Appendix 1

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]

[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...)

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.

The State of New Hampshire
Department of Environmental Services

NHDES

Clark B. Freise, Acting Commissioner

January 3, 2017

Shannon Ames, Executive Director
Low Impact Hydropower Institute
34 Providence Street
Portland, Maine 04103

RE: Water Quality Status of the Connecticut River for Low Impact Hydropower Institute Certification of the Dodge Falls Hydroelectric Project (FERC License No. 8011)Dodge Falls Hydroelectric Project

Dear Ms. Ames:

Essex Hydro Associates (EHA) is applying on behalf of Dodge Falls Associates, L.P for Low Impact Hydropower Certification from the Low Impact Hydropower Institute (LIHI) for the Dodge Falls Hydroelectric Project (FERC License No. 8011), on the Connecticut River in Bath, NH. We understand that to receive LIHI certification, you require a statement from the New Hampshire Department of Environmental Services (NHDES) stating that the project is not causing or contributing to violations of state water quality standards. On June 18, 2014, NHDES sent EHA a letter outlining what would be needed to determine if the Connecticut River in the vicinity of the Dodge Falls Hydroelectric Project was or was not attaining water quality standards. The letter stated that "In order for NHDES to determine if the subject hydroelectric project is causing or contributing to water quality standard violations, additional monitoring and information is needed. In general, data / information is needed to address the following water quality concerns that are typically associated with hydropower projects:

1. Impact on ambient water quality criteria and thresholds;
2. Impact of pond fluctuations on aquatic habitat;
3. Maintenance of adequate minimum flows to protect downstream aquatic life; and
4. Adequate upstream and downstream fish passage."

The purpose of this letter is to provide you with our assessment of the data and information received from EHA in response to our letter of June 18, 2014 and, our conclusions as to whether or not the Dodge Falls Hydroelectric Project is causing or contributing to New Hampshire surface water quality standard violations in the Connecticut River.

01/3850D

Water quality data was collected for dissolved oxygen, water temperature, total phosphorus, and chlorophyll-a. Monitoring locations in the impoundment (44-CNT) and in the downstream section of the river (43X-CNT) were monitored continuously for a 10 day period in August 2014 for water temperature and dissolved oxygen using multi-parameter dataloggers. NHDES specified that the multi-parameter continuous water quality data should be collected under critical low flow (< 3 x 7Q10) and higher water temperature conditions (>23° C). There is a USGS stream gage on the Connecticut River in Woodsville, NH approximately four miles downstream of the Dodge Falls Hydroelectric Project. NHDES uses this gage as a surrogate to estimate low flow conditions in the vicinity of the project. During the datalogger deployment the flows were below the target conditions of 3 x 7Q10 (2070 cfs) for greater than 75% of the time. The daily average water temperature in the Connecticut River was often below the target of 23° C. NHDES acknowledges that the water temperature during the time of the datalogger deployment is acceptable and is typical of the expected water temperatures in this section of the Connecticut River during the summer (although it can be higher). EHA has stated that during the collection of the continuous water quality data the Dodge Falls Hydroelectric Project was operating under normal operating procedures. Between July and September 2014, EHA also collected ten weekly samples of total phosphorus and chlorophyll-a at stations 44-CNT and 43X-CNT.

NHDES has assessed the water quality data collected in 2014, and based on this assessment concludes that the water quality in the impoundment and downstream section of the Connecticut River, under the project operating conditions and flow conditions during which the data was collected, is meeting existing water quality criteria or thresholds for dissolved oxygen, total phosphorus and chlorophyll-a. In the June 18, 2014 letter NHDES provided the assessment status for the parameters of concern for the reaches of the Connecticut River upstream and downstream of the Dodge Falls Hydroelectric Project. Table 1 provides an update to the current assessment status of the river reaches in question for the parameters collected in 2014. The assessments are based on the methodology described in the NHDES Consolidated Assessment and Listing Methodology (CALM)[1]. This information will be used in the next Section 305(b)/303(d) Water Quality Assessment report which is expected to be issued by NHDES in 2016. Please note that the assessment status listed in Table 1 could change if water quality criteria or thresholds change and/or if additional data indicate water quality violations. For example, data collected at lower flows and/or higher temperatures might result in a different assessment.

Table 1. Assessment Status for Water Quality Monitoring Parameters – Dodge Falls Hydroelectric Project

Assessment Unit and Monitoring Station	Location	Parameter	Designated Use	Assessment Status based upon summer 2013 sampling
NHIMP801030203-01-02 44-CNT	Dodge Falls Hydroelectric Project Impoundment	Dissolved Oxygen (mg/L)	Aquatic Life	Fully Supporting
		Dissolved Oxygen (% Sat.)	Aquatic Life	Fully Supporting
		Chlorophyll-a	Primary Contact Recreation	Fully Supporting
			Aquatic Life	Potentially Supporting [A]
		Total Phosphorus	Aquatic Life	Indeterminate[A]
		Water Temperature	Aquatic Life	No numeric criteria[C]
NHRIV801030206-03 43X-CNT	Downstream of Dodge Falls Hydroelectric Project– Tailrace	Dissolved Oxygen (mg/L)	Aquatic Life	Fully Supporting
		Dissolved Oxygen (% Sat.)	Aquatic Life	Fully Supporting
		Chlorophyll-a	Primary Contact Recreation	Fully Supporting
		Total Phosphorus	Aquatic Life	No numeric criteria[B]
		Water Temperature	Aquatic Life	No numeric criteria[C]

[A] NHDES does have numeric water quality thresholds for the aquatic life designated use for total phosphorus and chlorophyll-a in lakes/ponds and impoundments with characteristics similar to lakes/ponds but it can only be applied to waterbodies where the tropic class is known. For waterbodies where the trophic class is known the median total phosphorus and chlorophyll-a value is used to make the threshold comparison. The aquatic life designated use nutrient and chlorophyll-a thresholds are depicted below with the median values for each parameter for the data collected at station 44-CNT in assessment unit NHIMP801030203-01-02 and station 43X-CNT in assessment unit NHRIV801030206-03 during the summer of 2014.

	TP (ug/L)	Chl-a (ug/L)
Median 44-CNT (2014)	**8.9**	**1.31**
Median 43X-CNT (2014)	**8.6**	**1.72**
Oligotrophic	< 8	< 3.3
Mesotrophic	≤ 12	≤ 5
Eutrophic	≤ 28	≤ 11

[B] NHDES does not have numeric water quality criteria for nutrients in rivers or streams. The narrative criteria states that "Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring."

[C] Although there is currently no numerical water quality criteria for water temperature, NHDES is in the process of collecting biological and water temperature data that will contribute to the development of a procedure for assessing rivers and stream based on water temperature and its corresponding impact to the biological integrity of the waterbody.

In May of 2016 EHA provided NHDES with detailed information regarding the physical structure of the facility, minimum flows and pond fluctuations at the Dodge Falls Hydroelectric Project. EHA confirmed that the facility is operated as a run of river project and that the project does not draw down the impoundment or store water for purposes of power generation. Any pond level fluctuations are the result of operational of upstream hydroelectric projects or inflow that exceeds turbine capacity.

The Dodge Falls Hydroelectric project is required via its FERC license to maintain a minimum flow of 1108 cfs or project inflow – whichever is less. The Dodge Falls Hydroelectric Project is located immediately downstream of the Fifteen Miles Falls Hydroelectric Project which consists of a series of three dams. The closest Fifteen Miles Falls facility is the McIndoes Hydroelectric Dam which is approximately four miles upstream from the Dodge Falls Hydroelectric Project. As of 2002, the McIndoes station is required to maintain a minimum flow that varies during the year. The minimum discharge required is 1,105 cfs, or inflow from June 1 through September 30. The McIndoes project is required to release even higher minimum flows from October 1 through May 31. Because the minimum discharge from the McIndoes station is nearly identical to or greater than the minimum discharge of the Dodge Falls turbine, the turbine is able to operate continuously. When the Dodge Falls turbine is shutdown, river inflow is discharged over the pneumatic flashboards.

Regarding the issue of fish passage, EHA, in May 2016, provided NHDES with confirmation of compliance from John Warner of the U.S. Fish and Wildlife Service (USFWS) and Carol Henderson of New Hampshire Fish and Game (NHFG). Although fish passage is not required within the existing FERC license, NHFG recommended that EHA reevaluate the potential for fish (and possible eel passage) at the Dodge Falls Hydroelectric Project as part of LIHI certification.

In summary, based on the current operation of the facility, current water quality standards, water quality data collected in 2014 and information provided to NHDES by EHA, the Connecticut River immediately upstream and downstream of the Dodge Falls Hydroelectric Project is meeting water quality standards under the conditions during which the data was collected. As previously noted, the above water quality assessment could change in the future should a change in water quality criteria or thresholds and/or new data indicate water quality violations or the potential for water quality violations. It could also change if the NHDES, USFWS and/or NHFG conclude in the future that the project is not in compliance with upstream or downstream fish passage requirements or minimum flow requirements.

Should you have any questions or require additional information please contact me at (603)271-2083 or ted.walsh@des.nh.gov.

