

**Review of Application
For
LIHI Certification of the
Black River Hydroelectric Project
Jefferson County, New York**

**Prepared by
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Introduction and Overview

This report reviews the application submitted by Brookfield Power to the Low Impact Hydropower Institute (LIHI) for Certification of the Black River Project (FERC No. 2569) & Beebee Island Project (FERC No. 2538).

The Black River Projects consist of six hydroelectric developments along the Black River in Jefferson County, New York. The five upstream developments are licensed as the Black River Project (FERC No. 2569), and the Beebee Island development is licensed separately as the Beebee Island Project (FERC No. 2538). The six hydropower dams and powerhouses that make up Erie's Black River Projects are all located between the City of Watertown and west of the Village of Carthage. Progressing downstream from Carthage, these are the Herrings (RM 27.5), Deferiet (26.0), Kamargo (RM 17.0), Black River (RM 15.0), Sewalls (RM 10.0), and Beebee Island (RM 9.0) developments. These developments are all operated automatically to maintain impoundment levels within 0.5 foot below dam crest or top of flashboards and provide a continuous baseflow of not less than 1,000 cfs (or inflow) through the entire project.

Three major storage reservoirs in the upstream drainage area are operated by the Board of the Hudson River/Black River Regulating District to provide storage of spring runoff, flood mitigation, and low-flow augmentation for the lower Black River. The Black River began providing hydroelectric power for pulp and paper mills and other industries during the mid-1800s. And while most of the mills and industries are no longer operating, 21 operating hydropower developments still line the Black River from river mile 92.0 to 1.5.

The Black River drainage basin is located in the north-central region of the state and has a total area of 1,876 square miles (at USGS gage located at Vanduzee Street). The Black River drains a portion of the western slope of the Adirondack Mountains and eastern and northern portions of the Tug Hill Plateau, and the river flows for 112 miles from its origin in the Adirondacks to its mouth at Lake Ontario. The river is divided into three general topographic reaches. The upper reach is mountainous and characterized by rapids and waterfalls. Below Lyons Falls (RM 73), the river enters a middle reach—the Black River Flats—that stretches 42 miles to the village of Carthage. Below Carthage, the river enters a lower reach, also characterized by rapids and falls as this reach drops 480 ft over 30 miles before entering Lake Ontario.

The prior licensee for the projects, Niagara Mohawk Power Corporation¹, filed applications for new licenses for the Black River and Beebee Island Projects with the Federal Energy Regulatory Commission (FERC) in 1991. As was eventually done for all of its “Class of ‘93” projects, Niagara Mohawk initiated settlement negotiations with relicensing intervenors in 1994 in an effort to reach agreement about recommended license conditions and obtain water quality certification from the New York State Department of Environmental Conservation (NYSDEC). On September 14, 1995, Niagara Mohawk amended the license applications for the Black River and Beebee Island Projects with the filing of a Settlement Offer for the Black River and Beebee Island Projects. The Settlement was signed by Niagara Mohawk, the National Park Service, U.S. Fish and Wildlife Service, NYSDEC, Adirondack Mountain Club, American Rivers, New York Rivers United, the Natural Heritage Institute, the New York Council of Trout Unlimited, and the New York State Conservation Council. The provisions of the Settlement Offer were incorporated by FERC into the new licenses for the Black River and Beebee Island Projects, which were issued on December 24, 1996.²

The 1995 Settlement Offer for the Black River and Beebee Island Projects was collaboratively designed to provide for the continued operation of these projects with appropriate long-term environmental protection measures to meet diverse objectives for maintaining a balance of non-power and power values in the Black River Basin. The implementation of the protection, mitigation, and enhancement measures associated with the settlement agreement are, in accordance with the timelines agreed upon in the settlement agreement, complete or scheduled for implementation by the end of 2008.

A. Black River Project

Herrings Development

The 140-acre Herrings reservoir is impounded by a 512-foot-wide by 25-foot-high, L-shaped concrete gravity dam. The dam has a crest elevation of 679.1 ft and is topped with seasonally-installed 1-foot-high wooden flashboards. The intake structure is integral with the powerhouse and consists of a 9-foot-wide stoplog waste sluice, an 11-foot-wide stoplog waste sluice downstream of the trashracks, and nine motor-operated slide gates. The intake structure is equipped with 2-inch clear-spaced trashracks with 1-inch clear-spaced seasonal trashracks in the top half of the water column.

The brick and masonry powerhouse contains three vertical Allis-Chalmers generating units, each rated at 1.8 MW. The units have a combined hydraulic capacity of 3,609 cfs. The units discharge

¹ The projects were transferred to Erie Boulevard Hydropower, L.P. (Erie) in 1999 (*Niagara Mohawk Power Corporation et al.*, Order Approving Transfers of Licenses, Partial Transfer of License, and Substitution of Applicants (88 FERC ¶62,082)).

² See *Niagara Mohawk Power Corporation*, Order Approving Settlement Offer and Issuing New License (77 FERC ¶61,306) and *Beebee Island Corporation*, Order Approving Settlement Offer and Issuing New License (77 FERC ¶61,306).

to the Black River via a short excavated rock tailrace. Additional licensed works at the Herrings Development include transmission lines, a step-up transformer, and appurtenant facilities.

