

IEPA Log No.: **C-0408-08**
FERC appl. #: **P-12626**

Public Notice Beginning Date: **February 11, 2014**
Public Notice Ending Date: **March 13, 2014**

Section 401 of the Federal Water Pollution Control Act
Amendments of 1972

Section 401 Water Quality Certification to Discharge into Waters of the State

Public Notice/Fact Sheet Issued By:

Illinois Environmental Protection Agency
Bureau of Water
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
217/782-3362

Name and Address of Discharger: Northern Illinois Hydropower, LLC 801 Oakland Avenue Joliet, IL 60435

Discharge Location: Sec. 13, T33N, R4E, 3rd P.M., Grundy County

Name of Receiving Water: Illinois River

Project Description: Proposed new hydroelectric powerhouse containing nine generating units with total installed capacity of 9.7 megawatts with new intake and forebay structures, configuring headrace channel, new tailrace, new transmission lines and appurtenant facilities. Cobble may be used for erosion control along the banks downstream .

The Illinois Environmental Protection Agency (IEPA) has received an application for a Section 401 water quality certification to discharge into the waters of the state associated with a Federal Energy Regulatory Commission application for license to construct and operate a hydroelectric power generating plant. The Public Notice period will begin and end on the dates indicated in the heading of this Public Notice. The last day comments will be received will be on the Public Notice period ending date unless a commenter demonstrating the need for additional time requests an extension to this comment period and the request is granted by the IEPA. Interested persons are invited to submit written comments on the project to the IEPA at the above address. Commenters shall provide their names and addresses along with comments on the certification application. Commenters may include a request for public hearing. The certification and notice number(s) must appear on each comment page.

The attached Fact Sheet provides a description of the project and the antidegradation assessment.

The application, Public Notice/Fact Sheet, comments received, and other documents are available for inspection and may be copied at the IEPA at the address shown above between 9:30 a.m. and 3:30 p.m. Monday through Friday when scheduled by the interested person.

If written comments or requests indicate a significant degree of public interest in the certification application, the IEPA may, at its discretion, hold a public hearing. Public notice will be given 30 days before any public hearing. If a Section 401 water quality certification is issued, response to relevant comments will be provided at the time of the certification. For further information, please call Keith Runge at 217/782-3362.

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Fact Sheet for Antidegradation Assessment for
For Northern Illinois Hydropower, LLC
Dresden Island Lock and Dam Hydropower Project
IEPA Log No. C-0408-08
FERC appl. #: P-12626
Contact: Eric Runkel 217/558-2012
February 11, 2014

Grundy County

Northern Illinois Hydropower, LLC (Applicant) is applying for a 401 water quality certification for impacts associated with the construction of a new powerhouse at the Dresden Island Lock and Dam at river mile 271.5 of the Illinois River in Grundy County, Illinois. The applicant is proposing to install a turbine/generator system in the power station, which would create approximately 60,000 megawatt-hour (MWh) of power. The design will comply with requirements set forth by Illinois Department of Natural Resources (IDNR) and Illinois Environmental Protection Agency for a two inch trashrack spacing and an approach velocity of 1.5 feet per second. A stipulation that at least 1,000 cfs of water must always be allowed to spill over the dam will be included to regulate operation such that waters below the dam will receive necessary re-aeration to preserve existing aquatic habitats. The project will be operated as a “run of the river” facility and pose no effect to the United States Army Corps of Engineers (USACE) operation of the lock and dam. The powerhouse will be controlled with an automated system that would automatically start up, run, and shut down the turbines. The automated system would allow the USACE to modify hydroelectric operations instantaneously in response to emergencies related to lock operation or flood control. All materials involved with construction will be removed from the floodway at the end of the project.

Antidegradation assessment material was received from the applicant under a 401 Joint Application Form for Illinois, Dresden Island Hydropower Project, ACOE Rock Island District, IEPA Log # C-0408-08, dated December 4, 2013 from the Damon Zdunich, Northern Illinois Hydropower, LLC, Joliet, Illinois.

Identification and Characterization of the Affected Water Body.

The Illinois River has a 7Q10 flow of 2100 cfs at this location and is a General Use water. The Illinois River, Waterbody Segment IL_D10 is listed in the Illinois Integrated Water Quality Report and Section 305(b)/303(d) List 2012 as fully supporting Aquatic Life Use and impaired for Fish Consumption Use; Mercury and polychlorinated biphenyls are given as the causes of this impairment. Primary Contact, Secondary Contact or Aesthetic Quality has not been assessed. This location is an enhanced waterbody pursuant to the dissolved oxygen water quality standard. This segment is not listed as biologically significant, however the segment has been given a category “B” integrity rating in the 2008 Illinois Department of Natural Resources Publication Integrating Multiple Taxa in a Biological Stream Rating System.

Identification of Proposed Pollutant Load Increases or Potential Impacts on Uses.

The proposed power plant construction will use a portion of the existing USACE headgate structure as the upstream cofferdam by installing a temporary sheet pile bulkhead system similar to those used by the

USACE to facilitate recent headgate repairs. To facilitate the power station foundation construction, the Applicant proposes to construct a temporary, armored earthen cofferdam in the riverbed downstream of the existing headgate structure to dewater the construction area.