Sincerely,

Ted Walsh, Surface Water Monitoring Coordinator
NH-DES Watershed Management Bureau

Cc (via email): Dr. Michael J. Sale, Low Impact Hydropower Institute
Elise Anderson, Essex Hydro Associates, LLC
Andrew Locke, Essex Hydro Associates, LLC
Carol Henderson, NHFG
John Magee, NHFG
John Warner, USFS

Andrew Locke

From: Carpenter, Matthew
Sent: Friday, July 26, 2019 9:07 AM
To: Andrew Locke; Melissa Grader; Henderson, Carol; Magee, John
Cc: Walsh, Ted
Subject: RE: Dodge Falls Hydro - Fish Passage

Andrew,
At this point, the only fish passage issues I can think of would be for American eels. The density of eels is so low above the Wilder Dam that I do not think upstream eel passage is warranted for Dodge Falls at this time. It will be something to keep an eye on as passage improvements are made in the lower Connecticut River projects and the eel population increases in the upper watershed, but for now I have no fish passage recommendations for Dodge Falls.
Matt

From: Andrew Locke <alocke@essexhydro.com>
Sent: Wednesday, July 24, 2019 2:14 PM
To: Melissa Grader <melissa_grader@fws.gov>; Henderson, Carol <Carol.Henderson@wildlife.nh.gov>; Carpenter, Matthew <Matthew.Carpenter@wildlife.nh.gov>; Magee, John <john.magee@wildlife.nh.gov>
Cc: Walsh, Ted <Ted.Walsh@des.nh.gov>
Subject: Dodge Falls Hydro - Fish Passage

Melissa, Carol, Matt and John,

I'm following up on an inquiry Elise Anderson made late last year regarding Dodge Falls' LIHI recertification. As part of the recertification application process, LIHI requires us to consult with USFWS and NHFG on the adequacy of downstream and upstream fish passage facilities at the project. In addition, as part of the review of the Project's water quality NH DES requests that we find out if you are satisfied with the upstream and downstream fish passage provisions associated with the project.

If you have any comments in response to either question or if you have not comments, could you please get back to me no later than August 9th?

To help in your review, I've included a link to the project's most recent LIHI certification along with copies of its exemption and amendments.

If you have concerns, please let me know so we can discuss in person or on a conference call and include others from Essex in the discussion.

Thank you,

Andrew Locke
President HCE Dodge Falls, Inc.
General Partner
Dodge Falls Associates, LP

Current LIHI certification of the project (certified from 2014 through 2019):

https://lowimpacthydro.org/lihi-certificate-42-dodge-falls-hydroelectric-project-vermont-ferc-8011/

Appendix 4

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

VERMONT
NEW HAMPSHIRE
U.S. FISH AND WILDLIFE SERVICE
Sunderland, Massachusetts 01375
Fax: 413/548-9622

February 11, 2016

Ms. Kimberly Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington D.C 20426

Dear Secretary Bose:

The Connecticut River Atlantic Salmon Commission (CRASC), a Congressional-authorized fisheries management body, has required hydroelectric facilities in the basin to operate downstream passage facilities and certain operational measures to protect migrating Atlantic Salmon smolts and post-spawn adults. These measures were established by a Memorandum of Agreement (1990) as well as other complementary instruments implemented by State agencies, and are enforced by the Federal Energy Regulatory Commission (FERC). The CRASC issues an annual "Fish Passage Notification Letter" to the ten main-stem Connecticut River hydroelectric projects. This letter sets the dates for both upstream and downstream passage measures and is used to monitor compliance with these agreements.

The cooperative restoration effort for Atlantic Salmon was terminated in 2012 by CRASC, with a final basin-wide stocking of salmon fry in the spring of 2013. Stream sampling and assessments have led CRASC to conclude that all smolts produced from this final stocking in the upper basin migrated out of the basin by 2015. As a result CRASC has determined:

1) It is no longer necessary to require downstream passage measures for salmon smolts at the main stem hydroelectric facilities identified in the 1990 CRASC MOA, or as included in past Annual Fish Passage Notification letters; and
2) It is no longer necessary to require downstream passage measures for adult salmon at any hydroelectric facility unless that facility passed 50 or more adult salmon through its fishway the previous spring.

The CRASC believes these changes in downstream passage measures, specifically for salmon smolts and post-spawn sea-run salmon, are warranted but reserves the right to reinstate these requirements in the future if the status of Atlantic Salmon and its restoration changes. The CRASC remains committed to ensuring all other diadromous fishes in the basin have safe, timely, and effective upstream and downstream passage to complete all life history

requirements. We look forward to working with FERC on ensuring those passage elements and other elements of hydropower facility operations support our ongoing restoration of the public's fishery resources.

Sincerely,

William Hyatt
Chair, Connecticut River Atlantic Salmon Commission
Director, Connecticut Dept. Energy and Environmental Protection
Bureau of Natural Resources

Electronics copies:

Holyoke Gas and Electric, Richard Murray
TransCanada, John Ragonese
FirstLight Power, John Donohue
CRASC, Commissioners
CRASC, Technical Committee
USFWS, John Warner
USFWS, Brett Towler
FERC Compliance

Mailed copies:

Essex Hydro, Dave Sherman
Ampersand Gilman Hydro, Gregory Cloutier

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

CONNECTICUT RIVER ATLANTIC SALMON COMMISSION

VERMONT
NEW HAMPSHIRE
U.S. FISH AND WILDLIFE SERVICE
Sunderland, Massachusetts 01375
Fax: 413/548-9622

Re: CRASC's 2017 Downstream
Fish Passage Operations Schedule
FERC Project No.: 8011

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

March 2, 2017

Dear Mr. Sherman,

The proposed 2017 fish passage schedule for the Dodge Falls Project is the same as 2016, with no downstream passage measures required for Atlantic salmon smolts at this project. If you have any questions feel free to contact John Warner of the U.S. Fish and Wildlife Service's (USFWS) New England Field Office at 603/223-2541, ext. 15 or me at 413-548-9138, ext 8121.

Sincerely,

Kenneth Sprankle
Executive Assistant

Enclosure (1)

cc: CRASC Commissioners
CRASC Technical Committee
CRASC Fish Passage Subcommittee
FERC-DLC

2017 CT RIVER SCHEDULE OF UPSTREAM FISH PASSAGE OPERATIONS

Location (Project)	Upstream Fish Passage	Species	Life Stage	Dates 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[2]	salmon salmon	adult adult	May 15 - July 15 September 15 - Nov 15	24 hrs/day 24 hrs/day
Vernon	Ladder[2]	salmon salmon shad & herring	adult adult adult	April 15 - July 15 September 15 - Nov 15 April 7(1)- 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 7 - July 15 September 15 - Nov 15 April 4(1) - July 15	24 hrs/day 24 hrs/day 24 hrs/day
Holyoke	Zone-of-Passage Flows[3]	salmon, shad, herring and sturgeon	adult	April 1 – November 15	24 hrs/day
	Tailrace Lift, and Spillway Lift	salmon salmon shad & herring sturgeon	adult adult adults	April 1 – July 15 September 15 – Nov 15 April 1 – July 15 April 1 – November 15	up to 12 hrs/day[4] up to 12 hrs/day[4] 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 previous downstream fishway (excluding Holyoke). Turners Falls fishways shall be operational as soon as 50 shad have been counted passing Holyoke Fishlifts. Vernon Fish Ladder shall be operational within three days of the Turners Falls fishways being opened. Due to lack of real-time fish counting at Turners Falls, once those fishways are triggered open, a three day lag period is identified to reflect relatively quick upstream movement from the Turners Falls project by passed shad (1.6 day median) to Vernon (Castro-Santos 2011).

2 - Agencies have requested the operation of Bellows Falls Ladder either once 100 sea lamprey are passed at the Vernon Dam Ladder or an adult salmon is passed, whichever occurs first.

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

4 - Actual hours of operation on a day-to-day basis are to be determined by the MADFW in consultation with the project owner.

5 - Actual eelpass installation dates are dependent on river flow conditions and in consultation between project owner and MADFW and USFWS

Reference
Castro-Santos, T. 2012. Preliminary analysis of American shad passage at Vernon Dam 2011. Draft Report. S. O. Conte Anadromous Fish Research Center. Turners Falls, MA.

