

*Reviewer's Report for an Application
for Recertification to the Low
Impact Hydropower Institute from
EBH – Upper Raquette River*

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12/18/2014**

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APPENDIX A 29

REVIEW OF APPLICATION FOR RECERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE (LIHI) OF THE UPPER RAQUETTE RIVER PROJECT

Prepared by:
Gary M. Franc
December 18, 2014

1. INTRODUCTION

The newly defined Upper Raquette River Project (URRP or Project) is comprised of the Federal Energy Regulatory Commission's (FERC) license 2060 that includes Erie Boulevard Hydropower's (EBH) Carry Falls development and FERC license 2084 that includes EBH's Stark Falls, Blake Falls, Rainbow Falls, Five Falls, and South Colton hydro developments. EBH is a wholly owned subsidiary of Brookfield Renewable Energy Group (BREG).

Prior to this review, the URRP was certified as part of the larger Raquette River Project (RRP or LIHI certificate #14), which was comprised of fourteen hydro developments in FERC licenses 2060, 2084, 2320 and 2330.¹ LIHI #14's second five year recertification for the RRP expired on July 9, 2014.

EBH submitted a third application to LIHI for recertification of the RRP on May 12, 2014. Based on review comments by the U.S. Fish and Wildlife Service (USFWS) on May 27, 2014², EBH resubmitted a revised LIHI application for recertification on July 28, 2014.

In reviewing this latest application package, LIHI determined that the RRP needed to be separated into three smaller LIHI certificates to help reduce the overall size and complexity of the issues, and to make the application more manageable. A logical approach was to segment the prior LIHI project by FERC licenses, as described here. This solution was arrived at after discussions with EBH. The applicant agrees with this new approach.

The URRP will now be defined as LIHI certificate #14A going forward. The developments in FERC license 2320 will now be defined as the Middle Raquette River Project (MRRP or LIHI #14B). The developments in FERC license 2330 will now be defined as the Lower Raquette River Project (LRRP or LIHI #14C).³ This report reviews the applicable portions of the latest application for recertification of the URRP.⁴

¹ FERC licenses – 2060 (Carry Falls), 2084 (Stark Falls, Blake Falls, Rainbow Falls, Five Falls, and South Colton), 2330 (Higley, Colton, Hannawa and Sugar Island), 2320 (Norwood, East Norfolk, Norfolk and Raymondville).

² USFWS LIHI application request, “... Brookfield should update the entire LIHI Application to reflect current conditions, not those that existed at the time of the 1998 Settlement or the original application to LIHI. In addition, they should provide photo-documentation that demonstrates that all of the eel ladders have been successfully installed and are operating as designed. Finally, Brookfield should indicate which fish protection and downstream passage facilities have been completed and which are yet to be completed (along with proposed installation dates) ...”

³ FERC issued separate licenses for the Carry Falls Project (P-2060), the Upper Raquette River Project (P-2084), the Middle Raquette Project (P-2320) and the Lower Raquette River Project (P-2330) on February 13, 2002. The term for each license was for 31 years and 11 months ending on December 31, 2033. In December of 2006, FERC amended the Lower Raquette River Project as a means of accelerating the fish protection and downstream passage schedule.

⁴ EBH – Daniel Daoust, Compliance Specialist - (315.598.6130 – Daniel.Daoust@brookfieldrenewable.com).

2. PROJECT LOCATION

The Project consists of six hydro developments, Carry Falls, Stark Falls, Blake Falls, Rainbow Falls, Five Falls, and South Colton, along the Raquette River in St. Lawrence County, New York.

The Raquette River, with a total drainage basin of 1,269 square miles at its mouth, originates in the Adirondack highlands at Blue Mountain Lake, Raquette Lake and Long Lake, flows generally north-northwest for more than 120 miles, through Potsdam, New York and empties into the St. Lawrence River, near Massena, New York into the St. Lawrence River/Seaway at the St. Regis Indian Reservation in Franklin County.

The area experiences cold, snowy winters and short summers. Annual precipitation is about 40 inches. As the river flows north, it transitions from cold water habitat above the URRP, to a cool water aquatic fishery as the river reaches the lower gradients.

Most of the basin is sparsely populated, with much of the land forested and brush land. The URRP is in a largely rural, forested area that is dependent on forestry, some agriculture, wood products, and tourism.

Historically, the river has been developed for water power for sawmills, paper mills, tanneries, and other industry. The Adirondack Park boundary runs through the URRP. Carry Falls, Stark, Blake, and Rainbow are entirely within the Park boundary, while part of Five Falls is within the Park.

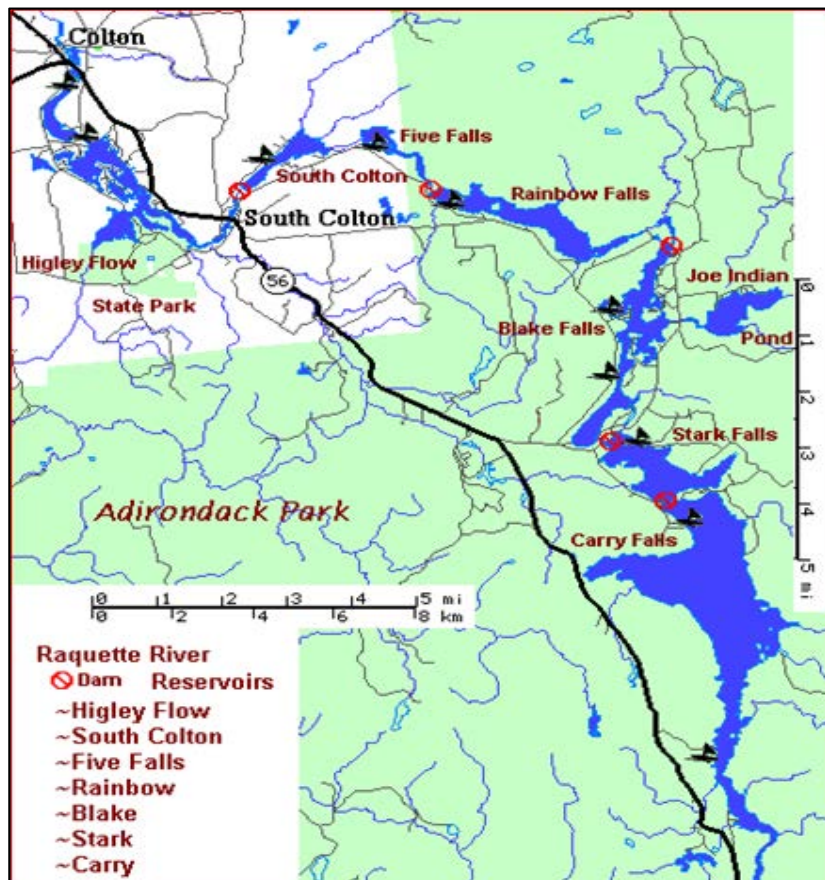


Figure 1 - Location Map

At the Project's upstream boundary, the Carry Falls development, located at river mile (RM) 68 impounds 877 square miles (sq. mi.) of upstream drainage. This development's seasonal storage pond is the largest on the Raquette River (RM 76 to 68) and is used to store and regulate the majority of this upstream flow to the remaining developments downstream.

The Stark dam and head pond is located immediately downstream of the Carry Falls dam. When the elevation of the Carry Falls reservoir falls below 1,355.0 feet mean sea level (MSL), a rare occurrence since being relicensed in February 2002, the Carry Falls and Stark impoundments essentially become one storage pond.

