

GABRIELA GOLDFARB CONSULTING

503.238.1711 ■ GABRIELA@GOLDFARBCONSULTING.COM ■ PORTLAND, OREGON

May 21, 2009

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

Subject: Application Reviewer Report for the Fifteen Mile Falls Hydroelectric Project

Dear Fred:

Attached please find my reviewer's report on the application by TransCanada Northeast for certification of the Fifteen Mile Falls Hydroelectric Project by the Low Impact Hydropower Institute (LIHI). Also attached is Exhibit A containing agency comments on the application and the applicant's response. Please contact me with any questions or concerns.

Best regards,

s//Gabriela

Gabriela Goldfarb

Attachments: as described.

**Review of Low Impact Hydropower Institute Application
for Low Impact Hydropower Certification:
Fifteen Mile Falls Hydroelectric Project**

Introduction and Overview

This report reviews the application submitted by TransCanada Hydro Northeast (applicant) to the Low Impact Hydropower Institute (LIHI) for Low Impact Hydropower Certification for the Fifteen Mile Falls Hydroelectric Project (project or facility) located on the Connecticut River in Grafton County, New Hampshire, and Caledonia County, Vermont. The Federal Energy Regulatory Commission (FERC) relicensed the project (FERC 2077) in 2002 for the operation and maintenance of the 291.35 megawatt project.

Project and site characteristics. The store-and-release project in the upper Connecticut River watershed is comprised of three developments spanning a 26-mile reach of the Connecticut River between river miles (RM) 268.2 and 294.5.

- The Moore development is located at RM 283, and includes: an 11-mile-long reservoir with a surface area of 3,490 acres and a volume of 114,176 acre-feet; a 2,920-foot-long earth and concrete gravity dam; four 296-foot-long penstocks; and a powerhouse with four Francis type turbine-generator units, with a total rated capacity of 140.4 MW.
- The Comerford development is located at RM 275 and consists of: a 1,093 acre-reservoir with a volume of 23,362 acre-feet; a 2,253-foot-long, 170-foot-high earth and concrete gravity dam; four 150-foot-long steel penstocks; and a powerhouse with four Francis type turbine generator units with a rated capacity of 140.4 MW.
- The McIndoes development is located at RM 268 and consists of: a 5-mile long, 543-acre reservoir with a volume of 1464 acre-feet; a 730-foot-long concrete gravity dam; and a powerhouse with four turbine-generator units with a total capacity of 10,560 kW.

There is a roughly 1.5-mile riverine reach between Comerford and McIndoes reservoirs.

Settlement Agreements. In August 1997 a dozen organizations signed a settlement agreement intended to address a number of objectives, including "...improving water quality, enhancing habitat for fish and other aquatic biota; improving wildlife habitat; protecting threatened and endangered plant and animal species; protecting wetlands; protecting cultural resources; preserving undeveloped lands; enhancing public recreation; protecting aesthetic values; fostering economic development and preserving the local tax base; and maintaining the energy and system reliability benefits of New England's largest hydropower project."¹ The signatories were the project's owner at the time, New England Power Company, and the following stakeholders:

- New Hampshire Fish and Game Department (NHFGD)
- New Hampshire Department of Environmental Services (NHDES)
- Vermont Agency of Natural Resources (VANR)
- United States Fish and Wildlife Service (USFWS)
- United States Environmental Protection Agency (EPA)
- National Park Service (NPS)

¹ Final Fifteen Mile Falls Settlement Agreement, August 6, 1997 (Signed August 14, 1997).

- Appalachian Mountain Club (AMC)
- Connecticut River Joint Commissions (CRJC)
- Connecticut River Watershed Council (CRWC)
- New Hampshire Rivers Council (NHRC)
- North Country Council (NCC)
- Northeastern Vermont Development Association (NVDA)
- New Hampshire Council of Trout Unlimited (TU).

