

# GABRIELA GOLDFARB CONSULTING

503.238.1711 ■ GABRIELA@GOLDFARBCONSULTING.COM ■ PORTLAND, OREGON

---

September 5, 2012

Mr. Fred Ayer, Executive Director  
Low Impact Hydropower Institute  
34 Providence St.  
Portland, ME 04103

RE: REVISED Final Application Reviewer Report for the Deerfield River Project (FERC 2323)

Dear Fred:

Attached please find my final reviewer's report regarding the application by TransCanada Corporation for certification of the Deerfield River Project by the Low Impact Hydropower Institute (LIHI). This version is revised to incorporate comments received from the State of Vermont after my submission of the original reviewer's report, and an additional special certification condition.

Best regards,

/signed/

Gabriela Goldfarb

Attachment: as stated

# **REVIEW OF APPLICATION FOR CERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE OF THE DEERFIELD RIVER PROJECT**

Prepared by:  
Gabriela Goldfarb Consulting  
FINAL REVISED VERSION – September 5, 2012

This report reviews the application re-submitted by TransCanada Corporation (Applicant) to the Low Impact Hydropower Institute (LIHI) for Certification of the Deerfield River Project (Project or Facility; FERC License No. 2323).

***UPDATE: This version of the reviewer's report is revised to incorporate comments received from the State of Vermont after the distribution of the original reviewer's report in August 2012. The information obtained from Vermont officials prompted the inclusion of a second special certification condition. The LIHI Governing Board certified the Project at its September 5, 2012 meeting, adopting the two special certification conditions (see below).***

## **I. DEERFIELD RIVER PROJECT LIHI APPLICATION HISTORY**

On December 31, 2009 the Applicant applied for LIHI certification of its Deerfield River Project. In the course of carrying out a review of this original application during 2010, LIHI's application review consultant determined that TransCanada missed a number of FERC compliance filing deadlines for the Project beginning in 2005 and continuing through July 2010.

The consultant's 2010 review found that, in the aggregate, the pattern and practice of missed and delayed filings were material to LIHI's evaluation criteria because they consisted of reports and other documents relating to fish passage, watershed protection, and cultural resources. LIHI staff agreed with this finding and in August 2010 recommended that the Governing Board deny the Deerfield River Project application, but without prejudice to the applicant's ability to file a new application with LIHI after one full year following timely filing by the applicant of all required regulatory compliance documents, as well as no other instances of noncompliance. LIHI staff made this recommendation because LIHI's criteria put a premium on following agency recommendations and settlement and licensing requirements issued after 1986. Summaries of the specific findings of non-compliance, and TransCanada's responses, appear in Table 1 below.

Before the LIHI Governing Board could act on the staff recommendation at its August 2010 meeting, TransCanada chose to withdraw its application for certification. The withdrawal served to halt LIHI's review of the project. In April 2012, the Applicant re-filed its application for LIHI certification. In filing this re-submittal the Applicant provided updated information regarding compliance with its FERC license obligations, and reported no other changes to its original 2009 LIHI application filing.

**TABLE 1: SUMMARY OF LIHI 2010 NON-COMPLIANCE FINDINGS & TRANSCANADA RESPONSE**

<b>Noncompliance Finding</b>	<b>TransCanada Response</b>
A March 2008 non-compliance letter	Transcanada was in continuing conversations with

from FERC to TransCanada lists numerous issues of noncompliance by the licensee with post-license filing requirements dating back eight years and up through the date of the letter. LIHI's consultant asked specifically about failure to meet a deadline to file a revised downstream fish passage plan.	agency staff to secure their approval of the fish passage plan. The final plan describes the consideration of options, performance of studies, and modifications characterizing a cooperative effort to improve the performance of downstream passage facilities. TransCanada and previous licensees should have kept FERC staff more informed of those efforts and requested timely extensions.
A March 2010 letter from FERC approved TransCanada's cultural resources annual report and the cultural resource actions taken, but noted the lateness of this and a number of previous years' filings.	TransCanada responded that the missed filing of the annual report to FERC was an oversight, and noted exemplary compliance with the substance of the cultural resources Programmatic Agreement and Cultural Resource Management Plan.
LIHI's consultant brought to TransCanada's attention that the company had not filed its 2009 annual Atlantic salmon fish monitoring report due by the end of March 2010.	TransCanada provided a copy of a draft report to resource agencies for comment in March and prepared a submittal thought to have been submitted to FERC March 30, 2010. TransCanada was not clear why it was not in the FERC database and re-filed the report with a new cover letter to the original package. There were no substantive concerns.

In 2010 LIHI's review focused on compliance concerns and the application reviewer halted his evaluation after it became clear those issues would bar certification. This review of the re-submitted application for LIHI certification incorporates the available analysis and findings from 2010 related to those compliance issues and the LIHI flow criteria, and completes the evaluation of the remaining criteria.