The Herrings Development does not have a true bypassed reach, but there is a 100-foot-long area between the foot of the angled dam and the powerhouse tailrace. A constant minimum flow of 20 cfs is released through the stoplog section located between the dam and trashracks.



Figure 1. Powerhouse and L-shaped dam at the Herrings Development.

Deferiet Development

The dam at the Deferiet Developments consists of a 503-foot-long by 18-foot-high Ambursen dam section with a crest elevation of 656 feet and topped with a 3-foot-high pneumatic flashboard system. There is also a 192-foot-long sluice gate section with eleven stoplog bays and a 180-foot-wide concrete power canal headworks section with ten steel gates. The dam forms a reservoir with a surface area of 70 acres. A 4,200-foot-long canal connects the intake headworks with the powerhouse. The intake structure consists of three steel slide gates and an 11-foot-wide ice sluice controlled by stoplogs. The existing 3.5-inch clear-spaced trashracks are scheduled to be replaced in 2008 with 2-inch clear-spaced trashracks with 1-inch clear-spaced seasonal trashracks in the top half of the water column.

The powerhouse is adjacent to a now-idle paper mill, which was originally owned by St. Regis Paper Company and is currently being decommissioned. The industrial character of this portion of the development contrasts with the wooded surroundings of the dam and reservoir. The brick and masonry Deferiet powerhouse contains three vertical Francis generating units, each rated at 3.6 MW. The units have a combined hydraulic capacity of 3,441 cfs and discharge to a 1,400-

foot-long excavated tailrace. Additional licensed works at the Deferiet Development include transmission lines, a step-up transformer, and appurtenant facilities.

The bypassed reach formed by the Deferiet Development is 1.6 miles long, with the lower 0.5 miles backwatered from riffles and a split channel complex around an island immediately downstream of the tailrace. A total minimum flow of 245 cfs is released at the dam at all times, and an additional 555 cfs is released during walleye spawning season.



Figure 2. The Deferiet dam, with 3-foot pneumatic flashboards

Kamargo Development

The main spillway sections of the dam at the Kamargo Developments is a 647-foot-long by 12-foot-high concrete gravity section with a crest elevation of 561.8 feet and topped with seasonally-installed 2-foot-high wooden flashboards. The dam, which forms a reservoir with a surface area of 40 acres, also includes a 150-foot-long non-overflow section and a 131-foot-long power canal gated headworks structure. A 3,850-foot-long unlined canal leads to the 580-foot-long concrete forebay channel, which consists of a 190-foot-long concrete gravity overflow section, a 230-foot-long concrete gravity section topped with 1-foot-high wooden flashboards, and a 160-foot-long side channel spillway section equipped with twelve stoplog bays. The intake structure includes a waste sluice and nine timber gates with stoplog slots and is equipped with 2-inch clear-spaced trashracks with 1-inch clear-spaced seasonal trashracks in the top half of the water column.

The brick and masonry Kamargo powerhouse contains three vertical Francis generating units, each rated at 1.8 MW. The units have a combined hydraulic capacity of 3,300 cfs and discharge

directly to the river via a short excavated tailrace. Additional licensed works at the Kamargo Development include transmission lines, a step-up transformer, and appurtenant facilities.

The bypassed reach formed by the Kamargo Development is 3,000 feet long. A minimum flow of 120 cfs (or inflow) is released through a notched section of the dam at all times.



Figure 3. Downstream view of power canal and bypassed reach at the Kamargo Development.

Black River Development

The 25-acre Black River Development reservoir is formed by a 327-foot-long by 16-foot-high horseshoe-shaped dam. The dam includes a concrete wall abutment, a 36.5-foot-long gated section housing two sluice gates with an abandoned substructure powerhouse and a 291-foot-long by 25-foot-high concrete gravity spillway with a crest elevation of 534 feet and topped with 2-foot-high wooden flashboards. An 80-foot-long concrete power canal headworks structure with thirteen timber slide gates leads to the 2,250-foot-long concrete-lined power canal with a side concrete waste weir. The intake structure consists of nine timber slide gates and is equipped with 2-inch clear-spaced trashracks with 1-inch clear-spaced seasonal trashracks in the top half of the water column.

The brick and masonry Black River powerhouse contains three vertical Francis generating units, each rated at 2 MW. The units have a combined hydraulic capacity of 3,201 cfs and discharge directly to the river via a short excavated tailrace. Additional licensed works at the Black River Development include transmission lines, a step-up transformer, and appurtenant facilities.

The bypassed reach formed by the Black River Development is 2,800 feet long. A minimum flow of 80 cfs (or inflow) is released through a notched section of the dam at all times, and an additional 220 cfs released at the dam during walleye spawning season.



Figure 4. Upstream view of tailrace, powerhouse, canal, and bypassed reach at the Black River Development.

