APPENDIX 1-1
EXEMPTION ORDER

ID 840-611 5010

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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Dodge Falls Hydro Corporation) Project No. 8011-006

ORDER GRANTING EXEMPTION FROM LICENSING OF A SMALL HYDROELECTRIC PROJECT OF 5 MEGAWATTS OR LESS

(Issued June 11, 1984)

The Applicant 1/ filed an application for exemption from all or part of Part I of the Federal Power Act (Act) pursuant to 18 C.F.R. Part 4 Subpart K (1980) implementing in part Section 408 of the Energy Security Act (ESA) of 1980 for a project as described in the attached public notice. 2/ 3/

Notice of the application was published in accordance with Section 408 of the ESA and the Commission's regulations and comments were requested from interested Federal and State agencies including the U.S. Fish and Wildlife Service and the State Fish and Wildlife Agency. All comments, protests and motions to intervene that were filed have been considered. No agency has any objection relevant to issuance of this exemption.

Standard Article 2, included in this exemption, requires compliance with any terms and conditions that Federal or State fish and wildlife agencies have determined appropriate to prevent loss of, or damage to, fish and wildlife resources. The terms and conditions referred to in Article 2 are contained in any letters of comment by these agencies which have been forwarded to the Applicant in conjunction with this exemption.

1/ Dodge Falls Hydro Corporation, Project No. 8011, filed on January 30, 1984.

2/ Pub. Law 96-294, 94 Stat. 611. Section 408 of the ESA amends inter alia, Sections 405 and 408 of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. §§2705 and 2708).

3/ Authority to act on this matter is delegated to the Deputy Director, Office of Electric Power Regulation, under §375.308 of the Commission's regulations, 18 C.F.R. §375.308 (1983). This order may be appealed to the Commission by any party within 30 days of its issuance pursuant to Rule 1902, 18 C.F.R. 385.1902 (1983). Filing an appeal and final Commission action on that appeal are prerequisites for filing an application for rehearing as provided in Section 313(a) of the Act. Filing an appeal 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 directed by the Commission.

Should the Applicant contest any terms or conditions that were proposed by Federal or State agencies in their letters of comment as being outside the scope of Article 2, the Commission shall determine whether the disputed terms or conditions are outside the scope of Article 2.

Based on the terms and conditions required by Federal and State fish and wildlife agencies, the environmental information in the application for exemption, other public comments, and staff's independent analysis, issuance of this order is not a major Federal action significantly affecting the quality of the human environment.

It is ordered that:

(A) Dodge Falls Project No. 8011 as described and designated in Dodge Falls Hydro Corporation's application filed on January 30, 1984, is exempted from all of the requirements of Part I of the Federal Power Act, including licensing, subject to the standard articles in §4.106, of the Commission's regulations attached hereto as Form E-2, 18 C.F.R. §4.106 45 Fed. Reg. 76115 (November 18, 1980), and the following Special Article.

Article 6. Any exempted small hydroelectric power project that utilizes a dam which is more than 33 feet in height above streambed, as defined in 18 CFR 12.31(c) of this chapter, impounds more than 2,000 acre-feet of water, or has a significant high hazard potential, as defined in 33 CFR Part 222, is subject to the following provisions of 18 CFR Part 12;

(i) Section 12.4(b)(1)(i) and (ii), (2)(i), (iii)(A) and (B), (iv), and (v);

(ii) Section 12.4(c);

(iii) Section 12.5;

(iv) Subpart C; and

(v) Subpart D.

For the purposes of applying these provisions of 18 CFR Part 12, the exempted project is deemed to be a licensed project development and the owner of the exempted project is deemed to be a licensee.

Robert E. Cackowski
Deputy Director, Office of
Electric Power Regulation

1-2

154463

a. Type of Application: 5 MW Exemption

b. Project No: 8011-000

c. Date Filed: January 30, 1984

d. Applicant: Dodge Falls Hydro Corporation

e. Name of Project: Dodge Falls

f. Location: On the Connecticut River, in the towns of Ryegate, Caledonia County, Vermont and Bath, Grafton County, New Hampshire

g. Filed Pursuant to: 16 U.S.C. §§2705 and 2708

h. Contact Person: Howard M. Moffett, Orr and Reno, One Eagle Square, P.O. Box 709, Concord, New Hampshire 03301

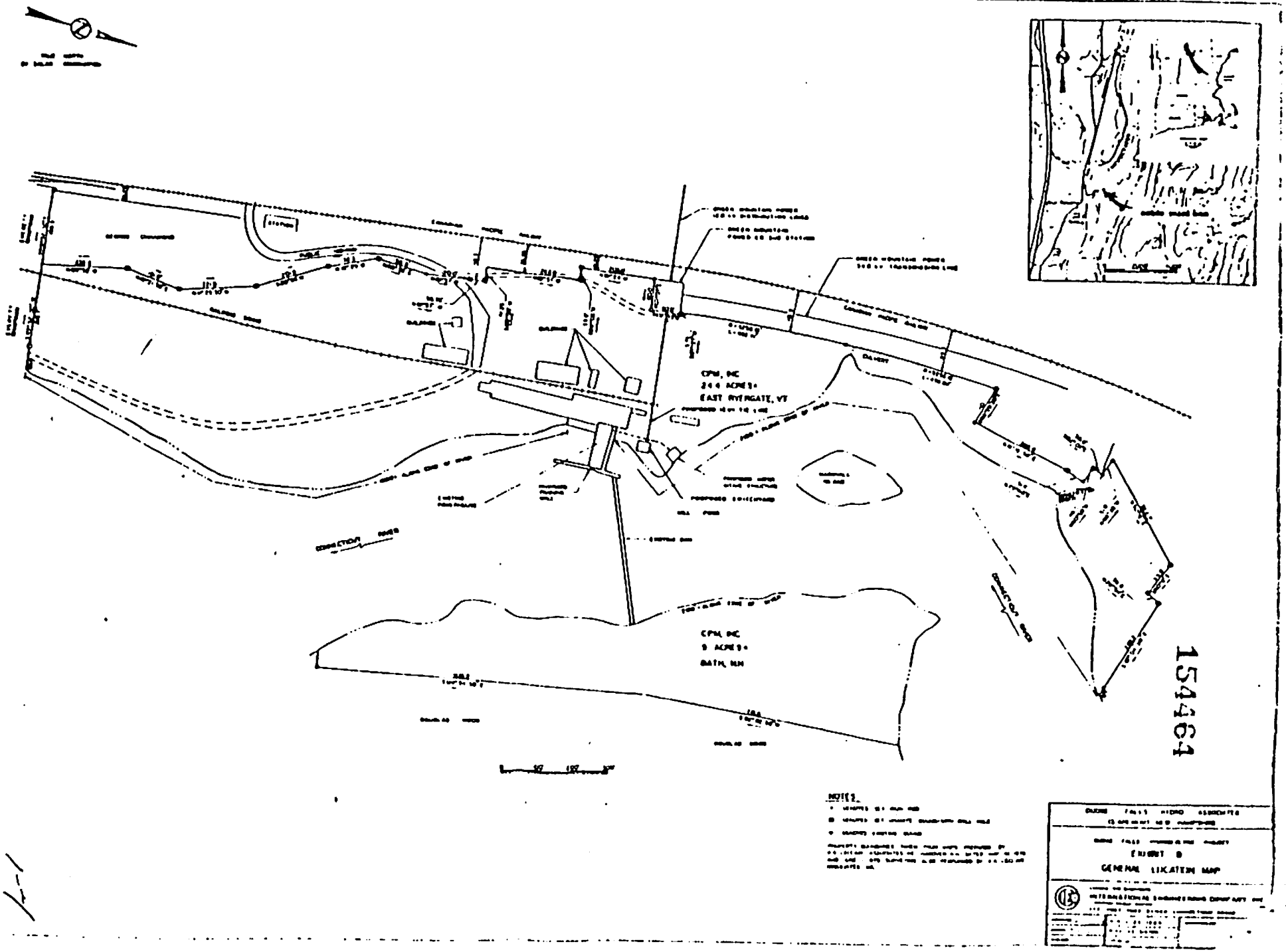
i. Comment Date: APR 27 1984

j. Description of Project: The proposed project would consist of: (1) an existing 485-foot-long, 15.5-foot-high, grouted rock-filled timber crib dam with an integral 375-foot-long spillway topped by two-foot-high flashboards; (2) an existing 4-mile-long, 290-acre reservoir at elevation 423.6 feet M.S.L. and a usable storage capacity of 590 acre-feet with flashboards; (3) an existing powerhouse on the west abutment to be refurbished with 6 new turbine-generators with a total rated capacity of 4,650 kW; (4) a 350-foot-long, 12-kV transmission line; and (5) appurtenant facilities. The project would produce up to 21,000,000 kWh annually.

k. Purpose of Project: Energy produced at the project would be sold to Green Mountain Power Corporation.

l. This notice also consists of the following standard paragraphs: A1, A9, B, C and D3a.

m. Purpose of Exemption: An exemption, if issued, gives the Exemptee priority of control, development, and operation of the project under the terms of the exemption from licensing, and protects the Exemptee from permit or license Applicants that would seek to take or develop the project.


CPM, INC
244 ACRES±
EAST RIVERGATE, VT
CPM, INC
9 ACRES±
BATH, NH
154464

154465 Attachment E-2 Form

§ 4.106 Standard terms and conditions of exemption from licensing.

Any exemption from licensing granted under this subpart for a small hydroelectric power project is subject to the following standard terms and conditions:

(a) Article 1. The Commission reserves the right to conduct investigations under sections 4(g), 306, 307, and 311 of the Federal Power Act with respect to any acts, complaints, facts, conditions, practices, or other matters related to the construction, operation, or maintenance of the exempt project. If any term or condition of the exemption is violated, the Commission may revoke the exemption, issue a suitable order under section 4(g) of the Federal Power Act, or take appropriate action for enforcement, forfeiture, or penalties under Part III of the Federal Power Act.

(b) Article 2. The construction, operation, and maintenance of the exempt project must comply with any terms and conditions that any Federal or state fish and wildlife agencies have determined are appropriate to prevent loss of, or damage to, fish or wildlife resources or otherwise to carry out the purposes of the Fish and Wildlife Coordination Act, as specified in Exhibit E of the application for exemption from licensing or in the comments submitted in response to the notice of the exemption application.

(c) Article 3. The Commission may accept a license application by any qualified license applicant and revoke this exemption if actual construction or development of any proposed generating facilities has not begun within 18 months, or been completed within four years, from the date on which this exemption was granted. If an exemption is revoked, the Commission will not accept a subse-

(c) Article 4. This exemption is subject to the navigation servitude of the United States if the project is located on navigable waters of the United States.

154466

(e) Article 5. This exemption does not confer any right to use or occupy any Federal lands that may be necessary for the development or operation of the project. Any right to use or or occupy any Federal lands for those purposes must be obtained from the administering Federal land agencies. The Commission may accept a license application by any qualified license applicant and revoke this exemption, if any necessary right to use or occupy Federal lands for those purposes has not been obtained within one year from the date on which this exemption was granted.

APPENDIX 1-2
1985 EXEMPTION APPLICATION

Before the Federal Energy Regulatory Commission

APPLICATION FOR AMENDMENT
EXEMPTION FROM LICENSING
PROJECT NO. 8011

DODGE FALLS
HYDROELECTRIC PROJECT

NOVEMBER 1985

Dodge Falls Hydro Corporation
West Lebanon, New Hampshire

HYDRA-CO

HYDRA-CO Enterprises Inc.
Cogeneration • Small Hydro •
Alternate Energy

ONE Lincoln Center
Suite 1225
Syracuse, New York 13202

Telephone (315) 471-2881
Telecopier (315) 471-2411

David R. Bristol, P.E.
Vice President
Hydro Development

2641-510
0230C
80980

November 8, 1985

Mr. Kenneth F. Plumb
Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, D.C. 20426

Subject: Dodge Falls Hydroelectric Project
FERC Project Number 8011

Dear Mr. Plumb:

In June 1984, an exemption from licensing was issued to Dodge Falls Hydro Corporation to develop a project on the Connecticut River at East Ryegate, Vermont. Since that time, considerable work on the project has been done in the form of additional engineering, equipment contracts, and negotiations for a power contract. It has become apparent that certain changes need to be implemented in the project to make it financeable. We are therefore proposing to amend the existing exemption.

A previous exemption was granted in May of 1982 for a hydroelectric development on the New Hampshire side of the Connecticut River at Bath (FERC Project No. 3117). This exemption was subsequently surrendered (January 29, 1984) and the present exemption applied for. This change was requested in order to attempt to reduce the project cost.

However, after over a year of trying to develop the project as identified in the current Exemption, many complications have been identified. For example, modifications to the mill will be much more expensive than originally anticipated. Likewise, the relocation of pollution control equipment that is presently in the existing mill also turned out to be a much greater expense than originally anticipated. Further, the existing mill provided hydraulic limitations that rendered this arrangement not viable, both technically and economically.

Dodge Falls Hydro Corporation has now established a relationship with an experienced hydroelectric developer (HYDRA-CO Enterprises, Inc.) and the project has been (once again) reconfigured on the New Hampshire side of the Connecticut River. Environmental impacts for this revised project are essentially the same as for the original project on the New Hampshire side (Project 3117).

HYDRA-CO is currently negotiating with the Vermont Power Exchange for a power contract for the entire output of this facility. An acceptable power contract is now anticipated by January, 1986. With the power contract in place and the project reconfigured as proposed in this Amendment, we believe that the project will be financeable and will proceed in a timely manner.

On August 21, 1985 a DRAFT "Amendment to the Exemption from Licensing for the Dodge Falls Hydroelectric Project" ("Amendment") was transmitted to interested agencies. Their comments and discussion are included in Appendix A.3 of the Amendment.

The Applicant respectfully requests the FERC to accept and issue an order amending the project in accordance with this Amendment. The Applicant further requests a two year extention of time to start construction of the project. This extention is required to redesign the project in accordance with the Amendment and modify permits after issuance of the FERC order.

Very truly yours,

David R Bristol

David R. Bristol
Vice President, Hydro Development

DRB/glc
Enclosure

APPLICATION FOR AMENDMENT
EXEMPTION FROM LICENSING
FERC PROJECT NO. 8011

DODGE FALLS HYDROELECTRIC PROJECT

TABLE OF CONTENTS

1. Dodge Falls Hydro Corporation applies to the Federal Energy Regulatory Commission ("the Commission") to amend its Exemption from Licensing for the Dodge Falls Hydroelectric Project, a small hydroelectric power project that is proposed to have an installed capacity of 5 megawatts or less. The project is currently exempted from licensing as FERC Project No. 8011 VT/NH.

   The proposed changes consist of moving the power plant from the Vermont side of the Connecticut River to the New Hampshire side and installing a single pit-type turbine in a new powerhouse. The installed capacity has been increased from 4.65 MW to 5 MW as described in Exhibit A.

   The Project described in the Amendment is similar to Project 3117 which was granted Exemption from Licensing by the Commission on May 28, 1982 and ultimately surrendered by Dodge Falls Hydro Associates effective January 29, 1984.

2. The location of the Project is:

   States: Vermont and New Hampshire
   Counties: Caledonia, Vermont and Grafton, New Hampshire
   Towns: Ryegate, Vermont and Bath, New Hampshire
   Stream: Connecticut River

3. The exact name and business address of the Applicant is:

   Dodge Falls Hydro Corporation
   P.O. Box 388
   West Lebanon, New Hampshire 03784

4. The exact name and business address of each person authorized to act as agent for the Applicant in this Application are:

   Harvey D. Hill
   Dodge Falls Hydro Corporation
   P.O. Box 388
   West Lebanon, New Hampshire 03784

   David R. Bristol
   Vice President, Hydro Development
   HYDRA-CO Enterprises, Inc.
   One Lincoln Center, Suite 1225
   Syracuse, New York 13202
   (315) 471-2881

5. Dodge Falls Hydro Corporation is a corporation incorporated under the laws of the State of New Hampshire.

This application is executed in the
State of New Hampshire
County of Grafton, ss.

Harvey D. Hill, President of Dodge Falls Hydro Corporation, being duly sworn, deposes and says that the contents of this application are true as stated to the best of his knowledge and belief, and that he possesses full power and authority to sign this filing. The undersigned applicant has signed this application this 5th day of September, 1985.

Dodge Falls Hydro Corporation

By: H H Hill
Harvey D. Hill

Subscribed and sworn to before me, a Notary Public of the State of New Hampshire this 5th day of September, 1985.

Shirley J Hemenway
Notary Public
My commission expires: 12/10/85
SHIRLEY ANN HEMENWAY, Notary Public
My Commission Expires December 10, 1985

EXHIBIT A

A.1 GENERAL OVERVIEW

The proposed 5.0 MW Dodge Falls Hydroelectric Project is located at the Dodge Falls Dam which spans the Connecticut River between the towns of Ryegate, Vermont and Bath, New Hampshire approximately 270 miles north of the mouth of the river at Long Island Sound. The original purpose of the dam is unknown, however, it was used from 1909 to 1966 to supply water to turbines which drove pulp grinders at the paper mill located on the west bank. Currently, process water is drawn from the impoundment for the paper mill. Table A-1 summarizes project statistics.

A.1.1 Existing Dam and Impoundment

The impoundment is formed by a powerhouse with a concrete substructure and a masonry superstructure; a concrete training wall section at the east end of the structure; and a grouted, rock-fill, timber crib dam with integral spillway that extends from the training wall across the river to the east abutment. The east abutment is in bedrock. The total length of the impounding structure is 485 feet.

The spillway dam is a grouted, rock-fill, timber crib structure with a timber crest and wood plank facing. The timber crest cap is 16 inches high, 3.6 feet wide and 375 feet long. Crest elevation is 421.6 MSLD and is about 15.5 feet above the streambed at the downstream toe. The crest is constructed of two layers of two-inch plank decking which are topped by longitudinal beams, 6 inches wide by 12 inches high and 3 feet long.

According to the record drawings of the dam, the upstream face of the spillway dam is covered from the crest to the foundation with rows of two-inch planks. These three-foot-long planks are placed overlapping one another, shingle fashion. The slope of this face is 1.7 horizontal to 1.0 vertical.

Table A-1

PROJECT STATISTICS

SPILLWAY DAM	
Construction date	Circa 1905
Condition	Fair
Construction	Rock-filled timber crib
Foundation	Bedrock
Spillway length, ft.	375
Crest elevation, MSLD	421.6
Crest width, ft.	3.6
Upstream slope	1.7 horizontal to 1.0 vertical
Downstream slope	0.1-0.15 horizontal to 1.0 Vertical
Height, ft.	15.5
Flashboards, ft.	2.0

IMPOUNDMENT	WITHOUT FLASHBOARDS	WITE FLASHBOARDS
Surface elevation, MSLD	421.6	423.6
Surface area, acres	290	290
Maximum drawdown, ft.	0	2
Usable storage, acre-ft.	0	590
Length, miles	4	4

SIDE SPILLWAY (PROPOSED)	
Construction	Concrete
Foundation	Bedrock
Length, ft.	120
Crest elevation, MSLD	421.6
Crest width, ft.	3.0
Upstream slope	Vertical
Downstream slope	0.7 horizontal to 1.0 vertical
Height, ft.	12.0
Flashboards, ft.	2.0

Table A-1 (Continued)

POWERPLANT (PROPOSED)	
Plant capacity, kW	5,000
Plant discharge, cfs	5,800
Average annual energy production, MWh	20,000 reduced
Turbine type	Horizontal pit Kaplan
Generator type	Synchronous
Number of units	(1) originally 3 @ 1665 kW
Mode of operation	Run-of-river
Turbines	
Rated head, ft.	12
Rated output per unit, kW	5000
Rated discharge per unit, cfs	5800
Runner diameter, mm	5500
Generators	
Rated capacity per unit, kW	5000
Rated output per unit, kVA	5550
Phase/voltage/frequency	3/4160/60
Synchronous speed, rpm	900
TRANSMISSION	
Distance to substation, ft.	500
Voltage, kV	34.5
Type	Overhead

USE OF POWER

Power to be sold to local utility.

The timber cribs along the downstream face of the spillway dam are covered from the crest to the toe with vertical wood plank facing two inches thick. Much of this facing is missing, exposing the grouted, rock-filled timber cribs at several locations. The slope of the downstream face is about 0.1 to 0.15 horizontal to 1.0 vertical.

The timber decking is fastened to the timber cribs with steel spikes. The deck beams are fastened to the timber cribs with drift pins.

The timber cribs consist of transverse, 12-inch-diameter logs spaced 6 to 6.5 feet, center to center, stacked perpendicular to 10-inch wide by 12-inch-high longitudinal beams which run parellel to the dam axis.

The old log sluiceway is located approximately 170 feet from the west abutment wall, and contains a concrete plug, approximately three feet high and 40 feet long. At the east side of the spillway dam is a 25-foot-long by 3-foot-wide concrete abutment wall with a crest elevation of 423.6 MSLD. The west side of the spillway dam ends in the west abutment wall.

The west abutment wall adjacent to the spillway dam is a concrete structure 12 feet wide and 54 feet long. The top of the wall is 12.2 feet above the spillway crest at an elevation of 433.8 MSLD. About 10 feet downstream from the toe of the spillway dam are two bypass openings in the wall, leading to the forebay of the old mill powerhouse. The opening of the high-level bypass is four feet wide by five feet high, and that of the low-level bypass is four feet by four feet. Invert elevations of these bypass openings are 419.5 MSLD and 410.0 MSLD, respectively. The bypasses are controlled by manually controlled, rising stem slide gates.

The 110-foot-long mill-building adjacent to the west abutment wall includes a two-story, brick masonry superstructure and a six-bay, concrete powerhouse substructure. Five of the bays are currently being used by CPM, Inc. for their paper manufacturing process.

These five bays have been converted to their present function by the removal of the old turbine-generator units and placement of concrete plugs to prevent water from flowing through the bays. The sixth bay, which is

adjacent to the west abutment wall, has not been blocked. Its opening is controlled by a motor-driven, vertical lift timber slide gate, 16 feet wide by 10 feet high. The invert elevation of the gate is 412.31 MSLD.

The reservoir extends nearly 4 miles upstream and has a surface area of approximately 290 acres at spillway crest elevation 421.6 MSLD. The storage capacity of the reservoir is about 4,350 acre-feet at spillway crest elevation, 4,940 acre-feet at normal power pool elevation 423.6 MSLD, and 7,985 acre-feet at top of dam elevation 433.8 MSLD.

A.2 PROPOSED INSTALLATION

The proposed installation consists of constructing a reinforced concrete powerhouse with an integral intake structure, installing a turbine-generator with a total installed capacity of 5.0 MW, removing a 60-foot section of the existing dam, and constructing a 75-foot-long side spillway to provide sufficient spillway capacity. No auxiliary units or provisions for future units are proposed. There are no existing units to be retired or rehabilitated.

The proposed powerhouse with integral intake would be constructed of reinforced concrete and would have overall outside dimensions of 50 feet wide by 190 feet long by 75 feet high. The structure would be located on the left bank of the Connecticut River just downstream of the existing dam. The integral intake structure would form the upstream water retaining wall of the powerhouse. The intake structure would be equipped with trashracks, a mechanical trashrack cleaner and a roller gate. The intake water passageway would be hydraulically proportioned to reduce head losses.

The trashracks would be supported by horizontally placed steel tubing spanning the water passage opening. Rack bar spacing would be compatible with turbine vane requirements. The trashrack bars would be rectangular in shape and 0.375 inch thick by 3 inches wide. The racks would be inclined to aid in removal of debris. The trashracks would be cleaned with a mechanical trashrack rake, as well as with hand rakes. Beneath the intake structure, a grout curtain would be provided to reduce the seepage beneath

the intake and powerhouse. Only a minimal amount of grouting is anticipated to be needed to seal any joints or fissures present in the rock foundation.

The upper equipment level would contain 5-kV switchgear cubicles, fire fighting equipment, an equipment service area, an oil pressure system, and control and protection cubicles for the units. The 5-kV switchgear cubicles would include the station service transformer with drawout fuses, current and potential transformers for protection and metering, and an air circuit breaker. The generator pit would contain the generator, generator terminal box, speed increaser and neutral transformer.

A hatchway would be provided in the roof of the powerhouse to allow access to and removal of the turbines and the generators. The hatchways would have steel hatch covers and would be located immediately above a service area. A travelling bridge crane would be provided to transport all parts and equipment within the powerhouse to the service area. The personnel entrance to the structure will be on the roof with stairs down to the upper equipment level. An emergency exit hatch and ladder would also be provided.

The forebay would be constructed by excavating rock and removing 60 feet of the dam including the left abutment. A side spillway section approximately 75 feet long would be constructed of concrete along the right side of the forebay running from the dam to the powerhouse. The side spillway is provided to maintain the required spillway capacity at the site.

A tailrace would be excavated in rock from the draft tubes to the river, a distance of approximately 60 feet.

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A graded gravel road would be provided from state highway 135 along an existing right-of-way to the site. The road would be 16 feet wide with grades not greater than 10 percent.

The parking area adjacent to the powerhouse would be large enough to accommodate several automobiles and service vehicles. Sufficient area would be provided to accommodate a temporary structure when servicing of the units outside of the powerhouse is required.

The switchyard would be enclosed by a chain link fence to prevent trespassing. The switchyard would be connected to the powerhouse 5-kV switchgear cubicles via an underground cable duct.

Connection to one of two transmission systems is under consideration. The step-up transformer would be either a 4,160-V/34.5-kV unit or a 4,160-V/230-kV unit depending on which transmission system is used. The transformer would connect to a transition and metering cubicle. The metering cubicle would lead to a load disconnect switch. Lines would run from the disconnect switch to a switchyard takeoff structure and then to the transmission system.

Two transmission system options exists. The first option is to connect to an existing 34.5 kV substation near the existing paper mill on the Vermont side of the river, a distance of about 500 feet. The second option is to connect to an existing 230 kV line three miles east of the project site.

Based on comments from various agencies concerned with the fishery resource, the project will include future upstream and downstream fish passage facilities. The upstream passage will be accomplished by a trap and truck operation to be designed and operated in conjunction with the appropriate agencies and upstream dam owners before 1992. Downstream passage will also be provided in a timely fashion. Facilities will be designed in consultation with the appropriate agencies and installed before 1992. Further discussion is included in Secions E.2 and E.3

A.3 TYPE OF TURBINES

One turbine-generator unit would be installed in the powerhouse with a total installed capacity of 5.0 MW. The turbine would be horizontal pit-type unit with a 5500-mm diameter runner. The turbine would drive a speed increaser which would in turn drive a synchronous generator at 900 rpm. The turbine would be rated at 12 feet net head.

changed

A.4 MODE OF OPERATION

The proposed facility will operate in a run-of-river mode using river flows controlled by the upstream reservoirs and hydroelectric stations. The McIndoe Falls plant is the control facility upstream of Dodge Falls, and the reservoir elevation will vary with available river flow. There will not be a store and release operation for the purpose of producing peak energy at the proposed facility.

A.5 FLOW DURATION CURVE

The nearest stream gage is Station Number 01138500 on the Connecticut River at Wells, Vermont, located at latitude N44°09'31", longitude W72°02'34". The gage is owned and maintained by the U.S. Geological Survey (USGS). The gage is a water stage recorder, and its accuracy is considered to be good. The drainage area above the gage is 2,644 square miles. Flows at the project site were proportioned by multiplying the recorded flows by the ratio of the drainage area at the site (2,215 square miles) to the drainage area at the gage (2,644 square miles), or 0.838. The available period of record extends from October 1949 through September 1978. Figure A-1 is the flow duration curve for the site. The average annual flow at the site is 4,915 cfs.

A.6 ENERGY ESTIMATES AND HYDRAULIC CHARACTERISTICS OF THE PLANT

The average annual energy production of the proposed facility is 20,000 megawatt-hours. The plant factor of the proposed facility is 52 percent. The design head is 12 feet, the maximum head is 15 feet, and the average head is 14 feet. The hydraulic capacity of the proposed facility is 5,800 cfs.

The existing impoundment has a normal maximum surface elevation of 421.6 MSLD and a surface area of approximately 290 acres. Two feet of flashboards would raise the surface elevation to 423.6 MSLD with an insignificant increase in reservoir area. Reservoir storage is estimated to be 4360 acre-feet at spillway crest elevation (421.6 MSLD) and 4940 acre-feet at top of flashboard elevation (423.6 MSLD).

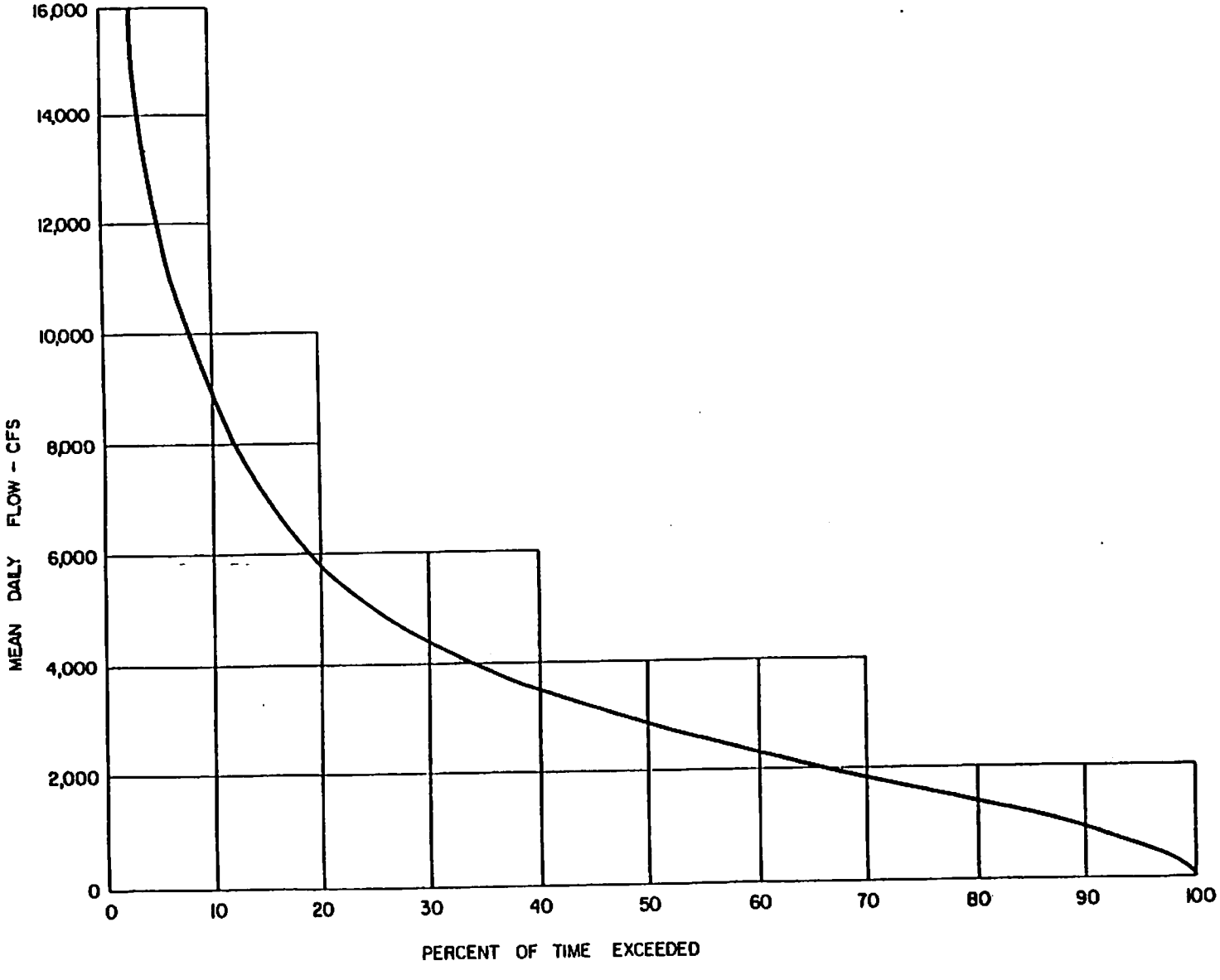


Figure A-1

ANNUAL
FLOW DURATION CURVE

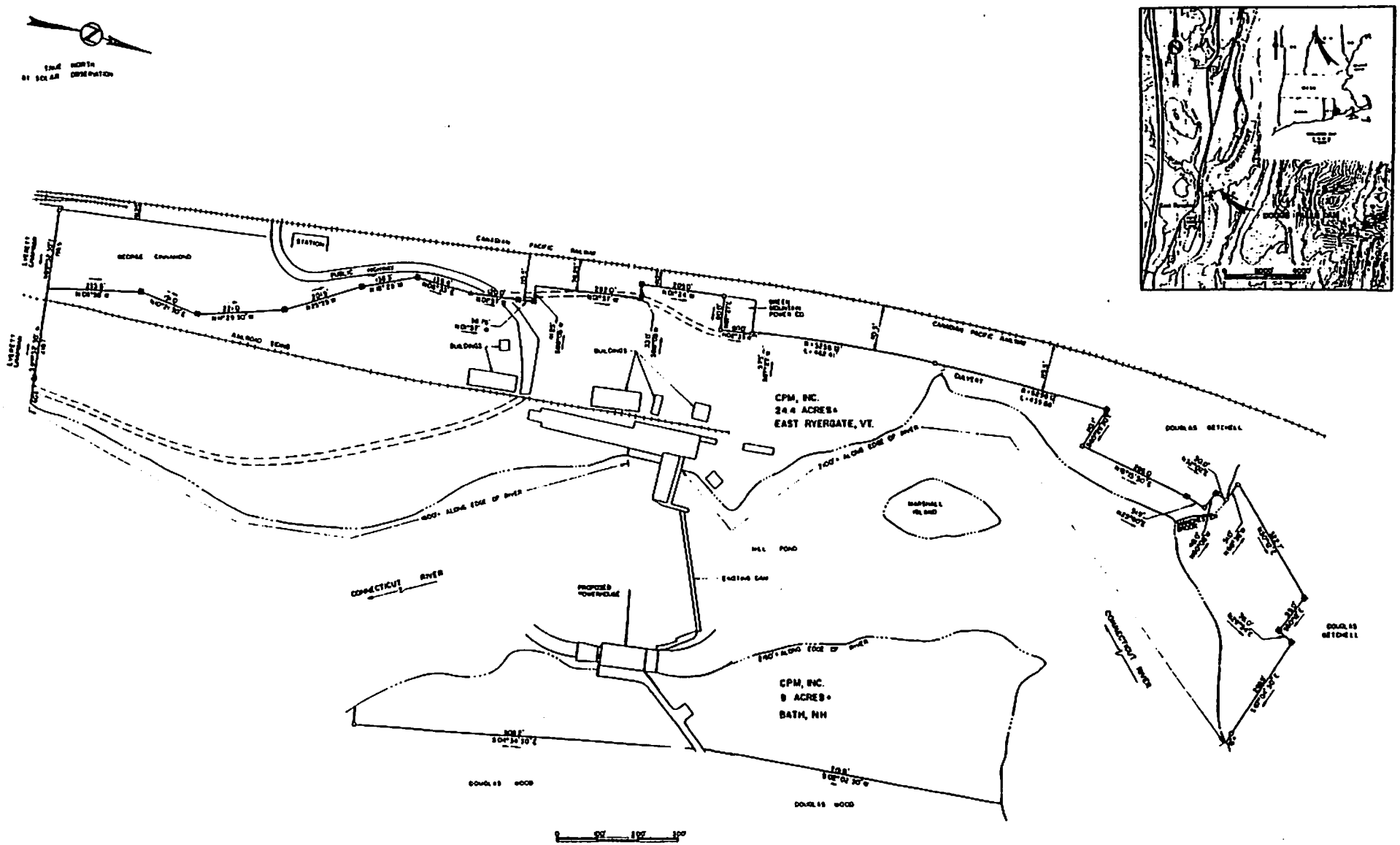
EXHIBIT B

B.1 GENERAL LOCATION MAP

A general location map of the project area is shown on Exhibit B-1.