## II. PROJECT'S GEOGRAPHIC LOCATION

The Project is located between river miles (RM) 13.2 and 66 on the Deerfield River,<sup>1</sup> a major tributary to the Connecticut River that is roughly 70 miles long and drains approximately 665 square miles.<sup>2</sup> Located in Bennington and Windham Counties in Vermont, and in Berkshire and Franklin Counties in Massachusetts, the Project consists of eight developments: Somerset, Searsburg, Harriman, Sherman, Deerfield No. 5, Deerfield No. 4, Deerfield No. 3 and Deerfield No.2. Two other developments not owned by the Applicant are located in this stretch of the river. They are Brookfield Renewable Power's Fife Brook Dam (which impounds the lower reservoir for Brookfield's Bear Swamp Pumped Storage Project), located between the Applicant's Deerfield No. 5 and Deerfield No. 4 developments; and Consolidated Edison's Gardner Falls Project located downstream of the Deerfield No. 3 development. The locations and other features of the Project's developments appear on Map 1, below.

<sup>1</sup> Source: FERC License No. 2323.

<sup>2</sup> Source: Deerfield River Watershed Association. "Hydrology." <http://www.deerfieldriver.org/facts.html>. Accessed 1 June 2012.

## MAP 1: DEERFIELD PROJECT DEVELOPMENTS



### III. PROJECT AND IMMEDIATE SITE CHARACTERISTICS

The Applicant purchased the hydroelectric facilities in 2005 from National Energy & Gas Transmission, Inc. (NEGT) subsidiary USGen New England, Inc., at the conclusion of NEG's Chapter 11 bankruptcy and liquidation of the assets of the USGen subsidiary. The Project's eight developments have a total installed capacity of 86 megawatts (MW). The features of each development are summarized in Table 2 below:

**TABLE 2: DEERFIELD RIVER PROJECT – DEVELOPMENT FEATURES**

	Name	Dam (River mile)	Pwrhse. (River mile)	Cap. (MW )	Imp. Area (acre s)	Other Components & Operating Regime
VERMONT	Somerset	66	None	None	1514	No generation
	Searsburg	60.3	56.8	4.16	30	1 generating unit. Peaking, daily storage operation.
	Harriman	48.5	44.1	33.6	2039	12,812-foot-long tunnel conveying water from the reservoir; 3 generating units. Peaking, seasonal storage operation.
MASSACHUSETTS	Sherman	42	42	7.2	218	1 generating unit. Peaking, weekly storage operation.
	Deerfield No. 5	41.2	38.5	17.55	38	Conveyance sections of tunnel, conduit, and canal totaling 14,941 feet; 1 generating unit. Peaking, daily storage operation.
	Deerfield No. 4	20	18.5	4.8	75	1,514-foot-long power tunnel; 3 generating units. Peaking, daily storage operation.
	Deerfield No. 3	17	16.8	4.8	42	677-foot-long power tunnel; 3 generating units. Peaking, daily storage operation.
	Deerfield No. 2	13.2	13.2	4.8	63.5	3 generating units. Peaking, daily storage operation.

Deerfield No. 5 discharges directly into the Fife Brook impoundment, which is the lower reservoir for Brookfield Renewable Power's Bear Swamp Pumped Storage Project. The Deerfield No. 3 powerhouse discharges into a section of the Deerfield River that is impounded by North American Energy Alliance, LLC's Gardners Falls Project. Flow into the Deerfield No. 2 reservoir is from the Gardners Falls Project.

### IV. REGULATORY AND COMPLIANCE STATUS

FERC relicensed the project on April 4, 1997 for a 40 year term. (FERC issued the project its original license in October 1963.) The license is largely consistent with the terms of a 1994

settlement agreement (SA) and water quality certifications (WQCs) issued by the states of Massachusetts and Vermont. According to Resource Agency representatives who responded to consultation requests, the Project is in compliance with these requirements, which are discussed in more detail below.

### Settlement Agreement

The 1997 relicensing incorporated provisions of a 1994 settlement agreement (SA) negotiated between then-owner New England Power and the 12 parties listed in Table 3 below.

**TABLE 3: SIGNATORIES TO THE 1994 DEERFIELD RIVER PROJECT SETTLEMENT AGREEMENT**

Type	Name
Owner	New England Power
Federal	National Park Service
	U.S. Environmental Protection Agency
	United States Fish and Wildlife Service
State	Massachusetts Division of Fisheries and Wildlife
Non-Governmental	American Rivers, Inc.,
	American Whitewater
	Appalachian Mountain Club
	Conservation Law Foundation
	Deerfield River Compact
	Deerfield River Watershed Association
	New England FLOW
	Trout Unlimited.

The Vermont Agency of Natural Resources was not a party to the SA but did file a WQC (discussed below).