The provisions of the settlement agreement, most, but not all of which are reflected in the project's FERC license, require the following:

- **Flows and Reservoir Levels:** Water management protection, mitigation, and enhancement measures, including changes to operational modes, and minimum flow releases for the three developments.
- **Direct Donation of Conservation Easements:** Dedication by the project owner of easements on 4,000 acres of project land and 4,200 acres of non-project land to protect the scenic, forestry, and natural resources values of the lands. (The FERC license requires dedication only of the acreage on project land.)
- **Mitigation and Enhancement Fund:** Establishment of an Upper Connecticut River Mitigation and Enhancement Fund to address impacts of the project, financed from project revenues capped at \$15 million, and available to fund: river and wetland restoration, protection, and enhancement; acquisition of conservation easements; and mitigation of tax revenue impacts to communities. (The FERC license establishes the fund but limits its enforcement to activities directly tied to project impacts.) Note that this fund, which allocates grants, is separate from a pool of money set aside for studies and management plans (see following).
- **Studies and Management Plans and Study Fund:** Studies and/or the development of management plans related to fisheries mitigation, water quality, wildlife management, rare and unusual plant communities, threatened and endangered animal and plant species or communities, recreation, and cultural resources. Under the settlement agreement the applicant set aside a total of \$3 million for a "Study Fund" to underwrite the costs of conducting pre- and post-licensing studies, developing plans, and implementation (except for fish passage implementation).

In July 2000 the then-owner of the facility and a subset of stakeholders also signed a Mercury Settlement to fund studies, plans, and mitigation measures to reduce bio-accumulation of mercury in fish in the facility area. Implementation has consisted of ongoing monitoring of fish tissue and posting of consumption advisories.

Public comment and agency letters. LIHI received three letters from resource agencies in opposition to the project's certification. The letters, and a response from the applicant, are attached as Exhibit A. The resource agency letters express the opinion that the project causes adverse impacts to the Connecticut River and cannot therefore be considered "low impact." In summary:

- USFWS, VANR, and Massachusetts Department of Fish and Game (MADFG) expressed dissatisfaction with the degree and permanence of downstream smolt passage the applicant has achieved to date.
- USFWS and MADFG cited adverse impacts to fishery resources from peak and fluctuating flows resulting from project operations.

None of the agencies asserted that the applicant has violated terms of its FERC license or settlement agreement provisions. In its response letter, the applicant concurred that the results of measures to achieve downstream passage have been disappointing to all, citing the complex and challenging river and

reservoir conditions that have hampered progress, and pointing out that the adaptive management process established by the settlement agreement implements an iterative process of “design, implementation, evaluation, re-design, re-evaluation, refinement, etc.” The applicant also notes that the settlement agreement, which USFWS and VANR signed and endorsed in 1997, reflects operational changes and mitigation measures negotiated among the parties to reduce and compensate for the project’s continued impacts to the river system, which is also tapped to provide water supply, wastewater, irrigation, recreation, and other services in addition to power generation.

General conclusions. In consultations with stakeholders, four themes emerged:

- Universal praise for the applicant’s support for and participation in the Mitigation and Enhancement Fund and the current and anticipated conservation investments it makes possible.
- Equally strong commendation for the applicant’s dedication of conservation easements on 8,200 acres of land around the project.
- Frustration with ongoing delays in resolving downstream fish passage at the project, with causes identified as a mix of site conditions that make passage technically difficult, circumstances beyond the applicant’s control, and insufficient or untimely follow up by the applicant (though not to a degree that would warrant legal action to determining a violation of settlement agreement or license provisions).
- A philosophical opposition on the part of regulatory agencies to a peaking project receiving a “low impact” or “green” label, particularly prior to final resolution of downstream fish passage.

Recommendation. Based on my review of information submitted by the applicant, my review of additional documentation, and my consultations with resource agency staff, I believe the Fifteen Mile Falls Hydroelectric Project meets all of the criteria to be certified and I recommend certification. In addition, the facility meets the watershed protection criterion awarding an additional three years of certification.

Low Impact Certification Criteria

A. *Flows*

- 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 rate conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?**

YES

Discussion: The FERC license incorporates the settlement agreement’s requirement for flow monitoring and conservation flow and reservoir level management schedules. The facility’s approved Reservoir and Minimum Flow Operations and Monitoring Plan reflects extensive review and comment by state and federal agency staff; the Plan notes that the agencies found the applicant’s response to comments “acceptable and incorporated.”² Agency staff consulted for this review confirm that the applicant is complying with Plan requirements.

² PGE National Energy Group (on behalf of USGen New England, Inc.). 2003. Fifteen Mile Falls (P-2077) Articles 402 & 403 Reservoir and Minimum Flow Operations and Monitoring Plan. Final Plan dated 03/04/2003. Filed with FERC 03/12/2003.