B.2 DESCRIPTION OF REAL PROPERTY INTERESTS

The real property upon which the project will be located is currently owned in fee simple by CPM Inc., a New Hampshire corporation. The Applicant has an option until December 1, 1991 to purchase such real property, which option it intends to exercise. The option agreement and documentation of CPM's ownership of the property are attached in the "Documentary Evidence" Appendix to this application.



NOTES:

- ▪ DENOTES SET IRON ROD
- ⊕ DENOTES SET GRANITE BOUND WITH DRILL HOLE
- □ DENOTES EXISTING BOUND

PROPERTY BOUNDARIES SHOWN FROM MAPS PREPARED BY E & LECLAIR ASSOCIATES, INC MANCHESTER, N.H. DATED MAY 10, 1978 AND JUNE 1, 1978 SURVEYING ALSO PERFORMED BY E & LECLAIR ASSOCIATES, INC

DODGE FALLS HYDRO ASSOCIATES
CLAREMONT, NEW HAMPSHIRE

DODGE FALLS HYDROELECTRIC PROJECT

EXHIBIT B

GENERAL LOCATION MAP

INTERNATIONAL ENGINEERING COMPANY, INC.
777 POST ROAD, DARIEN, CONNECTICUT 06820

DRAWN	DATE DEC 1 1980
CHECKED	SCALE AS SHOWN
DESIGNED	APPROVED

EXHIBIT E

E.1 DESCRIPTION OF THE ENVIRONMENTAL SETTING

E.1.1 Land Use and Vegetative Cover

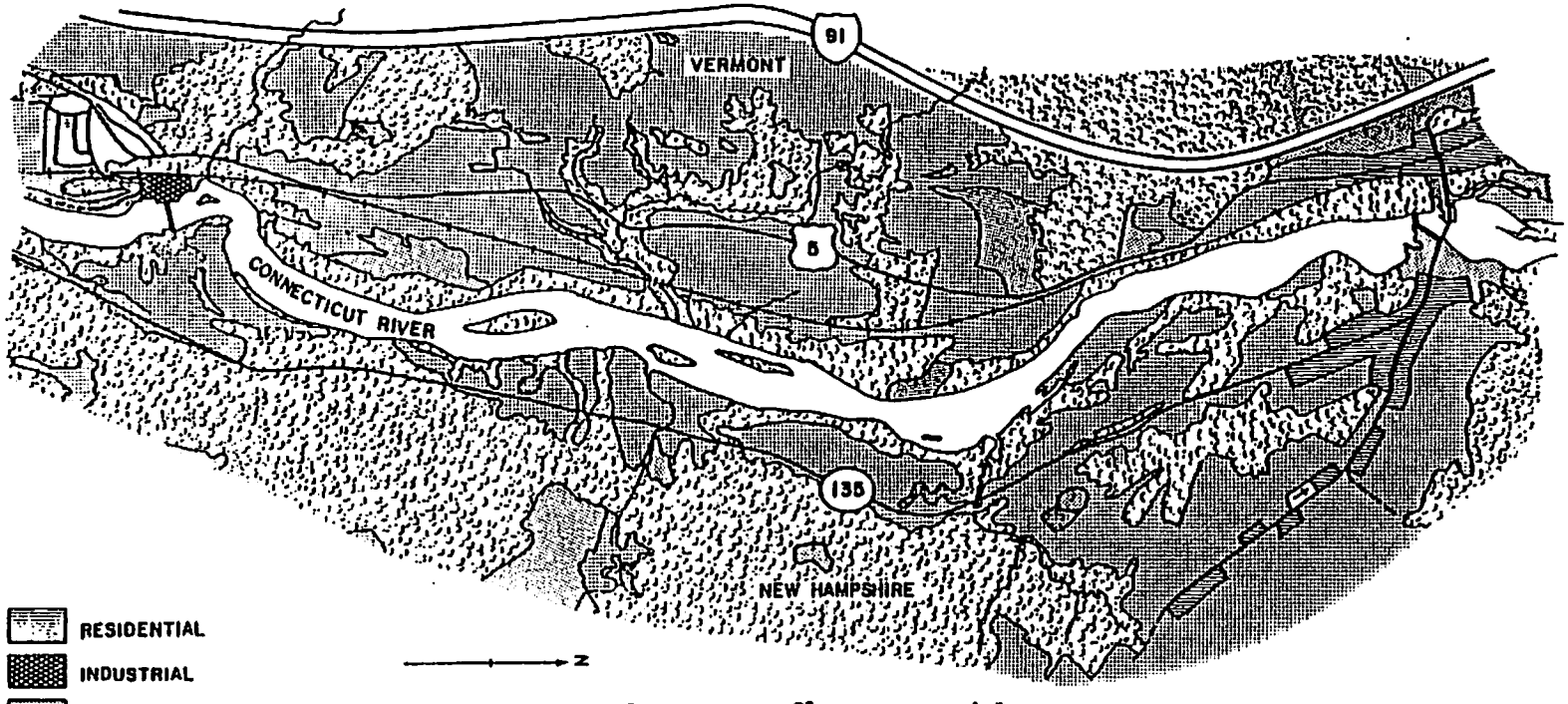
The Connecticut River Valley at Dodge Falls lies between Gardner Mountain (El. 1,564 ft.) in Bath and Monroe, New Hampshire, and the lower hills (about El. 1,000 ft.) of Ryegate, Vermont. Photographs of the project site as well as those referenced herein are shown in Appendix A. Forests cover most of the lands east of New Hampshire Route 135, while cleared pastures and fields dominate land use patterns in the narrow area between the highway and the river except on sites with steep slopes. These cleared lands occur on river terraces, mostly around the 500-foot elevation level, some 60 to 80 feet above the river. Lower terraces, 40 feet lower than those just described, are located just upstream from the dam and at a number of points farther north. Several small streams dissect these terraces creating narrow wooded ravines leading to the river (Photo 3). A land use and cover map is shown on Figure E-1.

The Vermont shore is characterized by a high wooded slope backed by large areas of cleared farmland. Forests begin on slopes a half to a full mile from the river, and, as on the opposite shore, wooded growth occupies valleys of tributary streams.

Between McIndoe Falls and Monroe, about 4 miles upstream of Dodge Falls Dam, and Wells River and Woodsville, 4.6 miles downstream, the land on both sides of the river is relatively undeveloped except for the village and mill at East Ryegate adjacent to the dam.

Forests in the project area are composed of mixed species, consisting of maples, birches, elm and basswood with scattered white pine and hemlock. The major stands of coniferous forest are along Manchester Brook, northwest of East Ryegate, and in the hills away from the river in New Hampshire.

In the immediate vicinity of the project site, forests cover terrace slopes and upper portions of ledges, while sparse communities of plants, primarily



LAND USE AND COVER, DODGE FALLS AREA

Land use determinations from aerial photography from AeroGraphics Corp., Bohemia, NY (May 1974) and oblique aerial photography by Aquatec, Inc., South Burlington, Vermont (August 1981).

FIGURE E-1

annuals, are found on the narrow strip of exposed rock and the sand/rock shoreline of the river (See Photos 5 and 6 and Figure E-2). A detailed listing of vascular plant species noted at the Dodge Falls project site is found in Table E-1.

Among the rocks at the riverside below the dam in the area of the proposed tailrace, plants such as harebell, shadbush, early saxifrage, red osier dogwood and beggar-ticks occur. In addition to the typical blue-flowered harebell, the rarely seen white-flowered form (Campanula rotundifolia L. forma albiflora Rand & Redf.) was also found (Photo 8).

Operating records as recent as 1967 indicate that 2-foot flashboards were historically used on the dam at Dodge Falls, thus the reinstallation and use of flashboards to that height should have only marginal impact on upstream areas. For the most part, riverbanks are generally high and will contain the increased water levels within the existing channel.

E.1.2 Scenic and Aesthetic Resources

The Connecticut River in the reach from the Dodge Falls Dam north to McIndoe Falls is situated in a landscape of farms and woodlands. At upper elevations on both sides of the river, cleared land gives way to forests. The river is paralleled by paved highways and, on the Vermont side, by Interstate 91. Between the two dams, there are only a few homes and farm buildings, none near the river's edge. The Connecticut River in this reach, while not as undisturbed as it is further upstream, is an attractive if not a much-used resource.

E.1.3 Fisheries Resources

Although no recent studies of the fish in the Dodge Falls area have been made, it is reasonable to suppose that, downstream from the dam, there are mixed warmwater/coldwater fisheries including, for example, both trout and bass. Upstream of the dam, it is probable that, because this is an impounded reach, warmwater species predominate. Fish species assumed to be

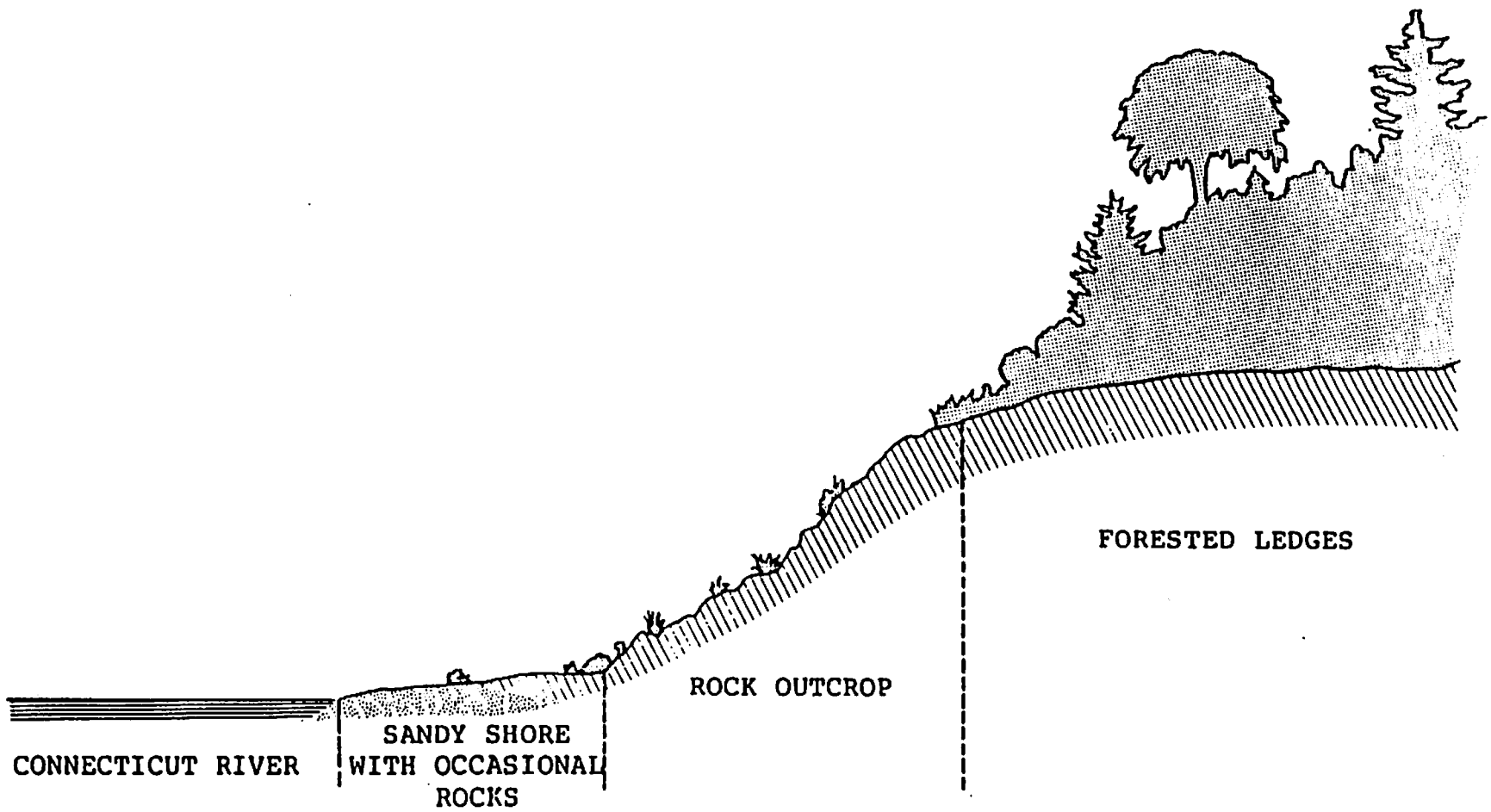


Figure E-2. Typical Shoreline Cross Section at Dodge Falls Project Area

Table E-1

PLANT SPECIES OBSERVED AT PROPOSED SITE OF HEADRACE CHANNEL, POWERHOUSE AND TAILRACE CHANNEL, DODGE FALLS HYDROELECTRIC STATION

EQUISETACEAE	HORSETAIL FAMILY
Equisetum arvense L.	Common horsetail
Equisetum hyemale L.	Scouring rush
LYCOPODIACEAE	CLUBMOSS FAMILY
Lycopodium lucidulum Michx.	Shining clubmoss
OSMUNDACEAE	FLOWERING FERN FAMILY
Osmunda Claytonia L.	Interrupted fern
POLYPODIACEAE	FERN FAMILY
Matteuccia Struthiopteris (L.) Todaro	Ostrich fern
Onoclea sensibilis L.	Sensitive fern
Thelyteris noveboracensis L. (Nieuwl.)	New York fern
Polystichum acrostichoides (Michx.) Schott	Christmas fern
Athyrium Filix-femina (L.) Roth	Lady fern
Pteridium aquilinum (L.) Kuhn.	Bracken
PINACEAE	PINE FAMILY
Tsuga canadensis L.	Hemlock
Pinus strobus L.	White pine
Thuja occidentalis L.	Arbor vitae
GRAMINEAE	GRASS FAMILY
Elymus virginicus L.	Terrell grass
Phleum pratense L.	Timothy
Panicum clandestinum L.	Panic grass
Andropogon Gerardi Vitman.	Beardgrass
JUNCACEAE	RUSH FAMILY
Juncus sp.	Rush
LILIACEAE	LILY FAMILY
Veratrum viride Ait.	False hellebore
Lilium canadense L.	Canada Lily
Clintonia borealis (Ait) Raf.	Clintonia
Smilacina racemosa (L.) Desf.	False Solomon's-seal
Maianthemum canadense Desf.	Wild lily-of-the-valley
Smilax herbacea L.	Catbrier
IRIDACEAE	IRIS FAMILY
Iris versicolor L.	Blue flag

Table E-1 (Continued)

ORCHIDACEAE	ORCHID FAMILY
Epipactis Helleborine (L.) Crantz	Helleborine
SALICACEAE	WILLOW FAMILY
Salix nigra Marsh.	Black willow
Salix fragilis L.	Crack willow
Populus deltoides Marsh.	Cottonwood
JUGLANDACEAE	WALNUT FAMILY
Juglans cinerea L.	Butternut
CORYLACEAE	HAZEL FAMILY
Corylus sp.	Hazelnut
Betula alleghaniensis Britt.	Yellow birch
Betula papyrifera Marsh.	Paper birch
Alnus rugosa (DuRoi) Spreng.	Speckled alder
FAGACEAE	BEECH FAMILY
Quercus rubra L.	Red oak
ULMACEAE	ELM FAMILY
Ulmus americana L.	American elm
RANUNCULACEAE	CROWFOOT FAMILY
Thalictrum polygamum Muhl.	Meadow rue
Anemone virginiana L.	Thimbleweed
Clematis virginiana L.	Virgin's bower
Actaea rubra (Ait.) Willd.	Red baneberry
Actaea pachypoda Ell.	White baneberry
BERBERIDACEAE	BARBERRY FAMILY
Berberis vulgaris L.	Barberry
SAXIFRAGACEAE	SAXIFRAGE FAMILY
Saxifraga virginiensis Michx.	Early saxifrage
HAMAMELIDACEAE	WITCH-HAZEL FAMILY
Hamamelis virginiana L.	Witch-hazel
ROSACEAE	ROSE FAMILY
Spiraea latifolia (Ait.) Borkh.	Meadow-sweet
Amelanchier sanguinea (Pursh) DC.	Red-stemmed shadbush
Amelanchier laevis Wieg.	Smooth shadbush
Rubus odoratus L.	Purple-flowering raspberry
Rosa sp.	Rose
LEGUMINOSAE	PULSE FAMILY
Melilotus alba Desr.	Sweet clover
ANACARDIACEAE	CASHEW FAMILY
Rhus typhina L.	Staghorn sumac
Rhus radicans L.	Poison ivy

Table E-1 (Continued)

CELASTRACEAE	STAFF-TREE FAMILY
Celastrus scandens L.	Climbing bittersweet
ACERACEAE	MAPLE FAMILY
Acer spicatum Lam.	Mountain maple
Acer pensylvanicum L.	Striped maple
Acer saccarinum L.	Silver maple
Acer Negundo L.	Box-elder
TILIACEAE	LINDEN FAMILY
Tilia americana L.	Basswood
LYTHRACEAE	LOOSESTRIFE FAMILY
Lythrum salicaria L.	Purple loosestrife
ONAGRACEAE	EVENING-PRIMROSE FAMILY
Circaea alpina L.	Enchanter's Nightshade
ARALIACEAE	GINSENG FAMILY
Aralia racemosa L.	Spikenard
Aralia nudicaulis L.	Wild Sarsarparilla
CORNACEAE	DOGWOOD FAMILY
Cornus stolonifera Michx.	Red osier dogwood
Cornus rugosa Lam.	Round-leaved dogwood
Cornus alternifolia L.f.	Pagoda dogwood
PYROLACEAE	PYROLA FAMILY
Pyrola elliptica Nutt.	Pyrola
ERICACEAE	HEATH FAMILY
Vaccinum sp.	Blueberry
PRIMULACEAE	PRIMROSE FAMILY
Lysimachia Nummularia L.	Moneywort
Lysimachia ciliata L.	Loosestrife
ASCLEPIADACEAE	MILKWEED FAMILY
Asclepias syriaca L.	Milkweed
BORAGINACEAE	BORAGE FAMILY
Myosotis scorpioides L.	True forget-me-not
VERBENACEAE	VERVAIN FAMILY
Verbena hastata L.	Blue vervain
LABIATAE	MINT FAMILY
Prunella vulgaris L.	Heal-all
Mentha Arvensis L.	Field Mint

Table E-1 (Continued)

SOLANACEAE	NIGHTSHADE FAMILY
Solanum Dulcamara L.	Bittersweet nightshade
SCROPHULARIACEAE	FIGWORT FAMILY
Chelone glabra L.	Turtlehead
RUBIACEAE	MADDER FAMILY
Mitchella repens L.	Partridge berry
CAPRIFOLIACEAE	HONEYSUCKLE FAMILY
Viburnum Lentago L.	Nannyberry
Viburnum acerifolium L.	Dockmackie
Sambucus sp.	Elderberry
CAMPANULACEAE	BLUEBELL FAMILY
Campanula rotundifolia L.	Harebell
Campanula rotundifolia L. *forma albiflora* Rand & Redf.	White harebell
Lobelia inflata L.	Indian-Tobacco
Lobelia Kalmii L.	Kalm's lobelia
COMPOSITAE	COMPOSITE FAMILY
Eupatorium maculatum L.	Joe-Pye-weed
Eupatorium perfoliatum L.	Boneset
Solidago bicolor L.	White goldenrod
Solidago graminifolia (L.) Salisb.	Grass-leaved goldenrod
Aster nemoralis Ait.	Woodland aster
Aster umbellatus Mill.	Umbellate aster
Aster linariifolius L.	Stiff aster
Erigeron philadelphicus L.	Philadelphian fleabane
Xanthium strumarium L.	Cocklebur
Rudbeckia serotina Nutt.	Black-eyed Susan
Bidens frondosa L.	Beggar-ticks
Bidens cernua L.	Beggar-ticks
Achillaea Millefolium L.	Yarrow
Chryanthemum Leucanthemum L.	Chrysanthemum
Prenanthes sp.	Rattlesnake-root

present in the Connecticut River at the project site, at least occasionally, are given in Table E-2 following.

E.1.4 Wildlife

The avian species observed or expected in the Dodge Falls project area (Table E-3) are typical of the upper Connecticut River Valley. In addition to summer residents, many spring and fall migrants pass through the area using the Connecticut River Flyway. The project's effects on bird life will be minimal, potentially affecting only those species dependent on fish populations for food, such as kingfishers and herons, as fish populations are affected. The list is based on the observations of a biologist with many years of experience in the northern Connecticut River Valley.

The mixture of field and forest at the river's edge and the proximity of relatively large tracts of forested hills nearby makes it probable that a typically diverse mammal community exists in the Dodge Falls area. Table E-4 contains a list of representative mammal species known or anticipated in the area. Since the proposed reservoir will be contained for the most part within the existing channel, there should be no long-term effects on area wildlife. This list is also based on the observations of a biologist with many years of experience in the northern Connecticut Valley.

E.1.5 Water Quality

A dissolved oxygen (D.O.) and temperature survey of the Connecticut River from Wells River, Vermont to the Comerford Reservoir was conducted on 25 August 1981. The results of this survey are shown in Table E-5.

All samples collected in this survey, except the sample at 20 feet in the Comerford Reservoir, had a dissolved oxygen concentration of more than 7 mg/liter. The D.O. at 20 feet in Comerford Reservoir was 6.95 mg/liter, 75 percent of the saturated D.O. at the sample temperature of 19.3°C. The percent saturations for all samples collected downstream of the Comerford Dam were 85 percent or greater. The three samples collected downstream of the site of the proposed project had oxygen saturations of 93-96 percent.

Table E-2

THE PRINCIPAL FISH SPECIES INHABITING THE CONNECTICUT RIVER IN THE DODGE FALLS AREA[1]

ANGUILLIDAE	FRESHWATER EELS
Anguilla rostrata (Lesueur)	American Eel
SALMONIDAE	TROUTS
Salmo gairdneri Richardson	Rainbow Trout
Salmo trutta Linnaeus	Brown Trout
Salvelinus fontinalis (Mitchill)	Brook Trout
ESOCIDAE	PIKES
Esox lucius Linnaeus	Northern Pike
Esox niger Lesueur	Chain Pickerel
CYPRINIDAE	MINNOWS AND CARPS
Notemigonus crysoleucas (Mitchill)	Golden Shiner
Notropis cornutus (Mitchill)	Common Shiner
Notropis hudsonius (Clinton)	Spottail Shiner
Rhinichthys atratulus (Hermann)	Blacknose Dace
Rhinichthys cataractae (Velenciennes)	Longnose Dace
Semotilus atromaculatus (Mitchill)	Creek Chub
Semotilus corporalis (Mitchill)	Fallfish
CATOSTOMIDAE	SUCKERS
Catostomus catostomus (Forster)	Longnose Sucker
Catostomus commersoni (Lacépède)	White Sucker
ICTALURIDAE	FRESHWATER CATFISHES
Ictalurus nebulosus (Lesueur)	Brown Bullhead
GADIDAE	CODFISHES
Lota lota (Linnaeus)	Burbot
CYPRINODONTIDAE	KILLIFISHES
Fundulus diaphanus (Lesueur)	Banded Killifish
CENTRARCHIDAE	SUNFISHES
Ambloplites rupestris (Rafinesque)	Rock Bass
Lepomis gibbosus (Linnaeus)	Pumpkinseed
Micropterus dolomieui Lacépède	Smallmouth Bass
Micropterus salmoides (Lacépède)	Largemouth Bass
PERCIDAE	PERCHES
Etheostoma olmstedi Storer	Tessellated Darter
Perca flavescens (Mitchill)	Yellow Perch

[1]Source: Lee et al. 1980.

Table E-3

AVIAN SPECIES OBSERVED OR EXPECTED IN THE DODGE FALLS HYDROELECTRIC PROJECT AREA

Ardea herodias Linnaeus	Great Blue Heron
Butorides virescens (Linnaeus)	Green Heron
Botaurus lentiginosus (Rackett)	American Bittern
Branta canadensis (Linnaeus)	Canada Goose
Anas platyrhynchos Linnaeus	Mallard
Anas rubripes Brewster	Black Duck
Anas Crecca Gmelin	Green-winged Teal
Charadrius vociferus Linnaeus	Killdeer
Actitis macularia (Linnaeus)	Spotted Sandpiper
Larus argentatus Pontoppidan	Herring Gull
Larus delawarensis Ord	Ring-billed Gull
Zenaida marcroura (Linnaeus)	Mourning Dove
Columbia livia (Gmelin)	Rock Dove ("pigeon")
Megaceryle alcyon (Linnaeus)	Belted Kingfisher
Colaptes auratus (Linnaeus)	Common Flicker
Dendrocopos villosus (Linnaeus)	Hairy Woodpecker
Dendrocopos pubescens (Linnaeus)	Downy Woodpecker
Tyrranus tyrranus (Linnaeus)	Easter Kingbird
Sayornis phoebe (Latham)	Phoebe
Iridoprocne bicolor (Vieillot)	Tree Swallow
Riparia riparis (Linnaeus)	Bank Swallow
Hirundo rustica Linnaeus	Barn Swallow
Cyanocitta cristata (Linnaeus)	Blue Jay
Corvus brachyrhychos Brehm	Common Crow
Parus atricapillus Linnaeus	Black-capped Chickadee
Sitta carolinensis Latham	White-breasted Nuthatch
Toxostoma rufum (Linnaeus)	Brown Thrasher
Turdus migratorius Linnaeus	American Robin
Hyloichla mustelina (Gmelin)	Wood Thrush

Table E-3 (Continued)

Catharus fuscescens (Stephens)	Veery
Sialia sialis (Linnaeus)	Eastern Bluebird
Sturnus vulgaris Linnaeus	Starling
Vireo olivaceus (Linnaeus)	Red-eyed Vireo
Dendroica aestiva (Gmelin)	Yellow Warbler
Geothlypis trichas (Linnaeus)	Yellowthroat
Dolichonyx oryzivorus (Linnaeus)	Bobolink
Sturnella magna (Linnaeus)	Eastern Meadowlark
Agelaius phoeniceus (Linnaeus)	Red-winged Blackbird
Quiscalus quiscula (Linnaeus)	Common Grackle
Molothrus ater (Boddaert)	Brown-headed Cowbird
Passerina cyanea (Linnaeus)	Indigo Bunting
Acanthis flammea (Linnaeus)	Common Redpoll
Spinus tristis (Linnaeus)	American Goldfinch
Spizella arborea (Wilson)	American Tree Sparrow
Spizella passerina (Bechstein)	Chipping Sparrow
Zonotrichia leucophrys (Forester)	White-crowned Sparrow
Zonotrichia albicollis (Gmelin)	White-throated Sparrow
Melospiza georgiana (Wilson)	Song Sparrow

Table E-4

MAMMALS KNOWN OR ANTICIPATED TO
OCCUR IN THE DODGE FALLS AREA

Blarina brevicauda (Say)	Short-tailed Shrew
Parascalops breweri (Bachman)	Hairy-tailed Mole
Condylura cristata (Linnaeus)	Star-nosed Mole
Myotis lucifugus (LeConte)	Little Brown Myotis
Eptesicus fuscus (Palisot de Beauvois)	Big Brown Bat
Sylvilagus transitionalis (Bangs)	New England Cottontail
Lepus americanus Erxleben	Snowshoe Hare
Tamias striatus (Linnaeus)	Eastern Chipmunk
Marmota monax canadensis (Erxleben)	Woodchuck
Sciurus carolinensis Ord	Gray Squirrel
Tamiasciurus hudsonicus (Erxleben)	Red Squirrel
Castor canadensis Kuhl	Beaver
Peromyscus maniculatus (Wagner)	Deer Mouse
Peromyscus leucopus (Rafinesque)	White-footed Mouse
Microtus pennsylvanicus (Ord)	Meadow Mole
Ondatra zibethicus (Linnaeus)	Muskrat
Zapus hudsonius (Zimmerman)	Meadow Jumping Mouse
Napaeozapus insignis (Miller)	Woodland Jumping Mouse
Erethizon dorsatum (Linnaeus)	Porcupine
Vulpes fulva (Desmarest)	Red Fox
Procyon Lotor (Linnaeus)	Raccoon
Mustela vison (Schreber)	Mink
Mephitis mephitis (Schreber)	Striped Skunk
Odocoileus virginianus (Boddaert)	White-tailed Deer

Table E-5

DODGE FALLS HYDROELECTRIC PROJECT
DISSOLVED OXYGEN AND TEMPERATURE SURVEY BY AQUATEC, INC.
25 August 1981

Sample Station Location	Time	Depth (ft.)	Temp. (°C)	D.O. (mg/l
800' upstream of Comerford Dam in New Hampshire quarter of river.	1305	1	21.4	8.95
		5	20.9	9.05
		10	20.5	8.75
		20	19.3	6.95
		30	19.5	7.20
		40	19.5	7.20
		50	19.3	7.15
		60	19.1	7.30
		70	19.1	7.40
			19.0	7.45
		100	18.9	7.55
		120	18.9	7.50
200' upstream of McIndoes Dam	1430	10	18.9	8.00
200' downstream of McIndoes Dam	1445	1	18.9	8.05
25' upstream of CPM Dam (Dodge Falls).	1515	11 (mid-depth)	19.5	7.85
600' downstream of CPM Dam (Dodge Falls).	1530	1	19.3	8.60
4700' upstream of RR bridge in Wells River, VT	1615	1	20.0	8.75
1800' upstream of RR bridge in Wells River, VT.		1	20.0	8.80

This survey — conducted at a time of late summer low flow conditions — indicates good water quality with respect to dissolved oxygen and temperature. The proposed project will be operated as a run-of-the-river generating facility and will have no significant impact on river water quality.

