

APPENDIX

application requirements, pursuant to Puc 2505.02

(1) *Name and address of applicant*

Lutz Loegters
Ampersand Gilman Hydro LP
390 Bay St.
Toronto, ON M4N 1B9
Canada

(2) *Name and location of facility*

Gilman Hydro Project
The Gilman Mill
35 Riverside Drive
Gilman, VT 05904

(3) *ISO-NE asset identification number*

737

(4) *GIS facility code*

MSS737

(5) *Description of the facility*

The Gilman Hydro Project is located in the Village of Gilman, VT in the Town of Lunenburg, Essex County, Vermont, and in the Town of Dalton, Coos County, New Hampshire, at river mile 300 on the Connecticut River. The project consists of a refurbished concrete dam, a power canal and tailrace channel, a powerhouse with one 2.25 MW generating unit, one 1.0 MW generating unit and two 0.8 MW generating units, a switching facility, a transmission line and entrance intake structures.

The boundary between Vermont and New Hampshire passes through the project so that the 2.25 MW generating unit and the 1.0 MW generating unit are located in New Hampshire, while the two 0.8 MW generating units are located in Vermont. The project

dam is 324.5 feet wide spanning the width of the Connecticut River. In 1995 and 1996 the Simpson Paper Company, who owned and operated the site to produce paper until 1999, spent \$4.7 million to refurbish the dam by replacing the existing timber crib dam structure with a concrete gravity structure and adding rubber dam crest controls to the new and existing spillways. The dam includes an overflow spillway section containing a hydraulically operated crest gate.

The new concrete spillway dam has a crest elevation of 826.8 feet and repaired existing concrete dam sections have rubber dam crest controls to elevation 833.3 feet (fully inflated), the normal head pond elevation. The rubber dam body on the new dam section is 6.5 feet high and 109.5 feet long. The rubber dam body on the existing dam section is 5.0 feet high and 108.0 feet long.

The Project is operated as a run-of-river facility, with outflow equal to inflow on an instantaneous basis, maintaining normal head pond elevation of 833.3 feet whenever possible, according to the U.S. Geological Survey (USGS). The Project incorporates a 27-foot wide hydraulic crest gate, which is operated to maintain the level of the head pond at the top of the rubber dams. The minimum flow needed to operate the Project is 130 cubic-feet per second (cfs). The maximum hydraulic capacity of the Project is 2,850 cfs. When river flows exceed this amount, it is spilled at the dam. When river flows fall below 130 cfs, such flows will also be spilled at the dam. The average gross head at the Project is approximately 24 feet from a head pond at elevation 833.3 feet to tail water at elevation 809.0 feet.

The Project impoundment at normal pond condition extends approximately 209 miles upstream of the dam to a point just above the confluence of the Johns River, at normal pond condition; the maximum surface area of the impoundment is approximately 130 acres at an elevation of 833.3 feet (USGS). The gross storage capacity at normal pond condition is estimated to be approximately 705 acre-feet, with an average depth of approximately 5.4 feet.

The Project powerhouse is located at the northern Vermont end of the dam on the right bank of the Connecticut River and was originally constructed as a ground wood mill. The powerhouse has a substructure of mass concrete with integral water intake draft tubes. The superstructure is of brick construction with steel-frame

and timber-frame construction. Project controls and mechanical equipment are located inside the powerhouse.

There are four turbines at the Project; the turbine units are numbered 1 through 4, from south to north. Wheel No. 1 is a horizontal tube turbine installed in 1985 and 1986. Wheels Nos. 2, 3 and 4 are contained in turbine pits, each approximately 20 feet wide. Wheel No.2 is a vertical single-regulated propeller turbine with adjustable wicket gates. Wheels Nos. 3 and 4 are horizontal Francis turbines. The combined installed capacity of the Turbine Generators is 4.85 MW. Generators No. 2, 3 and 4 are direct-connected to the turbines; Generator No.1 utilizes a speed increaser, allowing the generator to turn at 900 rpm while the turbine turns at 150 rpm. The Project is both manually and automatically operated. The water wheel and Generator No.1, installed in 1985 and 1986, are automatically controlled. The three other turbines and generators (Nos. 2, 3 and 4) are manually controlled.

(6) *Not applicable*

(7) *Other necessary regulatory approvals*

FERC license (added to this application); New Hampshire Water Quality Certification, Vermont Water Quality Certification (added to this application)

(8) *Proof that AGH has an approved interconnection*

The current interconnection agreement has been assigned to AGH in December of 2008 from the previous owner, Dalton Hydro LLC ("Dalton"). Dalton entered into the interconnection agreement with Central Vermont Public Service (CVPS) in June of 2008. The agreement, which has a term of five (5) years, was approved by the Vermont Public Service Board by order dated October 1, 2008 (Docket No. 6833).

Due to confidentiality reasons we have not added the interconnection request to this application. We will provide further proof of interconnection, if required.

(9) *Not applicable*

(10) *Description of how the Gilman hydro project is connected to the distribution utility*

The Gilman hydro project's interconnection point with the interconnecting utility is described in the interconnection agreement between CVPS and AGH as the point where CVPS's transmission system connects with AGH's electric facility, specifically structure 168 which is located just outside AGH's transformer yard. Energy produced at Gilman hydro project is transformed to 34.5 kV when delivered into the CVPS distribution system.

(11) *A statement as to whether the facility has been certified under another non-federal jurisdiction's renewable portfolio standard and proof thereof*

The Gilman Hydro Project's output is qualified as a Class II source pursuant to Connecticut Department of Utility Control's (CT DPUC) Renewable Portfolio Standard. AGH also qualified 32.2% of the project's output a Class I. The final decision granting the incremental portion of the Gilman Hydro Project as Class I was issued by the CT DPUC on January 27, 2010. AGH applied for Class I certification in Connecticut based on capital investments and resulting efficiency improvements.

(12) *A statement as to whether the facility's output had been verified by ISO-New England*

As registered resource with the ISO-NE and participating resource of the ISO-NE Forward Capacity Auctions, the Gilman Hydro Project's output has been verified by the ISO-NE.

(13) *A description of how the facility's output is reported to the GIS if not verified by ISO-New England*

As participating resource of Connecticut's renewable portfolio standard, AGH submits monthly generation data via the NEPOOL GIS.

- (14) *An affidavit by the owner attesting to the accuracy of the contents of the application*

An affidavit attesting to the accuracy of the contents has been added this application.

- (15) *The name and telephone number of the facility's operator, if different from the owner*

The site is operated by Ampersand Gilman Hydro LP. For questions regarding operational details please contact our site manager

Gregory Cloutier
tel. 603 443 7610
email. waterpower@starband.net

- (16) *Such other information as the applicant wishes to provide to assist in classification of the generating facility.*

Below we provide underlying monthly production data used to calculate the historical generation baseline, in support of our request for application for qualification of incremental new production as Class I source. We also provide an overview of capital investments made with regards to each turbine since AGH assumed operational responsibility in August of 2008.

Figure 1. Monthly production, 1987 - 2006

average production (1987-2006): 20,261 MWh

Month	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	1,836	1,914	1,800	2,395	2,370	1,869	2,044	1,901	1,736	2,033	2,269
February	1,277	1,530	1,126	1,123	1,711	983	1,136	1,355	1,504	1,829	1,703
March	1,346	1,155	1,388	769	1,037	1,171	1,503	1,606	2,225	2,101	1,746
April	2,572	2,532	1,985	3,059	2,048	1,643	2,941	2,568	2,765	2,163	2,644
May	1,948	2,049	1,297	2,394	1,816	1,131	2,426	2,291	2,069	1,617	2,383
June	1,918	1,043	1,348	2,212	1,613	1,048	1,994	2,113	813	1,724	1,950
July	1,879	1,429	958	2,194	839	1,430	1,285	2,071	662	2,354	1,969
August	850	1,249	1,071	1,975	1,500	939	1,172	1,376	588	42	1,547
September	1,034	1,468	1,610	1,136	1,527	1,306	1,624	1,481	309	0	869
October	2,187	1,601	2,255	2,512	2,850	1,845	2,552	1,500	2,492	0	1,620
November	1,843	2,407	2,235	2,598	2,284	2,150	2,253	1,230	1,769	292	1,798
December	2,206	2,258	1,559	2,046	2,256	2,206	2,078	1,625	1,460	1,837	1,574

Yearly Total 20,896 20,635 18,632 24,413 21,851 17,721 23,008 21,117 18,392 15,992 22,072

Month	1998	1999	2000	2001	2002	2003	2004	2005	2006
January	2,015	2,099	2,026	1,806	1,690	1,350	2,212	2,082	1,981
February	1,389	1,812	1,281	1,384	1,724	614	1,146	1,442	1,638
March	1,459	2,115	2,450	970	1,942	1,019	1,667	1,338	1,434
April	2,447	2,384	2,014	1,667	1,398	2,042	2,154	2,056	2,316
May	1,947	2,202	2,430	2,111	2,053	2,547	2,400	2,557	2,256
June	2,154	848	1,708	1,727	1,824	1,576	1,319	2,230	2,233
July	2,405	1,429	1,067	1,495	1,517	669	1,519	1,932	1,865
August	1,434	480	1,067	771	1,003	974	1,859	898	1,879
September	1,052	1,150	1,120	424	859	860	2,015	1,280	1,124
October	1,845	2,249	1,499	763	1,179	1,498	964	1,727	1,684
November	2,248	2,155	2,115	1,534	1,558	2,238	1,798	1,883	1,917
December	2,282	2,335	1,593	1,460	1,491	2,119	2,054	1,976	1,492

Yearly Total 22,678 21,257 20,370 16,111 18,239 17,508 21,108 21,401 21,819

*calculated based on historical monthly averages

Figure 2. Efficiency improvements at Gilman since August 2008

Unit #	Unit manufacturer	Design turbine capacity	Capacity at day of purchase 08/2008	Capacity as of 03/2010	Reasons for difference between current capacity and design capacity	Investments made to date
Unit_1	ALLIS CHALMERS	2,250	1,950	2,250	reduced production due to malfunction of wicket gate ring; characterization of blade to wicket gates manually operated; no water level control and no dam flashboard blader control to maintain maximum impoundment elevation; existence of mechanical stop preventing cavatation at high head, low tail water levels	new PLC system; new characterization curve allowing wicket gates and blade angles to advance at different head settings; new wicket gate bearings; rebuilt wicket gate adjustment ring; removed mechanical stop.
Unit_2	LEFFEL	1,000	720	1,000	reduced production for many years: no changes made to flow to turbine; unit has not had wicket gate linkage or governor adjusted to maximum opening since 1967.	new PLC control; new governor servo cylinder; new automatic shutdown and wicket gate hydraulic control for ease of automatic operation; longer wicket gate stroke; forebay walls modified with flow inducers to start divert water correctly for this vertical unit; wicket pins and bushing rebuilt; cooling to Unit #2 room
Unit_3	S MORGAN SMITH	800	0	750	no PLC and malfunction of electrical and control equipment	new PLC control and repair of electrical and control equipment
Unit_4	S MORGAN SMITH	800	50	300	unit is a original 1912 double camel back horizontal unit, with 1/2 of the runners removed	new PLC control; new high efficiency runners/wicket gate combination with new governor hydraulics for ease of automatic operation



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New Hampshire Public Utilities Commission
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March 29, 2010

Affidavit attesting to the accuracy of the contents submitted in
Ampersand Gilman Hydro LP's application

I, Lutz Loegters, Project Manager of Ampersand Gilman Hydro, LP (AGH), hereby state that the contents contained in AGH's application to the New Hampshire Public Utilities Commission, dated March 29, 2010, for qualification for New Hampshire's electric renewable portfolio standard, are accurate to the best of my knowledge, information, and belief.

