APPLICATION REVIEW FOR
LOW IMPACT HYDROPOWER INSTITUTE CERTIFICATION
of the
PASSUMPSIC PROJECT NO. 2400

July 27, 2012

Application Reviewer: Patricia McIlvaine

WRIGHT-PIERCE
Engineering a Better Environment

APPLICATION REVIEW FOR LOW IMPACT HYDROPOWER INSTITUTE CERTIFICATION

PASSUMPSIC PROJECT - FERC PROJECT NO. 2400

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REVIEW OF APPLICATION FOR CERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE OF THE PASSUMPSIC HYDROELECTRIC PROJECT

Prepared by:
Patricia McIlvaine
July 27, 2012

I. INTRODUCTION AND OVERVIEW

This report reviews the application submitted by Central Vermont Public Service Corporation (Applicant or CVPS) to the Low Impact Hydropower Institute (LIHI) for Certification of the Passumpsic Hydroelectric Project P-2400 (Passumpsic Project), located on the Passumpsic River in Vermont.

II. PROJECT'S GEOGRAPHIC LOCATION

The Passumpsic Project is located in northeastern Vermont near St Johnsbury, at river mile 5.5, on the Passumpsic River. The Passumpsic River is a major tributary to the Connecticut River. The Passumpsic Project is one of seven dams located on the Passumpsic River (see Figure 1).

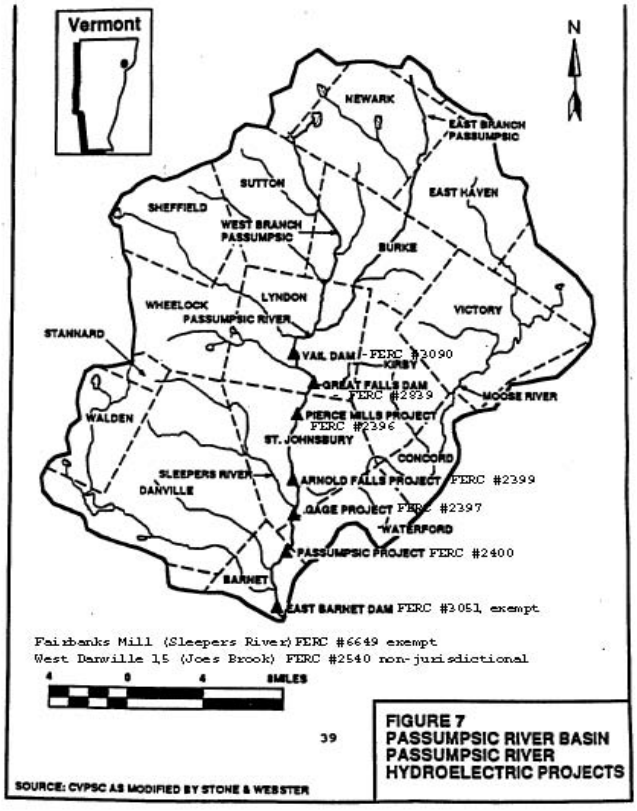

Figure 1 - Passumpsic River Basin

As shown on Figure 1, only the East Barnet Dam, which is also owned by CVPS is located further downstream. The Passumpsic River joins the Connecticut River just downstream of the East Barnet Dam. The drainage area for the Passumpsic Project is 482 square miles.

III. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

The Passumpsic Project is located approximately 1.7 miles downstream of the Gage Project. It was built in 1905-1906 for the St. Johnsbury Electric Company. The powerhouse was completely destroyed in the flood of 1927 but rebuilt in 1929.

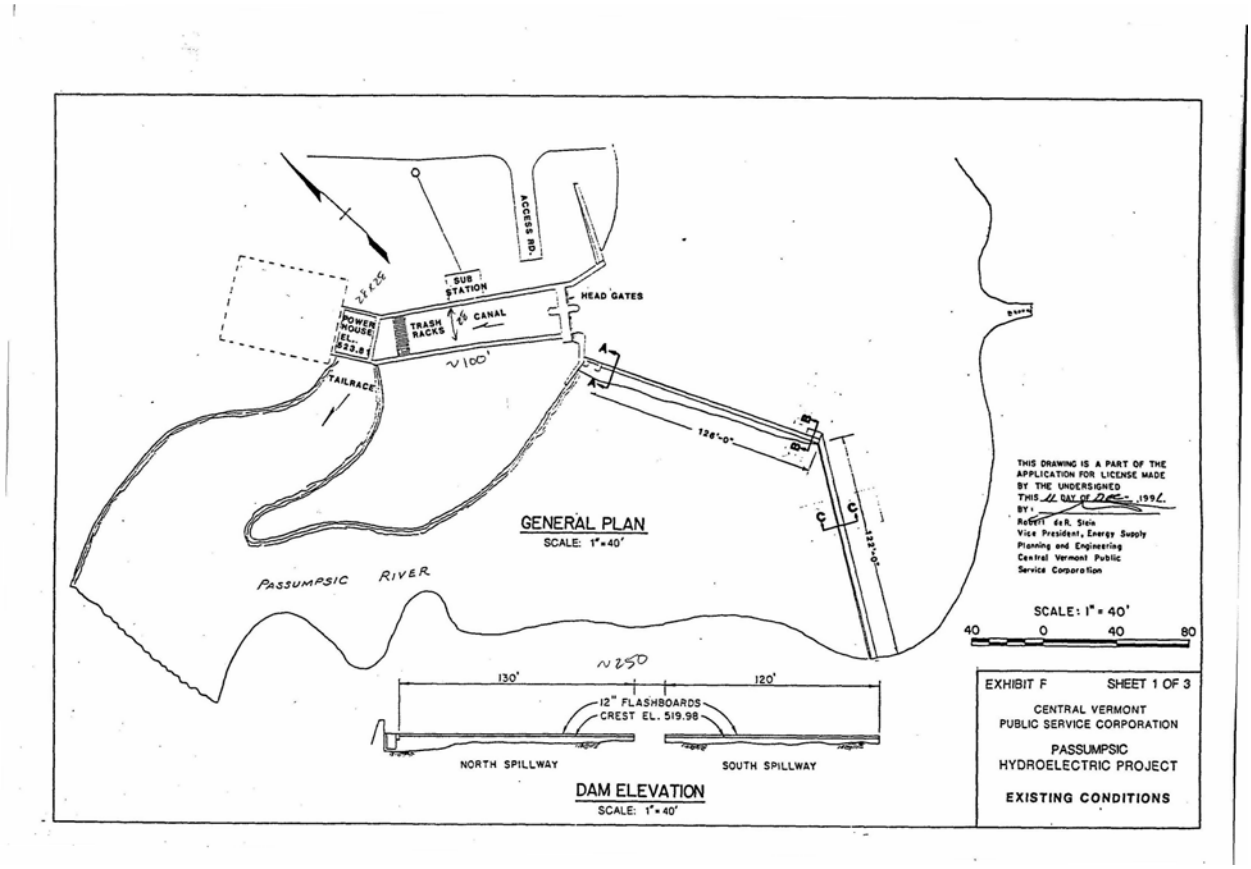

Figure 2 - Diagram of the Passumpsic Project

The Project impounds an 18.3-acre reservoir which extends 4,600 feet upstream with a usable storage of 18.4 acre-feet. The concrete gravity dam consists of two sections: (1) a south section 122 feet long by maximum height of 10 feet, with a crest elevation of 519.98 feet msl and topped with 1-foot-high flashboards; and (2) a north section 126 feet long by maximum height of 10 feet, with a crest elevation of 519.98 feet msl topped with 1-foot flashboards. The dam is equipped with a 27-foot wide headgate structure with two gates.