E.1.6 Rare and Endangered Species

Of the species of birds and mammals included among federally listed endangered and threatened species in the New Hampshire/Vermont area, only the Indiana bat, bald eagle, and peregrine falcon are potential visitors to the Dodge Falls area. The Indiana bat, a denizen of limestone caves, is at the northeastern limit of its range in New England. The nearest reported Vermont caves are in Groton and Bradford, several miles from the project site. Locations of New Hampshire caves are unknown but are assumed to be sufficiently distant to preclude impact from the project. The nearest location where this species has been observed is in the town of Vershire in Orange County, Vermont.

There are no known nesting sites for the bald eagle in Vermont or New Hampshire but individuals are occasionally observed. Although New Hampshire does not have an endangered species statute, the Vermont Agency of Environmental Conservation has published a list of that state's endangered species (AEC 1975). The Vermont list includes Canada lynx, pine marten, and osprey. Neither lynx nor marten are likely to be found near the project site. The osprey, once common, has not been known to nest in the region recently but is seen more frequently each year. The project's impact, if any, on the osprey or bald eagle would be as a result of effects on fish populations on which they feed.

There are no plants on the Federal Rare and Endangered list known from Vermont and only one species, Potentilla robbinsiana Oakes, from New Hampshire (Crow et al. 1981). Proposed for inclusion on the list are Isotria medeoloides, (Pursh) Raf. known from several locations in southeastern New Hampshire and once collected at Burlington, Vermont in 1902, and Paronychia argyrocoma (Michx.) Nutt. var. albimontana Fern., a

species known from the White Mountains (Countryman 1978, Storks and Crow 1978). None of these species are known from the Dodge Falls region.

On a state level, Vermont lists 88 plant species as endangered (AEC 1975). One species on this list, helleborine (Epipactis Helleborine (L.) Cranz.) was found at the project site, on the New Hampshire side of the Connecticut River. This is an introduced species which is becoming increasingly common in both Vermont and New Hampshire and is in no way endangered. No species listed by Storks and Crow (1978) as rare and endangered vascular plants in New Hampshire were found at the project site, although 18 of those listed species have been reported from Bath, three from Haverhill and three from Monroe. Eight of the species reported from Bath are plants of calcareous soils and limestone ledges such as are found at Dodge Falls. The Connecticut River, except at the falls, flows though alluvium, and ledges of this sort are not found upstream of the dam in the project area.

E.1.7 Recreational Resources

The Connecticut River at Dodge Falls is used by fishermen, boaters, and canoeists. Passing, as it does, through unspoiled rural countryside, the river is an attractive recreation resource of increasing importance. According to the Vermont State Comprehensive Outdoor Recreation Plan (SCORP), reservoir pools of power stations on the river provide low-key, local recreational opportunities, and the portion of the Connecticut from the confluence of the White and Passumpsic Rivers is considered to have further potential for fishing and canoeing (AEC 1978).

Jurisdiction over the river to the mean watermark on the Vermont side is the province of New Hampshire; however, a reciprocity exists for holders of resident fishing licenses for use of the river.The land abutting the project is presently privately owned, limiting public access.

A major need noted in SCORP for northeastern Vermont is the development of a canoe trail on the upper Connecticut, a goal that will not be hampered by the present proposal.

E.1.8 Historic and Archaeological Resources

Consultation with agencies concerned with historic and archaeological resources has thus far revealed no properties of historic, architectural, or archaeological significance which are included in or eligible for inclusion in the National Register of Historic Places. Additional communication in this regard is expected from New Hampshire officials.

The reservoir proposed in the Dodge Falls project will be at the historic elevation when the flashboards are used, so no additional lands will be flooded.

E.2 EXPECTED ENVIRONMENTAL IMPACTS

E.2.1 Impact On Resident Fish

The proposed Dodge Falls hydroelectric project is expected to have no material impact on the fisheries of the Connecticut River near the project site. The project will be operated in a run-of-the-river mode; that is, as the upstream station begins to discharge, the Dodge Falls unit will be started and brought up to speed. This will result in a temporary decrease in pond level. The pond level will be increased to the top of flashboard level to maximize the head. All flows that are released at the McIndoe station upstream will be passed directly through the Dodge Falls station.

The proposed increase in pool elevation of two feet by the reinstallation of flashboards should not result in an adverse impact to fisheries.

E.2.2 Impact On Anadromous Fish

The Applicant will provide fish-trapping facilities at this project by 1992. Conceptual plans will be provided by the Fish and Wildlife Service, and it will be necessary for the Fish and Wildlife Service to approve final construction plans as prepared by the Applicant. Operation of the facility will be the responsibility of the Applicant and other upstream dam owners. Any additional instantaneous flows for the operation of this facility will

also be provided by the Applicant, as prescribed by the Fish and Wildlife Service. The Applicant requests that FERC require upstream dam owners to participate in a cost sharing means of accomplishing this plan.

The Applicant will provide downstream migrant bypass facilities at this project by 1992, or sooner if necessary, as prescribed by the Fish and Wildlife Service.

Qmin

The Applicant will provide a minimum instantaneous release below the project of at least 1108 cfs (0.5 cfsm) or inflow to the project, whichever is less.

& monitoring

The Applicant will, within six months of the date of issuance of an exemption from licensing, present to the Fish and Wildlife Service for approval a plan for monitoring instantaneous flow releases at this project. Following approval of the plan, the Applicant will then measure instantaneous flows and provide records of discharges at the project on a regular basis as per specifications of the Fish and Wildlife Service. Upon receiving a written request from the Applicant, the U.S. Fish and Wildlife Service may waive the requirement for flow monitoring at this project provided the Applicant satisfactorily demonstrates that the required flow will be discharged at all times.

E.2.3 Water Quality

In accordance with the terms of the 401 certificate issued by Vermont, a study program will be undertaken to determine the impacts on dissolved oxygen during the first year of operation. The results of this study will determine if any mitigation measures will be required.

E.2.4 Other Impacts (Terrestrial Impacts On The Powerhouse Site)

Approximately 1.5 acres will be utilized for the powerhouse access road, parking area and switchyard. An additional 2 acres may be disturbed during project construction.

The east bank of the river at the Dodge Falls Dam includes steep banks, rock outcrops, and, downstream from the dam, a rock and sand shoreline. This area supports a diverse and relatively localized association of plants, and this adds to the attractiveness of the site. As mentioned, approximately 1.5 acres of this habitat will be removed during project construction. Some areas near the dam having similar characteristics will be avoided. The Applicant proposes to flag those areas of shoreline and steep banks, particularly where they exist downstream from the dam, that resonably can be protected during the construction. Contractors will be required to keep equipment and personnel out of these areas.

Layout and landscaping of the powerhouse grounds will be designed in a manner to minimize visual impact. The parking area will be screened from the river by trees, and disturbed sites will be planted to native trees and shrubs.

E.3 AGENCY CONSULTATION

E.3.1 Procedure Followed

Agency consultation regarding this amendment has followed a three-phase process as prescribed by FERC. Consultation for the initial phase occurred in two stages: first, prior to the granting of an exemption in May of 1982 for the development of a hydroelectric project on the New Hampshire side of the Connecticut River; second, prior to the granting of the present exemption in June of 1984 for development of a project on the Vermont side of the river. During both stages, agency concerns and environmental issues regarding development on either side of the river were identified and addressed; these concerns and issues have not substantially altered since they were first raised. Correspondence regarding consultation for each stage of the initial phase is shown in Appendixes A.1 and A.2 respectively.

The second phase of consultation regarding this amendment has occurred prior to the filing of this amendment. On August 21, 1985 the agencies (listed in Exhibit E-1) were provided a "DRAFT Amendment to the Exemption

Exhibit E-1

AGENCIES CONSULTED

Mr. Ted Rosell, Project Manager
Mr. Sidotti, Regional Engineer
Federal Energy Regulatory Commission
New York Regional Office
26 Federal Plaza
New York New York 10007
(212) 264-1160

Mr. Stephen B. Sease*
Director of Planning
Vermont Agency of Environmental Conservation
Montpelier, Vermont 05602
(802) 828-3357

Mr. Charles E. Barry*
Executive Director State of New Hampshire
Fish and Game Department
Box 2003, 34 Bridge Street
Concord, New Hampshire 03301
(603) 224-2585

Mr. Gordon E. Beckett, Supervisor*
U.S. Department of the Interior
Fish and Wildlife Service
Ecological Services
P.O. Box 1518
Concord, New Hampshire 03301
(603) 224-2585

Mr. Eric Gilbertson*
Director/Deputy State Historic Preservation Officer
State of Vermont
Agency of Development and Community Affairs
Montpelier, Vermont 05602
(802) 828-3226

Mr. Chris Mantzaris
U.S. Department of Commerce
National Oceanographic and Atmospheric Administration
National Marine Fisheries Service
State Fish Pier
Gloucester, Massachusetts 01930
(617) 281-3600

*Agency comments received

State of New Hampshire
Department of Resources and Economic Development
Division of Parks
State House Annex
P.O. Box 856
Concord, New Hampshire 03301

Mr. Joseph Quinn
Director, Recreational Services
(Mr. John Flanders, Commissioner)
Department of Resources and Economic Development
P.O. Box 856
Concord, New Hampshire 03301
(603) 271-3627

Mr. Delbert F. Downing, Chairman*
New Hampshire Water Resources Board
P.O. Box 2008
Concord, New Hampshire 03301-2008

Mr. Don Cook
Environmental Impact Review Officer
Environmental Protection Agency
Room 2203
J.F.K. Federal Building
Boston, Massachusetts 02203
(617) 223-7210

Mr. David Clark
Department of the Interior
National Park Service
15 State Street
Boston, Massachusetts 02109
(617) 223-0199

Mr. William P. Patterson*
Regional Environmental Officer
Department of the Interior
National Park Service
1500 Custom House
165 State Street
Boston, Massachusetts 02109

Mr. Jeffrey Amestoy
Attorney General
State of Vermont
109 State Street
Montpelier, Vermont 05602
(802) 828-3171

Mr. Russell Nylander
Assistant Chief Engineer
State of New Hampshire
Water Supply and Pollution Control Commission
Hazen Drive, Box 95
Concord, New Hampshire 03301
(603) 271-3440

Mr. Gene Crouch
Project Manager
Corps of Engineers
New England Division
424 Trapelo Road
Waltham, Massachusetts 02154
(617)-647-8491

From Licensing for the Dodge Falls Hydroelectric project" ("Amendment"). This Amendment is required to overcome problems in developing the project as currently exempted.

The third phase of consultation coincides with the filing of this Amendment and furnishing of copies to the consulted agencies.

E.3.2 Agency Comments

Many of the comments received in the second phase were similar to previous, first phase comments on the project and have been incorporated in the exemption conditions and/or in Section E.2 of this Amendment. Appendix A.3 includes copies of the correspondence regarding this phase of consultation.

In reference to the water quality certificate, the New Hampshire Water Supply and Pollution Control Commission noted that the issuance of the 401 certification would be based on Wetlands Board 149.8 permits since in its judgment, water quality impacts would not occur due to construction or operation of the facility. A wetland permit will be applied for during the project design. In a meeting held on November 4, 1985 with representatives of the Vermont Agency of Environmental Conservation, the conditions of the existing 401 certification (see Appendix A.3) were reviewed and appeared to be satisfactory to both parties. It was noted, however, that an amendment to the certification will be required. The Applicant will apply for such an amendment.

New Hampshire Fish and Game, in its letter dated August 29, 1985, reinforced previous requirements and conditions that are generally acceptable to the Applicant.

The United States Department of the Interior provided comments on September 18, 1985. Most of these are reinforcements of previous comments. The Applicant is generally receptive to these comments and the Department's requirements are generally acceptable.

As in the existing exemption, it has been requested by each of the four fish and wildlife agencies contacted that the Applicant provide a fish trapping facility at the Dodge Falls Dam. It also has been requested that downstream fish passage facilities be provided. These requests are intended to further the objectives of the co-operative Connecticut River anadromous fisheries restoration program. It has been proposed that the requested fish trapping facility be in place and operative by 1992 and be kept operative for the life of the project.

Applicant has no objection in principle to the future inclusion of fish passage facilities at the Dodge Falls Dam. At this time, Fish and Wildlife Service criteria for downstream fish passage facilities are not well defined or well established. Due to this fact, the Applicant will make a reasonable effort to provide for future installation. Planning for this facility includes the eventual installation of the requested facilities. In this regard, however, it is noted that the proposal to truck fish upstream beyond other more substantial obstructions on the Connecticut and its tributaries will have benefits well beyond Applicant's power pool. Accordingly, Applicant looks forward to the assistance of state and federal agencies in negotiating an equitable distribution of costs for fisheries restoration. The Applicant believes upstream utilities should share in the cost of trapping facilities at the Dodge Falls site.

The State of Vermont Agency of Environmental Conservation provided substantial comments in a letter dated September 24, 1984. Subsequent to several telephone discussions regarding these comments, a meeting was held at the Agency's office in Montpelier, Vermont on November 4, 1985. The Applicant's position on each of the issues raised is as follows:

Cumulative Impact Assessment Procedure

The Applicant is requesting a change or amendment to an existing Exemption. The modification itself should not open the question of cumulative impact. Further, the Agency has not identified any changes or requirements that are a conceivable outcome of a cumulative impact. It is recognized that adding a truck and trap facility will improve (mitigate)

upstream fish passage. The Applicant has also agreed to provide state of the art downstream passage facilities. The Applicant views these commitments as a positive impact over existing conditions. Both upstream and downstream migration are expected to benefit.

Subsequent to the November 4 meeting, Mr. Girardi of the Vermont Agency of Environmental Conservation called and indicated that the Agency was generally in agreement with comments provided by U.S. Fish and Wildlife and would not request the FERC to require a commulative impact study for this project.

dimensions are not right see Exhibit G-1

Aesthetics The Applicant demonstrated with photos that the powerhouse will be a low profile structure. As proposed it will only be about 20-25 feet above dam crest and only 15 feet above the parking area. It will be nestled into the east bank and generally blend into the surrounding area. The Applicant will consider using the services of an architect or other consultant of appropriate expertise to make the project compatible with the site.

Subsequent to the November 4, 1985 meeting with the Vermont Agency of Environmental Conservation, Mr. Girardi indicated by telephone that the Agency continued to prefer the Project to be on the Vermont side of the river, but that if other agencies and interested parties were satisfied with the mitigative measures proposed, the Agency would not oppose the Project as amended.

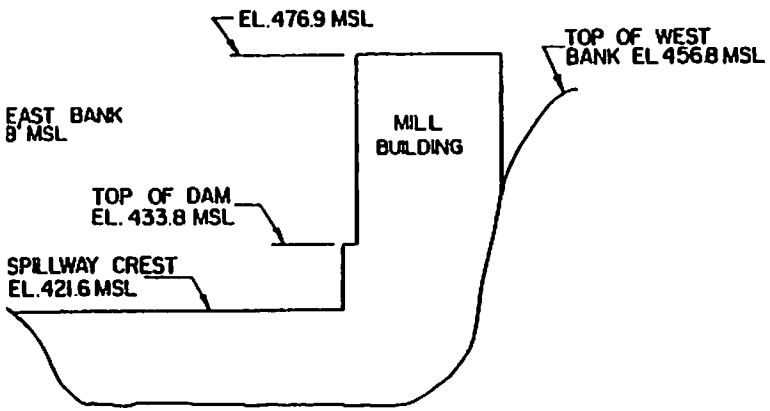
Fisheries and Water Quality Issues Fisheries and Water Quality Issues have been discussed elsewhere in this Exhibit.

Recreation The Applicant will participate in the development of canoeing activity by providing a canoe portage around the dam. Associated with the portage will be fishing access within the limits of safety.

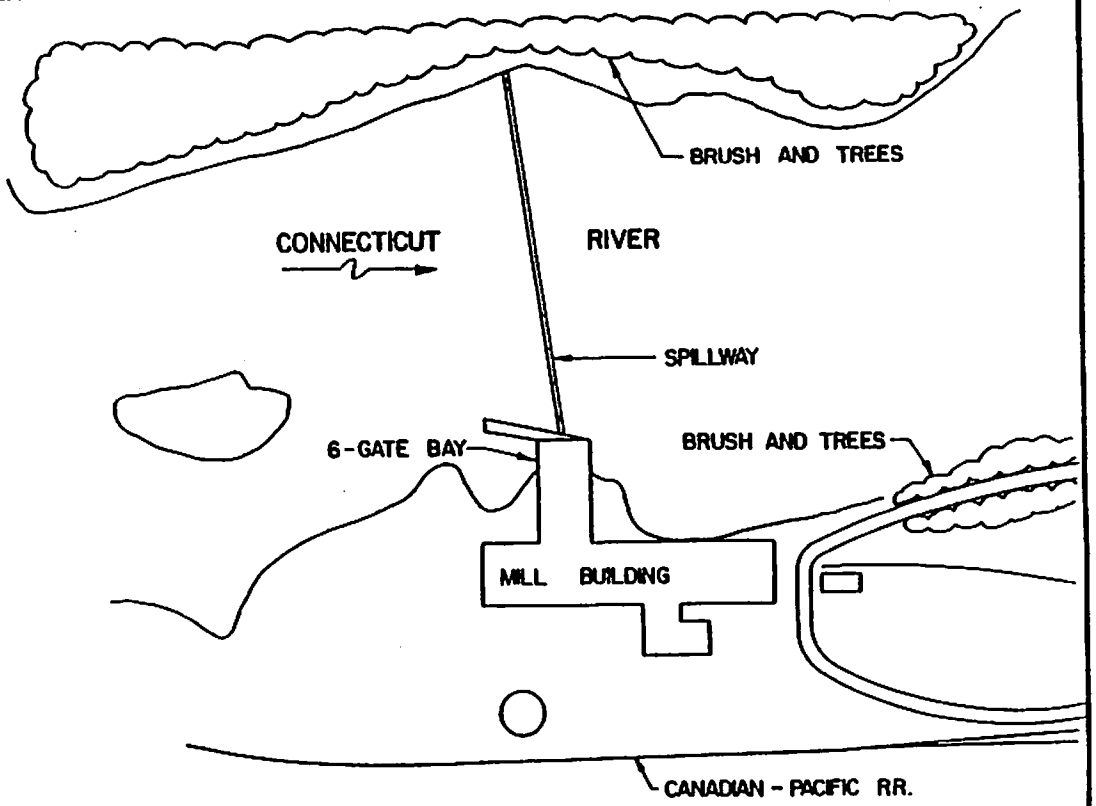
Conclusion The Applicant believes all of the issues raised have been addressed and that the final details will be worked out during design or as appropriate. A further response is anticipated from the Vermont Agency of Environmental Conservation.

EXHIBIT G

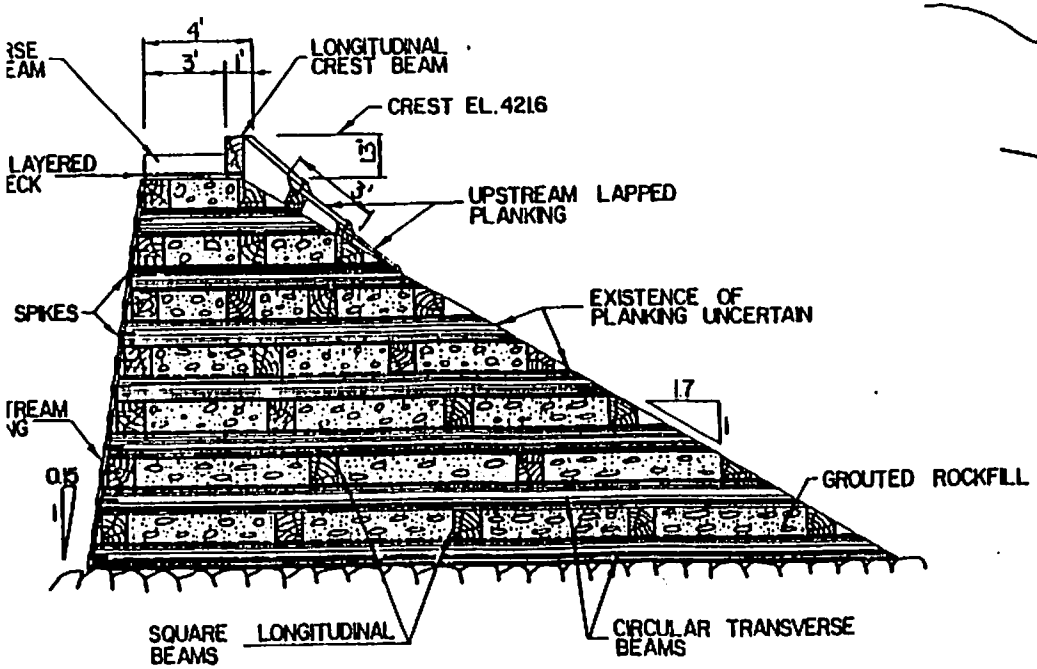
20' HIGHER



ELEVATION
NOT TO SCALE



PLAN
NOT TO SCALE



TYPICAL CROSS SECTION
SCALE: 1"=5'

EXHIBIT G-1

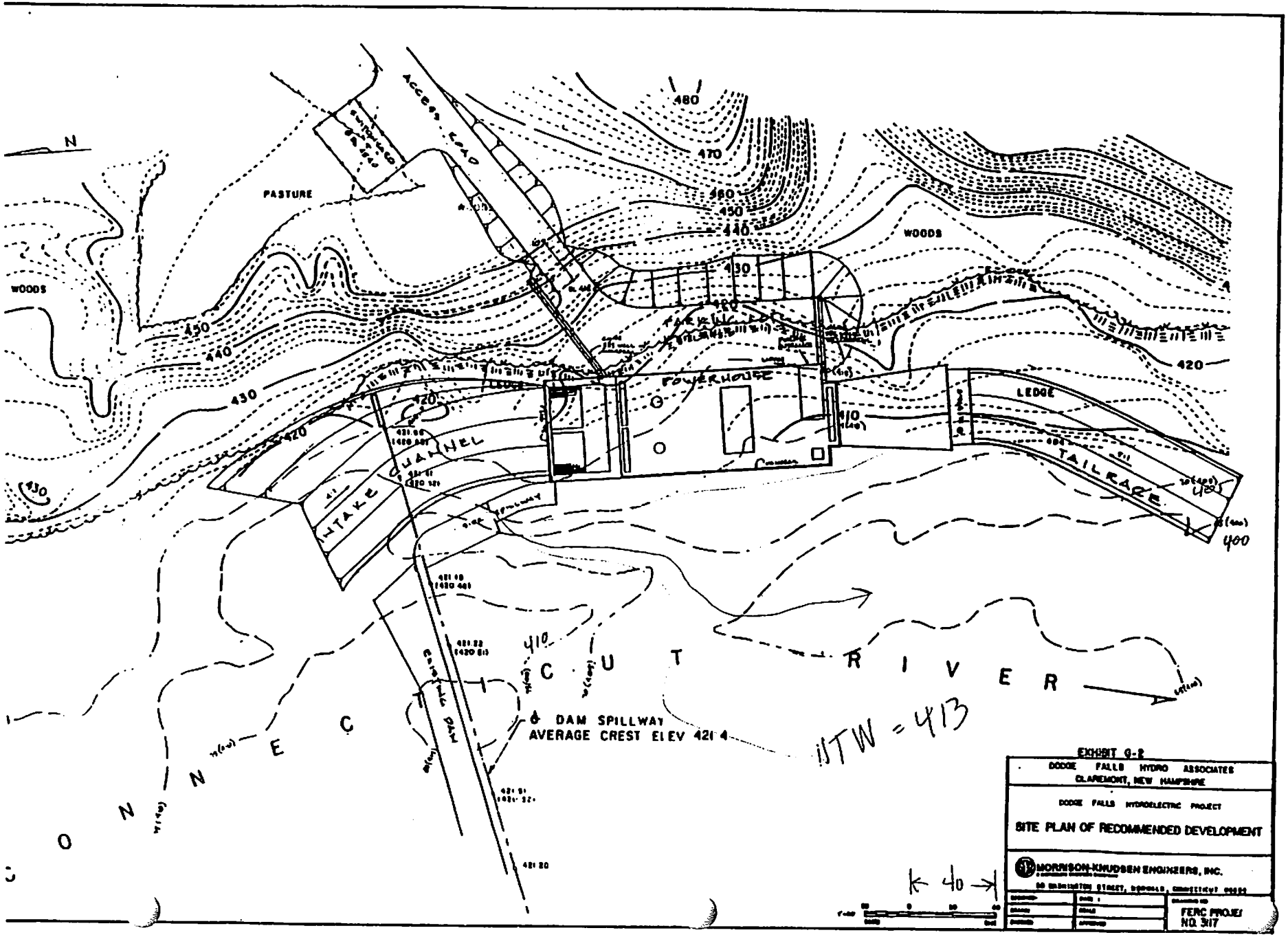
DODGE FALLS HYDRO ASSOCIATES
CLAREMONT, NEW HAMPSHIRE

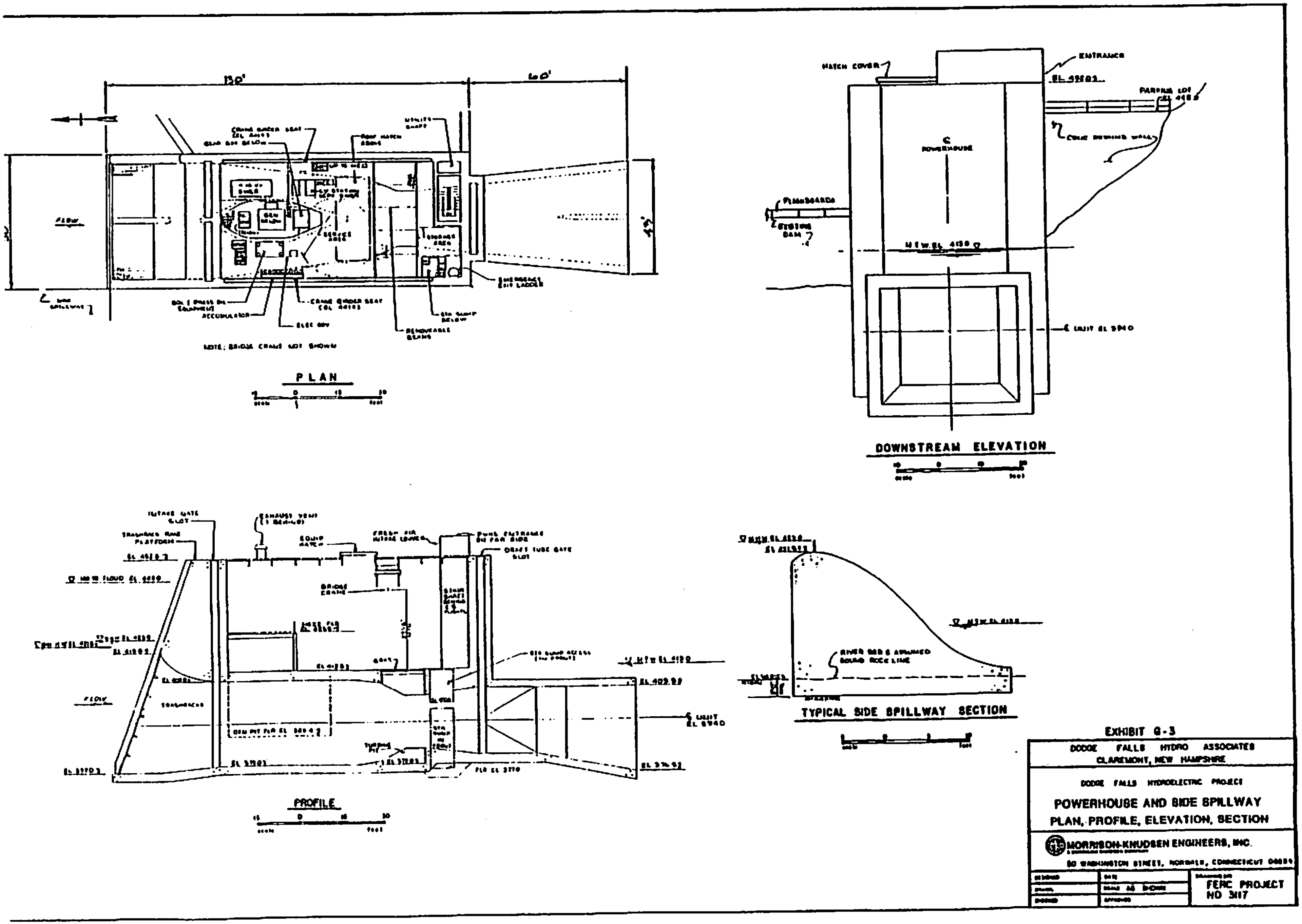
DODGE FALLS HYDROELECTRIC PROJECT
PLAN, ELEVATION AND CROSS SECTION OF EXISTING DAM

CONSULTING ENGINEERS
INTERNATIONAL ENGINEERING COMPANY, INC.
777 POST ROAD, DARIEN, CONNECTICUT 06820

DESIGNED	DATE JULY 1981	DRAWING NO
DRAWN HTJ	SCALE AS SHOWN	
CHECKED	APPROVED	

FERC NO. 8011-3


N
ACCESS ROAD
PASTURE
WOODS
WOODS
480
470
460
450
440
430
420
410
400
POWERHOUSE
LEDGE
TAILRACE
INTAKE CHANNEL
CONNECTICUT RIVER
DAM SPILLWAY
AVERAGE CREST ELEV 421.4
TW = 413
EXHIBIT G-2
DODGE FALLS HYDRO ASSOCIATES
CLAREMONT, NEW HAMPSHIRE
DODGE FALLS HYDROELECTRIC PROJECT
SITE PLAN OF RECOMMENDED DEVELOPMENT
MORRISON-KNUDSEN ENGINEERS, INC.
FERC PROJECT NO. 3117



130'
60'
45'
FLOW
PLAN
NOTE: BRIDGE CRANE NOT SHOWN
HATCH COVER
ENTRANCE
POWERHOUSE
FLASHBOARDS
EXISTING DAM
DOWNSTREAM ELEVATION
PROFILE
FLOW
TYPICAL SIDE SPILLWAY SECTION
RIVER BED & ASSUMED SOUND ROCK LINE
EXHIBIT G-3
DODGE FALLS HYDRO ASSOCIATES
CLAREMONT, NEW HAMPSHIRE
DODGE FALLS HYDROELECTRIC PROJECT
POWERHOUSE AND SIDE SPILLWAY
PLAN, PROFILE, ELEVATION, SECTION
MORRISON-KNUDSEN ENGINEERS, INC.
FERC PROJECT NO 3117

APPENDIX A.1

PHASE I CONSULTATION
STAGE 1, NEW HAMPSHIRE SIDE

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
P.O. Box 1518
Concord, New Hampshire 03301

Ref: FERC No. 3117,
E. Ryegate, VT

SEP 2 1981

Mr. William D. Countryman
Aquatec, Inc.
75 Green Mountain Drive
South Burlington, Vermont 05401

Dear Mr. Countryman:

This responds to your August 3 letter and accompanying Exhibit A regarding the proposed redevelopment of the East Ryegate, Vermont, hydroelectric power project on the Connecticut River.

The project proposal described in the Exhibit A, supplemented by your comments made during the August 13, 1981, site visit, indicate consideration has been given during project planning to requirements for maintenance of fish and wildlife resources. The operating mode, termed "modified run-of-river," will provide adequate flows downstream of the dam and the tailrace discharge to insure protection of the resident fisheries. We understand inflows to the Dodge Falls impoundment are regulated by the synchronous operation and power generation from Moore Reservoir, to Comerford Reservoir, to McIndoes Reservoir, the next upstream impoundment, and thence to the Dodge Falls impoundment.

The major concern of the Fish and Wildlife Service, the New Hampshire Fish and Game Department, and the Vermont Fish and Game Department is the need for fish-passage facilities for anadromous Atlantic salmon at the project dam. The expanded "Connecticut River Fish Passage, Flow, and Important Habitat Considerations Relative to the Anadromous Fish Restoration Program" presently under review by the Policy and Technical Committees for Fishery Management of the Connecticut River, calls for construction of a fish-trapping structure at the Ryegate Dam by 1992. Trapped salmon then would be transported by truck to above the Gilman and Wyoming Valley dams as part of the salmon restoration plan. By-pass facilities for downstream migrants also would have to be included in dam construction.