Sewalls Development

The last two developments of the Black River Projects, the Sewalls and Beebee Island Developments, are located within the City of Watertown. The Sewalls Development formerly consisted of powerhouses and dams on each the south and north channel of Sewalls Island. The north channel facility is no longer used for power generation.

The south channel dam at the Sewalls Developments is a 243-foot-long by 15.5-foot-high concrete gravity dam with a crest elevation of 463.9 feet and no flashboards. The Sewalls reservoir has a surface area of only 4 acres. A 65.5-foot-long gated power canal headworks structure with two stoplog bays and two steel slide gates leads to the 400-foot-long by approximately 34-foot-wide concrete-lined power canal. The wall of the canal is adjacent to the Black River, has a crest elevation of 463 feet and is topped with 2-foot-high flashboards. The intake structure includes a waste sluice, low-level drain, and four steel slide gates and is equipped with 2-inch clear-spaced trashracks.

The brick and masonry Sewalls powerhouse contains three vertical Allis-Chalmers propeller-type generating units, each rated at 1 MW. The units have a combined hydraulic capacity of 2,700 cfs and discharge directly to the river via a short excavated tailrace. Additional licensed works at the Sewalls Development include transmission lines, a step-up transformer, and appurtenant facilities.

Bypassed reaches exist in both the south and north channels around Sewalls Island. The Sewalls Island south channel bypass is only 400 feet long, and a minimum flow of 137 cfs is maintained in the south channel at all times. The north channel bypass consists of two large connected pools, one immediately downstream of the dam and one immediately upstream of Black Clawson dam. A minimum flow of 32 cfs is released into the north channel at all times.



Figure 5. Downstream view of the Sewalls Development, which is located within the City of Watertown.

B. Beebee Island Project

The dam at the Beebee Island Developments is a 266-foot-long by 18-foot-high, U-shaped concrete gravity dam with a crest elevation of 428 feet and topped with seasonally-installed 3-foot-high wooden flashbards, and a 50-foot-long by 15-foot-high, concrete-capped stone

auxiliary non-overflow dam. The Beebee Island reservoir has a surface area of 20 acres. The intake structure, which is integral with the powerhouse, is 82 feet long by 27 feet wide and includes four steel gates, a skimmer section, and stoplog slots. The intake structure is equipped with 2-inch clear-spaced trashracks with 1-inch clear-spaced seasonal trashracks in the top half of the water column. Ice and debris circumvent the powerhouse by way of an 8-foot-wide by 15-foot-high ice sluice between the steel gates and a retaining wall.

The brick and masonry Beebee Island powerhouse contains two vertical generating units, each rated at 4 MW. The units have a combined hydraulic capacity of 3,600 cfs and discharge directly at the base of the dam. Additional licensed works at the Beebee Island Development include a primary transmission lines and appurtenant facilities.

The powerhouse and dam are on the north side of the island, so there is no bypassed reach in the north channel. A minimum flow of 14 cfs is released at all times to the 750-foot-long south channel bypass.



Figure 6. Downstream view of the Beebee Island Development, also located within the City of Watertown.

In the Environmental Assessment (EA), the FERC staff evaluated the measures proposed in the Settlement and concluded that the measures would adequately protect and enhance fishery, recreational, and other resources affected by the project.

LIHI HYDROPOWER CERTIFICATION CRITERIA

Goals, Standards and Applicant's Responses

The Low Impact Hydropower Institute certifies those hydropower facilities that meet its eight criteria:

A. River Flows:

Goal: *The facility (dam and powerhouse) should provide river flows that are healthy for fish, wildlife, and water quality, including seasonal flow fluctuations where appropriate.*

Standard: *For instream flows, a certified facility must comply with recent resource agency recommendations³ for flows. If there were no qualifying resource agency recommendations, the applicant can meet one of two alternative standards: (1) meet the flow levels required using the Aquatic Base Flow methodology or the "good" habitat flow level under the Montana-Tennant methodology; or (2) present a letter from a resource agency prepared for the application confirming the flows at the facility are adequately protective of fish, wildlife, and water quality.*

The Black River Projects are in compliance with resource agency conditions issued after December 31, 1986 regarding flow conditions. The FERC licenses, 1995 Settlement Offer, and Section 401 Water Quality Certificate (WQC) include the requirements for flow releases and water level control recommended by the New York State Department of Environmental Conservation (NYSDEC) and U.S. Fish and Wildlife Service (USFWS).

Each year Erie files documentation with FERC confirming compliance with flow and impoundment level conditions. A copy of this filing for 2006 is attached to the Applicant's filing. For construction and maintenance activities that require lowering the level of an impoundment below the normal operating limits, Erie's own operating procedure (HOP 202) requires notification of NYSDEC and compliance with drawdown rates specified in the 401 WQC (1 ft/hr).

