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6 July 2018

Ms. Maryalice Fischer
Certification Program Director
Low Impact Hydropower Institute

RE: Recertification Recommendation for the Pierce Mills Hydroelectric Facility

Ms. Fischer:

This letter contains my recommendation for Recertification of the Pierce Mills Hydroelectric Facility (the Project) for an eight-year term. Please find my Reviewers report to support this recommendation in the attached document.

Please contact me if you have any questions.

Sincerely,

Diane M. Barr, Principal
Camas, LLC

PIERCE MILLS HYDROELECTRIC PROJECT

LIHI CERTIFICATION STAGE II REPORT

Introduction and Overview

This report reviews the application submitted by Green Mountain Power (Applicant) to the Low Impact Hydropower Institute (LIHI) for LIHI recertification for the Pierce Mills Hydroelectric Project (Facility) located on the Passumpsic River in northeastern Vermont. The Federal Energy Regulatory Commission (FERC) relicensed the Project (FERC 2396) in 1994 for the operation and maintenance of the 271-kW Project. This application review for recertification was conducted using the new, 2nd Edition Handbook that was published in March 2016.

Background:

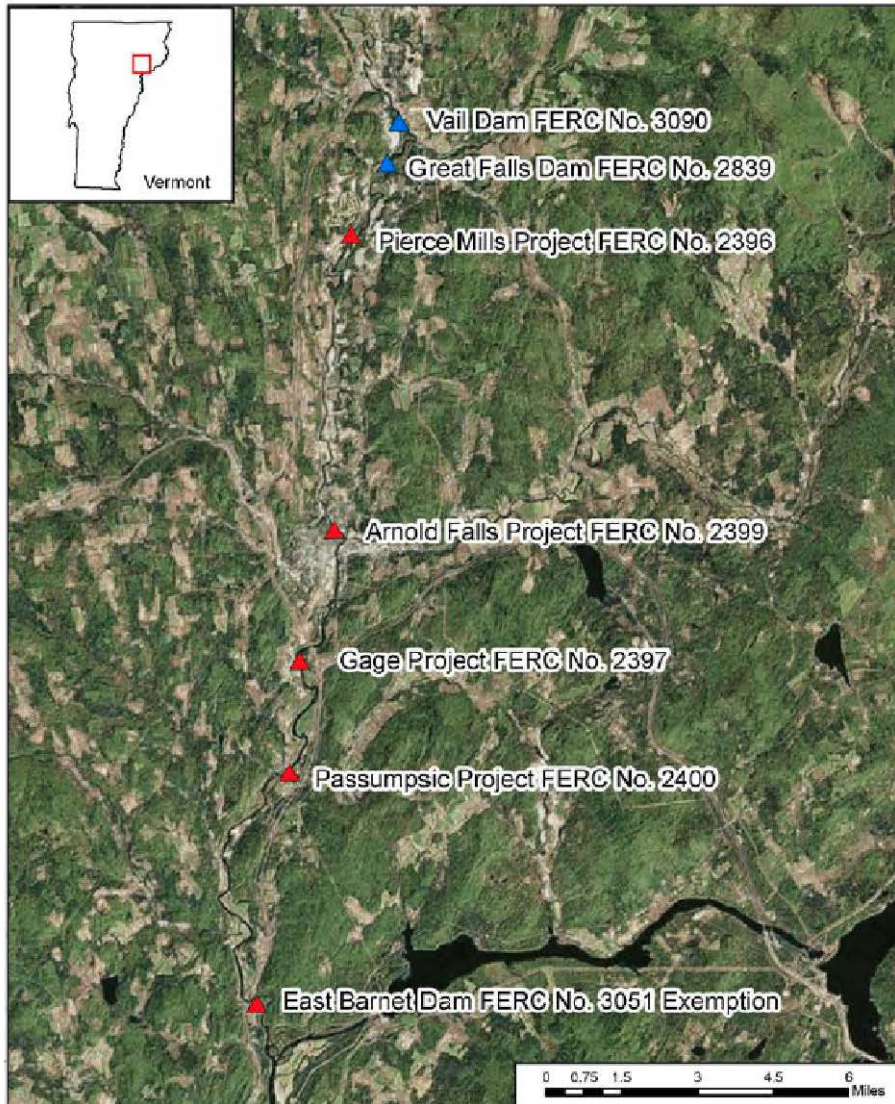
The Pierce Mills Project is located in northeastern Vermont near St Johnsbury, at river mile 15.2, on the Passumpsic River. The Passumpsic River is a major tributary to the Connecticut River. The Project's hydroelectric facilities are owned and operated by the Green Mountain Power Corporation (GMP or Licensee), formerly Central Vermont Public Service Corporation. The Pierce Mills Project is the fifth most downstream of seven dams located on the River (see Figure 1 below). The drainage area for the Pierce Mills Project is 418 square miles.

