

## **Appendix B.4**

### **Eastman Falls FERC License**



9-1-87

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UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Public Service Company of New Hampshire Project No. 2457-002

ORDER ISSUING NEW LICENSE  
(Major Project - Existing Dam)

(Issued August 25, 1987)

The Public Service Company of New Hampshire (PSNH) has filed an application for new license under Section 15 of the Federal Power Act (FPA) to continue to operate and maintain the Eastman Falls Project, located in Merrimack and Belknap Counties, New Hampshire, on the Pemigewasset River, a navigable waterway of the United States. <sup>1/</sup> The license for the project, which was issued on December 31, 1969, with an effective date of January 1, 1938, expires on December 31, 1987. <sup>2/</sup>

Notice of the application has been published. No protests or motions to intervene were filed in this proceeding, and no agency objected to issuance of this license. Comments received from interested agencies and individuals have been fully considered in determining whether to issue this license, as discussed below.

Section 10 of the Federal Power Act

Section 3 of the Electric Consumers Protection Act of 1986 (ECPA), Pub. L. No. 99-495 (Oct. 16, 1986), amended Section 10 of the FPA, 16 U.S.C. § 803, with regard to various aspects of the Commission's hydroelectric program. Section 15(a)(2) of the FPA, as added by Section 4 of ECPA, provides that the requirements of Section 10 of the FPA are applicable to Commission consideration of applications for new license under Section 15 of the FPA. Following is a discussion of the relevant provisions of Section 10.

1. Recommendations of Federal and State Fish and Wildlife Agencies (Section 10(1))

The environmental assessment (EA) for the Eastman Falls Hydroelectric Project addresses the concerns of the federal and state fish and wildlife agencies, and makes recommendations consistent with those of the agencies.

<sup>1/</sup> 37 FPC 579 (1967).  
<sup>2/</sup> 42 FPC 1310 (1969).

2. Comprehensive Plans (Section 10(a)(2)(A))

Section 10(a)(2)(A) of the FPA, as amended by ECPA, requires the Commission to consider the extent to which a project is consistent with comprehensive plans (where they exist) for improving, developing, or conserving a waterway or waterways affected by the project that is prepared by an agency established pursuant to federal law that has the authority to prepare such a plan or by the state in which the facility is or will be located. The Commission considers plans to be within the scope of Section 10(a)(2)(A) only if such plans reflect the preparers' own balancing of the competing uses of a waterway, based on their data and applicable policy considerations (i.e., consider and balance all relevant public use considerations). With regard to plans prepared at the state level, such plans are within the scope of Section 10(a)(2)(A) only if they are prepared and adopted pursuant to a specific act of the state legislature and developed, implemented, and managed by an appropriate state agency. <sup>3/</sup>

No comprehensive plans of the types referred to in Section 10(a)(2)(A) of the FPA relevant to this project have been identified.

Five resource plans <sup>4/</sup> that touch on various aspects of waterway management were brought to our attention and have been reviewed in relation to the proposed project as part of our broad public interest examination under Section 10(a)(1) of the FPA. No conflicts were found.

Based upon the review of the agency and public comments filed in this proceeding, and an independent analysis, as discussed herein, it is concluded that the Eastman Falls Hydroelectric Project is best adapted to a comprehensive plan for the Pemigewasset River, taking into consideration the beneficial public uses described in Section 10(a)(1) of the FPA.

<sup>3/</sup> See Fieldcrest Mills, Inc., 37 FERC ¶ 61,264 (1986).

<sup>4/</sup> U.S. Department of the Interior's Final List of Recreation Rivers, 1981; U.S. Fish and Wildlife's Strategic Plan for the Restoration of Atlantic Salmon in the Merrimack River Basin, 1985; State of New Hampshire's Wild, Scenic, and Recreational Rivers for New Hampshire, 1977; State of New Hampshire's Water Resources Management Plan, 1984; and New Hampshire's Waterfowl Management Plan, 1975.

Recommendations of Other Agencies (Section 0(a)(2)(B))

Section 10(a)(2)(B) of the FPA requires the Commission to consider the recommendations of relevant federal and state agencies exercising administration over flood control, navigation, irrigation, recreation, cultural and other relevant resources, and the recommendations of Indian tribes affected by the project.

No specific state and federal agency comments or recommendations were made addressing flood control, navigation, or irrigation requirements in the basin.

4. Consumption Efficiency Improvement Program (Section 10(a)(2)(C))

Section 10(a)(2)(C) of the FPA, added by ECPA, requires the Commission to consider the consumption efficiency improvement programs of, *inter alia*, utility applicants.

The applicant has, under covering letter dated July 7, 1987, submitted to the Commission two reports concerned with the applicant's programs and efforts directed at the conservation of electric energy and at reduction in the growth rate of demand and the need for additional generating capacity.

The first report, entitled "Energy Management Programs", describes the wide variety of the applicant's existing energy management programs and also explains strategy used to develop existing and future activities. The programs reflect a comprehensive integrated plan, which will allow present and future customers the economic choices necessary to efficiently meet the energy need of the State of New Hampshire. This is the most recent report of the applicant on such programs and was submitted to the State of New Hampshire Public Utilities Commission (PUC) early in 1987.

The second report, "Remarks by R.J. Harrison, President of PSNH, News Conference, July 18, 1986", is the transcript of the introduction of the "Pathway 2000" program to the public. Pathway 2000 is intended to be the applicant's new strategic marketing and conservation package containing numerous programs for residential, commercial and industrial customers. The Pathway 2000 program appears to staff as being principally concerned with protecting New Hampshire electricity consumers from excessive rate increases resulting from the exorbitant cost of the Seabrook project and from the high prices utilities may be forced to pay for power produced by third-party non-utility producers. The implementation of the Pathway 2000 program depends upon decisions which must be made by the applicant and decisions which must be made by the PUC.

Implementation will not be quickly accomplished.

Conservation and load management are recognized in the Pathway 2000 program as important factors affecting electric consumers' rate schedules.

Staff has reviewed the two reports and related attachments and concludes that the applicant has made a successful good-faith effort to conserve energy, reduce the need for additional generating capacity and to support the objectives of the ECPA.

By letter dated January 5, 1987, the PUC has informed the Commission that the PSNH is in compliance with the published policies, restrictions and requirements of the State of New Hampshire on ECPA concerns.

Section 15(a) of the Federal Power Act

Section 4 of the ECPA amended Section 15 of the FPA to specify a number of factors the Commission is required to consider in acting on applications for new license following the expiration of existing licenses.