A handwritten signature in blue ink, appearing to read "Lutz Loegters", is written over a horizontal line.

Lutz Loegters
Project Manager
Ampersand Gilman Hydro LP



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The New Hampshire Fish and Game Department (NHFGD) and the Vermont Agency of Natural Resources (VANR) recommend that both upstream and downstream fish passage facilities be installed at the Gilman dam when deemed necessary by the state fish and wildlife agency, the FWS, and the National Marine Fisheries Service. Interior, by letter dated May 5, 1989, stated that, although fish passage facilities are not needed at the present time, they may be needed in the future. Interior, therefore, recommends that the Licensee be required to provide fish passage facilities at the project when prescribed by the Secretary of the Interior under Section 18 of the Act. SPC does not oppose a reservation clause that would permit consideration of fishway facilities in the future.

I recognize that future fish passage needs and management objectives can not always be predicted at the time of license issuance. Section 18 of the Act provides the Secretary of the Interior the authority to prescribe fishways. ^{4/} Although fishways may not be recommended by Interior at the time of project licensing, upon receiving a specific request from Interior, it is appropriate for the Commission to include a license article which reserves the Interior's prescription authority. ^{5/} Therefore, article 405 reserves the Commission's authority to require fishways that Interior may prescribe.

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES

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

COMPREHENSIVE PLANS

Section 10(a)(2) of the Act, 16 U.S.C. §803(a)(2), requires the Commission to also consider the extent to which the project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways

^{4/} Section 18 of the Act states that the Commission shall require such fishways as may be prescribed by the Secretary of Commerce or the Secretary of the Interior as appropriate.

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

affected by the project. Under section 10(a)(2), federal and state agencies have filed with the Commission eight comprehensive plans that address various resources in New Hampshire and seven comprehensive plans that address various resources in Vermont. Of these, the staff identified and reviewed six New Hampshire plans and four Vermont plans relevant to this project. ^{6/} No conflicts were found.

COMPREHENSIVE DEVELOPMENT

Sections 4(e) and 10(a)(1) of the Act, require the Commission to give equal consideration to all uses of the waterway on which a project is located. When the Commission reviews a project, the recreational, fish and wildlife resources, and other nondevelopmental values of the involved waterway are considered equally with power and other developmental values. In determining whether, and under what conditions, a hydropower license should be issued, the Commission must weigh the various economic and environmental tradeoffs involved in the decision.

A. Recommended Alternative

Based on staff's independent review and evaluation of the proposed Gilman Project, agency recommendations, and the recommended alternative, I have selected issuing a license for the proposed project, with additional staff-recommended environmental measures, as the preferred option. I selected this option because: (1) with these measures, the environmental effects of subsequent operation would be minor; (2) these measures would protect or improve fish, wildlife, and recreation resources; and (3) the electricity generated from a renewable resource would be provided, thus continuing to offset the use of existing fossil-fueled, steam-electric generating plants; thereby, conserving nonrenewable energy resources, and reducing atmospheric pollution, and global warming.

The beneficial effects (in addition to the air quality benefits) on the environment associated with the licensing of the Gilman Project would result from the required environmental measures. These measures include:

- (a) operating the project in a run-of-river mode;
- (b) spilling from the project dam, whenever inflow to the project is 1,000 cfs or less, a continuous minimum flow of 210 cubic feet per second from June 1 through October 15, or inflow to the project, whichever is less, into the

^{6/} For a list of the plans, see the attached Environmental Assessment.

Connecticut River for the protection of water quality in the Connecticut River;

(c) developing and implementing a plan to monitor the run-of-river operating mode and the minimum flow conditions of this license;

(d) developing and implementing a plan to monitor dissolved oxygen (DO) concentrations and water temperature of the Connecticut River downstream and upstream of the Gilman Project.

(e) implementing the canoe portage plan, filed December 27, 1988, and the boat launch site plan, filed September 19, 1989.

B. Developmental and Nondevelopmental Uses of the Waterway

The project would annually generate an estimated 25,078 MWh of relatively low-cost electricity from a renewable energy resource for use by the applicant in its paper mill and by NEP's wholesale customers. Positive, long-term benefits to water quality and resident fisheries below the project would occur due to the spillage of an instantaneous minimum flow of 210 cfs at the Gilman dam to improve dissolved oxygen (DO) conditions. The Atlantic salmon restoration program for the Connecticut River Basin (CRB) would benefit from the cooperation and support of the licensee in implementing a fish passage plan involving the Gilman dam. Upgrading the existing canoe portage around the project dam and improving the existing boat launch site for the project impoundment would provide better access to the river for water-based recreation within the project area.

The primary costs associated with the project would be:

(1) the loss of approximately 182,015 kWh, or 0.7 percent, in potential annual energy generation currently valued at approximately \$11,000 ^{1/} due to the release of the minimum spillage flow; (2) the costs that would be shared by the licensee in implementing a fish passage plan involving the Gilman dam; and (3) the construction and maintenance expenses of implementing the proposed recreational enhancement measures.

Based on the above discussion, the costs of the environmental measures are commensurate with the benefits to the resources, and the project would be economically beneficial even with the environmental measures.

Based on review of the agency and public comments filed on this project, and on staff's independent analysis and assessment

^{1/} 182,015 kWh at \$0.06/kWh.

of the project pursuant to sections 4(e), 10(a)(1), and 10(a)(2) of the Act, I find that the Gilman Project is best adapted to a comprehensive plan for the proper use, conservation, and development of the Connecticut River and other project related resources.

PROJECT RETIREMENT

The Commission has issued a Notice of Inquiry (NOI), dated September 15, 1993, requesting comments that address numerous issues involving the potential decommissioning of licensed hydropower projects at some future time, based on project-specific circumstances. ^{8/} The NOI states that the Commission is not proposing new regulations at this time, but is inviting comments on whether new regulations may be appropriate. Alternatively, the Commission may consider issuing a statement of policy addressing the decommissioning of licensed hydropower projects, or take other measures. The Gilman Project may be affected by future actions that the Commission takes with respect to issues raised in the NOI. Therefore, the license includes Article 204, which reserves authority to the Commission to require the licensee to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project in appropriate circumstances. The terms of Article 204 are effective unless the Commission, in Docket No. RM 93-23, finds that it lacks statutory authority to require such actions.

By including Article 204, I do not intend to prejudge the outcome of the NOI. I am simply including the article so that the Commission will be in a position to make any lawful and appropriate changes in the terms and conditions of this license, which is being issued during the pendency of the NOI, based on the final outcome of that proceeding.

TERM OF LICENSE

In 1986, the Electric Consumers Protection Act modified Section 15 of the Act to specify that any license issued under Section 15 shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years. The Commission's policy is to establish 30-year terms for those projects which propose little or no redevelopment, new construction or new capacity; 40-year terms for those projects that propose moderate redevelopment, new construction or new capacity; and 50-year terms for those

^{8/} Notice of Inquiry, Project Decommissioning at Relicensing, Docket No. RM93-23-000, September 15, 1993, 58 FR 48,991 (1993).

projects that propose extensive redevelopment, new construction or new capacity.

SPC proposes no modifications to the existing project facilities or changes in operation of the project. The existing license expired on December 31, 1990. Accordingly, the new license for the project will be for a term of 30 years effective the first day of the month in which this license is issued.

SUMMARY OF FINDINGS

An EA was issued for this project. 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.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the Safety and Design Assessment. 9/

I conclude that the project would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

THE DIRECTOR ORDERS:

(A) This license is issued to Simpson Paper (Vermont) Company (Licensee), for a period of 30 years, effective the first day of the month in which this license is issued to operate and maintain the Gilman Project. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the Act.

(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 No.2392 -</u>	<u>Showing</u>
1	16	Project Location

9/ A Safety and Design Assessment was prepared for the Gilman Project No. 2392 and is available in the Commission's public file for this project.

(2) Project works consisting of: (a) the Gilman dam, a concrete gravity structure approximately 108 feet long and 29 feet high, and a rock-filled timber crib structure approximately 170 feet long and 40 feet high, each with a crest elevation of 828.3 feet USGS; (b) 5-foot-high flashboards bringing the normal water surface elevation to 833.3 feet USGS; (c) a hydraulically operated crest gate 18 feet high and 27 feet wide; (d) a reservoir having an area of 130 acres, a storage capacity of 705 acre-feet, and a normal water surface elevation of 833.3 feet USGS; (e) a powerhouse containing four turbine-generator units, one rated at 2,250 kW, one rated a 1,000 kW, and two rated at 800 kW each for a total rated capacity of 4,850 kW; (f) a 200-foot-long transmission line; (g) a 2.4-kV generator bus, a 2.4kV/34.5kV step-up transformer; and (h) 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", and the following additional articles:

Article 201. The Licensee shall pay the United States the following annual charge, effective the first day of the month in which this license is issued:

For the purpose of reimbursing the United States for the cost of administration of Part I of the 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 6,460 horsepower.

Article 202. Pursuant to Section 10(d) of the 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 reasonable rate of return is the product of its capital ratio and cost rate. The annual capital ratio 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 203. If the Licensee's project was directly benefitted by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed. The benefits will be assessed in accordance with Subpart B of the regulations.

Article 204. The Commission reserves authority, in the context of a rulemaking proceeding or a proceeding specific to this license, to require the Licensee at any time to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project. The terms of this

article shall be effective unless the Commission, in Docket No. RM93-23, finds that the Commission lacks statutory authority to require such actions or otherwise determines that the article should be rescinded.

Article 401. The Licensee shall operate the Gilman Project in a run-of-river mode for the protection of aquatic resources in the Connecticut River. The Licensee, in operating the project in a run-of-river mode, shall at all times act to maintain the reservoir water surface elevation at or within 6 inches of the top of the flashboards, and minimize the fluctuation of the reservoir surface elevation by maintaining a discharge from the project so that, at any point in time, flows, as measured immediately downstream of the project, approximates the sum of the inflows to the project reservoir.

Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the Licensee, or for short periods upon mutual agreement between the Licensee, the Vermont Agency of Natural Resources, the New Hampshire Fish and Game Department, and the U.S. Fish and Wildlife Service. If the flow is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 402. From June 1 through October 15, whenever inflow to the project is 1,000 cfs or less, the Licensee shall release from the Gilman Project dam a continuous minimum flow of 210 cubic feet per second, or inflow to the project, if less. This flow release is required for the protection of water quality in the Connecticut River. During the entire year, all flows not used for hydropower operation shall also be spilled from the project dam.

This flow may be temporarily modified if required by operating emergencies beyond the control of the Licensee, or for short periods upon mutual agreement between the Licensee, the Vermont Agency of Natural Resources, the New Hampshire Fish and Game Department, and the U. S. Fish and Wildlife Service. If the flow is so modified, the Licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 403. Within 90 days of issuance of this license, the Licensee shall file, for Commission approval, a plan to monitor the run-of-river operating mode and the minimum flow specified in articles 401 and 402 of this license.