A summary of flow conditions recommended by resource agencies through the FERC licenses, 1995 Settlement Offer, and 401 WQC follows. Articles 404 and 405 of the licenses for the Beebe Island and Black River Projects, respectively, and the 1995 Settlement Offer require Erie to release minimum (bypass) flows from structures designed to minimize adverse impacts to fish

³ "recent resource agency recommendations" are defined as final recommendations made by state, federal, or tribal resource agencies in a proceeding, such as a Federal Energy Regulatory Commission (FERC) licensing proceeding. Qualifying agencies are those whose mission includes protecting fish and wildlife, water quality and/or administering reservations held in the public trust. Agencies such as a state or tribal department of fish and game, or the U.S. Fish and Wildlife Service are considered a "resource agency" but the FERC, with its balancing responsibilities, is not. The agency recommendations must be recent, which means they were issued after 1986 (after enactment of the Electric Consumers Protection Act, which amended the Federal Power Act to increase the profile of recommendations from fish and wildlife agencies in the FERC licensing process). If there are a number of resource agency recommendations, then the most stringent (most environmentally protective) is used. In the case of settlement agreements, the final settlement terms will be considered the agency's "recommendation."

moving downstream at each development. All of the license and settlement requirements pertaining to flow conditions and impoundment levels have been implemented at the Black River Projects.

Black River Project

- Impoundment fluctuation limitations:
 - *Herrings:* 0.5 feet (year-round) from permanent crest of dam or top of flashboards when in place. As per license article 401 and section III.A of the Settlement Offer, when flows are between 1,400 cfs and 1,900 cfs between May 1 and Sept. 30, Erie makes a best effort to maintain the impoundment within 0.2 ft of permanent crest of dam or top of flashboards, when in place.
 - *Deferiet:* 0.5 feet (year-round) from permanent crest of dam or top of flashboards when in place.
 - *Kamargo:* 0.5 feet (year-round) from permanent crest of dam or top of flashboards when in place.
 - *Black River:* 0.5 feet (year-round) from permanent crest of dam or top of flashboards when in place.
 - *Sewalls:* 0.5 feet (year-round) from permanent crest of dam or top of flashboards if in place. As per license article 402 and Section VII.A of the Settlement Offer, the Sewalls Development is operated in run-of-river mode when flows are less than 2,000 cfs between May 1 and September 30.
- Flashboard installation: To be installed by May 1 of each year (or as soon as possible thereafter) and removed in the fall as determined by Erie.
- Baseflow: Provide continuous baseflow of 1,000 cfs or inflow, whichever is less, through the five developments.
- Minimum (bypass) flows:
 - *Herrings:* (year-round) 20 cfs released through the stoplog section located between the dam and trashracks to provide a route for downstream fish movement.
 - *Deferiet:* 800 cfs released during walleye spawning season (Walleye spawning is defined in the Black River license as March 13th day after the last of four consecutive days after April 15th when average daily water temperature is at least 50° F) and 245 cfs released for the rest of the year through a combination of leakage, releases over the dam, and releases through the stoplog structure, with at least 45 cfs through the modified stoplog structure. Reduction of flows at the end of walleye season are in no more than 200 cfs increments at no less than 4-hour intervals.
 - *Kamargo:* (year-round) 120 cfs released through a notched section of the dam.
 - *Black River:* 300 cfs released during walleye spawning season through a combination of a notched section of the dam and low-level sluice gates and 80 cfs released through a notched section of the dam for the rest of the year. Reduction of flows at the end of walleye season are in no more than 75 cfs increments at no less than 4-hour intervals.
 - *Sewalls:* (year-round) 32 cfs released into the north channel and 137 cfs released into the south channel. A minimum of 20 cfs is released at all times to the north channel through a notched section of the dam, and the remaining north channel flow and the entire south channel flow is from leakage or other mechanisms.

Beebee Island Project

- Impoundment fluctuation limitations: 0.5 feet (year-round) from permanent crest of dam or top of flashboards when in place. As per license article 401 and section VIII.A of the Settlement Offer, Erie makes a best effort to maintain the impoundment within 0.2 ft of permanent crest of dam or top of flashboards when in place. Also, as required by license article 401 and section VIII.A of the Settlement Offer, the Beebee Island Project is operated in a run-of-river mode

A. Flows – The Facility is in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement for both the reach below the tailrace and all bypassed reaches. FACILITY PASSES.

B. Water Quality:

Goal: Water quality in the river is protected.

Standard: The water quality criterion has two parts. First, a facility must demonstrate that it is in compliance with state water quality standards, either through producing a recent (after 1986) Clean Water Act Section 401 certification, or demonstrating compliance with state water quality standards (typically by presenting a letter prepared for the application from the state confirming the facility is meeting water quality standards). Second, a facility must demonstrate that it has not contributed to a state finding that the river has impaired water quality under Clean Water Act Section 303(d) (relating to water quality limited streams).

The Black River Projects are in compliance with all conditions of the Section 401 water quality certificate (WQC) issued to the projects after December 31, 1986. The WQC (issued November 3, 1995) is attached.

The WQC for the Black River and Beebee Island Projects include and incorporate the 1995 Settlement Offer and are conditioned on compliance with the terms of the settlement.

No portion of the mainstem Black River is listed on New York State's 2006 303(d) list of impaired waters. According to the 2004 New York State Water Quality Section 305(b) report, most waters in the Black River basin are of good quality, with only upland lakes and ponds significantly affected by atmospheric deposition and acidic precipitation.