1. The plans and abilities of the applicant to comply with the articles, terms, and conditions of any license issued to it and other applicable provisions of Part I of the FPA (Section 15(a)(2)(i))

The PSNH states that, since obtaining the existing license, it has been committed to meeting the requirements of all the articles, terms, and conditions of the existing license. The PSNH maintains that its past performance, in conjunction with its future operations and maintenance plans, and its record of compliance with the requirements of the jurisdictional agencies, demonstrate that it is committed to meeting the future requirements for the continued operation of the project.

Our review of the compliance record of the PSNH substantiates that the PSNH has complied in a good faith manner with all articles, terms, and conditions of its existing license. Based on the above, and in consideration of the requirements of the new license, it is concluded that the PSNH will be able to comply with the terms and conditions of new license and other provisions of Part I of the FPA.

2. The plans of the applicant to manage, operate and maintain the project safely (Section 15(a)(2)(B))

The PSNH states that it is operating the generating facilities with a foremost concern for the safety of its employees and the public. Records indicate that there has never been an employee fatality. Also, there has been no injury or death to any member of the public within the project boundary. The PSNH has adopted an official safety code based on its operating experience, and this code is continually updated. The project is, and will continue to be, operated run-of-river, which causes no extreme fluctuations, thus posing no project-caused hazard for fishermen and boaters. The PSNH has prepared an emergency action plan with a notification procedure to the public in case of a potential threat to life or property downstream.

Based upon staff's review of the specific information provided by the PSNH on various aspects of the project that affect public safety, inspection reports by the Commission's Regional Director, and independent consultant reports filed under Part 12 of the Commission's regulations, 18 C.F.R. Part 12 (1987), it is concluded that the PSNH's plans to manage, operate, and maintain the project safely, are adequate.

3. The plans and abilities of the applicant to operate and maintain the project in a manner most likely to provide efficient and reliable electric service (Section 15(a)(2)(C))

The PSNH states that it: (1) installed a 4.6-MW turbine-generator unit (Unit No. 2) to replace a smaller failed unit (1.2 MW) in 1983; (2) provided remote start/stop to Unit No. 1 in 1959 from the Webster Substation, and in 1980 from the PSNH's Electric System Control Center; (3) installed tailrace stoplog slots at Unit No. 1 in 1982; (4) converted Unit No. 1 to solid state controls in 1986; (5) provided emergency control of waste gate in 1985; (6) provided remote control of waste gate in 1975 from the Webster Substation and in 1983 from the PSNH's Electric System Control Center; and (7) provided electric power to mancarts hoist on flashboard system in 1987.

The PSNH coordinates the operation of the Eastman Falls Project with its Ayers Island Project No. 2456 and Merrimack River Project No. 1893 and, in turn, with the PSNH's electrical system to minimize the cost of production. Additionally, the PSNH coordinates the operation of the project with the U.S. Army Corps of Engineers' (Corps) Franklin Falls Flood Control Facility located approximately 1.5 miles upstream to enable the Corps to inspect and maintain its water control structures.

The plant is operated in an automatic mode in a manner that maximizes generating efficiency. Maintenance upkeep has included upgrading electrical systems and repairs to the project works.

Operation of the Eastman Falls Project enables the PSNH to reduce the loading of its transmission lines and the substation. The hydroelectric plant provides low-cost generating in the PSNH's system, and these benefits are expected to increase in the future because of the escalation of fuel costs.

Based on the above considerations, review of the operation inspection reports by the Regional Director, the PSNH's past performance, and future plans to operate the project, staff believes that the project is, and under the new license will continue to be, operated and maintained in an efficient and reliable manner.

4. The need of the applicant over the short and long term for the electricity generated by the project to serve its customers (Section 15(a)(2)(D))

The applicant has applied for a new license to authorize continued and continuous operation of this project. The applicant is the present licensee of the project and no competing applications have been received by the Commission. The applicant has no plans to increase or decrease the capacity or energy output of the project.

The applicant's need for the project power has been established by history of the project's operation. The capacity and energy produced are used in the applicant's system to serve connected customer loads. In January of 1987, the New England Power Pool (NEPOOL) required the applicant to maintain a 17.81 percent reserve capacity margin over its winter peak demand. This required margin, plus the applicant's winter peak demand, exceeded the applicant's total generating capacity by 118 megawatts and required the applicant to negotiate short-term purchases of capacity and related energy. According to the applicant's statements, capacity and energy purchased on short-term contracts are generated by simple-cycle or combined-cycle combustion turbine plants. These plants have high heat rates, high production costs and consume non-renewable fossil-fuel resources. The applicant's peak demand (to which must be added the NEPOOL assigned reserve margin) will continue to increase and will cause increased requirements for additional capacity and related energy.

If a new license is not issued the applicant would have to cease operation of Project No. 2457. In the short-term, the applicant would purchase capacity from other New England utilities with replacement energy supplied from the applicant's existing units. The applicant is presently paying approximately \$22 per kilowatt-year (including wheeling costs) for combustion turbine capacity located off the applicant's system. The applicant expects this price to increase in the near future as NEPOOL reserves decrease and less surplus capacity is available. Replacement energy costs, for energy supplied from existing units on the applicant's system, vary over the year depending on the availability of major units. Replacement energy costs could vary from approximately 20 mills per kilowatt-hour if supplied from coal-fired generation to 70-100 mills per kilowatt-hour, if supplied by combustion turbines. At these values, short-term power (replacement) would cost between 25.7 mills and 106 mills per kilowatt-hour. Another short-term alternative would be the purchase of surplus capacity and energy from other utilities. The applicant is currently paying approximately \$45 per kilowatt-year for capacity and approximately 25 mills per kilowatt-hour for related energy. At these values, short-term replacement power (on an annual basis) would cost 37.7 mills per kilowatt-hour.

The applicant offers the following three long-term alternatives to Eastman Falls capacity and energy:

- A. At the present time in New England, the consensus among utilities is that, due to licensing requirements and fuel use restrictions, new utility-constructed generation will be limited to combustion turbines in the near term, and combined cycle units, with integrated fuel preparation plants, by the mid-1990's.
- B. Another source of replacement power for Eastman Falls capacity and energy are third-party developers or non-utility generators. Prior to September 11, 1986, rates paid for such energy were established by the PUC. A State Moratorium, which became effective on that date, discontinued the practice. As of March of 1987 PSNH was paying over 10 cents per kilowatt-hour for such energy (as a result of rate schedule approved by

the State prior to the effective date of the Moratorium). Although proceedings are in progress for updating the rates, PSNH must pay new non-utility projects, it is possible that updated rates may be in excess of actual costs due to compromises in the calculation methodology, front-end loading and other policy issues established by the PUC.