We note in the last paragraph of Section A.2 that there are two transmission system options under consideration. There is no information, however, on the possible location of either line, particularly the three-mile line if that option is selected. Our concern is that the right-of-way not traverse wetland or deer-wintering habitat.

During the August 13 site visit, you mentioned that a small-boat/canoe portage path will be provided at the dam. It would be helpful to potential users if appropriate signing is erected in conjunction with the portage. Because the river is a public waterway, angler access should be guaranteed by the develop-

Pursuant to Section 30(c) of the Federal Power Act and Section 408 of the Energy Security Act, the Fish and Wildlife Service requests inclusion of the following terms and conditions in the exemption application:

1. Fish-trapping facilities and vehicular access will be constructed at the dam by the development owner by 1992, and maintained for the life of the project; details of the trap location and desigh will be coordinated with appropriate personnel of the Fish and Wildlife Service, the New Hampshire Fish and Game Department, and the Vermont Fish and Game Department.

2. Downstream-migrant fish-passage facilities will be included in project restoration; details of location and design will be coordinated with agencies noted in the foregoing condition no. 1.

3. The transmission line right-of-way will be located so as to avoid wetland and deer-wintering habitat.

4. A small-boat/canoe portage will be provided and adequately signed.

5. The development owner will guarantee reasonable angler access to project area waters insofar as safety conditions permit.

In summary, we have no objections to issuance of an exemption from license subject to the above conditions.

Sincerely yours,

Gordon E. Beckett

Gordon E. Beckett
Supervisor

[illegible] INC. ENVIRONMENTAL SERVICES

GREEN MOUNTAIN DRIVE, SOUTH BURLINGTON, VERMONT 05401, TELEPHONE (802) 658-

August 3, 1981

Gordon E. Beckett
Supervisor
United States Department of the Interior
Fish and Wildlife Service
Ecological Services
P. O. Box 1518
Concord, NH 03301

Dear Mr. Beckett:

I am writing in connection with a proposed hydroelectric development on the Connecticut River at the CPM mill in East Ryegate, Vermont. The dam itself, the so-called Dodge Falls or East Ryegate dam, and the site of the proposed power house is located in Bath, New Hampshire.

I have enclosed a draft project description prepared by the project engineers, International Engineering Company, Inc. of Darien, Connecticut. Aquatec is working through a subcontract to International Engineering Co., Inc.; and the engineer's client, in turn, is CPM Corporation. CPM will be seeking a license exemption from the Federal Energy Regulatory Commission for their proposed development.

In evaluating project impacts, it should be noted that the proposed addition of two feet of flashboards on top of the existing dam is in keeping with historical flowage rights for the dam. Also, it is proposed that the limited storage available in the pool behind the dam be drawn upon at the start of each daily generating cycle. However, and this is important in your evaluation, the minimum sustained discharge from the station will not in any way be affected by this drawdown. The drawdown will be used in this way: just before the next station upstream, the McIndoe Station, begins to discharge, water will be passed through the first unit in the new proposed station to begin to bring the turbine up to speed. In this way, the daily

electrical output from the station can be increased by eliminating the initial lag between opening the gates and bringing the generator on line. This drawdown does not represent a ponding or peaking mode of operation in the usual sense. At the end of each daily generating cycle, the station will be shutdown with the water level at or near the crest of the flashboards; flows past the project will not be interrupted at the end of the generating cycle.

Aquatec's deadline for completing work on our client's license exemption application is August 26th. If you have questions concerning the project, I or another of Aquatec's representative would be happy to answer those questions by phone or, if you prefer, to visit with you there in Concord. As you know, our applicant will be required to submit as part of his application a letter from your agency demonstrating that he or his consultants has conducted consultations with appropriate fish and game agencies. Accordingly, toward the end of the month I will be requesting such a letter from you. Your assistance in this regard is greatly appreciated.

Sincerely,

AQUATEC, INC.

William D. Countryman

WDC:rdh

Enc.

cc: Rey Bokenson

UNITED STATES DEPARTMENT OF COMMERC
National Oceanic and Atmospheric Administrat
NATIONAL MARINE FISHERIES SERVICE

Services Division
Habitat Protection Branch
7 Pleasant Street
Gloucester, MA. 01930

August 31, 1981

Mr. William D. Countryman
Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT. 05401

Dear Mr. Countryman:

We have reviewed the information provided in your August 3, 1981, letter regarding Dodge Falls Hydro Project on the Connecticut River in Grafton County, New Hampshire.

The Draft Connecticut River Basin Fish Passage Action Plan for Anadromous Fish, as developed by the Technical Committee for Fisheries Management of the Connecticut River and submitted to the Policy Committee, calls for construction of a fish trapping structure at the East Ryegate dam.

We support the Committee's program to reestablish runs of anadromous fish in the Connecticut River. The enhancement of commercially valuable American shad and Atlantic salmon stocks are of importance to the National Marine Fisheries Service.

For these reasons we would recommend inclusion of plans for suitable fish trapping facilities in the proposed project design.

We appreciate the opportunity to review the draft project description and look forward to further consultation with you on this matter.

Sincerely,

Ruth Rehfus

Ruth Rehfus
Branch Chief

AQUATEC, INC. ENVIRONMENTAL SERVICE
GREEN MOUNTAIN DRIVE, SOUTH BURLINGTON, VERMONT 05401, TELEPHONE (802) 6[illegible]1

August 3, 1981

Ruth Rehfus
United States Department of Commerce
National Oceanographic & Atmospheric Administration
National Marine Fisheries Service
Services Division
Habitat Protection Branch
7 Pleasant Street
Glouchester, MA 01930

Dear Ms. Rehfus:

I am writing in connection with a proposed hydroelectric development on the Connecticut River at the CPM mill in East Ryegate, Vermont. The dam itself, the so-called Dodge Falls or East Ryegate dam, and the site of the proposed power house is located in Bath, New Hampshire.

I have enclosed a draft project description prepared by the project engineers, International Engineering Company, Inc. of Darien, Connecticut. Aquatec is working through a subcontract to International Engineering Co., Inc.; and the engineer's client, in turn, is CPM Corporation. CPM will be seeking a license exemption from the Federal Energy Regulatory Commission for their proposed development.

In evaluating project impacts, it should be noted that the proposed addition of two feet of flashboards on top of the existing dam is in keeping with historical flowage rights for the dam. Also, it is proposed that the limited storage available in the pool behind the dam be drawn upon at the start of each daily generating cycle. However, and this is important in your evaluation, the minimum sustained discharge from the station will not in any way be affected by this drawdown. The drawdown will be used in this way: just before the next station upstream, the McIndoe Station, begins to discharge, water will be passed through the first unit in the new proposed station to begin to bring the turbine up to speed. In this way, the daily

electrical output from the station can be increased by eliminating the initial lag between opening the gates and bringing the generator on line. This drawdown does not represent a ponding or peaking mode of operation in the usual sense. At the end of each daily generating cycle, the station will be shutdown with the water level at or near the crest of the flashboards; flows past the project will not be interrupted at the end of the generating cycle.

Aquatec's deadline for completing work on our client's license exemption application is August 26th. If you have questions concerning the project, I or another of Aquatec's representative would be happy to answer those questions. As you know, our applicant will be required to submit as part of his application a letter from your agency demonstrating that he or his consultants has conducted consultations with appropriate fish and game agencies. Accordingly, toward the end of the month I will be requesting such a letter from you. Your assistance in this regard is greatly appreciated.

Very truly yours,

AQUATEC, INC.

William D. Countryman

WDC:rdh

cc: Rey Hokenson

State of Vermont

AGENCY OF ENVIRONMENTAL CONSERVATION

Montpelier, Vermont 05

OFFICE OF THE SECRETA

Department of Fish and Game
Department of Forests, Parks, and Recreation
Department of Water Resources and Environmental Engineering
Division of Protection
Natural Resources Conservation Council

November 23, 1981

Mr. William D. Countryman
Aquatec, Inc.
75 Green Mountain Drive
South Burlington, Vermont 05401

RE: Ryegate Hydroelectric Project #3117

Dear Bill:

Our comments on this project are as follows:

1. Fish Trapping. Proposed plans for the Connecticut River Anadromous Fish Restoration program calls for a fish trapping facility at this site. We understand that both the U. S. Fish and Wildlife Service and the state of New Hampshire have commented on this plan and that the developer has planned to incorporate the facility into his project. We support that effort. We would add that the cost of the trapping and trucking operation would be more equitable if shared by the upstream dam operators, as the trap at East Ryegate will benefit those installations as well. We, therefore, recommend that FERC, in its review of the basin-wide implications of this project, require cost sharing for the operation through the life of the project.

2. Recreation. Public access should be provided within the river reach affected by the project.

3. Downstream fish passage. Provision for downstream movement of anadromous and indigenous fish through the project area should be addressed.

4. Canoe portage. We understand that a canoe portage will be provided. Publishers of the Vermont and New Hampshire atlases and the AMC Guide to New England Rivers should be contacted to update their respective publications regarding the portage.

Yours very truly,

Stephen B. Sease
Director of Planning

SBS/tc

aquatec INC. ENVIRONMENTAL SERVICES

GREEN MOUNTAIN DRIVE. SOUTH BURLINGTON, VERMONT 05401. TELEPHONE (802) 658-11

August 10, 1981

Stephen B. Sease
Director of Planning
Vermont Agency of Environmental
Conservation
Montpelier, VT 05602

Dear Steve:

Thank you for your invitation to attend the August 18th "E" team meeting for the purpose of discussing the proposed Dodge Falls hydroelectric re-development project.

I am sorry that you found the project engineers nine-page preliminary project description, with illustrations, limited in scope. As a first-cut description of what is being contemplated at the site, and especially considering that a short-form license exemption is what is to filed, I'd say the description was pretty detailed. Of course fisheries and other environmental concerns must be dealt with - that is the purpose of our request for consultations. While we are not ignorant of what the issues at the site might be (and have communicated these expectations to the client), we obviously wish to know what AEC's more specific concerns might be.

Your letter makes reference to aquatic base flows. As I tried to make clear in my letter of August 3, the proposed station will be operated essentially in a run-of-the-river mode: what comes in will at all times be passed directly through the station. Thus, concerns about instantaneous releases for aquatic habitat protection will be met. I say "essentially" because storage in the station impoundment will be utilized at the beginning of each daily cycle to help bring the turbines up to speed prior to the start of releases at McIndoe Falls. Thus, higher flows at the CPM station will begin a little before they would otherwise.

I do know that, because design or financial criteria change unexpectedly part way through preliminary project design, use of a peaking mode of operation is sometimes proposed even after it has been said that it would not be. Anything is possible, but at Dodge Falls please base your comments on run-of-the-river operation. If a change of thinking does occur (not a likely prospect), you'll be the first to hear.

Sincerely,

AQUATEC, INC.

William D. Countryman

WDC:rdh

cc: Rey Hokenson, IECO

State of Vermont

AGENCY OF ENVIRONMENTAL CONSERVAT

Montpelier, Vermont 05

OFFICE OF THE SECRET.

Department of Fish and Game
Department of Forests, Parks, and Recreation
Department of Water Resources and Environmental Engineering
Division of Protection
Natural Resources Conservation Council

August 6, 1981

Mr. William Countryman
Aquatec, Inc.
75 Green Mountain Drive
South Burlington, Vermont 05401

RE: CPM Mill, East Ryegate Dam

Dear Bill:

I have your letter under date of August 3, 1981, regarding a proposed license exemption application on behalf of CPM Corporation for a hydroelectric facility at the East Ryegate dam.

I will circulate your letter and the materials you forwarded to our staff. A response date of August 26th gives us a relatively short time to review the project and to correspond with you and the applicant. The information you forwarded is rather limited in scope. For instance, I do not find any information in the materials regarding minimum sustained flows, the effect of the project on fisheries resources or recreation information. We may have further comments with regard to this project on completion of staff review.

I would suggest that we plan to meet at this Agency on August 18 at 2:00 p.m. to discuss this project. If you have any questions, please give me a call.

Yours very truly,

Stephen B. Sease
Director of Planning

SBS/ds

cc: John Ponsetto
David Clough
Tom Willard
Angie Incerpi

AQUATEC, INC. ENVIRONMENTAL SERVICES

GREEN MOUNTAIN DRIVE, SOUTH BURLINGTON, VERMONT 05401, TELEPHONE (802) 6[illegible]

August 3, 1981

Stephen B. Sease
Director of Planning
Vermont Agency of Environmental
Conservation
Montpelier, VT 05602

Dear Mr. Sease:

I am writing in connection with a proposed hydroelectric development on the Connecticut River at the CPM mill in East Ryegate, Vermont. The dam itself, the so-called Dodge Falls or East Ryegate dam, and the site of the proposed power house is located in Bath, New Hampshire.

I have enclosed a draft project description prepared by the project engineers, International Engineering Company, Inc. of Darien, Connecticut. Aquatec is working through a subcontract to International Engineering Co., Inc.; and the engineer's client, in turn, is CPM Corporation. CPM will be seeking a license exemption from the Federal Energy Regulatory Commission for their proposed development.

In evaluating project impacts, it should be noted that the proposed addition of two feet of flashboards on top of the existing dam is in keeping with historical flowage rights for the dam. Also, it is proposed that the limited storage available in the pool behind the dam be drawn upon at the start of each daily generating cycle. However, and this is important in your evaluation, the minimum sustained discharge from the station will not in any way be affected by this drawdown. The drawdown will be used in this way: just before the next station upstream, the McIndoe Station, begins to discharge, water will be passed through the first unit in the new proposed station to begin to bring the turbine up to speed. In this way, the daily

electrical output from the station can be increased by eliminating the initial lag between opening the gates and bringing the generator on line. This drawdown does not represent a ponding or peaking mode of operation in the usual sense. At the end of each daily generating cycle, the station will be shutdown with the water level at or near the crest of the flashboards; flows past the project will not be interrupted at the end of the generating cycle.

Aquatec's deadline for completing work on our client's license exemption application is August 26th. If you have questions concerning the project, I or another of Aquatec's representative would be happy to answer those questions by phone or, if you prefer, to visit with you there in Montpelier. As you know, our applicant will be required to submit as part of his application a letter from your agency demonstrating that he or his consultants has conducted consultations with appropriate fish and game agencies. Accordingly, toward the end of the month I will be requesting such a letter from you. Your assistance in this regard is greatly appreciated.

Sincerely,

AQUATEC, INC.

William D. Countryman

WDC:rdh

Enc.

cc: Rey Hokenson

STATE OF NEW HAMPSHIRE

FISH AND GAME DEPARTMENT

CHARLES E. BARRY
EXECUTIVE DIRECTOR

Box 2X
34 Bridge Street
Concord, N.H. 03301
(603) 271-3421

September 30, 1981

William D. Countryman
Aquatic Inc. Environmental Services
75 Green Mountain Drive
South Burlington, VT 05401

Dear Bill:

Essentially, our concerns are similar to those of the U.S. Fish and Wildlife Service, and we have no objections to the issuance of a license exemption with the following conditions:

1. Suitable fish-trapping facilities and vehicular access will be constructed at the dam by the development owner by 1992, and maintained for the life of the project; details of the trap location and design will be coordinated with appropriate personnel of the Fish and Wildlife Service, the New Hampshire Fish and Game Department, and the Vermont Fish and Game Department.

2. Downstream-migrant fish-passage facilities will be located in project restoration; details of location and design will be coordinated with agencies noted in the foregoing paragraph.

3. The transmission line right-of-way will be located so as to avoid wetland and deer-wintering habitat.

4. A small-boat/canoe portage will be provided and adequately signed.

5. The development owner will guarantee reasonable angler access to project area waters insofar as safety conditions permit.

Sincerely,

George R. Morrison
Fish & Wildlife Ecologist

APPENDIX 1-3
FERC LETTER DATED JUNE 26, 1986

FERC exemption i cont

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

VERMONT PUBLIC SERVICE BOARD

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JUN 26 1986

RECEIVED 1986

Project No. 8011
Dodge Falls Project
Dodge Falls Hydro Corporation

Mr. David R. Bristol
Vice President, Hydro Development
HYDRA-CO Enterprises Inc.
One Lincoln Center
Suite 1225
Syracuse, NY 13202

Dear Mr. Bristol:

We have reviewed the proposed design changes to the Dodge Falls Project, FERC No. 8011, as stated in your application for an amendment to your exemption filed on November 12, 1985. The changes are summarized as follows:

1. The project will be relocated from the existing mill on the Vermont side of the Connecticut River to a proposed new powerhouse on the New Hampshire side of the river.

2. The proposed generating equipment will be revised from 6 bulb units having a total installed capacity of 4,650 kW and a total rated hydraulic capacity of 4,960 cfs to 1-horizontal pit Kaplan unit with an installed capacity of 5,000 kW and a rated hydraulic capacity of 5,800 cfs, an increase of 8% and 16% respectively. The rated head remains unchanged at 12 feet.

It is noted that the proposed design changes have been reviewed by the interested Federal and State environmental agencies and no objections to the modifications have been raised. In addition, Water Quality Certificates have been issued for the revised project plan by both the Vermont Agency for Environmental Conservation and the New Hampshire Water Supply and Pollution Control Commission.

Pursuant to 18 C.F.R. Section 4.104(b), since the proposed design modifications do not materially alter the design of the exempted project, and since the Federal and State agencies have determined that the changes would not violate the terms and conditions imposed by the agencies, you may proceed with the implementation of the changes.

Your Application For Amendment Exemption From Licensing pertaining to the above changes is dismissed, as moot.

Sincerely,

for Constantine G. Tzoumas

Ronald A. Corso, Director
Division of Inspections

APPENDIX 1-4
VERMONT CERTIFICATE OF PUBLIC GOOD

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 4699

83

Petition of Dodge Falls Hydro Corporation for a certificate of public good under 30 V.S.A. Section 248 for the repair and reconstruction of a hydro-electric generation facility located on the Connecticut River in the Towns of Bath, New Hampshire and Ryegate, Vermont

CERTIFICATE OF PUBLIC GOOD
PURSUANT TO 30 V.S.A. SECTION 248

IT IS HEREBY CERTIFIED that the Public Service Board of the State of Vermont this day found and adjudged that the proposed repair and reconstruction by Dodge Falls Hydro Corporation of a hydroelectric generation station on the Connecticut River in the Towns of Bath, New Hampshire and Ryegate, Vermont will promote the general good of the State, subject to the following conditions:

1. Dodge Falls Hydro Corporation shall comply with all conditions of the Section 401 Water Quality Certificate issued by the Agency of Environmental Conservation.

2. Prior to the beginning of construction, Dodge Falls Hydro Corporation shall submit to the Board (a) a copy of the interconnection agreement with Green Mountain Power Corporation and (b) a copy of the Power Sale Contract with Vermont Public Power Supply Authority.

3. Construction of the transmission line may begin after the Board has received and approved the detailed plans showing the exact routing, pole locations, clearing, selective clearing, and interconnection point. These plans shall also be submitted to the Public Service Department for its review and comment to the Board.

4. Within thirty (30) days of the startup of the hydro facility, Dodge Falls Hydro Corporation shall so notify the Board in writing.

5. The Certificate of Public Good for this project may not be transferred without approval by the Board.

Dated at Montpelier, Vermont this 30th day of March, 1983.

V. Louise McCarren	PUBLIC SERVICE
Rosalyn L. Hunneman	BOARD
	OF VERMONT

OFFICE OF THE CLERK

FILED: March 30, 1983

ATTEST: Susan M. Hudson
Clerk of the Board

§248 Hydro-gen
(new Tab)

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 4699

Petition of Dodge Falls Hydro Corporation for a certificate of public good under 30 V.S.A. Section 248 for the repair and reconstruction of a hydro-electric generation facility located on the Connecticut River in the Towns of Bath, New Hampshire and Ryegate, Vermont	)	Hearings at Ryegate, Vermont September 9 and 30, 1982
	)	Order Entered: 3/30/83

PRESENT: Wayne L. Foster, Hearing Examiner

APPEARANCES: David W. Marshall, Esq.
Stewart H. McConaughy, Esq.
for Dodge Falls Hydro Corporation

Phillip L. Paull
for the Department of Public Service

INTRODUCTION

This case concerns a petition filed by Dodge Falls Hydro Corporation (DFH) on June 16, 1982, requesting a certificate of public good under 30 V.S.A. Section 248 for the repair and reconstruction of a hydroelectric generation station on the Connecticut River in the Towns of Bath, New Hampshire and Ryegate, Vermont. The proposed generation facility will provide an electrical source to an existing electrical distribution system.

Notices of the first hearing were sent by certified mail on August 2, 1982 to all parties specified in 30 V.S.A. Section 248. Notice was also sent to Central Vermont Public Service Corporation. In addition, notice of the hearing was published in "The Caledonian Record" on August 20 and 27, 1982.

The hearing was held as scheduled on Thursday, September 9, 1982 at the Town Hall in Ryegate, Vermont.

Notices of the continued hearing were sent by certified mail on September 17, 1982. The continued hearing was held as scheduled on Thursday, September 30, 1982 at the Town Hall in Ryegate, Vermont.

No one appeared at either hearing in opposition to the petition and substantial evidence was presented in support of the petition.

FINDINGS

Based upon the substantial evidence of record and the testimony presented at the hearings, I hereby report the following Findings to the Board in accordance with 30 V.S.A. Section 8:

1. Dodge Falls Hydro Associates is a limited partnership formed under the laws of the State of New Hampshire.

2. CPM Inc. is a New Hampshire corporation which owns an existing dam on the Connecticut River and adjacent property in the Towns of Bath, New Hampshire and Ryegate, Vermont.

3. Dodge Falls Hydro Associates owns an option to purchase the existing CPM Inc. dam and certain adjacent properties. Dodge Falls Hydro Associates intends to assign the option to DFH, which in turn intends to exercise such option.

4. DFH proposes to utilize the existing dam to construct and operate a hydroelectric generation facility.

5. CPM Inc. intends to grant to DFH all necessary rights and easements across its property to construct the proposed project and interconnect it into an existing electrical transmission system.

6. The only portion of the proposed project to be located in the State of Vermont is the right abutment of the existing dam plus a short section of the proposed transmission line from its Connecticut River crossing to its connection point with the existing system of Green Mountain Power Corporation (GMP).

7. Other than the rights and easements needed from CPM Inc., and an agreement with GMP to interconnect the proposed transmission line into an existing GMP substation, DFH will own all necessary property, flowage rights and water rights for operation of the proposed project.

8. The existing spillway type dam is a grouted, rock-filled, timber crib structure approximately 375 feet long and 15.5 feet high. The dam has a timber crest cap and wood plank facing, both upstream and downstream. At the east side of the spillway dam is a 25 foot long concrete abutment wall. The west side of the spillway dam ends in the west abutment wall, a 54 foot long concrete structure that is attached to an existing powerhouse.

9. The 110 foot long existing powerhouse building attached to the west abutment wall consists of a two-story, brick masonry superstructure and a six-bay, concrete powerhouse substructure. Five of the six bays are currently being used by

CPM Inc. for their paper manufacturing process. These five bays were converted to their present function by the removal of the old turbine-generator units and the placement of concrete plugs to prevent water from flowing through the bays.

10. The existing powerhouse building will continue to be used by CPM Inc. for their paper manufacturing process and will not be utilized by DFH as a part of its proposed hydroelectric facility.

11. The impoundment, formed by the existing dam and powerhouse building, extends nearly four miles upstream and has a surface area of approximately 290 acres at the spillway crest elevation.

12. The proposed construction will consist of (1) an approximately 110 foot by 90 foot powerhouse containing three turbine-generator units with associated equipment; (2) removing a 100 foot section of the existing dam and replacing it with a 120 foot side spillway; (3) repairs to the existing dam; (4) an intake structure and associated equipment; (5) a 50 foot tailrace; (6) a 4.16 KV/46 KV substation adjacent to the proposed powerhouse and (7) a 46 KV transmission line approximately 1500 feet long.

13. All of the proposed construction, except for a short section of the proposed transmission line (see Finding No.6) and possibly some minor dam repairs, will be in the State of New Hampshire. The final routing and interconnection point of the proposed transmission line has not yet been determined.

14. DFH proposes to install two feet of flashboards on the existing dam. Due to the slope of the upstream riverbanks, the addition of flashboards will not significantly alter the surface area of the existing impoundment. Prior to 1967, two feet of flashboards were normally installed on the dam.

15. The proposed project will not flood or affect any existing or potentially productive agricultural lands. The proposed project will have no adverse effect on the criteria of Executive Order No. 52, as it relates to agricultural lands.

16. The proposed project impoundment is small and there are no residences or buildings immediately downstream which could be endangered should a failure of the dam occur.

17. The installed capacity of the proposed project is 5,000 KW with an estimated annual energy output of 21,722,000 KWH. The estimated annual energy production was based upon a detailed computer analysis summarized at the hearing.

18. The proposed project schedule of DFH calls for obtaining all necessary state and federal permits, completing construction, and commencing operation by late spring, 1984.

19. DFH has received all necessary permits from the State of New Hampshire.

20. The estimated cost, as of July 22, 1982, of the proposed project is $12,970,292. This estimated project cost is broken down as follows:

Land and Land Rights	$ 500,000
Power Plant Structures and Improvements	1,904,000
Reservoirs, Dams, and Waterways	1,026,000
Waterwheels, Turbines and Generators	5,265,000
Miscellaneous Power Plant Equipment	70,000
Roads, Railroads, and Bridges	7,000
Substation Structures and Improvements	12,000
Substation and Switching Station Equipment	50,000
Overhead Conductors and Devices	47,000
Major Equipment Contingency 5%	263,000
General Works Contingency 15%	467,000
Engineering Services	925,000
Legal and Financial	270,000
Private Placement Fee	265,000
Documentation	335,000
Interest During Construction (18%)	1,564,292
TOTAL PROJECT COST	$12,970,292

21. The estimated annual operating costs for the first year of operation of the proposed facility is as follows:

Operation and Maintenance	$160,000
General and Administrative	10,000
Insurance	75,000
Major Repair and Replacement	15,000
Property Taxes	120,000
TOTAL	$380,000

22. The annual operating costs, with the exception of property taxes, are estimated to escalate at the rate of 8 percent per year. Property taxes are a percentage of gross revenues, and therefore will vary with annual energy production and the value of power. Projections for future property taxes are based on 5% of the gross revenues generated in an average water year.

23. The proposed project is to be financed by a leveraged lease arrangement. A debt/equity ratio of 65/35% (plus or minus 10%) is assumed with a maturity of 15 years on the debt and an interest rate of between 16% and 18%.

24. Under the leveraged lease arrangement, the 35% (± 10%) equity investor will obtain a 50 year ground lease from DFH. The ground lease will give to the equity investor the right to occupy the site and construct improvements thereon during the lease term. The equity investor will arrange the financing for the 65% (± 10%) debt portion. The equity investor will also be able to take advantage of the tax benefits, which include investment tax credit, energy tax credit, and accelerated depreciation.

25. The equity investor will grant an operating lease or facilities lease to DFH for a period of time equal to 40 years, inclusive of all renewals. DFH will have the economic benefit of the proposed project with no tax advantages. DFH will have the right to produce and sell power generated at the proposed facility.

26. Based upon an economic analysis of the proposed project, the energy output sale price proposed by DFH for a period of 30 years is:

A. For the first year, $.11 per KWH.

B. For years 2 through 15, $.11 per KWH plus an escalation of 4 percent, compounded annually.

C. For years 16 through 20, a flat rate of $.145 per KWH.

D. For years 21 through 30, the greater of $.10 per KWH or one half of VPPSA's avoided costs.

27. DFH is proposing to sell at wholesale the entire output of the proposed hydroelectric facility to Vermont Public Power Supply Authority (VPPSA). It does not intend to and will not operate as an electric distribution utility.

28. The proposed project will produce electricity from a renewable resource. This energy will be sold to a public utility (VPPSA) to reduce its present and future use of fossil fuel-derived energy. As a result, the energy output is needed now and in the future to reduce the need for imported and domestic fossil fuels.

29. At the time of the hearings, DFH and VPPSA were in the final stages of negotiating a 30 year agreement consistent with the requirements of Public Service Board General Order No. 65 for the sale of output to VPPSA.

30. DFH intends to covenant with VPPSA that the proposed project will be in commercial operation for a period of 30 years. This agreement will contain safeguards or assurances of reconstruction in the event of a casualty loss at the proposed facility. DFH intends to provide property insurance with VPPSA as a named insured, as its interests may appear under the Power Sales Contract.

31. In addition, as a further protection to VPPSA, DFH has agreed to grant to VPPSA a mortgage encumbering all of DFH's rights to the proposed project, to secure the full and faithful performance of DFH's covenant to operate the proposed facility for 30 years. If DFH should cease operation at the proposed facility, VPPSA would, pursuant to the proposed mortgage, have the option of foreclosing the mortgage for the purpose of obtaining title to DFH's rights under the ground lease and the facilities lease. At that point, VPPSA would have the right to generate power under the facilities lease, subject to the making of the lease payments, and would also have the right to take title to the site upon the expiration of the ground lease.

32. After the finalization of the sale agreement between DFH and VPPSA, DFH intends to begin negotiations on an interconnection agreement with GMP, consistent with the Public Service Board General Order No. 65 requirements.

33. Based upon the testimony presented at the hearing, DFH satisfies the criteria for exemption from utility regulation under paragraph 9 of Public Service Board General Order No. 65.

34. The electrical protection and interconnection of the proposed facility with the existing GMP system will fully comply with the requirements of GMP and of Public Service Board General Order No. 65 to provide a safe and reliable facility. The proposed facility should cause no adverse impact upon the electrical stability of the existing transmission system.

35. All construction will be in accordance with the National Electrical Safety Code and any other applicable industry standards.

36. Operation of the proposed hydro facility will be essentially "run-of-the-river" with the river flows regulated by the upstream McIndoe Falls hydroelectric plant. The small pond at the proposed DFH facility will be drawn down just prior to the beginning of water discharge each day at McIndoe Falls, thus increasing the output at DFH.

37. DFH was issued a Section 401 Water Quality Certificate for the proposed project from the Agency of Environmental Conservation on July 9, 1982. DFH intends to comply with all the requirements of the water quality certificate.

38. DFH intends to cooperate in the Connecticut River anadromous fisheries restoration program to provide a fish trapping facility at the Dodge Falls Dam. Details of the fish trapping/passage plans will be worked out with the state and federal fish and wildlife agencies.

39. Public access to the river for recreational purposes will be provided from the New Hampshire shore for fishermen and persons with small boats and canoes. DFH also intends to provide canoe portage at the dam.

40. The proposed transmission line right-of-way will not be located in wetlands or deer wintering habitat.

41. From the standpoint of aesthetics, the impact to Vermont will be minimal, to be seen only from the existing CPM Inc. industrial facility.

42. Plans for the proposed project were submitted to the Northeastern Vermont Development Association (NVDA) and the Ryegate Planning Commission on March 29, 1982, in excess of the statutory requirement of submittal 45 days prior to formal filing for a certificate of public good with the Public Service Board.

43. Neither DFH nor the Board received any comments regarding the proposed project from either NVDA or the Ryegate Planning Commission. No one from either agency appeared at the hearings. The proposed project site within Vermont is zoned industrial by the Town of Ryegate and is not suitable for residential or commercial development.

44. There are no properties in the vicinity of the proposed project which are of historic, architectural or archeological significance which are included in or eligible for inclusion in the National Register of Historic Places.

45. DFH filed an application with the Federal Energy Regulatory Commission (FERC) in December, 1981, for an exemption from licensing as a small hydroelectric power producer. FERC granted that exception on May 23, 1982.

46. DFH has received a "404 Permit" from the U.S. Army Corps of Engineers to construct and operate the proposed project.

47. Based upon all the above evidence, the proposed construction will not have an undue adverse effect on the orderly development of the region; is required to meet the need for present and future demand for service; will not adversely affect system stability and reliability and economic factors; will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment, and the public health and safety; plans have been submitted to the municipal and regional planning commissions in accordance with 30 V.S.A. Section 248; and there exists good cause to permit the proposed action.

A Proposal for Decision purusant to 3 V.S.A. Section 811 has been served upon the parties to this case.

Dated at Montpelier, Vermont this 4th day of March, 1983.

Wayne L. Foster

Wayne L. Foster, Hearing Examiner

ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont that:

1. The Findings of the Hearing Examiner in this case are adopted.

2. The repair and reconstruction of a hydroelectric generation station on the Connecticut River in the Towns of Bath, New Hampshire and Ryegate, Vermont, will promote the general good of the State of Vermont in accordance with 30 V.S.A. Section 248 and a certificate of public good shall be issued in this matter.

Dated at Montpelier, Vermont this 30th day of March, 1983.