Figure 3 - Passumpsic Dam

The powerhouse contains one vertical shaft turbine rated at 708 kW and a generator rated at 700kW. A substation is located adjacent to the power canal. The downstream fish passage facility consists of a sluiceway in the spillway adjacent to the canal headworks. The bypassed reach is about 350 feet long. The project has a hydraulic range of 195 to 460 cfs and an average annual generation of about 2,349 MWh. Approximately 7,585 square feet of land area is occupied by the non-reservoir facilities at the Project. The power canal conveys flow to the powerhouse via an integral intake with an inclined trashrack. The canal is 19 to 22 feet wide and 87 feet long. There is also a sluice and a 24-foot long overflow spillway.

Figure 4 - Passumpsic Powerhouse and Power Canal

IV. REGULATORY AND COMPLIANCE STATUS

On December 31, 1991, CVPS filed an application to the Federal Energy Regulatory Commission (FERC) for a subsequent license to continue to operate and maintain the Passumpsic Hydroelectric Project. Timely motions to intervene were filed by the Vermont Agency of Natural Resources (VANR), the U.S. Department of Interior, and American Rivers. None of the entities opposed relicensing of the project. The FERC license states that comments received from interested agencies and individuals were fully considered in determining conditions associated with license issuance. The license was issued on December 8, 1994 for a 40 year term. See notes below regarding the license specific to the FERC license.

According to CVPS's application for LIHI certification, no compliance issues or regulatory proceedings or license amendments have been issued. A review of FERC's eLibrary from 1995 through March 2012, appears to generally support this position, but notes the following license modifications and past potential flow issues from 1999:

- an amendment of Article 402 and 403 regarding adjustments to flashboards to ensure aesthetic flow requirements are met without sacrificing attraction flows to the fish passage sluiceway. This amendment also required installation of a headpond controller system (HPS) to ensure control turbine output to maintain the headpond level within one inch of the top, or spilling over, the flashboards for aesthetic flows. Turbine output and the headpond level readings would be made every five minutes to maintain the headpond at the prescribed elevation.
- As discussed under Criterion A – Flows, eLibrary records indicate past flow management issues from 1999, most of which appear to have been resolved in 2000.
- As discussed under Criterion C - Fish Passage and Protection, two time extensions for the construction of the required fish passage facilities were requested and granted.
- As discussed under Criterion G - Recreation, extensions to file a Recreation Study Plan was revised from the 2005 deadline to 2008 and again to 2010.

CVPSC filed an application for water quality certification from the Vermont Agency of Natural Resources (VANR) for the Passumpsic Project. The application was withdrawn and re-filed on October 8, 1992, and again on June 21, 1993. The water quality certification was ultimately issued on June 16, 1994.

The FERC license denotes that certain conditions contained in the Water Quality Certificate extend beyond the authority of such a certification and there for were not incorporated, or were modified, within the FERC license. These include:

- Future upstream fish passage facilities shall be governed by the authority reserved under Section 18 of the Federal Power Act, and not those of VANR, if those specified in the future by VANR conflict with these federal mandates.
- FERC determined that VANR's requirement to review and approve all project maintenance and repair work including their scheduling inappropriately attempts to govern activities at the project which fall under the jurisdiction of FERC, not VANR.
- FERC did not accept VANR's requirement to have all future project changes be subject to VANR review and approval. FERC contends that such broad authority extends beyond

the authority provided under Section 401 of the Clean Water Act.

- FERC did not include VANR's right to "order" FERC to re-open the license at any time to consider modifications deemed necessary by VANR to meet state quality standards. FERC did however note that VANR has the ability to make such a request of FERC.

Review of FERC's eLibrary did not identify any reported license deviations in the past five years or license compliance delays other than the fish passage and Recreation Plan extensions identified above.

Resource agency comments obtained during telephone contact and emails received were generally supportive of the compliance activities at this site, with fish passage concerns being the only potential issue of concern. Telephone communications are summarized in Appendix A, followed by copies of written communications received from the resource agencies

V. PUBLIC COMMENT RECEIVED BY LIHI

The deadline for submission of comments on the certification application was April 6, 2012. No public comment letters were received.

VI. SUMMARY OF COMPLIANCE WITH CRITERIA AND ISSUES IDENTIFIED

Criterion A - Flows - The facility appears to be operated in compliance with the established minimum flow requirements, and reservoir fluctuation and re-filling rates. Some question remains regarding resolution of aesthetic flow issues. A condition to Project certification has been recommended to confirm that this issue has been resolved.

Criterion B - Water Quality - The facility appears to be operated in compliance with all water quality related conditions of the FERC license and Water Quality Certificate. No specific areas of concern were identified by the VANR.

Criterion C - Fish Passage and Protection - Downstream fish passage for anadromous fish has been installed and operating since August 1996. The USFWS reserved their authority within the FERC license under Section 18 of the FPA for construction of upstream passage and for modifying the downstream fish passage requirements as changes in needs arise. The VANR issued Water Quality Certificate has similar future non-species specific fish passage requirements. Neither upstream passage for anadromous or any passage for American eel have been requested. Passage to the Passumspic River is blocked by East Barnet Dam (also owned by CVPS) and further downstream by the Dodge Falls Dam located on the Connecticut River. The Dodge Falls Dam currently has no upstream fish passage facilities. No passage requirements have been identified for riverine species. Fish protection features consisting of 1-inch bar spacing trashracks have been installed. Downstream fish passage effectiveness testing in the form of observations was performed at this site and the Gage Project. The various resource agencies consulted during this LIHI review reported differences of opinion or lack of ability to confirm effectiveness of the downstream fish passages, as discussed further under Criterion C - Fish Passage and Protection. Effective July 2012, the USFWS ended their program for restoration of Atlantic Salmon to the Connecticut River basin. Thus, as the FERC license and

WQC requirements scheduled for 1997 have not been totally satisfied, but Atlantic salmon are no longer a target restoration species for this river system, a condition for LIHI certification is recommended rather than failure of the project for this criterion.

Criterion D - Watershed Protection - There are no requirements for a buffer zone, shoreline protection fund or shoreline management plan for the Facility. Thus, as all requirements , of which there are none, are nonetheless being met, this Facility passes for this criterion. No additional term for certification is appropriate.

Criterion E - Threatened and Endangered Species Protection - There are no federally or state endangered or threatened species found in the area or that would potentially be affected by Facility operations. The Bald Eagle is considered a potential transient only and would not be impacted by continued Project operations.

Criterion F - Cultural Resources - The Project is subject to the provisions of "Programmatic Agreement Among FERC, the Advisory Council on Historic Preservation and the Vermont State Historic Preservation Officer (SHPO)." Annual reports have been submitted as required by the single Cultural Resources Management Plan to both FERC and the Vermont State Historic Preservation Office. There are no issues with adherence to cultural resources (historic or archaeological) protection requirements at the Facility.