The Licensee shall prepare the aforementioned plan after consultation with the U.S. Fish and Wildlife Service, the New Hampshire Fish and Game Department, and the Vermont Agency of Natural Resources. The Licensee shall include with the plan

documentation of consultation, copies of comments and recommendations on the plan after the plan has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the licensee's plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and make recommendations before filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project specific information.

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

Article 404. Within 90 days of issuance of this license, the Licensee shall file with the Commission for approval a plan to monitor dissolved oxygen (DO) concentrations and water temperature of the Connecticut River downstream and upstream of the Gilman Project.

The Licensee shall prepare the plan after consultation with the U.S. Fish and Wildlife Service, the New Hampshire Fish and Game Department, and the Vermont Agency of Natural Resources. The Licensee shall include with the plan documentation of consultation and copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The Licensee shall allow a minimum of 30 days for the agencies to comment and make recommendations prior to filing the plan with the Commission. If the Licensee does not adopt a recommendation, the filing shall include the Licensee's reasons, based on project specific information.

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

If the results of the monitoring indicate that changes in project structures or operations are necessary to ensure maintenance of state water quality standards for the Connecticut River, the Commission may direct the Licensee to modify project structures or operations.

Article 405. Authority is reserved to the Commission to require the Licensee to construct, operate, and maintain, or to provide for the construction, operation, and maintenance of, such fishways, as may be prescribed by the Secretary of the Interior, pursuant to Section 18 of the Federal Power Act.

Article 406. The canoe portage plan, filed December 27, 1988, and the boat launch site plan, filed September 19, 1989, are approved and made part of the license. The canoe portage plan, consisting of two pages and three drawings, figures A-C, in Appendix E-VIII of the application, provides for upgrading the canoe portage around Gilman dam, including signs, trail maintenance, a portage rest area, and foot access to New Hampshire State Route 135. The boat launch site plan, consisting of a cover letter and four pages and one drawing in attachment 3 of the additional information, provides for leveling and surfacing the boat launch, enlarging the parking area, installing trash cans, relocating the entrance to the boat launch site, posting signs at the boat launch to limit its use to car-top and small trailered boats, and relocating the Dalton Fire Department's dry hydrant.

The Licensee shall implement the plan within 1 year from issuance of this license and upon completion of the recreation facilities, file documentation with the Commission that all facilities approved herein were constructed as proposed. In addition, the Licensee shall operate and maintain or arrange for the operation and maintenance of the recreation facilities during the term of license.

Article 407. (a) In accordance with the provisions of this article, the Licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the Licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the Licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the Licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, 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 type of use and occupancy of project lands and water for which the Licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-

commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; 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 use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the Licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the Licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the Licensee's costs of administering the permit program. The Commission reserves the right to require the Licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The Licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges 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 certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from 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 insure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(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.

(E) 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.

(F) This order is issued under authority delegated to the Director and constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. section 385.713. The filing of a request for rehearing does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically ordered by the Commission. The Licensee's failure to file a request for rehearing shall constitute acceptance of this order.



Fred E. Springer
Director, Office of
Hydropower Licensing

ENVIRONMENTAL ASSESSMENT
 FEDERAL ENERGY REGULATORY COMMISSION
 OFFICE OF HYDROPOWER LICENSING
 DIVISION OF PROJECT REVIEW

Date: April 4, 1990

Project name: Gilman Hydroelectric Project

FERC Project No. 2392-004

A. APPLICATION

1. Application type: New major license, 5MW or less
2. Date filed with the Commission: December 27, 1988
3. Applicant: Georgia-Pacific Corporation (GPC)
4. Water body: Connecticut River River basin: Connecticut
5. Nearest city or town: Gilman, VT; Dalton, NH (See fig. 1) 1/
6. County: Essex (VT); Coos (NH) State: Vermont; New Hampshire

B. PURPOSE AND NEED FOR ACTION

1. Purpose.

The existing project, with a recommended minimum flow release of 210 cubic feet per second (cfs), would provide an estimated average annual generation of 25,078,815 kWh of electric energy. All the power produced by the project is basically used by GPC at its Gilman mill. However, during high flows and mill shutdowns, about 7,000,000 kWh of the generated energy is sold to the New England Power Company (NEP).

2. Need for power.

GPC is a manufacturer of paper products. The Gilman Project license was transferred to GPC from the previous licensee, Gilman Paper Company, in 1970. The Gilman Project has a rated capacity of 4,850 kW and its average generation, with the recommended minimum flow of 210 cfs, is estimated to be 25,078,815 kWh per year.

1/ Due to reproduction requirements, referenced figures have been omitted.

Except for approximately 7,000,000 kWh (per year) that is sold at wholesale rates to NEP, the output of the project is used totally by the applicant's paper products mill. The surplus energy sold to NEP is available during periods of high flow or during shutdown of the mill.

The energy requirements of the applicant's manufacturing plant amount to about 45,500,000 kWh per year. GPC operates a cogeneration facility, which is an integral part of the paper-making process. This facility produces about 23,750,000 kWh annually. Upon subtracting the surplus sold to NEP, the applicant's cogeneration facility and the Gilman Project would supply an estimated 41,828,815 kWh of the applicant's annual mill requirements. The deficit would be met by purchases.

The paper and paper products industries are energy intensive and highly competitive at the marketplace. The availability of low cost energy from the Gilman Project (approximately 41 percent of GPC's total annual energy requirements for its mill) is a most important factor in maintaining GPC's competitive position in the industry.

GPC's cogeneration facility, an integral part of the paper-making process, provides an additional 52 percent of GPC's total electric power requirements. While the electric energy produced by this source is more expensive than the power supplied by the Gilman Project, it is substantially less expensive than that purchased from utility sources. However, GPC could not produce sufficient electricity with its existing cogeneration facility to replace the power produced by the Gilman Project. GPC cannot increase the electrical output of its cogeneration facility until the paper-making capacity of the mill is increased. This does not appear to be in GPC's current planning.

The above facts establish the short- and long-term needs for the capacity and energy produced by the Gilman Project.

C. PROPOSED PROJECT AND ALTERNATIVES

1. Description of the proposed action. (See figure 2.)

The existing project began operation in 1947 and was issued an initial license in 1965, which will expire on December 31, 1990. The licensee has filed for a new license for the continued operation of the project. The existing project consists of: (a) the Gilman dam, a concrete gravity structure approximately 108 feet long and 29 feet high, and a rock-filled timber crib structure approximately 170 feet long and 40 feet high, each with a crest elevation of 828.3 feet USGS; (b) 5-foot-high flashboards bringing the normal water surface elevation to 833.3 feet USGS; (c) a hydraulically operated crest gate 18 feet high and 27 feet

wide; (d) a reservoir having an area of 130 acres, a storage capacity of 705 acre-feet, and a normal water surface elevation of 833.3 feet USGS; (e) a powerhouse containing four turbine-generator units, one rated at 2,250 kW, one rated a 1,000 kW, and two rated at 800 kW each for a total rated capacity of 4,850 kW; (f) a 200-foot-long transmission line; (g) a 2.4-kV generator bus, a 2.4kV/34.5kV step-up transformer; and (h) appurtenant facilities.

The minimum and maximum hydraulic capacities of the Gilman Project are 130 cfs and 2,850 cfs, respectively. River flows below the minimum turbine capacity and above the maximum turbine capacity would continue to be spilled at the dam. GPC does not propose any capacity additions or modifications.

2. Applicant's proposed protective, mitigative, and enhancement measures.

a. Construction.

None.

b. Operation.

GPC proposes to continue to operate the project in a run-of-river mode and maintain a constant normal headpond elevation whenever possible. When prevailing river flows exceed the hydraulic capacity of the plant, the crest gate would be used to maintain a headpond elevation of no greater than 1.5 feet above the top of the existing flashboards.

To maintain state water quality standards for dissolved oxygen (DO), GPC proposes to monitor water quality and make operational adjustments, as appropriate (letter from Lisa A. Shapiro, Counsel to Georgia-Pacific Corporation, Van Ness, Feldman, Sutcliffe, and Curtis, Washington, D.C., September 19, 1989).

GPC would cooperate in the implementation of a fish passage plan involving the Gilman dam after the need is defined and clearly justified by the demonstrated success of 'the agencies' Atlantic salmon restoration program.

To enhance recreational opportunities in the project area, GPC proposes to upgrade the existing canoe portage around Gilman dam and improve the boat launch site located upstream of the dam at the confluence of the Connecticut and Johns Rivers.

3. Federal lands affected.

 X No.

____ Yes; _____; acreage = _____;

4. Alternatives to the proposed project.

- a. No reasonable action alternatives have been found.
 Action alternatives:

i. Government takeover of the project.

Subsection 14(a) of the Federal Power Act (Act), 16 U.S.C. §807(a), gives the United States, upon not less than 2 years' notice in writing from the Federal Energy Regulatory Commission (Commission) and upon or after the expiration of a license, the right to take over and thereafter maintain and operate that project. Subsection 14(b) of the Act, 16 U.S.C. §807(b), provides that in any relicensing proceeding before the Commission, any federal department or agency may timely recommend, pursuant to such rules that the Commission shall prescribe, that the United States exercise its right to take over a project.

Government takeover of the Gilman Project has not been proposed by the Commission, nor has any federal department or agency recommended taking such action in this relicensing proceeding. Therefore, this alternative has not been given any further consideration.

ii. Issuance of an annual license.

Subsection 15(a) of the Act, 16 U.S.C. §808(a), provides for the issuance of an annual license to the then licensee, if at the expiration of the existing license the United States does not: (1) exercise its right to take over the project; (2) issue a license to a new licensee; or (3) issue a new license to the existing licensee. An annual license is issued from year to year until either the project is taken over or a new license is issued.

When an annual license is issued, the existing project facilities can continue to operate under the terms and conditions of the expired license, thereby maintaining the status quo. This alternative is not considered to be an acceptable, long-term course of action because the project would not have been re-evaluated and relicensed according to current laws and regulations. Since the existing license for the Gilman Project does not expire until December 31, 1990, issuance of an annual license is not expected to be necessary and has not been considered further.

iii. Issuance of a nonpower license.

Subsection 15(f) of the Act, 16 U.S.C. §808(b), authorizes the Commission to issue a license for nonpower use when the Commission "finds that in conformity with a comprehensive plan

for improving or developing a waterway or waterways for beneficial public uses all or part of any licensed project should no longer be used or adapted for use for power purposes." A license that is granted by the Commission for nonpower use is temporary. When the Commission finds that a state, municipality, interstate agency, or another federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license, and does so, the Commission would terminate the nonpower license.

No entity has proposed or recommended that a nonpower license be issued for all or any part of the Gilman Project. Therefore, this option has been dropped from further consideration.

b. Alternative of no action.

No action would mean denial of a new license. If a new license were not issued for the project, then the existing licensee (applicant) would be forced to cease its operation of the project's facilities following the expiration of the initial license.

If the applicant were denied a new license for the Gilman Project, then the energy output of the project would have to be replaced by another power supply source in order to keep GPC's Gilman mill in operation. Denial of a new license could also lead to abandonment of the project's facilities or removal of all or part of the project works.

D. CONSULTATION AND COMPLIANCE

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

a. U.S. Fish & Wildlife Service: Yes. No.
 b. State(s): Yes. No.
 c. National Marine Fisheries Service: Yes. No.