V. Louise McCarren)
) PUBLIC SERVICE
Rosalyn L. Hunneman) BOARD
) OF VERMONT
)

OFFICE OF THE CLERK

FILED: March 30, 1983

ATTEST: Susan M. Hudson
Clerk of the Board

APPENDIX 1-6
1993 FERC LICENSE EXEMPTION AMENDMENT

FILE DF 2.210 64 FERC ¶ 62,082

5330
FRARY - HL-21.2
810 1st St., NE
Rm. 1148 UCP

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Dodge Falls Associates
Limited Partnership

Project No. 8011-007
New Hampshire

ORDER AMENDING EXEMPTION

AUG 04 1993

Dodge Falls Associates, exemptee for the Dodge Falls Hydroelectric Project, FERC Project No. 8011, filed an application on May 3, 1993, to amend its exemption.[1] The exemptee proposes to replace the existing pin supported wooden flashboards on the dam with a new rubber dam. The project is located on the Connecticut River in the towns of Ryegate, Vermont and Bath, New Hampshire.

Amendment Request

The exemptee maintains that the replacement of the existing wooden flashboards will allow better control of the upstream water level while reducing the need for personnel to access the dam crest and replace the wooden flashboards after their collapse. The exemptee further states that this will enhance the recreational, aquatic habitat, and aesthetic aspects of the upstream section of the river and will make operation and maintenance safer for plant personnel.

The existing flashboards maintain a normal water level of elevation 423.6 feet m.s.l. and are designed to collapse when the water level reaches elevation 426.1 m.s.l. feet. The new rubber dam will also maintain a normal water level of elevation 423.6 feet m.s.l. and begin to deflate when the water level reaches elevation 426.1 feet m.s.l. When the rubber dam is fully lowered, the shape will conform to the existing permanent spillway crest shape.

The replacement of the flashboards will be performed in the dry by drawing down the reservoir to about 2 feet below the permanent spillway crest elevation. No dredging will be performed and no fill will be placed for performance of the work. Access to the work area will be from the powerhouse intake deck, possibly supplemented by a barge or small boat for added access and safety.

---

[1] 27 FERC ¶ 62,277, issued June 11, 1984.

Technical Review

At the request of the Commission's staff, technical specifications and calculations were filed on May 20, 1993. The calculations were reviewed for the engineering design of the proposed anchor bolts and clamping plates for securing the rubber dam to the existing dam crest. The design calculations were determined to be acceptable.

Environmental Review

Installation of the rubber dam is not expected to have any negative environmental impacts. In fact, the rubber dam will give the exemptee a small measure of added control over the height of the reservoir. Safety concerns associated with periodic resetting or replacement of flashboards will also be eliminated.

To install the rubber dam, the exemptee plans to lower the project's reservoir about 2 feet for approximately 4 weeks. As required by §4.96 of the Commission's regulations, the exemptee consulted with the U.S. Fish and Wildlife Service (FWS), the New Hampshire Department of Fish and Game (DFG), and the Vermont Department of Environmental Conservation (DEC). The exemptee also notified, by certified mail, all those owning property next to the reservoir, of the proposed drawdown (total 3 owners).

By letter dated May 24, 1993, the DEC approved the proposal by waiving condition B in the project's water quality certificate, thus allowing the drawdown. The FWS and the DFG also approved as documented in the exemptee's telephone logs dated April 23, 1993 and June 3, 1993, respectively. No objections were received from the adjacent landowners notified by certified mail.

The proposal to replace the flashboards with a rubber dam and to temporarily lower the reservoir elevation to facilitate installation of the dam, should not adversely impact the site's environmental resources.

The Director orders:

(A) The exemption for the Dodge Falls Hydroelectric Project, FERC Project No. 8011, is amended as provided in this order, effective the first day of the month in which this order is issued.

(B) Appendix A, paragraph j, items (1) and (2) of the Order Granting Exemption from Licensing of a Small Hydroelectric Project of 5 Megawatts or Less, issued June 11, 1984, is revised as follows:

(1) An existing ~~385~~ 240-foot-long, 15.5-foot-high, grouted rock-filled timber crib dam with an integral ~~375~~ 125-foot-long spillway topped by a two-foot-high rubber dam.

(2) An existing 4-mile-long, 290-acre reservoir at elevation 423.6 feet m.s.l. and a usable storage capacity of 590 acre-feet with a rubber dam.

(C) The exemptee shall start construction of the authorized project modifications within two years and complete construction within four years of the issuance date of this order.

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

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

MARIO will Follow up

UNITED STATES OF AMERICA 64 FERC □62,082
FEDERAL ENERGY REGULATORY COMMISSION

Dodge Falls Associates
Limited Partnership

Project No. 8011-007
New Hampshire

ORDER AMENDING EXEMPTION
Issued August 4, 1993

Dodge Falls Associates, exemptee for the Dodge Falls Hydroelectric Project, FERC Project No. 8011, filed an application on May 3, 1993, to amend its exemption.1 The exemptee proposes to replace the existing pin supported wooden flashboards on the dam with a new rubber dam. The project is located on the Connecticut River in the towns of Ryegate, Vermont and Bath, New Hampshire.

Amendment Request

The exemptee maintains that the replacement of the existing wooden flashboards will allow better control of the upstream water level while reducing the need for personnel to access the dam crest and replace the wooden flashboards after their collapse. The exemptee further states that this will enhance the recreational, aquatic habitat, and aesthetic aspects of the upstream section of the river and will make operation and maintenance safer for plant personnel.

The existing flashboards maintain a normal water level of elevation 423.6 feet m.s.l. and are designed to collapse when the water level reaches elevation 426.1 m.s.l. feet. The new rubber dam will also maintain a normal water level of elevation 423.6 feet m.s.l. and begin to deflate when the water level reaches elevation 426.1 feet m.s.l. When the rubber dam is fully lowered, the shape will conform to the existing permanent spillway crest shape.

The replacement of the flashboards will be performed in the dry by drawing down the reservoir to about 2 feet below the permanent spillway crest elevation. No dredging will be performed and no fill will be placed for performance of the work. Access to the work area will be from the powerhouse intake deck, possibly supplemented by a barge or small boat for added access and safety.

1 27 FERC ¶ 62,277, issued June 11, 1984.

Technical Review

At the request of the Commission's staff, technical specifications and calculations were filed on May 20, 1993. The calculations were reviewed for the engineering design of the proposed anchor bolts and clamping plates for securing the rubber dam to the existing dam crest. The design calculations were determined to be acceptable.

Environmental Review

Installation of the rubber dam is not expected to have any negative environmental impacts. In fact, the rubber dam will give the exemptee a small measure of added control over the height of the reservoir. Safety concerns associated with periodic resetting or replacement of flashboards will also be eliminated.

To install the rubber dam, the exemptee plans to lower the project's reservoir about 2 feet for approximately 4 weeks. As required by ¶4.96 of the Commission's regulations, the exemptee consulted with the U.S. Fish and Wildlife Service (FWS), the New Hampshire Department of Fish and Game (DFG), and the Vermont Department of Environmental Conservation (DEC). The exemptee also notified, by certified mail, all those owning property next to the reservoir, of the proposed drawdown (total 3 owners).

By letter dated May 24, 1993, the DEC approved the proposal by waiving condition B in the project's water quality certificate, thus allowing the drawdown. The FWS and the DFG also approved as documented in the exemptee's telephone logs

environmental resources.

The Director orders:

(A) The exemption for the Dodge Falls Hydroelectric Project, FERC Project No. 8011, is amended as provided in this order, effective the first day of the month in which this order is issued.

(B) Appendix A, paragraph j, items (1) and (2) of the Order Granting Exemption from Licensing of a Small Hydroelectric Project of 5 Megawatts or Less, issued June 11, 1984, is revised as follows:

(1) An existing 485-foot-long, 15.5-foot-high, grouted rock-filled timber crib dam with an integral 375-foot-long spillway topped by a two-foot-high rubber dam.

(2) An existing 4-mile-long, 290-acre reservoir at elevation 423.6 feet m.s.l. and a usable storage capacity of 590 acre-feet with a rubber dam.

(C) The exemptee shall start construction of the authorized project modifications within two years and complete construction within four years of the issuance date of this order.

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

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

UNITED STATES OF AMERICA 65 FERC ¶62,213
FEDERAL ENERGY REGULATORY COMMISSION

Dodge Falls Associates
Limited Partnership

Project No. 8011-008
New Hampshire

ORDER AMENDING EXEMPTION
Issued December 13, 1993

Dodge Falls Associates, exemptee for the Dodge Falls Hydroelectric Project, FERC Project No. 8011, filed an application on May 3, 1993, to amend its exemption.1 The exemptee proposed to replace the existing pin supported wooden flashboards on the side channel overflow spillway dam with a new rubber dam. The project is located on the Connecticut River in the towns of Ryegate, Vermont and Bath, New Hampshire.

On August 4, 1993, the Commission approved the exemptee's proposal by issuing an Order Amending Exemption.2 However, Paragraph (B) of the Order did not describe the project features accurately.

This order will amend the exemption to revise the description of project features.3

The Director orders:

(A) The exemption for the Dodge Falls Hydroelectric Project, FERC Project No. 8011, is amended as provided in this order, effective the first day of the month in which this order is issued.

(B) Appendix A, paragraph j, of the Order Granting Exemption from Licensing of a Small Hydroelectric Project of 5 Megawatts or Less, issued June 11, 1984, is revised as follows:

j. Description of Project - The project consists of: (1) an old concrete powerhouse at the west end of the dam--without generating units--used for other project purposes; (2) a training wall section at the west end of the dam; (3) a 240-foot-long by an average 9-foot-high, grouted rock-filled timber crib spillway dam at crest elevation 421.6 feet m.s.l., topped with two-foot-high flashboards; (4) a 100-foot-long concrete gravity side channel overflow spillway at crest

1 27 FERC ¶ 62,277 (1984).

2 64 FERC ¶ 62,082 (1993).

3 See Commission's letter dated June 26, 1986.

elevation 421.6 feet m.s.l., topped with a 2-foot-high rubber dam; (5) a 12-foot-wide by 7-foot-high hydraulic sluice gate; (6) a 4-mile-long, 290-acre reservoir with a usable storage capacity of 590 acre-feet at elevation 423.6 feet m.s.l.; (7) a reinforced concrete powerhouse with a 5,000-kW Kaplan pit turbine-generating unit having a hydraulic capacity of 5,800 cfs and a rated head of 12 feet; (8) a 34.5-kV, 950-foot-long transmission line extending from the project's switchyard to Green Mountain Power Corporation's substation; and (9) appurtenant facilities.

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

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

APPENDIX 1-7
FERC LETTER DATED MAY 13, 1997

3779

FEDERAL ENERGY REGULATORY COMMISSION
NEW YORK REGIONAL OFFICE
19 WEST 34th STREET - SUITE 400
NEW YORK, NEW YORK 10001

Telephone No. (212) 273-5900

FAX No. (212) 631-8124

May 13, 1997

Mr. Thomas A. Tarpey
Vice President
Dodge Falls Associates L.P.
One State Street, Suite 1200
Boston, MA 02109

RE: Project No. 8011-NH, Dodge Falls
NATDAM # - NH00014
Flashboard Replacement

Dear Mr. Tarpey:

By your letter dated April 23, 1997, we were advised of your plans to replace the existing pin-supported wooden flashboards on the main spillway section of the dam with a pneumatically controlled crest gate system. You state that installation of this new system will allow better control of the upstream water level while reducing safety concerns associated with maintenance of the existing flashboards.

We understand that the new gate system will be secured directly to the existing concrete cap of the dam and that no modifications of the dam will be required. Existing operating procedures will also remain unchanged after installation of the new system.

Since installation of the new crest control system does not change the normal operating level of the reservoir, change the current operational policy of the project, nor change any of the terms and conditions of the exemption, an amendment to the exemption is not required. Accordingly, you may proceed with the requested installation/modification as shown on the submitted drawings.

You are requested to submit at least 60 days prior to construction, documentation from the responsible state agencies that they concur with the installation and the procedures regarding lowering of the reservoir level. Also, you must submit a schedule for commencement and completion of the installation no more than 30 days before the start of the work.

Bill, Dave

If you have any questions, please contact Mr. Richard Deubert, our engineer at the New York Regional office responsible for this project, at (212) 273-5933.

Your continued cooperation is appreciated.

Sincerely,

Anton J. Sidoti
Director

APPENDIX 2
AGENCY CONTACTS

Appendix 2

Agency Contacts

Federal Energy Regulatory Commission; NY Regional Office;
Michael Monahan, 212-273-5955
US Fish and Wildlife Service:
John Warner; 603-223-2541 x 15
Connecticut River Atlantic Salmon Commission;
John Warner; 603-223-2541 x 15
New Hampshire Natural Heritage Bureau;
Melissa Kopploa; 603-271-3623
Vermont Fish and Wildlife;
Everett Marshall; 802-241-3700
Vermont DEC, Dam Safety and Hydrology Section;
Jeffrey Cueto, 802-241-3758
New Hampshire Water Quality Division;
Greg Comstock, 603-271-2983

APPENDIX 3
PROJECT LOCATION AND OPERATIONS

Appendix 3

Project Location and Operations

The Dodge Falls Associates hydroelectric facility (the DF Facility) is located at river Mile 268 on the Connecticut River in the towns of Bath, New Hampshire and Ryegate, Vermont (see Appendix 3-1). The hydroelectric station was constructed at the site of the existing Dodge Falls dam. The dam ("DF dam" or "Ryegate dam") was used until 1966 to provide waterpower to a paper mill located on the Vermont side of the river. From 1966 until 1990 process water was supplied to the paper mill with excess flow discharged over the dam. When the Dodge Falls project began operation in 1990, most of the river flow then was used for hydroelectric generation with the paper mill receiving up to 5 cfs for process use. In 2000 the paper mill was shutdown and papermaking machinery was removed from the mill. The dam is 485 feet long and consists of a grouted, rock fill, timber crib with a timber crest and wood plank facing. The crest elevation of the dam is 421.4 feet NGVD and is about 15.5 feet above the bedrock streambed at the downstream toe. Initially the project was authorized to install 2 feet of pin supported wooden flashboards to reestablish the historic level of the impoundment.

In 1988 construction began on the DF project and was completed in 1990. The DF project consists of a reinforced concrete powerhouse located on the New Hampshire side of the river with a 75-foot side concrete spillway constructed on the right side of the fore bay. The spillway is connected to the timber crib dam.

The Df project was operated from 1990 to 1993 using pin supported wooden flashboards. In 1993 a two-foot rubber pneumatic flashboard system was installed on the concrete spillway to replace a portion of the pin supported wooden flashboard system. In 1997 a two-foot rubber pneumatic flashboard system was installed on the timber crib dam to replace the remaining wooden flashboards. A single double regulated 5000 kW Escher Wyse turbine, rated at 12 feet of head and a flow of 5800 cfs, is installed in the powerhouse.

The DF Facility is operated as a run of river facility. Reservoir level is maintained by means of a pond level control system. The project is required

to maintain a minimum flow of 1108 cfs (0.5 csm) or project inflow, whichever is less. The DF Facility is located immediately downstream of the Fifteen Mills Falls Hydroelectric Project ("the FMF project")(FERC # 2077). The FMF project consists of three separate dams and powerhouses located upstream from the DF project. The closest FMF project, the McIndoes power station, is located approximately 4 miles upstream of the DF project. Since the DF project is a run of river project, available river flow for the DF project is determined by discharge from the McIndoes project.

APPENDIX 3-1
PROJECT LOCATION

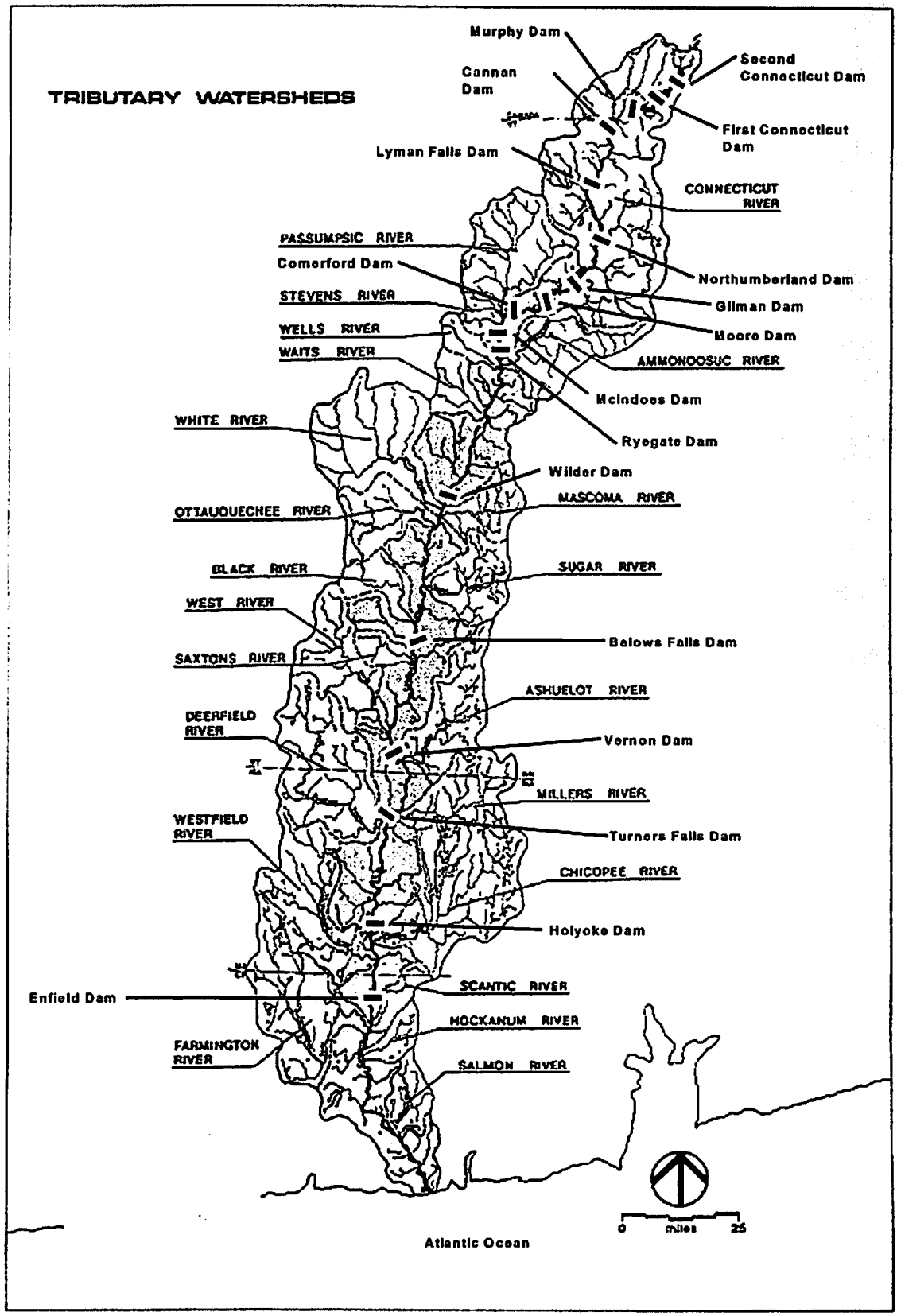

Figure 3. Location of Dams on the Mainstem of the Connecticut River.

Table 1. Dams on the Mainstem of the Connecticut River

Name	FERC No.	Function[a]	Approx. RM[b]	Installed Capacity (MW)	Res. Surface Acres
Enfield	NA	Breached Dam	68	NA[c]	NA
Holyoke	No. 2004 No. 11607	H, R	86	43.75	2,290
Turners Falls	No. 1889 No. 2622	H, F, S, R	119	57.51	2,000
Vernon	No. 1904	H, F, S, R	123	24.4	2,550
Bellows Falls	No. 1855	H, F, S, R	142	40.8	2,804
Wilder	No. 1892	H, F, S, R	174	35.6	3,100
Ryegate	No. 8011	H, S, R	264	5	290
McIndoes	No. 2077	H, S, R	268	10	543
Comerford	No. 2077	H, F, S, R	275	141	1,093
Moore	No. 2077	H, F, S, R	283	141	3,490
Gilman	No. 2392	H, F, S, R	300	4.85	130
Northumberland	NA	Breached Dam	321	NA	NA
Lyman Falls	NA	Breached Dam	347	NA	NA
Canaan	No. 7528	H, F, S, R	370	1.1	20
Murphy	NA	F, S, R	380	NA	--
First CT Lake	NA	F, S, R	392	NA	3,125
Second CT Lake	NA	F, S, R	399	NA	1,272

Sources: CRASC, 1998; CRJC, 1997; FWS, 1995a.

[a] H-hydropower; S-storage; F-flood control; R-recreation

[b] RM - river mile

[c] NA - not applicable

No.	Description	Date	Size (kilobytes)
	Notice of Exemption (unsigned)	____ May, 1983	
	App'n for Exemption (Intro & contents)	Sept. 1, 1983	604
	App'n for Exemption (Exhibit "A")	Sept. 1, 1983	891
	App'n for Exemption (Exhibit "E")	Sept. 1, 1983	4,511
	App'n for Exemption (Exhibit "G")	Sept. 1, 1983	982
	NHF&G Comment Letter	March 10, 1983	
	USF&WS Comment Letter	March 16, 1983	
	EDAI to NHWSPCC	February 16, 1983	
	EDAI to NHWSPCC	May 2, 1983	
	EDAI to NHWRB	May 2, 1983	
	EDAI to USF&WS	May 2, 1983	
	EDAI to NHF&GD	May 2, 1983	
	EDAI to NHDRED-SHPO	May 2, 1983	
	EDAI to NHDRED-SHPO	February 16, 1983	
	NHDRED-SHPO Comment Letter	May 2, 1983	
	EDAI to USDoC NMFS	May 2, 1983	
	EDAI to USDoC NMFS	February 16, 1983	
	USDoC NMFS Comment Letter	May 4, 1983	
	NHWSPCC WQ Assessments	March 31, 2004	

APPENDIX 4
DESCRIPTION OF PROJECT FLOWS

Appendix 4

Description of Project flows

The project is operated as a strict run of river facility. Reservoir level is maintained at the top of the flashboards through operation of a pond level control system. The project is required to maintain a minimum flow of 1108 cfs (0.5 csm) or project inflow, if less.

As noted in Appendix 2, project inflow is controlled by the flow discharged from the McIndoes hydroelectric station, a part of the Fifteen Mile Falls Project (FERC# 2077). The station is located approximately 4 miles upstream from the Dodge Falls dam. At the time the DF project was licensed and constructed the McIndoes station did not have a minimum flow discharge requirement. From commencement of generation at Dodge Falls in 1990 until 2003, inflow to the Dodge Falls reservoir periodically was interrupted during ponding periods at the McIndoes project. The Dodge Falls project would note a decrease in pond level and the turbine generator would be shutdown until inflow was restored by the McIndoes project. The water quality certificate issued to the Dodge Falls project (see Appendix 4-1) recognized the effect the McIndoes project would have on the operation of the Dodge Falls project and allowed a reservoir draw down of up to 3.0 inches to accommodate the frequent fluctuations in McIndoes station flow discharge. During shutdown periods a continuous flow of 530 cfs was required to be maintained below the project until the reservoir level was built up to reestablish turbine operation and or spillage.

The Fifteen Mile Falls project was relicensed in 2002. Under the new license the McIndoes station is required to maintain a minimum flow that varies during the year. From June 1 through September 30 McIndoes is required to maintain a discharge of 1,105 cfs, or inflow, whichever is less. From October 1- March 31 the minimum flow is 2,210 cfs, or inflow, whichever is less. From April 1 – May 31 the minimum flow is 4,420 cfs, of inflow, whichever is less(see Appendix 4-2). This had had a direct effect on DF project operations. The Dodge Falls project now operates strictly as a run-of-river project. Because the minimum flow from the McIndoes station now is greater than the minimum flow shutoff point of the Dodge Falls turbine, the turbine is able to operate continuously and no longer needs nor uses the 3-inch draw down permitted in its Water Quality Certification When the Dodge Falls turbine is shutdown, river inflow is discharged over the pneumatic flashboards.

APPENDIX 4-1
VERMONT 401 WATER QUALITY CERTIFICATE

Petitioner's Exhibit No. __
Exhibit CJM No. 4
Vermont Water Quality
Certification

AGENCY OF ENVIRONMENTAL CONSERVATION

Department of Fish and Game
Department of Forests, Parks and Recreation
Department of Water Resources & Environmental Engineering
Natural Resources Conservation Council

RECEIVED
FEB 26 1986

Montpelier, Vermont 05602
Department of Water Resources
and
Environmental Engineering

WATER QUALITY DIVISION
March 21, 1986

Mr. David R. Bristol
Vice President, Hydro Development
Hydra-Company Enterprises, Inc.
One Lincoln Center, Suite 1225
Syracuse, NY 13202

Re: Dodge Falls

Dear Mr. Bristol:

The enclosed Water Quality Certification for the Dodge Falls Project (FERC No. 8011) is being issued pursuant to your January 17, 1986 application in accordance with the Federal Clean Water Act. Please review the Certificate carefully and contact us if you have any questions. Because the project is very similar to the original project certified on July 9, 1982, we have waived the public warning.

Sincerely,

Jeffrey R. Cueto

Jeffrey R. Cueto, P.E.
Hydrologist

JRC/rh
Encl.

cc Stephen B. Sease, Director, Environmental Conservation Planning
Len Gerardi, Assistant Director, Fisheries
Harvey Hill, Dodge Falls Hydro Corporation
U.S. Fish and Wildlife Service, Concord
U.S. Environmental Protection Agency
Town Clerk, Town of Ryegate

VERMONT PUBLIC SERVICE BOARD
AUG 4 9 31 AM '88

pls file
D.F.

WATER QUALITY CERTIFICATION
(P.L. 92-500, Section 401)

In the matter of: Dodge Falls Associates
One Lincoln Center, Suite 1225
Syracuse, NY 13202
Application for Dodge Falls
Hydroelectric Project

The Water Quality Division of the Vermont Department of Water Resources and Environmental Engineering (the Department) has reviewed the Federal Energy Regulatory Commission Application for Amendment-Exemption from Licensing (November, 1985) filed as supporting documentation for the Water Quality Certificate application dated January 17, 1986 and finds:

1. Dodge Falls Associates (the applicant) proposes to construct and operate a hydroelectric facility at the existing Dodge Falls dam on the Connecticut River at East Ryegate, Vermont. The dam was used until 1966 to provide water power to drive pulp grinders at the CPM, Inc. paper mill on the Vermont side. Presently, the impoundment furnishes process water to the paper mill. The dam, which is 485 feet long, consists of a grouted, rock-fill, timber crib with a timber crest and wood-plank facing. The crest elevation averages 421.4' NGVD and is about 15 1/2 feet above the bedrock streambed at the downstream toe.

2. A reinforced-concrete powerhouse with an integral intake is to be constructed on the left (east) end of the dam. A 60-foot section of the dam, including the left abutment, is to be removed and a 75-foot side spillway constructed along the right side of the forebay in order to compensate for the loss in

spillway capacity. A 60-foot tailrace would be excavated in rock to carry flows back into the main channel. The powerhouse is to contain a single horizontal turbine-generator unit with a total capacity of 5.0 megawatts at the rated head of 12 feet and a flow of 5800 cfs.

3. Based on a March 20, 1986 telephone conversation between Department engineer Jeffrey R. Cueto and David R. Bristol of HYDRA-CO Enterprises, Inc., the mode of operation is to be strictly run-of-the-river. The applicant intends to use 2.0 feet of flashboards across the spillway crest. Operation would use river flows as regulated by the upstream McIndoe Falls plant. The impoundment would be maintained within three inches of the dam crest or the flashboards when in place. Although the storage available behind the flashboards has been estimated at about 580 acre-feet, this storage will not be utilized to cycle the pond for power production purposes.

The applicant does not indicate any lag time which may effect downstream flows between plant shutdown and spillage over the boards. Leakage flow rates have not been estimated and provided to the Department.

The applicant proposes to provide a minimum instantaneous release of 1108 cfs (0.5 csm) or project inflow, if less, below the project. Strict run-of-the-river operation will minimize the project impact on the downstream flow regime. Upstream projects presently have a significant impact on flows.

The specific method of automatic operation will be reviewed by the Department before the start of operation. The intent is

to operate the project such that flows are not modified, within the limits of what is technologically feasible, and at least 1108 cfs is to be released when available.

4. The applicant has stated that no significant increase in the surface area of the impoundment (290 acres) or the extent of the backwater (nearly 4 miles) will result from the installation of flashboards. According to the applicant, operating records as recent as the 1960's indicate that two-foot flashboards were used historically. The head of the impoundment will be essentially at the tailwater of the McIndoe Falls plant. The estimated impoundment gross storage at the dam crest is 4360 acre-feet.

5. A U.S.G.S. gaging station (#113850) is located downstream at Wells River, Vermont. The drainage area at the gage is 2644 square miles and at the site is 2215 square miles. Flows at both the gage and the site are highly regulated by upstream reservoirs. Based on a direct drainage area proration, the mean annual flow and the 7Q10 value are 3960 cfs and 530 cfs, respectively.

6. Very little survey information on the existing fishery residing in the impoundment is available. It may be expected that both cold and warmwater species including trout and bass would be found.

7. The applicant will construct a fish trapping facility at this site by 1992 as part of the Atlantic salmon restoration program. The applicant will also cost share the trucking operation and provide downstream migrant bypass

facilities as prescribed by the U.S. Fish and Wildlife Service or the Vermont Department of Fish and Wildlife.

8. The Connecticut River has been classified by the Vermont Water Resources Board as Class B from the Dodge Falls dam upstream to the Dalton, New Hampshire bridge, a distance of about 30 miles. From the dam to a point 500 yards downstream, the river is Class C in order to receive treated wastewater from the paper company. The river has been designated as coldwater fish habitat. Such streams have a technical standard for dissolved oxygen (D.O.) of 6 mg/l or 70 percent saturation unless a higher standard is set for salmonid reproduction.

9. The applicant conducted a water quality sampling program which entailed collection of samples on August 25, 1981 from 800 feet upstream of Comerford Dam downstream to a point 1800 feet upstream of the railroad bridge at Wells River. Samples were collected in the afternoon. Stream flow data was not provided. Neither was there any indication as to whether or not the McIndoe Falls plant was operating. The water quality data showed D.O. levels increasing from 7.85 mg/l (86% saturation) for a mid-depth sample just upstream of the Dodge Falls dam to 8.60 mg/l (94% saturation) for a sample taken 600 feet downstream of the dam.

10. The significance of the loss of reaeration at the dam during periods of generation cannot be fully evaluated with the limited water quality data available. Information on the passage of minimum flows from upstream facilities during periods of nongeneration was not provided by the applicant. It is the

Department's understanding that there are presently no minimum flow constraints at the Comerford, Moore or McIndoe Falls facilities.

11. A review of this project by the Vermont Department of Fish and Wildlife did not reveal any concerns with regard to the additional backwater to result from the installation of flashboards. One critical issue in terms of impact on downstream aquatic life, however, is any lag time and interruption in flows between shutdown of the plant and spillage over the flashboards. For example, if the plant shut down with the pool drawn to 6 inches below the top of the flashboards and if the inflow was 443 cfs (0.2 cfs/sq. mi.), it would take about 4.0 hours before spillage, without considering any leakage through the structure. By condition of this certification, the drawdown cycle shall be limited to no greater than 3.0 inches and a minimum stream flow of 7Q10 (530 cfs), or inflow, if less, shall be required until such time that all inflows can spill over the flashboards. Passage of 7Q10 flows for short periods for the purpose of refilling the impoundment should be adequate to maintain downstream aquatic life and meet water quality standards.

12. Strict run-of-river operation (outflow equal to inflow on an instantaneous basis) and maintenance of headpond elevation within 3.0 inches of the top of the dam crest (or flashboards, when in place) will maintain aquatic and fisheries habitat in the impoundment.

13. Project construction physically will be occurring in the State of New Hampshire. Temporary and permanent erosion control measures may be necessary in order to prevent a violation of the turbidity standard (10 nephelometric turbidity units). Authority for the review and approval of the project erosion control plan rests with the State of New Hampshire.

CONDITIONS

The Department of Water Resources and Environmental Engineering certifies that this project will meet Vermont Water Quality Standards with the following conditions:

A. The Dodge Falls plant shall be operated in a strict run-of-the-river mode where instantaneous flows below the tailrace shall be maintained equivalent to instantaneous inflow to the impoundment, except where the project has shut down following a drawdown of up to 3.0 inches. In such case, a continuous flow of 530 cfs shall be maintained below the project until spillage occurs. There shall be no impoundment cycling for generation purposes. The applicant shall submit a complete description, design calculations, and specifications for measures to be used to meet this condition, for the Department's review and approval.