Criterion G - Recreation - The Project was found to be in compliance with all recreational requirements.

Criterion G - Facilities Recommended for Removal - No resource agencies have recommended dam removal.

VII. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION

Based on my review of information submitted by the applicant, the additional documentation noted herein, the public comments submitted in writing or through my consultations with various resource agencies and other entities, I believe that the Project is in compliance with the LIHI criteria, as discussed in detail later in this report.

Therefore, I recommend that the Passumpsic Project be certified to be in compliance with LIHI's criteria with a certification term of five years *but with the following conditions set forth below, for the reasons stated:*

(A) LIHI requires demonstration of effective fish passage to be certified as low impact. Downstream passage for Atlantic salmon was the focus for passage at this site; however, recent decision by the USFWS has eliminated restoration efforts for this species in this river system. Past documentation suggests that the agencies determined that the configuration of the passage facility sluiceway may be problematic. Recent communications with USFWS could not confirm the status of this issue at this site, and VDF&W stated that this concern and others may still exist at this site. Also, report issuance on the effectiveness testing at this site nor submission of final reporting

on effectiveness testing to FERC could not be confirmed. Therefore, LIHI requires that consultation be re-opened with USFWS and VDF&W to re-assess, if needed, the effectiveness of the passage facilities at Passumpsic. If no additional studies are needed, CVPS shall provide LIHI documentation demonstrating agreement by USFWS and VDF&W with this decision within one month of its issuance. If any additional studies are required, documentation of the agency approved study plan, study schedule and study results shall be provided to LIHI within one month of the finalization of these documents. These documents will demonstrate compliance with this criterion.

(B) LIHI requires compliance with all flow related requirements of the Project. Neither past documents nor recent agency communications have been able to confirm that past concerns regarding consistent aesthetic flows over the dam have been resolved. Therefore, LIHI requires that consultation be re-opened with VANR to confirm that this historical issue has either been resolved, or that it remains open. Agreements developed as part of this meeting(s) shall be provided to LIHI within one month of completion of this consultation.

LIHI reserves the right to withdraw or suspend LIHI certification should these conditions not be met in the time period prescribed.

VIII. DETAILED CRITERIA REVIEW

A. FLOWS

Goal: The Flows Criterion is designed to ensure that the river has healthy flows for fish, wildlife and water quality, including seasonal flow fluctuations where appropriate.

Standard: For instream flows, a certified facility must comply with recent resource agency recommendations for flows. If there were no qualifying resource agency recommendations, the applicant can meet one of two alternative standards: (1) meet the flow levels required using the Aquatic Base Flow methodology or the "good" habitat flow level under the Montana-Tennant methodology; or (2) present a letter from a resource agency prepared for the application confirming the flows at the facility are adequately protective of fish, wildlife, and water quality.

Criterion:

1) Is the facility in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?

YES - Data provided by the applicant and consultation with applicable resource agencies all indicated compliance with the flow requirements at this site. Installation of the headpond

controller system as required by the 1997 FERC License amendment to resolved inconsistencies between flow management and fish passage requirements, was confirmed. In summary these flow requirements include:

- a minimum flow of 78 cfs (excluding fish passage flows) or inflow when operating;
- a minimum flow of 33 cfs (includling fish passage flows) when not operating into the south channel. When inflow is <139 cfs, 26% of inflow is released to the south channel with the remainder to the north channel;
- restrictions on impoundment refilling rates; and
- matching of instantaneous outflow approximately with inflows to minimize reservoir fluctuations.

No exceptions to these flow requirements were reported in the FERC eLibrary in the past five years nor where any reported by the applicant. Discrepancies were identified in 1999 that appeared to have been resolved by 2000 by calibration of the sensors, revision to the down ramping protocol during low flow conditions to resolved issues associated with the required minimum flows for the Project.

One concern regarding consistent release of aesthetic flows over the dam as requested by resource agencies in the past could not be confirmed as having been resolved. The last communication on the issue was a letter dated December 11, 2000. Agency consultation could not confirm its resolution.

This Project conditionally passes Criterion A - Flows- Go to B

B. WATER QUALITY

Goal: The Water Quality Criterion is designed to ensure that water quality in the river is protected.

Standard*:* The Water Quality Criterion has two parts. First, an Applicant must demonstrate that the facility is in compliance with state water quality standards, either through producing a recent Clean Water Act Section 401 certification or providing other demonstration of compliance. Second, an applicant must demonstrate that the facility has not contributed to a state finding that the river has impaired water quality under Clean Water Act Section 303(d).

Criterion:

1) Is the Facility either:

a) In compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the facility after December 31, 1986? Or

Yes. The operation of Passumpsic is in compliance with the requirements of the 401 Water Quality Certificate which was issued on June 16, 1994, based on review of information provided and consultation with Mr. Shayne Jaquith of the Water Quality Division of VANR.

YES, go to B2

2) Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?

YES. Review of the 2010 Clean Water Act Section 303(d) List of Impaired Waters issued by the Vermont Agency of Natural Resources, Division of Water Quality identified the portion of the Passumpsic River from the Pierce Mills Project (upstream of Passumpsic) through a five-mile stretch downstream of the Passumpsic Project as "impaired". **GO TO B3**

3) If the answer to question B.2. is yes, has there been a determination that the Facility is not a cause of that violation?

YES. The impairment is identified as being due to *e. coli* originating from the St. Johnsbury, Vermont wastewater treatment facility, which passes combined sewer overflows. The Passumpsic Project is not identified as causing or contributing to this water quality impairment.

The Project Passes Criterion B - Water Quality - Go to C

C. FISH PASSAGE AND PROTECTION

Goal: The Fish Passage and Protection Criterion is designed to ensure that, where necessary, the facility provides effective fish passage for riverine, anadromous and catadromous fish, and protects fish from entrainment.

Standard: For riverine, anadromous and catadromous fish, a certified facility must be in compliance with both recent mandatory prescriptions regarding fish passage and recent resource agency recommendations regarding fish protection. If anadromous or catadromous fish historically passed through the facility area but are no longer present, the facility will pass this criterion if the Applicant can show both that the fish are not extirpated or extinct in the area due in part to the facility and that the facility has made a legally binding commitment to provide any future fish passage recommended by a resource agency. When no recent fish passage prescription exists for anadromous or catadromous fish, and the fish are still present in the area, the facility must demonstrate either that there was a recent decision that fish passage is not necessary for a valid environmental reason, that existing fish passage survival rates at the facility are greater than 95% over 80% of the run, or provide a letter prepared for the application from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service confirming the existing passage is appropriately protective.