EBH's FERC licensed Piercefield Project (P-7387) (RM 88) located on the Raquette River below the outlet of Tupper Lake, in the towns of Piercefield and Altamont, St. Lawrence and Franklin Counties, New York is located above Carry Falls. At its downstream boundary, the South Colton development has a drainage area of 942 sq. mi. and is located at RM 52.

3. PROJECT DESCRIPTION

The Project is located on the Raquette River in St. Lawrence County, NY and consists of six developments as shown in Table 1.

3.1 Major Project Works –Carry Falls Development

Development	River Mile	Latitude of Dam	Longitude of Dam	Generation (MW)	Dam Crest Elevation (feet)
Carry Falls	68	44.43520	74.74730	0	1,386.00
Stark Falls	66	44.45112	74.76587	23.872	1,355.00
Blake Falls	62	44.50200	74.74610	13.913	1,250.50
Rainbow Falls	56	44.51667	74.82045	22.828	1,181.50
Five Falls	54	44.52994	74.84340	22.828	1,077.00
South Colton	52	44.51744	74.88137	18.948	973.50
Total				102.389	

The Carry Falls development has a total drainage area of 877 sq. mi. and consists of:

- (1) An 826-foot-long dam consisting of:
 - a. A 568-foot-long and 76-foot-high concrete gravity spillway with a crest elevation of 1,386 feet MSL, and ;
 - b. A 258-foot-long and 63-foot-high concrete gated non-overflow spillway with two 14.5-foot by 27-foot Taintor regulating gates, two 10-foot by 10-foot low-level sluice gates, and an intake structure with two 15-foot by 15-foot openings for future power installation. The development currently has no installed generating capacity;
- (2) Five earth dikes totaling 2,500 feet in length, with lengths varying from 320 feet to 1,015 feet, maximum heights varying from 12 feet to 31 feet, and each with a crest width of 12 feet at elevation 1,392 feet MSL;
- (3) A 7-mile-long reservoir with a 3,000-acre surface area and a 104,463-acre-foot usable storage capacity at normal maximum pool elevation 1,385 feet MSL.

3.2 Major Project Works – Stark Falls Development

The Stark Falls development has a total drainage area of 877 sq. mi. and consists of:

- (1) A 35-foot-high concrete gravity-type dam with a concrete overflow section and a control gate section flanked by earth dikes;
- (2) six earth saddle dikes;
- (3) A 1.5-mile-long reservoir with a 641-acre surface area and a 12,000-acre-foot usable storage capacity at normal maximum pool elevation of 1,355.0 feet MSL;
- (4) An intake;
- (5) A penstock, and;

- (6) A powerhouse containing a single 23.872-MW generating unit.

3.3 Major Project Works – Blake Falls Development

The Blake Falls development has a total drainage area of 908 sq. mi. with an intervening drainage area of 31 sq. mi. between the Stark Falls and Blake Falls developments. Blake Falls consists of:

- (1) 75-foot-high concrete gravity-type dam with a concrete overflow section;
- (2) An earth dike;
- (3) A 5.5-mile-long reservoir with a 660-acre surface area and a 12,800-acre-foot usable storage capacity at normal maximum pool elevation of 1,250.5 feet MSL;
- (4) An intake;
- (5) A penstock, and;
- (6) A powerhouse containing a single 13.913-MW generating unit.

3.4 Major Project Works – Rainbow Falls Development

The Rainbow Falls development has a total drainage area of 927 sq. mi. with an intervening drainage area of 19 sq. mi. between the Blake Falls and Rainbow Falls developments. Rainbow Falls consists of:

- (1) A 75-foot-high concrete gravity-type dam with a concrete overflow section flanked by a 1,600-foot-long earth dike;
- (2) An earth saddle dike;
- (3) A 3.5-mile-long reservoir with a 710-acre surface area and a 12,700-acre-foot usable storage capacity at normal maximum pool elevation of 1,181.5 feet MSL;
- (4) An intake;
- (5) A penstock, and;
- (6) A powerhouse containing a single 22.828-MW generating unit.

3.5 Major Project Works – Five Falls Development

The Five Falls development has a total drainage area of 932 sq. mi. with an intervening drainage area of 5 sq. mi. between the Rainbow Falls and Five Falls developments. Five Falls consists of:

- (1) A 50-foot-high concrete gravity-type dam with a concrete overflow section flanked at each end by an earth dike;
- (2) A 1.0-mile-long reservoir with a 120-acre surface area and a 2,300-acre-foot usable storage capacity at normal maximum pool elevation of 1,077.0 feet MSL;
- (3) An intake;
- (4) A 1,200-foot-long penstock, and;
- (5) A powerhouse containing a single 22.828-MW generating unit.

3.6 Major Project Works – South Colton Development

The South Colton development has a total drainage area of 942 sq. mi. with an intervening drainage area of 10 sq. mi. between the Five Falls and South Colton Falls developments. South Colton Falls consists of:

- (1) A 45-foot-high concrete gravity-type dam with a concrete overflow section and earth abutments;
- (2) A 1.5-mile-long reservoir with a 225-acre surface area and a 3,000-acre-foot usable storage capacity at normal maximum pool elevation of 973.5 feet MSL;

- (3) An intake;
- (4) A 1,300-foot-long penstock, and;
- (5) A powerhouse containing a single 18.948-MW generating unit.

3.7 Mode of Operation for Power

The URRP operation is coordinated with EBH's other hydropower developments on the Raquette River, within LIHI projects MRRP and LRRP.

As described in the Raquette River Project Offer of Settlement (RRPSO), submitted to FERC on April 22, 1998⁵ and the 2002 FERC license⁶, EBH agreed to a new Carry Falls guide curve. This new guide curve continues to provide a series of target elevations over the course of a given year, but raises the lower elevation limit from 1,332 to 1,355 feet MSL. This change ensures a separation in the operation of the Carry Falls and Stark Falls impoundments.

Use of this current guide curve allows for the downstream hydro developments within the URRP to operate in a peaking mode. Releases from Carry Falls are made to allow for downstream hydro developments to meet a scheduled energy demand. This operation is allowed as long as the Carry Falls reservoir level reasonably adheres to the guide curve. The maximum daily reservoir fluctuation under normal flow conditions at Carry Falls is limited to 30.0 feet.

Each of the downstream developments are allowed to operate in a pulsing mode that limits the maximum daily reservoir fluctuation under normal flow conditions to 1 foot at Stark Falls, Blake Falls and Rainbow Falls and to 2 feet at Five Falls and South Colton.

Each development is allowed to generate when total inflow is available to pass the minimum bypass flow plus run one turbine at its minimum turbine limit. Once a development's net inflow (inflow available after passing minimum flow) exceeds the powerhouse's hydraulic capacity, the powerhouse is run at full hydraulic capacity and all excess water is passed over the spillway or top of flashboards.

The URRP developments have an overall installed capacity of 102.4 MW and produce an average annual energy (AAE) of 439.79 GWh (Plant factor of 49.0%).

3.8 Mode of Operation for Minimum Flow Releases

As described in the RRPSO, the Section 401 Water Quality Certificate (WQC)⁷ and the 2002 FERC license, the URRP developments operate in a pulsing mode that limits impoundment fluctuations while providing minimum flows.