Recertification Standards


LIHI notified the Applicant of upcoming expiration of the Low Impact Hydropower Institute certification for the Pierce Mills Hydroelectric Facility on February 6, 2017. The letter included an explanation of procedures to apply for an additional term of certification under the 2nd Edition LIHI Handbook, including the new two-phase process starting with a limited review of a completed LIHI application, focused on three questions:

- (1) Has there been a material change at the certified facility since the previous certificate term?
- (2) Has there been a change in LIHI criteria since the certificate was issued?
- (3) Is there any missing information from the application?

If the answer to any question is “Yes,” the Application must proceed through a second phase, which consists of a more thorough review of the application using the LIHI criteria in effect at the time of the recertification application. The letter noted that “because the new Handbook involves new criteria and a new process, the answer to question two for all projects scheduled to renew in 2016 and beyond will be an automatic ‘YES.’ Therefore, all certificates applying for renewal post 2016 will be required to proceed through both phase one and phase two of the recertification application reviews.” Multiple extensions of the certification term were issued, extending the current certificate to September 30, 2018 to allow time for the Applicant to supply missing information. The Stage I Review was completed in February 2017, noting minor deficiencies and areas to resolve in an updated Stage II application. The 60-day public comment period was initiated on January 3, 2017 with no comments on the application being received by LIHI. A revised application was submitted to LIHI on April 2, 2018 and this report comprises the final Stage II review.



LEGEND: Green Mountain Power

	Pierce Mills Hydro Location	
	FIGURE 1: SITE LOCATION MAP	
	Source: ESRI	May 2018