Criterion:

1) **Is the facility in compliance with Mandatory Fish Passage Prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?**

YES, for anadromous species , if effectiveness of passage can be demonstrated. To be effective or no longer needed. . FERC license Articles 405 and 406 specified the requirements mandated by the USFWS and VANR for the construction and effectiveness testing of initially temporary, then permanent, downstream passage for salmon smolt (which are stocked upstream annually). Although delayed for two years, the permanent facility was constructed in September 1996. The downstream fish passage facility consists of a surface entrance weir and sluiceway in the spillway adjacent to the power canal headgate, which could result in the fish passing through the theadgate into the forebay area. The effectiveness testing plan was commented on by USFWS and VANR and following modification, was approved. Effectiveness testing was conducted through visual observations performed by USFWS, VANR and the owner at the Gage and Passumpsic Projects, as some concern for effective passage existed at these two sites. Documentation via a letter exists indicating that agency observations were made and that CVPS was performing the requested observations. A November 1997 report on the results of the observations at the Gage project was issued to the VANR and USFWS, although a similar report for the Passumpsic site has not been provided to this Reviewer. Shayne Jaquith of VANR's email response indicated that no non-compliance issues have been identified for any of the WQC conditions, including fish passage requirements. John Warner of USFWS stated he could not comment on the effectiveness of the passage facilities as he does not conduct inspections at these facilities regarding their effectiveness. Len Geradi of the VANR, Division of Fish and Wildlife (VDF&W) indicated that while the primary concern dealing with passage of salmon smolt was at the Gage Project, that he believes some issues may still exist at all four Passumpsic River projects. He however could not provide any specific details at this time. He did comment that it is likely that a final report was never developed for FERC submission.

Effective July 2012, the USFWS ended its program for Atlantic salmon restoration of the Connecticut River basin, including the Passumpsic River, thus in the opinion of the Reviewer, significantly reducing the importance of final demonstration of effectiveness testing of the downstream passage for this species.

Per Article 407 of the FERC license, a mandatory fish prescription for upstream passage was issued by the USFWS in December 1993. To date, upstream passage for anadromous species has not yet been requested based on consultation with both the USFWS. Upstream passage is blocked by the East Barnet Dam on the Passumpsic River and further downstream by the Dodge Falls Dam located on the Connecticut River.

GO TO B2 for catadromous species

2) **Are there historic records of anadromous and/or catadromous fish movement through the facility area, but anadromous and/or catadromous fish do not presently move**

through the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct)?

There are no current records for American eel in the Passumpsic River based on applicant provided data, specifically the 2005 Vermont Wildlife Action Plan. American eel were historically plentiful in the Lake Champlain and Connecticut River watersheds, however this Report identifies that numerous large dams on the Connecticut River prevent the passage of eel currently. Mr. John Warner of USFWS stated that the site is too far upstream to be available habitat for American eel. **G*o to C2a***

a) If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility?

YES. . The Dodge Falls dam, located downstream on the Connecticut River is a barrier for upstream passage of both anadromous and catadromous species. ***Go to C2b***

b) If a Resource Agency Recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?

YES, The USFWS has reserved authority for mandating upstream fish passage and for modifying the downstream fish passage requirements as changes in needs arise. This is included as Article 407 in the FERC license. As written, this prescription is not limited to any specific species. The Water Quality Certificate also has a non-species specific condition requiring such installation within a two year notice from the VANR for such passage. No upstream or downstream passage for catadromous species has been requested to date, based on consultation with the USFWS. **Go to C5**

5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream or downstream passage of riverine fish?

NOT APPLICABLE. No fish passage prescriptions have been issued for riverine fish. ***Go to C6***

6) Is the facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?

YES. Trashrakes with one-inch bar spacing was required and installed at the site.

The Project Conditionally Passes Criterion C - Fish Passage and Protection - Go to D

D. WATERSHED PROTECTION

***Goal**:* The Watershed Protection criterion is designed to ensure that sufficient action has been taken to protect, mitigate and enhance environmental conditions in the watershed.

***Standard**:* A certified facility must be in compliance with resource agency and Federal Energy Regulatory Commission ("FERC") recommendations regarding watershed protection, mitigation or enhancement. In addition, the criterion rewards projects with an extra three years of certification that have a buffer zone extending 200 feet from the high water mark or an approved watershed enhancement fund that could achieve within the project's watershed the ecological and recreational equivalent to the buffer zone and has the agreement of appropriate stakeholders and state and federal resource agencies. A Facility can pass this criterion, but not receive extra years of certification, if it is in compliance with both state and federal resource agencies recommendations in a license-approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.

Criterion:

1) Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the average annual high water line for at least 50% of the shoreline, including all of the undeveloped shoreline?

NO, *go to D2*

2) Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1), and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?

NO, *go to D3*

3) Has the facility owner/operator established through a settlement agreement with appropriate stakeholders, with state and federal resource agencies' agreement, an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)

NO, *Go to D4*

4) Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.

NOT APPLICABLE. No Shoreland Management Plan or equivalent plan was required for the Arnold Project. Under Article 401 of the FERC license, a plan to control erosion, to control

slope instability, and to minimize the quantity of sediment resulting from project construction and operation is required to be submitted 90 days prior to the start of any land-disturbing activities associated with the construction of recreation facilities, fishways, or other features required by this license.

The Project Passes Criterion D - Watershed Protection - Go to E

E. THREATENED AND ENDANGERED SPECIES PROTECTION

Goal: The Threatened and Endangered Species Protection Criterion is designed to ensure that the facility does not negatively impact state or federal threatened or endangered species.

Standard: For threatened and endangered species present in the facility area, the Applicant must either demonstrate that the facility does not negatively affect the species, or demonstrate compliance with the species recovery plan and receive long term authority for a "take" (damage) of the species under federal or state laws.

Criterion:

1) Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?

NO. No federal or state endangered or threatened species have been identified at the Passumpsic Project. The Bald Eagle, a state listed species is considered a potential transient but has not be observed in the vicinity of the Project.

The Environmental Assessment notes that the VANR indicated during re-licensing that the continued operation would not adversely affect populations of species inhabiting unique habitat at any of the Passumpsic Projects. Review of the VT ANR Natural Resources Atlas for current known presence of protected species, as recommended by Shayne Jaquith of VANR, was conducted by the Applicant as part of the Application submission. This review confirmed that no impacts to federal or state protected species are expected from the operation of the Passumpsic Project.

The Project Passes Criterion E - Threatened and Endangered Species Protection - Go to F

F. CULTURAL RESOURCE PROTECTION

Goal: The Cultural Resource Protection Criterion is designed to ensure that the facility does not inappropriately impact cultural resources.

Standard: Cultural resources must be protected either through compliance with FERC license provisions, or through development of a plan approved by the relevant state or federal agency.

***Criterion*:**

1) If FERC-regulated, is the Facility in compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?

YES. The FERC License requires implementation of the "Programmatic Agreement Among FERC, the Advisory Council on Historic Preservation and the Vermont State Historic Preservation Officer (SHPO)." This Agreement covers multiple CVPS hydropower Projects on the Passumpsic River and a single Cultural Resources Management Plan (CRMP) was developed (and approved in 2000) for all four Facilities requiring a five-year monitoring and reporting program. The four projects' dams, intake structures, generating units and powerhouses, including Passumpsic, are considered to represent the historic period (1882-1941) of hydroelectric power development in Vermont and are considered eligible for inclusion in the National Register of Historic Places. Annual reports associated with surveys of the project shoreline are submitted to both the FERC and the Vermont SHPO. Currently there do not appear to be any known archaeological sites threatened by Project operations. Documentation provided by the applicant has demonstrated compliance with cultural resources protection requirements. Likewise communications with the VT SHPO has confirmed their satisfaction with the Project's compliance history.

The Project Passes Criterion F - Cultural Resource Protection - Go to G

G. RECREATION

Goal: The Recreation Criterion is designed to ensure that the facility provides access to the water without fee or charge, and accommodates recreational activities on the public's river.

