with salmon fry. Upstream passage is not currently required, but future expansion of and/or changes in the Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River Basin could necessitate upstream passage facilities.

F. Dredge and Fill Permit Conditions

Pursuant to Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers issues dredge and fill permits for specified types of construction in wetlands. These permits generally include conditions applicable to project construction activities. Since relicensing of the Taftsville Project would not involve any construction activities that would affect wetlands, a Section 404 Permit will not be required.

G. Coastal Zone Management Program

The Taftsville Project is not located in the state designated coastal zone management area (personal communication between Jane Potvin, State of Vermont Lake Champlain Basin Program, Grand Isle, Vermont and JH Rumpp, Stone & Webster Environmental Services on September 14, 1993).

2/ Section 18 of the FPA provides: "The Commission shall require the 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."

V. ENVIRONMENTAL ANALYSIS^{3/}

This chapter presents a general description of the river basin, describes existing and proposed hydropower projects in the basin, discusses the potential for cumulative impacts on environmental resources, and assesses the effect of the project on environmental resources.

In our detailed assessment, we discuss the environmental resources affected by the project. For each, we first describe the affected environment, which serves as the baseline for measuring and comparing the effects of the proposed project and any alternative actions. We then describe the environmental effects of the project, including any proposed enhancement measures.

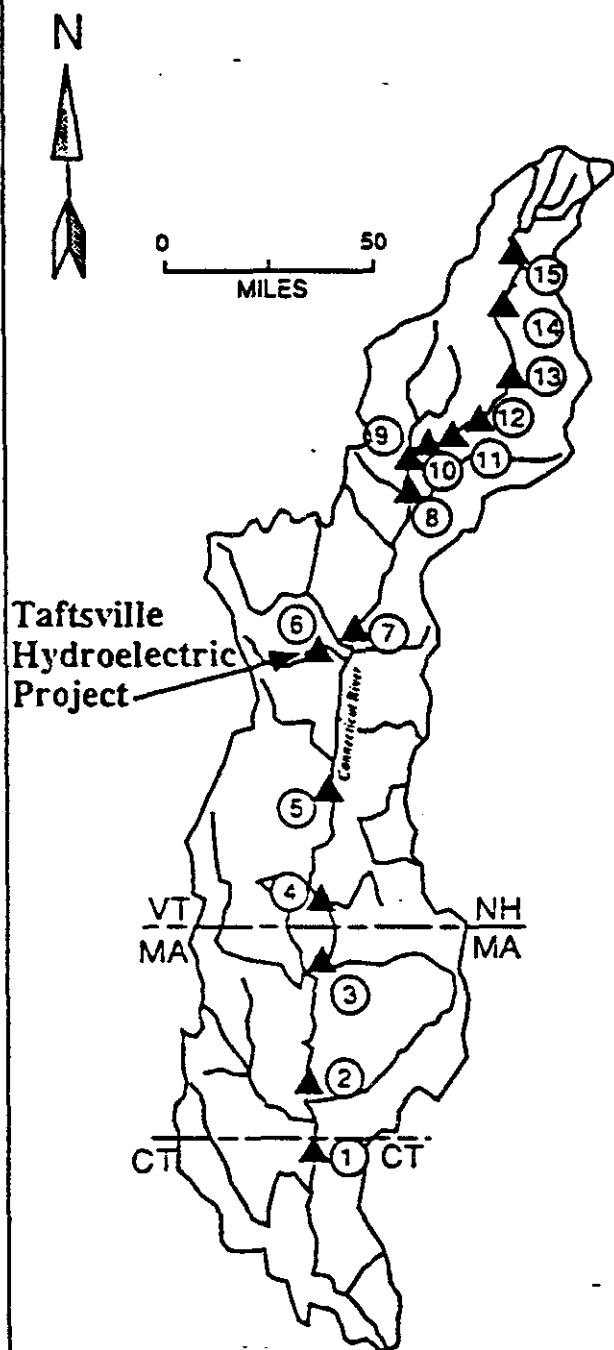
We do not discuss those resources which are largely unaffected by the project. Specifically, these resources are land use and socioeconomics.

A. General Description of the Connecticut River Basin

The Taftsville Project is located within the Connecticut River Basin, which contains the Connecticut River, the largest river in the New England states. The project location in the basin is shown on Figure 3. The river extends about 400 miles from its origin in Fourth Connecticut Lake, New Hampshire, at an elevation of 2,625 feet, to Saybrook, Connecticut, where it empties into Long Island Sound (FWS 1989). The tidal portion of the river extends from Long Island Sound to a point 60 miles upstream (Enfield Rapids).

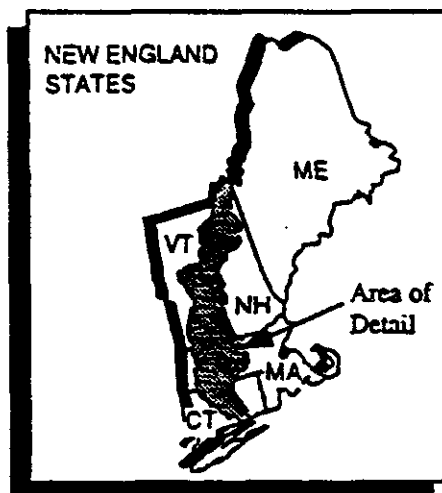
The English first settled in the Connecticut River watershed in 1635. They used small boats, as Native Americans did before them, for transportation on the extensive river system. They were limited, however, by numerous falls and cascades. Settlers started to develop dams and canals as aids to navigation in the late 1700's. The wing dam and canal to bypass South Hadley Falls were constructed in 1795. The first dam across the Connecticut was built in 1800 at Turner's Falls. The dam at Enfield Rapids was completed in 1829. Development based on use of the river for cheap transportation continued until about 1850 when the impact of railroads became evident.

^{3/} Unless otherwise indicated, the source of our information is CVPSC's license application (1991) and revised text of the license application (1993).



Connecticut River Basin

▲ Single Dam Location



1. Enfield Dam
2. Holyoke Dam
3. Turners Falls Dam
4. Vernon Dam
5. Bellows Falls Dam
6. Taftsville Dam
7. Wilder Dam
8. Rygate Dam
9. McIndoes Dam
10. Comerford Dam
11. Moore Dam
12. Gilman Dam
13. Wyoming Valley Dam
14. Canaan Dam
15. Lake Francis Dam

FIGURE 3
Location of the Taftsville Project
and Mainstem Dams within the
Connecticut River Basin

Taftsville Hydroelectric Project
Environmental Assessment

Source: FERC Staff

Response to Comments by
Peter J. DesMeules on the
Taftsville Hydroelectric Project DEA
Letter Dated May 19, 1994

ORIGINAL

SACHS & DESMEULES

ATTORNEYS AND COUNSELLORS AT LAW
THE OFFICE ALSO HANDLES RECORDS

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WASHINGTON, VERMONT 05696

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REGULATORY COMMISSION

PROJECT NO. 0000
PETER J. DESMEULES
FEDERAL ENERGY

May 19, 1994

Lois D. Cashel, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
825 North Capitol Street, NE
Washington, DC 20436

Re: Taftsville Hydro-electric project, FERC Project #2499-001
Central Vermont Public Service Corporation

Dear Ms. Cashel:

I am writing in strong support of the State of Vermont's comments as contained in Stephen B. Sease's letter of May 4, 1994 (copy enclosed).

I am also enclosing letters of July 12 and July 23, 1988 and August 23, 1988, concerning the then operational mode of the dam, focusing on the negative consequences resulting from such operation. I have also enclosed a copy of an article published in July of '88 in the VALLEY NEWS (the local newspaper) about the dam site in question. These letters and the newspaper article should provide you with some historical perspective with which to view the power company's present recalcitrant attitude.

Since the Summer of '88 the power company has been operating the dam site in a true run of the river (inflow equals instantaneous outflow) manner and has been spilling water over the dam. This operational mode has been responsible for considerable improvement of the fishing and the aquatic ecosystem below the dam (an approximately five or six mile stretch of river in a heavily populated area in a very recreational oriented part of the state).

It would be the height of irresponsibility were the Central Vermont Public Service Corporation allowed to alter their present operational regime at the dam site (by their own admission, this dam generates but a mere fraction of its overall hydro-generating

PJD-1 The comment is noted. CVPSC has proposed and is being required to operate the project as a run-of-river facility.

PJD-1

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Response to Comments by
Peter J. DesMeules on the
Taftsville Hydroelectric Project DEA
Letter Dated May 19, 1994

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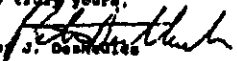
capacity).

I think it is quite clear that what is really going on here is that Central Vermont is attempting to avoid going along with the State recommendations lest a precedent be set as to how it will be required to operate its other sites around the state that are also currently up for relicensing.

I find it rather a sad commentary that the power company seems willing to sacrifice the health of the public's river in an effort to avoid accountability.

The State's requirements and recommendations should be fully implemented in any new FERC relicense.

Very truly yours,


Peter J. DesMeules

pjd:rk

cc: Stephen Sease

Thomas C. Webb, CVPS

Ms Elizabeth Neeller, Chairman FERC

PJD-2

The comment has been noted.

About the same time, the Connecticut River began to be developed for industry. The first large industrial dam was built at Holyoke in 1849. The first hydroelectric dam was constructed on the Farmington River near Hartford. As the industries were attracted to the water power, towns grew up around the industries. Their prosperity grew as the New England textile industry expanded, and waned as economic conditions drove the industry from New England. With prosperity also came industrial pollution. The years of abuse were only recently reversed by federal and state Clean Water laws.

The Connecticut River supported large runs of Atlantic salmon and American shad until the end of the eighteenth century. With the development of high dams, the fish were no longer able to reach spawning and nursery areas, and the runs ceased to exist. As long as pollutants made conditions unsuitable for the fish, no restoration was warranted.

Efforts to restore anadromous fish runs to the Connecticut River began as the river's water quality improved with the initiation of pollution controls in the 1970's. These restoration programs are now beginning to show results. This is significant since fish restored to the Connecticut River historically had few barriers to movement between Long Island Sound and the confluence with the Ottauquechee River. The downstream-most dam on the Connecticut River (Enfield) has been breached and presents no obstacle to fish migrating upstream. Other dams upstream of Enfield, such as Holyoke and Turner's Falls, currently provide upstream fish passage. It is anticipated that more dams will be modified in the future to allow fish passage as restoration proceeds.

The Connecticut River is a highly developed hydropower resource with many projects located on the mainstem (see Figure 3) and on tributaries in northern Massachusetts, Vermont, and New Hampshire. Table 1 lists those projects in the Connecticut River Basin that had license applications pending before the Commission as of October 5, 1993.

B. General Description of the Ottauquechee River Basin

The Ottauquechee River Basin is located in the east-central portion of Vermont (Figure 3). The contributing drainage area upstream from the project is approximately 200 square miles. The headwaters of the river are located in the Green Mountains of Vermont, creating a swift-flowing mainstream with a total fall of approximately 1,500 feet from its source to its mouth.

The river basin, like much of Vermont, is lightly populated; there are no large cities. The largest town is Woodstock, which has a small year-round population but attracts many seasonal

recreationists and vacationers. The original charter for the township of Woodstock was granted in 1761 and consisted of a total of 24,900 acres of land. Initial exploration of the township by European Americans began shortly thereafter (Bowers 1992).