If YES, go to B.

PASS

B. Water Quality

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

The Connecticut River forms the boundary between the states of Vermont and New Hampshire, and the two states agreed to a coordinated approach to issuing a water quality certification for the project. The State of New Hampshire agreed to prepare a single water quality certificate for the project that would satisfy the interests of both states and be consistent with the settlement agreement. According to the FERC license, NHDES issued a 401 water quality certificate for the project on April 16, 2001, and on July 13, 2001, the Vermont Department of Environmental Conservation (VDEC) filed its affirmation of the NHDES certificate. The certificate incorporates requirements of the general settlement agreement and a separate mercury settlement agreement. The non-water-quality-related aspects of the certificate are addressed elsewhere in this review. In regards to specific water quality requirements, the applicant prepared and received approval for a “Water Quality Enhancement and Monitoring Plan” (WQMP) and a “Plan for Long-Term Monitoring of Mercury in Fish Tissue at Moore and Comerford Development Reservoirs (Fish Tissue Mercury Monitoring Plan - FTMMMP).” The WQMP calls for the monitoring of dissolved oxygen, temperatures, and toxins to assess compliance with state water quality standards. The FTMMMP requires periodic monitoring of fish tissue for mercury. Agency staff did not raise any concerns about compliance with the certificate

If 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

All surface waters in New Hampshire are listed as impaired for fish consumption due to mercury levels in fish tissue; Vermont has listed Moore and Comerford Reservoirs as impaired due to mercury, and McIndoes Reservoir as being in need of further assessment for mercury impairment.³ Atmospheric deposition is identified as the source. Both states are covered under a Northeast Regional Mercury TMDL. The State of New Hampshire lists the Connecticut River as impaired for pH in the vicinity of the

³ Sources: “New Hampshire 2008 SECTION 305(b) and 303(d), Surface Water Quality Report,” “State of Vermont 2008 303(d) List of Waters, Part A - Impaired Surface Waters in Need of TMDL, October 2008,” State of Vermont 2008 List of Priority Surface Waters Outside the Scope of Clean Water Act Section 303(d)” and “Northeast Regional Mercury TMDL, October 2007”)

towns of Littleton, NH (near Moore Reservoir) and Monroe, NH (between MacIndoes and Comerford Reservoirs), with the source of the impairment “unknown.” There are no other impairments listed for waters in the immediate vicinity of the Facility.

If YES, 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 primary source of mercury is believed to be atmospheric deposition from both in-state and out of state sources.⁴

If YES, go to C.

PASS.

C. Fish Passage and Protection

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

In addition to the FERC license article generally reserving the authority of the Secretary of the Interior to require passage, both the license and the Settlement Agreement stipulate three types of passage requirements:

- Downstream passage for Atlantic salmon smolts currently required at MacIndoes, Comerford, and Moore developments.
- Upstream passage for adult Atlantic salmon at a future time when certain triggering events (arrival of 20 migrating adult salmon at East Ryegate Dam, the development below MacIndoes, in two consecutive years) cause the relevant resource agencies to determine that such passage is justified.
- Upstream and downstream American eel passage.

Of these three passage requirements, only one, downstream passage for Atlantic salmon smolts, is currently required to be implemented and is being pursued. The triggering events have not occurred for upstream passage. The resource agencies agreed to, and FERC approved, an eel passage plan that would require passage within one year of the agencies determining that eel passage is needed; they have not asserted that need to date.

With regard to downstream passage, resource agency staff and other stakeholders consulted for this review expressed frustration with ongoing delays in resolving downstream fish passage at the project. They identified the causes as a mix of site conditions that make passage technically difficult, circumstances beyond the applicant’s control (e.g., high flow event coinciding with release of telemetry-

⁴ Ibid.

equipped smolts compelled the project to spill both water and smolts, problems with contracting consultants), and insufficient or untimely follow up by the applicant. However, all those consulted were in agreement that the applicant's conduct does not warrant charges of violating the settlement agreement or FERC license provisions. Stakeholders do not believe the applicant has an intent to evade its obligations; they do share the sense that the applicant's staff resources dedicated to implementing the settlement and license conditions are overtaxed and unable to carry out all passage-related activities in a timely manner.

If YES, go to C5.