Standard. A certified facility must be in compliance with terms of its FERC license or exemption related to recreational access, accommodation and facilities. If not FERC-regulated, a certified facility must be in compliance with similar requirements as recommended by resource agencies. A certified facility must also provide the public access to water without fee or charge.

Criterion:

1) If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?

YES. . FERC license Article 412 required development and maintenance of a picnic area, parking area improvements, a handicapped fishing platform, a canoe put-on/ take-out and portage area and recreationally related signage. . A 2008 FERC inspection report, as noted in an email to CVPS dated May 9, 2012, found the sites well maintained. Evaluation of the use of the recreational facilities was assessed and a report submitted to FERC in September 2010 following modification to a draft of the report to incorporate VANR comments. ***Go to G3***

3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges?

YES. A statement issued by the applicant indicates that such access is provided free of charge.

The Project Passes Criterion G - Recreation - Go to G

H. FACILITIES RECOMMENDED FOR REMOVAL

Goal: The Facilities Recommended for Removal Criterion is designed to ensure that a facility is not certified if a natural resource agency concludes it should be removed.

Standard: If a resource agency has recommended removal of a dam associated with the facility, the facility will not be certified.

Criterion:

1) Is there a Resource Agency recommendation for removal of the dam associated with the Facility?

NO. No resource agency has recommended removal of this dam.

The Project Passes Criterion H -Facilities Recommended for Removal

THE PASSUMPSIC PROJECT MEETS THE LIHI CRITERIA FOR CERTIFICATION WITH THE FOLLOWING CONDITIONS:

(A) LIHI requires demonstration of effective fish passage to be certified as low impact. Downstream passage for Atlantic salmon was the focus for passage at this site; however, recent decision by the USFWS has eliminated restoration efforts for this species in this river system. Past documentation suggests that the agencies determined that the configuration of the passage facility sluiceway may be problematic. Recent communications with USFWS could not confirm the status of this issue at this site, and VDF&W stated that this concern and others may still exist at this site. Also, report issuance on the effectiveness testing at this site nor submission of final reporting on effectiveness testing to FERC could not be confirmed. Therefore, LIHI requires that consultation be re-opened with USFWS and VDF&W to re-assess, if needed, the effectiveness of the passage facilities at Passumpsic. If no additional studies are needed, CVPS shall provide LIHI documentation demonstrating agreement by USFWS and VDF&W with this decision within one month of its issuance. If any additional studies are required, documentation of the agency approved study plan, study schedule and study results shall be provided to LIHI within one month of the finalization of these documents. These documents will demonstrate compliance with this criterion.

(B) LIHI requires compliance with all flow related requirements of the Project. Neither past documents nor recent agency communications have been able to confirm that past concerns regarding consistent aesthetic flows over the dam have been resolved. Therefore, LIHI requires that consultation be re-opened with VANR to confirm that this historical issue has either been resolved, or that it remains open. Agreements developed as part of this meeting(s) shall be provided to LIHI within one month of completion of this consultation.

LIHI reserves the right to withdraw or suspend LIHI certification should these conditions not be met in the time period prescribed.

APPENDIX A

INDEX OF PRIMARY CONTACT INFORMATION FOR LIHI CRITERIA

LIHI CRITERION	PRIMARY CONTACT INFORMATION
Flows	Shayne Jaquith, VANR, DEC - Water Quality Division John Warner, USFWS Hydropower Coordinator
Water Quality	Shayne Jaquith,VANR, DEC - Water Quality Division
Fish Passage & Protection	Shayne Jaquith, VANR, DEC - Water Quality Division John Warner, USFWS Hydropower Coordinator Len Geradi, VANR, DF&W
Watershed Protection	None required
Threatened & Endangered Species	Shayne Jaquith, VANR, DEC
Cultural Resources Protection	Devin Colman, Vermont State Historic Preservation Office Scott Dillon, Vermont State Historic Preservation Office
Recreation	None required
Facilities Recommended for Removal	None required

RECORD OF CONTACTS

NOTE: The information presented below was gathered from contacts by email, telephone, and/or written public comments to LIHI. Telephone interviews were conducted either when the reviewer determined a response received by email or public comment was not available, insufficient, or when a contact preferred a telephone conversation. Copies of emails follow this page.

Date:	May 31, 2012 - Telephone conversation; June 4, 2012 email
Contact Person:	John Warner, USFWS, Hydropower Coordinator
Contact Information:	603-223-2541 x 15; john.warner@fws.gov
Area of Expertise:	Fisheries

Mr. Warner confirmed that upstream passage for anadromous species is not required due to downstream barriers. He also stated that the Passumpsic River is too far upstream to provide American eel habitat. He commented that he cannot state whether the site is, or is not, providing effective downstream fish passage or protection as he does not conduct follow-up investigation on such projects. His office depends on licensees adhering to their license commitments. In some instances, state resource agencies may conduct follow-up observations, but he was not aware that VF&W had done any for the CVPS sites. He did share email communications between he and Len Gerardi of VF&W who raised some question about the lack of formal effectiveness testing at any of the Passumpsic projects. Mr. Warner also stated that Len Gerardi, not Ken Cox, is the appropriate VF&W contact. A follow-up email from June 4, 2012 is also attached.

Date:	June 20, 2012
Contact Person:	Devin Colman Vermont State Historic Preservation Office
Contact Information:	802-828-3043; Devin.colman@state.vt.us
Area of Expertise:	Cultural Resources - Historic Structures

Devin reported that whenever CVPS has had any structure modifications, that appropriate consultation has been made and that resolution of issues has always been to the SHPO's satisfaction. Required reports are being files to the SHPO's office. No issues regarding impacts to historic structures have been identified. CVPS has been good to work with. He suggested contacting Scott Dillon to discuss archaeological issues.

Date:	July 26, 2012 Telephone call
Contact Person:	Scott Dillon Vermont State Historic Preservation Office
Contact Information:	802-828-3048; Scott.dillon@state.vt.us
Area of Expertise:	Cultural Resources – Archaeological resources

Scott reported that whenever CVPS has had any structure modifications or excavations, that appropriate consultation has been made and that resolution of issues has always been to the

SHPO's satisfaction. He described CVPS as a 'good steward" in terms of cultural resource protection. No issues regarding impacts to archaeological resources have been identified.

Date:	April 16 email and May 31, 2012 telephone call
Contact Person:	Shayne Jaquith, VANR, Department of Environmental Conservation, Water Quality Division
Contact Information:	802-338-4853; Shayne.jaquith@state.vt.us
Area of Expertise:	Water Quality Certification

See attached email dated April 16 summarizing communications regarding compliance with conditions under the Water Quality Certifications issued for all of the CVPS the sites seeking LIHI certification. When contacted on May 31 regarding protected species, Shayne suggested I review the VT ANR Natural Resources Atlas for known presence of protected species in lieu of his office conducting such a review. (Note: Such a review was completed as part of the LIHI Application preparation.) Shayne Jaquith also stated that the VANR is appreciative of the LIHI process in that they are seeing projects undergoing improved compliance programs as a result of LIHI conditions required to obtain certification.