2. Section 7 consultation (Endangered Species Act).

a. Listed species: None. Present: Bald eagle
 b. Consultation: Not required.
 Required; completed: / / .

Remarks: Except for occasional transient individuals, no federally listed or proposed endangered or threatened species are known to occur in the project area (letter from John H. Farrel, Acting Director, Office of Environmental Project Review, Department of Interior, Washington, D.C., May 5, 1989).

The federally listed endangered shortnose sturgeon is not known to occur in or near the project waters (personal communication, Chris Montzaris, Ecologist, National Marine Fisheries Service, Gloucester, Maine, December 19, 1989).

3. Section 401 certification (Clean Water Act).

Not required.

Required; applicant requested certification on 08/02/88 (Vermont) and 08/03/88 (New Hampshire).

Status : Granted by the certifying agency on 10/27/88 (New Hampshire) and 07/28/89 (Vermont).

Remarks: Both Vermont and New Hampshire water quality certificates are required. In a letter of September 19, 1989, the applicant notified the staff of their appeal of certain conditions of the water quality certification issued by Vermont.

4. Cultural resource consultation (Historic Preservation Act).

a. State Historic Preservation Officer: Yes. No.

b. National Park Service: Yes. No.

c. National Register status: None. Eligible or listed.

d. Council: Not required. Completed: / / .

e. Further consultation: Not required. Required.

5. Recreational consultation (Federal Power Act).

a. U.S. Owners: Yes. No.

b. National Park Service: Yes. No.

c. State(s): Yes. No.

6. Wild and scenic rivers (Wild and Scenic Rivers Act).

Status: None. Listed. Determination completed: / / .

7. Land and Water Conservation Fund lands and facilities (Land and Water Conservation Fund Act).

Status: None. Designated. Determination completed: / / .

B. COMMENTS

1. The following agencies and entities provided comments on the application in response to the public notice dated 03/01/89.

Commenting agencies and other entities

Date of letter

Department of the Army, New England Division, Corps of Engineers (Corps)	04/07/89
State of New Hampshire Fish and Game Department (NHFGD)	04/14/89
United States Department of the Interior (Interior)	05/05/89

2. X The applicant responded to the comments by letter dated 06/12/89.

F. AFFECTED ENVIRONMENT

1. General description of the locale.

a. Description of the Connecticut River Basin (Source: Federal Power Commission, 1975).

The Connecticut River Basin (CRB) is the largest river basin in New England (figure 3). Extending from the northernmost part of New Hampshire to Long Island Sound, the CRB has a maximum length in a north-south direction of approximately 280 miles and a maximum width of approximately 62 miles. The total drainage area of the basin is 11,765 square miles.

The principle tributaries to the mainstem of the Connecticut River, by state, are the Passumpsic, White, West, Ottauquechee, and Black Rivers in Vermont; the Ammonoosuc, Mascoma, Ashuelot, and Sugar Rivers in New Hampshire; the Millers, Deerfield, Chicopee, and Westfield Rivers in Massachusetts; and the Farmington River in Connecticut.

The topography in the CRB varies from the rugged terrain of the White Mountains in New Hampshire to the lowland floodplains of Massachusetts and Connecticut. A forest-wildland landscape is the predominant pattern in the White Mountains, the Green Mountains, the headwater sections in New Hampshire and Vermont, and the western portion of the Pioneer Valley area of Massachusetts. The lower half of the upper CRB between the towns of Lancaster and Hanover, New Hampshire, is predominantly farm and forest land; the middle and lower CRB includes forests and small towns. The remainder of the lower CRB is dominated by the urban-suburban centers of Springfield, Massachusetts, and Hartford, Connecticut.

The Connecticut River falls approximately 2,190 feet with the steepest section, averaging more than 30 feet per mile, occurring in the first 30 miles. Between Gilman and East Ryegate, Vermont, the river falls 400 feet. From East Ryegate to the head of the tidewater, eight miles upstream of Hartford, Connecticut, the slope averages slightly less than two feet per mile. The lower 60-mile stretch of the river is tidal. The fall

of the river is highly developed for hydropower production. There are over 700 dams in the watershed. Eleven of the 17 dams on the mainstem of the Connecticut River (see figure 3) have hydroelectric facilities.

b. Existing licensed and exempted projects in the basin.

There are 67 licensed projects and 39 exempted projects in the CRB, as of 01/19/90. The presently licensed Gilman Project is located at river mile 300 on the main stem of the Connecticut River in the village of Gilman in the town of Lunenburg, Vermont, and in the town of Dalton, New Hampshire (see figure 1). The project dam is approximately 21 miles downstream of the breached Wyoming Valley (Northumberland) dam, and approximately 11 miles upstream of the Moore dam (see figure 3). Licensed and exempted projects that are located on the Connecticut River within 50 miles of the Gilman Project are listed below. (Exempted projects are indicated by an " * " after the FERC Project No.)

<u>Project No.</u>	<u>Project name</u>
8011*	Dodge Falls
2077A	McIndoes
2077B	Comerford
2077C	Moore

c. Pending license and exemption applications for projects in the basin..

There are three pending license applications and one pending exemption application for projects in the CRB, as of 01/19/90. These pending applications, which include the Gilman project, are listed below. (The exemption application is indicated by an " * " after the FERC Project No.) The Holyoke 5 Project would be located at the existing Holyoke dam, and either the Groveton Project or the Northumberland Project (competing applications) would be located at the existing Wyoming Valley dam (see figure 3).

<u>Project No.</u>	<u>Project name</u>
10806	Holyoke 5
2392	Gilman
7960 2/	Groveton
8075*	Northumberland

d. Cumulative impacts.

2/ The application for project no. 7960 competes with the application for project no. 8075.

Cumulative impacts are defined as impacts on the environment that result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR, Part 1508.7).

A target resource is an important component of the environment that may be cumulatively affected by multiple development activities within a river basin. The staff has identified the Atlantic salmon as a target resource in the CRB, based on its regional significance and geographic distribution within this basin (Federal Energy Regulatory Commission, 1986 and 1987). The Atlantic salmon is the primary target species for a major federal, state, and private sector effort to restore anadromous fish to the CRB. A strategic plan for salmon restoration was completed by the U.S. Fish and Wildlife Service (FWS) in 1980 and revised in 1982 (Stolte, 1982). The plan outlines goals, objectives, and strategies for restoring Atlantic salmon to the Connecticut River and selected tributaries. The Atlantic salmon is described below in section F(2). Potential impacts to this target resource related to the continued operation of the Gilman Project are discussed in section G.

2. Descriptions of the resources in the project impact area (Source: Georgia-Pacific Corporation, 1988, application, exhibit E, unless otherwise indicated).

a. Geology and soils: The dam foundation and abutments are bedrock. The downstream banks below the dam that would be exposed to outflows from the project and flows from the spillway are exposed bedrock ledges, with the exception of coarse gravel deposits (non-erodible boulders and cobbles) at the canoe portage area on the left-hand downstream bank. The applicant's consultant reports that the reservoir shoreline generally consists of shallow-sloping gravel banks near the dam with loamier, steeper, and more vegetated banks farther upstream; the vegetation (trees, shrubs, and grasses) providing protection against shoreline erosion (personal communication, Jon Christensen, Licensing Coordinator, Kleinschmidt Associates, Pittsfield, Maine, December 18, 1989).

b. Streamflow: The drainage area of the Connecticut River at the project site is 1,514 square miles. The mean annual discharge is 2,195 cfs with a minimum and maximum historical discharge of 115 cfs in 1937 and 48,300 cfs in 1936, respectively. Total flow capacity of the turbines at the Gilman site (2,850 cfs) is exceeded 28 percent of the time. Flow parameters, including the following, are based on USGS records for hydrologic gaging station No. 01131500, which is located in the Connecticut River approximately 1,200 feet below Gilman dam:

high flow: approx 6750 cfs; flow parameter: flows exceeded 10% of the time.
low flow: approx 750 cfs; flow parameter: flows exceeded 90% of the time.
7Q10 flow: 373 cfs (the 7Q10 flow refers to the minimum 7-day average flow rate expected to occur once every 10 years).

The dam creates a shallow 130-acre impoundment 2.9 miles long and 375 feet wide, with a 5.4-foot average depth.

c. Water quality: Both Vermont and New Hampshire have developed water quality management plans for the upper Connecticut River at the location of the proposed project. Vermont and New Hampshire designate the Connecticut River Class B water upstream of the Gilman dam. For the river segment downstream of the project dam, New Hampshire's water classification differs from that of Vermont. New Hampshire designates the river downstream of Gilman dam as Class B waters, while Vermont designates the reach downstream of the dam to the town of Lunenburg as Class C waters. However, because Vermont has determined that the downstream reach contains habitat for coldwater fish, the DO standard for this segment is the same as for Class B waters in Vermont.

Vermont's management objective for Class B waters is that they be "of a quality which consistently exhibits good aesthetic value and provides high quality habitat for aquatic biota, fish, and wildlife". The river is designated by the state of Vermont as a coldwater fish habitat, which sets the DO standard at a minimum of 6 milligrams per liter (mg/l) or 70 percent saturation unless a higher standard is determined to be required for reaches critical for spawning or nursery. New Hampshire has defined DO standards for Class B waters where coldwater fisheries occur as not less than 6.0 mg/l, unless lower DO occurs naturally. For Class B waters, Vermont requires a fecal coliform count not greater than 240 per 100 milliliter (ml) and New Hampshire requires a count not greater than 200 organisms per 100 ml.

New Hampshire lists the segment downstream of the Gilman dam as a non-attainable segment, with water quality falling below Class C standards. Vermont designates it as a water quality limited segment where standards such as DO are not now met, and may not be met, even after the application of improved effluent standards. Standards for DO levels are occasionally violated at certain times of the year, particularly during low flows. Pollutant loading, reduced aeration potential caused by impounded waters, and reduced spillage at dams due to hydroelectric generation account for reduced water quality. Municipal waste water discharges and industrial discharges from paper mills at

Gilman and Groveton contribute to high pollutant loadings upstream of the Gilman dam (Georgia-Pacific, 1988).

A water quality study performed for the applicant during August 12-14, 1985, reported the following results from the project area. During flows of 800 cfs, average DO concentrations in the Connecticut River ranged from 7 mg/l (77 percent saturation) to 7.9 mg/l (90 percent saturation) upstream of the Gilman dam. DO levels immediately below the dam in the Connecticut River averaged 7.6 mg/l (87 percent saturation). These results do not indicate a violation of the state DO standards; however, modeled results do indicate that DO violations would occur at lower flows and these results are discussed further in section G(2).

d. Fisheries (Source: Stolte, 1982).

Anadromous: x Absent. Present.

The CRB historically supported substantial populations of anadromous fish, however, dam construction and regional development activities have severely reduced the populations of these fish. At one time, for example, Atlantic salmon ascended the Connecticut River to a point approximately 66 miles upstream of the Gilman dam. By the early 1900's the construction of dams had eliminated this species from the CRB. Since 1967, state and federal resource agencies, forming the Connecticut River Atlantic Salmon Commission (CRASC), and the Technical Committee for Fisheries Management of the Connecticut River, have developed and implemented programs to restore and manage the existing anadromous fishery resources, including Atlantic salmon, within the Connecticut River.