In 1767, James Sanderson made the first permanent settlement in the township, establishing a dwelling near the present location of the Village of Woodstock, upstream from where Taftsville was later established. Residence within the bounds of the Village of Woodstock itself first occurred with the construction of a log cabin in 1772. The township of Woodstock was organized in 1773; the first gristmill and sawmill were constructed there along the Ottaquechee in 1776 (Bowers 1992).

The Village of Taftsville was settled relatively late compared to Woodstock and other villages in Windsor County. In 1793, Stephen Taft constructed a footbridge across the Ottaquechee and then a dam immediately downstream from the confluence with Happy Valley Brook. The following year, Taft built on the east end of the dam a sawmill, which was completed in 1795. Shortly thereafter, Taft established a shop on the opposite side of the river, where he and his brother manufactured axes, scythes, and other edge tools (Bowers 1992).

In May 1893, a group of local investors organized the Woodstock Electric Company. They acquired the water right and the site of the old Taft scythe works on the Ottaquechee, and erected a small hydroelectric station. In 1902, this station was replaced by the powerhouse still present at the site (Bowers 1992).

The economy of the area now relies heavily on the local tourist trade, with some light industry in several of the small, riverside towns. At present, the river is more of a recreation and scenic attraction than a primary source of power or raw material. Many of the area's old textile mills have been modified for retail or commercial use. These factories were originally located along the river to make use of available water power.

Commission records show that there are a total of six operating hydroelectric projects in the Ottaquechee River Basin. Table 2 summarizes information pertaining to these six dams. Figure 1 shows the locations of the five mainstem dams.

The North Hartland facility operates in store and release mode. Ottaquechee Woolen Mill operates as a run-of-river facility under normal high flow conditions and in store and release mode when the North Hartland facility is restricting normal streamflow. The remaining four facilities operate in run-of-river mode. The application to relicense the Taftsville

Project is the only pending application for license or exemption in the Ottauquechee River Basin before the Commission.

C. Cumulative Impact Summary

An action may cause cumulative impacts on the environment if its impacts overlap 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 in space and time, 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 have reviewed the project's potential to cause cumulative impacts. Given the project's location and characteristics, and the nature of the area's resources, we conclude that the Taftsville Project cumulatively affects only recreational canoeing. The Recreation Resources section discusses the project's cumulative impacts on this resource.

D. Proposed Action and Action Alternatives

In the following sub-sections, we discuss the applicant's proposal and recommendations by agencies for specific resource areas. We then present our analysis and conclusions. For convenience, all our specific recommendations are listed together in Section VII.

1. Geological Resources

a. Affected environment: The Taftsville Project's impoundment extends about 4,600 feet upstream. The substrate in this segment of river is dominated by gravel and boulders with rock outcrops and little or no silt. The geology of the area, summarized by Van Diver (1987) is described as follows:

Between White River Junction and Woodstock (14 miles), U.S. Route 4 crosses the Brattleboro syncline over micaceous greenschist and quartzite of the Devonian Gile Mountain formation. The syncline tilts to the west so both limbs, or sides, of the fold dip eastward, or are overturned. The rocks are well-exposed in Quechee Gorge, six miles from White River Junction and often referred to as Vermont's Little Grand Canyon.

Table 1. Pending License Applications in the Connecticut River Basin -- October 5, 1993 (Source: Staff).

FERC NO.	PROJECT NAME	STATE	RIVER	APPLICATION TYPE ^{4/}
2608	West Springfield	Massachusetts	Westfield	A
2490	Taftsville	Vermont	Ottawaquechee	A
2489	Cavendish	Vermont	Black	A
2396	Pierce Mills	Vermont	Passumpsic	A
2397	Gage	Vermont	Passumpsic	A
2399	Arnold Falls	Vermont	Passumpsic	A
2400	Passumpsic	Vermont	Passumpsic	A
2323	Deerfield River	Vermont, Massachusetts	Deerfield	A
2334	Gardners Falls	Massachusetts	Deerfield	A
11090	Tunbridge Mill	Vermont	First Branch of the White River	B
2392	Gilman	Vermont, New Hampshire	Mainstem Connecticut River	A
1313	Apthorp	New Hampshire	Ammonoosuc	C
10729	Murphy Dam	New Hampshire	Mainstem Connecticut River	B

- 4/ A = Constructed operating project with a pending application for a new or subsequent license.
 B = License application for a proposed new hydropower facility at an existing dam.
 C = License application for an unlicensed constructed project.

Table 2. Operating Hydroelectric Projects in the Ottauguechee River Basin (Source: Hydropower Resources Assessment)

NAME	FERC No.	CAPACITY (kW)	HEAD (ft)	STATUS
Ottauguechee Woolen Mill	2787	1887	30	Exemption
North Hartland	2816	4000	58	Major license
Dewey's Mills	5313	1898	45	Major License
Emory's Mill	5195	400	30	Exemption
Taftsville	2490	500	20	Minor License
Killington	8354	100	131	Exemption

In the area of the Taftsville impoundment, the Ottauguechee River flows through a narrow, deeply incised valley. Rocky hills on either side of the river slope steeply down to the shorelines of the river. Only upstream, above the head of the impoundment, is the valley wide enough to allow the formation of extensive alluvial terraces.

Louis Berger & Associates, Inc. surveyed the Taftsville impoundment in 1991 and described the current levels of erosion as moderate (Louis Berger 1991). In addition, the proximity of Gravel Ledge Road on the left (east) bank of the Ottauguechee River requires that rip-rapping must be maintained in several locations to prevent the shoreline underneath the road from being eroded.

b. Environmental impacts and recommendations:

Bank Slumping

Upstream of the Taftsville Project, the shoreline was subject to water level fluctuations due to plant operation. Over time, these fluctuations could have caused bank slumping and erosion. The VANR requested that the applicant survey the shoreline for erosion or bank slumping and prepare a remediation plan, if necessary.

CVPSC and its consultants surveyed the impoundment banks and reported no instability due to the hydroelectric facility. The bank slumping noted by VANR on the south bank, one-half mile upstream from the station (VANR 1991), originates nearly 60 vertical feet above the river, where U.S. Route 4 follows along

the south bank. The slope exceeds 50 percent, and a portion of the heavy overburden of hemlock/hardwood forest has slid from the top of the bank into the river.

Based on a review of survey results and observations at the site, we conclude that the instance of slumping is not attributable to operation of the Taftsville Project. Given the distance of the affected area from the water, there are no obvious means by which project operation could cause slumping. It is more likely that the ground was loosened by runoff and slumped due to ground motion set up by traffic passing nearby on Route 4.

Because the project has operated in a run-of-river mode since July 1988, we conclude that the potential for further slumping or erosion is very small and does not warrant further surveys or monitoring.

Impacts of Proposed Construction Activities

Construction of the applicant's proposed canoe take-out and put-in areas on the east side of the Ottauquechee River, and angler access site and launch area for car-top boats on the west side of the impoundment would necessitate the clearing and grading of small areas.

To ensure that these activities do not produce significant amounts of erosion and sedimentation, we recommend that CVPSC design and implement specific measures to minimize potential bank erosion and sediment transport. CVPSC should include these measures as part of an erosion and sediment control plan, developed in consultation with the Soil Conservation Service and the Vermont Department of Environmental Conservation.

c. Unavoidable adverse impacts: During clearing and grading for the new recreational facilities, minor short-term erosion and sedimentation would occur.

2. Water Resources

a. Affected environment: Initial settlement in the project area occurred mainly because the river provided a convenient and renewable source of hydromechanical power for operation of grist and sawmills. Later, with the construction of hydropower facilities at Taftsville, there was relatively inexpensive electricity for industries. Historically, the Ottauquechee River also provided a transportation route for timber, supporting a number of log boom operations, and served as a sluice to transport wastes produced by early residents and industry.

Concern over poor water quality in the Ottauquechee and the need for a sewage system to serve the village of Woodstock were first expressed in 1897. Construction of area's first sewers, however, did not begin until 1906.

For nearly 50 years, little attention was paid to the impacts of local sewerage discharging into the Ottauquechee River. A 1958 survey stressed the need for cleaning up the area's streams, and it identified funds for development of a sewage treatment plant, which Woodstock approved in 1965 (Jennison 1985).

A hazardous level of pollution in the river was reported in 1970; subsequently, the State of Vermont sued the Town of Woodstock, resulting in a \$10,000 fine. After this, the Town constructed a subsidiary treatment plant in Taftsville. The new plant greatly improved the river's water quality. In 1977, the State of Vermont listed the Ottauquechee as the first large river in Vermont to be free of pollution.

Testing of the river continues, coordinated by the VANR's Department of Water Resources and the Regional Planning Commission's Public Health Committee, with assistance from local students (Jennison 1985).

Flows

The estimated average annual flow of the Ottauquechee River at the Taftsville Project is 360 cfs (CVPSC 1991). Table 3 shows the mean, maximum, and minimum monthly flows. The 7Q10 flow (the lowest flow that can be expected to occur for a duration of 7 days in any given 10-year period) at the Taftsville dam is 25.2 cfs.

CVPSC operated the Taftsville Project in a peaking mode before the voluntary 1988 agreement with VANR to initiate run-of-river operation and provide flows in the bypass reach by spilling about 1-inch of water over the dam. The applicant estimates that 1-inch of spillage is approximately 15 cfs.

During the peaking operation permitted under the original license, the only flows downstream of the project while the Taftsville reservoir was refilling resulted from dam leakage, local drainage, and discharge from the Taftsville wastewater treatment plant, located approximately 200 feet downstream of the project. These sources produced in total about 5 to 10 cfs.

The turbine at the Taftsville Project has a hydraulic range of 95 cfs to 370 cfs. When inflow to the Taftsville reservoir falls below 110 cfs (the 15 cfs spillage flow plus the 95 cfs minimum flow needed to operate the project's vertical Kaplan turbine), the project does not operate and all inflows are

spilled at the dam. During the months of July, August, and September, inflows to the project reservoir usually are less than 110 cfs (Table 3); consequently, during these months, the project usually does not operate.

When inflow to the project reservoir is 110 to 385 cfs, CVPSC spills an average of 15 cfs and uses the remaining flow for project generation.

When project inflow exceeds 385 cfs, all flows in excess of the turbine's 370 cfs hydraulic capacity are spilled over the dam.

Water Quality

VANR classifies water quality in the river as Class B for the immediate project area and as waste management zones 150 feet downstream of the project site and 250 feet upstream of the project dam (CVPSC 1991). Additionally, since VANR has designated the river as coldwater fish habitat, dissolved oxygen (DO) standards of 6 milligrams per liter (mg/l), or 70 percent saturation apply.

Table 3. Annual and Monthly Mean, Maximum, and Minimum Flows at Taftsville Hydroelectric Project (for the period October, 1930 to February, 1961.* Modified from CVPSC 1991).

	Mean Flow (cfs)	Maximum Flow (cfs)	Minimum Flow (cfs)
Annual	360	12,036	4
October	153	3,077	5
November	288	3,882	8
December	293	7,946	15
January	273	3,620	10
February	234	3,403	11
March	566	12,036	14
April	1,004	1,291	140
May	469	601	73
June	186	280	7
July	100	137	4
August	72	102	5
September	73	127	6

* Data were not reliable after this period because of the construction of North Hartland Reservoir.

DO levels in the project area typically exceed VANR standards (range: 5.6-11.0 mg/l) (CVPSC 1991). In July 1988,

however, during a period of low summer flows and high temperatures, CVPSC recorded a 5.6 mg/l DO level 10 feet upstream of the penstock. In addition, the Vermont Department of Environmental Conservation (VDEC) recorded a DO level of 5.8 mg/l in the project forebay during August 1985. Both of these sub-standard readings occurred when the project was in peaking mode.