C. The Pathway 2000 program, described in the Section 10(a)(2)(C) discussion, is a third long-term alternative to the Eastman Falls capacity and energy. The PSNH is currently in the process of developing a comprehensive, integrated least-cost plan to determine the best allocation of resources from both the demand-side and supply-side to meet PSNH's future obligations. However, major unsettled issues between the applicant and the PUC, concerning the Pathway 2000 program, make it impossible, at this time, to balance detailed costs of realistic demand-side options against detailed costs of available supply-side options.

The total production cost of energy from the Eastman Falls Project, as calculated from data given on pages 410 and 411 of the applicant's 1986 FERC Form 1 submittal is 4.4 mills per kilowatt-hour.

The total capacity of the Eastman Falls Project is only 6.4 megawatts and in 1986 the net generation was 29,765,000 kilowatt-hours. Project energy represents only a very small fraction of the applicant's energy sales. Therefore, the substantially higher cost of replacement energy and capacity would have a minimal effect on the electric bills of the applicant's customers. Staff offers the following calculations:

Using the 37.7 mills per kilowatt-hour price that the applicant is currently paying for short-term replacement energy, the 29,765,000 kilowatt-hours of energy required to replace the annual energy produced by the Eastman Falls Project would cost \$1,122,141 compared to \$130,966 for the same amount of energy when generated by the Eastman Falls Project at 4.4 mills per kilowatt-hour. These figures yield an annual increase in the cost of purchased replacement energy over the cost of project energy of \$991,175. If, for simplicity, it is assumed that this increase in cost is spread equally over the annual electric bills of the applicant's 322,656 total customers, the average increase in each customer's annual electric bill becomes \$991,175 divided by 322,656 customers, or \$3.07 per customer, per year.

5. The applicant's existing and planned transmission services (Section 15(a)(2)(E))

Staff has reviewed the applicant's existing transmission services at the project. Based on review of the license application and the applicant's supplemental filing dated June 1, 1987, the applicant's existing project transmission service will not change if a relicense is granted.

The Commission has received no competing applications for a new license for the Eastman Falls Project. Therefore, the alternative action to the proposed action is denial of license for the current licensee to continue operation of the project.

In the event that a new license is denied the present licensee, the Commission may, at a later date, issue a new license to another utility or to a private entity. In this event, applicant states:

"If the Eastman Falls Project was licensed to someone other than Public Service Company of New Hampshire and the new licensee's intention was to sell the output to Public Service Company of New Hampshire or to another party through the Public Service Company of New Hampshire system, the electrical arrangement would remain exactly as it is now. So long as the output is fed into the 34.5-kv bus at our Eastman Falls Substation, there would be no impact on load flows, voltage levels or stability on the Public Service Company of New Hampshire system".

Staff agrees with the applicant's statement.

6. Whether the plans of the applicant will be achieved, to the greatest extent possible, in a cost effective manner (Section 15(a)(2)(F))

With regard to the Eastman Falls project, the PSNH upgraded and modernized the equipment, and reduced the overall operation expenses. Unit No. 2 was replaced by an upgraded unit.

No increase of capacity is planned. With the hydraulic capacity of 2,724 cfs and minimum flow release of 410 cfs, the PSNH adequately utilizes the flows of the Pemigewasset River.

There are no projects, proposed or constructed on the Pemigewasset River that this project would impact, and neither State or Federal agency addressed flood control, navigation, water supply or irrigation requirements in the basin.

As to the total project, the recreation resources are in accord with the Commission's policy on recreation and are adequate for meeting the needs of the area. The PSNH has fulfilled all the commitments that are required in its approved Exhibit R.

7. Such other factors as the Commission deems relevant (Section 15(a)(2)(G))

As discussed elsewhere in this order and in the attached EA, the issuance of a new license for the project would not result in any major, long-term adverse environmental impacts. Moreover, the issuance of a new license will permit the implementation of PSNH's proposed fish mitigation and recreational improvements, which would benefit the environmental resources of the project area.

8. The applicant's record of compliance with the terms and conditions of the existing license (Section 15(a)(3)(A))

Based on a review of the Regional Director and other Commission records, it is concluded that the PSNH has complied with the terms and conditions of its existing license. Also, pursuant to Part 12 of our regulations, the PSNH has filed an emergency action plan and periodic updates, all of which were found acceptable. Also, in accordance with Part 12, the PSNH has submitted an initial independent consultant's report that was found satisfactory. Thus, the PSNH's compliance record indicates that it can be expected to fully comply with the terms and conditions of any new license issued for Project No. 2457.

9. The actions of the applicant related to the project which affect the public (Section 15(a)(3)(B))

The record indicates that the PSNH has a good record of providing recreation facilities at the project. Also, the PSNH's regard for public safety is demonstrated by the installation of public safety devices at the Eastman Falls dam. Thus, the actions affecting the public taken by the PSNH in relation to Project No. 2457 support the issuance of a new license.

Summary of Findings

Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA attached to this order. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

Pursuant to Section 15(a)(2) of the FPA, as amended by ECPA, the Commission considers PSNH's plans and abilities to be adequate in regard to compliance with the articles, terms, and conditions of the license and in managing, operating, and maintaining the project safely and in a manner that would provide efficient and reliable electric service.

PSNH has demonstrated its need for project power, taking into consideration system reliability and reasonable costs and availability of alternative sources of power and their effect on the provider of the alternative power sources, its customers, and PSNH operating and load characteristics.

The project will be safe if operated and maintained in accordance with the requirements of this license and Part 12 of the Commission's regulations. Analysis of dam safety issues is provided in the Safety and Design Assessment attached to this order.

Pursuant to Section 15(a)(3) of the FPA, it is concluded that PSNH has also demonstrated an adequate record of compliance with the terms and conditions of the existing license, and has taken appropriate actions related to the project which affect the public. Maintenance of the project has been adequate. No significant environmental problems are apparent.