Efforts by federal, state, and private sectors to restore Atlantic salmon to the CRB have resulted in adult salmon returns which have varied significantly from year to year. A fish trapping facility on the Connecticut River at Holyoke dam, Massachusetts, reported the following returns of salmon: in 1974 (1); 1975-1978 (<10 per year); 1981 (529); 1983 (39); 1988 (92); and 1989 (80). Ninety percent of the fish trapped at Holyoke dam are then transported to fish hatcheries for use as brood stock, and the remaining 10 percent are allowed to continue migration upstream. As an example, of the 80 adult salmon trapped at Holyoke dam in 1989, 72 were used as brood stock and 8 were allowed to continue migrating upstream past Holyoke dam.

At present, there are no Atlantic salmon in the Connecticut River upstream or immediately downstream of the Gilman dam. Upstream migration of salmon are blocked by the Ryegate, McIndoes, Comerford, and Moore dams located downstream of Gilman dam. Upstream of the Gilman dam between Gilman and Canaan, Vermont, the FWS has identified 15,600 units of smolt nursery

habitat (Stolte, 1982). This represents 9 percent of the total Connecticut River salmon habitat which has a potential to produce an estimated 23,400 salmon smolt per year.

Resident: ___Absent. _x_Present.

Resident species found in the Connecticut River near the project dam include predominantly warmwater with some coldwater species. Game and forage fish are both highly represented. The following species are known to occur in the river: american eel, round whitefish, rainbow trout, brown trout, brook trout, lake trout, rainbow smelt, chain pickerel, lake chub, golden shiner, common shiner, northern redbelly dace, finescale dace, blacknose dace, longnose dace, creek chub, fallfish, longnose sucker, white sucker, brown bullhead, burbot, rock bass, largemouth bass, tessellated darter, yellow perch, and slimy sculpin.

e. Vegetation:

<u>Cover type</u>	<u>Dominant species</u>
Northern hardwoods	Paper birch, silver maple, hemlock, white pine
Riverine wetland	Fragrant water lily, cattail, pickerel weed

f. Wildlife: The variety of wildlife that inhabit the project area includes white-tailed deer, beaver, muskrat, raccoon, and red fox. Black ducks, wood ducks, American mergansers, and hooded mergansers are common along the river.

g. Cultural:

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 project impact area.

h. Visual quality: The mountainous and relatively undeveloped character of the land surrounding the project contains a variety of visual resources. The region is heavily travelled in all seasons, particularly in autumn, by tourists seeking to view the area's picturesque villages and scenic countryside.

New Hampshire Route 135 parallels the southeast side of the project impoundment, and a road maintained by the town of Lunenburg, Vermont parallels the northwest side. Both roads

provide occasional open views of the river valley and the surrounding mountains and ridges, including the White Mountains. The upper end of the project impoundment is located within a 40-mile segment of the Connecticut River that has been listed on the Nationwide Rivers Inventory because of its hydraulic, scenic, and recreational values.

GPC's mill complex visually dominates the landscape in the immediate vicinity of the project site. The existing project works are viewed as an integral part of this industrial development.

i. Recreation: Recreational use of the immediate project area is low, although some fishing and canoeing does occur. There are many river overlooks and access points to the project impoundment from roads paralleling the Connecticut River in both Vermont and New Hampshire. An informal canoe portage is located around the southern (New Hampshire) end of Gilman dam and an informal boat launch is located at the upper end of the impoundment near the confluence with the Johns River (New Hampshire).

The rural, mountainous region surrounding the project area offers many outdoor recreation opportunities. Within 15 miles of the project, there is considerable public land available for hiking, camping, hunting, fishing, canoeing, snowmobiling, and skiing.

A 40-mile segment of the Connecticut River upstream of the project dam from Dalton, New Hampshire (Gilman, Vermont) to North Stratford, New Hampshire (Bloomfield, Vermont) is listed on the Nationwide Rivers Inventory for outstanding hydrologic values and for high quality scenery and good canoeing.

j. Land use: Land use in the project area includes the applicant's mill complex, residences, and undeveloped woodland.

k. Socioeconomics: The town of Dalton, New Hampshire occupies the east side of the Connecticut River along the project impoundment. Dalton is a rural community located below the confluence of the Johns River with a small town center and numerous outlying farms. Dalton's population numbers approximately 735 persons.

The village of Gilman, where GPC's paper mill is located, lies along the west bank of the river and is joined to the town of Dalton by the State Route 135 bridge located just downstream of the Gilman dam. The population of the village of Gilman is about 500. Approximately 190 people are employed at GPC's mill, which produces security, diazo, and other specialty papers.

G. ENVIRONMENTAL ISSUES AND PROPOSED RESOLUTIONS

There are 3 issues addressed below.

1. Flows/water quality: As described in section F(2)(c), the project is in a water quality limited segment in which critical DO problems occasionally exist. Low DO levels are a result of pollutant loadings, reduced aeration potential caused by impounded waters, and reduced spillage over dams during hydroelectric operation. The hydraulic capacities and configuration of the four turbines at the Gilman Project permit project operation over a wide range of flows and, subsequently, diversion of most flows through the turbines. The reduction or elimination of spillage flows results in a loss of potential reaeration capacity in this water quality limited segment.

The applicant proposes run-of-the-river operation in which instantaneous outflow below the tailrace equals instantaneous inflows to the impoundment. The headpond elevation would be maintained at 833.3 feet, USGS datum, whenever possible. This mode of operation satisfies a minimum instantaneous flow release below the project of at least 757 cfs (historical median August flow) or inflow, whichever is less, as recommended by Interior (letter dated May 5, 1989), the NHFGD (letter dated April 14, 1989), and the Vermont Agency of Natural Resources (VANR) (letter dated July 28, 1989). All flows below the minimum turbine capacity of 130 cfs and above the maximum hydraulic capacity of 2,850 cfs would be spilled at the crest gate in the dam.

Power generation at the project could adversely affect the fisheries resources by fluctuating water surface levels and changes in flows. Fluctuating water surface levels can reduce fish spawning success and strand fish and invertebrates, subjecting them to desiccation and predation from terrestrial predators (Cushman, 1985). Changes in seasonal flow volumes downstream of the project can disrupt fish spawning or decrease spawning success. Operation of the project in an instantaneous run-of-river mode, where instantaneous outflows equal instantaneous inflows to the project, would minimize water level fluctuations and would maintain fisheries habitat in the Connecticut River. A run-of-river mode of operation would also allow seasonal flow volumes to remain unchanged, and thereby not disrupt spawning or reduce spawning success. Therefore, the licensee should operate the project in an instantaneous run-of-river mode.

To address the issue of impacts of project operation on water quality, the applicant conducted a sampling program for DO, temperature, biological oxygen demand (BOD), and Total Kjeldahl Nitrogen from August 12-14, 1985. Results of the study indicated that at an estimated river discharge of 800 cfs, or about twice the 7Q10 of 373 cfs, no violations in water quality standards

occurred. Also, a 100-cfs spill over the dam provided a 0.4 mg/l to 0.8 mg/l improvement in DO concentrations in the tailrace. However, the VANR indicated that the 800 cfs sampling period was not representative of conditions in which violations of DO standards would be expected to occur. The VANR stated the applicant's sampling results alone provided insufficient data upon which to base a recommendation on the need for a minimum flow at the Gilman Project.

To supplement the existing water quality data and to investigate the effect of how spillage over the dam affects DO, the applicant conducted and reviewed a series of computer modeled analyses (QUAL II) of the existing and projected DO concentrations in the project area. The initial results of the analysis indicated that substandard conditions would prevail for a substantial portion of the study reach under critical low flows and permitted wastewater discharges. A similar analysis performed for the applicant in 1985, using reduced BOD loadings, predicted that incoming DO levels above the dam would be approximately 5 mg/l and 5.85 mg/l (approximately 1 mg/l and 0.15 mg/l below state standard) at the 7Q10 (373 cfs) and 800 cfs river discharges, respectively. Spilling 100 cfs over the crest of the dam provided the aeration required to meet the state DO standard immediately below the Gilman dam (i.e., 6.6 to 6.9 mg/l at 800 cfs and 5.9 to 6.3 mg/l at 7Q10 flow). Meeting the state DO standard immediately below the dam, however, would not ensure that DO concentrations remained above the state DO standard downstream at the DO sag point (i.e. the location in the river segment where the lowest DO concentrations would occur).

In order to estimate the spillage necessary to ensure the maintenance of the state DO standard immediately below the project and further downstream in the Connecticut River, both the VANR and the applicant independently performed screening model analyses of the reach between Gilman dam and the downstream impoundment created by Moore dam. Reduced BOD loading rates were used to reflect new loading limits set by the U.S. Environmental Protection Agency in 1985 for the upstream Groveton Paper Mill. Temperature and flow values were applied from previous model runs. Each model assumed that the state DO standard of 6.2 mg/l (70 percent saturation at 22.5 degrees Celsius) was being met upstream of the dam. The VANR concluded that, at 7Q10 flows of 373 cfs in the river, 210 cfs must be spilled at the dam to maintain 7.4 mg/l directly below the dam. The resulting DO would decline to 6.2 mg/l at the DO sag point which occurs downstream, thus maintaining the state DO standard. The sag point would occur upstream of the boundary for the Moore's dam impoundment, within the influence of the Gilman project.

The applicant's model concluded, however, that under no spill conditions, no DO sag or degradation was predicted in the riverine reach between the Gilman dam and the upstream influence

of the Moore's dam impoundment. The applicant claimed that downstream DO violations would occur, but they would be limited to the deeper impounded section of the Moore's dam impoundment two miles downstream of the Gilman dam, and were based on diurnal variations caused by algae rather than project related impacts. Based on their modeling results, the applicant concluded that there is no need to spill water over the Gilman dam to maintain water quality in the riverine portion of the river.

The VANR is concerned with how the amount of spillage over the crest of the dam during project operation affects downstream water quality, particularly DO concentrations. The VANR has indicated that Vermont's water quality regulations and federal non-degradation standards prohibit the degradation of existing water quality to minimum standards (letter of November 6, 1989). To protect DO, the VANR, in its water quality certification issued for the Gilman Project, imposes a minimum flow of 210 cfs spilled at the dam from June 1 through October 15. This spill requirement is based on the VANR's modeling results as described above. The VANR also states that this spill rate would serve to enhance the aesthetics of the river reach. Additionally, the water quality certificate requires all river flows to be spilled at the dam when the project is not operating.

The applicant has appealed the 210-cfs spillage flow condition of the water quality certification (letter dated September 19, 1989), based on the claim that the spillage flow is not justified by project-related impacts, actual sampling, or modeling studies. The applicant has subsequently proposed an alternative plan for meeting state water quality requirements.

To address DO protection concerns, the applicant has submitted to the VANR a detailed management proposal that includes provisions for water quality monitoring and operational adjustments, as appropriate. Under the plan, spillage at the project dam would occur only when monitoring demonstrated that spillage was required to maintain the state standard for DO. The plan would be implemented through use of continuous DO and temperature monitoring devices placed below the dam and linked to a computer assisted interrogation system. The system would respond to a previously calibrated predictive water quality model which would predict DO concentrations at the DO sag point as a function of background conditions at the dam. Gate position would automatically be adjusted to allow the spillage rates needed to meet the state DO standard at the sag point downstream.

The VANR found the applicant's water quality management proposal unacceptable to meet the state's management objectives for this site (letter of November 6, 1989). As the basis for their rejection, the VANR cites technical difficulties associated with the predictive model of the proposed water quality management plan.