The Black River in the vicinity of the Herrings, Deferiet, Kamargo, and Black River developments is classified by NYSDEC as non-trout Class C. The best usage of Class C waters is fishing, and they are also suitable for fish propagation and survival, as well as primary and

secondary contact recreation, where such use is not limited by other factors. The section of the river in the vicinity of the Sewalls and Beebee Island developments is classified as Class A. Class A waters are suitable for all uses, including drinking water.

B. Water Quality – The Facility is in Compliance with all conditions issued pursuant to a Clean Water Act §401 in the Facility area and in the downstream reach. The downstream reach is not 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. FACILITY PASSES

C. Fish Passage and Protection:

Goal: The facility provides effective fish passage for riverine, anadromous and catadromous fish, and also protects fish from entrainment.

Standard: For riverine, anadromous, and catadromous fish, a facility must be in compliance with recent (after 1986) mandatory prescriptions regarding fish passage (such as a Fish and Wildlife Service prescription for a fish ladder) as well as any recent resource agency recommendations regarding fish protection (e.g., a tailrace barrier). If anadromous or catadromous fish historically passed through the facility area but are no longer present, the applicant must show that the fish are not extirpated or extinct in the area because of the facility and that the facility has made a legally binding commitment to provide any future fish passage recommended by a resource agency.

When no recent fish passage prescription exists for anadromous or catadromous fish, and the fish are still present in the area, the facility must demonstrate either that there was a recent decision that fish passage is not necessary for a valid environmental reason, that existing fish passage survival rates at the facility are greater than 95% over 80% of the run, or provide a letter prepared for the application from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service confirming the existing passage is appropriately protective.

During the relicensing proceeding for the Black River and Beebee Island Projects neither the Department of Commerce nor the Department of Interior (Interior) prescribed anadromous or catadromous fish passage facilities for these projects. Interior did, however, request reservation of its authority to prescribe upstream and downstream fish passage devices in the future. Article 411 and Article 412 of the Black River and Beebee Island Project licenses reserve Interior's Section 18 authority.

Atlantic salmon are only known to have historically (i.e., before 1900) existed in the lower Black River as far upstream as Mill Street Falls/ Beebee Island. The waterfall in the main north channel around Beebee Island may have prevented further upstream migration of Atlantic salmon.

Interior had the opportunity to issue a mandatory fish passage prescription for upstream passage of salmonids pursuant to Section 18 of the Federal Power Act during the relicensing of the Black River and Beebee Island Projects but declined to do so.

A primary fishery management goal of NYSDEC and USFWS during the relicensings of the Black River Projects was restoration of Atlantic salmon between Watertown and Black River Bay (Lake Ontario). Restoration of Atlantic salmon as far as the tailrace of the Beebee Island Project was achieved with the installation of upstream fish passage facilities at two downstream hydroelectric projects. Restoration of migratory salmonids above Beebee Island has not been a goal of NYSDEC or USFWS. As stated in the 1995 Settlement Offer, should the understanding of fish movements, fish-passage technology, fishery management goals, or other needs change during the term of the licenses, Interior has reserved authority to prescribe downstream or upstream fishways as may be deemed necessary.

During the relicensing proceeding for the Black River and Beebee Island Projects neither the Department of Commerce nor Interior prescribed riverine fish passage facilities for these projects. Interior did, however, request reservation of its authority to prescribe upstream and downstream fish passage devices in the future.

The recommendations of NYSDEC and USFWS for downstream passage are incorporated into the 1995 Settlement Offer and 1996 licenses in the form of minimum flow releases at each development's dam from structures designed to minimize adverse impacts to fish moving downstream. These measures are described above in #A1.

License articles 404, 406, and 411 detail the minimum flow, seasonal downstream fish flow, and structural modifications for downstream fish passage at the Beebee Island Project. In addition to the 14 cfs minimum flow released into the south channel bypassed reach, downstream fish movement is provided from April 1 to November 30 via a modified ice chute, to which a flow of 37 cfs is provided to attract and convey fish. This downstream fish passage facility was installed in 1998 and was slightly modified in 2000 in consultation with NYSDEC and USFWS, as described in a final Order Amending Fish Conveyance Structure issued by FERC in 2001.

License articles 405 and 406 detail the minimum flows and structural modifications to enhance downstream fish passage at all the developments of the Black River Project. The designs of the minimum flow release structures were approved by FERC in 1998, and the structural modifications and minimum flows required by the license and Settlement Offer have been implemented at each development.

Agency recommendations for fish entrainment protection at the Black River Projects are included in Section II.G of the 1995 Settlement Offer and Article 410 of the 1996 license orders. To exclude adult fish from being entrained through the turbines, by the end of 2008, Erie was to replace the existing trashracks at each of its Black River developments with trashracks with 2-inch clear bar spacing. At all developments except for the Sewalls Development, trashracks with 1-inch clear bar spacing are installed in the top half of the water column from May 1 to October 1.