The SA specifies terms relating to minimum flows, fisheries, fish passage, wildlife, water quality, project lands management and control, recreation, and aesthetic resources. Under the terms of the SA, modifications to the terms of the SA by FERC in its final license would automatically modify the SA unless any party to the SA objected; FERC did make some changes, and none of the parties objected. Highlights of the natural resource-related provisions of the SA are as follows:

#### SA Flows, Fisheries, and Wildlife Provisions

- Minimum flow releases
- Flows guaranteed from storage
- Stable elevation for the Somerset reservoir to facilitate loon nesting during the period May 1 through July 31 each year
- Requirement to manage the reservoir level at Harriman to support rainbow smelt and small mouth bass spawning and early life stages.
- Requirement to develop a plan for monitoring the minimum flows and reservoir operations

- Requirement for development of downstream fish passage facilities at the Deerfield Nos. 2, 3, and 4 developments, and phased development of upstream passage at Deerfield No. 2 triggered by the number of adult Atlantic salmon returning to the Deerfield River
- Implementation of a program of wildlife enhancements to protect and enhance the wildlife resources affected by the project (e.g., maintenance of active beaver flowages, construction of bird nesting structures)

#### SA Recreation and Aesthetic Provisions

- Implementation of a plan to install, operate, and maintain existing and proposed recreational facilities primarily for picnicking, boating, and hiking
- 50 weekend and 56 weekday whitewater releases annually from Fife Brook Dam, and 26 weekend or holiday, and six Friday releases annually from the Deerfield No. 5 dam
- Establishment of a Deerfield River Basin Environmental Enhancement Trust Fund in the amount of \$100,000 to finance watershed conservation, development of low-impact recreational and educational projects and facilities, and planning, design, maintenance and monitoring of such facilities and projects

#### SA Land Management Provisions and Enhancement Fund

- Granting of conservation easements for the term of the license to preserve in a natural state approximately 18,000 acres of Project and non-Project lands
- Requirements for the conduct of timber management programs to protect riparian zones along rivers and lakes, protect visual quality at important public view sheds and along trail corridors, limit use of clear cutting, minimize interference with low impact recreational use and enjoyment, and preserve wildlife habitat
- Establishment of a \$100,000 Enhancement Fund to finance watershed conservation and development of low impact recreational and educational projects and facilities

#### **State Water Quality Certifications**

The Massachusetts Department of Environmental Protection (MA-DEP) issued a Clean Water Act Section 401 Water Quality Certification (WQC) for the five developments located in Massachusetts. The Vermont Agency for Natural Resources (VT-ANR) issued a water quality certification for the three developments located in Vermont. Both WQCs largely coincide with the terms of the SA. The FERC license included all the conditions of both WQCs except the following:

- Massachusetts' right to approve any modification of project operation that would affect states' certification conditions
- Massachusetts' right to review and modify conditions if the Vermont certification results in noncompliance with the Massachusetts WQC
- Vermont's right to review and approve any changes to the project that would have a significant or material effect on the certification
- Vermont's right to review and approve any proposals for project maintenance or repair work involving the river

FERC deemed these requirements either to violate CWA provisions designating FERC as the

agency that determines whether proposed license amendments require a new water quality certification, or to violate FERC's authority to control activities under a federal license.

### **Resource Agency Recommendations Under the Federal Power Act**

The FERC license incorporates SA provisions and recommendations from the project environmental impact statement that are consistent with the U.S. Department of the Interior's Section 18 prescriptions requiring fish passage. The license also reserves Interior's authority to prescribe additional fishways in the future. The license incorporates of Massachusetts agencies 10j(j) recommendations that were consistent with those of the SA regarding minimum flows, reservoir levels, and conservation easements.

### **Compliance Status**

Based on a review of FERC records and according to written comments submitted by state regulatory agencies, and with the caveat that follows, the Project appears to be in compliance with its FERC license, SA, and WQC requirements.

The State of Vermont's hydropower regulation official was contacted a number of times for comment and to clarify questions, but he did not respond by the deadline to submit this report. If new information is received prior to the LIHI Governing Board's consideration of this application, updated information will be provided verbally at that time. Instances where this input was sought are noted in the discussion under each relevant criterion. For purposes of this review, the presumption is that VT-ANR had the opportunity to raise an objection if there were compliance concerns on this Project.

***UPDATE: VT-ANR officials confirmed that to the best of their knowledge the Applicant is in compliance with Vermont WQC requirements.***

## **V. PUBLIC COMMENTS RECEIVED BY LIHI**

At the time the Applicant originally filed for LIHI certification in late 2009, LIHI received five comment letters in opposition to the project from three nongovernmental organizations and two state agencies:

- Connecticut River Watershed Council (CRWC)
- Deerfield River Watershed Association (DRWA)
- Massachusetts/Rhode Island State Council of Trout Unlimited (TU)
- Massachusetts Department of Environmental Protection (MA-DEP)
- Massachusetts Division of Fisheries and Wildlife (MA-DFW)

In 2012 all five organizations again submitted comments in opposition, or asked to refile their original 2010 comment letters for purposes of the current application review. The letters are summarized later in this report (see section *VIII. Comments and Contacts*). The principal objection raised by the commenters concerned the peaking operation of the Project and the impact of that operation on aquatic resources. No commenter, including the Regulatory Agency



representatives, were of the opinion that the Applicant is in violation of its FERC license or the settlement agreement requirements. All letters are available at <http://www.lowimpacthydro.org/lihi-pending-application-ferc-no.-2323-deerfield-river-project-connecticut-river-vermont-and-massachusetts.html>.

The State of Vermont did not comment in 2010 or when twice solicited to do so for the present review. The U.S. Fish and Wildlife Service also did not submit comments, but did respond to specific questions via email.

***UPDATE: VT-ANR officials confirmed that to the best of their knowledge the Applicant is in compliance with Vermont WQC requirements.***

All public comments and communications with Resource Agency staff and interested parties are documented in section *VIII. Comments and Contacts*.