The applicant conducted macroinvertebrate sampling 1.1 km downstream of the project using the protocol described in the VDEC Field Procedures Manual (1989) and Biological Compliance Monitoring Methods Manual (1990). A biotic index value of 2.4 was calculated, indicating "good" water quality.

Six sewage treatment plant outfalls currently discharge into the Ottauquechee River Basin. The four upstream outfalls are located in (from west to east) Sherburne Center, Bridgewater, South Woodstock, and Woodstock (Figure 4). The downstream facilities include the Taftsville Wastewater Treatment Plant and a plant in Quechee.

b. Environmental impacts:

Mode of Operation

CVPSC's original license for the Taftsville Project allows peaking operation. The applicant, however, proposes to operate Taftsville as an instantaneous run-of-river facility (that is, flow into the Taftsville impoundment and flow in the Ottauquechee River immediately downstream of the project tailrace would be equivalent on an instantaneous basis).

VANR requires, as a condition of the Water Quality Certificate, that CVPSC operate run-of-river. VANR states that run-of-river operation will protect the biological integrity of the river downstream of the project, significantly improve the river's chemical water quality over conditions associated with peaking operation, and preclude violation of temperature standards.

We agree that run-of-river operation at the Taftsville Project would improve water quality both upstream and downstream of the project dam, relative to water quality conditions under the peaking mode of operation specified in the original license.

Continuous water movement through the impoundment resulting from run-of-river operation would reduce the likelihood of low oxygen conditions there. Instantaneous run-of-river operation also would minimize fluctuations in reservoir elevation. Stability of the impoundment level would reduce the potential for shoreline erosion and could benefit emergent and shoreline vegetation around the impoundment.

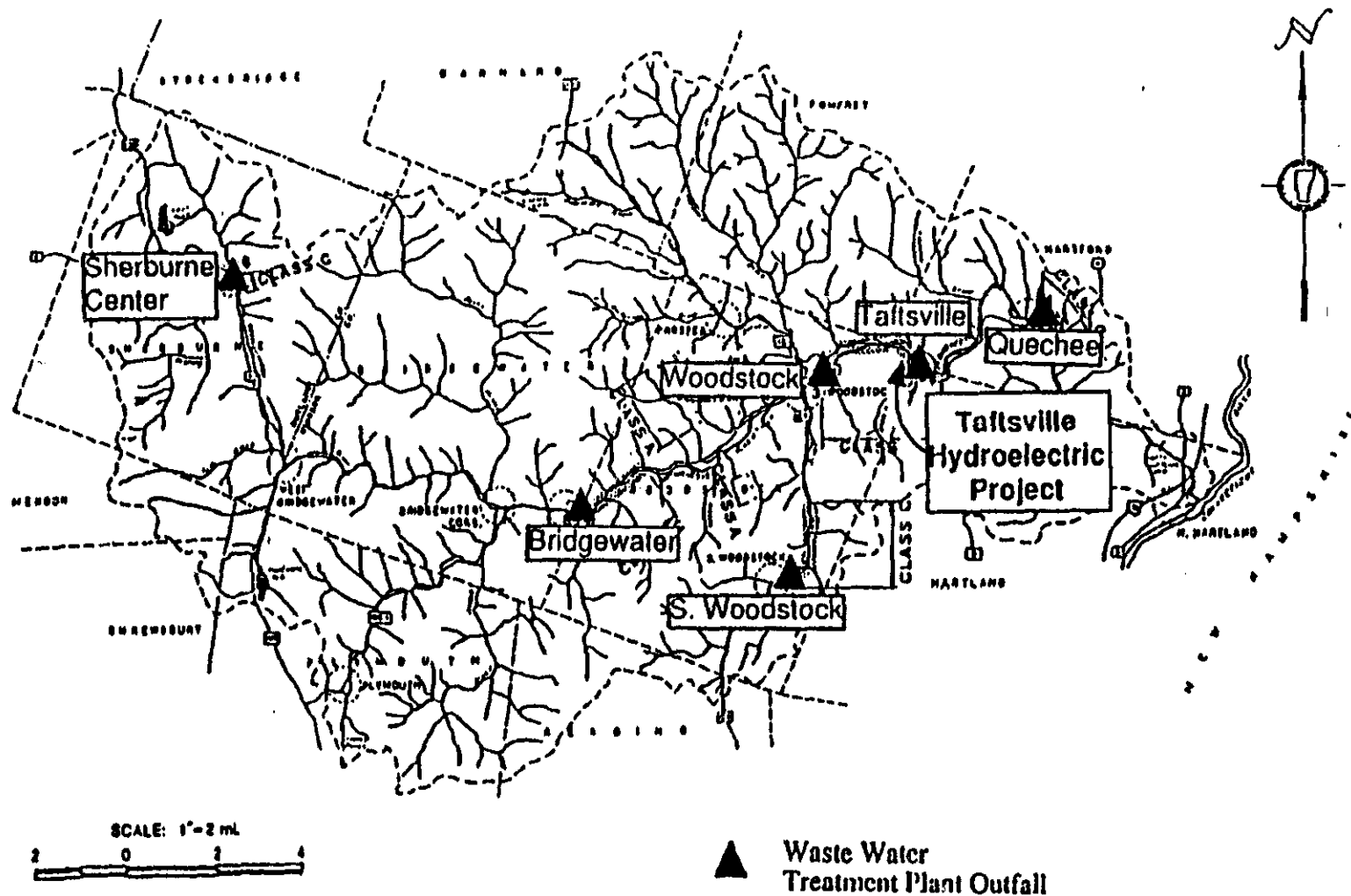


FIGURE 4
Waste Water Treatment Plant Outfalls
on the Ottauquechee River

**TAFTSVILLE
HYDROELECTRIC PROJECT**

Downstream, fish and macroinvertebrate habitat would improve as a consequence of enhanced temperature and dissolved oxygen conditions, reduced fluctuations in velocity, and elimination of periodic dewatering.

Therefore, we concur with the WQC requirements that CVPSC operate the project in an instantaneous run-of-river mode and that CVPSC develop and implement a plan to continuously monitor inflow and outflow, to ensure that the run-of-river condition is met.

CVPSC should develop this monitoring plan in consultation with the VANR, and the results of the monitoring should be made available to VANR. Monitoring would provide assurance that the project is operating run-of-river and that required bypass flows are released.

Spillage Flow

Under the original license, CVPSC had no requirement to maintain any flow in the bypass reach. Since 1988, CVPSC has provided a spillage flow, which results in a depth of water of about one inch over the flashboards or dam crest.

Spillage varies as a consequence of the instrumentation used to monitor flow releases. When CVPSC targets a one-inch spill, bypass flows actually vary from 5 to 28 cfs, averaging 15 cfs. To ensure that the bypass reach is not dewatered, the applicant proposes to provide a continuous spillage flow averaging 15 cfs.

Both VANR and the U.S. Fish and Wildlife Service (FWS) indicate that a continuous spillage of 1 inch is adequate to enhance fisheries resources in the 100-foot-long bypass reach. However, VANR, in the WQC, requires an instantaneous minimum spillage of 15 cfs to the bypass reach. Because of the instrumentation limitations, noted above, CVPSC must release an average of 28 cfs to ensure a minimum flow of 15 cfs.

The bypass flow is intended (1) to enhance habitat for resident organisms by decreasing dissolved oxygen/temperature stress, and (2) to provide reaeration for wasteload assimilation downstream. Since CVPSC is currently spilling an average 15-cfs flow to the bypass reach, existing habitat value associated with that amount of water has been largely achieved. In addition, during July, August, and September in average water years, flows are not sufficient for the project to operate; consequently, all flows are spilled. Thus, when there is the maximum potential for adverse impact, the maximum spillage is already taking place.

The amount of habitat in the bypass reach is small, and the type of habitat is not unique locally. The occurrence of recreational fishing in the reach supported by the current

average 15 cfs spillage suggests that this value is protective of existing fisheries. Finally, there is no evidence available to allow us to distinguish the effect on fisheries habitat of an average flow of 15 cfs versus an instantaneous minimum flow of 15 cfs.

Based on our analysis, we conclude that spillage averaging 15 cfs would be adequate to protect water quality, fisheries, and aesthetic resources at Taftsville. Nevertheless, because VANR's condition has been included in the WQC, it will be included in any license issued for the continued operation of the Taftsville Project.

CVPSC also should develop a plan to monitor the 15 cfs continuous minimum flow in consultation with the VANR. Implementing this plan would ensure that required minimum bypass flows are released.

VANR requires, as a condition of the Water Quality Certificate, that CVPSC submit a plan for proper disposal of debris associated with project operation, including trashrack debris, for written approval by the Department. Since the project trashrack captures debris that could affect water quality if not properly disposed of, the condition is within the scope of Section 401 and is appropriate for inclusion in any license issued for the Taftsville Project.

c. Unavoidable adverse impacts: None.

3. Fishery Resources

a. Affected environment: Historical records indicate that Atlantic salmon were plentiful in the Connecticut River prior to the construction of the mainstem dams. Migrating salmon were recorded as far north as Beecher Falls, Vermont, a location near the Canadian border (Wentworth 1994). Atlantic salmon utilized the many tributaries of the Connecticut and may have entered the Ottauquechee for spawning and nursery purposes. The limited historic fishery information for the Ottauquechee River indicates that brook trout, suckers, dace, and other forage species inhabited the river prior to construction of the dams (Jennison 1985).

Resident Fish

The Taftsville Project area supports stocked populations of brown, brook, and rainbow trout as well as an assemblage of minnows and suckers, including longnose dace, blacknose dace, bluntnose minnow, creek chub, fallfish, white sucker, and slimy sculpin (Langdon and Fisk 1987). Smallmouth bass also occur in the project area, but VDEC did not catch any in 1985 surveys conducted at the site (Langdon and Fisk 1987).

Results of macroinvertebrate surveys (Aquatec 1991) in the project area indicate that caddisflies are the dominant taxa present; these organisms are a major fish forage item.

While no trout spawning has been documented on the main stem of the river within the project area, spawning occurs in all tributaries and the main stem from the river's headwaters to West Bridgewater, about 18 miles upstream of the Taftsville Project (CVPSC 1991).

Anadromous Fish

Currently, there are no anadromous fish runs in the Ottauquechee, and several downstream dams do not have fish passage facilities.

The FWS, in the Strategic Plan for Restoration of Atlantic Salmon in the Connecticut River Basin (Stolte 1982), estimates that there are 5,700 100-square-yard units of Atlantic salmon nursery habitat in the Ottauquechee River, representing 2 percent of the total nursery habitat in the Connecticut River Basin. This habitat, if stocked with 86,000 salmon fry, is capable of producing 8,600 Atlantic salmon smolts, with a potential return of 155 adults to the river annually.

To date, no fry have been stocked in the Ottauquechee, and the Connecticut River Atlantic salmon restoration plan presents no date for initiation of stocking. Thus, downstream passage facilities are not yet needed. Moreover, FWS indicates that upstream passage is deferred, meaning that it will not be required for at least 5 to 10 years.

b. Environmental impacts:

Bypass and Downstream Flows During Flashboard Operations

Current CVPSC maintenance procedures result in periods of no spillage to the bypass reach while the impoundment level is drawn down, flashboards are removed or installed, and the impoundment is refilled. These maintenance operations can take up to 23 hours, depending on the rate of inflow (VANR 1993).