The new trashracks were installed at the Black River Development in 1998, at Kamargo in 2000, at Sewalls in 2002, at Beebee Island in 2004, and at Herrings in 2006. Consistent with Section II.G of the 1995 Settlement Offer, the new trashracks and seasonal overlays will be installed at the Deferiet Development by the end of 2008.

C. Fish Passage and Protection – The facility is 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 - FACILITY PASSES.

D. Watershed Protection:

Goal: Sufficient action has been taken to protect, mitigate and enhance environmental conditions in the watershed.

Standard: A certified facility must be in compliance with resource agency recommendations and FERC license terms regarding watershed protection, mitigation or enhancement. These may cover issues such as shoreline buffer zones, wildlife habitat protection, wetlands protection, erosion control, etc. The Watershed Protection Criterion was substantially revised in 2004. The revised criterion is designed to reward projects with an extra three years of certification that have: a buffer zone extending 200 feet from the high water mark; or, an approved watershed enhancement fund that could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.I. and has the agreement of appropriate stakeholders and state and federal resource agencies. A Facility can pass this criterion, but not receive extra years of certification, if it is in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.

The 1995 Settlement Offer and Article 412 of the Black River Project license require Erie to contribute \$3,000 a year to the Black River Fund from 1997 to 2011 and \$4,000 a year for the remainder of the license term (2012 to 2026). The Black River Fund is distributed according to the recommendations of the Black River Advisory Council, composed of signatories to the Settlement Offer. The Black River Fund is to be used within the Black River basin for the purposes of ecosystem restoration and protection, natural resource stewardship, public education, facility maintenance, applied research, and additional public access to outdoor recreational resources.

Article 412 of the Black River Project license requires Erie to file an annual report with FERC of contributions to the Black River Fund; the most recent report is attached. To date, the Black

River Fund has contributed to development of the Blueway Trail, tree plantings, public fishing events, and public access projects.

Article 415 of the Black River Project license requires Erie to maintain the existing woodland buffer areas along the shorelines of the Herrings, Deferiet, Kamargo, Black River, and Sewalls developments. Erie's vegetative buffer plan for the Black River Project was approved by FERC in an order dated April 7, 2007.

D. Watershed Protection – The facility is in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding Protection, mitigation, and enhancement of shorelands surrounding the Project - FACILITY PASSES

E. Threatened and Endangered Species Protection:

Goal: The facility does not negatively impact state or federal threatened or endangered species.

Standard: For threatened and endangered species present in the facility area, the facility owner/operator must either demonstrate that the facility does not negatively affect the species, or demonstrate compliance with the species recovery plan and any requirements for authority to "take" (damage) the species under federal or state laws.

The 1996 Environmental Assessments (EA) prepared by FERC for the Black River and Beebee Island Projects, states that no federally listed endangered or threatened species are known to exist in the vicinity of the Black River developments, except for transient individual bald eagles and peregrine falcons. As further discussed in the EA, the Blanding's turtle, listed as threatened by NYSDEC, may occur within the Black River Project area.

According to USFWS's New York Field Office website, bald eagle (now delisted, but protected under the Bald and Golden Eagle Protection Act), Indiana bat, and piping plover occur in Jefferson County. In the summer of 2007, during preparation of this application, Erie consulted with NYSDEC's Natural Heritage Program for an updated list of threatened and endangered species that may occur in the vicinity of the Black River Projects. NYSDEC requested that the reports of known occurrences of listed species provided in response to such inquiries not be made public. As such, this letter is not attached as part of this application but is available upon request. The recent information provided by NYSDEC is consistent with that included in the 1996 EA.

There are no specific requirements for endangered species protection in the FERC licenses or WQC for the Black River or Beebee Island Projects.

The USFWS has adopted the following recovery plans for listed species that may be present in the vicinity of the Black River Projects:

U.S. Fish and Wildlife Service. 2003. Recovery Plan for the Great Lakes Piping Plover (*Charadrius melodus*). Ft. Snelling, Minnesota. viii + 141 pp.

U.S. Fish and Wildlife Service. 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.

The designated piping plover critical habitat in Jefferson County is located along the Lake Ontario shoreline and extends less than half a mile inland. As this species prefers beach-areas and avoids developed areas, Erie does not believe piping plover are present in the vicinity of the Black River Projects. The piping plover recovery **Yes** – The USFWS has adopted the following recovery plans for listed species that may be present in the vicinity of the Black River Projects:

U.S. Fish and Wildlife Service. 2003. Recovery Plan for the Great Lakes Piping Plover (*Charadrius melodus*). Ft. Snelling, Minnesota. viii + 141 pp.

U.S. Fish and Wildlife Service. 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.

The designated piping plover critical habitat in Jefferson County is located along the Lake Ontario shoreline and extends less than half a mile inland. As this species prefers beach-areas and avoids developed areas, Erie does not believe piping plover are present in the vicinity of the Black River Projects. The piping plover recovery plan is not applicable to project operations.