⁵ RRPSO can be found here - http://elibrary.ferc.gov/idmws/search/intermediate.asp?link_info=yes&doclist=1845587

⁶ Carry Falls FERC License(P-2060) - <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13707255> and Upper Raquette River FERC License (P-2084) - <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=11860652>

⁷ WQC issued by the NYSDEC on June 11, 1998 was submitted to FERC by EBH on June 23, 1998. A copy can be found here - <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=55629>

EBH is required to supply minimum flows⁸ as follows:

- (1) From Stark, 45-cfs year-round through the stop log section of the dam. If any flow is passed through the taintor gates for a period of 24 hours or more, the minimum flow through the stop log section is raised to 90-cfs. This 90-cfs release is maintained for an additional 24 hours following closure of the taintor gates and then reverts back to the 45-cfs⁹;
- (2) From Blake, 55-cfs from the stop log section of the dam, with an increase to 120-cfs during the start of the walleye spawning season¹⁰ and continues through the end of June. The 55-cfs flow resumes on July 1 of the year¹¹;
- (3) From Rainbow, 20-cfs year-round from the stop log section of the dam¹²;
- (4) From Five Falls, 50-cfs from the stop log section of the dam, with an increase to 145-cfs during walleye spawning season¹³; and
- (5) From South Colton, 20-cfs year-round over the visible portion of the falls. The FERC license stated that, "This flow can be achieved by releasing 60-cfs from the stop log section of the dam located near the left shore, or by releasing a minimum of 20-cfs from this same location and modifying the channel to divert at least 20-cfs of the minimum flow over the visible portion of the falls".¹⁴ Although I could not find a letter pertaining to this issue, discussions with EBH indicate that they chose the latter option to releasing a minimum of 20-cfs from this same location and modify the channel to divert at least 20-cfs of the minimum flow over the visible portion of the falls

No base flow requirements are defined for the URRP.

Additionally, each of the downstream developments are allowed to operate in a pulsing mode that limits the normal impoundment fluctuation to 1 foot at Stark Falls, Blake Falls and Rainbow Falls and to 2 feet at Five Falls and South Colton. Normal impoundment fluctuations are measured from 0.3 feet below permanent crest of dam. None of the developments in the URRP use seasonal flashboards.

The impoundment fluctuation limitations may be curtailed or suspended if required by operating emergencies beyond the control of EBH, including security, and for short periods upon mutual agreement between EBH and the New York State Department of Environmental Conservation (NYSDEC). If the limitations are so modified, EBH notifies the FERC as soon as possible, but no later than ten business days after each such incident.

For construction and maintenance activities that require lowering the level of an impoundment below the normal operating limits, EBH's operating procedure (HOP 202) requires notification of NYSDEC and compliance with drawdown rates specified in the WQC.

⁸ All minimum flows actual release at any given time may be slightly above or below the required value. The degree of variation is a function of head pond impoundment fluctuation. EBH must determine the appropriate gate settings for the provision of minimum flows at each development based upon the midpoint of the normal impoundment fluctuation of each development. For example, if the normal impoundment fluctuation is 1.0 foot, and the instream flow is 45 cfs, the gate setting to provide 45 cfs shall be based upon a drawdown of 0.5 feet.

⁹ The 45-cfs can vary from 42-cfs to 48-cfs. The 90-cfs can vary from 84-cfd to 96-cfs.

¹⁰ The walleye spawning season at all of the URRP developments is based on water temperature readings taken in the vicinity of the tailrace of the South Colton development. Walleye spawning season starts when water temperature reaches 4 degrees Celsius (39.2 degrees F) for four consecutive days after March 15 of each year and ends 30 days after water temperature has reached 10 degrees Celsius (50 degrees F) for four consecutive days.

¹¹ The 55-cfs can vary from 52-cfs to 58-cfs. The 120-cfs can vary from 112-cfs to 128-cfs.

¹² The 20-cfs can vary from 19-cfs to 21-cfs.

¹³ The 50-cfs can vary from 43-cfs to 57-cfs.

¹⁴ The 20-cfs can vary from 17-cfs to 23-cfs. The 60-cfs can vary from 52-cfs to 68-cfs.

3.9 Mode of Operation for Downstream Fish Passage

As defined in the 2002 FERC license, EBH needs to provide for safe downstream fish movement and protection at all of the URRP developments coincident with the release of minimum flows. All the developments will eventually have 1-inch clear spacing physical barriers installed immediately above their existing trashrack structure. These installation were scheduled from and 2013 to 2019.

The installation of these structures is considered a high priority, but due to the large number of sites on the Raquette River requiring structures, the installations were agreed to be phased in over time. South Colton's 1-inch clear spacing physical barriers were installed ahead of schedule in 2011. The remaining schedule follows: Five Falls in 2017, Rainbow Falls in 2016, Stark in 2019 and Blake in 2020.

Downstream fish passage/minimum flows may be curtailed or suspended if required by operating emergencies beyond the control of EBH, including security, and for short periods upon mutual agreement between EBH and the NYSDEC. If the limitations are so modified, EBH will notify the FERC as soon as possible, but no later than ten business days after each such incident.

For construction and maintenance activities that require curtailment of downstream fish passage, EBH's HOP 202 requires notification of NYSDEC.

3.10 Mode of Operation for Upstream Fish Passage

No upstream fish passage requirements are currently part of the URRP's FERC license. However, Article 403 of the license reserves the FERC's authority to require EBH to construct, operate, and maintain fishways as the U.S. Department of Interior (USDIO) may prescribe.

4. REGULATORY STATUS

4.1 Summary of Project Redevelopment and Agency Consultation Process

The original FERC license for the Carry Falls Project (P-2060) was issued in 1951, with an expiration date of January 31, 2001. From February 1, 2001 through February 13, 2002, EBH operated the project under annual FERC license. The original FERC license for the Upper Raquette River Project (P-2084) was issued in 1952, with an expiration date of January 31, 2002.

In 1995, parties to the pending FERC relicensing proceedings for the Lower Raquette River Project (P-2330) and the Middle Raquette River Project (P-2320) requested that all proceedings be combined with the FERC relicensing proceedings for the Carry Falls and the Upper Raquette River Project. On December 13, 1995, the FERC approved the request and Niagara Mohawk Power Company (NMPC), the predecessor of EBH¹⁵ agreed to accelerate the FERC relicensing of the Carry Falls and Upper Raquette River Projects¹⁶.

¹⁵ In 1999, NMPC sold their entire hydropower portfolio to Orion Power. EBH was created as a subsidiary of the newly formed company dealing with the operation of the hydropower assets. Orion Power was eventually acquired through a secession of sales and purchases by the BREG, current owner of EBH.

¹⁶ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=8299440:1>

On April 22, 1998, NMPC filed the RRPSO that addressed issues pertaining to all four FERC licenses on the Raquette River, signed by seventeen participants¹⁷. Shortly thereafter, the NYSDEC issued the WQC for the Raquette River on June 11, 1998.

The RRPSO provides for minimum flows releases, limitations on impoundment fluctuations, and fish passage and protection measures to protect and enhance the water quality and fishery resources of the Raquette River. It also provides for enhanced recreational opportunities in a manner that is consistent with the undeveloped nature of the surroundings.

On February 10, 1999, NMPC filed notice of a new license application which reflected the provisions of the RRPSO and the WQC¹⁸, soliciting comments, protests, and motions to intervene. The USDO, AMC and the NYSPA filed motions to intervene in the proceeding.

On June 16, 2000, the FERC issued for comment a draft Multiple Project Environmental Assessment (DEA) that evaluated the potential environmental impacts of the continued operation of the four projects¹⁹. The USDO, NYSDEC, the St. Regis Mohawk Tribe, AMC, and EBH filed comments on the DEA.