## **VI. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION**

Based on my review of information submitted by the applicant, the additional documentation noted herein, the public comments submitted, my consultations with various Resource Agencies and other entities, and for the reasons stated above, I recommend that the Deerfield River Project be certified to be in compliance with LIHI's criteria with a certification term of eight years (5 years regular certification and an additional 3 years for meeting the watershed protection criteria), and with an added condition relating to American eel passage and protection.

***[Note: see below for an update that added a second special condition]***

### **Fish Passage Recommended Special Condition**

Based on LIHI's experience reviewing and certifying hydroelectric projects in New England, Resource Agencies have a growing interest in securing American eel passage and protection. The following recommended condition is consistent with those incorporated into other recent LIHI certifications of New England projects, and reflects the fact that eel passage is in place at Holyoke Dam, the first development below the confluence of the Deerfield and Connecticut Rivers.

The recommended condition is as follows:

**Recommended Condition:** If the U.S. Fish and Wildlife Service or the State of Massachusetts requests upstream and/or downstream eel passage facilities at the Project, the Project owner shall so notify LIHI within 30 days and shall enter into, and provide LIHI with a copy of, an agreement reached among the Project owner, the U.S. Fish and Wildlife Service, and/or the State of Massachusetts to provide both interim (if requested by a Resource Agency) and permanent safe, timely, and effective passage for American eel. The Agreement must be finalized within 120 days of the request for passage and must include a description of the planned passage and protection measures and the

implementation schedule for design, installation, and operations. The agreement shall be filed with LIHI within 30 days of its execution.

### **Water Quality Recommended Special Condition [Added Special Condition]**

Article 415 of the Project's FERC license incorporates a Vermont WQC requirement for temperature and dissolved oxygen monitoring below Harriman Dam, and provides for the possibility of ordering alternative flow releases to protect fish resources and water quality based on monitoring results. The State of Vermont's "List of Priority Surface Waters Outside the Scope of Clean Water Act Section 303(d)" lists waters below Harriman Dam for low temperature due to reservoir releases. According to a VT-ANR official, the state may pursue modifications to the Project to address temperature concerns within the next five years. The following recommended condition addresses this possibility.

The recommended condition is as follows:

**Recommended Condition:** If the State of Vermont requests modification of the Project or its operation at Harriman Dam to address temperature and/or dissolved oxygen concerns pursuant to Article 415 of the Project FERC license, the Project owner shall so notify LIHI within 30 days and shall enter into, and provide LIHI with a copy of, an agreement reached among the Project owner and the State of Vermont to address those concerns. The Agreement must be finalized within 120 days of the request for Project modification and must include a description of the planned measures and the implementation schedule for those measures. The agreement shall be filed with LIHI within 30 days of its execution.

## **VII. 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, Pass, go to B**

Discussion: Resource Agencies representatives who responded to requests for comments on the Project application confirmed that, to their knowledge, the Applicant is in compliance with flow recommendations issued in the Project's FERC license, WQCs, and SA. (See *Section VIII. Comments and Contacts*, below.)

**PASS**

**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**
  - b) In Compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?**

**YES, go to B2**

Discussion: A MA-DEP official confirmed that the Applicant is in compliance with WQC certifications issued by Massachusetts. A VT-ANR official was contacted multiple times in the course of this review and emailed very recently that he would try to respond soon; if he does so prior to the LIHI Governing Board deliberations, that information will be provided verbally. However, for purposes of this review, the presumption is that VT-ANR had the opportunity to

raise an objection if there were compliance concerns on this Project, and that therefore the Project is in compliance with its WQC.

***UPDATE: VT-ANR officials confirmed that to the best of their knowledge the Applicant is in compliance with Vermont WQC requirements.***

- 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, go to B3**

Discussion: Vermont's approved 2012 CWA Sec. 303(d) list and Massachusetts' approved (2010) and proposed (2012) lists cite impairments of various stretches of the Deerfield system.

- 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, Pass, go to C**

Discussion: The two states' 303(d) lists cite causes other than hydromodification for the water quality impairments in the mainstem Deerfield and its impoundments; these impairments include fecal coliform, mercury, and acid.

**PASS**

---

## **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, go to C5**

Discussion: According to Resource Agency comments and consultations, the Applicant is in compliance with mandatory fish passage prescriptions included in the FERC license. These include downstream fish passage facilities that have been installed and operated at Deerfield dams No. 4, No. 3, and No. 2 in Massachusetts, along with attendant monitoring and extensive modifications requested by Resource Agencies to improve effectiveness.

Resource Agencies also issued prescriptions for upstream passage to be triggered by the arrival below Deerfield Dam No. 2 of four adult Atlantic salmon in each of two consecutive years as determined by a radio-tagging monitoring program. While this threshold has been reached, Resource Agencies have not requested the Applicant to initiate construction of upstream passage facilities. The Applicant has instead complied with a request from Resource Agencies to continue the adult salmon radio-tagging program.