Recovery actions identified in USFWS's Indiana Bat Draft Recovery Plan include hibernacula-related recovery actions and summer habitat management. No Indiana bat hibernacula, which typically include caves and mines, are known to exist in the immediate vicinity of the Black River Projects. Transient individuals, presumably in association with summer habitat, may, however exist in the project area. Habitat guidance has not yet been drafted for the Northeast Recovery Unit identified in the draft Recovery Plan but will most likely involve protection of habitat areas, comprised of mature or dead trees, and limiting tree-clearing during the summer months. Operations of the Black River Projects, especially with regard to preservation of woodland buffer areas, are consistent with this draft recovery plan.

NYSDEC has not adopted a formal recovery plan for the threatened Blanding's turtle. This species typically occurs in shallow, marshy waters and ponds and does not commonly occur in the main channel of rivers. According to NYSDEC's website, the greatest threat to this species in New York State is destruction of habitat resulting from housing, shoreline property, and road construction. Operations of the Black River Projects according to the conditions of the 1995 Offer of Settlement are consistent with this recovery plan, as operations to minimize impoundment fluctuation improves habitat—including wetland—conditions within the project areas.

E. Threatened and Endangered Species Protection – Except for the occasional transient no threatened or endangered species or their critical habitat listed under state or federal Endangered Species Acts are present in the Facility area. FACILITY PASSES.

F. Cultural Resource Protection:

Goal: The facility does not inappropriately impact cultural resources.

Standard: Cultural resources must be protected either through compliance with FERC license provisions, or, if the project is not FERC regulated, through development of a plan approved by the relevant state, federal, or tribal agency.

In 1996, Niagara Mohawk executed a programmatic agreement (PA) with FERC, the Advisory Council on Historic Preservation, and the New York State Historic Preservation Officer (SHPO) for managing historic properties that may be affected by licenses issued for the continued operation of fourteen hydroelectric projects. Appendix A of the Programmatic Agreement discusses historic properties that could potentially be affected by operation of the Black River and Beebee Island Projects. Niagara Mohawk commissioned surveys of these developments for Duncan Hay's 1991 report, *A History of Hydroelectric Power in New York State*. Of the six developments that comprise Erie's Black River Projects, only Beebee Island is currently considered potentially eligible for listing on the National Register of Historic Places, and no archaeological properties have been identified within the project boundaries.

Article 416 of the licenses requires Erie to implement the PA, including the filing of a Cultural Resource Management Plan (CRMP) for each project. Erie developed CRMPs in consultation with the SHPO and filed the CRMPs with FERC in October 1998. FERC's November 17, 1998 order approving the CRMPs is attached. Erie files a report of activities associated with the CRMPs each year with FERC; the most recent report is also attached.

F. Cultural Resources – The Facility is in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license - FACILITY PASSES.

Recreation:

Goal: The facility provides free access to the water and accommodates recreational activities on the public's river.

Standard: A certified facility must be in compliance with terms of its FERC license or exemption related to recreational access, accommodation and facilities. If not FERC-regulated, a facility

must be in compliance with similar requirements as recommended by resource agencies. A certified facility must also provide the public access to water without fee or charge.

The facilities of the Black River Projects are in compliance with recreational access, accommodation, and facilities conditions in the FERC licenses.

Article 413 of each license required the licensee to file for FERC approval a recreation plan to construct, operate, and maintain existing and then-proposed recreational facilities at each development. Niagara Mohawk filed the final recreation plan for the Black River and Beebee Island Projects in December 1998, and FERC issued an order approving the plan (attached) in February 1999.

Article 413 of each project license generally states that the recreation plan is to include provisions for implementing new facilities such as car-top boat launches, canoe portages, interpretive and informational signs, shorefishing areas, and scenic overlooks, but defers to the Settlement Offer for specific enhancements at each development. Recreational enhancements associated with the current FERC licenses, all of which have been implemented, are further described in the attached final recreation plan for the Black River and Beebee Island Projects.

Erie permits free public access to the shorelines of the Herrings, Deferiet, Kamargo, Black River, Sewalls, and Beebee Island developments across Erie's lands where project facilities, hazardous areas and existing leases, easements, and private ownership do not preclude access.

G. Recreation – The Facility is in Compliance with all requirements regarding Recreation protection, mitigation or enhancement included in the FERC license and allow access to the reservoir and downstream reaches without fees or charges - FACILITY PASSES.

Facilities Recommended for Removal:

Goal: To avoid encouraging the retention of facilities that have been considered for removal due to their environmental impacts.

Standard: If a resource agency has recommended removal of a dam associated with the facility, certification is not allowed.

No resource agency has recommended removal of any of the dams associated with the Black River Projects.

H. Facilities Recommended for Removal – There are no Resource Agency Recommendation for removal of the dam associated with the Facility - FACILITY PASSES.