2017 CT RIVER SCHEDULE OF DOWNSTREAM FISH PASSAGE OPERATIONS

Location (Project)	Downstream Fish Passage Exit	Species	Life Stage	Dates of Operation	Hours of Operation
Gilman/Dalton	Interim Bypass Sluice	salmon	smolt	**Not required**	
Moore	Bypass Sluice and Trap	salmon	smolt	**Not required**	
McIndoes	Log Sluice	salmon	smolt	**Not required**	
Ryegate (Dodge Falls)	Fish Bypass Facility	salmon	smolt	**Not required**	
Wilder	Log Sluice	salmon salmon	smolt adult	**Not required** October 15 - December 31[1]	---------- 24 hrs/day
Bellows Falls	Angled Fish Guide Wall and Log Sluice	salmon salmon	smolt adult	**Not required** October 15 - December 31[1]	---------- 24 hrs/day
Vernon	Fish Bypass at Unit 10	salmon salmon shad shad	smolt adult adult juvenile	**Not required** October 15 - December 31[1] April 10[2] - July 31 August 1 - November 15	---------- 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 **Not required** October 10 - December 31[1] April 10[2] - July 31 August 1 - November 15 September 1 – November 15	24 hrs/day ---------- 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day
Northfield	Barrier Net	salmon	smolt	**Not required**	
Turners Falls	Log Sluice and Trash Sluice	salmon salmon shad shad eels	smolt adult adult juvenile adults	**Not required** October 15 - December 31[1] April 7 - July 31 August 1 - November 15 September 1 – November 15	---------- 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day
Holyoke	Canal Louver and new (2016) low level Bypass	salmon salmon shad shad eels sturgeon sturgeon eels	smolt adult adult juvenile adults adults juvenile adults	**Not required** October 1 - December 31[1] April 1 – July 31 August 1 - November 15 September 1 – December 1 April 1 – November 15[3] April 1- November 15[3] September 1 – December 1	---------- 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day
	Bascule Gate	salmon salmon shad shad eels	smolt adult adult juvenile adults	**Not required** October 15 - December 31[1] April 1 - July 31 August 1 - November 15 September 1 – December 1	---------- 24 hrs/day 24 hrs/day 24 hrs/day 24 hrs/day

1 - Downstream passage operation, for adults will only be required if 50 or more adults are documented as passing upstream of a dam/facility.

2 – Downstream passage measures should be operational for American shad at the same time as upstream passage is initiated, based on Turners Falls upstream passage operations.

3 – Fish passage operations/schedule may be adjusted by NOAA Fisheries, USFWS, and/or MADFW.

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

VERMONT
NEW HAMPSHIRE
U.S. FISH AND WILDLIFE SERVICE
Sunderland, Massachusetts 01375
Fax: 413/548-9622

Re: CRASC's 2018 Downstream
Fish Passage Operations Schedule
FERC Project No.: 8011

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

February 27, 2018

Dear Mr. Sherman,

The proposed 2018 fish passage schedule for the Dodge Falls Project is the same as 2017, with no downstream passage measures required for Atlantic salmon smolts at this project. If you have any questions feel free to contact John Warner of the U.S. Fish and Wildlife Service's (USFWS) New England Field Office at 603/223-2541, ext. 15 or me at 413-548-9138, ext 8121.

Sincerely,

Kenneth Sprankle
Executive Assistant

Enclosure (1)

cc: CRASC Commissioners
CRASC Technical Committee
CRASC Fish Passage Subcommittee
FERC-DLC

Connecticut River Atlantic Salmon Commission
2018
Connecticut River Schedule of Downstream Fish Passage Operations

Location (Project)	Downstream Fish Passage Exit	Species	Life Stage	Dates of Operation	Hours of Operation
Gilman/Dalton	Interim Bypass Sluice	salmon	smolt	**Not required**	
Moore	Bypass Sluice and Trap	salmon	smolt	**Not required**	
McIndoes	Log Sluice	salmon	smolt	**Not required**	
Ryegate (Dodge Falls)	Fish Bypass Facility	salmon	smolt	**Not required**	
Wilder	Log Sluice	salmon	smolt	**Not required**	
		salmon	adult	October 15 - December 31[1]	24 hrs/day
Bellows Falls	Angled Fish Guide Wall and Log Sluice	salmon	smolt	**Not required**	
		salmon	adult	October 15 - December 31[1]	24 hrs/day
Vernon	Fish Bypass at Unit 10	salmon	smolt	**Not required**	
		salmon	adult	October 15 - December 31[1]	24 hrs/day
		shad	adult	April 10[2] - July 31	24 hrs/day
		shad	juvenile	August 1 - November 15	24 hrs/day
	Louver and Fish Pipe at Unit 4	eels	adult	September 1 – November 15	24 hrs/day
		salmon	smolt	**Not required**	
		salmon	adult	October 10 - December 31[1]	24 hrs/day
		shad	adult	April 10[2] - July 31	24 hrs/day
		shad	juvenile	August 1 - November 15	24 hrs/day
		eels	adult	September 1 – November 15	24 hrs/day
Northfield	Barrier Net	salmon	smolt	**Not required**	
Turners Falls	Log Sluice and Trash Sluice	salmon	smolt	**Not required**	
		salmon	adult	October 15 - December 31[1]	24 hrs/day
		shad	adult	April 7 - July 31	24 hrs/day
		shad	juvenile	August 1 - November 15	24 hrs/day
		eels	adult	September 1 – November 15	24 hrs/day

Table continued on page 2…

1 - Downstream passage operation, for adults will only be required if 50 or more adults are documented as passing upstream of a dam/facility.

2 – Downstream passage measures should be operational for American shad at the same time as upstream passage is initiated, based on Turners Falls upstream passage operations.

3 – Fish passage operations/schedule may be adjusted by NOAA Fisheries, USFWS, and/or MADFW.

Connecticut River Atlantic Salmon Commission
2018
Connecticut River Schedule of Downstream Fish Passage Operations

Location (Project)	Downstream Fish Passage Exit	Species	Life Stage	Dates of Operation	Hours of Operation
Holyoke	Canal Louver and new (2016) low level Bypass	salmon	smolt	**Not required**	
		salmon	adult	October 15 - December 31[1]	24 hrs/day
		shad	adult	April 1 – July 31	24 hrs/day
		shad	juvenile	August 1 - November 15	24 hrs/day
		eels	adult	September 1 – December 1	24 hrs/day
		sturgeon	adult	April 1 – November 15[3]	24 hrs/day
		sturgeon	juvenile	April 1- November 15[3]	24 hrs/day
	Bascule Gate	eels	adult	September 1 – December 1	24 hrs/day
		salmon	smolt	**Not required**	
		salmon	adult	October 15 - December 31[1]	24 hrs/day
		shad	adult	April 1 - July 31	24 hrs/day
		shad	juvenile	August 1 - November 15	24 hrs/day
		eels	adult	September 1 – December 1	24 hrs/day

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

VERMONT
NEW HAMPSHIRE
U.S. FISH AND WILDLIFE SERVICE
Sunderland, Massachusetts 01375
Fax: 413/548-9622

Re: CRASC's 2019 Downstream
Fish Passage Operations Schedule
FERC Project No.: 8011

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

February 28, 2019

Dear Mr. Sherman,

The proposed 2019 fish passage schedule for the Dodge Falls Project is the same as 2018, with no downstream passage measures required for Atlantic salmon smolts at this project. If you have any questions feel free to contact Melissa Grader of the U.S. Fish and Wildlife Service's (USFWS) New England Field Office at 413-548-8002, ext. 8124, or me at 413-548-9138, ext. 8121.

Sincerely,

MAR 0 1 2019

Kenneth Sprankle
Executive Assistant

Enclosure (1)

cc: CRASC Commissioners
CRASC Technical Committee
CRASC Fish Passage Subcommittee
FERC-DLC

Connecticut River Atlantic Salmon Commission
2019
Connecticut River Schedule of Downstream Fish Passage Operations

Location (Project)	Downstream Fish Passage Exit	Species	Life Stage	Dates of Operation	Hours of Operation
Gilman/Dalton	Interim Bypass Sluice	salmon	smolt	**Not required**	
Moore	Bypass Sluice and Trap	salmon	smolt	**Not required**	
McIndoes	Log Sluice	salmon	smolt	**Not required**	
Ryegate (Dodge Falls)	Fish Bypass Facility	salmon	smolt	**Not required**	
Wilder	Log Sluice	salmon	smolt	**Not required**	
		salmon	adult	October 15 - December 31[1]	24 hrs/day
Bellows Falls	Angled Fish Guide Wall and Log Sluice	salmon	smolt	**Not required**	
		salmon	adult	October 15 - December 31[1]	24 hrs/day
Vernon	Fish Bypass at Unit 10	salmon	smolt	**Not required**	
		salmon	adult	October 15 - December 31[1]	24 hrs/day
		shad	adult	April 10[2] - July 31	24 hrs/day
		shad	juvenile	August 1 - November 15	24 hrs/day
	Louver and Fish Pipe at Unit 4	eels	adult	September 1 – November 15	24 hrs/day
		salmon	smolt	**Not required**	
		salmon	adult	October 10 - December 31[1]	24 hrs/day
		shad	adult	April 10[2] - July 31	24 hrs/day
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New Hampshire Natural Heritage Bureau

DNCR - Division of Forests & Lands
172 Pembroke Road, Concord, NH 03301
Phone: (603) 271-2214 Fax: (603) 271-6488

To: Andrew Locke
Dodge Falls Associates, L.P.
c/o Essex Hydro Associates, L.L.C., 55 Union St., 4th Floor
Boston, MA 02108

From: NH Natural Heritage Bureau
Date: 2019-07-26
Re: Review by NH Natural Heritage Bureau of request dated 2019-07-24