When periods of no spillage due to maintenance operations occur in the summer and early fall, increases in water temperature and decreases in DO are possible in standing pools in the bypass reach. The VANR is concerned that the lack of flows in the bypass reach at these times may result in the loss of fish habitat and cause fish kills. Consequently, the project's WQC includes a condition that requires CVPSC (1) to determine a feasible method of providing bypass flows during flashboard replacement or (2) to minimize the interruption of normal flows

in the bypass, if bypass flows cannot be provided during flashboard replacement.

The amount of habitat in the bypass reach is small in comparison to the river downstream, and the reach supports only a limited fishery. There is no documented spawning activity there, an expected result of the area's rocky substrate. In addition, the applicant's maintenance activities are infrequent, occurring only about 4 or 5 times each year. Moreover, these maintenance activities can be scheduled during the late afternoon to minimize temperature and DO impacts.

We, therefore, do not agree that CVPSC should evaluate methods to maintain spillage flows to the project's bypass reach during flashboard operations. We conclude that fishery resources in the bypass reach would be adequately protected by restricting flashboard installation to late afternoon and evening periods with moderate inflow.

Because the VANR has included the aforementioned requirements in the WQC, these conditions will be included in any license issued for the continued operation of the Taftsville Project.

After CVPSC completes flashboard maintenance or replacement, it reduces project generation and, consequently, the discharge of water downstream of the project, in order to restore the water level in the impoundment.

VANR is concerned about potential adverse impacts to fisheries and water quality below the project during periods of reservoir refilling. In this regard, the agency has included a WQC condition requiring CVPSC to maintain a flow of at least 100 cfs during such periods.

Since this requirement would protect aquatic habitat below the project, not have any significant effect on fish and wildlife habitat in the project impoundment, and is within the scope of CWA Section 401, it should be included in any license issued for the Taftsville Project.

Upstream and Downstream Passage

Downstream passage facilities will be needed at Taftsville when salmon fry are stocked above the project. The Strategic Plan for Restoration of Atlantic Salmon in the Connecticut River Basin (Stolte 1982) presents no date for initiation of stocking in the Ottauquechee. However, the Final Environmental Impact Statement - Restoration of Atlantic Salmon to New England Rivers (FWS 1988) indicates that salmon fry may be stocked in the Ottauquechee River beginning in the year 2000 (Appendix III-3).

Upstream passage will be needed when the stocked fry return to the river as adults, generally 2 years after stocking.

The Connecticut River salmon restoration plan is currently being updated. The revised plan may include more specific scheduling for restoration efforts in the Ottauquechee. However, agency comments indicate that there is not an immediate need for upstream or downstream passage facilities at Taftsville.

The VANR, in its letter dated August 5, 1993, requests that CVPSC be required to install downstream fish passage facilities within one year following a request from the VANR's Department of Fish and Wildlife. The request would be based on a determination that sustained stocking of Atlantic salmon is occurring above the project.

Section 18 of the FPA gives the Secretary of the Interior authority to prescribe fishways. When fish passage is not needed at the time of relicensing but may be required sometime during the term of the new license, the Commission may include a special license article reserving Interior's prescription authority.^{5/}

Interior has requested that Section 18 reservation of authority to prescribe upstream and downstream fish passage be placed in any license issued for the Taftsville Project (letter from William Patterson, Regional Environmental Officer, Department of the Interior, Boston, MA, July 19, 1993). The Commission's current policy is to honor such requests.

The ultimate determination of the need for future passage facilities should consider not only the benefits of restored runs of Atlantic salmon to the Ottauquechee but also the economic costs of implementing upstream stocking, constructing and operating passage facilities, and providing flows needed to operate the facilities. The decision to provide fish passage at the Taftsville Project also should consider the availability and effectiveness of passage facilities to be provided at downstream dams, both on the Ottauquechee and the Connecticut River.

c. Unavoidable adverse impacts: None.

4. Terrestrial Resources

a. Affected environment: Natural vegetation in Vermont consists largely of a mix of northern hardwoods and conifers, with eastern hemlock, white pine, and red spruce (American Geographic Publishing 1987). During the eighteenth century, residents cleared large forested areas for pastureland

^{5/} Lynchburg Hydro Associates, 39 FERC 61,079 (1987).

and crops. Eventually, agriculture became the backbone of the state's economy (Jennison 1985). Many of these farms were subsequently abandoned; consequently, some are now reforested.

The predominant vegetation in the lower section of the impoundment along the river banks is herbaceous, with little or no woody vegetation. Further upstream, there are shrubs and small trees, with scattered larger trees (predominantly red oak and basswood) between the river and Gravel Ledge Road. Forested areas, dominated by hemlock, occur about one-half mile upstream of the dam on the south bank, where slopes are steep.

Large gravel terraces are present along the river banks, and exposed gravel bars exist within the riverbed. Emergent herbaceous vegetation is scattered throughout these areas along the riverbank and on tributary streams, but distinct herbaceous communities do not exist.

Sparsely vegetated rock ledges occur directly below the Taftsville dam. Downstream from the dam, the river flows through a valley with mixed hardwood forests along both banks.

Due to the existing steep topography, prevalence of shallow-angled rock ledges, nature of the gravel terraces along the riverbanks, and exposed gravel bars in the riverbed, wetlands comprise only a very small portion of the project area. In correspondence dated February 24, 1991, the VANR states that the project area "contains no significant wetlands" (CVPSC 1993).

No federally-listed threatened or endangered plants are listed as existing within the project area (Countryman 1991).

One state-listed plant species, Physostegia virginiana (obedience plant), has been observed "in some numbers on islands along the north shore" of the river below the dam (CVPSC 1991). This species is included on the Vermont List of Threatened and Endangered Species (10 V.S.A. Chapter 123) as "threatened" in Vermont.

The obedience plants identified in the area of the Taftsville Project are possibly introduced and are found outside the area affected by project operations (VANR 1993). The State threatened status applies only to naturally-occurring populations.

CVPSC conducted a literature search for amphibians, reptiles, birds, and mammals that may occur in the project area. None of the species identified as threatened or endangered in Vermont has been observed or are suspected to occur at the project site. According to the FWS, no federally-listed threatened or endangered wildlife species are known to inhabit the Taftsville Project area (FWS 1989).

b. Environmental impacts: The applicant proposes to construct new recreational facilities. (These are discussed in the Recreational Resources section of this EA). Clearing of areas for these facilities would result in the removal of some natural vegetation and the disturbance of associated wildlife.

The facilities to be constructed are located close to the dam, the areas to be affected are small, and much of the project area has been subject to previous disturbance, either by earlier construction or by informal use. Consequently, the resultant impacts to vegetation and wildlife are not considered significant.

c. Unavoidable adverse impacts: Construction of recreation facilities would result in minor, short-term disturbance of local wildlife and the loss of small areas of habitat.

5. Aesthetic Resources

a. Affected environment: The Taftsville Project is situated in the small, quaint, historic village of Taftsville, which consists of about 25 attractive buildings concentrated on the west side of the river. The Village Common, located off Route 4, nearly opposite the powerhouse, includes a general store and two residences dating from the early 19th century.

Between the project and the roadway are three substations connecting the Taftsville Project to CVPSC's power grid. These facilities, which contain steel towers and transformers surrounded by chain-link fencing, are visually intrusive to the bucolic setting of the area.

The timber truss, Taftsville covered bridge, constructed in 1836, is located approximately 200 feet downstream of the project dam. Listed on the National Register of Historic Places, it is an attraction for tourists and photographers.

Views of the bridge are provided primarily upstream of the project dam on both the east and west sides of the river, where access is most convenient from Route 4 and Gravel Ledge Road. Viewing locations downstream of the bridge and dam are less accessible due to steep topography and private property.

The covered bridge and the project dam provide a picturesque New England setting offering both visual and aural interest to visitors. Since July 1988, the setting has been enhanced by spillage over the flashboards or dam crest, creating a 16-foot-high waterfall across the length of the dam face.

b. Environmental impacts:

Spillage Flow

The applicant proposes to provide continuous spillage averaging 15 cfs. As discussed above, VANR's WQC for the Taftsville Project requires a continuous minimum spillage of 15 cfs, requiring CVPSC to provide an average spill of 28 cfs.

Based on our site visit, we conclude that a continuous spillage flow averaging 15 cfs would provide an adequate veil of water over the dam crest to protect area aesthetic qualities. The higher average flow required by the WQC will produce a somewhat greater enhancement of the area's visual qualities and since the condition is within the scope of Section 401, it will be included in any license for the Taftsville Project.

Boat Barrier

CVPSC maintains a boat barrier upstream of the dam to provide adequate warning at a safe distance. The barrier can be seen from the project dam and the covered bridge, even though CVPSC moved it upstream to make it less visible.

The Woodstock Board of Selectmen suggests that CVPSC relocate the boat barrier about 50 feet upstream from its present location "so as not to impair the photographic quality of this scenic area" (Swanson 1993). As discussed above, the primary viewing locations are above the dam at distances sufficient to provide views of the entire bridge and surrounding landscape.

We agree that the relocation of the project safety boom would increase the area from which photographs that exclude the boat barrier can be taken. However, we do not consider this sufficient grounds to overcome safety considerations, which strongly influence placement and color of the barrier. Also, as discussed in the Recreation Resources section, the barrier needs to be located near the dam to allow the car-top boat access point to be located upstream of the barrier without requiring extensive clearing and construction.

Landscaping

The applicant has developed a site specific landscape plan for the substations located next to the project. This plan provides for plantings of Austrian pines, crabapple trees, and wintercreeper euonymous along Route 4 and between the substations. Additional visual screening, while desirable, is not possible due to the close proximity of the road and the need to maintain vegetation in a low growth state under the transmission lines.

VANR recommends that the substations be relocated, if possible. The applicant has indicated that the cost of this relocation would be prohibitively expensive, but it would evaluate relocation, if major work at these substations were to occur in the future.

While we agree that relocation of the substations would enhance local visual characteristics, a less visible location is not available at the site. Moreover, relocating the substations would cost considerably more than the proposed landscaping. We conclude, therefore, that the applicant's proposed landscape plan represents a reasonable cost-effective solution. We recommend that CVPSC refine the details of species selection and planting locations in consultation with the VANR before implementing its landscape plan.

c. Unavoidable adverse impacts: None.

6. Cultural Resources

a. Affected environment: The Vermont Division for Historic Preservation surveyed architectural resources in the village of Taftsville in 1989 and determined that they were eligible for the National Register of Historic Places as an Historic District. The Taftsville Hydroelectric Project's dam and powerhouse are eligible as contributing elements for this district.

The gable-roofed powerhouse represents the oldest surviving portion of the former Woodstock Electric Company. The original building was constructed in 1902 as a combination steam and hydroelectric generating station. The present dam dates to 1909, the most "recent" in what was likely a series of structures at this location. The steam equipment was removed in 1916; the station continued to generate hydroelectric power until 1942, when the present generating room was constructed and new equipment installed. The Taftsville Project possesses integrity of location and setting on the Ottauquechee River. Integrity of design, workmanship, and materials have diminished over the years due to the removal of all early generating equipment, substantial redesign of the forebay, and installation of the 1942 generating unit.

The existence of prehistoric sites within the project area is unlikely due to the lack of level ground. A Phase IA archeological study, conducted by Louis Berger in 1991, concluded that project impacts to archeological resources are minimal, rendering further (Phase IB) studies at Taftsville unnecessary (Louis Berger 1991).

b. Environmental impacts and recommendations:

The Vermont Division of Historic Preservation (VDHP) has

indicated that ground disturbing activities, including the construction of canoe portage sites, must be evaluated by VDHP for potential impacts on archeological and historic resources.