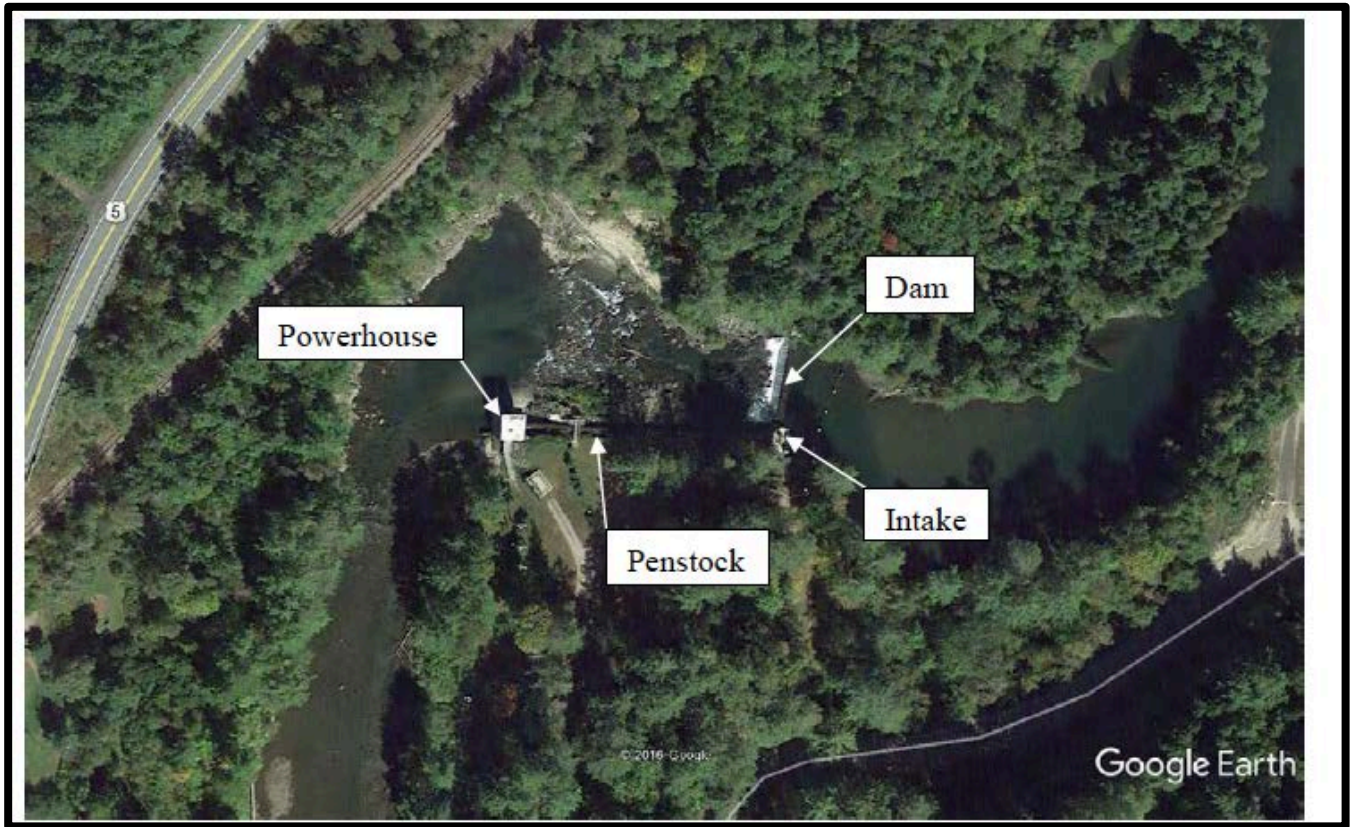


Figure 2: Project Features

Adequacy of the Recertification Package

On March 29, 2018, the Applicant provided supplemental information based on the deficiencies identified during the Stage I Review. My recertification review included the application package, supporting comments and documentation from LIHI obtained during compliance reviews and public records on FERC e-library since the most recent LIHI recertification dated February 2, 2012. Personal communication (email/phone) outreach was made to the following agencies:

Agency	Contact
Vermont Department of Environmental Conservation	Jeff Crocker, Streamflow Protection Coordinator
Vermont Department of Environmental Conservation	Eric Davis, River Ecologist
Vermont Division of Historic Preservation	Scott Dillon, Survey Archaeologist
US Fish and Wildlife Service	Melissa Grader, Wildlife Biologist
US Fish and Wildlife Service	Brett Towler, Hydraulic Engineer
Vermont Division of Fish and Wildlife	Jud Kratzer, Fish and Wildlife Specialist
Vermont Division of Fish and Wildlife	Scott Darling, Wildlife Management Program Mngr
Vermont Division of Fish and Wildlife	John Buck, Migratory Birds Biologist

Response was provided by Eric Davis, Vermont DEC, at the time of this report. Requesting agency concurrence is not a LIHI recertification requirement. Such efforts are optional, and therefore lack of response is not considered an application deficiency. See Appendix A for personal communication evidence. The application was publicly noticed and received no public comments during the comment period. The materials provided and

referenced above are sufficient to make a recertification recommendation. This recommendation is based on the Applicant demonstrating the following statements are accurate:

- 1) **Have there have been material changes in the project design or operation, in the affected environment, or in compliance with the current LIHI Certification or with LIHI conditions since the last certification?**

In accordance with the Recertification Standards, "material changes" mean non-compliance and/or new or renewed issues of concern that are relevant to LIHI's criteria. Based on my review of materials provided, review of FERC's public records, and consultation with the noted individuals, I found that there are no areas of noncompliance or new or renewed issues of concern. The previous LIHI certificate has no conditions for implementation.

- 2) **Where the LIHI certification criteria satisfied in all zones?**

The Applicant properly selected 3 zones: Impoundment, Bypassed Reach, and Downstream

Project Zones of Effect

Impoundment Zone of Effect

In the Impoundment Zone of Effect (ZOE), Standard 1 "Not Applicable/De Minimis Effect" was appropriately applied for Criteria A (Ecological flows), C (Upstream passage), and E (shoreline protection). The Applicant provided sufficient evidence to support the Standard 1 as there is no active storage at the Project which functions as a run of river project, the ZOE has no bypassed reach, there are no current federal prescriptions for the upstream passage of fish and migratory fish are blocked by downstream Connecticut River dams, and the Applicant conferred with Vermont DEC verifying that the Project functions as a run of river and the Project remains in compliance with the Water Quality Certificate (See Appendix C of the Application).