The FERC license also incorporates by reference fish-related conditions of the Vermont WQC relating to the Searsburg Dam. These require that at the discretion of the Vermont Department of Fish and Wildlife (VT-DFW), the Applicant install upstream and downstream passage in order to establish a migratory salmonid fishery in Harriman Reservoir or, if such passage is not requested by VT-DFW within a certain time, the Applicant must submit a plan to prevent fish impingement and entrainment at the dam intake. However, the WQC condition also states that VT-DFW “may waive or postpone implementation of this requirement.” According to the Applicant, VT-DFW has not requested either action. A VT-ANR official responsible for hydropower projects was contacted multiple times in the course of this review for input; he emailed very recently that he would try to respond soon. If he does so prior to the LIHI Governing Board deliberations, that information will be provided verbally. However, for purposes of this review, the presumption is that VT-ANR had the opportunity to raise an objection if there were compliance concerns on this Project, and that therefore for purposes of this review, the Project is deemed to be in compliance with its WQC.

***UPDATE: VT-ANR officials confirmed that to the best of their knowledge the Applicant is in compliance with Vermont WQC requirements, including those pertaining to fish passage.***

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

**NOT APPLICABLE, 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 Pass, go to D**

Discussion: The Applicant was required by its FERC license to implement entrainment and other protections under the Project's "Final Fish Passage Plan" at Deerfield dams No. 4, No. 3, and No. 2. A MA-DFW official confirmed the Applicant's compliance with its license requirements. The Vermont WQC allows VT-DFW to impose measures to prevent fish impingement and entrainment at Searsburg Dam, but according to the Applicant, to date the agency has declined to request these measures. As noted elsewhere, the presumption is that VT-ANR had the opportunity to raise an objection if there were compliance concerns on this Project, and that therefore for purposes of this review, the Project is deemed to be in compliance with its WQC.

**UPDATE:** *VT-ANR officials confirmed that to the best of their knowledge the Applicant is in compliance with Vermont WQC requirements, including those related to fish passage.*

**PASS**

---

**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?

or

**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?**

**YES,** *Pass, go to E and receive 3 extra years of certification*

Discussion: The Applicant calculated an area of 2,658 acres lies within 200 feet of the Deerfield River Project. As a consequence of the settlement agreement for this project, the Applicant has executed conservation easements on nearly 18,000 acres held by the Vermont Land Trust (15,736 acres) and the Massachusetts Department of Environmental Management (1,362 acres). The Applicant also established a \$100,000 Deerfield River Basin Environmental Enhancement Fund to be used in part for watershed conservation. The combination of conservation easements and watershed enhancement fund appear to satisfy the LIHI watershed protection criteria needed to qualify for an additional three years of certification awarded to Projects that meet all other LIHI criteria.

**PASS**

---

## **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?**

**YES,** *Go to E2*

Discussion: The Project's FERC license required the development and implementation of a mitigation and monitoring plan for a state-listed plant that was at the time of relicensing and is

currently listed as threatened by both Massachusetts and Vermont. The plan protects the tubercled orchis (*Platanthera flava*) in the vicinity of the Harriman and Searsburg bypassed reaches from increased flows required in the course of relicensing. The license also includes requirements to protect the common loon, which was listed by the State of Vermont as threatened at the time of Project relicensing but is no longer listed. There are no federally listed species in the vicinity of the Project.

- 2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?**

**NOT APPLICABLE, Go to E3**

- 3) If the Facility has received authority to Incidentally Take a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental take statement; (ii) Obtaining an incidental take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authorization?**

**YES, Pass, go to F**

Discussion: The Applicant obtained a state take permit under the approved recovery program for the threatened tubercled orchis in the course implementing a recovery program that included relocation of plants and collection of seeds for preservation and potential future use.

PASS

---

## **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, Pass, go to G**



Discussion: Representatives of both the Vermont and Massachusetts state historic preservation offices contacted in the course of this review declined to comment on the compliance status of the project. However, a review of the FERC files for this Project indicates the Applicant is in compliance with its approved Cultural Resources Management Plan.

## PASS

---

### 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, Go to G3**

Discussion: The FERC license and SA included extensive recreation-related requirements including picnicking, boating, and hiking infrastructure enhancements; whitewater boating releases; instream recreational safety measures; and minimum reservoir levels for open water boating. Some commenters expressed dissatisfactions related to angling recreation; in particular, concern about an inadequate warning system below Fife Dam (which is under different ownership and not part of the Deerfield River Project), and flows managed for whitewater recreation and energy generation that were cited as being undesirable for fishing. However, these concerns do not indicate any violation of the Applicant's FERC-mandated recreational access and accommodation requirements, and no Resource Agency indicated a violation of those requirements.

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

**YES, Pass, go to H**

The Applicant confirmed that access is without charge.

## PASS

---

### 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,** *Pass, Facility is Low Impact*

## PASS

---

### FACILITY MEETS WITH THE FOLLOWING RECOMMENDED CERTIFICATION CONDITIONS THE LIHI CRITERIA FOR CERTIFICATION

Recommended Condition No. 1 – Fish Passage for American Eel: If the U.S. Fish and Wildlife Service or the State of Massachusetts requests upstream and/or downstream eel passage facilities at the Project, the Project owner shall so notify LIHI within 30 days and shall enter into, and provide LIHI with a copy of, an agreement reached among the Project owner, the U.S. Fish and Wildlife Service, and/or the State of Massachusetts to provide both interim (if requested by a Resource Agency) and permanent safe, timely, and effective passage for American eel. The Agreement must be finalized within 120 days of the request for passage and must include a description of the planned passage and protection measures and the implementation schedule for design, installation, and operations. The agreement shall be filed with LIHI within 30 days of its execution.