To develop the intake approach flow area, the proposal is to dredge a 1.47 acre area upstream of the existing head gate structure resulting in approximately 3,100 cubic yards of rock excavation. In preparation for temporary downstream cofferdam construction and rock excavation for the power station foundation, the Applicant proposes to dredge the work area mechanically to remove existing sediment and overburden. In preparation for the riverbed rock excavation necessary for the powerhouse foundation, and tailrace, the Applicant proposes to dredge a 0.37 acre area immediately downstream of the existing head gate structure resulting in approximately 2,500 cubic yards of rock removal. The estimated volume for total upstream and downstream dredge material is 21,400 cubic yards. The total proposed quantity of concrete fill placed in the riverbed during power station construction is approximately 9,160 cubic yards total below and above the dam.

The powerhouse transmission line will be supported on existing USACE structure for 851 feet and then carried in a submerged conduit trench on the riverbed for approximately 603 feet. After the submerged transmission line daylights to the south of the USACE lock, the transmission line will be constructed as an overhead line approximately 3,082 feet in length supported on wooden pole structures to a nearby substation.

Dissolved oxygen (D.O.) levels in the Illinois Waterway can be relatively low, particularly in the summer months, because the assimilation of nutrients by the river consumes dissolved oxygen from the water; however, available data indicate that current water quality standards are met in both the Dresden Island Pool and below the Dresden Island Lock virtually all of the time. It was determined that a 1,000 cfs minimum by-pass flow for the project at the Dresden Island Dam was necessary to maintain dissolved oxygen above water quality standards, preserve some of the re-oxygenation that currently occurs at the dam and support habitat for aquatic life.

Without any minimum by-pass flow requirements, addition of the project to the Dresden Island Dam would create a major modification to existing habitat below the dam. Even with the 1000 cfs by-pass flow, development of the project still shifts some flow towards the river right bank of the Dresden Island Dam. Reservoir Environmental Management, Inc. modeled the dissolved oxygen impact and provided a report in 2012. The results of the model indicate that by implementing the proposed project a decrease in the mean dissolved oxygen no greater than 0.5 mg/L to 0.9 mg/L would occur under worst case conditions depending on the location in the Marseilles Pool and power generation loss would be insignificant. With this modeling completed, a condition to require 1,000 cfs to spill over the dam was added to the project.

No other pollutant load increases would occur from this project other than some increases in suspended solids near the location of mechanical dredging equipment. Benthic organisms will be disturbed by dredging and construction activities. Fish will be displaced and have foraging opportunities disrupted while construction activities occur.

Fate and Effect of Parameters Proposed for Increased Loading.

Sediment and soil erosion control plans are proposed and will be utilized during construction. Silt fencing and straw bales will be properly located to minimize runoff to surface waters. Installation of a turbidity curtain attached to the existing ice barrier wall and adjacent to the proposed cofferdam work area will further prevent passage of sediment disturbed by the cofferdam installation into downstream section of the Illinois Waterway. Turbidity will be monitored continuously and water samples will be collected daily for laboratory chemical analysis during excavation.

Once operation commences D.O. monitors will be placed near the intakes of the powerhouse and downstream at a point where safe access and a relatively secure location can be determined. Ongoing DO monitoring and reporting will be required as a condition of the Water Quality Certification.

Aquatic communities at least as diverse as currently inhabit the river will return upon construction completion. The Applicant states:

“To understand better the proposed Project’s potential effects, the Applicant contracted for a third-party review of the potential operation’s effects on the fish resource below the dam. That review indicated that construction related habitat changes will be minimal under all scenarios and those minimal changes are likely to reestablish to status quo downstream of the affected area shortly after operations commence.

The proposed Project includes trashrack (two-inch spacing) and intake velocity (<1.5 feet per second) designs to minimize fish entrainment. Additionally, the Applicant proposes to work with IDNR to design and construct additional habitat downstream of the Project using materials removed during construction excavation. The proposed Project may also have temporary effects on fish due to displacement from habitats at dredging locations and the powerhouse construction site; however, the Project is unlikely to have any permanent effect to this resource once constructed.”

The proposed project may result in temporary wetland impacts to emergent and forested wetlands within the project area. A small section of this wetland of the right abutment of the dam may be temporarily disturbed by the reinforcement of the existing USACE access road to the river. Upon completion of the project, the access road will be restored to its prior configuration. If permanent wetland impacts occur (1.37 acres at the most) the Applicant has agreed to mitigate by purchasing credits from an approved mitigation bank with the same 8-digit HUC unit or the Illinois River watershed. The Applicant will mitigate emergent herbaceous wetland impacts at a 1.5 to 1 ratio. The Applicant originally proposed to mitigate the forested wetland impacts at a 1.5 to 1 ratio. The Illinois EPA recommended a ratio of 2.5 to 1 for forested wetlands. The Applicant agreed and memorialized the agreement through an electronic mail dated December 30, 2013 that the forested wetland mitigation would be changed to a 2.5 to 1 ratio.