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

YES

The settlement agreement and FERC license require the development and implementation of a Fisheries Management Plan (FMP) to protect, enhance and manage fish populations in the project impoundments, tailraces and riverine areas, with studies, plan development, and implementation to be financed by the Study Fund (see "Settlement Agreements" discussion above). Stakeholders consulted in the course of this application review report that agreement has been reached and permit applications submitted for a series of mainstem Connecticut River velocity reduction projects and tributary passage projects that will satisfy the requirements of the FMP. As in the case of the anadromous fish passage requirements, stakeholders expressed frustration with the slow pace of progress in fulfilling the FMP, but were satisfied that the delays were not intentional on the part of the applicant, but due to insufficient staff resources of the applicant. The applicant attributed delays in part to a period from 2003-2005, prior to the applicant assuming ownership of the project, when the previous owner was in bankruptcy and the creditors' committee refused to release funding for these activities.

If YES, 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

The FERC license includes a requirement to prepare a trashrack replacement plan for all project intake facilities prior to replacing trashracks. Resource agency did not identify any concerns about compliance with this requirement.

If YES, go to D

PASS.

D. Watershed Protection

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 high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline

NO

If 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?

YES

As discussed above, the applicant established the Upper Connecticut River Mitigation and Enhancement Fund to mitigate impacts of the project, funded from project revenues capped at \$15 million that will be used to finance river and wetland restoration, protection, and enhancement; acquisition of conservation easements; and mitigation of tax revenue impacts to communities. (The FERC license establishes the fund but limits its enforcement to activities directly tied to project impacts.)

In addition, the applicant fulfilled settlement agreement and license requirements to dedicate easements on 4,000 acres of project land (required by both the settlement agreement and the license) and 4,200 acres of non-project land (required only by the settlement agreement), and has completed or is in the process of implementing a wide array of other measures outlined in an approved Wildlife and Forest Management Plan to protect the scenic, forestry, and natural resources values of the lands.

Stakeholders were uniformly complementary in their praise of the applicant's support for and active participation in these stewardship activities.

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

PASS.

E. Threatened and Endangered Species Protection

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

YES

The applicant's 2006 Land Management Plan, developed in consultation with key resource agencies and approved by FERC, integrates a Management Plan for Threatened and Endangered Species required by FERC license Article 416, a Wildlife and Forestry Plan required by Article 415, and a Rare and Unusual Plant/Plant Community Management Plan required by Article 417. The Land Management Plan states:

Specific protection and enhancement measures may be warranted throughout the life of the new license for the Fifteen Mile Falls Project. At this time, however, osprey nesting and bald eagle nesting are the only specific protection and enhancement measures that appear to be warranted in the management of threatened and endangered species. As noted above, the USFWS has indicated that no additional studies or consultation concerning dwarf wedge mussels are needed at this time.

(Note: in August 2007 the bald eagle was removed from the federal list of threatened and endangered species.)

The applicant's dedication of 8,200 acres of conservation easements on and around project lands is identified in project documents as a further tool for the protection of threatened and endangered species. Agency staff consulted in the course of this LIHI application review raised no concerns regarding the applicant's compliance with its threatened and endangered species obligations.

If YES, go to E2.

- 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

If 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 authority?**

NOT APPLICABLE

If NOT APPLICABLE, go to E5.

- 5) **If E.2. and E.3. are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?**

YES

If YES, go to F.

PASS.

F. Cultural Resource Protection

- 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 applicant has an approved Cultural Resources Management Plan in place. The Vermont and New Hampshire state historic preservation offices contacted in the course of reviewing this application did not raise any concerns about compliance with the plan.

If YES, go to G.

PASS.

G. Recreation

- 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

The applicant has an approved Recreation Plan in place. The stakeholders contacted in the course of reviewing this application did not raise any concerns about compliance with the plan, with one exception. One stakeholder, the Trout Unlimited representative, expressed concern about the disrepair of a flow warning device below Comerford Dam where there is a wading fishery. Such warning devices are called for in the Recreation Plan. The applicant's representative acknowledged that the device was not in operation, and that the reason had to do with noise complaints by neighbors. The Connecticut River Watershed Council representative noted that the fishery below Comerford Dam has no developed fishing amenities and is not heavily used, since access is challenging (no access from the New Hampshire side, which is private property, and access via a tributary and railroad right of way on the Vermont side). This is the only recreation issue that was raised in the course of this application review, appears to be amenable to resolution, and is not a widely held concern, so this review considers the applicant to be in compliance with its recreation obligations for purposes of LIHI certification.