On April 18, 2001, Commission staff issued a final EA (EA)²⁰. The EA concludes that relicensing the four projects will not have a significant adverse impact on the quality of the human environment and recommends issuance of new licenses as proposed in the applications.

On February 13, 2002, the FERC issued separate licenses for the Carry Falls Project (P-2060)²¹, the Upper Raquette River Project (P-2084)²², the Middle Raquette Project (P-2320)²³ and the Lower Raquette River Project (P-2330)²⁴. The term for each license was for 31 years and 11 months ending on December 31, 2033.

4.2 License and Compliance Issues

EBH agreed to a new Carry Falls guide curve. This new guide curve continues to provide a series of target elevations over the course of a given year, but raises the lower elevation limit from 1,332 to 1,355 feet MSL. This change ensures a separation in the operation of the Carry Falls and Stark Falls impoundments.

¹⁷ RRPSO signatories include EBH, the NYSDEC, the U.S. Department of the Interior's Fish and Wildlife Service (USFWS), Adirondack Mountain Club (AMC), New York State Adirondack Park Agency (NYSPA), New York Rivers United (NYRU), American Canoe Association (ACA), American Rivers (AR), American Whitewater (AW), National Audubon Society of New York State (NYSAS), the National Park Service (NPS), New York State Conservation Council (NYSCC), North Country Raquette River Advocates (NCRRA), St. Lawrence County, The Adirondack Council (AC), The Association for the Protection of the Adirondacks, and the Jordan Club. The New York Power Authority (NYPA) and the New York Council of Trout Unlimited (TU) participated in the proceeding and had no objections, but chose not to become signatories.

¹⁸ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=3150004>

¹⁹ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=8057323:1>

²⁰ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=164819:1>

²¹ FERC license for (P-2060) - <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13707255>

²² FERC license for (P-2084) - <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=11860652>

²³ FERC license for (P-2320) - <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13707261>

²⁴ FERC license for (P-2330) - <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=11860653>

In addition, EBH agreed to:

- (1) remove welded blocks that currently exist on the bottom of one of the low-level sluice gates at Carry Falls;
- (2) Provide canoe portages from the Jordan River to the right shore of the Carry Falls reservoir and around the Carry Falls dam and modify the project boundary as necessary to include all EBH lands occupied by the portages.
- (3) Provide minimum flows below the Stark, Blake, Rainbow, Five Falls and South Colton developments;
- (4) Limit the normal reservoir fluctuations to no more than 1.0 feet at Stark, Blake, and Rainbow, and to no more than 2.0 feet at Five Falls and South Colton
- (5) Make fisheries habitat improvements at the Stark and Blake developments;
- (6) Develop a streamflow monitoring plan;
- (7) Provide measures to facilitate downstream fish movement at all the developments;
- (8) Install 1-inch clear spacing physical barriers at existing trashrack structures at each development;
- (9) Develop a recreation plan to provide a canoe portage at each development, access to Dead Creek at Blake, and a primitive access trail to the Clear Pond Wild Forest at Rainbow, and;
- (10) Modify the project boundary.

5. PUBLIC COMMENTS RECEIVED

EBH submitted a third application to LIHI for recertification of the RRP on May 1, 2014. LIHI notified and requested public comment on EBH's application for LIHI certification on May 12, 2014. LIHI policy is for all comments to be posted to the web site and for EBH to have an opportunity to respond. Any EBH responses are also posted. Public comments needed to be received on or before 5 pm Eastern time on July 1, 2014, to be considered.

Review comments from the USFWS were received on May 27, 2014. In this letter the USFWS stated, "... *The LIHI Application filed by Brookfield is incorrect and incomplete under Section C: Fish Passage and Protection. ... Brookfield should update the entire LIHI Application to reflect current conditions, not those that existed at the time of the 1998 Settlement or the original application to LIHI. In addition, they should provide photo-documentation that demonstrates that all of the eel ladders have been successfully installed and are operating as designed. Finally, Brookfield should indicate which fish protection and downstream passage facilities have been completed and which are yet to be completed (along with proposed installation dates).*" In response to these comments, EBH resubmitted a revised LIHI application for recertification on July 28, 2014.

On May 22, 2014, LIHI received a letter from Mr. John Omohundro. In this letter he stated, "*I wish to comment on the performance of Brookfield Renewable (Erie Hydropower) in these Raquette licenses. I participated in the settlement agreement in the late 1990s and have been a regular member of the Raquette River Advisory Council (RRAC) since then. I designed, built and manage a hiking trail on Brookfield land in the Middle Raquette area. So I am familiar with the licensee's performance on recreation and cultural preservation.*

I give the licensee good marks for the recreational opportunities it maintains in the new license, for paddlers, walkers, and soon (we expect) cyclists. Fishing platforms have been built, and, when damaged by storms, rebuilt. Enhancement of whitewater events at Stone Valley with improved safety, information, and viewing has also nearly at the construction phase. The licensee sets aside money each year in the RRAC for applicants who wish to enhance or introduce recreational or preservation features. Historic preservation,

particularly along the Stone Valley recreation area in the Middle Raquette, has been addressed as illustrated by its support for the plans to interpret with signage the old mills like the tannery in the Stone Valley area.

The licensee has fallen behind on repairs on features built when the new license began and before, such as picnic facilities and signage at boat launches on the upper and lower Raquette, but I remain optimistic it will perform those eventually."

Resource agency contacts that have been acknowledged to be knowledgeable on the operational issues with the Project are:

1. Stephen Patch - USFWS, 3817 Luker Road, Cortland, NY 13045 - (607.753.9334 - Stephen_patch@fws.gov) ,
2. Mark Woythal - NYSDEC, 625 Broadway, 5th Floor, Albany, NY 12233-4756 - (518.402.8847 - mwoyth@gw.dec.state.ny.us)

On July 22, 2014, this reviewer emailed Mr. Stephen Path with the USFWS. In my email I stated, *"I am the LIHI reviewer tasked with determining whether Brookfield Renewable Energy Group (BREG)'s Beaver, Salmon, Raquette and Hoosic River Hydroelectric Project should be LIHI recertified. I am emailing you today because you have been identified in the application by the owner as resource agency and non-governmental organization contacts familiar with the project. I would appreciate your perspective regarding the project's proposed operation with regard to satisfying its licensed environmental obligations (FERC articles). Without your input my review can only be based on the documents found in the FERC docket. Thank you for your time in this matter."*

To date, other than their May 27, 2014 letter, no additional USFWS comments have been received.

On November 5, 2014, this reviewer emailed Mr. Mark Woythal with the NYSDEC. In my email I stated, *"I am the LIHI reviewer tasked with determining whether Erie Boulevard Hydropower's (EBH's) Raquette River Projects should be LIHI recertified. I am emailing you today because you have been identified in the application by the owner as resource agency familiar with the project. I would appreciate your perspective regarding the project's operation with regard to satisfying its licensed environmental obligations (FERC articles). Any other views or concerns on the operation of the Projects are welcome. Without your input my review can only be based on the documents found in the FERC docket. Thank you for your time in this matter."*

To date, no NYSDEC comments have been received.