Note: As described in the discussions I had with Steve Patch, Alice Richardson, and Bruce Carpenter, I became aware of the applicant's FERC amendment application for the proposed redevelopment of the Felts Mills and Great Bend projects which are located between two developments of the 5-development Black River Project. These dams are currently breached and have never had hydropower. A competitor has applied for preliminary permits for the two sites. The two sites were licensed to another developer back in the 1990's but never constructed, thus the licenses were terminated. A coalition of the Service, New York State Department of Environmental Conservation, and New York Rivers United opposed the original licenses in the 1990's and opposed the Applicant's most recent Amendment filing with FERC. Brookfield was not successful in obtaining the FERC amendment, but the competitor received preliminary permits for the two sites to determine their feasibility. In the mean time, Brookfield has acquired the competitor and apparently still has designs on redevelopment of the two breached dams, but not within the Black River FERC License. As this goes forward we shall be able to check progress and any involvement of the Black River Project through the annual compliance affidavits required of all LIHI certificate holders.

The Black River Project meets the requirements of all eight of the criteria, and I recommend that the facility be certified by the Low Impact Hydropower Institute as a LIHI Certified facility.

Prepared by Fred Ayer and submitted on March 19, 2008 for LIHI Governing Board action at the March 27, 2008 LIHI Board Meeting.

RECORD OF CONTACTS WITH RESOURCE AGENCY STAFF

Date of Conversation: March 14, 2008
Application Reviewer: Fred Ayer, Executive Director
Person Contacted: Bruce Carpenter
New York Rivers United
Telephone/email: 315-339-2097 (left message 3-12-08)

I had a nice chat with Bruce about the Black River Project. It was an interesting discussion from the standpoint that Bruce said he, and he believed all other parties were pleased with the Settlement Agreement...but there was a lingering issue. Actually Bruce said it was no longer an issue, but it was for a time during the negotiations. I'm glad he brought it up, because it is the kind of thing that from my perspective becomes more understandable and less of an issue the more you know. Here's a little background: The FERC denied the Applicant's request for license amendment to add two new hydropower developments to the existing Black River Project. Although the two new sites at Felts Mills and Great Bend are located between two developments of the 5-development Black River Project, the dams are currently breached and have never had hydropower. A competitor has applied for preliminary permits for the two sites. The two sites were licensed to another developer back in the 1990's but never constructed, thus the licenses were terminated. A coalition of the Service, New York State Department of Environmental Conservation, and New York Rivers United opposed the original licenses in the 1990's.

The same group opposed this amendment attempt. From Bruce's perspective, the sites represent the last free-flowing section of the lower Black River and represent important walleye spawning sites. The FERC rejected the amendment application for failure to properly consult with the agencies and failure to conduct studies. Erie had attempted to complete the application process in 4 months, and had proposed doing studies after the amendments were granted. Correspondence from the Service and our partners helped convince the FERC that consultation was inadequate. Erie must now go through a complete three-stage licensing process (as their competitors must) and file a competing application at the appropriate time.

This would probably be a complete non-issue if it had not been for the fact that after FERC's rejection of the Applicant's amendment application, Brookfield purchased the company that had filed and received Preliminary Permits for the two dams. Bruce's understanding is that if Brookfield decides to go forward with the two projects they would not be part of the existing Black River FERC License. Bruce and I agreed that this issue doesn't affect the Black River application for LIHI certification and he said that he thought it warranted LIHI certification.

I briefly discuss this issue in my recommendations.

Date of Conversation: March 14, 2008
Application Reviewer: Fred Ayer, Executive Director
Person Contacted: Stephen Patch
USFWS, Cortland
Telephone/email: 607-753-9334

Steve generally confirmed Bruce Carpenter's assessment of the Black River Project and said he believed that the Project earned LIHI certification. Steve did mention that this was one of those situations (apparently not common with Brookfield Settlement Agreements) where although the Service signed the Settlement Agreement they were not 100% pleased with the rack spacing decision (seasonality and depth), but their displeasure was not enough to not sign the Settlement Agreement.

Steve was obviously aware and involved in the failed FERC amendment application by Brookfield to refurbish and incorporate the two projects into the Black River Project. He confirmed Bruce's description and status of this effort. He was also convinced that if Brookfield licenses these projects it will not be part of the Black River FERC application. Overall Steve remains pleased with the results of the Settlement Agreement and had positive things to say about Brookfield.

Date of Conversation: March 17, 2008
Application Reviewer: Fred Ayer, Executive Director
Person Contacted: Alice Richardson
NYDEC
Telephone/email: 315-785-2267

Alice confirmed all of what Steve and Bruce had said. She added that she was satisfied with the way Brookfield worked with the agencies and she praised them for being timely in their reporting. Alice was familiar with the issues associated with both the rack spacing and Brookfield's attempt to refurbish the two older projects via the route of an amendment. She also pointed out that Brookfield's competitor, which they later acquired, had filed their application for Preliminary Permit to study the feasibility to redevelop the two projects in advance of Brookfield's application for amendment. Alice mentioned one other item, which in her mind does not affect the certifiability of the Black River Project, but sure would be a "nice to do" project---she was referring to pneumatic crest control or rubber dams. She felt that the use of these more modern equivalents of flashboards would increase the efficiency of the project and eliminate flows and elevation changes at times when it could be critical for certain biotic resources. She is also aware that these upgrades need to be economical for the Applicant.