In the Impoundment Zone of Effect (ZOE), Standard 2, "Agency Recommendation", was appropriately applied for B-Water Quality, D-Downstream Fish Passage, F-Threatened and Endangered Species, G-Cultural and Historic Resources, and H-Recreational Resources. The Applicant has satisfied each of these Criterion as shown below.

Criterion B: Water Quality

The Project demonstrated compliance with the Vermont DEC issued 401 Certificate (1994) as well as by providing a current testimonial from Vermont DEC that the Project meets current 303d standards by being non-contributory. See Appendix C of the Application. Even though the WQC is not considered "current" under the LIHI Handbook, the Stage II Reviewer considers the Impoundment ZOE operation to be consistent with the current Vermont DEC regulatory requirements. To verify this, the Applicant submitted Project operations data to Vermont DEC on March 29, 2018. The Vermont DEC's review of the operations data supported the concurrence with the 1994 issued WQC, which was evidenced on July 5, 2018 and shown in Attachment A of this review.

Criterion D-Downstream Fish Passage

Under FERC License Article 405 and Water Quality Certification Condition F, permanent downstream fish passage was provided via a transition box. As stated within the Project License and WQC, the downstream fish passage also benefits resident trout species. The Applicant provides a downstream fish passage facility that operates year-round and installed a trashrack system with 1-inch clear bar spacing to prevent entrainment. No further protections are required by resource agencies for resident fish passage at the Project. The Applicant provided sufficient evidence to support these findings.

Criterion F-Threatened and Endangered Species

In December 2016, the Vermont Fish and Wildlife (VTFW) concluded that current Project operations do not negatively impact the state and federally listed northern long-eared bat or the bald eagle (Application, Appendix E). No additional species have been listed since 2016 that reside in the Project area.

The Spikemoss (Selaginella) and shining lady's tresses (Spiranthes lucida) are listed by the Vermont Natural Heritage Program as "uncommon plants" and were found in the vicinity of the Project. During re-licensing, VANR determined that State listed significant habitats found in the Project vicinity would not be impacted by continued Project operations.

Criterion G-Cultural and Historic Resources

Protection of cultural and historic resources is managed through a Cultural Resources Management Plan. The Applicant provided sufficient evidence that all necessary resources have and will continue to be protected. The FERC 2013 Environmental Inspection (5-year interval) concluded that inspection frequency can be reduced due to the lack of impact to the resources, and the Project is in compliance with its License conditions.

Criterion H-Recreational Resources

In accordance with License Article 412 and WQC Conditions K and L, the Applicant developed and maintains recreation facilities including a canoe/kayak take-out and portage trail with associated directional signage in the Impoundment ZOE. A Recreation Management Plan (RMP) was approved by FERC in 1995, and all prescribed improvements have been implemented. FERC Environmental Inspection (2013) confirmed compliance with the RMP. FERC Order dated March 30, 2017 (<https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14539473>) approved the Applicant's amended RMP relocating a parking area due to excessive vandalism. An email dated January 19, 2018, the Vermont DEC confirmed Project compliance with the amended RMP (Application, Appendix G).

Criterion H-Recreational Resources-PLUS

The Applicant has voluntarily committed to updating the Passumpsic River Canoeing and Recreation Guide in consultation with the Vermont Agency of Natural Resources (VANR) and other area stakeholders. The Applicant initiated consultation with Vermont Department of Forests, Parks and Recreation, Vermont Department of Environmental Conservation, Vermont Fish and Wildlife Department, Northwoods Stewardship Center, Vermont River Conservancy, and a historian knowledgeable about the history of the river. Their efforts provided new sections and updated information to the Guide. In addition, the Applicant partnered with Vermont River Conservancy to prepare detailed riverway maps, highlighting both the recreational opportunities, as well as the historically significant features of the Passumpsic River. In addition, services of Northwoods Stewardship Center and the local historian were utilized to develop updated text, and provide additional historical information and photographs for the Guide. The resulting revised Guide includes collaboratively developed descriptive text of the boating opportunities and riverway features, photographs and historical images of key riverway features, detailed river segment maps, and additional information pertaining to the Passumpsic River.