Recommended Condition No. 2 – Water Quality Improvements Below Harriman Dam: If the State of Vermont requests modification of the Project or its operation at Harriman Dam to address temperature and/or dissolved oxygen concerns pursuant to Article 415 of the Project FERC license, the Project owner shall so notify LIHI within 30 days and shall enter into, and provide LIHI with a copy of, an agreement reached among the Project owner and the State of Vermont to address those concerns. The Agreement must be

finalized within 120 days of the request for Project modification and must include a description of the planned measures and the implementation schedule for those measures. The agreement shall be filed with LIHI within 30 days of its execution.

## VIII. COMMENTS AND CONTACTS

The information presented in this section was obtained during the public comment periods for this application or gathered from contacts via email and/or telephone in the course of reviewing this application. 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. For the sake of clarity and because many commenters raised similar issues, subsection “A” provides a summary of all comments received. subsection “B” provides a brief chronological record documenting when and from whom LIHI received or solicited comments.

### A. SUMMARY OF PUBLIC AND AGENCY COMMENTS

After the applicant filed for LIHI certification in late 2009, LIHI received five comment letters in opposition to the project from three nongovernmental organizations and two state agencies:

- Connecticut River Watershed Council (CRWC)
- Deerfield River Watershed Association (DRWA)
- Massachusetts/Rhode Island State Council of Trout Unlimited (TU)
- Massachusetts Department of Environmental Protection (MDEP)
- Massachusetts Division of Fisheries and Wildlife (MDFW)

In 2012 all five organizations again submitted comments in opposition, or asked to refile their original 2010 comment letters for purposes of the current application review. The letters are summarized below. All letters are available at <http://www.lowimpacthydro.org/lihi-pending-application-ferc-no.-2323-deerfield-river-project-connecticut-river-vermont-and-massachusetts.html>.

### Nongovernmental Organization Comments

The main points raised in the nongovernmental organization letters are summarized below in Table 4.

**TABLE 4: SUMMARY OF NONGOVERNMENTAL PUBLIC COMMENT LETTERS**

CRWC	DRWA	TU	
√	√	√	<p>FLows: Peaking flows adversely affect habitat, aquatic species (particularly wild trout), recreational use (particularly trout fishing), and riparian buffers. Numerous bypass structures result in reaches containing only the required minimum flows. Deregulated energy market has allowed for flow regimes not contemplated at the time the parties negotiated the SA.</p>
√		√	<p>FISH PASSAGE AND PROTECTION: There is no upstream fish</p>

			passage for migratory fish, no measures to benefit American eel passage, and barriers to movement of non-migratory aquatic species. Flow regime is detrimental to trout and salmon habitat.
	√	√	RECREATION: High and peaking flows during daylight hours instituted post-energy deregulation have had a severe adverse effect on wade fishing opportunities and related businesses. Random releases and ineffective warning systems create hazards to anglers.
√	√	√	INADEQUACY OF SA: Electricity deregulation that radically changed the flow regime was not contemplated by the SA. The flow regime has upset the balance between environmental quality, recreation, fishing, and energy production that was the central point of the SA. LIHI certification of this project would mislead consumers to think the Project has minimal impacts. The SA did not do enough to protect salmon and trout habitat.

### Massachusetts Department of Environmental Quality

In March 2010<sup>3</sup> the Massachusetts Department of Environmental Protection (MA-DEP) submitted to LIHI a letter identifying itself as the agency issuing the WQC for the Project and acknowledging the Project “has met FERC license and state Water Quality Certification requirements since they were issued.” The letter goes on to state that the agency does not believe the Project qualifies as a “Low Impact Hydroelectric Facility” for the reasons summarized below:

- FLOWS: Concerns that hydropower facilities/operations “affects the entire range of stream flow and causes multiple daily stream stage fluctuations” and are impeding fish passage and degrading habitat.
- RECREATION: “Safety risks to river users such as fishermen are an ongoing concern because of the rapid changes in flow caused by [hydropower flow releases]. These safety risks became a greater threat after the Settlement Agreement was issued due to a change of ownership and schedule of operations.”

In June 2012 the MA-DEP official who authored the 2010 letter confirmed that MA-DEP wished the content of the 2010 letter to stand with the addition of the following comment:

The Massachusetts Department of Environmental Protection (the Department) stands by the judgment that dams that use a peaking mode of operation do not fit the definition of a low impact hydropower facility even though these dams may be in compliance with FERC flow requirements. The Department intends to require all Projects be operated at all times in a run-of-river mode with inflows equal to outflows and a stable pond level within a narrow band.

<sup>3</sup> Note: The original MA-DEP letter is incorrectly dated “March 3, 2009”; the cover fax accompanying the letter reflects the actual submittal date of March 3, 2010.