If YES, go to G3.

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

YES

If YES, go to H.

PASS.

H. Facilities Recommended for Removal

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

NO

If NO, facility is low impact.

PASS.

FACILITY IS LOW IMPACT

RECORD OF CONTACTS

Date of Conversation: May 8, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: John Warner, USFWS
Telephone/email: 603-223-2541
Areas of Expertise: Natural resources

Downstream fish passage is the major unresolved issue in the context of Fifteen Mile Falls (FMF), and there is no certainty of being able to resolve those issues because of technical challenges. TransCanada (TC) is in compliance with the settlement agreement, is working collaboratively to work through tasks, and is “generally agreeable” and willing to try new approaches. If the current approach has to be scrapped because it doesn’t work, the remaining options are very expensive, and TC has expressed reservations about that expense. Regarding the letter to LIHI questioning TC’s eligibility, he relied on the summary of LIHI criteria and did not discern that in the context of [a settlement agreement with mitigation endorsed by resource agencies], a facility could meet the criteria even if fish passage is not in place. At the time he wrote the letter to LIHI, was not sure there was going to be progress in addressing the latest set of problems; would not necessarily connect the two as cause and effect, but after the letter there was progress toward clarifying next steps and trying new, relatively inexpensive measures. Questions whether compliance with a settlement agreement is equivalent to being “low impact,” and how a project that has not yet attained fish passage can be certified.

Date of Conversation: May 8, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Michael King, North Country Council
Telephone/email: 603-444-6303
Areas of Expertise: Mitigation and enhancement fund

The regional planning commission’s role was to represent communities of northern New Hampshire and facilitate their participation in the settlement agreement process. Continue to represent communities. The general feeling is that TC did an excellent job getting stakeholders together and forging an agreement. TC has been forthcoming in meeting all requirements of the fund, and all of the money has been received.

Date of Conversation: May 8, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Steve Patterson, Northeast Vermont Development Association
Telephone/email: 802-748-5181 x11
Areas of Expertise: Mitigation and enhancement fund

The association was only a conduit of information, not of funding, to the local towns. Have not heard any concerns, and the towns are not shy about voicing problems, so assume all is fine.

Date of Conversation: May 10, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Kevin Peterson, New Hampshire Charitable Foundation
Telephone/email: 603-653-0387 x102

Areas of Expertise: Mitigation and enhancement fund

The foundation is the steward of the fund, was involved since the mid-1990s as the process of negotiating the settlement agreement got underway. TC is a “superb partner” that has been actively engaged, via Cleve Kapala’s participation, in the process of implementing conservation projects in the vicinity of the facilities. Because of recent high energy prices, and the structuring of the agreement to generate a percentage of profits, the fund received a large amount of funding [\$15 million].

Date of Conversation: May 12, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Nat Tripp, Connecticut River Joint Commissions
Telephone/email: 802-748-8406
Areas of Expertise: Mitigation and enhancement fund

TC has been easy to work with compared to predecessors. The company had profitable years and generated funds; TC has fully paid.

Date of Conversation: May 12, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Rick Hopkins, VT Dept. of Environmental Conservation
Telephone/email: 802-241-3769
Areas of Expertise: Mitigation and enhancement fund

Participated on fund committee past three years. TC has been forthcoming, even “celebratory” about the fund, putting up the money then helping decide how to spend it on conservation projects.

Date of Conversation: May 12, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Jay McMenamy, VT Agency of Natural Resources, Dept. of Fish and Wildlife
Telephone/email: 802-885-8855
Areas of Expertise: Natural Resources

TC is not violating its license or settlement agreement to his knowledge; however, not satisfied that the company is meeting provisions to the extent and with the timeliness that it could. Company has requested and received approval for repeated extensions. Downstream fish passage is technically very difficult. TC has constructed an interim trap and release system, which is not desirable but at this point the approach that has been devised on these dams where it’s hard to build passage. If the efficiency of the trap were better the agencies might reluctantly agree to live with that solution. TC has done lots of expensive work, but progress is delayed because TC is slow to submit results of steps in order to evaluate and formulate subsequent steps in a timely way. After seven years there is no effective passage facility. Efficiency is far less than 50%. The location of FMF makes things especially bad. TC has done modeling to try to understand why trap and release isn’t working well, but did so three years after the agencies requested it, and results were reported too late to do anything until next year. Agencies requested flow inducers two or more years ago. There are steps that could be taken to get to a more acceptable solution, and things would be farther along if TC had acted more expeditiously. Recognize that contracting and budget problems are

obstacles. Regarding flows, ask Jeff Cueto, VT ANR; settlement agreement was a compromise, doesn't reflect best flows for fish.