The VANR's analysis concludes that, at 7Q10 flows, a flow of 210 cfs would need to be spilled at the dam to ensure the maintenance of the state DO standard at the DO sag point downstream. The recommendation for this spill flow was based on a modeling analysis conducted under idealized conditions in which it was assumed that DO concentrations in the Gilman dam impoundment were maintained at the state DO standard of 6.2 mg/l. These ideal conditions, however, are not routinely maintained during low river flow periods. Therefore, the VANR's conclusion to spill 210 cfs at the dam from June 1 through October 15, based on the upstream idealized DO concentrations, does not penalize the hydropower project for existing upstream DO violations caused by other users. In fact, a spill flow of 210 cfs would improve downstream DO concentrations at the sag point to at least the state standard only when upstream DO concentrations are improved.

Operation of the Gilman Project, with no requirement to spill flows over the project dam during low river flow periods, has contributed to lowered DO concentrations in the Connecticut River downstream. The extent of the Gilman Project's contribution to lowering DO concentrations is not precisely known, due to interaction of various wastewater dischargers and their contribution to lowered DO concentrations both upstream and downstream from the project dam. The applicant's field sampling has shown, however, that a spill of 100 cfs over the dam can provide as much as 0.8 mg/l increase in DO concentrations in the project tailrace. The data indicate that the dam is an important aerator and that the downstream DO concentrations could be increased if spill flows were required during certain periods of the continued operation of the project.

Staff concludes that the field data collected and results of modeling analyses provide sufficient evidence to require a minimum spill flow. The VANR's modeling analysis, in coordination with the water quality objectives for this site, provides sufficient justification to warrant a 210 cfs spill flow. With the spill flow implemented, existing downstream DO concentrations will improve because the dam has been shown to be a good aeration source. In the future, aeration provided at the Gilman dam, in combination with other water quality improvements in the river, will assist the state's goal to increase DO concentrations to at least the state DO standard at the DO sag point downstream of the Gilman Project.

The recommendation proposed by the VANR uses spill flow at the dam, an easily gaged and monitored parameter, to meet specific future DO goals downstream of the project. The applicant's proposed water quality management plan, which depends on an unproven predictive water quality model, would be difficult to monitor and enforce for compliance with the goal of maintaining DO at the sag point. A plan for monitoring DO concentrations and water temperatures in the project area,

however, would provide the potential for future benefits to project operation and water quality goals. Water quality monitoring would help determine the effectiveness of the implemented minimum spill flow in meeting downstream water quality goals. If monitoring identifies in the future that DO goals can be achieved at a reduced spill flow, then adjustments to the required spill flow may be warranted and recommended to the appropriate resource agencies and the Commission by the licensee.

A spill flow implemented at the project would allow for immediate improvements to DO concentrations downstream in the Connecticut River and would also assist in the future goal of achieving the state DO standard downstream at the DO sag point. Therefore, from June 1 through October 15, the project should spill 210 cfs over the dam to enhance the downstream DO concentrations. During the entire year, other flows not used for generation should also be spilled over the dam. To determine the effectiveness of the 210 cfs spill flow in achieving water quality goals, the licensee, after consultation with the VANR, the NHFGD, and the New Hampshire Department of Environmental Services, Water Supply and Pollution Control Division, should develop a plan to install, operate, and maintain DO and temperature equipment that provide for monitoring of DO concentrations and water temperatures in the project reservoir and in the downstream reach during the period from June 1 through October 15 each year.

Further, to monitor compliance with the staff's recommendation for run-of-river operation and the provision for a minimum flow of 210 cfs, the licensee should, after consultation with the United States Geological Survey (USGS), the VANR, and the NHFGD, develop a plan for the installation, operation, and maintenance of stream flow gages in the project reservoir and in the Connecticut River downstream of the Gilman dam. The licensee should provide DO, temperature, and flow data to the consulted agencies within 30 days of the agency's request.

2. Atlantic salmon

a. Fish passage: Atlantic salmon has been recognized as an important target resource in the CRB. In 1980, the FWS completed a plan for a major federal, state, and private sector effort to restore Atlantic salmon to the CRB. The plan addressed restoration efforts through the year 2005. Its goal is to provide and maintain a sport fishery for Atlantic salmon in the basin and to restore and maintain a spawning population in selected tributaries (Stolte, 1982). Part of this goal has been accomplished by providing upstream and downstream passage at dams throughout the CRB. Currently, upstream fish passage facilities are in operation on the Connecticut River at dams at Holyoke and

Turner Falls, Massachusetts, and at dams located at Vernon, Bellows Falls, and Wilder, Vermont.

The NHFGD and the VANR have recommended that both upstream and downstream fish passage facilities be installed at the Gilman dam when deemed necessary by the state fish and wildlife agency, the FWS, and the National Marine Fisheries Service. Interior, by letter dated May 5, 1989, stated that, although fish passage facilities are not needed at the present time, they may be needed in the future. Interior, therefore, recommends that the licensee be required to provide fish passage facilities at the project when prescribed by the Secretary of the Interior under section 18 of the Act. The applicant does not oppose a reservation clause that would permit consideration of fishway facilities, when appropriate, in the future.

With the initiation of operation of the fish passage facility at Wilder dam (FERC No. 1892) in 1987, anadromous fish now have the potential to ascend the Connecticut River to the Ryegate dam, the location of the exempted Dodge Falls hydropower project (FERC No. 8011). In 1988, however, only two adult salmon migrated as far upstream as the Wilder dam (Georgia-Pacific, 1988), and in 1989, no salmon reached Wilder dam (personal communication, Robert Scheirer, Fishery Biologist, U.S. Fish and Wildlife Service, Concord, New Hampshire, February 12, 1990). If salmon were to effectively utilize the passage facilities at Wilder dam, the species would still encounter barriers at Ryegate, McIndoes, Comerford, and Moore dams located downstream of Gilman dam.

Section 18 of the Act provides the Secretary of the Interior the authority to prescribe fishways. ^{3/} Although fishways may not be recommended by Interior at the time of project licensing, upon receiving a specific request from Interior, it is appropriate for the Commission to include a license article which reserves the Interior's prescription authority. ^{4/}

b. Cumulative impacts: There are more than 300 dams on the mainstem and tributaries to the Connecticut River. These dams present barriers to adult Atlantic salmon migrating from the ocean to spawning areas upstream. To facilitate upstream migration, fish passage facilities have been constructed at many of the mainstem dams. These facilities, however, are not 100 percent effective. It has been estimated that only about 95

^{3/} Section 18 of the Act provides: "The Commission shall require construction, maintenance, and operation by a licensee at its own expense ... such fishways as may be prescribed by the Secretary of Commerce or the Secretary of Interior as appropriate."

^{4/} Lynchburg Hydro Associates, 39 FERC 61,079 (1987)

percent of the adult Atlantic salmon successfully pass each dam (Stolte, 1982). Consequently, when fish have to negotiate a series of dams, the numbers of fish are depleted at each dam and a cumulative reduction in the overall population can result.

The same dams also affect the downstream migration of salmon juveniles, smolts, and kelts. For example, smolt mortality associated with hydroelectric projects in the CRB has been estimated at 10 to 25 percent per structure (U.S. Fish and Wildlife Service, 1984). The more hydroelectric facilities that Atlantic salmon have to negotiate on their seaward migration, the greater the loss to the population.

Presently, future plans for Atlantic salmon restoration include trapping fish at the Ryegate dam (located four dams downstream of the Gilman Project) and transporting these fish to a release site in the Connecticut River upstream of the Gilman dam (Stolte, 1982). Transfer of these fish would give them access to approximately 9 percent of the spawning habitat believed to exist in the CRB above the Gilman site. Interior states that the applicant should be required to share in the cost of trucking Atlantic salmon above the Gilman Project when a trapping facility at Ryegate dam is constructed. In addition, upon initiating these trap-release efforts, Interior recommends that the applicant provide downstream fish passage facilities at the Gilman dam.

For downstream passage, the Vermont Fish and Game Department considered the options of a downstream fish passage device at the Gilman dam, or a trap and truck arrangement, where fish would be trapped at the Gilman dam and released below Moore dam. A fish passage device is currently the preferred option, however, trap and truck may still be considered in the future. No design plans for a downstream trap and truck facility have been developed. The applicant has submitted conceptual designs for a downstream passage device at Gilman dam, developed in cooperation with the FWS. The initial design for a bypass conduit or sluiceway has been reviewed by the FWS (letter dated December 17, 1987). Final plans for downstream passage would not be developed, however, until an anadromous fish run becomes established in the project area, and until all participating fisheries agencies are in agreement on the final design of the facilities. The state and federal fish and wildlife resource agencies have agreed with this approach.

The applicant's proposed downstream passage design consists of an angled guidance system to divert fish away from the turbine intakes, a bell-mouthed intake to provide attractive flow velocities, and a bypass conduit to deliver fish to the tailwater area. A flow of 30 cfs would be used to operate the system, however, the source of this flow has not been identified. The VANR (letter dated July 28, 1989) requires that the flow to

operate the bypass facility be provided in addition to any spill flows required for the protection of water quality. The structure is to be constructed when Atlantic salmon are transported upstream of the facility.

The trap and truck of Atlantic salmon from below Ryegate dam to upstream of Gilman dam was proposed to begin in 1992 (Stolte, 1982). Because of low returns of salmon to the CRB, this date has been superceded by the following policy. Trap and truck operations at Ryegate dam would be initiated when 20 adult salmon pass the fish passage facility at Wilder dam for two consecutive years (personal communication, Robert Scheirer, Fishery Biologist, U.S. Fish and Wildlife Service, Concord, New Hampshire, February 12, 1990). Although Interior has indicated that the applicant share in the cost of trucking when implemented, there are presently no plans for how costs would be distributed or who would hold responsibility for operating the trapping and trucking facilities.

The applicant's consideration for a downstream fish bypass facility would need to be implemented when Atlantic salmon are transported upstream of Gilman dam. Safe downstream passage is critical to the success of the CRB's salmon restoration program. For example, downstream bypass facilities can significantly reduce turbine mortalities for descending smolts (Semple, 1979). The schedule for transporting salmon upstream of the Gilman Project is not anticipated in the near future. However, if the need for downstream passage is delayed for an extended time period (i.e. 10 to 20 years) at the project, the state-of-the-art for the design may change such that the applicant's proposed conceptual design may be replaced by other designs that demonstrate more efficient downstream passage. Staff concludes that it is premature to approve the design of the applicant's proposed downstream bypass facility at this time.

Similarly, it is too early to fully evaluate the applicant's involvement in assisting in any future trap and truck program at the Ryegate dam. The staff recognizes the necessity of the applicant to participate in a defined plan designed to promote fish passage, however, the future fish passage needs and management objectives cannot always be predicted at the time of license issuance. The time for the applicant to participate in a fish passage plan at the Gilman dam is when implementation of passage facilities is needed and plans have been developed in the future.

The implementation of effective measures for Atlantic salmon passage at the project in the future would enhance the CRB's restoration program. These beneficial project-related improvements would contribute to the lessening of existing adverse cumulative impacts to this important target resource attributed to the presence of dams in the basin. Staff concludes

that Interior's authority to prescribe fishways at the Gilman Project, under Section 18 of the Act, is the appropriate mechanism for requiring the applicant's participation in a fish passage plan at the site in the future. Staff therefore recommends that, if a license is issued for the project, the license include an article reserving Interior's authority to prescribe fishways as required.