CVPSC has developed a project-specific Cultural Resources Management Plan (CRMP). The prime management objective is efficient, cost effective maintenance of historic features in relation to the facility as a whole. If this plan is implemented, operation of the register-eligible project features as well as development of the proposed recreational enhancements would not adversely affect any register-eligible properties. CVPSC's management plan identifies the following three steps for future activities at the Taftsville Project:

- Routine maintenance and repairs which do not permanently alter the existing visual or functional character of the fabric or feature shall be considered to have no effect and, therefore, shall be undertaken as necessary without notification to the Vermont State Historic Preservation Officer (SHPO).
- Repairs or other activities limited to in-kind replacement of historic fabric or features (i.e., replacement with new fabric or features that duplicate the old in terms of materials, design, size, color, texture and functional characteristics) shall be considered to have no adverse effect. As a matter of information, CVPSC will send a letter to the SHPO summarizing the work to be performed.
- Activities requiring replacement other than in-kind replacement of fabric or features of the dam and/or 1902 powerhouse, as well as activities involving new construction, partial demolition or total demolition within the boundaries of the hydroelectric project, shall be considered to have a potential adverse effect. When the need for such activities is identified, CVPSC shall initiate consultation with the SHPO to consider ways to avoid, minimize, or mitigate potential adverse effects. As a documentary basis for this consultation, CVPSC shall prepare an alternatives analysis, in detail commensurate with the nature and scale of the proposed activity.

The alternatives analysis should include: purpose and need, description of the affected fabric or feature, description of the proposed activity and its anticipated effect upon the historic feature and upon the Taftsville Historic District, and an evaluation of alternatives.

If CVPSC determines that agreement cannot be reached, it should inform the Commission, and should undertake recordation of the affected feature prior to initiation of the-proposed action. This data recovery should consist of 35 mm black-and-white photographs plus a summary report that describes the feature, its history and use, current condition, and the circumstances requiring the proposed alteration. The photographs and the summary report should be submitted to the SHPO.

In order to ensure that the provisions of the CRMP are reviewed, refined, and enacted, we will prepare a Programmatic Agreement (PA) before any final licensing action by the Commission. The PA will be executed among the Commission, Advisory Council on Historic Preservation, and the VDHP, with CVPSC as a concurring party. It should be signed prior to license issuance.

The PA will stipulate that the CVPSC shall refine its CRMP after further consultation with the SHPO and, subsequently, file the plan for Commission approval within one year of license issuance.

c. Unavoidable adverse impacts: None.

7. Recreation Resources

a. Affected environment: Outdoor recreation in Windsor County at the turn of the century centered mainly on non-riverine activities, including baseball, football, and skiing, primarily in the Woodstock area (Jennison 1985). The Ottauquechee River provided opportunities for flatwater canoeing, wind and ice-boating, and lake fishing on the impoundments created by dams built in the Village of Woodstock (Wendling 1994). Riverine recreation, including stream fishing and canoe trips uninterrupted by barriers, occurred in the Taftsville area prior to construction of the dam.

There are presently no developed facilities for recreation at the Taftsville Hydroelectric Project. However, near the powerhouse is an unpaved area with room for five vehicles that is used by sightseers, photographers, picnickers, anglers, and boaters.

The Taftsville site is adjacent to U.S. Route 4, a heavily traveled tourist route between the Town of Woodstock and the Hanover/Lebanon/White River Junction area. The applicant (1992) estimates that as many as 400 people per year use the Taftsville site for picnicking and sightseeing. Sightseeing peaks during the fall foliage season with as many as 25 people visiting the site on a weekend day.

CVPSC (1992) also estimates that 200 people per year fish in the project area. Anglers catch brown, brook, and rainbow trout and smallmouth bass. Most fishing occurs over weekends, on the east side of the Ottauquechee River, below the dam (CVPSC 1992).

Access to the tailrace area is difficult. A 25-foot-long, undeveloped, angler trail leads down the steep, east bank from Gravel Ledge Road to the tailrace. Access to the river on the west side is dangerous; consequently, CVPSC does not encourage angler access there.

People with car-top boats use an existing trail on the west side of the impoundment to go from the parking area to an undeveloped boat launch upstream of the safety barrier (Figure 2).

There is no developed canoe portage around the dam. However, Gravel Ledge Road, located on the east side of the impoundment, can be used for canoe takeout above the dam.

An 18-mile-long canoe route exists from the upstream Town of West Bridgewater to the Taftsville Project. There are four miles of mixed rapids and smooth water below the Taftsville dam to the Emory's Mill dam.

b. Environmental impacts and recommendations:

Canoe Portage

The applicant proposes to enhance access for canoers by constructing a canoe take-out, portage trail, and put-in on the east side of the Ottauquechee River. VANR (1993) and the Vermont Canoe Cruisers concur with the applicant's proposal.

Upstream take-out at the boat barrier would require disembarking along a steep but short bank on the edge of Gravel Ledge Road. The road edge is seven feet from the river with a drop of four to six vertical feet. CVPSC would construct a ramp anchored to the bank extending down to a floating deck (CVPSC 1992).

The proposed portage trail would follow Gravel Ledge Road for approximately 450 feet and then cross about 50 feet of private property. The owner of the private property has granted an easement for the portage trail to cross his property (CVPSC 1993).

The section of the trail that would lead from the top of the bank down to the river would descend 30 vertical feet along a 55 percent slope. Terraced decking with railings constructed on top of and anchored to the rip-rap along the edge of the river would be required. The canoe put-in would be about 50 feet below the Taftsville covered bridge.

The applicant's proposed take-out, portage trail, and put-in would make canoe access easier and safer, would extend the 18-mile-long canoe route (West Bridgewater to Taftsville) an additional 4 miles to the dam at Emory's Mill, and would improve access for anglers above and below the dam on the east side of the Ottauquechee River. Therefore, we recommend that CVPSC be required to provide its proposed canoe portage facilities. (Also, see the discussion about canoe portage in the Geological Resource section.)

Reservoir Access

The applicant proposes to enhance public access to the project reservoir by providing improved parking and a picnic and bank fishing area on the west side of the river near the powerhouse (see Figure 2). These facilities would be accessible for handicapped persons.

Extrapolating data from the Vermont State Comprehensive Outdoor Recreation Plan (SCORP, 1990) for the region, CVPSC estimates that, once the proposed picnic facilities are in place, passive recreational use at the project would increase by 15 percent (CVPSC 1992).

The applicant also proposes to construct an impoundment boat launch for car-top boats on the west side of the river near the proposed parking area. This facility, to be located upstream of the safety boom, would be accessed along an existing 50-foot-long trail from the parking area.

CVPSC would move the existing boat barrier about 10 feet downstream to accommodate car-top boat access to the impoundment. The likely location would be next to the Village of Taftsville's culvert where the vertical drop from the bank to the water is three to four feet.

Construction would entail clearing a minimal amount of vegetation and installing a ramp or a floating deck. CVPSC should consult with the Village of Taftsville to ensure that construction wouldn't adversely affect the culvert.

VANR (1993) and FWS (1989) agree with the applicant's proposals to improve reservoir access.

We concur that better public access to the impoundment is needed. CVPSC's angler access site and launch area for car-top boats proposed for the west side of the impoundment would improve public access in the project area. Therefore, we recommend that CVPSC be required to provide its proposed reservoir access improvements.

Boat Barrier

The applicant proposes to move the existing orange boat barrier about 10 feet downstream toward the dam to accommodate car-top boat access to the impoundment. The boat barrier currently is visible from the covered bridge. VANR (1993) indicates that this barrier detracts from the quality of public viewing and photography. VANR (1993), therefore, requests that CVPSC investigate alternative colors for the boat barrier that would blend better with the viewscape.

We do not agree that CVPSC should evaluate alternative colors for the boat barrier. Since it is essential that the boat barrier be highly visible, we recommend that boat barrier remain orange. (See also the discussion of the barrier in the Aesthetic Resources section.)

Interpretive Signage

VANR (1993) requests that CVPSC provide interpretive signage at the project that conveys information about the history of the Taftsville dam. The applicant agrees to provide an interpretive sign and has included the cost of the sign in the estimated cost of its proposed recreation improvements.

We agree that the proposed sign would be beneficial and, therefore, recommend that CVPSC design and install an interpretive sign after consulting with the Village of Taftsville and the Vermont Department of Forests, Parks and Recreation on the sign's design and location.

Access for the Disabled

Currently there are no developed recreation facilities at the Taftsville Project that allow access for the disabled. CVPSC proposes to build a picnic and bank fishing area and improve the parking on the west side of the Ottauquechee River near the powerhouse so they are accessible to the disabled. CVPSC did not receive any comments from the public or from agencies about disabled access at the Taftsville Project. CVPSC's proposal would provide parking, fishing, and picnic access for the disabled. We recommend CVPSC construct the proposed facilities to conform to the requirements of the Americans with Disabilities Act of 1990.

Study to Expand Project Lands

VANR (1993) states that CVPSC-owned land at the Taftsville Project is limited and cannot accommodate sufficient recreational activity. VANR (1993), therefore, requests that the applicant conduct a property ownership study that evaluates the opportunities for expanding CVPSC property at the site.

We agree that the project area is limited in size, which restricts the development of recreational facilities at the site. We recognize CVPSC's efforts to obtain an easement for the canoe portage trail and put-in. Moreover, the applicant's proposed parking area, picnic and fishing area, boat launch, and canoe portage would enhance recreational opportunities at the project. Because these facilities would provide significant recreational benefits for the surrounding communities and seasonal tourists, we conclude that the proposed study is not justified.

Access Restrictions

VANR (1993) requests that CVPSC adopt a policy of no restrictions on public access. We agree that public access to the project area should not be restricted, unless access would cause a safety risk to the public. Therefore, we recommend that CVPSC be allowed to restrict public access only to areas such as the dam, powerhouse, substation, and the west shore tailrace, where the public could be at risk.

Recreation Master Plan

VANR (1993) requests that CVPSC provide a comprehensive recreation master plan that includes a region-wide recreational resource analysis, monitoring of recreational use in the project area, and a provision guaranteeing additional recreation facilities as deemed appropriate over the license term.

Standard license article 17 allows the Commission to require a licensee to make reasonable modifications or add recreational facilities throughout the term of the license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal and state agencies, after notice and opportunity for hearing.

In addition, pursuant to 18 C.F.R. Section 8.11, licensees are required to collect and file periodic project-specific data on recreational use at projects where recreational activity is occurring. This information helps to identify the need for additional project-related recreation facilities and enhancements. We, therefore, conclude that there is inadequate justification to require CVPSC to conduct additional monitoring of recreational use in the project area.

CVPSC collects and files data on recreational use at all its FERC-licensed projects, but has no involvement with other recreational facilities over a broad geographic area. We conclude that CVPSC should not be required to conduct a region-wide recreational resource analysis, because this analysis is more appropriate for a state agency or regional planning group. CVPSC, if requested, should provide its recreational use data to any organization performing the regional analysis.

Public Information

VANR (1993) requests that CVPSC provide public information about recreational opportunities along the Ottauquechee River. CVPSC has proposed to use road signs, public notices, and advertising to make the public aware of the project's recreational facilities.

We agree that the applicant's proposed road signs and advertising would provide needed public information about recreational opportunities at the project. We, therefore, recommend that CVPSC consult with the Vermont Department of Forests, Parks and Recreation to determine the contents of public notices and advertising promoting public recreational opportunities at the project.

c. Unavoidable adverse impacts: None.