The **LIHI PLUS Standard** states that to meet an Applicant must demonstrate "new public recreational opportunities that **have been created on facility lands or waters beyond those required by agencies** (e.g., campgrounds, whitewater parks, boating access facilities and trails)". The recent updates of the River Canoeing and Recreation Guide¹, provides the public with enhanced knowledge of recreation opportunities both on and off Project lands and waters. This Guide provides a direct connection to the recreation user to

¹ www.greenmountainpower.com/wp-content/uploads/2016/12/001-Passump-Rec-Guide_06082017_FINAL-web-print.pdf

enhance and create additional opportunity. The collaborative effort of the multi-party interest groups established that the public needed better information to enhance their experience. Therefore, the Applicant's action meets the PLUS Standard.

Bypass Reach Zone of Effect

In the Bypass Zone of Effect (ZOE), Standard 1 "Not Applicable/De Minimis Effect" was appropriately applied for Criteria C (Upstream passage), and E (shoreline protection). The Applicant provided sufficient evidence to support the Standard 1 as there is no active storage at the Project which functions as a run of river project, there are no current federal prescriptions for the upstream passage of fish and migratory fish are blocked by downstream Connecticut River dams, and the Applicant conferred with Vermont DEC verifying that the Project functions as run of river and remains in compliance with the Water Quality Certificate (See Appendix C of the Application).

In the Bypass Zone of Effect (ZOE), Standard 2, "Agency Recommendation", was appropriately applied for A-Ecological Flows, B-Water Quality, D-Downstream Fish Passage, F-Threatened and Endangered Species, G-Cultural and Historic Resources, and H-Recreational Resources. The Applicant has satisfied each of these Criterion as shown below.

Criterion A-Ecological Flows

Vermont DEC issued a Project WQC on June 16, 1994 (see Application Appendix C). In accordance with WQC Condition C (Article 403 of the 1994 License), the Applicant provides, when flows are available, a minimum instantaneous flow of 88 cfs through the downstream fishway. If the instantaneous inflow falls below the hydraulic capacity of the turbine unit plus this spillage requirement, all flows, except for those needed for downstream fish passage (20 cfs from April 1 – June 15 and September 15 – November 15), are spilled at the dam. Per agreements made during an October 22, 1996 meeting with the VANR, USFWS, and the Licensee and confirmed within the April 10, 1997 FERC Order Modifying and Approving Flow Management Plans a continuous veil of water (equating to an additional 7 cfs of flow) is spilled over the Project flashboards from June 1 through October 31 to enhance aesthetics. The Applicant conducted a study in 1992-1993 in consultation with the VTFW and the USFWS. The study evaluated minimum flows needed to support fisheries habitat in the bypassed channel. Within study analysis, it was determined that a minimum flow of 88 cfs or inflow provides adequate habitat conditions for species/life stage (See Appendix C for the WQC).

Project operations data was provided to Vermont DEC on March 29, 2018 for verification of Project operations and Water Quality Certificate compliance (Application, Appendix C). The Vermont DEC's review of the operations data supported the concurrence with the 1994 issued WQC, which was evidenced on July 5, 2018 and shown in Attachment A of this review.

Criterion B: Water Quality

The Project demonstrated compliance with the Vermont DEC issued 401 Certificate (1994) with the Vermont DEC review of the operations data. Vermont DEC supported the concurrence with the 1994 issued WQC, which was evidenced on July 5, 2018 and shown in Attachment A of this review. The Applicant also demonstrated the Project concurrence with the current 303d standards by being non-contributory with a Vermont DEC testimonial. See Appendix C of the Application.

Criterion D-Downstream Fish Passage- See Impoundment Section

Criterion F-Threatened and Endangered Species- See Impoundment Section

Criterion G-Cultural and Historic Resources- See Impoundment Section

Criterion H-Recreational Resources- See Impoundment Section

Downstream Reach Zone of Effect

In the Downstream Zone of Effect (ZOE), Standard 1 “Not Applicable/De Minimis Effect” was appropriately applied for Criteria A-Ecological Flows, C-Upstream passage, D-Downstream Fish Passage, and E-Shoreline protection. The Applicant provided sufficient evidence to support the Standard 1, as there is no active storage at the Project which functions as a run of river project, the ZOE has no bypassed reach, there are no current federal prescriptions for the upstream passage of fish and migratory fish are blocked by downstream Connecticut River dams, and the Applicant conferred with Vermont DEC verifying that the Project functions as run of river (See Appendix C of the Application).