Date of Conversation: May 12, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Kevin Mendik, National Park Service
Telephone/email: 617-223-5299
Areas of Expertise: Mitigation and enhancement fund

Was at the table for negotiation of settlement agreement. NPS was consulted regarding recreation, access, esthetics, land protection, Americans with Disabilities Act compliance. Previous owner, USGen, considered itself a steward of the land and the mitigation and enhancement fund is a model for hydro relicensing. Got a great deal of money for environmental protection and land conservation. Transition from USGen to TC has been seamless; Cleve Kapala has been involved throughout. The fund is complete (was capped at \$15 million), and NPS continues to be at the table in deciding its use. New plan is being developed for outreach to potential grantees. Still pleased to be associated with this project.

Date of Conversation: May 12, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Rod Wentworth, VT Department of Fish and Wildlife
Telephone/email: 802-241-3700
Areas of Expertise: Natural resources, hydropower review

Statewide specialist on hydropower, fisheries scientist representing fish and wildlife interests in hydro projects. Believes that in general, TC does not have intent to delay, but TC staffer has too much on his plate, not enough time to pay attention to implementation of fish mitigation measures. Project's flows are problematic vis a vis fishery resources – huge peaking has huge impact on fish -- but those impacts were balanced out in the context of the settlement agreement and mitigation fund. The project is big, regionally significant to economy and electricity supply; people were not willing to make changes that would significantly reduce generation. Would defer to Jay McMenamy on issue of fish passage. Separate from the mitigation and enhancement fund, the settlement agreement required TC to set aside \$3 million for a study fund to pay not only for studies but for fish mitigation projects (e.g., removing tributary barriers) arising from "Fisheries Mitigation Plan" required by the agreement and license.

Date of Conversation: May 12, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Rick Hopkins, VT DEC
Telephone/email: Rick.Hopkins@state.vt.us
Areas of Expertise: Mitigation and enhancement fund

In an email Mr. Hopkins wrote:

I whole heartedly agree with John, Kevin, Michael and Kevin regarding TransCanada's cooperation and meeting its expectations associated with the mitigation & enhancement fund which arose out of the settlement agreement. I have got to believe TransCanada has been pleased

with the results too. Again I am sorry I am not able to address or speak to any hydro facility operational issues.

Date of Conversation: May 13, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: David Deen, Connecticut River Watershed Council
Telephone/email: 802-869-2792
Areas of Expertise: Mitigation and enhancement fund, natural resources.

Regarding the mitigation and enhancement fund advisory committee, which he chairs: TC has lived up to all of its obligations related to the fund, completing its financial contribution and participating actively in project selection.

Regarding compliance with the settlement agreement and license: “Critique” is regarding delays in implementing certain activities required by the license. The Fisheries Mitigation plan has been very delayed. TC, the agencies, Trout Unlimited, and CRWC continue to make progress, however. Had to miss a recent meeting focused on fisheries mitigation. Perhaps the license timeframes were overly optimistic; “there has been nothing but goodwill on the part of” TC. The study fund was set up prior to license with TC providing money; fisheries mitigation work is supposed to be paid from that fund, which is controlled by TC. TC’s requests for extensions have been approved, so the company is not out of compliance. There have been occasional flow violations due to circumstances beyond TC’s control (ice, etc.), and the company has reported those to FERC. Project has large impacts, but CRWC did not consider asking that the project be removed because it is so important to the regional economy. So long as the project is staying put, did as well as could be expected through the mitigation. TC is “doing what we asked them to do.”