Conclusion

As amended by ECPA, Section 15(a)(2) of the FPA requires the Commission to issue new licenses "to the applicant having the final proposal which the Commission determines is best adapted to serve the public interest". As explained previously, the provisions of Section 10 of the FPA are applicable to applications for new license under Section 15. Consequently, Section 10(a)(1) of the FPA, as amended by ECPA, governs Commission consideration of applications for new license, and the Commission may issue a new license only if the proposal "will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water power development, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes referred

to in Section 4(e) of the FPA". 5/

Based upon the review of the agency and public comments filed in this proceeding, and the Commission's independent analysis of the requirements of Sections 4(e), 10, and 15 of the FPA as discussed herein, it is concluded that the Eastman Falls Project would not conflict with any planned or authorized development and is best adapted to a comprehensive plan for the Pemigewasset River, taking into consideration the equal consideration requirements of Section 4(e) of the FPA and the beneficial public uses described in Section 10(a)(1) of the FPA.

Section 15(e) of the Federal Power Act

Section 5 of ECPA added a new subsection (e) to Section 15 of the FPA specifying 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. This new provision is consistent with pre-ECPA Commission policy, which was to establish 30-year terms for those projects which proposed no or less than moderate new construction or capacity, 40-year terms for those projects that proposed a moderate amount of new development, and 50-year terms for those projects that proposed a substantial amount of new development. 6/

5/ Section 4(e) of the FPA authorizes the Commission to issue licenses for project works "necessary or convenient for the development and improvement of navigation and for the development, transmission, and utilization of power... ." Also, Section 4(e) provides, in a provision added by Section 3(a) of ECPA, that:

In deciding whether to issue any license under this Part for any project, the Commission, in addition to the power and development purposes for which licenses are issued, shall 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.

6/ See Montana Power Company, 56 F.P.C. 2008 (1976).

PSNH proposes no modifications to the existing project facilities or change in operation of the project. Accordingly, the new license for the project will be for a term of 30 years.

The Director orders:

(A) This license is issued to Public Service Company of New Hampshire (licensee) for a period of 30 years, effective January 1, 1988, to operate and maintain the Eastman Falls Project. This license is subject to the terms and conditions of the Federal Power Act (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, enclosed by the project boundary shown by Exhibit G:

<u>Exhibit G-</u>	<u>FERC Drawing No. 2457-</u>	<u>Showing</u>
1	9	Map of Project Area
2	10	Map of Project Area
3	11	Map of Project Area
4	12	Map of Project Area
5	13	Map of Project Area

(2) Project works consisting of: (1) a reinforced concrete gravity dam, 341 feet long and 31 feet high with a crest elevation of 301 feet USGS; (2) 6-foot-high hinged steel flashboards extending to elevation 307 feet USGS; (3) a 16-foot-high, 30-foot-wide steel wastegate located at the west end of the dam; (4) a powerhouse divided into two sections; (a) the western section contains a 4,600-kW unit; and (b) the eastern section contains a 1,800-kW unit for a total installed capacity of 6,400 kW; (5) a transmission line, 100 feet long; and (6) 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 in the attached Safety and Design Assessment.

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

(C) The Exhibit G described above and those sections of Exhibits A and F recommended for approval in the attached Safety and Design Assessment are approved and made part of the license.

(D) This license is subject to the articles set forth in Form L-3 (October 1975), entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States." The license is also subject to the following additional articles:

Article 201. The licensee shall pay the United States the following annual charge, effective January 1, 1988:

For the purpose of reimbursing the United States for the cost of administration of Part I of the Federal Power Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 8,500 horsepower.

Article 202. Pursuant to Section 10(d) of the Federal Power Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One half of the project surplus earnings, if any, accumulated under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account at the end of each fiscal year. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year under the license, the amount of that deficiency shall be deducted from the amount of any surplus earnings subsequently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, shall be set aside in the project amortization reserve account. The amounts established in the project amortization reserve account shall be maintained until further order of the Commission.

The annual specified reasonable rate of return shall be the sum of the annual weighted costs of long-term debt, preferred stock, and common equity, as defined below. The annual weighted cost for each component of the rate of return shall be calculated based on an average of 13 monthly balances of amounts properly includable in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of

Accounts. The cost rates for long-term debt and preferred stock shall be their respective weighted average costs for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

**Article 401.** The licensee shall discharge from the Eastman Falls Project, a continuous minimum flow of 410 cubic feet per second, as measured immediately downstream from the project, or inflow to the reservoir, whichever is less, for the protection and enhancement of fish and wildlife resources in the Merrimack River. This flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee and the New Hampshire Fish and Game Department.

**Article 402.** The licensee shall provide, at the Eastman Falls Dam, the trapping facilities, measures, and studies stated in the document "A Comprehensive Plan for Provision of Anadromous Fish Passage Measures and Facilities at PSNH's Merrimack-Pemigewasset River Hydroelectric Dams, FERC Projects Nos. 1893, 2456 and 2457" (Plan). The licensee, after consultation with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the New Hampshire Fish and Game Department, the Massachusetts Division of Fisheries and Wildlife, and the Massachusetts Division of Marine Fisheries, shall file for Commission approval, within 1 year after the annual passage or trapping of 50 multi-sea winter Atlantic salmon at the Amoskeag Dam (FERC Project No. 1893), functional design drawings of the trapping facilities at the Eastman Falls Project. Further, if any facilities provided for downstream fish passage require alteration of project structures, functional design drawings shall be filed for approval at least 1 year prior to implementation of the facilities as provided for in the Plan. The Commission reserves the authority to require modifications to the design of any facility. As-built drawings of the fish passage facilities shall be filed with the Commission within 6 months after completion of construction.

The licensee shall file annual reports with the Commission describing: (1) the yearly accomplishments and shortcomings in implementing the Plan, (2) the results of the studies or observations that were undertaken, and (3) the mitigative measures that were proposed or implemented based on the results of the studies or observations. Further, the licensee, after consultation with the above agencies, and no later than the year 2010, shall file for

Commission approval, a schedule for construction of any future upstream fish passage facilities required at the Eastman Falls Project. The Commission reserves the authority to require modifications to the schedule.

**Article 403.** The licensee shall develop a study plan, after consultation with the New Hampshire Fish and Game Department, the Massachusetts Division of Fisheries and Wildlife, the Massachusetts Division of Marine Fisheries, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service, to monitor the effectiveness of the downstream fish passage facilities for passing juvenile Atlantic salmon and a schedule for conducting the study. Within 6 months from the effective date of this order, the licensee shall file the plan and schedule with the Commission, including documentation of agency consultation and agency comments on the plan and schedule. The Commission reserves the right to require changes in the study plan and schedule.