B. The impoundment shall not be drawn down in excess of 3.0 inches below the dam crest for maintenance or operation purposes without the prior written approval of the Department.

C. In the first year of operation, at least once during the month of July and once during the month of August, the applicant shall conduct an intensive around-the-clock sampling program, collecting samples at the head of the Dodge Falls impoundment, just upstream of the dam and directly downstream of the project tailrace. Testing shall be timed to coincide with warm, low flow periods. Testing shall be done by a qualified laboratory, and the results shall include the date, time, both

air and water temperature, D.O. level, river flow and state of operation of the river power plants. Each sample run shall include duplicates. Results of the testing shall be reported to the Department on or before September 15 of the sampling year. The applicant should consult with the Department regarding details of the study, and the Department may require further testing if necessary in assessing the project's impact on downstream water quality. The Department may order mitigative measures, including but not limited to spillage during operation, if a problem is revealed.

D. Prior to construction, the applicant shall file an erosion and sediment control plan with the Department for its information. The plan shall cover temporary and permanent measures to limit adverse impacts on water quality from turbidity and sedimentation with regard to construction activities.

E. The applicant shall insure that every reasonable precaution is taken during construction to prevent the discharge of petro chemicals, wet concrete and debris to State waters.

F. Any debris removed from the project area during construction and later operation shall be disposed of properly.

G. Any significant changes to the project, including the operational scheme, must be submitted to the Department for review and approval.

H. Upon completion of the project, the applicant shall provide the Department with an as-built set of plans for the record.

I. No construction may commence until the Department has issued written approval under Conditions A and G and has complied with Condition D. Operational changes made after project completion are subject to Condition G and must be approved prior to effecting the change.

J. Any desilting operations shall be carried out in accordance with the Agency of Environmental Conservation Desilting Policy, a copy of which is attached.

K. The applicant shall implement a plan for downstream fish passage by 1992, or sooner, if prescribed by the Vermont Department of Fish and Wildlife. The plan shall include provisions to 1) prevent or minimize the passage of fish through the turbine unit, if significant injury or mortality can result; 2) prevent or minimize impingement of fish on screens, trashracks, or other such devices; and 3) convey fish safely and efficiently downstream past the dam.

A conceptual plan should be developed in conjunction with the various state and federal fishery agencies prior to project construction. This would insure that the civil works will be technically adaptable for fish passage. The final plan and engineering design must be submitted to the Vermont Department of Fish and Wildlife for review and approval before implementation. For the record, the applicant shall file a copy

of the approved final plan with the Vermont Department of Water Resources and Environmental Engineering within two weeks of the Vermont Department of Fish and Wildlife's actions.

Jonathan Lash

Jonathan Lash, Commissioner
Department of Water Resources
and Environmental Engineering

3/29/86
Date

JRC/vjb
Attachment

APPENDIX 4-2
MCINDOES MINIMUM FLOW REQUIREMENT

99 FERC ¶ 62,025

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

USGen New England, Inc. Project No. 2077-016 - NH/VT

ORDER ISSUING NEW LICENSE
(MAJOR PROJECT)

(April 8, 2002)

USGen New England, Inc. (USGenNE) has filed an application for a new license pursuant to Sections 15 and 4(e) of the Federal Power Act (FPA)[1] to continue to operate and maintain the existing 291.36-megawatt (MW) Fifteen Mile Falls Hydroelectric Project. The project consists of three developments located on the Connecticut River, a navigable waterway of the United States, near the Town of Littleton in Grafton County, New Hampshire, and Caledonia County, Vermont. There are no federal lands within the project boundary. USGenNE proposes no new capacity.

BACKGROUND

The original license for the Fifteen Mile Falls Project was issued in 1952.[2] The Commission approved the transfer of the license from New England Power Company (NEP) to USGenNE on February 27, 1998,[3] and the transfer became effective on November 20, 1998.[4] The license expired on July 31, 2001, and since that time project operations have continued under an annual license.[5]

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[1] 16 U.S.C. §§808 and 797(e).

[2] 11 F.P.C. 751 (1952).

[3] 82 FERC ¶ 62,138 (1998).

[4] The transfer became effective once NEP and USGenNE completed the sale of the project assets.

[5] See Section 15(a)(1) of the FPA. 16 U.S.C. § 808(a)(1).

USGenNE filed its relicense application on July 29, 1999. USGenNE included with its application an applicant-prepared environmental assessment (APEA),[6] pursuant to Section 2403(b) of the Energy Policy Act of 1992,[7] which allows an applicant to file a draft EA, and Section 4.34(i) of the Commission's regulations,[8] which provides for an alternative licensing process (ALP). With its new license application and APEA, USGenNE also filed a Settlement Agreement (Agreement)[9] that addresses issues pertaining to project operations, reservoir levels, minimum flows, fish and wildlife protection and enhancement measures, and land protection.

The Agreement was reached between USGenNE, the State of New Hampshire, the State of Vermont, the U.S. Fish and Wildlife Service (FWS), the U.S. Environmental Protection Agency (EPA), the National Park Service, Appalachian Mountain Club, the Connecticut River Joint Commission, Connecticut River Watershed Council, Conservation Law Foundation, New Hampshire Rivers Council, New Hampshire Council of Trout Unlimited, and the Northeast Chapter of Vermont Trout Unlimited (jointly, Appalachian). The Agreement sets forth proposed changes to operational modes and minimum flow releases for the project. In addition, the Agreement contains proposals for implementing water management protection, mitigation, and enhancement measures; establishing an Upper Connecticut River Mitigation and Enhancement Fund; and preparing various management, mitigation, and enhancement plans to benefit environmental and cultural resources.

As a result of the ALP, on July 26, 2000, USGenNE and certain stakeholders signed a Mercury Settlement providing for the funding of studies, plans, and mitigation measures for mercury reduction efforts designed to address bio-accumulation in the project area.[10] The Agreement and Mercury Settlement are described below.

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[6] The Commission's regulations require that relicense applications include an Exhibit E (environmental report). The APEA is a substitute for the Exhibit E. See 18 C.F.R. §§ 4.51(f) and 16.8(f).

[7] Energy Policy Act of 1992, Pub. L. No. 102-486.

[8] 18 C.F.R. § 4.34(i).

[9] The Agreement was executed on August 6, 1997, and was included as Appendix A in volume 1 of the APEA.

[10] USGenNE filed the Mercury Settlement with the Commission on December 14,
(continued...)

elevations by May 21, as defined below. Flows shall be reduced to the extent necessary to achieve target reservoir elevations defined below for the Comerford reservoir. Prior to reducing the flows, the licensee shall consult with the New Hampshire Department of Environmental Services (NHDES) and the Vermont Department of Environmental Conservation (VTDEC) and shall provide these agencies with an analysis substantiating the necessity of the reduced flows.

The licensee shall operate the project so that the Comerford Development reservoir does not exceed a maximum elevation of 650.0 feet msl and a maximum annual drawdown to a level no lower than 624.0 feet msl. To enhance conditions for fish spawning in the spring, the licensee shall achieve a minimum reservoir elevation of 645.0 feet msl, with a target elevation of 647.0 feet msl, by May 21 each year. The licensee shall ensure that reservoir fluctuations from May 21 through June 30 shall not cause the reservoir to be drawn down more than 2.0 feet below the maximum elevation previously attained during this period.

McIndoes Development

The licensee shall release from the McIndoes Development dam into the Connecticut River the following instantaneous flows: 1,105 cfs from June 1 to September 30, 2,210 cfs from October 1 to March 31, and 4,420 cfs from April 1 to May 31, or inflow to the project reservoir, whichever is less, as measured in the tailrace. Inflow to the McIndoes impoundment is defined as the sum of the corresponding Comerford development minimum flow subject to the Comerford flow reduction provisions described above, and the prorated Passumpsic gage flow (1.3 times the reported flow at Passumpsic gage No. 01135500). Minimum flow releases from the McIndoes dam between April 1 and May 31 may be reduced to 2,210 cfs if flows in excess of 50,000 cfs are anticipated at the Bellows Falls Project No. 1855, or 10,000 cfs are anticipated at the Wilder Project No. 1892. The licensee shall notify NHDES and VTDEC when such action reducing flows is taken. The maximum discharges from June 1 through February 28 shall not exceed 5,800 cfs for more than 7 percent of the hours during the period; this restriction shall not apply to periods when the Moore and Comerford reservoirs are at their maximum operating elevations, or when the sum of the flow at the Dalton gage and prorated Passumpsic gage exceeds 8,000 cfs. Prior to reducing the flows from the McIndoes development, the licensee shall consult with the NHDES and the VTDEC and shall provide these agencies with an analysis substantiating the necessity of the reduced flows. Such flow reduction is allowed for short periods upon mutual agreement between the licensee and NHDES and VTDEC.

The licensee shall operate the project so that the McIndoes Development reservoir does not exceed a maximum elevation of 451.0 feet msl and a maximum annual drawdown to a level no lower than 447.5 feet msl. The reservoir elevation of 451.0 feet msl may be exceeded if the inflow to the McIndoes reservoir exceeds the discharge capacity of the McIndoes dam, which is about 30,600 cfs at elevation 451.0 feet msl.

The minimum flows and reservoir levels required for each of the project developments may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods upon agreement between the licensee and the New Hampshire Fish and Game Department and the Vermont Agency of Natural Resources. The licensee shall notify the NHDES and the VTDEC within 24 hours of any deviation from the provisions described above and within 10 days submit a written report describing the event (including the extent of the duration), explaining the reasons, identifying ways to avoid future occurrences, and proposing mitigative measures. An extension of the 10-day filing deadline may be granted in writing by the NHDES for good cause. The licensee shall file an annual report of all minimum flow or reservoir level deviations from the specifications identified in this license article, with the NHDES and VTDEC, as part of the annual filing required in Article 403.

Article 402. Within 270 days from the date of issuance of this license, the licensee shall file with the Commission, New Hampshire Department of Environmental Services (NHDES), and Vermont Department of Environmental Conservation (VTDEC), a draft operating plan and schedule that addresses how storage at the Fifteen Mile Falls Project reservoirs will be used to provide guaranteed flows (as required in Article 401) from the project developments, while minimizing the effects on the environment and public use. A draft of the plan shall be developed in consultation with the NHDES, New Hampshire Fish and Game Department, U.S. Fish and Wildlife Service, and VTDEC.

The draft plan shall include a schedule for: (1) consulting with the resource agencies specified above concerning the development and implementation of the final plan; and (2) filing agency comments, the licensee's response to agency comments on the draft plan, and the final plan with the Commission.

The licensee shall include with the final plan documentation of consultation, copies of comments and recommendations on the plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments and recommendations are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the final 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.

APPENDIX 5
WATER QUALITY

Appendix 5

Water Quality

The DFA project received a 401 Water Quality Certificate from the Vermont Department of Water Resources and Environmental Engineering ("VtDEC") on March 29, 1986 (see Appendix 4-1). The NH Water Supply and Pollution Commission also issued a Water Quality Certification dated May 19, 1986. The NH certification specifically found the DFA plant to be in compliance with Section 303(d) of the Clean Water Act. (see Appendix 5-1). The DFA project did not receive any comments relative to water quality at the time the project FERC exemption was amended in 1993 nor has the project received any notice that it is not in compliance with Section 303(d) of the Clean Water Act 1993. The most recent New Hampshire 2008 Section 305(b) and 303(d) Surface Water Quality Report determined that no parameter of the Connecticut River within the town of Bath, NH was "threatened" (See Appendix 5-2).

One of the conditions contained in the DF project VtDEC 401 Water Quality Certification required DFA to conduct water sampling in the upstream and downstream areas of the DFA dam. Kleinschmidt Associates ("KA") was hired to conduct this study. KA prepared a sampling plan that was reviewed and approved by the VtDEC (see Appendix 5-3). On September 9, 1991 KA issued its report of water quality sampling in the area of the DF project.area. The report concluded that the river was easily meeting its designated classification without spillage at the dam (see Appendix 5-4).

Please note that the sampling completed by KA was done at a time the McIndoes plant did not have a minimum flow discharge requirement. Moreover, the paper mill on the opposite side of the river from the DF plant was operating and discharging treated secondary effluent into the downstream reach of the river.

Since that report was completed the McIndoes plant now operates with a minimum flow requirement and the paper mill has shutdown, thereby improving what already had been found to be acceptable water quality in the vicinity of the DF plant.

APPENDIX 5-1
NH DEPT. OF ENVIRONMENTAL CONSERVATION WATER QUALITY CERTIFICATE

The State of New Hampshire

Water Supply and Pollution Control Commission

6 Hazen Drive – P.O. Box 95

Concord, N.H. 03301-6528

May 19, 1986

Dodge Falls Associates
100 Clinton Square, Suite 400
Syracuse, NY 03202-1049

Water Quality Certificate FERC #8011 .
Applicant:Dodge Falls Associates

Dear Gentlemen:

The Commission has determined that the subject project complies with the applicable provisions of sections 301, 302, 303, 306 and 307 of the Clean Water Act as ammended. Additionally, the subject project has recieved State permits in accordance with RSA 149:8-a, RSA 483:A and other applicable State statutes.

Accordingly, this certification is issued subject to the following conditions:

1) This office be sent final erosion control plans and specification of the project for review and approval prior to construction..

Very truly yours,

Raymond P. Carter
Senior Sanitary Engineer
Water Quality Division

RPC/LKC:hal
pc: Delbert Downing, NHWB
Mr. Gene Crouch-Dept. of the Army
N.E. Division, Corps of Engineers
424 Trapelo Road
Waltham, MA 02254
3095X

APPENDIX 5-2
NEW HAMPSHIRE 2008 SECTION 305(b) AND 303(d) SURFACE WATER QUALITY REPORT, BATH, NEW HAMPSHIRE

Assessment Unit ID NHRIV801030206-03

Assessment Unit Name Connecticut River

Primary Town BATH

Size 4.3600 MILES

Beach N

Assessment Unit Category* 3-PAS

Final 2008 Attainment Status of All Reviewed Parameters, Connecticut Basin Rivers

Use Desc	USE DES Category	USE Threat	Parameter Name	Parameter Threatened	Parameter Category	TMDL Schedule	Expected To Attain Date	Source Name
Aquatic Life	2-G		Benthic-Macroinvertebrate Bioassessments (Streams)	N	3-ND			
			CHLORIDE	N	3-PAS			
			DISSOLVED OXYGEN SATURATION	N	2-G			
			Fishes Bioassessments (Streams)	N	3-ND			
			OXYGEN, DISSOLVED	N	2-G			
			PH	N	2-G			
Drinking Water After Adequate Treatment	2-G							
Fish Consumption	4A-M		Mercury	N	4A-M	2017		Atmospheric Deposition - Toxics
			Polychlorinated biphenyls	N	3-PAS			
Primary Contact Recreation	2-M		ESCHERICHIA COLI	N	2-M			
Secondary Contact Recreation	2-G		ESCHERICHIA COLI	N	2-G			
Wildlife	3-ND							

*DES Categories; 2-G = Supports Parameter well above criteria, 2-M = Supports Parameter marginally above criteria, 2-OBS = Exceeds WQ criteria but natural therefore not a WQ exceedence, 3-ND = Insufficient Information/No data, 3-PAS= Insufficient Information/Potentially Attaining Standard, 3-PNS= Insufficient Information/Potentially Not Attaining Standard, (4A=Impaired/TMDL Completed, 4B=Impaired/Other Measure with rectify Impairment, 4C=Impaired/Non-Pollutant, 5=Impaired/TMDL needed) M-Marginally Impairment, P=Severe Impairment, T=Threatened

APPENDIX 5-3
KLEINSCHMIDT ASSOCIATES LETTER DATE JULY 9, 1991

Consulting Engineers
75 Main Street P.O. Box 576
Pittsfield, Maine 04967
207-487-3328
207-487-3211

July 9, 1991

Ms. Constance Lee, Project Director
Vermont Power Exchange
20 Kimball Avenue, Suite 302
South Burlington, Vermont 05403

Dodge Falls Project, FERC No. 8011
Revised Water Quality Monitoring Plan

Dear Ms. Lee:

Enclosed please find copies of two documents concerning the Dodge Falls Project. The first is a July 5, 1991 letter from the Vermont Agency of Natural Resources, Department of Environmental Conservation, Water Quality Division. The second is a revision of the original water quality study plan which incorporates the procedures requested in the State of Vermont letter.

These are being furnished to you as we discussed on July 1. Please call me if you have any comments or questions.

Sincerely,

KLEINSCHMIDT ASSOCIATES

Jeffrey L. Allen, P.E.

JLA:cd
Enclosures
cc: S. Jones
S. Fitts
A. Sims

225-042-99-00
013.225/22500a

DODGE FALLS ASSOCIATES
HYDRA-CO ENTERPRISES, INC.

WATER QUALITY STUDY PLAN

INTRODUCTION

The Dodge Falls Project (FERC No. 8011) is a timber crib dam in East Ryegate, Vermont, on the Connecticut River. It is operated in a strict run-of-river mode and passes a minimum flow of 1,108 cfs or inflow, if less. The powerhouse has one horizontal turbine generator with 5.0 MW of capacity at 12 ft of head and 5,800 cfs flow. On March 29, 1986, the Vermont Department of Environmental Conservation (DEC) issued a §401 Water Quality Certificate for the Dodge Falls Project. As condition C to this certificate, the state required,

> "In the first year of operation, at least once during the month of July and once during the month of August, the applicant shall conduct an intensive around-the-clock sampling program ... The applicant should consult with the Department regarding the details of the study..."

The summer of 1991 is the first year of regular operation. This water quality study plan has been prepared and is being submitted to the DEC in response to the stated requirement. The purpose of the study is to determine if the river at the site is meeting designated water quality dissolved oxygen (D.O.) standards.

The Connecticut River upstream of the project has been classified as Class B. Downstream of the dam for 500 yards the river is Class C, due to assimilated wastewater from a paper mill. The river is considered to be a coldwater fish habitat and thus requires a dissolved oxygen (D.O.) standard of 6 mg/l or 70% of saturation.

SAMPLING PROTOCOL - MANUAL IN-SITU SAMPLES

In-situ D.O., water, and air temperature data will be collected a minimum of every six hours in a 24-hour period at three locations using a portable YSI Model 51B (or comparable) D.O. and temperature meter. The three sample locations will be those specified in the §401 Water Quality Certificate referenced above. The sites are 1) the head of the Dodge Falls impoundment, 2) in the impoundment immediately upstream of the dam, and 3) directly downstream of the tailrace. The sampling location downstream of the tailrace will be at a location where the river is well mixed. This will be determined by measuring D.O. from both banks, the middle, and the quarter points of the river. See the attached Figure 1, Location Map for the approximate locations of this and the first two sample points. Operation (spillage or no spillage) of the station will be noted for each sampling run.

At impoundment stations deeper than two meters, profile data will be collected near the surface, and at one-meter increments. In all instances, the sample will be measured in representative areas. Sampling in eddies will be avoided in all instances.

Prior to each sampling run, the meter will be calibrated by Winkler Titration as described on page 5 of the YSI Model 51B Dissolved Oxygen Meter Instruction. To allow the D.O. probe to adequately polarize, the unit will be turned on at least 15 minutes prior to calibration.

SAMPLING PROTOCOL - HYDROLAB SONDE UNIT

A Hydrolab Datasonde3 will be calibrated prior to installation in accordance with manufacturer's standard procedure. This will be done at the same time the sonde is programmed to record data. Programming and calibration will be done in the station powerhouse, because a controlled environment can be maintained and it is in close proximity to the sampling station. The unit will then be carefully transported to the manual, *in situ* sampling station near the turbine intake and installed at a depth of approximately 1 meter. This is the location of manual sampling station #2, and will therefore provide the quality control check requested by the §401 certificate. This location will also permit sampling of a majority of the water when the unit is partially or fully operating. Calibration will again be checked after removal of the unit the following day. A note of the amount and time of any calibration adjustment will be made and data corrected later if necessary. If no change to calibration is required, this will also be noted.

D.O., water temperature, conductivity, and battery voltage data will be recorded every fifteen minutes for the 24-hour sampling period. Immediately after retrieval of the unit at the conclusion of sampling, data will be downloaded from the unit to a portable personal computer. The data will then be briefly reviewed for irregularities, and the unit will be checked and cleaned as needed.

Since the unit will collect data whether it is in or out of the water, the exact time of unit deployment and retrieval will be noted and data collected outside these times discarded. It may also be necessary to discard one or two datum collected immediately after installation until the unit acclimates to river conditions. This will be determined by comparison to the readings obtained by the manual D.O. meter.

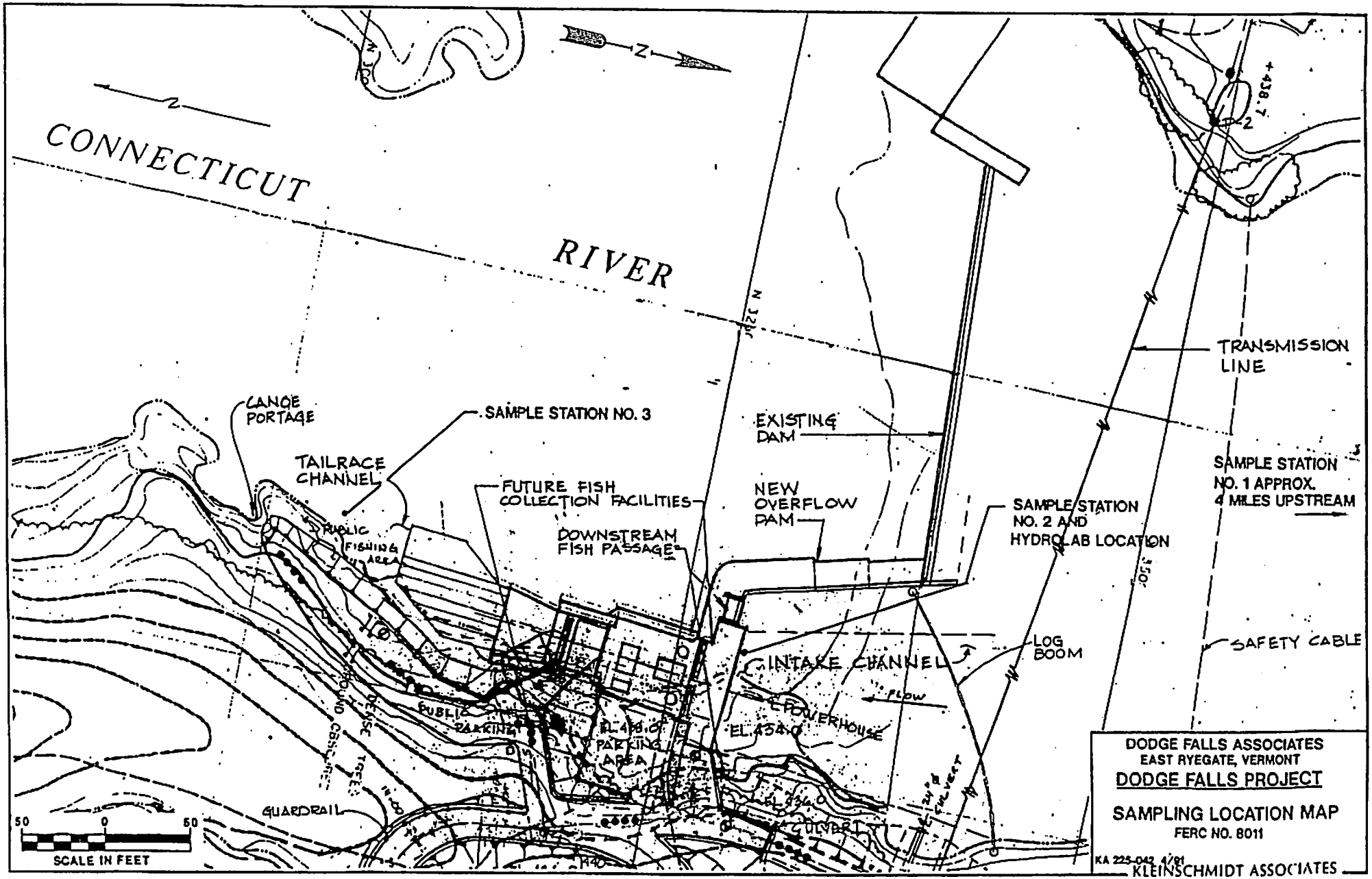
SAMPLING SCHEDULE

The river will be sampled during the low flow, high water temperature periods, once in July and once in August, 1991 to obtain data under "worst case" seasonal conditions. Sampling will commence after the project operator advises the field crew that flows less than 1,500 cfs have been encountered or are anticipated. The operator may determine this by interrogating USGS gages upstream or by inquiring about expected low flow periods from upstream dam operators. If unusually low flows are forecast, the operator will contact the sampler immediately.

The amount of Ultimate Oxygen Demand (UOD) discharged by the CPM paper mill will be determined by requesting the most recent UOD concentration from the mill treatment plant when on-site.

The field crew will contact the project operator on the day prior to each sampling run and upon arrival at the site. The most recent data available on the present and anticipated amounts of river flow will be obtained by the field crew at these times.

All sampling equipment and data analysis will be provided by KA. Results of the sampling will be submitted to the Department by September 15, 1991, as required by the §401 certificate.


CONNECTICUT
RIVER
CANOE PORTAGE
SAMPLE STATION NO. 3
TAILRACE CHANNEL
PUBLIC FISHING AREA
FUTURE FISH COLLECTION FACILITIES
DOWNSTREAM FISH PASSAGE
EXISTING DAM
NEW OVERFLOW DAM
SAMPLE STATION NO. 2 AND HYDROLAB LOCATION
TRANSMISSION LINE
SAMPLE STATION NO. 1 APPROX. 4 MILES UPSTREAM
INTAKE CHANNEL
LOG BOOM
SAFETY CABLE
FLOW
POWERHOUSE
EL. 434.0
PUBLIC PARKING
EL. 436.0 PARKING AREA
GUARDRAIL
CULVERT
24" ø CULVERT
50 0 50
SCALE IN FEET
DODGE FALLS ASSOCIATES
EAST RYEGATE, VERMONT
DODGE FALLS PROJECT
SAMPLING LOCATION MAP
FERC NO. 8011
KA 225-042 4/91
KLEINSCHMIDT ASSOCIATES
CONSULTING ENGINEERS

DODGE FALLS ASSOCIATES
WATER QUALITY SAMPLING PROGRAM
DATA SHEET FORM - MANUAL D.O. SAMPLING

PAGE ___ OF ___
STATION NUMBER:_____
BEGIN DATE:___/___/91
AIR TEMP:_____°C at_____ hrs
AIR TEMP:_____°C at_____ hrs
WEATHER:_____

CALIBRATION CHECK DONE BY: _____
CALIBRATION COMMENTS: _____

TIME	DEPTH	TEMP.	D.O.	RIVER FLOW/STA. OPERATION

ADDITIONAL COMMENTS:

SAMPLED BY:_____
ENDING CALIBRATION CHECK BY:_____

225-042-99-00
011.225/22500a

APPENDIX 5-4
KLEINSCHMIDT ASSOCIATES REPORT OF WATER QUALITY SAMPLING DATED
SEPTEMBER 9, 1991

Kleinschmidt
Associates
Consulting Engineers
75 Main Street P.O.Box 576
Pittsfield, Maine 04967
207-487-3328
207-487-3211

September 9, 1991

Mr. Laurence R. Becker
Hydro Review Specialist
Water Quality Division
Vermont Agency of Natural Resources
Waterbury, VT 05671-0408

Dodge Falls Project, FERC No. 8011
Report of Water Quality Sampling

Dear Mr. Becker:

This report summarizes the results of water quality sampling recently performed at the Dodge Falls Project on behalf of the project owners, Dodge Falls Associates (DFA). Water quality sampling at the site was conducted in accordance with Condition C of the project's §401 Vermont Water Quality Certification, issued March 29, 1986.

The project is located on the Connecticut River in East Ryegate, Vermont, and Bath, New Hampshire (see Figure 1), and consists of a timber crib dam with an integral powerhouse. The powerhouse contains one horizontal turbine generator with a 5.0 MW capacity at a flow of 5,800 cfs and 12 ft of head. The turbine is capable of generating at a minimum hydraulic capacity of approximately 500 cfs. When inflow to the project falls below 500 cfs, the unit shuts down and the spillway gate opens as part of the automated operation of the project. When inflow increases again, the unit starts up and the spillway gate closes. The project operates in a run-of-river mode.

The Connecticut River upstream of the project has been classified as Class B. Downstream of the dam for 500 yards, the river is Class C, due to assimilated wastewater from a paper mill. The river is considered to be a coldwater fish habitat and thus requires a dissolved oxygen (D.O.) standard of 6 mg/l, or 70% of saturation for both classifications. As required by the §401 certification, DFA consulted with the Vermont Department of Environmental Conservation (DEC) to prepare a study plan for the sampling. The study plan was reviewed by the DEC, and a final study plan incorporating the DEC comments was issued on July 9, 1991. Sampling was conducted in accordance with the study plans. Results of the sampling are discussed below.

Site Conditions

As required by Condition C of the §401 water quality certificate issued for the project on March 29, 1986, sampling was conducted over one 24-hour period on July 17 and 18 and another 24-hour period on August 19 and 20, during the first year of regular operation (1991). These sampling periods corresponded to low-flow, high-temperature periods in the river. At the USGS gage in Dalton, New Hampshire, flow ranged from 289 to 845 cfs during the July sampling, and from 560 to 4408 cfs for the August sampling. Heavy rains on August 19 were not reflected in increased flows at the Dodge Falls Project. The 7Q10 flow at Dalton is approximately 400 cfs. The 7Q10 at the Dodge Falls Project is 530 cfs, as prorated by the State of Vermont from the USGS gage at Wells River, Vermont.

Flow measured in the river at Dalton often differs significantly from flows experienced at the site. Flows at Dalton are regulated by reservoirs that attempt to make river flows uniform. Flows at Dodge Falls are reregulated by peaking releases from Moore Reservoir and from the McIndoe Falls Hydroelectric Project, which is located immediately upstream of the Dodge Falls impoundment. Both facilities are operated by New England Power Company.

The McIndoe Falls impoundment is fluctuated several feet daily to provide generating capability at times of peak power demand. The remainder of the time, little water is passed while the McIndoe Falls impoundment refills. Dodge Falls, which has no storage capability, shuts down when the McIndoe Falls impoundment is refilling.

During the July water quality sampling, flows at Dodge Falls ranged from unquantified, but minimal, leakage from McIndoe Falls to 5,100 cfs. In August, they ranged from leakage to 4,200 cfs. These and other sampling data are presented in Attachment A. Flows were estimated from a gage in the powerhouse reporting generator output, based on test data supplied by the turbine manufacturer. The figure showing the estimated conversion is included as Attachment B.

The CPM paper mill in East Ryegate, Vermont is located at the opposite end of the dam from the powerhouse. In the past, they had used the river for hydromechanical power at the mill. This operation has been discontinued, but a gate next to the mill remains stuck open. Water from the Dodge Falls impoundment spills through this non-project gate continuously. This water follows along the Vermont shore for some distance and was evidenced by slightly higher (0.1 to 0.2 mg/l) D.O. readings along the Vermont shoreline.

Continuous Monitoring

Continuous river temperature and D.O. were measured every half hour with a YSI model 51B D.O. and temperature meter, *in lieu* of using an automatic data collection unit. The D.O. meter was calibrated every five to six hours by Winkler titration of river water. Measurements were taken manually at a depth of one meter from a walkway leading to the spillway. This walkway lead over

the impoundment immediately upstream of a gate. Observations made by the sampler were used to correlate data with the variable river flow coming into the project.

The continuous monitoring showed that river temperatures were between 21.0°C and 21.5°C during July, and between 20.0°C to 21.0°C in August. As expected, temperatures cooled at night and warmed during daylight hours. D.O. was between 8.4 mg/l and 9.4 mg/l in July and ranged from 7.6 mg/l to 8.4 mg/l in August, fluctuating diurnally. (See Attachment A for data.)

Periodic Sampling

Upstream and downstream sampling was done with the same YSI D.O. and temperature meter at 6-hour intervals. Upstream sampling was performed at the public access and recreational area maintained by New England Power at McIndoe Falls Station. The access is located on a point of land approximately 400 ft downstream of the station tailrace, at the beginning of the Dodge Falls impoundment. During July sampling, temperature ranged from 19.7°C to 20.6°C, and D.O. varied from 8.4 mg/l to 8.9 mg/l. During the August 19 to 20 sampling, temperature was 20.0°C to 21.0°C, and D.O. was 7.8 mg/l to 8.2 mg/l. For both sampling rounds, the upstream site exhibited D.O. and temperatures similar to those at the Dodge Falls dam continuous sampling station.