## Massachusetts Division of Fisheries and Wildlife Comments

MA-DFW submitted comment letters in 2010 and again in 2012; the two letters are identical except that the 2012 letter names the species in the Deerfield River and floodplains listed under the Massachusetts Endangered Species Act and adds the signature of an official with the state's endangered species program along with that of a fishery program official. Both letters state that the agency "does not support TransCanada's application for LIHI Certification of the Deerfield River Project." The letters note the Deerfield River system includes more than 100 Cold Water Fishery Resource waters supporting diverse resident and migratory fish, its stocking for 23 years with juvenile Atlantic salmon, and the river corridor's designation as "priority habitat" for rare species under the state's Endangered Species Act. The letters also makes the following observations:

- **FLows:** The letters document the peaking flows with scheduled (for whitewater boating) and unscheduled (responding to power demand) releases, and note the numerous reaches being bypassed "by all but the minimum flows" required by the FERC license.
- **DOWNSTREAM FISH PASSAGE:** The letters note the Applicant's compliance with downstream fish passage requirements and describe a collaborative process of extensive consultation among the Applicant and Resource Agencies to construct and operate fish passage facilities.
- **UPSTREAM FISH PASSAGE:** The letters note that returning salmon at the lowermost dam reached the number required to trigger construction of upstream passage, but goes on to say "Although the trigger number had been met for two consecutive years by 2006, the Resource Agencies have not yet requested the Company to construct upstream passage facilities in accordance with License Article 409. Instead, agencies have chosen to have the Company continue the adult salmon radio-tagging monitoring program. This program provides crucial information about the distribution and movement."
- **EEL PASSAGE:** The letters note that there are no FERC license-required American eel passage measures, but that the eel are present in the watershed and such passage "may well be warranted."
- **SETTLEMENT AGREEMENT:** The letters explain that the SA reflects the best outcome the resource agencies could negotiate in the FERC arena in 1994, when it was felt that major changes to project operations such as requiring run-of-river was not negotiable, and that while the SA improved environmental conditions by requiring minimum flows and significantly improved anadromous fish passage and protection, Project operations do not meet the agency's criteria for "Low Impact" because the Project operates with daily peaking flows and includes almost five miles of bypassed reaches.
- **OVERALL:** The Department does not support TransCanada's application for LIHI Certification of the Deerfield River Project. This project, with its large headwater storage reservoirs, long bypass reaches, and daily peaking operations has dramatically changed the nature of the Deerfield River and can not be described as "Low Impact". However, there may be opportunities for incremental power production improvements which also

result in environmental improvements under DOER's Renewable Energy Portfolio Standard Regulations.

---

**B. COMMENTS SUBMITTED TO OR SOLICITED BY LIHI (in order received)**

---

The following documents the source and timing of comment letters submitted to LIHI during the two public comment periods for this project (i.e., the letter summarized above), as well as information solicited by this application reviewer via telephone or email.

---

Date: June 1, 2012 and March 3, 2010  
Commenter: Robert Kubit, PE, Division of Watershed Management, Massachusetts Department of Environmental Protection  
Contact Information: robert.kubit@state.ma.us, (508) 767-2854  
Comment Focus: Flows, recreation

In a June 1, 2012 email, the commenter wrote "I wish the MassDEP letter of March 3, 2009 [sic] to stand with the addition of the statement below." See subsection *A. Summary of Public and Agency Comments*, above, for summary information from the original 2010 letter and the full text of the added 2012 statement. (Note: MA-DEP's original letter bore the date "March 3, 2009"; however, the cover fax accompanying the letter reflected the actual date of submittal of March 3, 2010.)

---

Date: June 20, 2012  
Commenter: Robert May, Deerfield River Watershed Association  
Contact Information: [draw@deerfieldriver.org](mailto:draw@deerfieldriver.org)  
Comment Focus: Impact of electricity deregulation on effectiveness of settlement agreement, flows, impacts to recreational fishing, habitat

See subsection *A. Summary of Public and Agency Comments*, above, for a summary of the comments submitted in a June 20, 2012 letter submitted by the commenter via email.

---

Date: June 25, 2012 and March 3, 2010  
Commenter: Andrea Donlon, River Steward, Connecticut River Watershed Council, Inc.  
Contact Information: [adonlon@ctriver.org](mailto:adonlon@ctriver.org), (413)772-2020 x. 205  
Comment Focus: Flows, migratory fish

In a June 25, 2012 email, the commenter wrote "Since the reason for TransCanada's earlier attempt at Deerfield project LIHI certification getting shelved had nothing to do with the issues brought up in our letter, and the current filing hasn't changed anything, we are just going to re-

submit our original letter.” See subsection *A. Summary of Public and Agency Comments*, above, for summary information regarding the original letter.

---

Date: June 30, 2012  
Commenter: Caleb Slater, Anadromous Fish Project Leader and Thomas W. French, Asst. Director, Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife  
Contact Information: Field Headquarters, One Rabbit Hill Road, Westborough, MA 01581 (508) 389-6300  
Comment Focus: Fish and wildlife, flows, fish passage, quality of settlement agreement

See subsection *A. Summary of Public and Agency Comments*, above, for a summary of the comments submitted in a June 30, 2012 letter submitted by the commenters via email.