E. No-Action Alternative

Under the no-action alternative, the project could continue to operate as required by the original license. CVPSC could reinstate a daily peaking mode without continuous spillage at the dam, with resultant adverse environmental impacts, or could continue to operate voluntarily in a run-of-river mode with no change in current conditions. Moreover, no recreational enhancement measures would be implemented.

VI. DEVELOPMENTAL ANALYSIS

In this section, we analyze the project's use of the Ottauquechee River's water resources to generate hydropower, estimate the economic benefits of the project, and address the economic effects on the project of various measures considered in this EA for mitigation, protection, or enhancement of area resources.

A. Proposed Project

The main purpose of the project is to provide power for CVPSC's customers. With an installed capacity of 0.5 MW, the project generates about 1,768,000 kWh annually. This amount represents the average annual generation for the years 1981 through 1987 (CVPSC 1992). These years were selected, because the unit was operating in the peaking mode at that time. This type of operation was in accordance with CVPSC's original license; it represents the appropriate base case for this project.

The applicant is not proposing any new hydropower development at the project. Enhancements considered would benefit water quality, aquatic habitat, area aesthetic qualities,

recreational opportunities, and cultural resources. These would affect project economics through construction costs, operation and maintenance costs, and lost generation resulting from spillage and, ultimately, the provision of flows needed to operate downstream fish passage facilities.

To analyze the economics of the proposed project, we computed the existing project's net benefits using CVPSC's statement of average annual generation, and its operation and maintenance costs.

The economic analysis is run for a specific period of time. That period is based on the expected license term, which can extend up to 50 years. We used 30 years for the Taftsville analysis, because this is the normal license term for projects that do not plan to expand generating capacity or implement costly environmental enhancements.

We based our analysis of the existing project's net benefits on the following:

ONE TIME COSTS

Construction Costs for new capacity	None
Capital Expenses	\$244,000 ^{6/}

ANNUAL COSTS

Operation and maintenance costs (1990)	\$33,200
Operation and maintenance escalation rate:	3.0 percent
Discount rate:	9.0 percent
Period of analysis:	30 years
Term of financing:	30 years
Levelized power ^{7/}	91.09

Based on this information, the existing project (without enhancements proposed by CVPSC, agencies, or staff) has positive net benefits of \$78,000 annually levelized over 30 years when compared to the alternative power source. This number is the difference between the value of power from the least cost alternative and the cost to produce power at Taftsville. This net benefit is equivalent to 43.9 mills per kilowatt-hour (mills/kWh).

^{6/} This consists of licensing application preparation (\$75,400), response to AIR's (\$40,500), and net investment (\$128,100).

^{7/} Based on applicant's statement of power value in revised Exhibit E (CVPSC 1993). Units are mills per kilowatt-hour.

B. Environmental Enhancement Alternatives

In Section V we analyze recommendations made by the applicant, agencies, and others for enhancing non-developmental resources in the project area.

Measures considered would affect the project in three ways:

- (a) changing the mode of operation, and, thereby, altering generation;
- (b) increasing the project's cost by the construction and operation of new facilities; and
- (c) reducing project generation by diverting flows for other purposes.

In this section, we look at the net economic effect on rate payers of the enhancement measures under consideration. Specifically, we consider five measures that could reduce the economic benefits of the project:

- (1) operating the project in an instantaneous run-of-river mode rather than as a daily peaking facility;
- (2) releasing average bypass flows over the spillway of 28 cfs or 15 cfs;
- (3) constructing and operating new recreational facilities at the project;
- (4) providing additional landscaping to screen the existing substations; and
- (5) installing and operating downstream fish passage facilities in the year 2000.

1. Run-of-River Operation

We already indicated that the Taftsville Project is licensed to run in the peaking and pulsing mode. CVPSC began operating the project in a run-of-river mode during mid-July 1988.

In its response to our additional information request, item 3(a), CVPSC (1992) states that the new mode of operation had a less significant effect on energy output than the spillage of 1.0 inch of water over the dam crest.

As discussed in the following section on bypass flows, the continuous spillage of 1 inch of water over the dam crest or flashboards would cause a yearly decrease in generation of 82 megawatt-hours (MWh), and would result in a decrease of project

benefits of \$7,000 annually or 4.0 mills/kWh, when levelized over the 30-year life of the project.

2. Spillage Flows

Spillage flows at Taftsville are proposed to enhance area aesthetics and fish habitat and water quality in the 100-foot-long bypass reach. CVPSC proposes to release an average of 15 cfs, which is equivalent to 1 inch of water spilling over the dam or flashboards.

The FWS concurs with the applicant that a 15 cfs average spillage flow is needed for the protection of fish habitat.

In the WQC for the Taftsville Project, VANR requires CVPSC to provide a minimum instantaneous flow of 15 cfs.

CVPSC's existing monitoring system and turbine at Taftsville cause the impoundment elevation and spillage flow to vary within plus or minus 0.5-inch of the targeted elevation. Therefore, targeting an average of 15 cfs of spillage, as the applicant proposes, would result in a range of flows from 5 cfs to 28 cfs, (0.5 - 1.5 inches) with an average flow of 15 cfs.

To release the minimum flow required by the WQC, the applicant must target a 1.5-inch spill depth. This target flow would result in spillage flows ranging from 15 cfs to 44 cfs (1.0 - 2.0 inches) with an average flow of 28 cfs.

CVPSC used a computer model inputting a continuous set of stream flow records and the head loss, headwater, tailwater, and system efficiency versus discharge rating to develop the lost energy due to flow releases over the dam. We agree with the resulting lost generation values per year: 82 MWh for a target spill of 1 inch, and 150 MWh for a target spill of 1.5 inches.

We evaluated the economics of lost generation due to target spills of 1.0 and 1.5 inches. A summary of the results is provided in Table 4, following.

Table 4. Decrease in Project Benefits Due to Spillage Flows.
(Source: Staff)

Spillage Flow Range (cfs)	Average Flow (cfs)	Target Depth of Spill (inch)	Average Annual Lost Generation (MWh)	Net Annual Benefits	
				(Dollars)	(mills/kWh)
5-28	15	1.0	82	-7,000	-4.0
15-44	28	1.5	150	-14,000	-7.9

VANR's WQC requires CVPSC to study mechanisms that, during flashboard replacement, would continue to provide a 15 cfs minimum flow in the bypass reach. During flashboard replacement, the impoundment is drawn down, and there is no flow in the bypass reach. VANR is concerned that fish may become stranded during this time. We have included the lost generation value of this 15 cfs flow in the economic analysis above, because the minimum flows are considered to be continuous throughout the year.

We estimate the capital cost to evaluate mechanisms for providing a continuous 15 cfs spillage during flashboard repair or replacement to be \$10,000, which on an annual levelized basis decreases project benefits by \$1,000 (0.8 mills/kWh). Based on experience with similar projects, we have provided an allowance of \$25,000 (\$4,000 annualized, 2.3 mills/kWh) to install the selected mechanism or an allowance of \$50,000 (\$7,000 annualized, 4.0 mills/kWh) to modify the flashboards.

Thus, in addition to the net annual cost for lost generation, the project modifications needed to provide a 15 cfs minimum bypass flow during flashboard replacement would decrease project benefits each year by \$5,000 or \$8,000, depending on the alternative selected.

3. Recreation

CVPSC proposes to construct/install and operate the following recreational enhancements at the project: two picnic tables; eight parking spaces; access to the impoundment; and a canoe portage. The capital cost provided by CVPSC associated with these enhancements is \$20,175 in 1992 dollars. Our analysis shows that the proposed recreational enhancements would decrease project benefits by \$3,000 annually or about 1.7 mills/kWh over a 30-year license period.

4. Aesthetics

The aesthetic enhancements include landscaping around the substations and a continuous 15 cfs spillage over the flashboards or dam crest. We discussed aesthetics flows in the spillage flows section. The capital cost provided by CVPSC associated with landscaping is \$7,350 in 1992 dollars. Our analysis shows that the aesthetic enhancements, not including the spillage flow, would decrease project benefits by \$1,000 annually or about 0.6 mills/kWh over a 30-year license period.

5. Downstream Fish Passage

In the year 2000, salmon stocking could begin in the Ottaquechee River. Therefore, we considered the economic impact of providing downstream fish passage in the year 2000. This

involves construction costs, operation and maintenance costs, and lost generation due to bypass flows.

Staff estimated a lost generation of 11.2 MWh per year, based on a flow of 15 cfs through the downstream passage facility during fish passage operation from mid-April through June, as recommended by the FWS.

We based our analysis of downstream fish passage economics on the following data:

Construction costs (1992):	\$46,000 ⁸ /
Construction period:	0.25 years
Construction escalation rate:	2.5 percent
Annual operation and maintenance costs:	\$1,000 ⁹ /
Operation and maintenance escalation rate:	3.0 percent
Estimated operation start:	Jan. 2000
Levelized power value (mills/kWh)	126.42
Lost annual generation:	11,200 kWh

Our analysis shows that installation and operation of a downstream fish passage facility at the Taftsville Project would have an annualized cost of \$6,000 or about 3.4 mills/kWh, calculated for a 30-year license period.

C. No-Action Alternative

We have also evaluated the no-action alternative in the EA. Under the no-action alternative, the project could continue to operate under the terms and conditions of the original license. CVPSC could reinstate a daily peaking mode without continuous spillage at the dam with resultant adverse environmental impacts but reduced cost, or could continue to operate voluntarily in a run-of-river mode with no change in current conditions or cost. Therefore, there are no incremental costs for this alternative.

Costs associated with the project's operation and maintenance would continue to be incurred, but the project's net benefits would remain essentially unchanged compared to the project's current operation.

VII. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

We have considered the applicant's proposed operational procedures and environmental protection measures, conditions

⁸/ Provided by applicant.

⁹/ Staff estimate.

included in the VANR's WQC issued for the Taftsville Project, recommended terms and conditions filed by the VANR and Interior, Section 18 fishway prescriptions, our additional recommended enhancement measures, and the no-action alternative under sections 4(e), 10(j), and 10(a) of the FPA.

From our independent analysis of the environmental and economic effects of the alternatives, we have selected the applicant's proposed operational procedures and environmental enhancement measures plus our recommended enhancement measures as the preferred alternative.

This alternative consists of:

- (1) using an instantaneous run-of-river operation;
- (2) releasing a year-round average spillage of 15 cfs over the dam;
- (3) providing additional plantings for the visual screening of existing non-project substations;
- (4) constructing, operating, and maintaining various recreational facilities;
- (5) developing and implementing procedures to minimize bank erosion during the construction of recreational facilities;
- (6) implementing a plan for the management of cultural resources; and
- (7) installing a downstream fish passage facility when appropriate.

We recommend this alternative, because implementation of these measures would: enhance aesthetics, water quality, fisheries, and recreational resources; increase public access to the river in the project area; and provide for future fish passage.

Though the cost of these recommended measures would reduce the existing power benefits of the project, the project would still have net benefits over the new license term compared to the least-cost alternative.

Specifically, we consider five measures that could reduce the economic benefits of the project: (1) run-of-river operation, (2) spillage flows, (3) recreational enhancements, (4) landscape enhancements, and (5) downstream fish passage.

A. Run-of-River Operation

CVPSC, which initiated run-of-river operation in 1988, proposes to continue operating in this manner under the subsequent license. FWS concurs with CVPSC's proposal. We also agree and, therefore, recommend run-of-river operation.

Run-of-river operation (1) would stabilize the impoundment level, thereby reducing the potential for shoreline erosion and benefiting emergent and shoreline vegetation, and (2) would eliminate the daily variation in downstream flows produced by peaking operation. Also, water quality and fisheries habitat upstream and downstream of the Taftsville dam would be enhanced by the project impoundment's reduced flow-through time.