NHB File ID: 3231 **Town:** Bath, NH
Project type: Landowner Request **Location:** Map 7, Lot 10

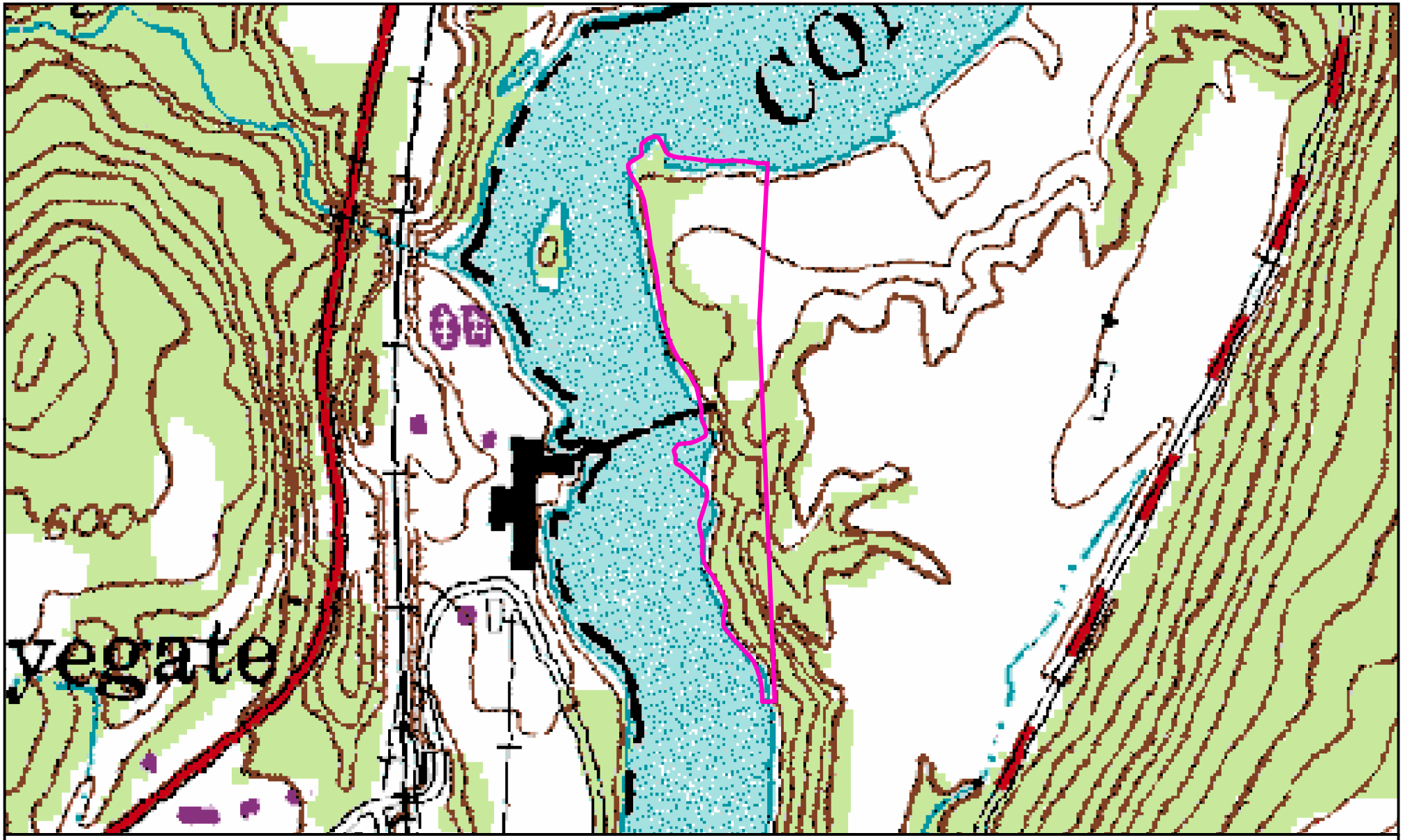
We have searched our database for records of rare species and exemplary natural communities on the property(s) identified in your request. Our database includes known records for species officially listed as Threatened or Endangered by either the state of New Hampshire or the federal government, as well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

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.



Natural Heritage Bureau
Landowner Report

Project ID Number: 3231

NOTE: Any rare species and/or exemplary natural communities in this area are not shown unless they occur, at least in part, within the property bounds.

	# of Records
Property Bounds	
Plant Occurence:	*0*
Animal Occurence:	*0*
Natural Community:	*0*
Ecological System:	*0*

0 0.1 0.2 Mile

N W E S

DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT
NEW HAMPSHIRE
FORESTS & LANDS

Andrew Locke

From: Sheila Burge
Sent: Tuesday, August 20, 2019 4:05 PM
To: Ferguson, Mark
Cc: Marshall, Everett; McHugh, Peter; Andrew Locke
Subject: RE: Threatened and Endangered Specified in The East Ryegate VT Region

Mark,

Thank you for this information.

Sheila Burge

From: Ferguson, Mark [mailto:Mark.Ferguson@vermont.gov]
Sent: Tuesday, August 20, 2019 4:01 PM
To: Sheila Burge
Cc: Marshall, Everett; McHugh, Peter
Subject: RE: Threatened and Endangered Specified in The East Ryegate VT Region

Sheila,
This area has not been well-surveyed for mussels. In 2005, Ethan Nedeau surveyed a single site about 1.5 miles downstream of the East Ryegate dam. An uncommon species, Triangle Floater, was found there but no Dwarf Wedgemussels were reported. Nedeau's report did note that, although none were found, the habitat seemed excellent for Dwarf Wedgemussel and it seemed likely that the species was present somewhere within or near the survey location. Two other of his survey sites were located beginning 15 miles below the dam and Dwarf Wedgemussels were found at both sites; this lends support to his observation that Dwarf Wedgemussels could occur farther upstream.

I don't have any survey data from within the project's influence upstream of the dam.

Mark Ferguson
Natural Heritage Zoologist
Vermont Department of Fish & Wildlife
802-279-3422

From: Sheila Burge <sburge@essexhydro.com>
Sent: Tuesday, July 23, 2019 12:29 PM
To: Marshall, Everett <Everett.Marshall@vermont.gov>
Cc: Ferguson, Mark <Mark.Ferguson@vermont.gov>
Subject: Threatened and Endangered Specified in The East Ryegate VT Region

Everett,

Our hydroelectric project is located on the Connecticut River in East Ryegate, VT. We would like to confirm any threatened and endangered plant or animal species in the vicinity of Dodge Falls Hydroelectric Facility. In May 2009 you

confirmed to us there is historic records of the Dwarf Wedgemussel, which is endangered. Could you confirm if there are any changes or additions to this information. Please see the location below.

Thank you,
Sheila Burge
Dodge Falls Associates, LP


Dodge Falls Hydro
Write a description for your map.
Connecticut River Reservoir
East Ryegate
East Ryegate
Google Earth

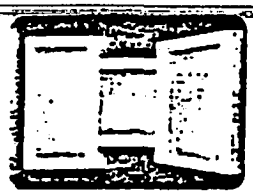
Before the Federal Energy Regulatory Commission

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 A 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 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	WITH 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.

50

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).