6. CONSISTENCY WITH LIHI CRITERIA AND ISSUES IDENTIFIED

Recertification review focuses primarily on determining the answers to the following two questions:

- 1) Has there been a material change in circumstances since the original certification was issued? For purposes of recertification review, a "material change in circumstances" will mean one or both of the following:
 - (a) Non-compliance: Since receiving its last certification from LIHI, the certificate holder/applicant has not implemented, or has delayed implementing, or has done an inadequate job of implementing obligations at or near the facility that are of relevance to LIHI's criteria. These obligations could be in the form of terms and conditions of license(s), settlement agreements, resource agency recommendations or agreements, LIHI conditions of certification including annual notifications, agreements with local municipalities or other third parties or similar relevant obligations; or
 - (b) New or renewed issues of concern that are relevant to LIHI's criteria: Since receiving its last certification from LIHI, either new issues of concern and relevance to LIHI's criteria have emerged that did not exist or were not made known to LIHI at the time of certification, or there continues to be ongoing problems with previously known issues that appeared to LIHI to be resolved or on the road to resolution at the time of certification but in fact are not resolved, and are ongoing at the time of the re-certification application.

If a new license, settlement agreement, prescription, biological opinion or other similar regulatory decision has been made since the original recertification, these documents will be evaluated to determine if new or renewed issues have been raised.

- 2) Have any of LIHI's criteria, or the Board's interpretation of one or more criterion, changed in meaningful ways since original certification that are applicable to the circumstances of the facility seeking re-certification?

The application for LIHI recertification was adequate to allow for LIHI review. However, I needed to rely consistently on reference of FERC docket documents, a complete copy of the RRPSO and multiple discussions with EBH to complete my review. No material change in circumstances has occurred since the last recertification of this project.

The following sections summarize the record for LIHI recertification.

6.1 Summary of the Reviewer's Findings

Criterion A – Flows

Agency recommendations for environmental flow requirements and agreements and coordination with other projects on the Raquette River are well established in the FERC proceedings for this project.

In summary, releases from Carry Falls are made to allow for downstream hydro developments to meet a scheduled energy demand. This operation is allowed as long as the Carry Falls reservoir level reasonably adheres to its guide curve. The maximum daily reservoir fluctuation under normal flow conditions at Carry Falls is limited to 30.0 feet.

Each of the downstream developments are allowed to operate in a pulsing mode that limits the maximum daily reservoir fluctuation under normal flow conditions to 1 foot at Stark Falls, Blake Falls and Rainbow Falls and to 2 feet at Five Falls and South Colton.

Each year EBH files documentation with FERC confirming compliance with flow and impoundment level conditions²⁵.

Only one impoundment fluctuation limit and flow deviation has occurred at the URRP developments since 2009. On July 2, 2014, EBH reported deviations occurring from June 4, 2014 until June 11, 2014.²⁶ In the notice EBH states, *"On April 21st, 2014 Brookfield requested permission from the NYSDEC to suspend minimum flows at the Stark and Blake developments in order to facilitate toe inspections at both dams. The NYSDEC approved the request to suspend the minimum flows on the same day. Immediately prior to the Part 12 safety inspections on June 4th, the minimum flows were partially blocked off to perform said inspections. Upon completion of the toe inspections, minimum flows were, inadvertently, not re-established until June 11th. To ensure this does not occur in the future, Brookfield operations will field-verify gate discharge curves and coordinate with compliance staff during all future inspections to establish a better line of communication."*

On October 31, 2014, FERC deemed this a violation of EBH's license, but did not pursue further enforcement action or fines. FERC stated, *"Based on our review of the available information, the minimum flow deviation was due to operator oversight. While you notified the appropriate resource agencies and you did not observe any adverse environmental impacts, the deviation resulted directly from you failing to re-establish the minimum flow. You also failed to notify the Commission within 10 days of the incident, which is required in Article 406 of your license."*²⁷.

Since only one violation has occurred throughout the prior certification period, it is my view that this LIHI criterion is satisfied.

Criterion B – Water Quality

The URRP is in compliance with conditions pursuant to the WQC issued by the NYSDEC. The WQC includes and incorporates the terms of the RRPSO. Therefore, compliance with the WQC implies compliance with the entire RRPSO.

The WQC contains standard provisions related to erosion and sediment control for project maintenance and construction activities. The NYSDEC has confirmed that EBH has properly consulted when there has been any construction at the projects that triggers WQC conditions.

The NYSDEC classifies the project area based on their designated best use. Water classifications for the project areas include Class B (Coldwater fishery) (Best use is primary contact recreation and other uses except as a source of water supply for drinking and culinary or food processing purposes), Class C (T) (Coldwater fishery that supports trout) (best use is fishing and all other uses except as a source of water supply for drinking, culinary or food processing purposes and primary contact recreation), and Class D (warm water fishery) (best use is secondary contact recreation).

The NYSDEC identified several areas of the Raquette River and associated tributaries in their June 3,

²⁵ The latest annual minimum flow compliance report for 2013 was filed by EBH on January 21, 2014 -

<http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13493651>

²⁶ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13585305>

²⁷ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13674713>

2002 Section 303 (d) List. Carry Falls Reservoir is on the 303(d) list of waterbodies that fail to meet one or more applicable water quality standards. The NYSDEC Section 303(d) List indicates atmospheric deposition (acid rain) is common within the entire length of the Upper Raquette River causing pH to be elevated in the Adirondacks and associated tributaries identified under Section 303 (d). The river's ecosystem is generally low in nutrients and fine sediments. The list indicates that the Carry Falls Reservoir is classified as not meeting the water quality standard for fish consumption due to mercury contamination from atmospheric deposition. The NYSDEC believes there are no indications that the URRP contributes to this water classification.

Since EBH is in compliance with water quality aspects of the WQC and the FERC license, this LIHI criterion is satisfied.

Criterion C – Fish Passage and Protection

The 1998 RRPSO and the 2002 FERC license contain requirements by Resource Agencies for downstream fish passage²⁸ in the form of required downstream passage flows, modifications to the structures and streambed in order to make the flows fish-friendly, and scheduled installation of 1 inch clear spaced bar trashracks to prevent/reduce entrainment. These installation were scheduled from and 2013 to 2019.

South Colton's 1-inch clear spacing physical barriers were installed ahead of schedule in 2011. The remaining schedule follows: Rainbow Falls in 2016, Five Falls in 2017, Stark in 2019 and Blake in 2020.

The upstream passage for anadromous or catadromous fish was not a management objective of the RRPSO. However, the USDOJ reserved their authority to prescribe fish passage facilities for the URRP in Article 403 of the 2002 FERC license. The Article also reserved FERC authority to require construction, operation and maintenance of any such prescribed fish passage facilities.

Upstream passage of American eel became a management goal during the 2006 license amendment proceedings for the LRRP. The FERC issued an Order Amending License and Accelerating Fish Protection and Downstream Passage Schedule on December 5, 2006 for the LRRP. In response, EBH filed a Final Eel Passage Plan on December 14, 2007.

A review of the FERC docket indicates that EBH has been in compliance with all fish passage and protection aspects of its license for the URRP. However, the installation of 1-inch clear spacing physical barriers immediately above their existing trashrack structure are required to be completed for a number of developments within the time frame of the next LIHI certification (July 10, 2014 to July 10, 2019). While LIHI understands that EBH plans on completing these trashrack installations on schedule, these items are crucial from LIHI's perspective in viewing these developments as remaining "low impact".

Therefore, EBH needs to provide a letter report on the status of these trashrack installations as they become due at Rainbow Falls in 2016, Five Falls in 2017, Stark in 2019 and Blake in 2020, describing any and all events where installation might be delayed, the cause of the delay, and actions being taken by EBH to resolve further delay. The report is due at the same time as the annual compliance statement and payment of the annual certification fee. Based on LIHI's review of this report, and at LIHI's sole discretion, certification may be rescinded or modified.