Based on information supplied by CVPSC, the cost of going from peaking to run-of-river operation is estimated to be approximately \$7,000 per year.

B. Spillage Flows

The location of the historic project structures in a vegetated riverine setting together with a covered bridge, falling water, and the Register-eligible Taftsville Historic District result in scenic qualities worthy of protection.

A year-round average 15 cfs spillage over the dam crest would be adequate to enhance the visual and aural quality of the project area. This spill would: provide a constant veil of water over the dam, thereby enhancing the overall aesthetic quality of the site; enhance habitat for fish; and enhance water quality. The annual cost of providing an average 15 cfs spillage would be \$7,000.

The VANR's WQC requires spillage of a minimum of 15 cfs. The annual cost of providing this spillage would be \$14,000. As discussed above, the incremental benefits of the greater spillage would be relatively small and, therefore, would not justify the resultant \$7,000 additional yearly cost.

Because the 15 cfs minimum spillage flow is a lawful WQC condition, it must be included in any license issued for the Taftsville Project. We, therefore, have included the \$14,000 cost in our net benefit summary.

The VANR's WQC includes a condition regarding the lack of flows in the bypass reach during flashboard installation and removal. CVPSC's present procedures do not provide for any spillage during these maintenance activities. As discussed in Section V, these activities occur only 4 or 5 times each year and require less than 24 hours to complete.

We conclude that the project's small bypass reach, the limited nature of its fishery, and the lack of spawning activity there, together with the potential for scheduling flashboard maintenance activities to minimize aquatic impacts, indicate that the required economic investment needed to plan and implement alternative means to spill 15 cfs during flashboard replacement is not justified. Nonetheless, it must be included.

As noted above: the levelized annual cost of studies would be \$1,000; installing a mechanism to provide a 15 cfs continuous flow during flashboard replacement would cost about \$4,000 per year, or implementing flashboard modification would cost about \$7,000 annually. Thus, this WQC requirement adds either \$5,000 or \$8,000 to the annual project cost.

Assuming that CVPSC would implement the least cost alternative, we have added \$5,000 as the cost to provide the required spillage during flashboard replacement.

C. Recreational Resources

We recommend that CVPSC provide its proposed recreational facilities. After constructing these facilities, CVPSC should file the following information with the Commission:

- (1) as-built drawings showing the dimensions of and the materials used to construct the parking area, trails, picnic area, car-top boat launch area, and canoe take-out and put-in areas;
- (2) a discussion of how the constructed recreation facilities conform to the requirements of the Americans with Disabilities Act of 1990.
- (3) the dimensions and wording of signs to inform the public of access opportunities, and a map showing the locations of the signs; and
- (4) a copy of the easement agreement between CVPSC and the land owner for the construction and operation of the canoe portage trail and put-in facilities on the property.

We have calculated that CVPSC's annual cost to provide these recreational enhancements over a 30-year license term would be about \$3,000. The economic benefits local business establishments would derive from the resultant additional visitor expenditures would more than compensate for the cost of the proposed facilities.

D. Aesthetic Resources

CVPSC has developed a planting plan to mitigate the visual intrusiveness of the substations located adjacent to the project site. This plan provides for installing Austrian pines, crabapple trees, and Wintercreeper Euonymus along the roadside and between the substations.

We agree with the general concept of the landscape plan for visual enhancement of the project area. We recommend that, before CVPSC implements the plan, it should consult with the VANR to finalize the details of species selection and planting locations.

Our analysis shows that the proposed landscaping improvements would cost CVPSC approximately \$1,000 annually over a 30-year license period. This landscaping would improve the view of tourists traveling on adjacent Route 4.

E. Downstream Fish Passage

Interior hopes to begin stocking salmon smolts above the Taftsville Project in the year 2000. This proposed stocking of smolts is part of the plan to restore Atlantic salmon runs to several New England river basins. If the stocking does take place and results in establishing a migratory population, downstream fish passage will be needed. Eventually, depending on the success of the restoration program, FWS also may require upstream passage as well.

Interior has requested the inclusion of an article, reserving its authority under Section 18 of the FPA to require the construction and operation of upstream and downstream fish passage facilities at the Taftsville Project.

We concur that this article should be included in any license to ensure that CVPSC installs downstream fish passage facilities shortly after the VANR and the FWS begin stocking Atlantic salmon smolts upstream of the project.

The cost of this enhancement is included in our analysis, since the stocking program is scheduled to begin in the year 2000. We have calculated that CVPSC's cost to implement this enhancement over a 30-year license period would be about \$6,000 annually.

This expenditure, which would be small in comparison to the overall expenditures on Connecticut River salmon restoration, would benefit the ongoing salmon restoration effort and, if successful, would provide a valuable fishery in the project area.

F. Conclusion

We estimate that applicant's proposed operational procedures and measures to enhance recreation and aesthetics plus our recommended environmental enhancement measures would cost CVPSC a total of \$24,000 per year to implement, which is feasible given project economics. This figure is the sum of: (1) the value of lost generation and (2) the estimated cost of implementing applicant's proposed and our recommended project enhancements.

Table 5 summarizes the project's annual power benefits before and after the implementation of applicant's proposed and our recommended measures to enhance environmental resources. This table also includes the cost of implementing VANR's required WQC conditions.

While we have included the cost of WQC-required conditions in Table 5, we do not agree that \$12,000 of this annual cost is warranted. This includes \$7,000 for the higher average spillage flow, plus \$5,000 for studying and maintaining spillage during flashboard replacement. Should CVPSC successfully appeal the conditions of Taftsville's WQC, we estimate that the project would operate with a 30-year annual levelized net benefit of \$54,000.

Table 5. Summary of Annualized Project Costs and Net Benefits during a 30-Year License Term (\$)

	COSTS	POWER VALUE	NET BENEFITS
Existing Project	(84,000)	162,000	78,000
Run-of-River Operation	0	(7,000)	(7,000)
Spillage Flows	0	(14,000)	(14,000)
Maintaining Spillage	(5,000)	0	(5,000)
Recreation	(3,000)	0	(3,000)
Aesthetics	(1,000)	0	(1,000)
Downstream Fish Passage	(5,500)	(500)	(6,000)
Totals	(98,500)	140,500	42,000

VIII. RECOMMENDATIONS OF THE 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 should include conditions based on the recommendations provided by the federal and state fish and wildlife agencies for the protection, mitigation, and enhancement of such resources 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 each agency.

VANR and the FWS have had an opportunity to provide comments and recommendations for the Taftsville Project and have done so.

Whereas the FWS recommends that a flow averaging 15 cfs be released to the bypass reach for the protection of fish habitat, VANR's WQC requires an instantaneous minimum of 15 cfs as a license condition. As discussed above, we will condition the license to require release of the higher flow called for in the WQC.

Both agencies agree that fish passage measures are not needed at this time, but may be necessary once Atlantic salmon restoration plans are finalized for this river. Both agencies also agree on run-of-river operation for the project.

We have addressed the concerns of the Federal and state fish and wildlife agencies and made recommendations consistent with those of the agencies.

IX. CONSISTENCY WITH COMPREHENSIVE PLANS

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

Under Section 10(a)(2), Federal and state agencies filed a total of 28 comprehensive plans that apply to Vermont of which we identified 13 comprehensive plans to be applicable to the Taftsville Project. No conflicts were found.

Comprehensive plans relevant to this project are listed in Section XI.

X. FINDING OF NO SIGNIFICANT IMPACT

We conclude that none of the resources we studied, which include geologic, water, fisheries, terrestrial, aesthetic, cultural, and recreational, would experience significant adverse effects under the proposed action or any of the action alternatives considered in this DEA. For this reason and pursuant to Commission regulations, no Environmental Impact Statement is required.

On the basis of the record and this DEA, issuing a subsequent license for the project as proposed by CVPSC, plus the measures we recommend, would not constitute a major Federal action significantly affecting the quality of the human environment.

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XII. LIST OF PREPARERS

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APPENDIX A
RESPONSE TO COMMENT LETTERS



Central Vermont Public Service Corporation

April 27, 1994

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

RE: Licensed Project Number 2490-001-VT
March 30, 1994 Draft Environmental Assessment
Request for Stay of License Issuance

Dear Ms. Cashell:

The following are the written comments of Central Vermont Public Service Corporation (the "Company" or "CVPSC") on the above referenced draft environmental assessment (draft EA). Also included is the Company's request that the Commission stay issuance of the subject license.

CVPSC-1

Section IV. C. Water Quality Certification - As stated in the draft EA, CVPSC has appealed the conditions of the 401 Water Quality Certificate (WQC). Our appeal states that the WQC contains conditions that do not relate to water quality and thus exceed the authority of the Vermont Agency of Natural Resources (VARNR). We believe some of the conditions attempt to usurp the Commission's authority. Many of the objections that CVPSC has raised are similar to those at issue in the "City of Tacoma" case on appeal to the United States Supreme Court. As the Commission is aware, oral arguments were heard by the Court on February 23, 1994, and a decision will be forthcoming.

While we recognize that it is the Commission's past practice to include all conditions of the WQC into the license, we are concerned that we will be forced to comply with conditions from the WQC in the license that very well might be overturned on appeal, or, for that matter, invalidated as a result of a decision by the U.S. Supreme Court. Of particular concern to CVPSC are conditions C, E, F, G, and H that require specific actions, within a short time period, to satisfy conditions that the Commission has found to be unwarranted or not related to water quality. Unless the Commission stays issuance of the license until the appeal is resolved, deletes these conditions from the license, or determines that the Company should not comply with these conditions until the outcome of the appeal, CVPSC may find itself not in compliance with license conditions

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

Response to Comments by
Central Vermont Public Service Corporation
on the Taftsville Hydroelectric Project DEA
Letter Dated April 27, 1994

CVPSC-1

The U.S. Supreme Court has issued a decision in the Jefferson County PUD case. Any order issuing a subsequent license for the Taftsville Project will discuss the Licensee's requirements regarding Water Quality Certificate conditions. In addition, the EA has been revised to consider the conditions in light of the Court's decision. The conditions specified will all be made part of the project's license.

FERC does not delay issuance of licenses pending settlement of appeals, but licensees can apply for an amendment of license should the appeal be successful.

CVPSC-1

even though the WQC may be overturned or revised.

As detailed in Section VII. F., the unwarranted WQC conditions would reduce the annual levelized net benefits of the project by over twenty percent. CVPSC requests a stay of issuance of the license, or if the license is issued, a stay of compliance with the unwarranted conditions of the WQC in the license until the appeal process is completed.

This concludes the Company's comments on the March 30, 1994, draft Environmental Assessment for the Tetteville Hydroelectric Project.

Thank you for the opportunity to comment and please call us if you have any questions.

Respectfully submitted,



Bruce M. Peacock
Manager of Production Engineering



John J. Mullen
Director - Hydro Licensing

cc: Stephen Sease, Esq., VANR
Kurt Jensen, Esq., VANR



State of Vermont

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

ORIGINAL

AGENCY OF NATURAL RESOURCES
SUNNY - 3 RD 5125 103 South Main Street
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May 6, 1994

COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT

TAFTSVILLE HYDROELECTRIC PROJECT
FERC PROJECT NO. 2496 - 001
CENTRAL VERMONT PUBLIC SERVICE CORPORATION

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

Dear Secretary Cashell:

The Vermont Agency of Natural Resources (Agency) herein files comments on the Draft Environmental Assessment (draft EA) for the Taftsville Hydroelectric Project, for which a "Notice of Availability of Draft Environmental Assessment" was issued April 7, 1994 in the Federal Register.