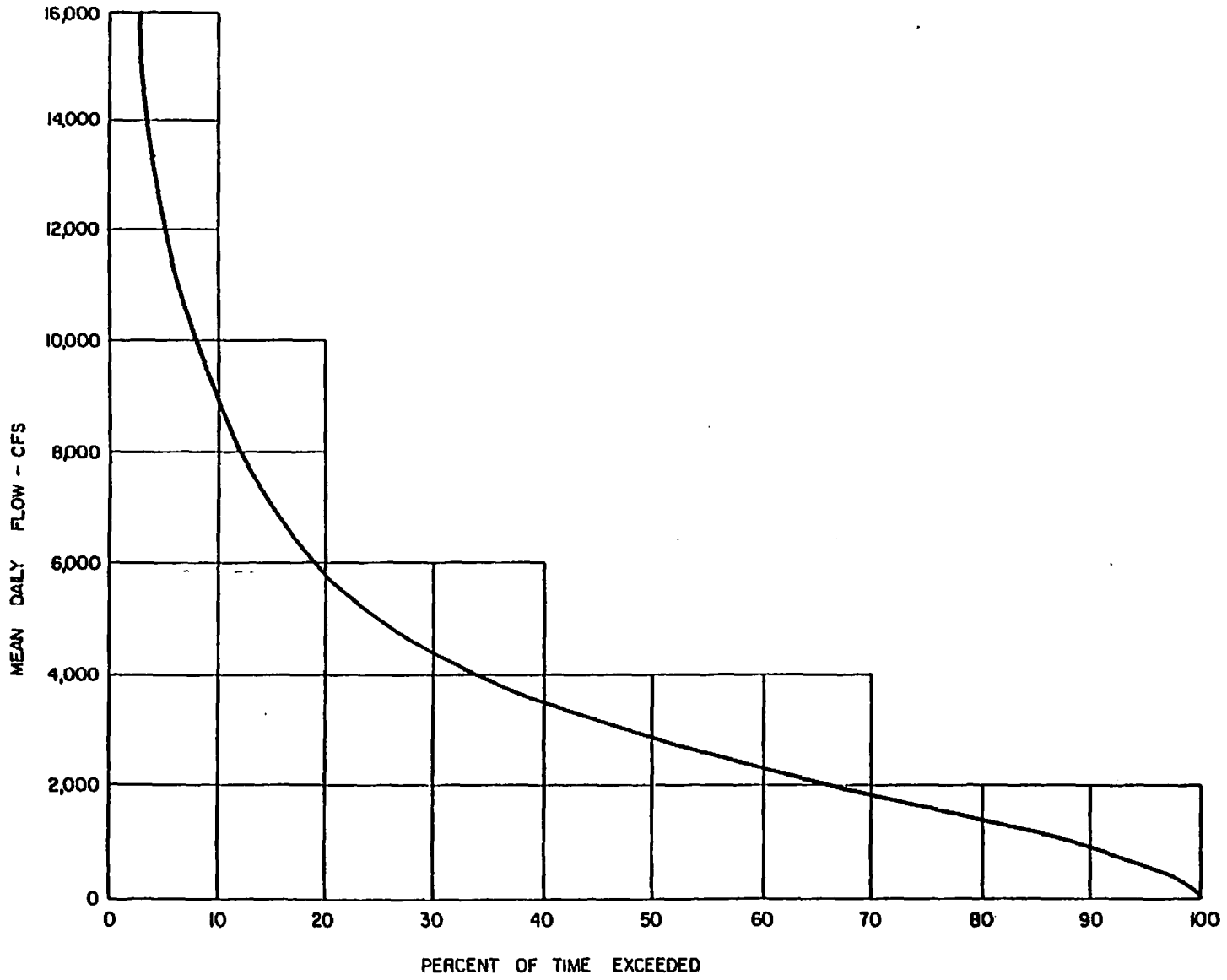


Figure A-1

ANNUAL
FLOW DURATION CURVE

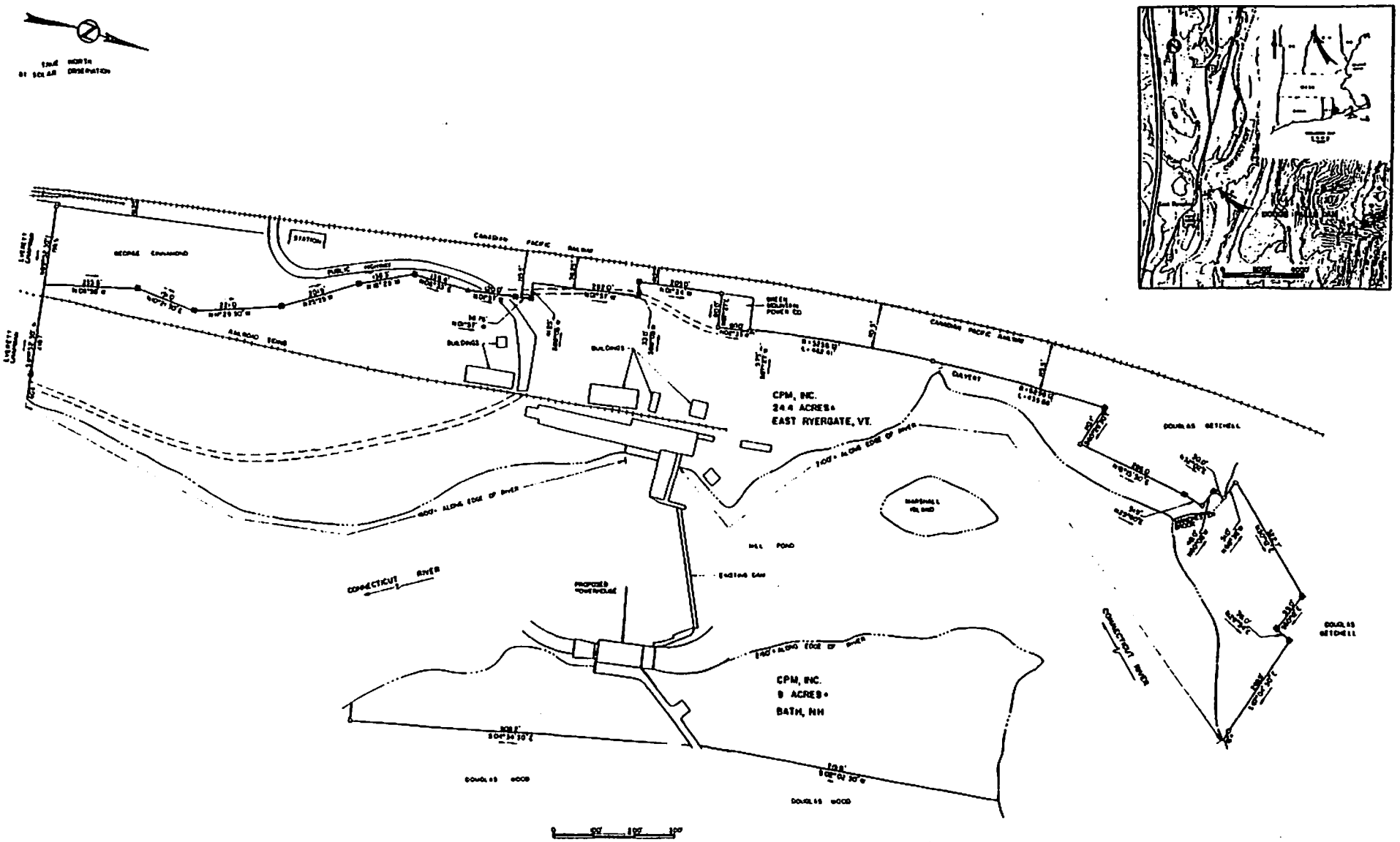
EXHIBIT B

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.A. LECLAIR ASSOCIATES, INC HANOVER, N.H. DATED MAY 10, 1979 AND MAY 1, 1979 SURVEYING ALSO PERFORMED BY E.A. LECLAIR ASSOCIATES, PC

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

REVISIONS	DATE DEC 1 1980	DRAWING NO
DRAWN [illegible]	SCALE AS SHOWN	
CHECKED	APPROVED	

EXHIBIT E

E.1 DESCRIPTION OF THE ENVIRONMENTAL SETTING

E.1.1 Land Use and Vegetative Cover

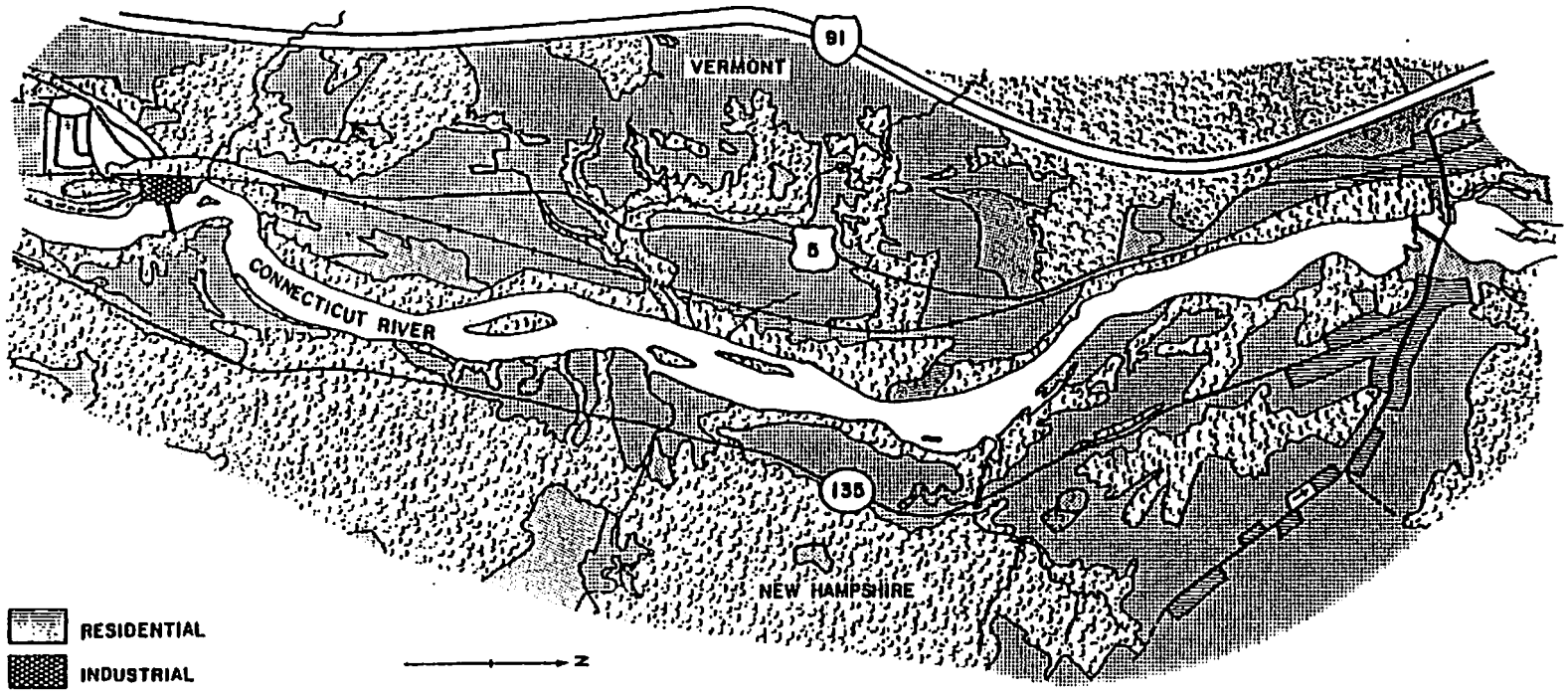
The Connecticut River Valley at Dodge Falls lies between Gardner Mountain (El. 1,564 ft.) in Bath and Monroe, New Hampshire, and the lower hills (about El. 1,000 ft.) of Ryegate, Vermont. Photographs of the project site as well as those referenced herein are shown in Appendix A. Forests cover most of 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