---

Date: August 20, 2012  
Commenter: John Warner, Assistant Supervisor, Conservation Planning Assistance and Endangered Species, New England Field Office, U.S. Fish and Wildlife Service  
Contact Information: John\_Warner@fws.gov, (603) 223-2541 - ext.15  
Comment Focus: Fish and wildlife

[via email]

gabriella - regarding your two questions:

1. I have no specific knowledge as to whether TC is in compliance or not on all their requirements as we don't have the capacity to monitor every filing or due date. I do not , however, know of any specific requirement that is incomplete or late.

2. Passage may be called for there so language like that would be OK. However, since Holyoke already has passage facilities for eels in place and pass thousands of eels a year, it should be required when called for by FWS and/or Mass Wildlife. Also, both upstream AND downstream measures should be clearly specified

---

Date: August 21, 2012  
Commenter: John Warner, Assistant Supervisor, Conservation Planning Assistance and Endangered Species, New England Field Office, U.S. Fish and Wildlife Service  
Contact Information: John\_Warner@fws.gov, (603) 223-2541 - ext.15  
Comment Focus: Fish and wildlife

[via email]

Gabriella - Holyoke , on the CT River is the next dam downstream from Deerfield #2, the most downstream dam of the 7 or so Deerfield Project dams. There are no other dams downstream of #2 on the Deerfield. I am not sure about the exact dates for Holyoke eel passage but temporary

---

eel traps were installed in 2005 and a permanent eelway was installed on the spillway side in 2004 and on the Holyoke side in 2006. There have been almost yearly upgrades and modifications since then to improve effectiveness. -- JW

---

Date: August 21, 2012  
Commenter: Ed Bell, Massachusetts Historical Commission  
Contact Information: ed.bell@state.ma.us  
Comment Focus: Cultural resources

[via email]

Dear Ms. Goldfarb,

I just returned to the office yesterday after vacation.

MHC only comments on undertakings that involve new construction, demolition, or rehabilitation, and is not able to comment on actions that are not undertakings and/or which have no "area of potential effect." In my opinion, the LIHI certification is not an undertaking and has no potential to cause effects (36 CFR 800.3(a)(1)); (see 36 CFR 800.16 for definitions of "area of potential effect" and "undertaking.")

(BTW, MHC never comments by email or telephone, nor does MHC accept information by email for review.)

I have been advising consultants for LIHI certifications, to instead contact FERC, to learn if FERC's licensee is in compliance with FERC's conditions, because compliance with the federal historic preservation law is FERC's responsibility not the SHPO's.

---

Date: August 13, 2012  
Commenter: Judith Williams Ehrlich, Director of Operations, Vermont Division for Historic Preservation  
Contact Information: Judith Ehrlich <Judith.Ehrlich@state.vt.us>  
Comment Focus: Cultural resources

[via email]

Hi Gabriela—

Thank you for your email. I am forwarding it and the attachments to Devin Colman, Environmental Review Coordinator, and Scott Dillon, Survey Archeologist, who will be able to respond to your inquiry. I have copied them here so you can contact them directly.

Thanks again— Judith

*Note: there was no response from the other SHPO officials, and in the recent past, Devin Colman has responded to request for input on other LIHI reviews recently by stating that compliance with FERC requirements is a FERC responsibility (similar to the response below from the Massachusetts state historic preservation office)*



---

Date: August 24, 2012  
Commenter: Brian Fitzgerald, Streamflow Protection Coordinator, Vermont  
Department of Environmental Conservation, Vermont Agency of Natural  
Resources  
Contact Information: 802.793.0454 (cell), brian.fitzgerald@state.vt.us  
Comment Focus: Flows, water quality, fisheries

TransCanada appears to be in good shape in terms of meeting flow and other requirements, including reporting. They have done a very good job with the recreational enhancements. In regards to modifications of operations to address temperature concerns below Harriman Dam [pursuant to Article 415 of the FERC license that incorporates a VT WQC requirement for temperature and DO monitoring below Harriman Dam, and provides for the possibility of ordering alternative flow releases to protect fish resources and water quality based on monitoring results], the state intends to invoke this provision. In the course of reviewing Vermont's "List of Priority Surface Waters Outside the Scope of Clean Water Act Section 303(d)" I saw that waters below Harriman are listed for low temperature due to reservoir releases. Does VT-ANR intend to pursue flow or other modifications to address temperature concerns? The Agency will be looking at doing so within next 3-5 years.

---

Date: August 31, 2012  
Commenter: Ken Cox, Fish Biologist, Vermont Department Fish and Wildlife  
Contact Information: Ken.Cox@state.vt.us  
Comment Focus: Fishery resources

[via email]

Gabriela,  
To the best of my knowledge both statements below are accurate, i.e. the VT Fish & Wildlife Department has not requested TransCanada to implement up- and/or downstream fish passage or measures to reduce fish impingement or entrainment at this project. I am copying Rod Wentworth on this response, so he can weigh-in should he have information on this matter that I do not have.  
Ken

---

Date: September 5, 2012  
Commenter: Rod Wentworth, Vermont Department Fish and Wildlife  
Contact Information: rod.wentworth@state.vt.us  
Comment Focus: Fishery resources

[Via Email]  
Ken's statement is correct.