Date of Conversation: May 13, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Ken Kimball, Appalachian Mountain Club
Telephone/email: (603) 466-2721
Areas of Expertise: Natural resources, mitigation and enhancement fund

Regarding the fund, it arose from interesting circumstances. Because USGen was going through bankruptcy at the time of relicensing, the establishment of the fund was intended to give a potential buyer certainty regarding commitments. Fund has a formal, rigid formula. Criteria developed by parties that negotiated the settlement have been adhered to 90% of the time; deviations are the result of new advisory committee members who don’t understand the criteria, not due to TC. Compared to the typical fund set up pursuant to FERC proceedings, there is a lot more money for mitigation as opposed to studies.

Regarding compliance, believe TC is meeting its obligations, except perhaps in some fish and wildlife issues. It is a difficult project with 2 peaking developments; Macindoes captures and reregulates flows from upstream reservoirs, improving and moderating downstream flows considerably, though all three reservoirs have serious impacts to lentic systems.

Atlantic salmon passage is the significant issue that’s suffered from delays in making progress, but not necessarily due to TC. For example, one year there were simply no fish to count. With both Atlantic salmon and shad there are questions about natural impediments downstream from the project site, particularly Holyoke dam and Turner Falls dam – there is a question about whether salmon could have

gotten past Fifteen Mile Falls dam except in high flow years. And it may be that the Connecticut River is at the southern end of the salmon range; the salmon might have used the system more actively during a “mini ice age” 1600-1800.

Side note: an unusual feature is that the projects are serviced by headwater reservoirs. TC entered into a sidebar settlement agreement that improved reservoir levels and release schedules. The official FERC record does not reflect these agreements, nor has it asked to license the projects. TC put the shoreline of the two lakes it owns (First and Second Connecticut Lakes) into conservation easements. It leases Lake Francis from the state of New Hampshire; the state has issued development leases.

The settlement agreement reflected a recognition that the project has serious impacts, but that its electricity generation is too important to the region to modify the project’s peaking operations, and that the impacts would be offset by serious mitigation. “Acceptable impacts are those that have been mitigated for.”

The creation of the set aside for the fisheries mitigation fund (separate from the mitigation and enhancement fund) was another result of the precarious ownership situation; in this case, however, agencies did not negotiate a specific oversight structure.

The project is like the Skagit project; a good model for mitigating project impacts.

Date of Conversation:	May 13, 2009
Application Reviewer:	Gabriela Goldfarb, Consultant
Person Contacted:	Jeff Cueto, VT ANR
Telephone/email:	802-241-3758
Areas of Expertise:	Natural resources

TC is in compliance to his knowledge, though downstream fish passage issues are still being worked through, which was the issue identified by agencies in comment letters to LIHI about the certification application. The settlement agreement was a package deal, and the agency is satisfied given the circumstances of large impacts from a peaking project with substantial off river mitigation. Peaking is not good for the environment, but TC made concessions. There is ongoing water quality monitoring by TC; New Hampshire has a particular interest in dissolved oxygen downstream of the reservoirs, and TC is reporting annually on that issue. Most of the upper Connecticut River is free flowing, so fluctuating flows are of more concern than downriver where the Connecticut is largely impounded. Regarding the mercury issue, the settlement makes includes certain measures, but the issue is dealt with as more of a regional, rather than site-specific, problem.

Date of Conversation:	May 14, 2009
Application Reviewer:	Gabriela Goldfarb, Consultant
Person Contacted:	Deborah Gagne, NH Division of Historical Resources
Telephone/email:	603-271-3559
Areas of Expertise:	Cultural and historical resources

Role is review of projects that apply for funding from the mitigation and enhancement fund. Can’t comment on TC fulfillment of obligations.

Date of Conversation: May 15, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Carol Henderson, New Hampshire Fish & Game
Telephone/email: (603) 271-1138
Areas of Expertise: Natural resources

New to the job, previous staffer retired, relies on John Warner, USFWS while she is coming up to speed.

Date of Conversation: May 15, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Edna Feighner, NH Dept of Cultural Resources, Div. Historic Resources
Telephone/email: 603-271-2813
Areas of Expertise: Cultural and historical resources

Wish more had been negotiated for cultural resources, such as funding surveys. New Hampshire didn't have staff resources to participate actively or review much; Vermont led.

Date of Conversation: May 18, 2008
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Caleb Slater, Massachusetts Department of Fish and Game
Telephone/email: (508) 389-6331
Areas of Expertise: Natural resources

TC projects are not "green" in his view; the reason company is applying for LIHI certification is inclusion in Mass. DOER. Has no regulatory role, issues outlined in letter to LIHI.