3. Recreational facilities: GPC proposes to upgrade the existing canoe portage around Gilman dam and the boat launch site located upstream of the dam at the confluence of the Connecticut and Johns Rivers. As described in Appendix E-VIII of the application, the applicant's improvements to the canoe portage include signs, trail maintenance, a portage rest area, and foot access to New Hampshire State Route 135. The plan for upgrading the boat launch site is described in additional information filed September 19, 1989. The applicant proposes to level and surface with gravel the existing boat launch for use by car-top and small trailered boats, enlarge the parking area to accommodate at least four cars with boat trailers, install trash cans, relocate the entrance to the launch site along Route 135, post signs at the ramp to limit its use to boats no longer than 18 feet, and relocate the Dalton Fire Department's dry hydrant.

The applicant has incorporated the recommendations of Interior, the NHFGD, the Dalton Conservation Commission, and the town of Dalton in its final recreation plan. The plan should provide safe public access to the Connecticut River in the project area and should meet existing recreational needs of the area. Therefore, the licensee should upgrade the canoe portage and boat launch site as described in Appendix E-VIII of the application and in additional information filed September 19, 1989, respectively.

The VANR states that recreational use of the Connecticut River is increasing and that additional facilities may be needed in the future to meet growing demands. Because participation in river-oriented activities, including fishing and canoeing, is increasing (President's Commission on Americans Outdoors, 1987), recreational use at the project may increase. The licensee is expected, therefore, to monitor recreational use at the project. Further, license conditions require the licensee to provide additional recreation facilities during the term of the license, should a need be demonstrated.

H. ENVIRONMENTAL IMPACTS

1. Assessment of impacts expected from the applicant's proposed project, assuming the implementation of the applicant's proposed environmental measures and compliance with any conditions set by a federal land management agency (P); the proposed project with

any additional and/or modified measures recommended by the staff (Ps); and any action alternative considered (A). Assessment symbols indicate the following impact levels:

0 = None; 1 = Minor; 2 = Moderate; 3 = Major;
A = Adverse; B = Beneficial; L = Long-term; S = Short-term.

Resource	Impact			Resource	Impact		
	P	Ps	A		P	Ps	A
a. Geology-Soils	0			f. Wildlife	0		
b. Streamflow	0			g. Cultural: Archeological	0		
c. Water quality: Temperature	0			Historical	0		
Dissolved oxygen	0	1BL		h. Visual quality	0		
Turbidity and sedimentation	0			i. Recreation	1BL		
d. Fisheries: Anadromous	2BL			j. Land use	0		
Resident	1BL			k. Socioeconomics	0		
e. Vegetation	0						

Remarks:

c. Dissolved oxygen. The rating of no impact for the applicant's proposal reflects the staff's assessment that the applicant's water quality management plan would not be feasible. The applicant's proposal without this plan would not change current DO conditions downstream of the project because no changes in project operation would occur. A 210-cfs spill flow, recommended by the staff, would contribute to meeting state DO standards downstream by improving DO concentrations.

d. Anadromous fisheries. Future participation by the licensee in upstream/downstream fish passage plans would benefit Atlantic salmon.

d. Resident fisheries. Improved DO levels downstream would protect fish resources; downstream fish passage facilities in the future would reduce fish entrapment.

i. Upgrading the canoe portage around Gilman dam and improving the boat launch site on the project impoundment would

enhance access to the river for water-based recreational activities in the project area.

2. Impacts of the no-action alternative.

Under the no-action alternative, streamflows in the Connecticut River would no longer be diverted through the Gilman powerhouse, and the headpond above Gilman dam, presently maintained at a constant normal elevation whenever possible, would no longer be regulated. This would have a moderate, positive, long-term impact on water quality conditions below the project because of the increase in dissolved oxygen that would result from spillage of all flows over the dam. Aquatic habitat below the project would also benefit from the resulting improvement in water quality. However, the Atlantic salmon restoration program for the CRB would not receive the benefit of the licensee's cooperation and support in implementing a fish passage plan involving the Gilman dam. Riparian vegetation and wildlife along the project impoundment would be adversely affected by the less stable water levels that would occur without the present control of reservoir elevations. Without these controls and the maintenance of the dam's flashboards, high water and/or flashboard deterioration would eventually result in flashboard failure and (1) the subsequent lowering of the impoundment's surface elevation by five to six feet and (2) a commensurate reduction in the impoundment's surface area and volume. These impacts would cause a permanent reduction in aquatic habitat and would result in adverse visual effects until the dewatered and exposed shoreline areas became revegetated.

If the Gilman Project were not relicensed, then the electric energy that would have been produced by the project would have to be generated by another available source to: (1) replace the project's contribution to the total amount of electricity consumed by GPC's Gilman paper mill and (2) replace the energy produced by the project that is sold to NEP. The only reasonably available alternative source of replacement energy, other than the offsetting effect of any reductions in demand that may be achieved through additional conservation and load management measures, would be NEP's power supply system. The use of NEP's power system to provide this replacement energy would potentially result in the increased use of available fossil-fired capacity with its associated adverse air quality impacts.

The direct effect of purchasing replacement power from NEP to supply GPC's paper mill would be a substantial increase in the mill's annual energy costs, and an increase in its annual fixed charges for the required uprating of existing GPC transmission facilities and the required replacement of existing GPC transformers. Since paper making is an energy intensive process, considerably higher production costs would result. Because the paper industry is very competitive, it is possible that such an

increase in production costs (due to increased energy costs) could result in a closing of the mill. This would cause a severe socioeconomic impact on the approximately 190 mill employees who would be laid off from work. Closure of the mill and the loss of jobs and wages paid to the mill's employees would also have a severe adverse impact on the immediate and neighboring communities. Shutdown of the project and closure of the mill would result in the loss of over 40 percent of Lunenburg, Vermont's property taxes (paid by GPC for the mill and hydro facilities) and over \$24,000 in annual tax revenue to Dalton, New Hampshire. State and federal tax revenues would also be reduced.

Denial of a new license for the proposed project and the subsequent discontinuance of project operations could lead to abandonment of the existing project facilities, and eventually, to the removal of all or part of the existing project works. Depending on the situation, this could cause a variety of changes to the existing physical, biological, and cultural components of the area.

I. RECOMMENDED ALTERNATIVE

Proposed project (including proposed, required, and recommended environmental measures).

Action alternative.

No action.

1. Reason(s) for selecting the preferred alternative -- comprehensive planning.

Sections 4(e) and 10(a)(1) of the Act, 16 U.S.C. §797(e) and §803(a)(1), respectively, require the Commission to give equal consideration to and balance, in the public interest, both the power and nonpower values of all the resources that are affected by a proposed project. Thus, in determining whether, and under what conditions, a hydropower license should be issued, the Commission must weigh the various economic and environmental tradeoffs involved in the decision.

No reasonable action alternatives to the proposed project have been identified for assessment. Based on its independent review and evaluation of the proposed project and the no-action alternative, the staff has selected the proposed project as the preferred option. The staff recommends issuing a new license for the Gilman Project because: (1) no adverse environmental effects would be caused by the project; (2) the economic and environmental benefits of the project clearly outweigh its economic costs; and (3) the benefits of the project greatly

outweigh the potential and probable consequences associated with taking no action.

The proposed project would annually generate an estimated 25,078,815 kWh of relatively low-cost electricity from a renewable energy resource for use by the applicant in its paper mill and by NEP's wholesale customers. Positive, long-term impacts to water quality and resident fisheries below the project would occur due to the spillage of an instantaneous minimum spillage flow of 210 cfs at the Gilman dam to improve dissolved oxygen conditions. The Atlantic salmon restoration program for the CRB would benefit from the cooperation and support of the licensee in implementing a fish passage plan involving the Gilman dam. Upgrading the existing canoe portage around the project dam and improving the existing boat launch site for the project impoundment would provide better access to the river for water-based recreation within the project area.

The primary costs associated with the project would be: (1) the loss of approximately 671,185 kWh in potential annual energy generation currently valued at approximately \$40,000 ^{5/} due to the release of the proposed minimum flow; (2) the costs that would be shared by the licensee in implementing a fish passage plan involving the Gilman dam; and (3) the construction and maintenance expenses of implementing the proposed recreational enhancement measures.

The lost energy production potential that would result from the proposed minimum flow represents only about 2.6 percent of the estimated average amount of energy that is presently generated each year by the project. The benefits to water quality and resident fisheries from the immediate improvements to DO concentrations in the Connecticut River downstream of the Gilman dam, and the future possibility of achieving state DO standards downstream at the DO sag point outweigh the small loss of energy generating potential.

Although a fish passage plan involving the Gilman dam has not been specifically defined and the costs of implementing such a plan have not been determined, GPC has expressed its willingness to work with the Commission and participating fishery agencies in achieving the objectives of the Atlantic salmon restoration program for the CRB. The staff anticipates that the licensee's share of the costs to implement such a plan would be reasonable and mutually acceptable among the parties involved.

The scope of the proposed recreational enhancement measures is relatively small and their associated construction and maintenance costs are considered negligible in relation to the

^{5/} 671,185 kWh at \$0.06/kWh.

licensee's current annual fixed costs and yearly operation and maintenance expenses.

Section 10(a)(2) of the Act, 16 U.S.C. §803(a)(2), requires the Commission to also consider the extent to which the project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. Under section 10(a)(2), federal and state agencies have filed with the Commission eight comprehensive plans that address various resources in New Hampshire and seven comprehensive plans that address various resources in Vermont. Of these, the staff identified and reviewed six New Hampshire plans 6/ and four Vermont plans 7/ relevant to this project. No conflicts were found.

Based upon a review of the agency and public comments filed on this project, and on the staff's independent analysis, the staff finds that the Gilman Project is best adapted to a comprehensive plan for the proper use, conservation, and development of the Connecticut River and other project related resources.

2. Unavoidable adverse impacts of the recommended alternative.

None.

J. CONCLUSION

6/ Wild, Scenic, and Recreational Rivers for New Hampshire, 1977, New Hampshire Office of State Planning; Connecticut River Basin Fish Passage, Flow, and Habitat Alteration Considerations in Relation to Anadromous Fish Restoration, 1981, Technical Committee for Fisheries Management of the Connecticut River; A Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River Basin, 1982, Policy Committee for Fisheries Management of the Connecticut River; New Hampshire Rivers Management and Protection Program, 1988, State of New Hampshire; New Hampshire Outdoors, 1988-1993, 1989, New Hampshire Office of State Planning; New Hampshire Wetlands Priority Conservation Plan, 1989, New Hampshire Office of State Planning.

7/ Connecticut River Basin Fish Passage, Flow, and Habitat Alteration Considerations in Relation to Anadromous Fish Restoration, 1981, Technical Committee for Fisheries Management of the Connecticut River; A Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River Basin, 1982, Policy Committee for Fisheries Management of the Connecticut River; Vermont State Comprehensive Outdoor Recreation Plan, 1983-1988, 1983, Vermont Agency of Environmental Conservation; Vermont Rivers Study, 1986, Vermont Agency of Environmental Conservation.

X Finding of No Significant Impact. Approval of the recommended alternative (section I) 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 (section I) would constitute a major federal action significantly affecting the quality of the human environment; therefore, an EIS will be prepared.