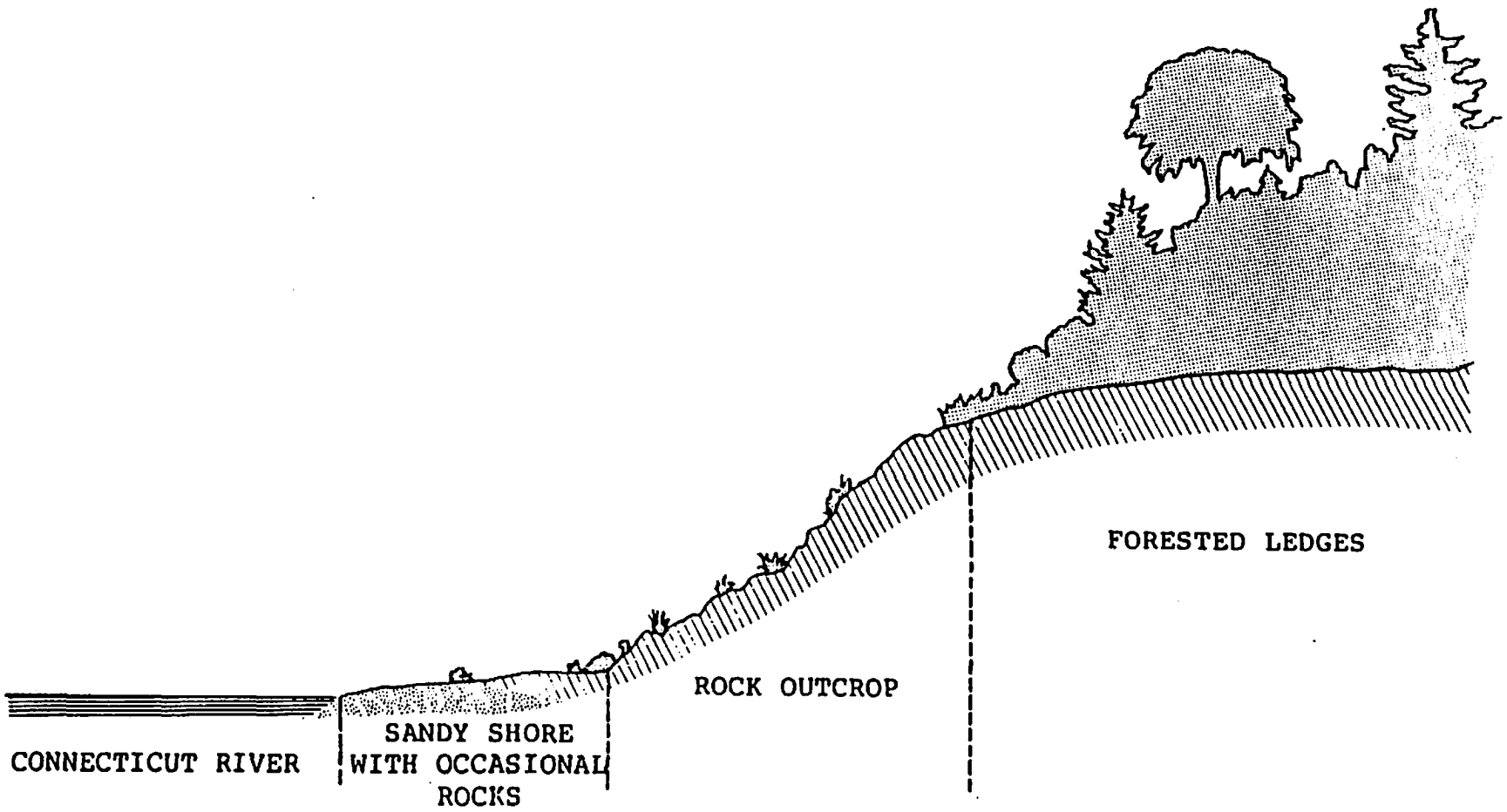


Figure E-2. Typical Shoreline Cross Section at Dodge Falls Project Area

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.

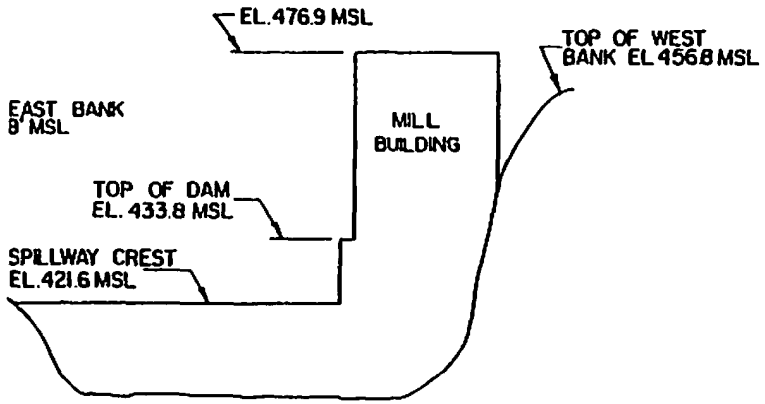
Fisheries and Water Quality Issues Fisheries and Water Quality Issues have been discussed elsewhere in this Exhibit.

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.

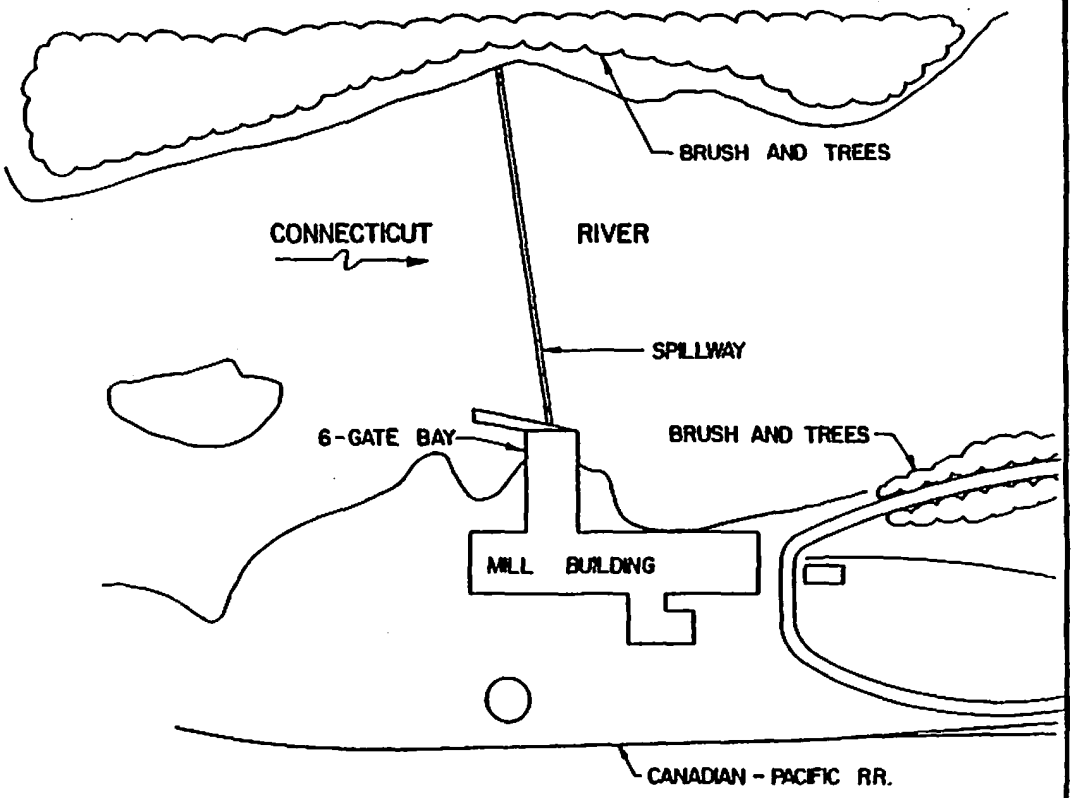
Conclusion The Applicant believes all of the issues raised have been addressed and that the final details will be worked out during design or as appropriate. A further response is anticipated from the Vermont Agency of Environmental Conservation.