Date of Conversation: May 19, 2008
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Stan Swaim, Trout Unlimited
Telephone/email: 802 626 8828
Areas of Expertise: Natural resources, mitigation and enhancement fund, recreation

Mixed grade. For the most part TC has done well. Mitigation and enhancement fund is doing excellent work, sit on the advisory committee. Conservation easements are excellent, "can't speak highly enough" in terms of protecting high value lands. However, TC would not consider going to run of river in the relicensing. The Fisheries Management Plan (FMP) has been sort of "deadbeat." Got funding from the Mitigation and Enhancement Fund to open a tributary blocked by a culvert that had a brook trout population upstream. TC was not cooperative, possibly because they didn't want a contractor on their land, finally agreed, but then the State of New Hampshire would not issue the permit. FMP was supposed to address problems like this, but has been "boiled down" and the flow of money [from the Study Fund, which is supposed to pay for FMP implementation] stopped for a long time. FMP implementation is only fair; perhaps it isn't TC's fault, perhaps money was diverted to other purposes such as mercury studies. The Conservation Law Foundation initially participated in the settlement negotiations and hammered on the mercury issue, then disappeared, but the mercury issue remained and "mucked things up." The FMP committee met a couple of times last year, has not met this year. Regarding passage, some things interfered beyond TC's control, e.g., planted telemetry salmon but due to unusually high rainfall had to

spill them. Regarding water quality, tried to get dissolved oxygen and temperature study results, but TC would not release them. Another concern is failure to maintain an auditory/visual alarm system for flow releases below Comerford Dam. The solar powered system has not functioned in at least 6 years, results in risk of stranding or worse for fishermen below the dam. Have experienced stranding on an island first hand.

Date of Conversation: May 19, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: David Deen, Connecticut River Watershed Council
Telephone/email: 802-869-2792
Areas of Expertise: Mitigation and enhancement fund, natural resources.

Note: this is a second conversation with Mr. Deen.

Regarding recreation, flow releases are reported on a website and via an 800 telephone number. Issue raised by Stan below Comerford Dam not on anyone's agenda; because of its physical setting (no public access from NH side, difficult access from VT) it's not a big fishery. Regarding the Study Fund, no one has had time to focus on the fund other than for FERC-license required studies. Unclear how much money is in the fund, whether there is enough to implement the FMP projects. Have not gotten an update from TC in 2-3 years. In early 2008 the FMP committee met to set priorities for FMP projects, in late 2008 or early 2009 the permitting agencies met and approved projects create velocity refuges and four streams to address culvert barriers. When those projects are implemented, believe that will complete the FMP. Stan's project not approved because it ran counter to NH strategy to protect brook trout populations from stocked mainstem rainbow trout.

Date of Conversation: May 20, 2009
Application Reviewer: Gabriela Goldfarb, Consultant
Person Contacted: Cleve Kapala, TransCanada
Telephone/email: 603.225.5528
Areas of Expertise: TransCanada Projects

Regarding Study Fund, its undefined nature is a result of the circumstances at the time of its creation, with a transfer of ownership in the works. Had to set a capped amount so that a potential buyer would not have unlimited liability. Also, while estimates could be made for cost of studies and plan development and many types of implementation, implementation of fish passage specifically excluded because TC is obligated to fulfill license requirements no matter what, and because the cost of upstream passage, which would be a large capital expense not suited to the fund, could not be estimated. There is still an active balance in the fund. During the earlier owner's bankruptcy process from 2003-2005, the flow of money was considerably reduced because the creditors committee would not approve expenditures. Still paying for a variety of studies, some ongoing indefinitely, such as mercury monitoring and dissolved oxygen. Regarding delays, some causes are beyond TC's control (e.g., salmon smolts purchased from agency for telemetry study were immature, not ready to migrate, and disappeared, sampler designed largely by agencies did not have a screen for debris which impeded passage, have to add that), some delays are because agencies don't have time to comment (nor are they obligated to do so) to proposed measures in time to get them in the work and budget pipeline in a timely fashion, and some can be laid at the door of TC. Regarding alarm below Comerford, did install one, though it was not required by the settlement agreement or license, however neighbors complain vociferously about the noise.