The licensee shall conduct the monitoring study according to the schedule. Within 6 months after completion of the study, the licensee shall file a report on the results of the study, and, for Commission approval, any recommended changes in downstream fish passage facilities or facility operation. The filing shall include comments from the consulted agencies on the study results and on recommended changes. The licensee must file as-built drawings of the downstream fish passage facilities within 6 months following completion of construction of the facilities at the Eastman Falls Dam.

**Article 404.** The licensee shall, prior to any future construction at the project, consult with the New Hampshire State Historic Preservation Officer (SHPO) about the need for cultural resource survey and salvage work. Documentation of the nature and extent of consultation, including a cultural resources management plan and a schedule to conduct any necessary investigation prior to such construction, and a copy of a letter from the SHPO accepting the plan, shall be filed with the Commission within 6 months prior to any construction, and a copy of a letter from the SHPO accepting the plan, shall be filed with the Commission within 6 months prior to any construction activity in the location of such investigations. The licensee shall make available funds in a reasonable amount for any such work as required. If any previously unrecorded archeological or historic sites are discovered during the course of construction or development of any project works or other facilities at the project, construction activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the sites, and the licensee shall consult with the SHPO to develop a mitigative plan

for the protection of significant archeological or historical work related to the project. The Commission reserves the right to require the licensee to conduct, at its own expense, any such work found necessary.

**Article 405.** The Report on Recreational Resources, filed on October 10, 1984, as part of exhibit E (Environmental Report), consisting of 8 pages of text (E-38 through E-46), and supplemented on October 22, 1986, with a drawing entitled Recreational Use Plan, sheet 1 of 1, FERC Drawing No. 2457-77, is approved.

**Article 406.** (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 other 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 uses 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, cancelling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The types of use and occupancy of project lands and waters 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; and (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline. 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 uses 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 and roads for which 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.

(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 certificates 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 from any other private or public marinas; (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 the edge of the project reservoir at normal maximum 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 45 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 covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure 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.

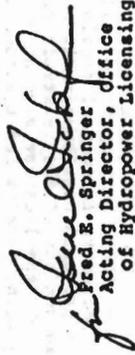
(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(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 is final unless appealed under Rule 1902 to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in this order. The licensee's failure to appeal this order shall constitute acceptance of the license.

  
Fred E. Springer  
Acting Director, Office  
of Hydropower Licensing

ENVIRONMENTAL ASSESSMENT  
DIVISION OF ENVIRONMENTAL ANALYSIS, OFFICE OF HYDROPOWER LICENSING  
FEDERAL ENERGY REGULATORY COMMISSION

- 2 -

2. Applicant's proposed mitigative measures (Source: Application, exhibit E).

- a. Construction: None.
- b. Operation: The applicant proposes to release a minimum flow of 410 cubic feet per second (cfs), and proposes to construct upstream and downstream fish passage facilities.

3. Federal lands affected:  
X No.      Yes; agency:     , acreage =       
     dated:      /      /      (Attachment     ).

4. Alternatives to the proposed action.  
a. X No other reasonable action alternatives have been found. The single alternative to the requested action is denial of a new license (see section 4b).  
     Action alternative:

b. Alternative of no action: No action would be equivalent to denial of a license for the project. Under this alternative, the Commission could issue a temporary non-power license to an entity authorized and willing to accept control of the project, or could recommend federal takeover of the project. No entity has recommended issuance of a non-power license or federal takeover.

If the project is not relicensed, the applicant would have to cease operating the project. In the short term, this would require the purchase of alternative power, the utilization of existing installed reserve capacity, or the reactivation of inactive reserve capacity, if available. In the long term, it would be necessary to revise, update, and possibly accelerate existing generation expansion programs.

D. AFFECTED ENVIRONMENT

1. General description of the locale.
  - a. Description of the Merrimack River Basin:  
The Merrimack River Basin is located in south-central New Hampshire and northern Massachusetts, and drains 5,010 square miles. The physical setting ranges from mountainous terrain in the north to coastal plain at the river's mouth. The basin is largely undeveloped, with forest and open space accounting for 79 percent of the basin's total area.
  - b. Existing licensed and exempted projects within the Merrimack River Basin, as of 08/03/87.  
There are 24 licensed projects, 32 exempted projects, and 8 non-licensed projects.
  - c. Pending license and exemption applications in the basin, as of 08/03/87.  
There are 7 license and 1 relicense applications pending.

Date: August 7, 1987

Project name: Eastman Falls FERC No. 2457 - 002

A. APPLICATION

1. Application type: Major Relicense Date filed: 12/10/84

2. Applicant: Public Service Company of New Hampshire

3. Water body: Pemigewasset River basin: Merrimack

4. Nearest city or town: City of Franklin

5. County: Merrimack/Belknap State: NH

B. PURPOSE AND NEED FOR ACTION

1. Purpose: The existing project is providing an estimated average annual generation of 26,600,000 kilowatt-hours of hydroelectric energy, a renewable resource. All of the power produced by the project is fed into the applicant's transmission and distribution system and is sold directly to applicant's customers.

2. Need for power: The applicant has applied for a new license to authorize continued operation of the Eastman Falls Project. The applicant is the present licensee of the project and no competing applications have been received by the Commission. The applicant has no plans to increase or decrease the capacity or energy output of the project.

The applicant's need for the project power has been established by the historical operation of the project. The capacity and energy produced are used by the applicant's system to serve existing customer demand. In January of 1987, the New England Power Pool required the applicant to maintain 17.81 percent reserve capacity margin over its winter peak demand. This required margin, plus the applicant's winter peak demand, exceed the applicant's total generating capacity by 118 megawatts and required the applicant to negotiate short-term purchases of capacity and related energy. According to the applicant, capacity and energy purchased on short-term contracts are generated by simple-cycle or combined-cycle combustion turbine plants. These plants have high rates, high production costs, and consume non-renewable fossil-fuel resources as compared to the renewable hydropower resource.

C. PROPOSED PROJECT AND ALTERNATIVES

1. Description of the proposed action: The existing project commenced operation in 1910; an initial license was issued in 1969, and expires in 1987. The applicant filed for a new license for the continued operation of the project. The existing project consists of: (1) a reinforced concrete gravity dam, 341 feet long and 31 feet high with a crest elevation of 301 feet above mean sea level (msl); (2) 6-foot-high hinged steel flashboards extending to elevation 307 feet msl; (3) a 16-foot-high, 30 foot-wide steel wastegate located at the west end of the dam; (4) a powerhouse divided into two sections, the western section containing a 4,600-kilowatt (kW) unit, and the eastern section containing a 1,800-kW unit for a total installed capacity of 6,400 kW; (5) a transmission line, 100 feet long; and (6) appurtenant facilities.

d. Target resource (important resource that may be affected in a cumulative manner by hydropower development within the basin).