²⁸ Downstream passage is designed for riverine fish -yellow perch, rock bass, white sucker, brown bullhead, walleye, northern pike and pumpkinseed.

Criterion D – Watershed Protection

No documentation has been provided in the LIHI application to verify that more than 50% of the project impoundments have dedicated buffer zones for conservation purposes that extend 200-feet from the high water mark.

In 1996, NMPC developed a plan for divestiture of over 12,000 acres of land within the Raquette River watershed. None of these lands were within the FERC project boundaries associated with the Carry Falls, Upper Raquette River, Middle Raquette River, or Lower Raquette River Hydroelectric Projects.

NMPC presented maps of this plan to the State and to the RRPSO signatories. In response, the State prepared maps indicating which parcels were of interest to the State. The signatories reviewed and commented on the maps prepared by the State. For the most part, the two sets of maps identified the same parcels. NMPC held the conveyance of only those lands identified by the State, until October 1, 1997, the scheduled close of the RRPSO negotiations.

This land conveyance process between NMPC and the State pertained to lands outside of the FERC boundaries associated with the projects of RRPSO, and therefore was outside the jurisdiction of the FERC relicensing process. However, this land conveyance process was included as part of the RRPSO because certain aspects of the land transfer affected the outcome of certain aspects of the RRPSO.

Highlights of this land transfer to the State are:

- Near Blake, a fee conveyance of a 400 ± acre tract of land on the east side of the impoundment and a conservation and development rights easement to a 1,672 ± acre tract of land on the west side of the impoundment;
- Near Rainbow, a conservation and development rights easement to a 2,095 ± acre tract of land north of the Rainbow impoundment;
- Near Five Falls and South Colton, a conservation and development rights easement to a 1,812 ± acre tract of land surrounding these impoundments.
- A fee conveyance of ten miscellaneous parcels composing 449 ± acres.
- A conservation and development rights easements to three additional parcels to the State of New York. These parcels include lands associated with the following recreational facilities provided as part of RRPSO: the Jordan River canoe portage route, the Blake bypass reach's Dead Creek Access, and the Clear Pond Wild Forest trail.

EBH lands committed for inclusion within the FERC boundary that were associated with recreation facilities within applicable FERC boundaries but not currently within the FERC boundary are:

- Portions of the canoe portage routes at Stark, South Colton, Hannawa, Norwood, and Norfolk;
- The intermediate access point to the east bank of the Colton bypass reach off Lenny Road;
- Any portions of the Stone Valley Trail system at Colton that were not currently within the FERC Boundary;
- All lands associated with the development of the Red Sandstone Trail system.

Along with these land concessions, EBH agreed to reduce the pond level fluctuations at Carry Falls, Stark, and other project developments to improve habitat, recreational values, and to protect shoreline. Erie implemented a new "guide curve" for Carry Falls that sets seasonal pond elevation targets and reduces the typical drawdown from 55 feet to 30 feet. In addition, the drawdown at the Stark impoundment (which backwaters to Carry Falls) was reduced from as much as 23 feet down to approximate 1 foot.

On their own initiative, exempt from any FERC license requirement, EBH collaborated with the NYSDEC to develop land-use practices consistent with adjoining State properties. In consultation with the NYSDEC, EBH developed a Land Use Management Plan (LUMP)²⁹ for project lands that manages shorelines previously developed and protects undeveloped properties. In addition, EBH agreed to establish the Raquette River Raquette River Advisory Council Fund (RRACF) as part of the RRPSO financed by EBH which helps to support the LUMP.

Based on the above, an additional 3 years of certification should be credited to the LIHI certification for the URRP going forward.

Criterion E – Threatened and Endangered Species Protection

The bald eagle and some occasional transient species are the only known state or federal threatened or endangered species present in the URRP areas. Bald eagle nest sites exist near the Carry Falls impoundment.

The Bald Eagle Protection and Management Plan (BEPMP)³⁰ was approved by FERC on July 17, 2003. The plan satisfied the requirements of article 407 of the FERC license for both the Carry Falls and Upper Raquette River Projects. To comply with the BEPMP, EBH filed and FERC approved the 2008 Bald Eagle Monitoring Report (BEMR) filing on May 26, 2009³¹.

The BEMR requires EBH to request the results of the NYSDEC field observations on bald eagles, and file them with the FERC by January 31 of each year. EBH has successfully complied with this requirement.

On December 13, 2013, the NYSDEC recommended, *“Based on human activities documented in the vicinity of nest 14C during the 2011 summer site visit, Department has changed its recommendation regarding signage. On July 13, 2011, staff observed a raft of boats anchored within a short distance of the nest. Since four out the last five nesting years attempts failed to produce chicks, staff is concerned that boat activity in the vicinity of nest 14C could be contributing to nesting failures at this site. As an effort to keep boats out of the nest buffer, staff recommends that floating signage is installed at the water approach to the nest. No additional signage along the upland is required at this time. The signage shall be installed as soon as practical, but no later than May 1, 2014.”*

EBH completed the signage within the required due date.³² The latest filing on this plan occurred on November 6, 2014³³.

Given compliance with all threatened or endangered species protection aspects of the FERC license, this LIHI criterion is satisfied.

Criterion F – Cultural Resources

On February 6, 2002, EBH signed a fully revised Programmatic Agreement (PA) with FERC, the Advisory Council on Historic Preservation (ACHP), and the New York State Historic Preservation Officer (SHPO) for the four of its FERC licenses on the Raquette River, with the St. Regis Tribe and the USDOJ as

²⁹ Upper Raquette (FERC No. 2084) and Carry Falls (FERC No. 2060) - February 1996 - Report on Land Use Management, Aesthetics, and Recreational Resources

³⁰ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=9739032>

³¹ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=12030097>

³² <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13431034>

³³ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13709536>

concurring parties. By letter dated February 11, 2002, the ACHP filed with FERC the executed agreement that amended the previous 1996 PA.

On April 14, 2003, Erie submitted its required Historic Property Management Plan³⁴ (HPMP) to FERC. On September 28, 2004, FERC issued an order approving the HPMP.³⁵ As part of the HPMP, EBH is required to file an annual report. EBH has successfully complied with this requirement. The latest filing occurred on February 12, 2014.³⁶

Given EBH is in compliance with all aspects regarding cultural resource protection, mitigation or enhancement, this LIHI criterion is satisfied.

Criterion G – Recreation

A recreation evaluation entitled, “Upper Raquette River Hydroelectric Project (FERC No. 2084) and Carry Falls Project (FERC No. 2060) Recreation Resources Assessment”, was conducted in the summer of 1996 to evaluate existing recreational features and identify potential recreational enhancements. This study formed the basis for the recreational enhancement measures ultimately agreed upon within the RRPSO.

On April 10, 2004, EBH submitted its final Raquette River Recreation Plan in accordance with the License article 404 and the RRPSO. On November 17, 2004, FERC issued an order approving the plan.³⁷

Facilities provided as part of the plan included:

- At Carry Falls - Jordan River canoe portage and Carry Falls Dam canoe portage;
- At Stark - Canoe portage;
- At Blake - Canoe portage and Dead Creek access;
- At Rainbow - Canoe portage and Clear Pond Wild Forest trail;
- At Five Falls – Canoe portage;
- At South Colton - Canoe portage.

Land & Water Associates (LWA), the LIHI reviewer for the prior certification of the RRP, confirmed that the recreation facility improvements were completed according to schedule in a timely manner, in consultation with parties to the RRPSO. All facilities have both access to the reservoir and downstream reaches free of charge.