Date:	May 31 and June 1, 2012
Contact Person:	Len Gerardi, VANR, Division of Fish & Wildlife
Contact Information:	802-885-8828; ken.cox@state.vt.us
Area of Expertise:	Fisheries

On May 31, Mr. Gerardi commented he did not recall the observation level effectiveness testing that was done for the Passumpsic Projects. During a June 1 conversation, following his review of key letters documenting this past testing, he reported that several issues are still unresolved at the Passumpsic River sites, although he believes fish passage issues are more of a concern at the Gage Project. His June 1 email is attached.

Patricia B. McIlvaine

From: John_Warner@fws.gov
Sent: Monday, June 04, 2012 8:26 AM
To: Gerardi, Len
Cc: Fitzgerald, Brian; 'Patricia B. McIlvaine'; Wentworth, Rod
Subject: RE: Documents on Passumpsic Projects downstream fish passage effectiveness testing
Attachments: Memo Site Inspection fish passage Passumpsic River.pdf

Pat - I looked through our files and found a series of site visit reports from our fishway engineer between 1998 and 2001 (attached) - Review of these reports suggest that we have accepted some aspects of passage at the sites , but had concerns over some components and had recommendations to improve passage. It is not clear from our files that the recommended changes were ever implemented, not is it completely clear that CVPS received all these reports. Regardless, at a minimum, it seems that CVPS would need to respond to items identified in the attached memos relative to whether they were, in fact, implemented.

-- jw

(See attached file: Memo Site Inspection fish passage Passumpsic River.pdf)

John P. Warner
Assistant Supervisor, Conservation Planning Assistance and Endangered Species
New England Field Office, U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541 - ext.15
(603) 223-0104 - FAX

www.fws.gov.northeast/newenglandfieldoffice

"Gerardi, Len" <Len.Gerardi@state.vt.us>

"Gerardi, Len" <Len.Gerardi@state.vt.us>	To"'Patricia B. McIlvaine'" <Pat.McIlvaine@wright-pierce.com>
05/31/2012 06:39 PM	cc"'John_Warner@fws.gov'" <John_Warner@fws.gov>, "Wentworth, Rod" <rod.wentworth@state.vt.us>, "Fitzgerald, Brian" <Brian.Fitzgerald@state.vt.us>
	SubjectRE: Documents on Passumpsic Projects downstream fish passage effectiveness testing

Pat,

The documents you passed along are from 1996.

I went back to my time logs and found that on May 25 and 26, 1995 I was addressing salmon smolts stalled in the Gage headrace. The Passumpsic River water temperature had risen to 14oC at 1500 hrs. I recall the river flow was quite low for the season. On June 2 I coordinated

UNITED STATES GOVERNMENT
U.S. FISH AND WILDLIFE SERVICE
300 WESTGATE CENTER DRIVE
DIVISION OF ENGINEERING
HADLEY, MASSACHUSETTS 01035-9589

DATE: May 24, 2001

MEMORANDUM

To: Regional Engineer
To: Supervisor, New England Field Office, Concord, N.H.
Attention: John Warner

From: Curtis Orvis, Hydraulic Engineer

Subject: Site Inspections of Downstream Fish Passage Facilities on the Passumpsic River at the East Barnet (FERC#3051), Passumpsic (FERC# 2400), and Gage (FERC# 2397) Hydroelectric Projects in Vermont (Tributaries to the Connecticut River) on May 23rd with Len Gerardi, VTANR, Fisheries and John Warner, NEFO(ES).

East Barnet Hydroelectric Project, FERC#3051, Passumpsic River, VT

Background on the design and construction were presented by KA and USFWS. The angled rack and bypass were constructed to the approved design standards. Flow observed in the bypass was about 22 cfs and the river flow was estimated to be 500 cfs. The forebay, bypass sluice, control gate, pipe and exit channel and chute were inspected in detail. About 6 smolts were observed in the forebay. The turbine unit has a capacity range from 125 to 1100 cfs.

Issues discussed at the site inspection were concern for delays to Atlantic salmon smolts, downstream passage effectiveness and efficiency, need for more data or better refinement of whether there is a problem.

In attendance were:

John Warner, NEFO(ES)	Len Gerardi, VT ANR Fisheries
John Greenan, Central Vermont Public Service	Jeff Wallin, Consultant for Owner
Brandon Kulik, KA Consultant for Owner	Curt Orvis, USFWS, Fish Passage Eng.
Tom Kahl, KA Consultant for Owner	Bill McCrae, CVPS Operator

Information collected by Steve McCormick, Conte Lab, were reviewed. On May 10, 1999 at a water temperature of 14 C, 80 smolts were angled in the forebay. The average discharge in 1999 on May 10th was 849 cfs from the USGS gage at Passumpsic (slightly upstream). The day before and day after, the discharge was less than 700 cfs. A review of the approach velocities was made. For the 21.7-foot deep x 30-foot wide angled rack an area of 651 square feet is computed. At a turbine discharge of about 650 cfs, the average approach velocity would be about 1 fps. At the 849 cfs discharge, the approach velocity would be about 1.3 fps.

For the observations on May 23rd at a discharge of 500 cfs, the approach velocity would be about 0.8 fps. Comparing to the Holyoke Canal louvers, it would represent a situation with about half-capacity discharge. Operating the canal (capacity 8000 cfs) at 4000 cfs was considered undesirable due to the reduced efficiency. At Holyoke there is additional flow passing through the Hadley Falls units that could be diverted first, but in the Passumpsic the total river discharge is being passed through the units for attraction.

On May 16, 2001 at a temperature of 11 C, 6 fish were caught in the bypass trap and 26 fish were angled from the forebay. This year based on provisional data, the discharge was between 600 and 700 cfs on May 16th. Thus, the approach velocity would be about 1 fps. It would be useful comparing the temperature data John Greenan had on

the site to the flow data available. CVPS will review evaluation studies and measures using the recommendations from the fisheries agencies.

Passumpsic Project, FERC# 2400, Passumpsic River, VT

At the Passumpsic project, the protective rack with 1-inch clear spacing was installed with air cleaning system. The minimum flow bypass was operating with about 7 to 15 inches of overflow depth over the stop log planks. The plunge from the gate dropped about 6 feet onto the sill of the gate. A plunge pool is needed for smolt passage. Constructing a downstream wall was proposed to create the pool. Sand bags were suggested to be used to determine the best location for the wall. CVPS and KA will pursue further.

Gage Project, FERC# 2397, Passumpsic River, VT

The forebay and bypass structure were inspected. A sweeping flow passes over the bypass gate and into the downstream channel which appears to avoid any impact on the ledge below. Depths appear to be adequate in the flow and pools for smolt passage.

Cavendish Project, FERC# 2489, Black River, VT

Preliminary results of mark/recapture studies at the Cavendish Project were discussed. Partial surface screening and increased bypass flow of 10 cfs were tested. Effectiveness to date appears to be less than 60 percent. One more batch of test fish remain to be released. Obtaining additional test fish was discussed, but there appears to be no more available. Operations will continue with the 10 cfs discharge through June 15.

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HADLEY, MASSACHUSETTS 01035-9589

DATE: September 3, 1999

MEMORANDUM

To: Regional Engineer
To: Supervisor, New England Field Office, Concord, N.H.
Attention: John Warner

From: Curtis Orvis, Hydraulic Engineer

Subject: Site Inspections of Downstream Fish Passage Facilities at Selected Passumpsic, Stevens, and Wells River Hydroelectric Projects in Vermont (Tributaries to the Connecticut River) on August 26th with Len Gerardi, VTANR, Fisheries.