The downstream sampling was conducted by boat at 5 points along a river transect approximately 800 to 1,000 ft downstream of the Dodge Falls dam. Each sample was approximately mid-depth of the water, which was 2 to 4 ft deep. During the July sampling, water was spilling over the flashboards of the dam during the periods of 0100-0830 and 1700-1800, and the downstream samples were within 0.4 mg/l of saturation (8.6 to 9.3 mg/l) at temperatures from 20.9°C to 21.2°C. In August there was very little spillage over the flashboards. Downstream D.O., however, was slightly higher (0.1 to 0.4 mg/l) than that measured at the same time upstream of the dam. Temperatures were within 0.2°C of measurements at the dam, ranging from 20.2°C to 20.8°C.

BOD Sampling

Treated secondary effluent from the CPM paper mill is discharged to the river at a point about 250 yards upstream of the dam. CPM performs weekly BOD_5 analysis of their discharge, and provided the following data. BOD_5 samples were collected on July 18 and August 20, which were the dates closest to the D.O. and temperature sampling. For July this discharge was 0.71 MGD at a BOD_5 of 175 mg/l, or 1,036 pounds of BOD_5. The August 20 discharge was 0.49 MGD at a BOD_5 of 185 mg/l, or 756 pounds of BOD_5.

Conclusion

In summary, it appears that the river is easily meeting its designated classification without spillage at the dam. The lowest D.O. measured below the project with no spillage was 7.9 mg/l, or 87.2% of saturation. This reading was made on August 20 at 0600 at a river flow of 2,000 cfs and water temperature of 20.2°C. The lowest D.O. measured anywhere was 7.6 mg/l, at a

temperature of 20.0°C. This corresponds to 83.6% of saturation. The 7.6 mg/l reading occurred at 0500, 0700, and 0830 on August 20 with low water conditions. The 0500 reading was after the unit had not operated for nine hours and with no spillage over the flashboards, due to lack of adequate inflow.

Submission of this report should satisfy the requirements of Condition C of the §401 water quality certificate for the Dodge Falls Project. Please call if you have any comments or questions.

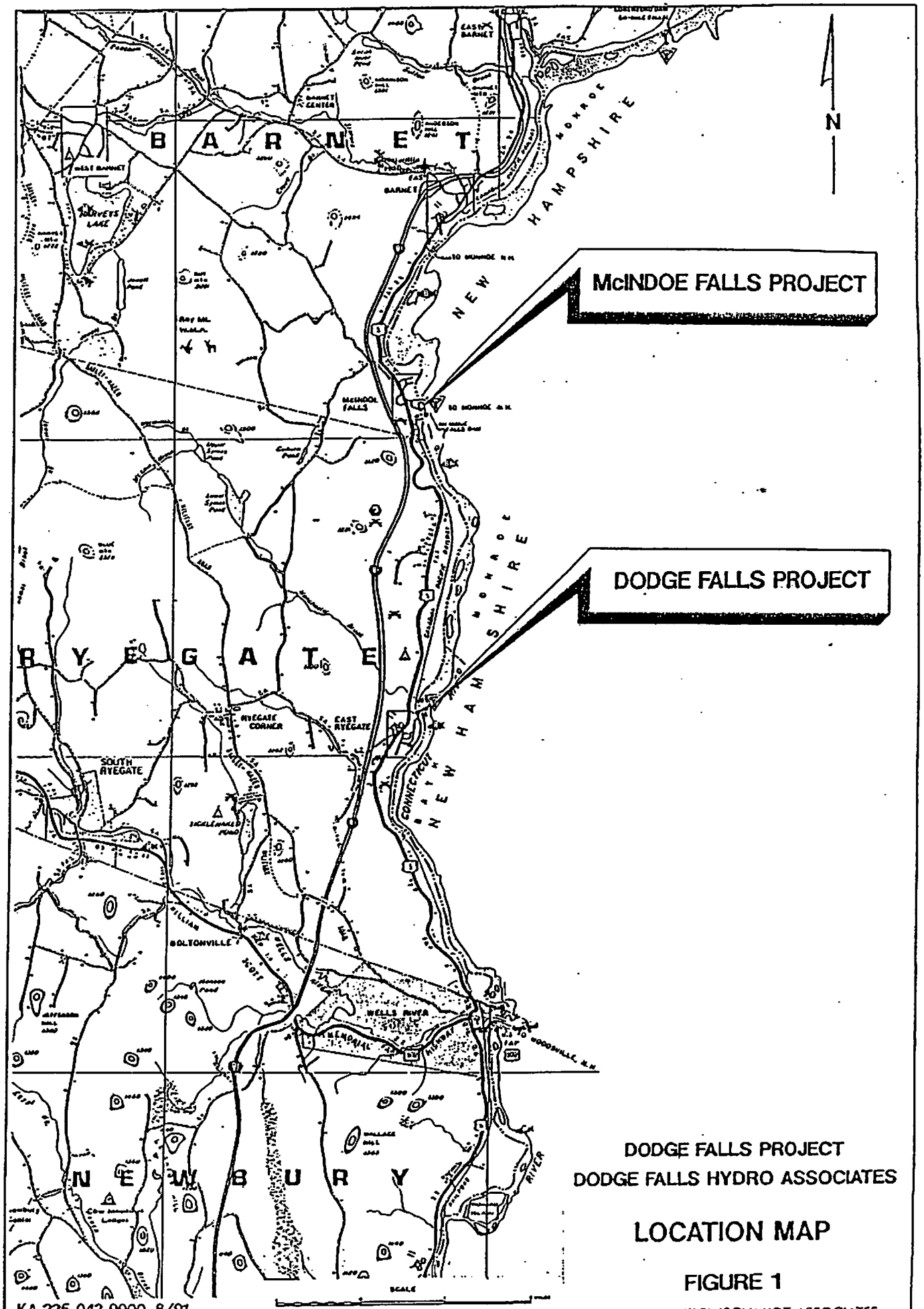
Sincerely,

KLEINSCHMIDT ASSOCIATES

Jeffrey L. Allen, P.E.

JAB:cd
Enclosure
cc: S. Jones
S. Fitts
E. Mosher
A. Sims

225-042-99-00
003.225/22500b



DODGE FALLS PROJECT
DODGE FALLS HYDRO ASSOCIATES

LOCATION MAP

FIGURE 1

KA 225-042-9900 8/91

KLEINSCHMIDT ASSOCIATES
CONSULTING ENGINEERS

ATTACHMENT A

WATER QUALITY SAMPLING DATA

DODGE FALLS ASSOCIATES
CONNECTICUT RIVER, EAST RYEGATE, VERMONT
WATER QUALITY SAMPLING RESULTS
JULY AND AUGUST, 1991

JLA
09-Sep

ATTACHMENT A

DATE	TIME	TEMP	DO	DOWNSTREAM TEMP	DOWNSTREAM DO	UPSTREAM TEMP	UPSTREAM DO	AIR TEMP	STATION OPERATION	FLASHBOARD SPILLAGE
7/17/91	2000	21.5	9.2						UNIT DOWN, LOW WATER	NO
	2030	21.5	9.2						UNIT DOWN, LOW WATER	NO
	2100	21.5	9.2						UNIT DOWN, LOW WATER	NO
	2130	21.5	9.2						UNIT DOWN, LOW WATER	NO
	2200	21.5	9.2						UNIT DOWN, LOW WATER	NO
	2230	21.3	9.1					73 F	UNIT DOWN, LOW WATER	NO
	2300	21.3	9.1						UNIT DOWN, LOW WATER	NO
	2330	21.3	9.2						UNIT DOWN, LOW WATER	NO
7/18/91	0	21.1	9.1	20.9	8.9	20.0	8.9		UNIT DOWN, LOW WATER	NO
	30	21.1	9.1						UNIT DOWN, LOW WATER	NO
	100	21.1	9.2						UNIT DOWN, LOW WATER	YES
	130	21.0	9.4						UNIT DOWN, LOW WATER	YES
	200	21.0	9.4						UNIT DOWN, LOW WATER	YES
	230	21.0	9.0						UNIT DOWN, LOW WATER	YES
	300	21.0	9.1						UNIT DOWN, LOW WATER	YES
	330	21.0	9.1						UNIT DOWN, LOW WATER	YES
	400	21.0	9.0						UNIT DOWN, LOW WATER	YES
	430	21.0	8.9						UNIT DOWN, LOW WATER	YES
	500	21.0	8.9						UNIT DOWN, LOW WATER	YES
	530	21.0	8.8						UNIT DOWN, LOW WATER	YES
	600	21.0	8.8	21.0	8.8	19.7	8.4		UNIT DOWN, LOW WATER	YES
	630	21.0	8.8						UNIT DOWN, LOW WATER	YES
	700	21.0	8.7						UNIT DOWN, LOW WATER	YES
	730	21.0	8.5						UNIT DOWN, LOW WATER	YES
	800	21.0	8.6						UNIT ON	YES
	830	21.0	8.4						UNIT ON, DOWN AT 0858	YES
	900	21.0	8.4						UNIT DOWN, LOW WATER	NO
	930	21.0	8.8					86 F	UNIT DOWN, LOW WATER	NO
	1000	21.0	8.9						UNIT ON, 600 CFS	NO
	1030	21.0	8.7						UNIT ON, 600 CFS	NO
	1100	21.0	8.6						UNIT ON, 600 CFS	NO
	1130	21.0	8.6						UNIT ON, 600 CFS	NO
	1200	21.0	8.6	21.0	8.6	20.0	8.6		UNIT ON, 600 CFS	NO
	1230	21.0	8.6						UNIT ON, 600 CFS	NO
	1300	21.0	8.6						UNIT ON, 600 CFS	NO
	1330	21.0	8.7						UNIT ON, 600 CFS	NO
	1400	21.2	9.3						UNIT ON, 600 CFS	NO
	1430	21.2	9.4						UNIT ON, 600 CFS	NO
	1500	21.2	9.4						UNIT ON, 600 CFS	NO
	1530	21.3	9.4						UNIT ON, 600 CFS	NO
	1600	21.3	9.4						UNIT ON, 600 CFS	NO
	1630	21.3	9.3						UNIT ON, 600 CFS	NO
	1700	21.3	9.4						UNIT ON, 2000 CFS	YES
	1730	21.2	9.3						UNIT ON, 3000 CFS	YES
	1800	21.3	9.3	21.2	9.3	20.6	8.9		UNIT ON, 5100 CFS	YES
AVERAGE		21.1	9.0	21.0	8.9	20.1	8.7			
MAXIMUM		21.5	9.4	21.2	9.3	20.6	8.9			
MINIMUM		21.0	8.4	20.9	8.6	19.7	8.4			

AUGUST 1991 SAMPLING

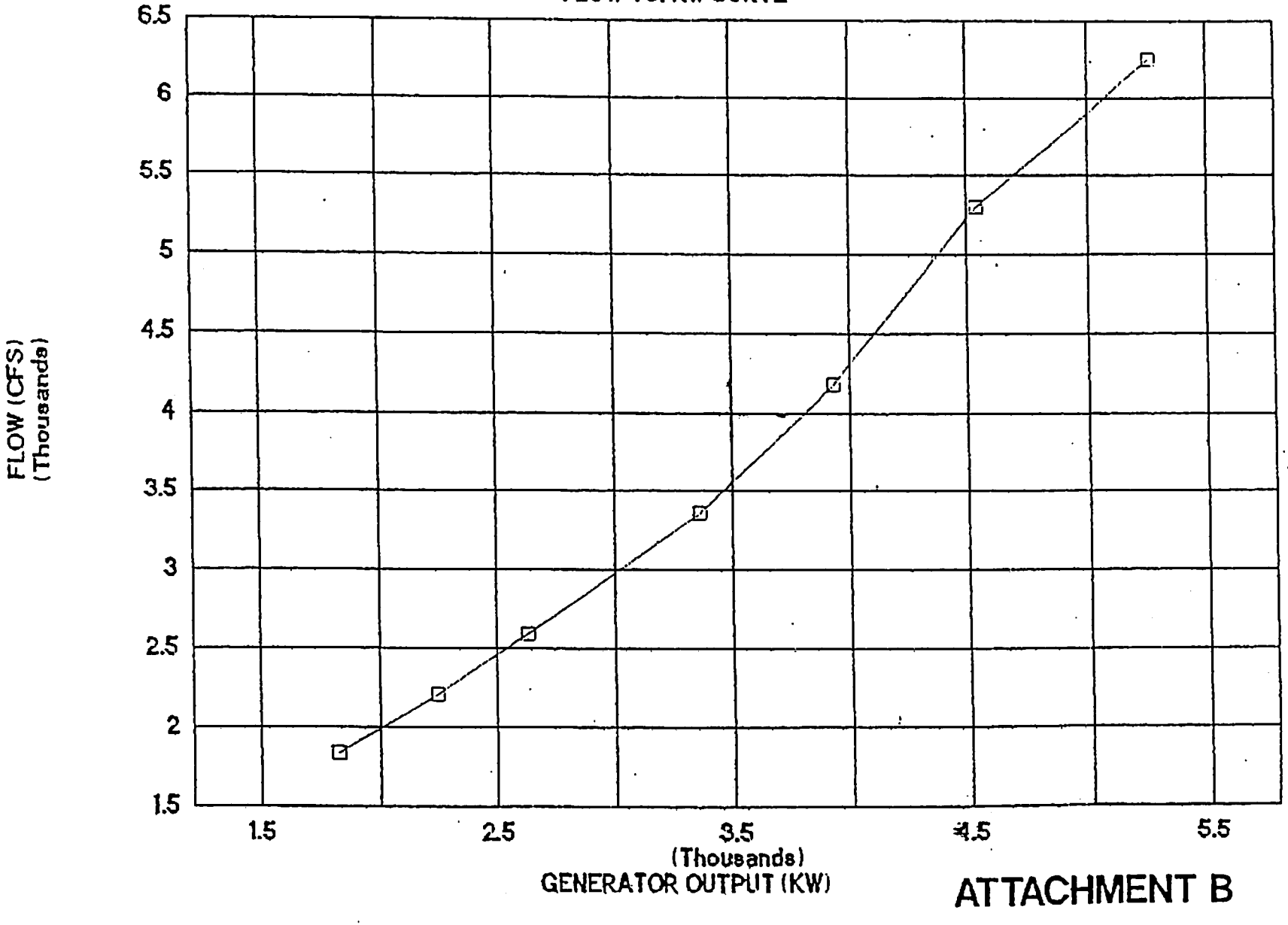
DATE	TIME	TEMP	DO	DOWNSTREAM TEMP	DOWNSTREAM DO	UPSTREAM TEMP	UPSTREAM DO	AIR TEMP	STATION OPERATION	FLASHBOARD SPILLAGE
8/19/91	1430	21.0	8.1						UNIT ON, 4200 CFS	NO
	1500	21.0	8.0						UNIT DOWN, LOW WATER	NO
	1530	21.0	8.0						UNIT DOWN, LOW WATER	NO
	1600	21.0	8.0						UNIT DOWN, LOW WATER	NO
	1630	21.0	8.0						UNIT DOWN, LOW WATER	NO
	1700	21.0	8.1						UNIT DOWN, LOW WATER	NO
	1730	21.0	8.0						UNIT DOWN, LOW WATER	NO
	1800	21.0	8.1	20.8	8.5	20.5	8.2		UNIT ON, 500 CFS	NO
	1830	21.0	8.1						UNIT ON, 500 CFS	NO
	1900	21.0	8.1						UNIT ON, 500 CFS	NO
	1930	21.0	8.4						UNIT ON, 500 CFS	NO
	2000	21.0	8.2						UNIT ON, 500 CFS	NO
	2030	21.0	8.2						UNIT DOWN, LOW WATER	NO
	2100	21.0	8.2						UNIT DOWN, LOW WATER	NO
	2130	20.6	8.2						UNIT DOWN, LOW WATER	NO
	2200	20.6	8.3						UNIT DOWN, LOW WATER	NO
	2230	20.8	8.3						UNIT DOWN, LOW WATER	NO
	2300	20.6	8.1						UNIT DOWN, LOW WATER	NO
	2330	20.6	8.1						UNIT DOWN, LOW WATER	NO
8/20/91	0	20.6	8.1						UNIT DOWN, LOW WATER	NO
	30	20.6	8.0	20.5	8.2	20.8	8.0		UNIT DOWN, LOW WATER	NO
	100	20.6	8.0						UNIT DOWN, LOW WATER	NO
	130	20.8	8.0						UNIT DOWN, LOW WATER	NO
	200	20.8	8.0						UNIT DOWN, LOW WATER	NO
	230	20.5	8.0						UNIT DOWN, LOW WATER	NO
	300	20.5	8.0						UNIT DOWN, LOW WATER	NO
	330	20.5	7.9					58 F	UNIT DOWN, LOW WATER	NO
	400	20.5	7.8						UNIT DOWN, LOW WATER	NO
	430	20.5	7.7						UNIT DOWN, LOW WATER	YES
	500	20.5	7.6						UNIT DOWN, LOW WATER	YES
	530	20.3	7.7						UNIT ON, 3000 CFS	NO
	600	20.2	7.8	20.2	7.9	20.0	7.8		UNIT ON, 2000 CFS	NO
	630	20.2	7.7						UNIT ON, 1700 CFS	NO
	700	20.0	7.6						UNIT ON, 500 CFS	NO
	730	20.0	7.8						UNIT DOWN, LOW WATER	NO
	800	20.0	7.8					75 F	UNIT DOWN, LOW WATER	NO
	830	20.0	7.6						UNIT DOWN, LOW WATER	NO
	900	20.0	7.8						UNIT DOWN, LOW WATER	NO
	930	20.0	7.8						UNIT ON, 500 CFS	NO
	1000	20.0	8.0						UNIT ON, 500 CFS	NO
	1030	20.0	8.0						UNIT ON, 500 CFS	NO
	1100	20.3	7.8						UNIT ON, 500 CFS	NO
	1130	20.3	7.8						UNIT DOWN, LOW WATER	NO
	1200	20.5	7.8	20.5	8.0	21.0	7.8	80 F	UNIT DOWN, LOW WATER	NO
	1230	20.8	7.8						UNIT DOWN, LOW WATER	NO
	1300	21.0	8.0						UNIT DOWN, LOW WATER	NO
	1330	21.0	7.8						UNIT DOWN, LOW WATER	NO
	1400	21.0	7.8						UNIT DOWN, LOW WATER	NO
AVERAGE		20.6	8.0	20.5	8.2	20.6	8.0			
MAXIMUM		21.0	8.4	20.8	8.5	21.0	8.2			
MINIMUM		20.0	7.6	20.2	7.9	20.0	7.8			

ATTACHMENT B

RIVER FLOW *VS.* GENERATOR OUTPUT

DODGE FALLS HYDRO

FLOW VS. KW CURVE



ATTACHMENT B

APPENDIX 6
FISH PASSAGE AND PROTECTION

Appendix 6

Fish Passage and Protection

As a condition of issuance, the FERC Exemption requires Dodge Falls Associates LP ("DFA") to comply with any terms and conditions that Federal and State fish and wildlife agencies have determined appropriate for the Dodge Falls project. The FERC reserved the right to revoke the exemption if any term or condition of the exemption was violated. DFA believes this condition constitutes a legal obligation to install fish passage facilities.

In its FERC Exemption application dated November 1985, DFA agreed to comply with comments of the US Department of Interior, the National Oceanic and Atmospheric Administration; the U. S. Fish and Wildlife Service; the New Hampshire Fish and Game Department, , and the Vermont Agency of Environmental Conservation. Letters from each of those agencies are included as appendices 6.1-6.4. The agencies concurred that the fish passage facilities required for the DF project included installation of downstream fish passage and installation of a fish trapping structure at the Dodge Falls Dam by 1992.

On August 29, 1985 the New Hampshire fish and game Department provided updated comments relative to its requirements when the NH site location was moved to the New Hampshire side of the river (see Appendix 6.5). On October 19, 1990 the U.S. fish and Wildlife Service (F&WS) sent a letter that reiterated the requirement that a downstream fish passage facility be installed at the DFA project. However, in that letter the F&WS acknowledged that it might not be necessary to install the fish trap facility in 1992. The letter stated that DFA would be notified by the Connecticut River Atlantic Salmon Commission ("CRASC") of the timing of construction of the fish trap facility once the the ASC completed its position regarding fish passage installation on the entire Connecticut River (see Appendix 6.6).

Subsequently, DFA installed the downstream fish passage and has successfully operated the downstream passage facility in accordance with an annual directive issued by the CRASC. A copy of the most recent correspondence from the CRASC dated March 31,2009 is included. It notes that the DFA project has cooperated with the CRASC. No deficiencies were noted in the letter nor have there been any previous deficiencies noted regarding operation of the downstream fish passage (see Appendix 6.7).

The fish trapping structure has not yet been constructed. DFA has received no notice from the CRASC concerning a required construction date for the fish trapping facility in spite of regular contact with the CRASC. DFA understands that installation has been delayed due to unanticipated delays in the construction of fish passage facilities at dams downstream of the DFA dam and the lack of salmon returns at the Wilder dam, the closest dam downstream from the DF project..

As related evidence re DFA compliance with fish passage requirements, the issue of upstream fish passage was addressed in the FMF relicensing proceeding. As a condition of the FMF FERC license issued on April 8, 2002, the FMF project is required to provide

upstream fish passage at the McIndoes dam when 20 salmon reach the DFA dam for two consecutive years and the fishery agencies find the need for upstream fish passage is justified. However, the license further provides that at the request of the New Hampshire Fish and Game Department, the Vermont Department of Fish and wildlife, the U.S. fish and Wildlife Service and the Ct. River Atlantic Salmon Commission, FMF may participate in trap and truck facility construction and operation at the DF dam in substitution for permanent upstream facilities at the McIndoes dam (see Appendix 6.8). DFA believes this recent review by the FERC and all other affected fish agencies provides recent evidence that DFA is in compliance with fish passage requirements at the DF dam..

APPENDIX 6.1
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION LETTER DATED
AUGUST 31, 1981

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Services Division
Habitat Protection Branch
7 Pleasant Street
Gloucester, MA. 01930

August 31, 1981

Mr. William D. Countryman
Aquatec, Inc.
75 Green Mountain Drive
South Burlington, VT. 05401

Dear Mr. Countryman:

We have reviewed the information provided in your August 3, 1981, letter regarding Dodge Falls Hydro Project on the Connecticut River in Grafton County, New Hampshire.

The Draft Connecticut River Basin Fish Passage Action Plan for Anadromous Fish, as developed by the Technical Committee for Fisheries Management of the Connecticut River and submitted to the Policy Committee, calls for construction of a fish trapping structure at the East Ryegate dam.

We support the Committee's program to reestablish runs of anadromous fish in the Connecticut River. The enhancement of commercially valuable American shad and Atlantic salmon stocks are of importance to the National Marine Fisheries Service.

For these reasons we would recommend inclusion of plans for suitable fish trapping facilities in the proposed project design.

We appreciate the opportunity to review the draft project description and look forward to further consultation with you on this matter.

Sincerely,

Ruth Rehfus

Ruth Rehfus
Branch Chief

APPENDIX 6.2
U.S. FISH AND WILDLIFE SERVICES LETTER DATED SEPTEMBER 2, 1981

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
P.O. Box 1518
Concord, New Hampshire 03301

Ref: FERC No. 3117,
E. Ryegate, VT

SEP 2 1981

Mr. William D. Countryman
Aquatec, Inc.
75 Green Mountain Drive
South Burlington, Vermont 05401

Dear Mr. Countryman:

This responds to your August 3 letter and accompanying Exhibit A regarding the proposed redevelopment of the East Ryegate, Vermont, hydroelectric power project on the Connecticut River.

The project proposal described in the Exhibit A, supplemented by your comments made during the August 13, 1981, site visit, indicate consideration has been given during project planning to requirements for maintenance of fish and wildlife resources. The operating mode, termed "modified run-of-river," will provide adequate flows downstream of the dam and the tailrace discharge to insure protection of the resident fisheries. We understand inflows to the Dodge Falls impoundment are regulated by the synchronous operation and power generation from Moore Reservoir, to Comerford Reservoir, to McIndoes Reservoir, the next upstream impoundment, and thence to the Dodge Falls impoundment.

The major concern of the Fish and Wildlife Service, the New Hampshire Fish and Game Department, and the Vermont Fish and Game Department is the need for fish-passage facilities for anadromous Atlantic salmon at the project dam. The expanded "Connecticut River Fish Passage, Flow, and Important Habitat Considerations Relative to the Anadromous Fish Restoration Program" presently under review by the Policy and Technical Committees for Fishery Management of the Connecticut River, calls for construction of a fish-trapping structure at the Ryegate Dam by 1992. Trapped salmon then would be transported by truck to above the Gilman and Wyoming Valley dams as part of the salmon restoration plan. By-pass facilities for downstream migrants also would have to be included in dam construction.

We note in the last paragraph of Section A.2 that there are two transmission system options under consideration. There is no information, however, on the possible location of either line, particularly the three-mile line if that option is selected. Our concern is that the right-of-way not traverse wetland or deer-wintering habitat.

During the August 13 site visit, you mentioned that a small-boat/canoe portage path will be provided at the dam. It would be helpful to potential users if appropriate signing is erected in conjunction with the portage. Because the river is a public waterway, angler access should be guaranteed by the develop-

Pursuant to Section 30(c) of the Federal Power Act and Section 408 of the Energy Security Act, the Fish and Wildlife Service requests inclusion of the following terms and conditions in the exemption application:

1. Fish-trapping facilities and vehicular access will be constructed at the dam by the development owner by 1992, and maintained for the life of the project; details of the trap location and desigh will be coordinated with appropriate personnel of the Fish and Wildlife Service, the New Hampshire Fish and Game Department, and the Vermont Fish and Game Department.

2. Downstream-migrant fish-passage facilities will be included in project restoration; details of location and design will be coordinated with agencies noted in the foregoing condition no. 1.

3. The transmission line right-of-way will be located so as to avoid wetland and deer-wintering habitat.

4. A small-boat/canoe portage will be provided and adequately signed.

5. The development owner will guarantee reasonable angler access to project area waters insofar as safety conditions permit.

In summary, we have no objections to issuance of an exemption from license subject to the above conditions.

Sincerely yours,

Gordon E. Beckett

Gordon E. Beckett
Supervisor

APPENDIX 6-3
NEW HAMPSHIRE FISH AND GAME DEPARTMENT LETTER DATED
SEPTEMBER 30, 1981

STATE OF NEW HAMPSHIRE

FISH AND GAME DEPARTMEI

CHARLES E. BARRY
EXECUTIVE DIRECTOR

Box 2083
34 Bridge Street
Concord, N.H. 03301
(603) 271-3421

September 30, 1981

William D. Countryman
Aquatic Inc. Environmental Services
75 Green Mountain Drive
South Burlington, VT 05401

Dear Bill:

Essentially, our concerns are similar to those of the U.S. Fish and Wildlife Service, and we have no objections to the issuance of a license exemption with the following conditions:

1. Suitable fish-trapping facilities and vehicular access will be constructed at the dam by the development owner by 1992, and maintained for the life of the project; details of the trap location and design will be coordinated with appropriate personnel of the Fish and Wildlife Service, the New Hampshire Fish and Game Department, and the Vermont Fish and Game Department.

2. Downstream-migrant fish-passage facilities will be located in project restoration; details of location and design will be coordinated with agencies noted in the foregoing paragraph.

3. The transmission line right-of-way will be located so as to avoid wetland and deer-wintering habitat.

4. A small-boat/canoe portage will be provided and adequately signed.

5. The development owner will guarantee reasonable angler access to project area waters insofar as safety conditions permit.

Sincerely,

George R. Morrison
Fish & Wildlife Ecologist

APPENDIX 6-4
VERMONT AGENCY OF ENVIRONMENTAL CONSERVATION LETTER DATED
NOVEMBER 23, 1981

State of Vermont

AGENCY OF ENVIRONMENTAL CONSERVATI

Montpelier, Vermont 056

OFFICE OF THE SECRETA

Department of Fish and Game
Department of Forests, Parks, and Recreation
Department of Water Resources and Environmental Engineering
Division of Protection
Natural Resources Conservation Council

November 23, 1981

Mr. William D. Countryman
Aquatec, Inc.
75 Green Mountain Drive
South Burlington, Vermont 05401

RE: Ryegate Hydroelectric Project #3117

Dear Bill:

Our comments on this project are as follows:

1. Fish Trapping. Proposed plans for the Connecticut River Anadromous Fish Restoration program calls for a fish trapping facility at this site. We understand that both the U. S. Fish and Wildlife Service and the state of New Hampshire have commented on this plan and that the developer has planned to incorporate the facility into his project. We support that effort. We would add that the cost of the trapping and trucking operation would be more equitable if shared by the upstream dam operators, as the trap at East Ryegate will benefit those installations as well. We, therefore, recommend that FERC, in its review of the basin-wide implications of this project, require cost sharing for the operation through the life of the project.

2. Recreation. Public access should be provided within the river reach affected by the project.

3. Downstream fish passage. Provision for downstream movement of anadromous and indigenous fish through the project area should be addressed.

4. Canoe portage. We understand that a canoe portage will be provided. Publishers of the Vermont and New Hampshire atlases and the AMC Guide to New England Rivers should be contacted to update their respective publications regarding the portage.

Yours very truly,

Stephen B. Sease
Director of Planning

SBS/tc

APPENDIX 6-5
NEW HAMPSHIRE FISH AND GAME DEPARTMENT LETTER DATED
AUGUST 29, 1985

7,200 6

STATE OF NEW HAMPSHIRE

FISH AND GAME DEPARTMENT

CHARLES E. BARRY
EXECUTIVE DIRECTOR

[illegible]

August 29, 1985

Harvey D. Hill
Dodge Falls Hydro Corporation
P.O. Box 388
West Lebanon, New Hampshire 03784

Re: NH Dam #17.01
Dodge Falls Hydro
Connecticut River, Bath, NH
Project No. 8011

Dear Mr. Hill:

Thank you for the opportunity to provide comments regarding your proposed application for amendment exemption from licensing for the above-referenced project. The New Hampshire Fish and Game Department is providing comments pursuant to the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et. seq.) and New Hampshire RSA 206:9 and 206:10.

Your proposal calls for changes in the design of the facility which would result in a technically and economically more viable project. The Fish and Game Department has reviewed the proposal and has determined that the amendment should not have an adverse effect on fish and wildlife and therefore is not in violation of the exemption granted May 28, 1982. The following specific terms and conditions shall be included in the Amendment to the Exemption for Licensing.

1. The Exemptee shall provide an instantaneous minimum flow of 1107 c.f.s. (0.5 CFSM) or inflow, whichever is less, from the project.

2. The Exemptee shall provide fish trapping facilities and associated vehicular access at the project by 1992. The facilities will be maintained for the life of the project. Trap design and location will be coordinated with the U.S. Fish & Wildlife Service, NH Fish & Game Department and Vermont Fish & Game Department.

3. The Exemptee shall provide downstream fish passage facilities at the project. The design and location to be coordinated with the agencies listed in No. 2 above.

4. The Exemptee shall located any transmission line right-of-way(s) so as to avoid wetlands and deer wintering habitat.

5. The Exemptee shall provide a small boat/canoe portage at the project which is adequately signed.

6. The Exemptee provide reasonable fishermen access to the project.

If you have any questions you may contact Fish and Wildlife Ecologist, William C. Ingham, Jr. at 271-2501.

Sincerely yours,

Charles E. Barry

Charles E. Barry
Executive Director

CEB:WCI:emb
cc: Gordon Beckett
Thomas Bigford
William C. Ingham, Jr.

APPENDIX 6-6
U.S. FISH AND WILDLIFE SERVICE LETTER DATED OCTOBER 19, 1990

United States Department of the Interior

FISH AND WILDLIFE SERVICE
400 RALPH PILL MARKETPLACE
22 BRIDGE STREET
CONCORD, NEW HAMPSHIRE 03301-4901

REF: FERC No. 8011

October 19, 1990

Mr. Mario Finis, P.E.
Northeast Engineering Associates, Inc.
Fairfield Woods Plaza
2317 Black Rock Turnpike
Fairfield, Connecticut

Dear Mr. Finis:

This letter is in reference to the design plans for the downstream fish passage facilities for the Dodge Falls Hydroelectric Project, located on the Connecticut River in Caledonia County, Vermont and Grafton County, New Hampshire. Plans CG07 and CG08 and sketch FP01 were submitted to our Regional Engineer by letter dated August 10, 1990.