Additionally, the Raquette River Advisory Council (RRAC) can advise EBH on issues related to recreation, and other resource enhancements.

The URRP is in compliance with recreational access, accommodation, and facilities conditions in the FERC license and passes this criterion.

Criterion H – Dam Removal

No state or federal agencies have recommended that dam to be removed. Therefore, the project passes

³⁴ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=10473424>

³⁵ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=10255973>

³⁶ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13468931>

³⁷ <http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=10295185>

this criterion.

6.2 Recommendations of the Reviewer

The application for LIHI recertification was adequate to allow for LIHI review. However, I needed to rely consistently on reference of FERC docket documents, a complete copy of the RRPSO and multiple discussions with EBH to complete my review. No material change in circumstances has occurred since the last recertification of this project.

Based on my review of information submitted by the applicant, the additional documentation noted herein, public comments submitted in writing or other communications with resource agencies and other entities, I find that the project currently conforms to LIHI criteria. I recommend that the Upper Raquette River Project be conditionally certified, with a certification term of eight years.

In review comments on the LIHI application from the USFWS on May 27, 2014, one issue of concern dealt with fish protection and downstream passage facilities. In particular, the USFWS requested that EBH document which fish protection and downstream passage facilities have been completed and which are yet to be completed, along with proposed installation dates.

Also, the installation of 1-inch clear spacing physical barriers immediately above their existing trashrack structure are required to be completed for a number of developments of the URRP within the time frame of the next LIHI certification (July 10, 2014 to July 10, 2022). While LIHI understands that EBH plans on completing these trashrack installations on schedule, these items are crucial from LIHI's perspective in viewing these developments as remaining "low impact".

Therefore, I am recommending that the following condition be included in the next LIHI certification:

1. Within 90 days after certification, EBH needs to provide LIHI a schedule for the completion of trashrack installations at the developments of the URRP. Additionally, EBH needs to provide a letter report on the status of trashrack installations as they become due at Rainbow Falls in 2016, Five Falls in 2017, Stark in 2019 and Blake in 2020, describing any and all events, if any, that cause delay, and actions being taken by EBH to resolve further delay. The report is due at the same time as the annual compliance statement and payment of the annual certification fee. Based on LIHI's review of this report, and at LIHI's sole discretion, certification may be rescinded or modified.

7. DETAILED CRITERIA EVALUATION

7.1 Flows

LIHI Goal: The Flows Criterion ensures that healthy flows for fish, wildlife and water quality are provided downstream of the project and in all bypassed reaches, including, where appropriate, seasonal flow fluctuations characteristic of a natural system.	
A.1	<i>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)</i>
	<p>Reviewer Analysis: EBH is in compliance with flow conditions at the Project as defined in the FERC license. Each year EBH files documentation with FERC confirming compliance with flow and impoundment level conditions.</p> <p>Conclusion: Pass A.1; go to the Water Quality Criterion.</p>
A.2	<i>If there is no flow condition recommended by any Resource Agency for the Facility, or if the recommendation was issued prior to January 1, 1987, is the Facility in Compliance with a flow release schedule, both below the tailrace and in all bypassed reaches, that at a minimum meets Aquatic Base Flow standards or "good" habitat flow standards calculated using the Montana-Tennant method?</i>
	Reviewer Analysis and Conclusion: N/A.
A.3	<i>If the Facility is unable to meet the flow standards in A.2., has the Applicant demonstrated, and obtained a letter from the relevant Resource Agency confirming that demonstration, that the flow conditions at the Facility are appropriately protective of fish, wildlife, and water quality?</i>
	Reviewer Analysis and Conclusion: N/A.

7.2 Water Quality

LIHI Goal: The Water Quality Criterion ensures that water quality in the river is protected.	
B.1	<i>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?</i>
	<p>Reviewer Analysis: The WQC for the Project includes and incorporates the RRPSO and is conditioned on compliance with the terms of the RRPSO. The Project is in compliance with all conditions of the WQC issued to the Project after December 31, 1986.</p> <p>Conclusion: YES, Pass B.1(a); Go to B.2</p>
B.2	<i>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?</i>

	<p>Reviewer Analysis: The NYSDEC identified several areas of the Raquette River and associated tributaries in their June 3, 2002 Section 303 (d) List. Carry Falls Reservoir is on the 303(d) list of waterbodies that fail to meet one or more applicable water quality standards. The NYSDEC Section 303(d) List indicates atmospheric deposition (acid rain) is common within the entire length of the Upper Raquette River causing pH to be elevated in the Adirondacks and associated tributaries identified under Section 303 (d). The river's ecosystem is generally low in nutrients and fine sediments. The list indicates that the Carry Falls Reservoir is classified as not meeting the water quality standard for fish consumption due to mercury contamination from atmospheric deposition.</p> <p>Conclusion: YES; Go to B.3</p>
<p>B.3</p>	<p><i>If the answer to question B.2 is yes, has there been a determination that the Facility does not cause, or contribute to, the violation?</i></p> <p>Reviewer Analysis: The NYSDEC believes there are no indications that the URRP contributes to this water classification.</p> <p>Conclusion: YES; Pass on B.3; Go to Fish Passage Criterion.</p>

7.3 Fish Passage and Protection

<p>LIHI Goal: The Fish Passage and Protection Criterion ensure that, where necessary, the Facility provides effective fish passage for Riverine, anadromous and catadromous fish, and protects fish from entrainment.</p>	
C.1	<p><i>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?</i></p> <p>Reviewer Analysis: The 1998 RRPSO and the 2002 FERC license contain requirements by Resource Agencies for downstream fish passage in the form of required downstream passage flows, modifications to the structures and streambed in order to make the flows fish-friendly, and scheduled installation of 1 inch clear spaced bar trashracks to prevent/reduce entrainment. These installation were scheduled from and 2013 to 2019.</p> <p>South Colton's 1-inch clear spacing physical barriers were installed ahead of schedule in 2011. The remaining schedule follows: Five Falls in 2017, Rainbow Falls in 2016, Stark in 2019 and Blake in 2020.</p> <p>The upstream passage for anadromous or catadromous fish was not a management objective of the RRPSO. However, the USDOJ reserved their authority to prescribe fish passage facilities for the URRP in Article 403 of the 2002 FERC license. The Article also reserved FERC authority to require construction, operation and maintenance of any such prescribed fish passage facilities.</p> <p>Conclusion: Yes; go to C.2</p>
C.2	<p><i>Are there historic records of anadromous and/or catadromous fish movement through the Facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct)?</i></p> <p>Reviewer Analysis: No historical records were found of migratory fish in the project vicinity prevented from passage due to downstream blockage of fish extinction.</p> <p>Finding: NO; Go to C.3</p>
C.3	<p><i>If, since December 31, 1986:</i></p> <p>a) Resource Agencies have had the opportunity to issue, and considered issuing, a Mandatory Fish Passage Prescription for upstream and/or downstream passage of anadromous or catadromous fish (including delayed installation as described in C2a above), and</p> <p>b) The Resource Agencies declined to issue a Mandatory Fish Passage Prescription,</p> <p>c) Was a reason for the Resource Agencies' declining to issue a Mandatory Fish Passage Prescription one of the following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility?</p>