Emerson Falls Hydro Project, FERC# 7809, Sleepers River, VT (Exemption)

Issues discussed at the site inspection were flows, weir modifications, flow control and monitoring, debris disposal, and leakage. In attendance were:

Judy Pransky, Owner/operator
Josie Stapenhorst, Owner/operator
Martin Arsenault, Eng./consultant
Francis Lee, FERC
Len Gerardi, VT ANR Fisheries
Jeff Cueto, VT ANR, State Hydrologist, DEC
Brian Fitzgerald, VT ANR, DEC
Curt Orvis, USFWS, Fish Passage Eng.

Len explained the first need to pass the 15 cfs minimum flow at the center weir and second requirement for downstream fish passage at the project. Owners have a reluctance to construct either a canal head works or angled rack at the upstream end of the power canal. I explained the minimum requirement of 1-inch clear spaced rack with an adjacent bypass for downstream fish passage. The rack was re-constructed at the penstock intake without the surface bypass. Once again we reiterated options for completing downstream fish passage at the project include installing a seasonal rack at the upstream end of the intake canal and notching the dam near the center or creating a bypass and plunge pool at the recently re-constructed intake where the rake is located. As the project stands at this time, smolts will be trapped in the intake canal without an exit other than through the turbines or swimming upstream through the intake canal and locating the minimum flow bypass. A design and construction schedule is needed for completion of the downstream fishway. Jeff Cueto was opposed to constructing concrete side walls or plunge pool at the penstock intake. USGS provisional data give a flow of 3.4 cfs for the inspection date of August 26, 1999.

Pierce Mills Hydroelectric Project, FERC# 2396, Passumpsic River, VT

We discussed the downstream bypass and Len felt that it was functioning properly with the recent plunge pool rock excavation. We did not inspect the site.

Arnolds Falls Project, FERC # 2399, Passumpsic River, VT

We briefly inspected the completed downstream bypass at the hydro site. We were able to walk down the

We inspected the dam and intake to the penstock at the project. The tailwater appeared to be adequate depth, but a bypass collection box with sluice or pipe is needed to transfer fish from the forebay to the bypass reach. A letter from the NEFO(ES) was sent to the developer on Sept. 2, 1999 re-iterating the need for downstream fish passage at the project.

Conclusion

Additional work is needed at the Emerson Falls, Arnold's Falls, Gage, Passumpsic, Cavendish, Barnet, Boltonville, and Newbury sites to complete the plunge pools and make the downstream fishways safe and effective for downstream passage of Atlantic salmon smolts. It appears that a comprehensive project review is needed in the spring (or fall) prior to the downstream passage season with project insufficiencies formally communicated to the owners/developers of the projects.

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U.S. FISH AND WILDLIFE SERVICE
300 WESTGATE CENTER DRIVE
DIVISION OF ENGINEERING
HADLEY, MASSACHUSETTS 01035-9589

DATE: February 5, 1999

MEMORANDUM

TO: Supervisor, NEFO (ES), Concord, N.H.
Attention, John Warner

FROM: Curt Orvis, Hydraulic Engineer

SUBJECT: Photographic Record of Progress on Proposed Downstream Fish Passage Structures on the Passumpsic River, Connecticut River Basin, Vermont.

Reference is made to a September 11, 1998 memorandum that provides details to the site inspections completed in August 1998.

Photographs of the following sites (in downstream order) are attached:

Project	FERC#	Facilities Needed			
		1-inch cl. sp.	Rack	Conveyance	Plunge Pool
Passumpsic River					
Vail	3090	X		X	X
Great Falls	2839	X		X	X
Pierce Mills	2396				X?
Arnold Falls	2399	X		X	X
Gage	2397				X(I)
Passumpsic	2400				X(I)
East Barnett	3051				X(I)
Sleepers River					
Emerson Falls	7809			X	X
Black River					
Cavendish	2489				X

X - needed X(I) - improvements recommended

Attachments

cc: L. Gerardi, Vermont F&G, St. Johnsbury (without attachments)
B. Rizzo, EFO, Newton Corner, Ma. (without attachments)

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300 WESTGATE CENTER DRIVE
DIVISION OF ENGINEERING
HADLEY, MASSACHUSETTS 01035-9589

DATE: September 8, 1998

MEMORANDUM

To: Regional Engineer
To: Supervisor, New England Field Office, Concord, N.H.
Attention: John Warner

From: Curtis Orvis, Hydraulic Engineer

Subject: Site Inspections of Downstream Fish Passage Facilities at the Passumpsic River Hydroelectricd Projects in Vermont (Tributary to the Connecticut River)

Emerson Falls Hydro Project, FERC# 7809

Options for completing downstream fish passage at the project include installing a seasonal rack at the upstream end of the intake canal and notching the dam near the center or creating a bypass and plunge pool at the newly constructed intake with rack with rake. As the project stands at this time, smolts will be trapped in the intake canal without an exit other than through the turbines.

Pierce Mills Hydroelectric Project, FERC# 2396

The combined downstream bypass and minimum flow release structure adjacent to the trashracks was complete and passing the required discharge to the bypass channel. The new trashracks with 1-inch clear spacing were at the site. The bypass plunge was inspected closely and appeared good. It did appear that some portion of the plunging flow was welling up on the upstream side of the plunge pool which might indicate the need for removal of additional rock or debris from the pool. Otherwise, the design changes appeared to be very effective.

Arnolds Falls Project, FERC # 2399

The depth of the proposed plunge pool was investigated at minimum flows (approximately 33 cfs) and tailwater elevations by reducing the flow through the unit. The depth at the proposed outlet and plunge impact was measured to be 2 feet deep. Based on existing criteria of 1/4 of the differential head at the site, the plunge pool needs to be 4' deep. There will be a sweeping flow from the draft tubes, but additional depth is required to insure that smolts will not impact the bedrock outcrop at the base of the plunge. The contractor planned to dewater and excavate the rock by hand or non-blasting techniques. KA will investigate depths of flow versus slope for final design of the downstream bypass chute.

The angled rack and other guidance/diversion options were discussed at length. Overlay plates and bar insertions were rejected by the operator as "choking" the unit. The intake is only about 12 feet deep which requires for all practical purposes full-depth protection. The first test of flow inducers did not produce the desired visual results that CVPS wanted. The angled rack as designed will be supported from the existing pier at the intake and side wall of the intake forebay without additional piers, but the estimated cost was still in the $250,000 range which is expensive for this low-head, low-Mw project.

Patricia B. McIlvaine

From: Gerardi, Len [Len.Gerardi@state.vt.us]
Sent: Thursday, May 31, 2012 6:40 PM
To: 'Patricia B. McIlvaine'
Cc: 'John_Warner@fws.gov'; Wentworth, Rod; Fitzgerald, Brian
Subject: RE: Documents on Passumpsic Projects downstream fish passage effectiveness testing

Pat,

The documents you passed along are from 1996.