EXHIBIT G

20' HIGHER



ELEVATION
NOT TO SCALE



PLAN
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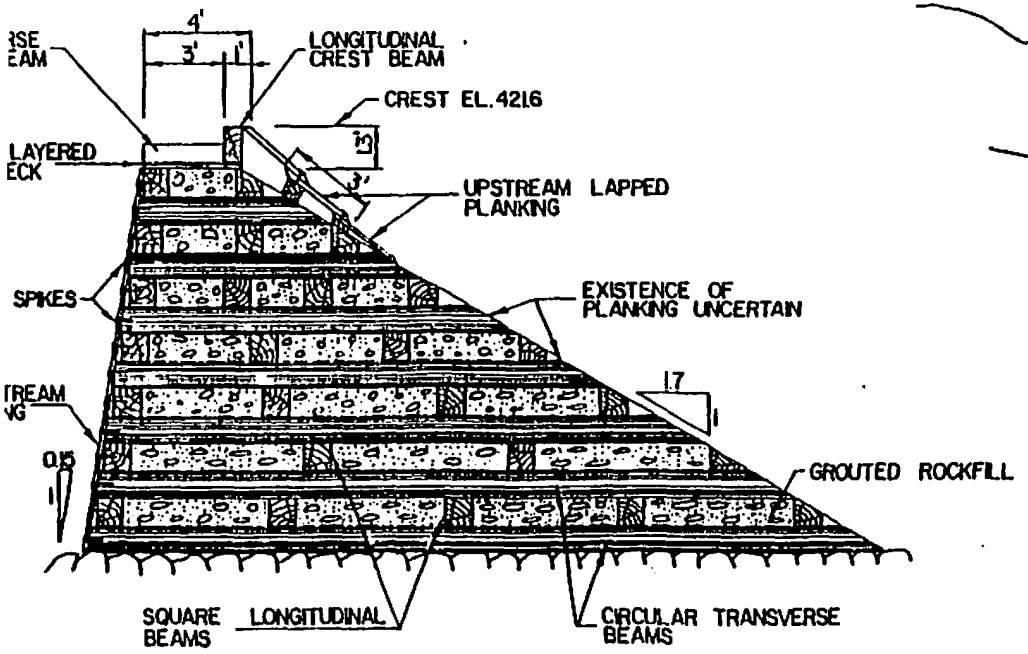


TYPICAL CROSS SECTION
SCALE 1" = 5'

EXHIBIT G-I

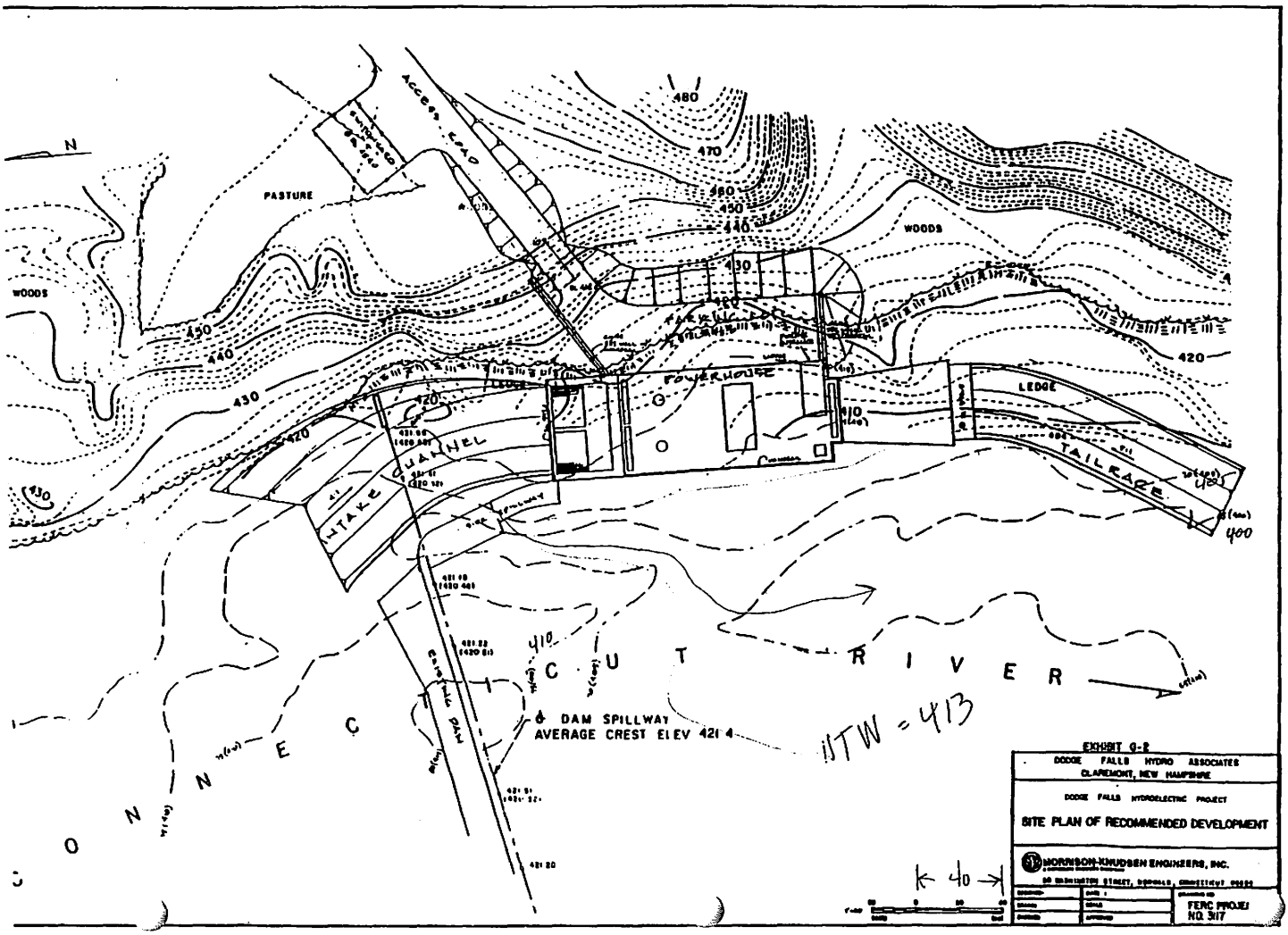
DODGE FALLS HYDRO ASSOCIATES
CLAREMONT, NEW HAMPSHIRE

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 HJ	SCALE AS SHOWN	
CHECKED	APPROVED	