In the Downstream Zone of Effect (ZOE), Standard 2, “Agency Recommendation”, was appropriately applied for B-Water Quality, F-Threatened and Endangered Species, G-Cultural and Historic Resources, and H-Recreational Resources. The Applicant has satisfied each of these Criterion as shown below.

Criterion B: Water Quality

The Project demonstrated compliance with the Vermont DEC issued 401 Certificate (1994) as well as providing a current testimonial from Vermont DEC that the Project meets current 303d standards by being non-contributory. See Appendix C of the Application.

Criterion D-Downstream Fish Passage- See Impoundment Section

Criterion F-Threatened and Endangered Species- See Impoundment Section

Criterion G-Cultural and Historic Resources- See Impoundment Section

Criterion H-Recreational Resources- See Impoundment Section

(3) Is there any missing information from the application?

The application information is complete. There are no outstanding record requirements.

Conclusion

It is recommended that the Pierce Mills Hydroelectric be LIHI Certified for the standard five years plus an additional three years for meeting the one PLUS standard term, for a total of eight years.

Please contact me if you have any questions.

Sincerely,



Diane M. Barr, Principal
Camas, LLC

Attachment A

State and Federal Agency Communication for LIHI Concurrence for Certification

Wednesday, May 30, 2018 at 7:20:43 PM Pacific Daylight Time

Subject: LIHI Certification Arnold Falls, Gage and Pierce Mills
Date: Wednesday, May 30, 2018 at 12:49:13 PM Pacific Daylight Time
From: Diane Barr
BCC: jeff.crocker@vermont.gov, eric.davis@vermont.gov, scott.dillon@vermont.gov, Melissa_Grader@fws.gov, brett_towler@fws.gov, jud.kratzer@vermont.gov, scott.darling@vermont.gov, john.buck@vermont.gov
Priority: High
Attachments: image001.png

I am conducting the independent review of the Green Mountain Power Low Impact Hydro Institute (LIHI) certification for the Arnold Falls, Gage and Pierce Mills hydroelectric project. These three projects have been previously LIHI certified for a 5-year term. As required by the LIHI re-certification process, I am soliciting any comments or concerns your agency may have with this re-certification. The application does not present any concerns upon review of the information provided from a LIHI certification perspective.

Our due diligence would like to establish that to the best of your knowledge these facilities are not jeopardizing any known protected species or water quality standard.

Please do not hesitate to respond with questions, concerns, or support to this request.

Thank you for your time in considering this matter.

Diane M. Barr | Principal Regulatory Specialist



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Thursday, July 5, 2018 at 10:21:22 AM Pacific Daylight Time

Subject: RE: LIHI Cer+fica+on Arnold Falls, Gage and Pierce Mills
Date: Thursday, July 5, 2018 at 10:16:08 AM Pacific Daylight Time
From: Davis, Eric
To: Diane Barr
CC: Crocker, Jeff, McHugh, Peter
Attachments: image004.jpg, image005.png, image006.jpg, image007.png

Hello Diane,

The applicant ac+vely engaged the Agency in developing the LIHI applica+on for the Arnold Falls, Gage and Pierce Mills projects. This included consulta+on and providing opera+ons data. The Agency reviewed this informa+on and determined the project consistently operates in compliance with the condi+ons of its cer+fica+on. As such, the Agency supports the LIHI cer+ fica+on of these projects.

Thanks,
Eric

Eric Davis, *River Ecologist*

1 National Life Drive, Main 2
Montpelier, VT 05620-3522
802-490-6180 / eric.davis@vermont.gov
<http://www.watershedmanagement.vt.gov/rivers>



See what we're up to on our [Blog](#), [Flow](#).

From: Diane Barr <diane@camasllc.com>
Sent: Friday, June 01, 2018 10:35 AM
To: Davis, Eric <Eric.Davis@vermont.gov>
Cc: Crocker, Jeff <Jeff.Crocker@vermont.gov>
Subject: Re: LIHI Cer+fica+on Arnold Falls, Gage and Pierce Mills

Hi Eric, thanks for the email.

We have completed our review and are just awai+ng VDEC's response to the GMP data submi] al. Since the current WQC is over 10 years old, LIHI requires concurrence from the 401 issuing agency that the project conforms to current water quality standards, or that the issuing agency supports the LIHI cer+fica+on. Is the data review a necessary step to make such a concurrence statement from VDEC?

Diane M. Barr | Principal Regulatory Specialist



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