I went back to my time logs and found that on May 25 and 26, 1995 I was addressing salmon smolts stalled in the Gage headrace. The Passumpsic River water temperature had risen to 14oC at 1500 hrs. I recall the river flow was quite low for the season. On June 2 I coordinated with CVPS' station operator Frank Chaloux to evacuate smolts remaining in the Gage headrace essentially by draining it.

I believe all the 1996 stir and motion on fish passage efficiency / effectiveness monitoring was prompted by the observed problems with smolts being trapped in the Gage headrace in 1995.

I know that in response to the problem and our consultation CVPS installed a thermometer at Gage that could be read from outside the powerhouse. I believe that temperature logging was instituted for a time, and a record of springtime temperatures may well have been forwarded to DEC and FW for one or more years thereafter. If systematic monitoring of salmon behavior at the stations, other than just looking to see if smolts were holed up in the Gage headrace, was ever undertaken, it now escapes my memory. I'm pretty sure no official reports were ever submitted for ANR review. CVPS' John Greenan is someone involved whose memory may be better than mine.

I think that like so many situationally burning issues, the issue of salmon smolt passage (or insufficiency thereof) returned to a slow smolder in high water / cold temperature springs that followed 1995, and other brushfires sucked up my attention.

I believe there are myriad uncertainties and unresolved concerns still out there regarding passage efficiency / effectiveness at the CVPS facilities in question on the Passumpsic.

As I mentioned I will be on leave for much of the time between tomorrow and Monday June 25. I doubt I will have any time between now and then to delve into my archives to dredge up any pertinent history and documentation on this matter.

Lenny Gerardi
Fisheries Biologist
Vermont Fish and Wildlife Department
1229 Portland Street, Suite 201

St. Johnsbury, VT 05819
Phone: (802) 751-0108
FAX: (802) 748-6687
EMail: LEN.GERARDI@STATE.VT.US

From: Patricia B. McIlvaine [mailto:Pat.McIlvaine@wright-pierce.com]
Sent: Thursday, May 31, 2012 3:10 PM
To: Gerardi, Len
Cc: 'john.warner@fws.gov'
Subject: Documents on Passumpsic Projects downstream fish passage effectiveness testing

Len & John

Here are what appear to be the key documents I was provided regarding what was deemed appropriate effectiveness testing at the time. The highlights are mine.

Thanks

Pat

Pat McIlvaine | Project Manager

Wright-Pierce | Water, Wastewater & Infrastructure Engineers

Please note my new e-mail address: pat.mcilvaine@Wright-Pierce.com

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Patricia B. McIlvaine

From: Maryalice Fischer <MFischer@normandeau.com>
Sent: Friday, April 20, 2012 1:33 PM
To: gabriela@goldfarbconsulting.com; pbm@wright-pierce.com
Cc: fayer@lowimpacthydro.org; John King
Subject: FW: Review of LIHI Certifcation Candidate Projects

Hello Gabriela and Pat,

CVPS was successful with obtaining the information below from Vermont relative to compliance with their water quality certifications. As you know, the WQCs (included as part of the LIHI applications) are not limited strictly to issues of water quality itself, but also to other resource protection measures included as conditions within those certifications.

Please let me know if you have any questions.

Maryalice Fischer
Normandeau Associates, Inc.
917 Route 12
Westmoreland NH 03467

603.757.4011 voice
603.903.4702 mobile

From: Jaquith, Shayne [mailto:Shayne.Jaquith@state.vt.us]
Sent: Monday, April 16, 2012 10:09 AM
To: Eliason, Beth
Subject: RE: Review of LIHI Certifcation Candidate Projects

Beth,

In addition to the reviews I sent you on the 13th, you had requested a review of the Silver Lake project. I've conducted that review and my comments follow.

Silver Lake
The Silver Lake Hydroelectric Project was certified in 2008 by the Department of Environmental Conservation (the Department). Conformance with the conditions of the certification would assure that the project does not violate Vermont Water Quality Standards. At this time the Department has no information to suggest that the project is not operating in full conformance with the conditions of its water quality certification.

If you have any further questions, don't hesitate to contact me.

Take care,
Shayne

Please note that my phone number has changed to 802-338-4853

Shayne Jaquith
Streamflow Protection Program
Department of Environmental Conservation
Water Quality Division
103 S. Main St, 10 North, 1st Floor
Waterbury, VT 05671-0408

802-338-4853
shayne.jaquith@state.vt.us

From: Jaquith, Shayne
Sent: Friday, April 13, 2012 1:17 PM
To: 'beliaso@cvps.com'
Subject: Review of LIHI Certifcation Candidate Projects

Hi Beth,

BT asked me to review the LIHI candidate projects that you had submitted to him. I have completed review of most but not all of the projects you submitted and wanted to provide you with my comments on those projects. I will continue my review of the remaining projects and expect to have comments to you by the end of next week. My comments are provided below.

Cavendish FERC Project No. 2489
The Cavendish Hydroelectric Project was certified in 1993 by the Department of Environmental Conservation (the Department). Conformance with the conditions of the certification would assure that the project does not violate Vermont Water Quality Standards. At this time the Department has no information to suggest that the project is not operating in full conformance with the conditions of its water quality certification.

Middlebury Lower FERC Project No. 2737
The Middlebury Lower Hydroelectric Project was certified in 1999 by the Department of Environmental Conservation (the Department). Conformance with the conditions of the certification would assure that the project does not violate Vermont Water Quality Standards. At this time the Department has no information to suggest that the project is not operating in full conformance with the conditions of its water quality certification.

Weybridge FERC Project No. 2731
The Weybridge Hydroelectric Project was certified in 1993 by the Department of Environmental Conservation (the Department). Conformance with the conditions of the certification would assure that the project does not violate Vermont Water Quality Standards. At this time the Department has no information to suggest that the project is not operating in full conformance with the conditions of its water quality certification.

Pierce Mills FERC Project No. 2396
The Pierce Mills Hydroelectric Project was certified in 1994 by the Department of Environmental Conservation (the Department). Conformance with the conditions of the certification would assure that the project does not violate Vermont Water Quality Standards. At this time the Department has no information to suggest that the project is not operating in full conformance with the conditions of its water quality certification.

Arnold Falls FERC Project No. 2399
The Aronld Falls Hydroelectric Project was certified in 1994 by the Department of Environmental Conservation (the Department). Conformance with the conditions of the certification would assure that the project does not violate Vermont Water Quality Standards. At this time the Department has no information to suggest that the project is not operating in full conformance with the conditions of its water quality certification.

Gage FERC Project No. 2397
The Gage Hydroelectric Project was certified in 1994 by the Department of Environmental Conservation (the Department). Conformance with the conditions of the certification would assure that the project does not violate Vermont Water Quality Standards. At this time the Department has no information to suggest that the project is not operating in full conformance with the conditions of its water quality certification.

Passumpsic FERC Project No. 2400

The Passumpsic Hydroelectric Project was certified in 1994 by the Department of Environmental Conservation (the Department). Conformance with the conditions of the certification would assure that the project does not violate Vermont Water Quality Standards. At this time the Department has no information to suggest that the project is not operating in full conformance with the conditions of its water quality certification.

Take care,
Shayne

Please note that my phone number has changed to 802-338-4853
Shayne Jaquith
Streamflow Protection Program
Department of Environmental Conservation
Water Quality Division
103 S. Main St, 10 North, 1st Floor
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