The staff based its selection of target resources on the regional significance and geographic distribution of the resource within the river basin.

Target resource

- 1. Anadromous fish, primarily Atlantic salmon and American shad.
- 2.

The target resources listed above are described below in Section D(2). Impacts to target resources are discussed in Section G.

2. Descriptions of the resources in the project impact area. (Source: Application, exhibit E, unless indicated otherwise.)

a. Geology and soils: The project area is characterized by narrow floodplains and stream terraces surrounded rolling hills.

b. Streamflow:

low flow: 410 cfs; flow parameter: 95 percent exceedence  
high flow: 7,800 cfs; flow parameter: 5 percent exceedence  
average flow: 1,110 cfs. Average flow based on the 1944 to 1982 period of record.

c. Water quality: The water quality in the area is classified as "B" water and is generally very good. Dissolved oxygen levels in the summer range from 6.6 milligrams per liter (mg/l) to 10.4 mg/l and temperature ranges from 69° to 77° Fahrenheit.

d. Fisheries:

Anadromous: None. X Species include Atlantic salmon, American shad, and alewife. Salmon are being stocked into the Merrimack River as part of restoration program.

Resident: None. X Species include yellow perch, chain pickerel, smallmouth bass, walleye, white perch, golden shiner, and brown bullhead.

e. Vegetation:

<u>Cover type</u>	<u>Dominant species</u>
second-growth, mixed hardwood forest	red oak, red maple, aspen, ash, hickory, and white and red pine

A small wetland (Giles Pond discharge) is influenced by the normal range of reservoir elevations.

f. Wildlife:

Species inhabiting the project area include white-tailed deer, great blue heron, osprey, wood duck, black duck, ruffed grouse, and ring-necked pheasant.

9. Cultural:

X National Register (listed and eligible) properties have not been recorded. There are properties listed on or eligible for listing on the National Register of Historic Places in the area of the project's potential environmental impact.

h. Visual quality: The river and surrounding forested areas provide scenic views.

i. Recreation: Existing recreational uses include swimming, boating, fishing, camping, picnicking, birdwatching, and biking. Hunting, snowmobiling, and all-terrain vehicle riding occurs upstream of the Franklin Falls flood control dam, which is located 1.5 miles upstream of the Eastman Falls Dam.

j. Land use: Land uses in the project area close to the river include residential, commercial, and industrial development. Farther from the river, most of the area is forested or in agricultural use.

k. Socioeconomics: The project is located within the city of Franklin. The city had a population of 7,903 in 1980 (281.2 persons per square mile).

E. CONSULTATION AND COMPLIANCE

1. Fish and wildlife consultation (Fish & Wildlife Coordination Act).

(a) Fish & Wildlife Service (FWS): X Yes \_\_\_ No (b) State(s): X Yes \_\_\_ No  
(c) National Marine Fisheries Service (NMFS): X Yes \_\_\_ No

2. Section 7 consultation (Endangered Species Act).

(a) Listed species: bald eagle (transient during the migration period)  
(b) X Not required. \_\_\_ Required; completed (date): \_\_\_/\_\_\_/\_\_\_

\*letter from Bruce Blanchard, Director, Environmental Project Review, Office of the Secretary, Department of the Interior, Washington, D.C., August 8, 1985.

3. Section 401 certification (Clean Water Act).

\_\_\_ Not required. X Received. \_\_\_ Waived. \_\_\_ Requested. 01/30/85 (date)

4. Cultural resource consultation (Historic Preservation Act).

(a) Register status: X None. \_\_\_ Potentially eligible. \_\_\_ Eligible or listed.  
(b) State Historic Preservation Officer (SHPO): X Yes \_\_\_ No  
(c) National Park Service (NPS): \_\_\_ Yes \_\_\_ No Completed (date): \_\_\_/\_\_\_/\_\_\_  
(d) Council: X Not required.  
(e) Further consultation: X Not required. \_\_\_ Required.

5. Recreation consultation [Federal Power Act, §10(a)].

(a) U.S. Owners Yes X No  
(b) NPS: X Yes \_\_\_ No  
(c) State(s): X Yes \_\_\_ No

6. Wild and scenic rivers (Wild and Scenic Rivers Act).  
 Status:  None.  Listed. Determination completed: \_\_\_/\_\_\_/\_\_\_  
 Administering agency: \_\_\_\_\_
7. LWCA lands and facilities affected (Land and Water Conservation Fund Act).  
 Status:  None.  Designated. Determination completed: \_\_\_/\_\_\_/\_\_\_  
 Administering agency: \_\_\_\_\_

F. COMMENTS

1. The following entities provided comments on the application in response to the public notice dated 5 / 31 / 85.

Commenting entity	Date of letter
Department of the Army, Corps of Engineers	6 / 11 / 85
New Hampshire Department of Fish and Game (NHFG)	6 / 26 / 85
New Hampshire Water Resources Board	7 / 1 / 85
National Marine Fisheries Service (NMFS)	7 / 3 / 85
Environmental Protection Agency	7 / 23 / 85
Department of the Interior (Interior)	8 / 0 / 85

2. The applicant responded to the comments by letter dated 10 / 2 / 85.

G. ENVIRONMENTAL IMPACTS AND RECOMMENDATIONS

Mitigative measures recommended by the staff are in addition to those proposed by the applicant, Section C(2), and those conditions identified in Section C(3), as appropriate. There are 6 issues addressed below.

1. Minimum streamflow.

- (a) Comments: Interior recommended a continuous minimum flow of 410 cfs be released from the project powerhouse for the protection and enhancement of fish resources in the river.
- (b) Applicant's response: The applicant has agreed to provide a continuous minimum flow of 410 cfs from the project.
- (c) Conclusions and recommendations: A minimum flow release would protect the cold-water and anadromous fish resources of the Merrimack River, enhance fish habitat, and maintain or improve water quality downstream of the Eastman Falls Dam. The licensee should release a continuous minimum flow of 410 cfs from the project at all times to protect and enhance fish resources and water quality.

2. Upstream fish passage.

(a) Comments: Interior, NMFS, and NHFG recommend upstream fish passage facilities be provided at the Eastman Falls Project, when such facilities are determined to be necessary.