	<p>Reviewer Analysis: The agencies have issued a prescribe fish passage as discussed in C.1. None of the C.3.b or C.3.c factors apply to this Facility.</p> <p>Conclusion: N/A; Go to C.4</p>
C.4	<p><i>If C3 was not applicable:</i></p> <p>a) <i>are upstream and downstream fish passage survival rates for anadromous and catadromous fish at the dam each documented at greater than 95% over 80% of the run using a generally accepted monitoring methodology? OR</i></p> <p>b) <i>If the Facility is unable to meet the fish passage standards in 4.a, has the Applicant either demonstrated, and obtained a letter from the U.S. Fish and Wildlife Service or National Marine Fisheries Service confirming that demonstration, that the upstream and downstream fish passage measures (if any) at the Facility are appropriately protective of the fishery resource, or committed to the provision of fish passage measures in the future and obtained a letter from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service indicating that passage measures are not currently warranted?</i></p> <p>Reviewer Analysis:</p> <p>Finding: N/A; Go to C.5</p>
C.5	<p><i>Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream and/or downstream passage of Riverine fish?</i></p> <p>Reviewer Analysis: Covered in response to C.1. No compliance issues are documented.</p> <p>Finding: N/A; Go to C.6</p>
C.6	<p><i>Is the Facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?</i></p> <p>Reviewer Analysis: The USFWS has reserved their authority to set mandatory conditions for migratory fish entrainment protection measures under the license and WQC.</p> <p>Finding: N/A; PASS and go to the Watershed Protection Criterion.</p>

7.4 Watershed Protection

<p>LIHI Goal: The Watershed Protection criterion is designed to ensure that land resources are being protected within and around the facility boundary. The term of certification is extended from five to eight years for projects that have either a shoreline buffer zone or a watershed enhancement fund.</p>	
<p>D.1</p>	<p><i>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?</i></p> <p>Reviewer Analysis: No licensee article designates a formal buffer zone around the project impoundments. However, along with generous land concessions (approximately 12,000-aces), EBH agreed to reduce the pond level fluctuations at Carry Falls, Stark, and other project developments to improve habitat, recreational values, and to protect shoreline. Erie implemented a new "guide curve" for Carry Falls that sets seasonal pond elevation targets and reduces the typical drawdown from 55 feet to 30 feet. In addition, the drawdown at the Stark impoundment (which backwaters to Carry Falls) was reduced from as much as 23 feet down to approximate 1 foot.</p> <p>On their own initiative, exempt from any FERC license requirement, EBH collaborated with the NYSDEC to develop land-use practices consistent with adjoining State properties. In consultation with the NYSDEC, EBH developed a Land Use Management Plan (LUMP) for project lands that manages shorelines previously developed and protects undeveloped properties. In addition, EBH agreed to establish the Raquette River Raquette River Advisory Council Fund (RRACF) as part of the RRPSO financed by EBH which helps to support the LUMP.</p> <p>Based on the above, an additional 3 years of certification should be applied to the LIHI certification for the URRP going forward.</p> <p>Conclusion: No, Go to D.4</p>
<p>D.2</p>	<p><i>Has the facility owner/operator established an approved watershed enhancement fund that:</i></p> <p><i>a) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1., and</i></p> <p><i>b) has the agreement of appropriate stakeholders and state and federal resource agencies?</i></p> <p>Reviewer Analysis/Conclusions: N/A.</p> <p>Conclusion: Go to D.4</p>
<p>D.3</p>	<p><i>Has the facility owner/operator established through a settlement agreement with appropriate stakeholders and that has state and federal resource agencies agreement an appropriate shoreline buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation).</i></p> <p>Reviewer Analysis: N/A</p> <p>Conclusion: YES, Go to D.4</p>

D.4	<p><i>Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreline management plan regarding protection, mitigation or enhancement of shoreline surrounding the project?</i></p>
	<p>Reviewer Analysis: See response to D.1. No agency concerns have surfaced.</p> <p>Conclusion: Yes; pass and Go to Threatened/Endangered Species Criterion.</p>

7.5 Threatened and Endangered Species Protection

<p>LIHI 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.</p>	
E.1	<p><i>Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?</i></p> <p>Reviewer Analysis: Except for the bald eagle and occasional transient species, there is no state or federal threatened or endangered species present in the Raquette River project areas or downstream reaches. Bald eagle nest sites, including at least one active site, exist near the Carry Falls impoundment.</p> <p>The Bald Eagle Protection and Management Plan (BEPMP) was approved by FERC on July 17, 2003. FERC approved the 2008 Bald Eagle Monitoring Report (BEMR) filing on May 26, 2009.</p> <p>The BEMR requires EBH to request the results of the NYSDEC field observations on bald eagles, and file them with the FERC by January 31 of each year. EBH has successfully complied with this requirement.</p> <p>Conclusion: YES; Go to E2.</p>
E.2	<p><i>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?</i></p> <p>Reviewer Analysis: There are no formal recovery plans for the threatened and endangered species at the Project.</p> <p>Conclusion: N/A; Go to E3.</p>
E.3	<p><i>If the Facility has received authorization 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 authorization pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authorization?</i></p> <p>Reviewer Analysis: There are no formal incidental take permits for the threatened and endangered species at the Project.</p> <p>Conclusion: N/A; E4 and E5 do not apply. Go to Cultural Resource Protection Criterion.</p>

7.6 Cultural Resources

LIHI Goal: The Cultural Resource Protection Criterion is designed to ensure that the Facility does not inappropriately impact Cultural Resources.	
F.1	<p><i>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?</i></p> <p>Reviewer Analysis: On February 6, 2002, EBH signed a fully revised Programmatic Agreement (PA) with FERC, the Advisory Council on Historic Preservation (ACHP), and the New York State Historic Preservation Officer (SHPO) for the four of its FERC licenses on the Raquette River, with the St. Regis Tribe and the USDOJ as concurring parties. By letter dated February 11, 2002, the ACHP filed with FERC the executed agreement that amended the previous 1996 PA.</p> <p>On April 14, 2003, Erie submitted its required Historic Property Management Plan (HPMP) to FERC. On September 28, 2004, FERC issued an order approving the HPMP. As part of the HPMP, EBH is required to file an annual report. EBH has successfully complied with this requirement. The latest filing occurred on February 12, 2104.</p> <p>Finding: PASS and go to Recreation Criterion.</p>

7.7 Recreation

LIHI Goal: The Recreation Criterion is designed to ensure that the Facility provides access to the waters and accommodates recreational activities.	
G.1	<p><i>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?</i></p> <p>Reviewer Analysis: The URRP is in compliance with recreational access, accommodation, and facilities conditions in the FERC license.</p> <p>Finding: YES; Go to G.3</p>
G.3	<p><i>Does the Facility allow access to the reservoir and downstream reaches without fees or charges?</i></p> <p>Reviewer Analysis: Access is provided without charge within the limited Project boundaries.</p> <p>Finding: YES; PASS and go to Dam Removal Criterion.</p>

7.8 Dam Removal

LIHI Goal: The Dam Removal Criterion is designed to ensure that the Facility is not certified if a Resource Agency has recommended that a dam associated with the Facility should be removed.

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

Reviewer Analysis: There is no evidence that any agencies have requested that the Project dam be removed.

Conclusion: NO, pass H.1 and pass on all LIHI criteria.

APPENDIX A

FERC CORRESPONDENCE

FERC documents listed in reverse chronological order. Click on the hyperlink in the table to view the referenced FERC documents in FERC's library. You need to be connected to the web. The initial click will return the file's properties (author, recipient, etc.). Clicking on the [File List] tab will return a document list. Clicking on a document name will open the document for viewing.