FERC NO. 8011-3


N
PASTURE
ACCESS ROAD
WOODS
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470
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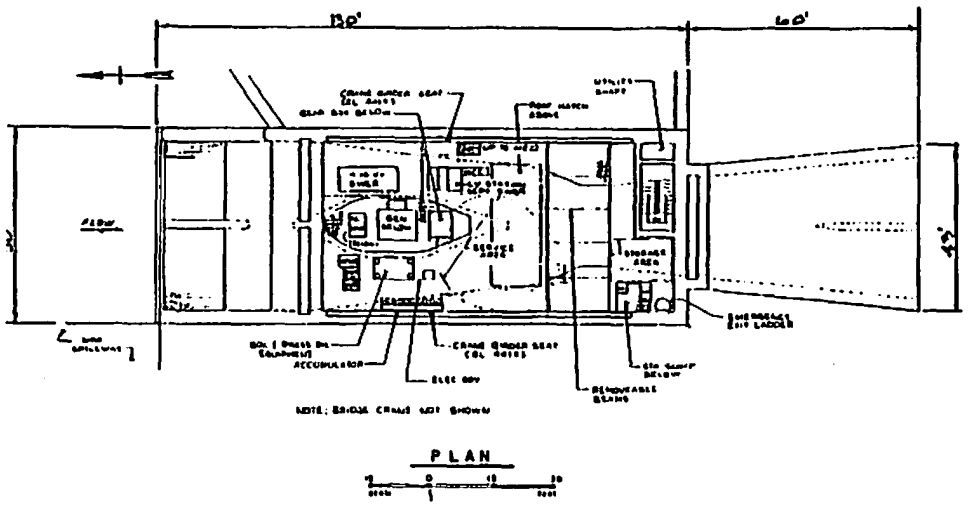
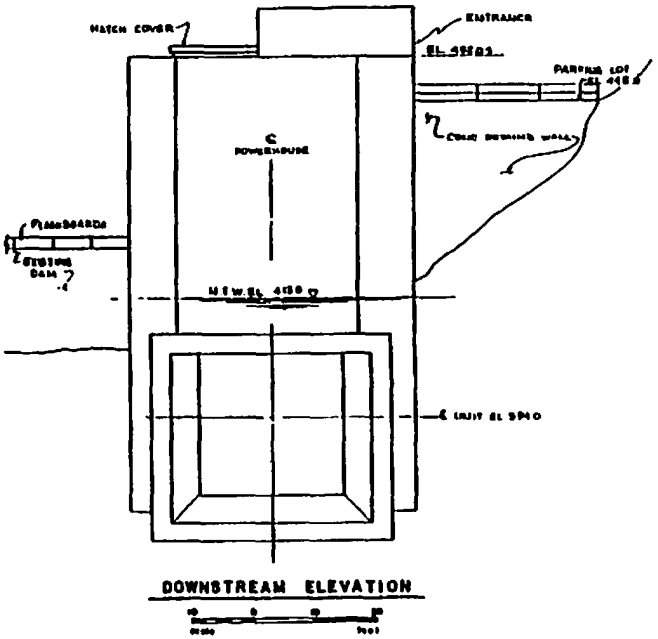
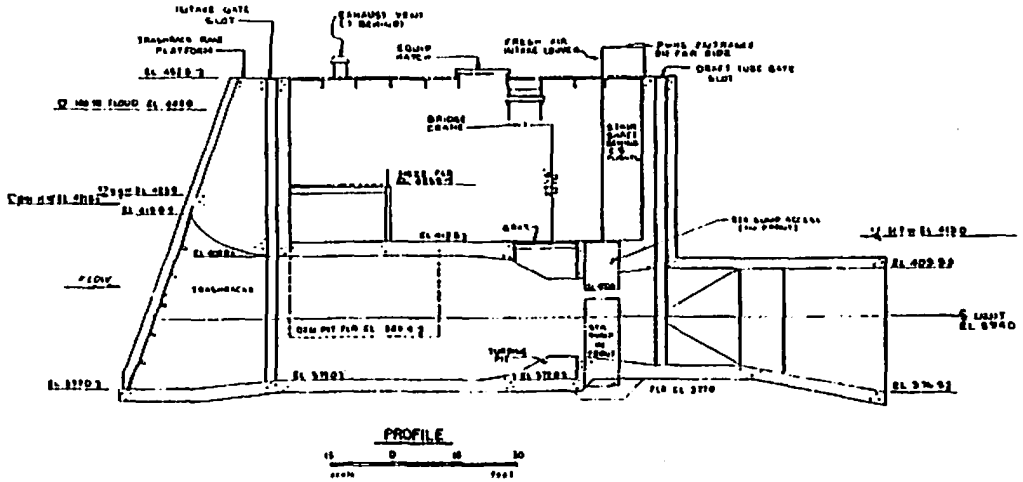
450
440
430
420
410
400
POWERHOUSE
LEDGE
TAILRACE
INTAKE
CHANNEL
C U T R I V E R
DAM SPILLWAY
AVERAGE CREST ELEV 421.4
TW = 413
EXHIBIT G-2
DODGE FALLS HYDRO ASSOCIATES
CLAREMONT, NEW HAMPSHIRE
DODGE FALLS HYDROELECTRIC PROJECT
SITE PLAN OF RECOMMENDED DEVELOPMENT
MORRISON-KNUDSEN ENGINEERS, INC.
FERC PROJECT NO. 317







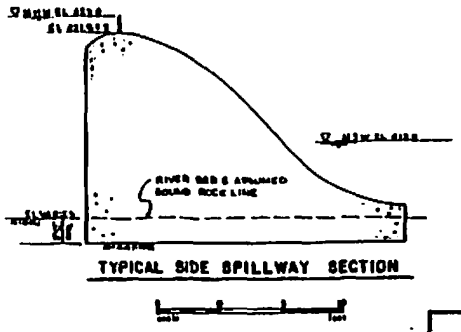


EXHIBIT G-3

DODGE FALLS HYDRO ASSOCIATES
CLAREMONT, NEW HAMPSHIRE

DODGE FALLS HYDROELECTRIC PROJECT

POWERHOUSE AND SIDE SPILLWAY
PLAN, PROFILE, ELEVATION, SECTION

MORRISON-KNUDSEN ENGINEERS, INC.
80 WASHINGTON STREET, NORWALK, CONNECTICUT 06854

	DATE	FERC PROJECT NO 3417
	SCALE AS SHOWN	
	APPROVED	

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 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 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

AQUATEC, INC. ENVIRONMENTAL SERVICE

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 Hokenson

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

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 CONSERVATIO

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

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

Steve Hickey

From: Steve Hickey
Sent: Tuesday, April 29, 2014 11:11 AM
To: 'giovanna.peebles@state.vt.us'
Subject: RE: Dodge Falls Hydro LIHI Re Certification

Dear Giovanna,

Per the below email I sent to you on April 7, 2014, Dodge Falls Associates, LP is in the process of re certifying with the Low Impact Hydropower Institute its Dodge Falls hydroelectric project (FERC No. 8011) located at river mile 268 on the Connecticut River n the towns of Bath, New Hampshire and Ryegate, Vermont. I have not received a response from you as of yet and would appreciate any feedback you can provide regarding this re certification. If I do not hear from you by Tuesday, May 6, 2014 I will assume you have no comments and/or objections and I will file the Dodge Falls application with LIHI indicating such.

Thank you and please feel free to contact me with any questions.

Steve

Stephen Hickey
Dodge Falls Associates, LP
c/o Essex Hydro Associates, L.L.C.
55 Union Street, 4th Floor
Boston, MA 02108
tel: 617-367-0032
fax: 617-367-3796

From: Steve Hickey [mailto:sjh@essexhydro.com]
Sent: Monday, April 07, 2014 12:15 PM
To: 'giovanna.peebles@state.vt.us'
Subject: Dodge Falls Hydro LIHI Re Certification

Dear Giovanna,

The Dodge Falls hydroelectric project (FERC No. 8011), located at river mile 268 on the Connecticut River in the towns of Bath, New Hampshire and Ryegate, Vermont is due for re certification by the Low Impact Hydropower Institute on or before June 1, 2014. The project was originally certified by LIHI on August 29, 2009 (see http://www.lowimpacthydro.org/lihi-certificate-42-dodge-falls-hydroelectric-project-connecticut-river-new-hampshirevermont-ferc-no.-8011.html) The applicant, Dodge Falls Associates, L.P. would appreciate any feedback you can provide regarding this re certification.

Comments were originally sought from your agency during the initial application process in 2009. Nothing has changed about the project or its operations since that time.

Failure to respond will be deemed as "no comment" and will be filed as such with LIHI.

Thank you and please feel free to contact me with any questions.

Sincerely,

Stephen Hickey
Dodge Falls Associates, L.P.
c/o Essex Hydro Associates, L.L.C.
55 Union Street, 4th Floor

Steve Hickey

From: Steve Hickey
Sent: Tuesday, April 29, 2014 11:12 AM
To: 'jeddins@achp.gov'
Subject: RE: Dodge Falls Hydro LIHI Re Certification

Dear John,

Per the below email I sent to you on April 7, 2014, Dodge Falls Associates, LP is in the process of re certifying with the Low Impact Hydropower Institute its Dodge Falls hydroelectric project (FERC No. 8011) located at river mile 268 on the Connecticut River n the towns of Bath, New Hampshire and Ryegate, Vermont. I have not received a response from you as of yet and would appreciate any feedback you can provide regarding this re certification. If I do not hear from you by Tuesday, May 6, 2014 I will assume you have no comments and/or objections and I will file the Dodge Falls application with LIHI indicating such.

Thank you and please feel free to contact me with any questions.

Steve

Stephen Hickey
Dodge Falls Associates, LP
c/o Essex Hydro Associates, L.L.C.
55 Union Street, 4th Floor
Boston, MA 02108
tel: 617-367-0032
fax: 617-367-3796

From: Steve Hickey [mailto:sjh@essexhydro.com]
Sent: Monday, April 07, 2014 12:14 PM
To: 'jeddins@achp.gov'
Subject: Dodge Falls Hydro LIHI Re Certification

Dear John

The Dodge Falls hydroelectric project (FERC No. 8011), located at river mile 268 on the Connecticut River in the towns of Bath, New Hampshire and Ryegate, Vermont is due for re certification by the Low Impact Hydropower Institute on or before June 1, 2014. The project was originally certified by LIHI on August 29, 2009 (see http://www.lowimpacthydro.org/lihi-certificate-42-dodge-falls-hydroelectric-project-connecticut-river-new-hampshirevermont-ferc-no.-8011.html) The applicant, Dodge Falls Associates, L.P. would appreciate any feedback you can provide regarding this re certification.

Comments were originally sought from your agency during the initial application process in 2009. Nothing has changed about the project or its operations since that time.

Failure to respond will be deemed as "no comment" and will be filed as such with LIHI.

Thank you and please feel free to contact me with any questions.

Sincerely,

Stephen Hickey
Dodge Falls Associates, L.P.
c/o Essex Hydro Associates, L.L.C.
55 Union Street, 4th Floor

Appendix 9

View of Powerhouse and Trash Rake (Looking Downstream)

View of Boat Safety Cable Upstream of Dam

View of Boat Safety Cable (Looking Upstream)

View of Dam (Looking across river from Powerhouse)

Warning Sign

Warning Sign on Marshall island

Sleeping Platform Adjacent to Portage Trail