(b) Applicant's response: The applicant, in cooperation with the resource agencies, has developed a comprehensive plan for fish passage at the applicant's mainstem dams on the Merrimack River. This plan, entitled "A comprehensive plan for protection of anadromous fish passage measures and facilities at Public Service of New Hampshire's Merrimack-Pemigewasset River Hydroelectric Dams, FEIS Projects Nos. 1893, 2456 and 2457," provides future passage of anadromous fish in the Merrimack and Pemigewasset Rivers. The applicant has agreed to provide upstream fish passage at the Eastman Falls dam as set forth in the plan.

(c) Conclusions and recommendations: According to the plan, an Atlantic salmon trapping facility would be provided at the Eastman Falls Dam for the spring run of the second year following the annual passage or trapping of 50 multi-see-year Atlantic salmon at the next downstream dam (Amoskeeg Dam). The applicant will provide for the transportation of Atlantic salmon from the Eastman Falls Dam until such time as full fish passage facilities (fish ladder) becomes available. The fishery agencies support the plan.

Full upstream passage facilities at the Eastman Falls Dam will be deferred to the year 2010 or later. In the year 2010, the need for these facilities will be re-evaluated by the fisheries resource agencies and the licensee.

Restoration of anadromous fish past the Eastman Falls Dam would require upstream fish passage. Since there are no fish passage facilities currently at the dam, constructing these facilities may be a substantial benefit to the fisheries resources of the river. Therefore, the licensee should construct and operate fish passage facilities at the Eastman Falls Dam as outlined in the plan.

3. Downstream fish passage.

(a) Comments: Interior, NMFS, and NHFG recommend downstream fish passage be provided at the project within 1 year of issuance of the license.

(b) Applicant's response: The applicant has provided functional design drawings for downstream fish passage facilities at the Eastman Falls Dam for Commission approval. The proposed facilities are scheduled to be operational by the spring of 1988.

(c) Conclusions and recommendations: Currently the U.S. Fish and Wildlife Service is stocking juvenile Atlantic salmon above Eastman Falls Dam as part of the Salmon Restoration Program. The stocking schedule is expected to continue until a self-sustaining run of Atlantic salmon is established.

Construction and operation of the downstream fish passage facilities, as proposed by the applicant would facilitate the safe migration of Atlantic salmon over the Eastman Falls Dam. To ensure efficient fish passage, monitoring the effectiveness of the facilities may be needed. The licensee should develop a study plan and schedule, after consultation with the resource agencies, to monitor the effectiveness of the downstream fish passage facilities. As-built drawings of the downstream passage facilities should be filed with the Commission 6 months after completion of construction.

4. Cultural resource protection.

- (a) Comments: None.
  - (b) Applicant's response: None.
  - (c) Conclusions and recommendations: The project would not involve any new construction. Prior to any future construction at the project, the applicant should consult with the SHPO about the need for any cultural resource survey and salvage work.
5. Project recreation plan.
- (a) Comments: By letter dated October 3, 1986, Interior indicates that the applicants revised recreational use plan adequately provides for recreational needs at the project.
  - (b) Applicant's response: None.
  - (c) Conclusions and recommendations: The report on recreational resources filed as part of the license application and supplemented on October 22, 1986, adequately provides for recreational use at the project. The report should be approved and made a part of any license issued.

6. Cumulative impact assessment.

Continued operation of the Eastman Falls Project would affect outmigrating salmon smolts in concert with downstream mainstem Herrimack River dams; however, provisions of the fish passage agreement incorporated into the existing license and recommended for inclusion in the new license would provide benefit for both upstream and downstream migrating anadromous fish and would increase the potential for a successful restoration program. Continuing operation of the project would not inundate any further stream habitat of resident gamefish. Provisions for downstream passage of anadromous fish could also help resident fish by reducing any turbine mortality. Thus, the staff concludes that the Eastman Falls Project would not contribute to cumulative adverse impacts to identified target resources in the Herrimack River Basin. An assessment of the cumulative impacts of existing and proposed projects in the basin was prepared on January 28, 1987 (Federal Energy Regulatory Commission, 1987).

H. SUMMARY OF ENVIRONMENTAL IMPACTS

1. Assessment of adverse and beneficial impacts expected from the project as proposed by the applicant (P); the proposed project with the staff's recommended mitigation (Ps) [Section G]; and any other alternative considered (A).

Resource	Impact			Remarks
	P	Ps	A	
a. Geology/Soils	O			
b. Streamflow	2BL			b. Establishing a minimum flow would substantially improve fish habitat below the project.
c. Water quality:				
Temperature	O			
Dissolved oxygen	O			
Turbidity and sedimentation	O			
Other				
d. Fisheries:				
Anadromous	2BL 2BL			d. Construction of fish passage facilities would enable fish to move to areas previously blocked by the project dam.
Resident	1BL 1BL			
e. Vegetation	O			
f. Wildlife	O			
g. Cultural:				
Archeology	O			
History	O			
h. Visual quality	O			
i. Recreation	1BL 1BL			i. Implementation of the recreation plan would enhance recreational use of the project area.
j. Land use	O			
k. Socioeconomics	O			

\* The assessment reflects the adoption of any federal land management agency's conditions, in addition to the applicant's proposed mitigation. Assessment symbols indicate the following impact levels:

- O = No impact; 1 = Minor impact; 2 = Substantial impact; 3 = Major impact;
  - A = Adverse; B = Beneficial; L = Long-term impact; S = Short-term impact.
- (e.g., 1BL = Minor, beneficial, long-term impact)

2. Impacts of the no-action alternative.

Under the no-action alternative, there would be no construction of project facilities or changes to the existing physical, biological, or cultural components of the area. Electrical power that would be generated by the proposed hydroelectric project would have to be generated from other available sources or offset by conservation measures. Benefits to the anadromous fish resource would not occur.

3. Recommended alternative (including proposed, required, and recommended mitigative measures): X Proposed project.      Alternative action.      No action.

4. Reason(s) for selecting the preferred alternative.

The proposed project is preferred over the no-action alternative because the project purpose can be achieved while providing environmental benefits over the existing situation. Anadromous fish populations would be substantially enhanced.

I. SUMMARY OF UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

The recommended minimum flow release and fish passage requirement would ensure that impacts from continued operation of the project are minimized.