Our Regional Engineer has reviewed the plans which generally reflect the changes in project design we have requested, and we are enclosing his comments and a marked up drawing for your consideration. We understand that you will install the downstream passage facilities during project construction. Article 2 of your exemption requires you to comply with the terms and conditions we determine are needed to protect and fish and wildlife resources. Installation of downstream passage facilities as you propose will ensure your compliance with condition number 2 of our September 18, 1985 letter.

Condition number 1 of the September 18, 1985 letter requires that fish trapping facilities for upstream migrating salmon be constructed by 1992. However, in past meetings and discussions, it has been acknowledged that these facilities may not be necessary in 1992. The Technical Committee of the Connecticut River Atlantic Salmon Commission (CRASC) has not yet finalized its position regarding the timing of construction of upstream passage facilities on various dams including Dodge Falls. You will be notified when this policy is finalized, at which time an amendment of your exemption to incorporate modified terms and conditions may be in order.

Please address any technical questions or comments regarding the design drawings to Mr. Dick Quinn of our Regional Engineering Office at (617) 965-5100, extension 287, and any other questions to Mr. John Warner of this office at (603) 225-1411.

Sincerely yours,

Gordon E. Beckett

Gordon E. Beckett
Supervisor
New England Field Offices

APPENDIX 6-7
CONNECTICUT RIVER ATLANTIC SALMON COMMISSION LETTER DATED
MARCH 31, 2009

RAJ

CONNECTICUT
MASSACHUSETTS
NATIONAL MARINE FISHERIES SERVICE
103 East Plum Tree Road
Telephone: 413/548-9138

VERMONT
NEW HAMPSHIRE
U.S. FISH AND WILDLIFE SERVICE
Sunderland, Massachusetts 01375
FAX: 413/548-9628

Re: CRASC's 2009 Downstream
Fish Passage Operations Schedule
FERC Project No.: 8011

March 31, 2009

Dave Sherman
Dodge Falls L.P.
c/o Essex Hydro Associates
55 Union Street, 4th Floor
Boston, Massachusetts 02108-2400

Dear Mr. Sherman:

Enclosed is the 2009 Schedule of Operations that the Connecticut River Atlantic Salmon Commission (CRASC) believes is necessary for downstream passage under current conditions at eight projects on the mainstem Connecticut River. Full implementation of this schedule provides juvenile and adult anadromous fish alternatives to turbine passage essential to the restoration of Atlantic salmon populations in the Connecticut River.

The proposed 2009 schedule for the Dodge Falls Project facilities is the same as the 2008 schedule. Any changes to the operation schedule will be addressed cooperatively as the need arises. To enable us to work with you in a timely manner when considering such adjustments, the suggested protocol is for you to contact me at 603/223-2541, extension 15.

The Commission appreciates the cooperation we have experienced with you under last year's passage schedules. We look forward to continued cooperation in the upcoming fish passage seasons.

Sincerely,

John P. Warner
Chair, Fish Passage Subcommittee
CRASC Technical Committee

Enclosures (2)

2009 CT RIVER SCHEDULE OF DOWNSTREAM FISH PASSAGE OPERATIONS

Location (Project)	Downstream Fish Passage Exit	Species	Life Stage	Date of Operation	Hours of Operation
McIndoes	Log Sluice[3]	salmon	smolt	April 1 - June 15	24 hrs/day
Ryegate (Dodge Falls)	Fish Bypass Facility	salmon	smolt	April 1 - June 15	24 hrs/day
Wilder	Log Sluice[2]	salmon salmon	smolt adult	April 1 - June 15 October 15 - December 31[5]	24 hrs/day 24 hrs/day
Bellows Falls	Angled Fish Guide Wall and Log Sluice[2]	salmon salmon	smolt adult	April 1 - June 15 October 15 - December 31[5]	24 hrs/day 24 hrs/day
Vernon	Fish Bypass at Unit 10	salmon salmon shad shad	smolt adult adult juvenile	April 1 - June 15 October 15 - December 31[5] June 1 - July 31 August 1[7] - November 15	24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day
	Louvers and Fish Pipe at Unit 4	eels salmon salmon shad shad eels	adults smolt adult adult juvenile adults	September 1 – November 15 April 1 - June 15 October 15 - December 31[5] June 1 - July 31 August 1[7] - November 15 September 1 – November 15	24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day
Northfield	Barrier Net	salmon	smolt	April 1 - June 15[1]	24 hrs/day
Turners Falls	Log Sluice and Trash Sluice	salmon salmon shad shad eels	smolt adult adult juvenile adults	April 7 - June 15 October 15 - December 31[5] June 1 - July 31 August 1[7] - November 15 September 1 – November 15	24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day
Holyoke[6]	Canal Louver Bypass	salmon salmon shad shad eels sturgeon	smolt adult adult juvenile adults adults	April 7 - June 15 October 1 - December 31[5] June 1 - July 31 August 1[7] - November 15 August 1 – August 31 April 7 – November 15	24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day
	Bascule Gate[4]	eels salmon salmon shad shad eels	adults smolt adult adult juvenile adults	September 1 – November 15 April 7 - June 15 October 15 - December 31[5] June 1 - July 31 August 1[7] - November 15 September 1 – November 15	24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day

1/Date of initiating operation April 1 or as soon as possible after high spring flows subside. Net can be removed after smolt emigration ceases at the Cabot sampler upon consultation with the Coordinator.
2/Minimum log sluice gate opening of 3.5 feet at Bellows Falls and 5 feet at Wilder.
3/The McIndoes log sluice gate is now capable of tracking headpond level and can operate continuously.
4/Bascule gate may be closed periodically in order to facilitate upstream passage at spillway fishlift, as directed by Massachusetts Division of Fisheries and Wildlife fishway personnel.
5/Downstream passage operation, or monitoring with operation as needed, is required for salmon when salmon are upstream of a location.
6/Holyoke passage operation dates may be adjusted to facilitate fish passage facility improvements if approved by the Massachusetts Division of Fisheries and Wildlife and U.S. Fish and Wildlife Service.
7/Recent research suggests an earlier date than August 1 may be appropriate at some or all of these facilities, but downstream passage facilities are already operating through July 31 for adult shad, making precision on the date of first migration unnecessary.

2009 CT RIVER SCHEDULE OF UPSTREAM FISH PASSAGE OPERATIONS

Location (Project)	Upstream Fish Passage	Species	Life Stage	Date of Operation[1]	Hours of Operation
Wilder	Ladder	salmon salmon	adult adult	May 15 - July 15 September 15 - Nov 15	24 hrs/day 24 hrs/day
Bellows Falls	Ladder	salmon salmon	adult adult	May 15 - July 15 September 15 - Nov 15	24 hrs/day 24 hrs/day
Vernon	Ladder	salmon salmon shad & herring	adult adult adult	May 15 - July 15 September 15 - Nov 15 May 15 - July 15	24 hrs/day 24 hrs/day 24 hrs/day
Turners Falls	Cabot Ladder, Gatehouse Ladder, and Spillway Ladder	salmon salmon shad & herring	adult adult adult Adult	April 1 - July 15 September 15 - Nov 15 April 1 - July 15	24 hrs/day 24 hrs/day 24 hrs/day
Holyoke	Zone-of-Passage Flows[2]	salmon, shad, herring and sturgeon	adult	April1 - July 15[3]	24 hrs/day
	Tailrace Lift, and Spillway Lift	salmon shad & herring	adult adults	April 1 - July 15 April 1 - July 15	up to 12 hrs/day[4] up to 12 hrs/day[4]
	Tailrace, and Spillway Eelways	eels	juvenile	April 15 - November 15[5]	24 hrs/day

1/Actual dates of operation are based on passage of fish at the next lowest downstream fishway and/or monitoring of radio-tagged adult salmon locations.

2/Zone-of-passage flow of 1,300 cfs or more to the bypass reach below the dam

3/Zone-of-passage flows for shortnose sturgeon passage in summer (July 16 through September 14) are not currently required until downstream passage measures are in place to protect downrunning sturgeon.

4/Actual hours of operation on a day-to-day basis are to be determined by the Massachusetts Division of Fisheries and Wildlife in consultation with the project owner.

5/Actual eelpass installation dates are dependent on river flow conditions

cc: CRASC Commissioners
CRASC Technical Committee
FERC-DHAC

APPENDIX 6-8
FIFTEEN-MILE FALLS FERC LICENSE, ARTICLE 411

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

USGen New England, Inc. Project No. 2077-016 - NH/VT

ORDER ISSUING NEW LICENSE
(MAJOR PROJECT)

(April 8, 2002)

USGen New England, Inc. (USGenNE) has filed an application for a new license pursuant to Sections 15 and 4(e) of the Federal Power Act (FPA)[1] to continue to operate and maintain the existing 291.36-megawatt (MW) Fifteen Mile Falls Hydroelectric Project. The project consists of three developments located on the Connecticut River, a navigable waterway of the United States, near the Town of Littleton in Grafton County, New Hampshire, and Caledonia County, Vermont. There are no federal lands within the project boundary. USGenNE proposes no new capacity.

BACKGROUND

The original license for the Fifteen Mile Falls Project was issued in 1952.[2] The Commission approved the transfer of the license from New England Power Company (NEP) to USGenNE on February 27, 1998,[3] and the transfer became effective on November 20, 1998.[4] The license expired on July 31, 2001, and since that time project operations have continued under an annual license.[5]

[1] 16 U.S.C. §§808 and 797(e).

[2] 11 F.P.C. 751 (1952).

[3] 82 FERC ¶ 62,138 (1998).

[4] The transfer became effective once NEP and USGenNE completed the sale of the project assets.

[5] See Section 15(a)(1) of the FPA. 16 U.S.C. § 808(a)(1).

USGenNE filed its relicense application on July 29, 1999. USGenNE included with its application an applicant-prepared environmental assessment (APEA),[6] pursuant to Section 2403(b) of the Energy Policy Act of 1992,[7] which allows an applicant to file a draft EA, and Section 4.34(i) of the Commission's regulations,[8] which provides for an alternative licensing process (ALP). With its new license application and APEA, USGenNE also filed a Settlement Agreement (Agreement)[9] that addresses issues pertaining to project operations, reservoir levels, minimum flows, fish and wildlife protection and enhancement measures, and land protection.

The Agreement was reached between USGenNE, the State of New Hampshire, the State of Vermont, the U.S. Fish and Wildlife Service (FWS), the U.S. Environmental Protection Agency (EPA), the National Park Service, Appalachian Mountain Club, the Connecticut River Joint Commission, Connecticut River Watershed Council, Conservation Law Foundation, New Hampshire Rivers Council, New Hampshire Council of Trout Unlimited, and the Northeast Chapter of Vermont Trout Unlimited (jointly, Appalachian). The Agreement sets forth proposed changes to operational modes and minimum flow releases for the project. In addition, the Agreement contains proposals for implementing water management protection, mitigation, and enhancement measures; establishing an Upper Connecticut River Mitigation and Enhancement Fund; and preparing various management, mitigation, and enhancement plans to benefit environmental and cultural resources.

As a result of the ALP, on July 26, 2000, USGenNE and certain stakeholders signed a Mercury Settlement providing for the funding of studies, plans, and mitigation measures for mercury reduction efforts designed to address bio-accumulation in the project area.[10] The Agreement and Mercury Settlement are described below.

[6] The Commission's regulations require that relicense applications include an Exhibit E (environmental report). The APEA is a substitute for the Exhibit E. See 18 C.F.R. §§ 4.51(f) and 16.8(f).

[7] Energy Policy Act of 1992, Pub. L. No. 102-486.

[8] 18 C.F.R. § 4.34(i).

[9] The Agreement was executed on August 6, 1997, and was included as Appendix A in volume 1 of the APEA.

[10] USGenNE filed the Mercury Settlement with the Commission on December 14,
(continued...)

Dodge 5700
Ferc Filing

for Commission approval, detailed design drawings of the licensee's proposed downstream fish passage facilities, together with a plan and schedule to construct, install, operate, and maintain the facilities.

The plan shall include documentation of the date of notification by NHFGD, VTDFW, and FWS of the stocking program, detailed design drawings, quantification of flows required to operate each proposed facility, an operation and maintenance schedule, measures to control erosion and sedimentation during project construction, and a construction schedule that ensures the fish passage facilities would be installed and operational within two years from the date of being notified by the above state and federal resource agencies and the Salmon Commission that passage facilities are needed at the two developments. The licensee shall provide as-built drawings to the FWS and the Commission within 30 days from the completion of construction of each downstream fish passage facility.

The licensee shall prepare the downstream fish passage plans, with the aforementioned drawings and an operating schedule after consultation with the NHFGD, the VTDF, the FWS, and the Salmon Commission. Prior to construction and implementation, the designs of the downstream fish passage facilities shall also be filed with the NHDES and VTDEC. The licensee shall provide a draft plan to the aforementioned entities. The licensee shall allow a minimum of 30 days for the agencies and Salmon Commission to comment and to make recommendations before filing the final plan with the Commission. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the draft plan after they have been prepared and provided to the resource agencies and the Salmon Commission, and specific descriptions of how the agencies' and Salmon Commission's comments are accommodated by the licensee's facilities. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information. The licensee shall provide the final plan, including the aforementioned evidence of consultation, according to the schedule in the draft plan, as approved by the Commission. The final plan shall also include an implementation schedule.

The Commission reserves the right to require changes to the proposed facilities and schedules. Upon Commission approval, the licensee shall implement the downstream fish passage plans and schedules, including any changes required by the Commission.

Article 411. Within 180 days of being notified that 20 adult Atlantic salmon reached the East Ryegate Dam in two consecutive years, and the New Hampshire Fish and Game Department (NHFGD), the Vermont Department of Fish and Wildlife (VTDFW), the U.S. Fish and Wildlife Service (FWS), and the Connecticut River Atlantic Salmon

Commission (Salmon Commission) determine that upstream fish passage is justified, the licensee shall file, for Commission approval, a plan for the construction, operation, and maintenance of a permanent upstream fish passage facility at the McIndoes development of the Fifteen Mile Falls Project to provide upstream passage for adult Atlantic salmon. The downstream East Ryegate Dam is part of the Dodge Falls Project No. 8011. Before any land-clearing or land-disturbing activities at the project development site, the licensee shall file for Commission approval, detailed design drawings of the licensee's proposed upstream fish passage facility, together with a plan and schedule to construct, install, operate, and maintain the facility. The licensee shall, at the request of the four entities named above, participate in trap-and-truck facility construction and operation at the East Ryegate Dam in substitution for the permanent upstream fish passage facilities required under this article for the McIndoes development, and/or construct and operate a trap-and-truck facility at Comerford dam. If trap-and-truck passage is required at the East Ryegate Dam and/or at the Comerford development, the licensee shall implement the requirements for these facilities as ordered under Article 412.

The plan shall include quantification of flows required to operate the proposed facility, an operation and maintenance schedule, detailed design drawings, measures to control erosion and sedimentation during project construction, and a construction schedule that ensures the fish passage facility would be installed and operational within a short period of time after the trigger numbers of fish have reached the East Ryegate Dam (for example, within two construction seasons following the attainment of the trigger numbers). The licensee shall provide as-built drawings to the FWS and the Commission within 30 days from the completion of construction of the upstream fish passage facility.

The licensee shall prepare the upstream fish passage plan, with the design drawings and an operating schedule, after consultation with the aforementioned state and federal resource agencies and the Salmon Commission. Prior to construction and implementation, the design of the upstream fish passage facility shall also be filed with the New Hampshire Department of Environmental Services, in consultation with the Vermont Department of Environmental Conservation. The licensee shall provide a draft plan to the aforementioned entities. The licensee shall allow a minimum of 30 days for the agencies and Salmon Commission to comment and to make recommendations before filing the final plan with the Commission. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the draft plan after they have been prepared and provided to the resource agencies and the Salmon Commission, and specific descriptions of how the agencies' and Salmon Commission's comments are accommodated by the licensee's plan. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information. The licensee shall provide the final plan, including the aforementioned evidence of

APPENDIX 7
DESCRIPTION OF WATERSHED PROTECTION

Appendix 7

Description of Watershed Protection

The watershed area formed by the DF dam impoundment extends approximately 4 miles north from the DF dam to the tailrace of the McIndoes plant. A 200 foot boundary area would encompass approximately 90 acres. The river is paralleled by paved highways and, on the Vermont side, by interstate 91. The steep banks and rock outcrops between the Dodge Falls dam north to McIndoe Falls, provide for little developable land and there are only a few homes and farm buildings, none near the river's steep shoreline on the west by interstate highway 91 (see Appendix 7-1). All of this land other than in the immediate vicinity of the DF dam is privately owned. The east bank of the river at the Dodge Falls Dam includes steep banks, rock outcrops, and, downstream from the dam, a rock and sand shoreline. By its nature, the watershed area naturally protects fish and wildlife habitat by its topography and lack of public access

In the immediate vicinity of the project site, forests cover terrace slopes and upper portions of ledges, while sparse communities of plants, primarily annuals, are found on the narrow strip of exposed rock and the sand/rock shoreline of the river. Between McIndoe Falls and Monroe, about 4 miles upstream of the DF facility, and Wells River and Woodsville, 4.6 miles downstream, the land on both sides of the river is relatively undeveloped except for the village and mill at East Ryegate adjacent to the dam. (See satellite image in Appendix 7-2)

The flows below the DF facility have minimal effect on shoreline erosion due to the predominantly cobble and boulder substrates in the tailrace areas. There has been minimal colonization of exposed shorelines by emergent plants within the 200 foot boundary area due to the inhospitable steep banks, rock outcrops and sand shoreline.

Layout and landscaping of the powerhouse grounds was designed in a manner to minimize visual impact and mitigate the project's impact on the surrounding shoreline. The powerhouse is a low profile structure only 20-25 feet above dam crest and only 15 feet above the parking area. The parking area was screened from the river by trees, and disturbed sites were planted to native trees and shrubs. Areas of shoreline and steep banks, particularly those downstream from the dam were flagged and protected during construction

. As a condition of issuance, the FERC Exemption requires compliance with any terms and conditions that the Federal or State fish and wildlife agencies have determined appropriate to prevent loss of, or damage to, fish and wildlife resources. There have been no deficiencies noted by any agency with jurisdiction for the DF plant.

APPENDIX 7-1
DODGE FALLS SATELITE IMAGE

Appendix 7-1


Google Earth
File Edit View Tools Add Help
gate , Caledonia County, VT
Dodge Falls
East Ryegate
Google
Start
Inbox for
Ryegate , Caledonia C...
Google Earth - Micros...
Google Earth Plug-In In...
Google Earth
Document1 - Microsoft ...
8:46 AM

APPENDIX 7-2
DODGE FALLS REGION SATELITE IMAGE

Appendix 7-2


Google Earth
File Edit View Tools Add Help
McIndoe Falls
Dodge Falls
Lisbon
Interstate 80
Wells River
Woodsville
Google
Start
Inbox for rjhDesmarais...
LDS
Appendix 7.doc - Micros...
Google Earth
Interstate 90 vt - Google...
11:26 AM

APPENDIX 8
DESCRIPTION OF THREATENED AND ENDANGERED SPECIES PROTECTION

Appendix 8

Description of Threatened and Endangered Species Protection

Ten species (six animal and four plant species), which occur in the DF facility watershed, are currently federally listed endangered species. In addition, seven animal and 38 plant species are listed by Vermont and 10 animal and 103 plant species by New Hampshire. No federally-listed threatened or endangered plant species are known to occur within the DF facility area.

As a condition of issuance, the FERC Exemption requires compliance with any terms and conditions that the Federal or State fish and wildlife agencies have determined appropriate to prevent loss of, or damage to, fish and wildlife resources. Based on commitments to comply with both state and federal agency recommendations, the Vermont Agency of Environmental Conservation did not request the FERC to require a cumulative impact study for this facility. The DF facility operates within FERC and Federal or State Fish and Wildlife Agency guidelines. The project's exemption is subject to termination if the facility is found to be out of compliance. There have been no deficiencies noted by any agency with jurisdiction for the DF plant.

As mentioned in Appendix 7, the watershed area naturally protects fish and wildlife by its topography and lack of public access. Of the avian species currently listed on the Vermont and New Hampshire lists of threatened or endangered species, bald eagles have been spotted in the area but have no known nesting sites in the vicinity of DF.

Requests have been submitted to the New Hampshire Natural Heritage Bureau (see Appendix 8-1) and Everett Marshall and Mark Ferguson at the Vermont Fish and Wildlife Department (see Appendix 8-2) for a comprehensive list of all threatened or endangered species in the Ryegate, VT and Bath, NH regions but it is believed at this moment that there are no known nesting sites or vegetation in the vicinity of DF that are adversely impacted by the facility.

NEW HAMPSHIRE NATURAL HERITAGE BUREAU
DRED - DIVISION OF FORESTS & LANDS
PO BOX 1856 -- 172 PEMBROKE ROAD, CONCORD, NH 03302-1856
PHONE: (603) 271-2214 FAX: (603) 271-6488

To: Stephen Hickey, Dodge Falls Associates LP
c/o Essex Hydro Associates
55 Union St 4th Floor
Boston MA 02108

From: Sara Cairns, NH Natural Heritage Bureau
Date: 2009-06-09
Re: Review by NH Natural Heritage Bureau of request dated 2009-05-26

NHB File ID: 585
Project type: Landowner Request
Town: Bath
Location: Dodge Falls Dam (Tax map 7, Lot 10)

I have searched our database for records of rare species and exemplary natural communities on the property(s) identified in your request. Our database includes known records for species officially listed as Threatened or Endangered by either the state of New Hampshire or the federal government, as well as species and natural communities judged by experts to be at risk in New Hampshire but not yet formally listed.

This site is within an area flagged by NH Fish & Game for possible impacts on rare mussels. Contact Kim Tuttle (271-6544) for more details. The closest documented mussel population within 10 miles of the dam is a historical (date unknown) record from the town of Bath.

NHB records on the property(s): **None**

NHB records within one mile of the property(s): **None**

A negative result (no record in our database) does not mean that no rare species are present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

NOTE: This review *cannot* be used to satisfy a permit or other regulatory requirement to check for rare species or habitats that could be affected by a proposed project, since it provides detailed information only for records actually on the property.

APPENDIX 8-1
NEW HAMPSHIRE NATURAL HERITAGE BUREAU
THREATENED AND ENDANGERED SPECIES REQUEST

Landowner request for NH Natural Heritage Bureau data

The NH Natural Heritage Bureau (NHB) maintains a database of known locations of rare species and exemplary natural communities. Landowners can request a check of the database to find out whether any known locations have been mapped on their property. An agent acting for a landowner can make this request on the landowner's behalf. However, the landowner must be aware of and approve of the request.

The results from this "Landowner Request" cannot be used to satisfy permit or regulatory requirements, since the results are limited to NHB records within property boundaries. For permits, use the "Environmental Review Request Form" available at http://nh.gov/dred/divisions/forestandlands/bureaus/naturalheritage/forms.htm.

If there *is* a rare species on private property, will NH Natural Heritage know about it? Probably not. Most areas of the state have never been checked for the presence of rare species. A field survey is the best way to determine their presence. We provide a list of all known rare species within one mile, as a guide to what *could* be on the property.

What does it mean if NHB *does* have a record on a particular property? It means that a rare species or natural community was once observed in the vicinity and reported to NHB. Check the year of the observation to determine how recent the report was.

Call NHB (271-2214) with questions regarding rare plants and exemplary natural communities, or NH Fish & Game (271-2461) with questions regarding rare animal species.

Landowner:
Name: Dodge Falls Hydro Corp
Mailing address: c/o Harvey D. Hill
Box 388
West Lebanon, NH 03784
Phone number: 617-367-0032
E-mail address: sjh@essexhydro.com ; dfa@essexhydro.com

Requested by:
Name: Stephen Hickey
Organization: Dodge Falls Associates L.P.
Mailing address: c/o Essex Hydro Associates
55 Union Street, 4th Floor
Boston, MA 02108
Phone number: 617-367-0032
E-mail address: sjh@essexhydro.com ; dfa@essexhydro.com

Location of the Property
Town: **Bath, NH**
Tax Map(s) & Lot #(s): **Map 7, Lot 10**

A map must be provided, with the property clearly marked. Acceptable maps include a copy of part of a USGS topographic map (such maps can be printed from the web, e.g., at www.topozone.com) and GIS shapefiles* (NH State Plane, NAD 83). Tax maps can **only** be used if they include clearly marked road intersections.

*If a shapefile is provided, what is the file name?: _____

I affirm that the landowner knows that I am making this request and agrees that NHB should release the data.

Name (type or print): **Stephen Hickey** **Date:** **5/26/09**

Requests can be submitted by e-mail, fax, or mail:

E-mail: scairns@dred.state.nh.us

Fax: (603) 271-6488, Attn: Sara Cairns

Mail: Sara Cairns
PO Box 1856
Concord, NH 03302-1856

Last revised 6 February 2007

APPENDIX 8-2
VERMONT FISH AND WILDLIFE DEPARTMENT
THREATENED AND ENDANGERED SPECIES REQUEST

Subject: RE: Threatened and Endangered Species in the East Ryegate Region
From: "Marshall, Everett" <everett.marshall@state.vt.us>
Date: Fri, 22 May 2009 13:32:48 -0400
To: 'Stephen Hickey' <sjh@essexhydro.com>
CC: "Ferguson, Mark" <mark.ferguson@state.vt.us>

Hello Stephen, There is an historic record of the Dwarf Wedgemussel, which is a state and federally endangered freshwater mussel species. I'm not sure of the scope of your project, but you should follow-up with Mark Ferguson, 802-241-3667, to discuss any potential concerns that he may have.

Everett Marshall
Biologist/Information Manager
Nongame & Natural Heritage Program

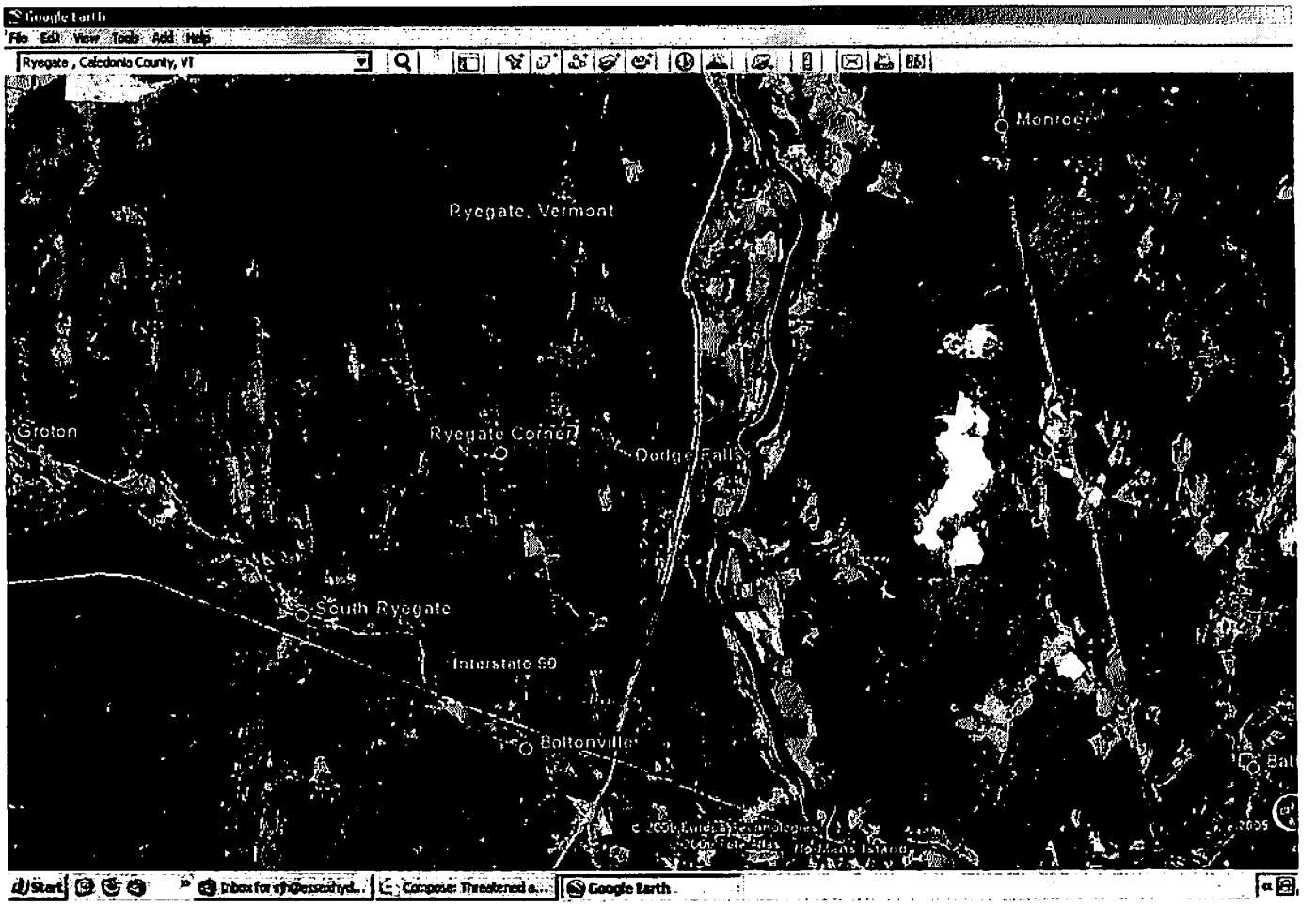
Vermont Fish & Wildlife Dept.
103 South Main St.
Waterbury VT 05671-0501
Tel: 802-241-3715; Fax: 802-241-3295

From: Stephen Hickey [mailto:sjh@essexhydro.com]
Sent: Thursday, May 21, 2009 2:38 PM
To: Marshall, Everett
Subject: Threatened and Endangered Species in the East Ryegate Region

Everett,

Please confirm if there are any threatened or endangered plant or animal species that are potential visitors to the vicinity of Dodge falls Hydroelectric facility along the Connecticut River in East Ryegate, VT. Please see the location as labeled in the below image.

Thank you,
Stephen Hickey


Google Earth
File Edit View Tools Add Help
Ryegate , Caledonia County, VT
Ryegate, Vermont
Groton
Ryegate Corner
Dodge Falls
South Ryegate
Interstate 93
Boltonville
Monroe
Start
Google Earth

Subject: RE: East Ryegate Threatened & Endangered Species: Dodge Falls Hydro
From: "Ferguson, Mark" <mark.ferguson@state.vt.us>
Date: Wed, 27 May 2009 13:21:02 -0400
To: 'Stephen Hickey' <sjh@essexhydro.com>
CC: "Marshall, Everett" <everett.marshall@state.vt.us>

Stephen,
I searched our database for information at this site. The dwarf wedgemussel, a state and federal endangered species, is known to occupy the Connecticut River adjacent to Ryegate upstream of the dam facility. We have no records of any other threatened or endangered species from the vicinity of the dam. You should also check with the New Hampshire Fish & Game Department's Nongame & Endangered Wildlife Program for any additional records of T&E species.

Mark Ferguson
Zoologist
Nongame & Natural Heritage Program
Vermont Department of Fish & Wildlife
(802) 241-3667

From: Stephen Hickey [mailto:sjh@essexhydro.com]
Sent: Tuesday, May 26, 2009 4:38 PM
To: Ferguson, Mark
Subject: East Ryegate Threatened & Endangered Species: Dodge Falls Hydro

Mark,

Please confirm if there are any threatened or endangered plant or animal species that are potential visitors to the vicinity of Dodge falls Hydroelectric facility along the Connecticut River in East Ryegate, VT. Please see the location as labeled in the below image.

Thank you,
Stephen Hickey

APPENDIX 9
RECREATION

Appendix 9

Recreation

The DF facility is in Compliance with the recreational access, accommodation and facilities conditions in its FERC exemption. During the recreational season a boat restraint cable is installed in the vicinity of Marshall Island upstream of the DF dam. A canoe portage is provided on the New Hampshire side of the river. Boats traveling downstream are guided to the north end of the portage by signage maintained on Marshall Island (immediately upstream of the DF dam) (See Appendix. The portage leads downstream on the landward side of the DF powerhouse and rejoins the river approximately 100 feet below the powerhouse outlet.

Access to the portage also is provided from New Hampshire Road by means of a graveled road. DF maintains a sleeping platform adjacent to the portage approximately 400 feet north of the powerhouse (See Appendix. Both the Connecticut River Boating Guide and the Connecticut River Joint Commissions Recreation Executive Summary list the DF project recreational facilities, including mention of the canoe portage, sleeping platform and fishing access.

Access to the canoe portage, fishing area and sleeping platform are provided free of charge.

There have been no changes in the regulatory status of the DF project since 1993 nor have there been any agency comments noting deficiencies in DFA's compliance with the recreational conditions contained in the documents related to the FERC exemption and agency review of the project.

Please see Appendix 9-1 for photographs of the site and recreational additions.