Section III.B.3: Alternatives Considered But Eliminated From Detailed Study

The Agency does not recommend decommissioning of this project. The draft EA is incorrect, however, in stating there would be no upstream benefit from dam removal. Benefits derived from such action would include the restoration of 4800 feet of stream presently influenced by the project's impoundment to its natural condition, resulting in improvements to fish habitat conditions and elimination of substandard chemical water quality conditions that can occur under summer low-flow conditions, unimpeded upstream and downstream fish movement, and restoration of natural stream flows to the project's 100 foot bypass.

RECORDED

MAY 3 1994

TDD: 1-800-253-6191

Regional Office - 8010 Essex Jct., P.O. Box 674, Springfield, St. Johnsbury

Response to Comments by
Vermont Agency of Natural Resources
on the Taftsville Hydroelectric Project DEA
Letter Dated May 6, 1994

VANR-1

We have addressed this comment in Section III.B.3 of the EA. We agree that dam removal would provide some improvement for upstream fish habitat, but find that the small gain to the resident fishery would not justify the cost of dam removal and loss of power. In addition, life history requirements for resident species are being met under existing conditions. Regarding water quality, the record indicates that all water quality parameters in the project area meet or exceed state standards.

VANR-1

405/30235

Response to Comments by
Vermont Agency of Natural Resources
on the Taftsville Hydroelectric Project DEA
Letter Dated May 6, 1994

Lois Cashell - Taftsville
May 6, 1994
Page 2

Section IV.G: Water Quality Certificate

FERC is incorrect in its legal and substantive analysis regarding the 401, which begins at p. 9 of the draft EA. It is not FERC "practice" but federal law which requires that all conditions of water quality certificates become conditions of federal licenses. FERC has no authority to speculate on requirements contained in current in-state water quality certificates. The State of Vermont objects to FERC's categorizations of the water quality certificate which begins on p. 9 of the draft EA. We are particularly concerned that FERC's action is an attempt to influence litigations in Vermont on this issue and is illegal and improper. We request that all speculation or analysis of FERC's views on the Agency of Natural Resources 401 be stricken.

As a point of clarification, the water quality certificate for the project was issued September 29, 1993. The draft environmental analysis states the certificate was issued September 30.

Condition C

The Agency has determined that a minimum instantaneous flow of 15 cfs is necessary to maintain water quality standards in the affected river reach. Under the applicant's proposal and FERC's recommendation of an AVERAGE flow of 15 cfs, bypass flows would range from 5 to 25 cfs, resulting in periodic substandard flow conditions. FERC's analysis of spillage, at p. 26 of the draft EA is inadequate and incorrect. FERC fails to study or analyze modern instrumentations and technology that could provide instantaneous minimum flows of 15 cfs. FERC has failed to consider technological advances; the ANR's 401 does not require an average spillage; if that is CVPSC's proposal, FERC must examine whether there is a technological solution.

Condition E

FERC is incorrect in its analysis. Condition E of the project's certification is warranted to prevent violations of water quality standards in the bypassed reach. Noncompliance with this condition may result in periodic substandard flow conditions resulting in standards violations.

Condition G

Turbine rating curves are necessary to depict the flow/production relationship of a project. When issuing certifications, the Agency bases its findings/conditions in part on the hydraulic operating range of the project's turbines(s). The ratings are

VANR-2

Sections 10(a), 10(j), and 4(e) of the Federal Power Act require the Commission to evaluate all considerations filed by state and federal environmental agencies. See the order issuing the license for the Tunbridge Mill Project (68 FERC ¶ 61,078).

VANR-3

Although staff concludes that the existing average 15 cfs flow is adequate, Condition C will become part of the license.

VANR-4

There is no indication in the record that water quality is a problem in the project area; however, Condition E will become part of the license.

VANR-5

Condition G will become part of the license.

VANR-2

VANR-3

VANR-4

VANR-5

Lois Casbell - Taftsville
May 4, 1994
Page 3

necessary to confirm representations made in the licensing process and for use in flow-compliance monitoring.

Condition H

FERC is incorrect in its analysis. The intention of Condition H, which is a standard condition placed in certificates for hydropower facilities, in Vermont, is that any debris foreign or natural be properly disposed of after removal from the river. This condition requires the applicant to properly dispose of debris that is physically removed from a project intake or any other material removed as part of project operations. The discharge of this removed material into the river would constitute a violation of Vermont Water Quality Standards Section 2-01 Water Quality Criteria - General which states there shall be no discharge of settleable solids, floating solids, oil, grease, silt, or total suspended solids in concentrations or combinations that would have an undue adverse effect on any beneficial values or uses; and that this disposal is contrary to Vermont solid waste laws. Proper disposal methods would include the deposition of this material in a disposal facility that qualifies under the state solid waste law; composting of appropriate materials; and recycling. Lay aside, removal of this material also reduces hazards to boating and the potential for increased flood damage due to debris blockages at bridges or instream channels. At most hydroelectric facilities, debris removal also precludes the need for a downstream facility to handle the material.

Conditions K and L

The Agency disagrees with FERC in that these conditions preempt the Commission's authority to issue and condition amendments of licenses. A water quality certificate, which conditions a project's design and operation to ensure the maintenance of water quality standards, is a prerequisite to a FERC license or amendment. Prominently posting such a document within the facility simply helps to ensure that those responsible for compliance with the certificate are aware of its requirements. And if the applicant proposes a project change that may have a significant of material effect on the certification findings and conditions, this information must be submitted to the Agency for prior review and approval otherwise changes could result in standards violations. The applicant would still need to seek FERC approval for the proposed change so FERC's authority is not preempted.

Section V.B. General Description of the Ottauquechee River Basin

The North Hartland and Ottauquechee Woolen Mill projects are not run-of-river facilities. The North Hartland facility operates in

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The EA has been revised in Section IV.D to provide for debris disposal at the project, and Condition H will become part of the license.

VANR-7

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Condition K will become part of the license. Condition L will not be included because it is beyond the scope of Section 401.

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a store and release mode with maximum and minimum downstream flow requirements. The Ottauquechee Woolen Mill facility operates as a run-of-river facility under normal flows conditions using a store and release mode when the North Hartland facility is restricting normal stream flow. The facility has no minimum stream flow requirement at this time.

Section V.D.2.a. Water Quality

VANR-9

The Ottauquechee River in the project-affected reach is designated as Class B waters. Recent legislation eliminated Class C zones and substituted waste management zones in Class B waters. From the Woodstock Wastewater Treatment Plant outfall to the Happy Valley Brook confluence (located about 250 feet upstream from the project dam), the river is a waste management zone. The reach from the outfall of the Taftsville Wastewater Treatment Facility (located about 150 feet downstream from the dam) to the Hartland Town Line is also a waste management zone.

The river's designation in the project area as cold water fish habitat is what establishes the dissolved oxygen standard for the river and not the river's classification.

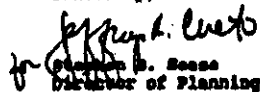
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Section V.D.7.b. Boat Barrier, Study to Expand Project Lands, Access Restrictions, Recreation Master Plan

The Agency continues to recommend license articles which incorporate Agency recommendations on the above recreational and aesthetic matters which were addressed in the Agency's August 8, 1993 Terms and Conditions letter to FERC.

Thank you for this opportunity to comment on the draft environmental assessment.

Sincerely,


Steven B. Reese
Director of Planning

cc: distribution list
(cc to same as August 9, 1993 letter)

VANR-8

The comment is noted. Section V.B of the EA has been revised to reflect this information.

VANR-9

The comment is noted. Section V.D.2 of the EA has been revised to reflect this information.

VANR-10

This comment has been noted.

(October, 1975)

FEDERAL ENERGY REGULATORY COMMISSION

**TERMS AND CONDITIONS OF LICENSE FOR CONSTRUCTED
TRANSMISSION LINE PROJECT**

Article 1. The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. The project area and project works shall be in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

Article 4. The project, including its operation and maintenance and any work incidental to additions or alterations authorized by the Commission, whether or not conducted upon lands of the United States, shall be subject to the inspection and supervision of the Regional Engineer, Federal Energy Regulatory Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him such information as he may require concerning the operation and maintenance of the project, and any such alterations thereto, and shall notify him of the date upon which work with respect to any alteration will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall submit to said representative a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of any such alterations to the project. Construction of said alterations or any feature thereof shall not be initiated until the program of inspection for the alterations or any feature thereof has been approved by said representative. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights or occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they

become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

Article 7. Timber on lands of the United State cut, used, or destroyed in the construction and maintenance of the project works, or in the clearing of said lands, shall be paid for, and the resulting slash and debris disposed of, in accordance with the requirements of the agency of the United States having jurisdiction over said lands. Payment for merchantable timber shall be at current stumpage rates, and payment for young growth timber below merchantable size shall be at current damage appraisal values. However, the agency of the United States having jurisdiction may sell or dispose of the merchantable timber to others than the Licensee: Provided, That timber so sold or disposed of shall be cut and removed from the area prior to, or without undue interference with, clearing operations of the Licensee and in coordination with the Licensee's project construction schedules. Such sale or disposal to others shall not relieve the Licensee of responsibility for the clearing and disposal of all slash and debris from project lands.

Article 8. The Licensee shall do everything reasonably within its power, and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon the request of officers of the agency concerned, to prevent, to make advance preparations for suppression of, and to suppress fires on the lands to be occupied or used under the license. The Licensee shall be liable for and shall pay the costs incurred by the United States in suppressing fires caused from the construction, operation, or maintenance of the project works or of the works appurtenant or accessory thereto under the license.

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Article 9. The Licensee shall be liable for injury to, or destruction of, any buildings, bridges, roads, trails, lands, or other property of the United States, occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Arrangements to meet such liability, either by compensation for such injury or destruction, or by reconstruction or repair of damaged property, or otherwise, shall be made with the appropriate department or agency of the United States.

Article 10. The Licensee shall allow any agency of the United States, without charge, to construct or permit to be constructed on, through, and across those project lands which are lands of the United States such conduits, chutes, ditches, railroads, roads, trails, telephone and power lines, and other routes or means of transportation and communication as are not inconsistent with the enjoyment of said lands by the Licensee for the purposes of the license. This license shall not be construed as conferring upon the Licensee any right of use, occupancy, or enjoyment of the lands of the United States other than for the construction, operation, and maintenance of the project as stated in the license.

Article 11. The Licensee shall make provision, or shall bear the reasonable cost, as determined by the agency of the United States affected, of making provision for avoiding inductive interference between any project transmission line or other project facility constructed, operated, or maintained under the license, and any radio installation, telephone line, or other communication facility installed or constructed before or after construction of such project transmission line or other project facility and owned, operated, or used by such agency of the United States in administering the lands under its jurisdiction.

Article 12. The Licensee shall make use of the Commission's guidelines and other recognized guidelines for treatment of transmission line rights-of-way, and shall clear such portions of transmission line rights-of-way across lands of the United States as are designated by the officer of the United States in charge of the lands; shall keep the areas so designated clear of new growth, all refuse, and inflammable material to the satisfaction of such officer; shall trim all branches of trees in contact with or liable to contact the transmission lines; shall cut and remove all dead or leaning trees which might fall in contact with the transmission lines; and shall take such other precautions against fire as may be required by such officer. No fires for the burning of waste material shall be set except with the prior written consent of the officer of the United States in charge of the lands as to time and place.

Article 13. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit

for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

Article 14. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

Article 15. The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.