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Form L-3
(October, 1975)

FEDERAL ENERGY REGULATORY COMMISSION

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

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

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

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

Article 4. The project, including its operation and maintenance and any work incidental to additions or alterations authorized by the Commission, whether or not conducted upon lands

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

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights 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 or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the 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 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 opportunity for hearing, install additional capacity or make 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 Commis-

sion 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 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 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 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.

Form L-3
(October, 1975)

FEDERAL ENERGY REGULATORY COMMISSION

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

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

Article 4. The project, including its operation and maintenance and any work incidental to additions or alterations authorized by the Commission, whether or not conducted upon lands

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

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

Article 6. In the 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 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 opportunity for hearing, install additional capacity or make 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 notion 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 Commis-

sion 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 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 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 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.

UNITED STATES OF AMERICA 125 FERC ¶ 62,104
FEDERAL ENERGY REGULATORY COMMISSION

Dalton Hydro, LLC
Ampersand Gilman Hydro LP

Project No. 2392-024

ORDER APPROVING TRANSFER OF LICENSE

(Issued October 30, 2008)

By application filed July 25, 2008 and supplemented on July 31, 2008, Dalton Hydro, LLC (Dalton or transferor) and Ampersand Gilman Hydro LP (AGH or Transferee) seek Commission approval to transfer the license for the 4.85-megawatt Gilman Project No. 2392¹ from Dalton to AGH (transferee). The project is located on the Connecticut River in Essex County, Vermont and Coos County, New Hampshire.

Public notice of the application was issued on September 3, 2008, setting September 30, 2008, as the deadline for filing comments, protests, and motions to intervene. No motions to intervene or comments were filed.²

Transferee has agreed to accept all of the terms and conditions of the license and to be bound by the license as if it were the original licensee.

Transferor has generally complied with the terms and conditions of the license and agrees to pay annual charges that have accrued to the date of the transfer. Transferee will be required to comply with the requirements of the license as though it were the original licensee. Transfer of the license for this project is consistent with the Commission's regulations and is in the public interest.

The Director orders:

(A) Transfer of the license for the Gilman Project No. 2392 from Dalton Hydro, LLC to Ampersand Gilman Hydro LP is approved.

(B) Dalton Hydro, LLC shall pay all annual charges that accrue up to the effective date of the transfer.

¹ 67 FERC ¶ 62,038 (1994).

² The Connecticut River Watershed Council, Inc. filed on August 28, 2008, a motion to intervene, which it withdrew on October 15, 2008.

Project No. 2392-024

2

(C) Approval of the transfer is contingent upon: (1) transfer of title of the properties under license and delivery of all license instruments to Ampersand Gilman Hydro LP, which shall be subject to the terms and conditions of the license as though it were the original licensee; and (2) Ampersand Gilman Hydro LP acknowledging acceptance of this order and its terms and conditions by signing and returning the attached acceptance sheet. Within 60 days from the date of this order, the transferee shall submit certified copies of all instruments of conveyance and the signed acceptance sheet.

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

William Guey-Lee
Chief, Engineering & Jurisdiction Branch
Division of Hydropower
Administration and Compliance



State of Vermont

*Don't.
For your records
Dave*

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
WATER QUALITY DIVISION
103 South Main Street
Building 10 North
Waterbury, VT 05671-0408

802-241-3770

February 17, 1994

David G. Blanchette
Energy Manager
Simpson Paper Company
Centennial Mill
P.O. Box 129
Gilman, VT 05904

RE: Gilman Dam - FERC Project No. 2392
Water Quality Certification

Dear Mr. Blanchette:

Enclosed please find the signed amendment to the water quality certification for the Gilman Project. I am sending this to you by facsimile copy as well.

Condition 5 of the agreement requires the filing of a joint request with FERC for issuance of the new license. This is to occur within five days of the certification amendment becoming final, which I assume for purposes of the agreement to be within five days of the end of the 15-day appeal period if no appeal is filed.

Sincerely,

Jeffrey R. Cueto
Jeffrey R. Cueto, P.E.
Principal Hydrologist

cc: Secretary Clarke
William Brierley, P.E.
Ron Shems, Esq.
Stephen Sease
401 distribution list

Water Quality Certification Amendment
(P.L. 92-500, Section 401)

In the matter of: **Simpson Paper Company**
 Gilman, Vermont 05904

APPLICATION TO AMEND
THE GILMAN PROJECT
WATER QUALITY CERTIFICATION

The Water Quality Division of the Vermont Department of Environmental Conservation (the Department), pursuant to the attached December 15, 1993 settlement agreement between the Agency of Natural Resources and the Simpson Paper Company (Simpson or applicant), has reviewed the change in spillage regime for consistency with Vermont Water Quality Standards. The subject of the settlement agreement and this action is the July 28, 1989 water quality certification for the Gilman Project in the towns of Lunenburg, Vermont and Dalton, New Hampshire. The Department has made the following findings and conclusions:

1. Condition A of the water quality certification requires that the project spill 210 cfs continuously during the period June 1 through October 15 in order to protect water quality. Simpson has agreed to spill 210 cfs during that period whenever the instantaneous inflow to the project is 1,000 cfs or less. The addition of an inflow criteria to trigger the spillage during the period is the only change proposed pursuant to the agreement.

2. On the average, inflow can be expected to recede below 1,000 cfs about one quarter of the time during the critical summer/fall period (based on a review of the Dalton U.S. Geological Survey gage records for 1980-1990). Spillage of 210 cfs during the low flow will remove a portion of the dissolved oxygen deficit that would otherwise exist at and below the Gilman Dam. During higher flows, the mix of a highly oxygenated 210 cfs spillage with the total turbine discharge is less significant in terms of benefits to the downstream dissolved oxygen regime and consequently is not necessary for habitat improvement for aquatic organisms.

3. By facimile copy on October 26, 1993, Kleinschmidt Associates filed a minimum flow release plan with the Department. This management plan outlines a method for spilling the 210 cfs using the dam crest gate; a procedure to be followed in monitoring project inflows and initiating spillage when flows recede to 1,000 cfs; and recordkeeping details.
4. Simpson has demonstrated that it can reliably manage spillage as a function of inflow and thereby assure that water quality standards for dissolved oxygen will be met.
5. Pursuant to the settlement agreement, Simpson would institute the spillage-flow management beginning June 1, 1994.

ACTION OF THE DEPARTMENT

Based on its review of this change and the above findings, the Department concludes that there is reasonable assurance that operation of this project in accordance with Condition A as amended below and the remaining original certification conditions will not cause a violation of Vermont Water Quality Standards and will be in compliance with sections 301, 302, 303, 306, and 307 of the Federal Clean Water Act, P.L. 92-500, as amended, and other appropriate requirements of state law:

- A. The project shall be operated in a strict run-of-the-river mode where instantaneous flows below the tailrace are maintained equivalent to instantaneous inflows to the impoundment. The pond level shall be maintained at or within six inches of top of the flashboards at all times except where circumstances beyond the control of the applicant occur, such as the loss of flashboards. Under such circumstances, a minimum flow of 757 cfs, or instantaneous project inflow, if less, shall be maintained below the tailrace until normal operations are restored. There shall be no impoundment cycling for generation.

In order to protect water quality, a minimum instantaneous flow of 210 cfs shall be spilled at the dam, during the period June 1 through October 15, whenever instantaneous inflow to the project is 1,000 cfs or less. When the project is not operating, all inflows shall be spilled at the dam.

No later than 90 days from the issuance of this certification, the applicant shall file for review and approval a plan for monitoring instantaneous flow releases at the project, both in terms of spillage and total discharge below the project; instantaneous inflows to the project; headpond elevations; and gate settings. Following approval of the monitoring plan, the applicant shall initiate collection of the aforementioned

data and report the data to the Department on a regular basis as per specifications of the Department.

Chuck Clarke

Chuck Clarke
Secretary
Agency of Natural Resources

Dated at Waterbury, Vermont this 17
day of February, 1994.

attachment: settlement agreement
cc: distribution list

JRC

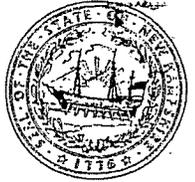


State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

6 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095

603-271-3503 FAX 603-271-2867

TDD Access: Relay NH 1-800-735-2964



November 20, 1992

David Blanchette
Simpson Paper Company
Centennial Mill P.O. Box 129
Gilman, VT 05904

Re: Water Quality Certificate (pursuant to Section 401 of the Clean Water Act): FERC Project #2392. Gilman Hydroelectric Project, Dalton, NH and Gilman, VT.

Dear Mr. Blanchette:

The Division has determined that under the conditions outlined in this amendment to your Water Quality Certificate, FERC Project #2392 will comply with the applicable provisions of Section 301, 302, 303, 306, and 307 of the Clean Water Act as amended.

The following amended conditions are placed on this section 401 Water Quality Certificate:

- 1) The following water quality monitoring program must be enacted the first summer following FERC licensing and must continue for three consecutive years. It will be determined by DES after assessing three years of data whether sampling will continue.
 - (a) Dissolved oxygen and water temperature must be monitored at three stations in the Connecticut River; 1) upstream of the Gilman impoundment, 2) at three depths in the impoundment (surface, bottom, and mid-depth), and 3) downstream of the tailrace. Station locations will be specified by DES-WSPCD.
 - (b) Monitoring must occur once each month during a non-rain condition for a three day period during the following months: July, August, and September. Samples will be collected between 0500 and 0800 daily.
 - (c) Equipment calibration and quality control measures must be followed to assure accurate reporting.
 - (d) Monitoring events will be conducted under as close to limiting water quality conditions as possible (water temperature 18°C or greater and river flows less than 1000 cfs). Sampling flows must be documented.
 - (e) Water quality monitoring and QA/QC results must be reported on an annual basis and a yearly summary report must be submitted to DES-WSPCD.

AIR RESOURCES DIV.
64 No. Main Street
Caller Box 2033
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Fax 603-271-1381

WASTE MANAGEMENT DIV.
6 Hazen Drive
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WATER RESOURCES DIV.
64 No. Main Street
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Concord, N.H. 03302-2008
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Fax 603-271-1381

WATER SUPPLY & POLLUTION CONTROL DIV.
P.O. Box 95
Concord, N.H. 03302-0095
Tel. 603-271-3503
Fax 603-271-2181

David Blanchette
November 20, 1992
Page Two

If structural and/or operational modifications which impact the water quality of the Connecticut River are to be made at the Gilman Hydroelectric Project, this document may require amendment. An amended certificate, or a determination that no amendment is required, must be obtained prior to creating any such modifications.

This office reserves the right to gain access to the Gilman Hydroelectric site at any time to check monitoring equipment and records to assure compliance with the State's water quality standards.

Finally, all existing river uses must be maintained and protected, and at no time shall the Gilman Hydroelectric Project cause Class B water quality standards to be violated.

Please address all correspondence to Robert J. Baczynski at the Water Supply & Pollution Control Division address indicated.

Sincerely,



Edward J. Schmidt, P.E., Ph.D.
Director
Water Supply & Pollution Control Division

RBJ/EJS/:8398.

cc: Delbert Downing - NHWB
Katherine Ueland - Comm
Tim Drew - Comm
Leslie Ludtke - AG
Nancy Derey - Corps of Engineers
Sec. Lois Cashill - FERC
Mark Robinson - FERC
Town of Dalton
Jeff Cueto - VT