J. CONCLUSION

X Finding of No Significant Impact. Approval of the recommended alternative [H(3)] would not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

     Intent to Prepare an EIS. Approval of the recommended alternative [H(3)] would constitute a major federal action significantly affecting the quality of the human environment; therefore, an EIS will be prepared.

K. LITERATURE CITED

1. Public Service Company of New Hampshire. 1984. Application for new license for the Eastman Falls Project, FERC No. 2457, New Hampshire. December 10, 1984.
2. Federal Energy Regulatory Commission. 1987. Environmental assessment for the Merrimack River Basin. Docket No. EL85-19-113. Office of Hydropower Licensing. January 28, 1987. 33 pp.

L. LIST OF PREPARERS

Name	Position title
Alan Hitchnick	Wildlife (Coordinator)
Mark Bagdovitz	Ecologist
Robert Grlove	Fishery Biologist
James R. Kirby, Jr.	Environmental Protection Specialist
John Hitchnell	Writer-editor

DAM SAFETY

The Eastman Falls Hydroelectric project is located on the Pemigewasset River, in the City of Franklin, about 1.5 miles downstream from the U.S. Army Corps of Engineers Franklin Falls Flood Control Dam, in Merrimack and Belknap Counties, New Hampshire.

The initial license was issued in 1969 and will expire in 1987. The Public Service Company of New Hampshire has filed an application for a new license for the continued operation of the project on December 10, 1984.

The Eastman Falls dam, which is owned by the applicant, was inspected by the Commission's New York Regional Office (NYRO) on September 10, 1986. The Regional Director reported that the dam and project structures are in sound condition. Staff reviewed the third five-year Inspection Report dated October 1982 and the Supplemental Stability Analysis dated March 1983, and concluded that the dam and all project structures are stable under all loading conditions as analyzed under guidelines and assumptions accepted by the Commission. The dam is able to safely pass the routed PMF of 169,000 cfs.

Staff also concluded from information provided by the PSNH on various aspects of the project, which affect public safety, that the PSNH's plans to manage, operate, and maintain the project safely, are adequate.

The basic design of the project would remain unchanged.

WATER RESOURCE PLANNING

The project is operated run-of-river. The applicant does not plan to modify the existing project facilities or change the operation of the project. The applicant is installing a downstream fish passage facility in accordance with Article 38 of the Order Amending License issued December 9, 1981. The applicant is planning to put the fish passage facility into operation in 1987.

There are no current contracts or constraints which affect the manner in which the project is operated other than the minimum flow requirement of 410 cfs.

In 1983 the applicant increased the generating capacity of the project from 3 MW to 6.4 MW. The hydraulic capacity of 2,724 cfs and the minimum flow of 410 cfs corresponds to the flow equalled or exceeded 20% of the time on the flow duration curve for the Pemigewasset River. No additional increase of capacity is planned.

No specific state or federal agency comments or recommendations were made addressing flood control, navigation, water supply, or irrigation requirements in the basin.

FEDERAL POWER COMMISSION

TERMS AND CONDITIONS OF LICENSE FOR CONSTRUCTED  
MAJOR PROJECT AFFECTING NAVIGABLE  
WATERS OF THE UNITED STATES

The Merrimack River Basin Planning Status Report includes no projects, either proposed or constructed on the Penigewasset River that this project would impact. The project would not conflict with any pending applications for exemption, license, or preliminary permit.

Based on the above, staff concludes that the Eastman Falls Project adequately utilizes the available flow and head at the site and would not conflict with any existing or planned water resource developments in the basin.

EXHIBITS

The following portion of Exhibit A and the following Exhibit F drawings should be included in the new license.

Exhibit A. Pages A-1 through A-3 and Appendix A-1 (six unmarked pages) describing the mechanical, electrical and transmission equipment filed December 10, 1984.

<u>Exhibit F Drawings</u>	<u>FERC No. 2157-</u>	<u>Description</u>
1	1	Plan and Elevation
2	2	Dam Sections
3	3	Floor Plan - Unit No. 2 Powerhouse
4	4	Longitudinal Section Unit No. 2 Powerhouse
5	5	Sections - Unit No. 2 Powerhouse
6	6	Floor Plan - Unit No. 1 Powerhouse
7	7	Longitudinal Section Unit No. 1 Powerhouse
8	8	Sections - Unit No. 1 Powerhouse

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 Power 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 of 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 of 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 event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a non-power licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project; and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license. Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

Article 7. The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

Article 8. The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location

of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 9. The Licensee shall, after notice and other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

Article 10. The Licensee shall, after notice, and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 11. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits

provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

Article 12. The United States specifically retains and safeguards the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and the operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Secretary of the Army may prescribe in the interest of navigation, and as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Secretary of the Army may prescribe in the interest of navigation, or as the Commission may prescribe for the other purposes hereinbefore mentioned.

Article 13. On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and

opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 14. 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 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 15. The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

Article 16. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be

reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 17. The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

Article 18. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

Article 19. In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

Article 20. The Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of the project reservoirs which may die during operations of the project shall be removed. All clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

Article 21. Material may be dredged or excavated from, or placed as fill in, project lands and/or waters only in the prosecution of work specifically authorized under the license; in the maintenance of the project; or after obtaining Commission approval, as appropriate. Any such material shall be removed and/or deposited in such manner as to reasonably preserve the environmental values of the project and so as not to interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the District Engineer, Department of the Army, in charge of the locality.

Article 22. Whenever the United States shall desire to construct, complete, or improve navigation facilities in connection with the project, the Licensee shall convey to the United States, free of cost, such of its lands and rights-of-way and such rights of passage through its dams or other structures, and shall permit such control of its pools, as may be required to complete and maintain such navigation facilities.

Article 23. The operation of any navigation facilities which may be constructed as a part of, or in connection with, any dam or diversion structure constituting a part of the project works shall at all times be controlled by such reasonable rules and regulations in the interest of navigation, including control of the level of the pool caused by such dam or diversion structure, as may be made from time to time by the Secretary of the Army.

Article 24. The Licensee shall furnish power free of cost to the United States for the operation and maintenance of navigation facilities in the vicinity of the project at the voltage and frequency required by such facilities and at a point adjacent thereto, whether said facilities are constructed by the Licensee or by the United States.

Article 25. The Licensee shall construct, maintain, and operate at its own expense such lights and other signals for the protection of navigation as may be directed by the Secretary of the Department in which the Coast Guard is operating.

Article 26. 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 27. The right of the Licensee and of its successors and assigns to use of 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 28. 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.

Article 30. 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 31. 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 32. 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.