No adverse impacts to the river as a whole would occur from this activity as all water quality standards are expected to be met. There will be a slight overall decrease (no greater than 0.5 mg/L to 0.9 mg/L

depending on the location in the Marseilles Pool) in D.O. downstream of the dam once operations commence. However with the agreed upon first flow spill of 1,000 cfs over the dam, D.O. should remain above the standard as set forth in 35 Illinois Administrative Code (IAC) 302.206 and the decrease in D.O. is not anticipated to adversely affect aquatic life. Applicant D.O. monitoring reports will be scrutinized to ensure plant operations will not cause D.O. violations in the river.

Purpose and Social & Economic Benefits of the Proposed Activity.

Once online, the powerhouse will provide an estimated, annual generation of approximately 60,000 MWh. Using the existing, available, and agreed upon flows at the lock and dam, the project will provide sustainable and renewable power to local consumers while retaining/maintaining the primary function of the lock and dam and protecting aquatic habitat and water quality.

The project will create local jobs in the skilled trades including ironworkers, carpenters, millwrights, electricians, and laborers, professional services including engineering, legal and investment banking and the service industry. In addition, this project will require significant local resources such as concrete, reinforcing bar, steel beams and other supplies that will be locally produced and delivered to the site.

Additionally once the project is developed, the applicant anticipates two full time equivalent positions to maintain and operate the facility along with continued operations and maintenance support from vendors.

Assessments of Alternatives for Less Increase in Loading or Minimal Environmental Degradation.

No Action

The No-Action Alternative would result in no hydropower development at the Dresden Island Lock and Dam. The no-action alternative is not a preferred option given the present and future need for renewable power in a geographic area that is experiencing a vast increase in power demand due to local population growth and urban growth.

Operations Modification to Enhance Dissolved Oxygen

NIH proposed to operate either or both the crest gates or headgates in conjunction with the proposed Project. The alternative involved automatically increasing the spill through the gate(s) to enhance DO concentrations as generation was reduced. NIH included a provision to monitor and record data for two years and then work with IEPA to determine if modifying operations was necessary. This alternative did not adequately address anti-degradation in terms of either water quality or habitat quality. The alternative was rejected.

Air Injection

NIH analyzed equipment modifications to either passively entrain or force air into the hydro discharge. Both passive and active air injection required extensive modification to equipment as well as powerhouse design, both of which decreased plant efficiencies below cost effectiveness. Operations costs for a forced

air system often exceeded the estimated value of the power. While the systems could maintain water quality, less water was available for habitat across the entire width of the dam. The alternative was rejected on the basis of plant economics and habitat degradation.

Dissolved Oxygen Enhancement

NIH analyzed a system to inject oxygen in the forebay of the proposed facility such that dissolved oxygen would meet or exceed water quality standards. NIH proposed to install four Praxair ISO units, controlled by a DO sensor and feedback loop. NIH suggested that the combination of the DO injection system and the ability to adjust the quantity of water through the plants would provide an effective means to maintain water quality. NIH estimated that by-passing more than 500 cfs along with the operations and maintenance costs of the proposed system would make the Project uneconomic. Because the proposal to by-pass no more than 500 cfs did not meet the criteria for maintaining habitat, the alternative was rejected.

Summary Comments of the Illinois Department of Natural Resources, Regional Planning Commissions, Zoning Boards or Other Entities.

The IDNR Endangered Species Consultation was reopened because more than two years had passed since the 2011 review. IDNR determined that an Incidental Take Authorization (ITA) was necessary for potential threatened or endangered species or protected natural areas identified in the vicinity of the project that could be adversely affected by the project. The Applicant was directed by IDNR to apply for an ITA and submit a revised Conservation Plan. The consultation for project #1010246 was terminated in a correspondence from Karen Miller (IDNR) on January 29, 2014.

The proposed project is located within the Dresden Island Lock and Dam Historic District, which was listed on the National Register of Historic Places on March 10, 2004. Multiple meetings were held with the Illinois Historic Preservation Agency (IHPA) and with some minor suggested revisions based on discussions with IHPA, it was concluded that the project met the Secretary of the Interior's "Standards for Rehabilitation and Guidelines for Rehabilitation Historic Buildings. By letter dated January 25, 2011, IHPA indicated that the project met these standards and, with the minor revisions included in the final design, provided its finding of no adverse effect pursuant to 36 CFR Part 800. All modifications to the design and the final exterior design of the facility will be submitted to the IHPA for approval prior to construction.

Agency Conclusion.

This preliminary assessment was conducted pursuant to the Illinois Pollution Control Board regulation for Antidegradation found at 35 Ill. Adm. Code 302.105 (antidegradation standard) and was based on the information available to the Agency at the time the antidegradation review summary was written. We tentatively find that the proposed activity would result in the attainment of water quality standards; that all existing uses of the receiving streams would be maintained; that all technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity; and that this activity would benefit the community at large

through the production of clean, renewable energy. Comments received during the 401 certification public notice period will be evaluated before a final decision is made by the Agency.