Mostardi Platt
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January 18, 2010

Joseph A. Kath
Endangered Species Manager
IDNR – Office of Resource Conservation
One Natural Resources Way
Springfield, IL 62702-1271

Re: **Threatened and Endangered Species Issues – Incidental Take Authorization (ITA)**
Exelon Nuclear Braidwood Station River Diffuser Project

Dear Mr. Kath:

Attached is the signed "Authorization and Implementing Agreement" for the Exelon Nuclear Braidwood Station River Diffuser Project. The ITA Agreement was signed by Mr. Lawrence M. Coyle, Plant Manager. For reference, the U.S. Army Corps of Engineers permit number is LRC-2008-340 and the IDNR permit application number for the cofferdam construction is IDNR 2009107.

Thank you for your continued assistance with this project. Please contact me at 630-993-2127 if there are any questions.

Respectfully submitted:

MOSTARDI PLATT ENVIRONMENTAL

Joseph J. Macak III
Principal Consultant

Enclosures

cc: Mr. Lawrence Coyle, Exelon Nuclear
Mr. Raymond Hall, Exelon Nuclear
Mr. Dominic Imburgia, Exelon Nuclear
Mr. John Petro, Exelon Nuclear
Mr. Bryan Risley, Exelon Nuclear
Ms. Kate Bliss, Project Manager, Chicago District USACE LRC-2008-340
Ms. Jeannette Schiller, IDNR Bartlett Office, IDNR 2009107

Illinois
Department of
Natural Resources
One Natural Resources Way • Springfield, Illinois 62702-1271
http://dnr.state.il.us

December 17, 2009

Mr. Thomas I. Hiebert
Mostardi Platt Environmental
1520 Kensington Road - Suite 204
Oak Brook, Illinois 60523-2139

RE: *Exelon's Braidwood Nuclear Generating Station - Plant outfall and Multiport diffuser*
Kankakee River, Will County, Illinois
Threatened and Endangered Species Issues - Incidental Take Authorization

Dear Mr. Hiebert:

Pursuant to the Illinois Endangered Species Protection Act (520 ILCS 10/5.5) the Exelon/Braidwood Generating Station outfall and multiport diffuser (new outfall and multiport diffuser) for the incidental take of the State threatened black sandshell mussel (*Ligumia recta*), purple wartyback mussel (*Cyclonaias tuberculaya*), sheepnose mussel (*Plethobasus cyphys*), spike mussel (*Elliptio dilatata*), pallid shiner fish (*Hybopsis amnis*), river redhorse fish (*Moxostoma carinatum*), and the western sand darter (*Ammorcrypta clarum*) impacting the Kankakee River in Will County, Illinois is hereby granted, subject to the terms and conditions described in the attached Authorization and Implementing Agreement. The Illinois Department of Natural Resources has determined that this authorized take is incidental to the construction of a new outfall and multiport diffuser impacting the Kankakee River in Will County, Illinois.

Please have an authorized Exelon/Braidwood Official(s) sign the last page of both copies of the Authorization and Implementing Agreement and return **one complete** copy to my the attention. Upon receipt by the Department, this authorization shall be effective.

Thank you for your cooperation and assistance during the incidental take preparation and review process. Please do not hesitate to contact our office at (217)782-6384 with any questions or comments you may have regarding this authorization agreement.

Sincerely,

Joseph A. Kath
Endangered Species Manager
IDNR-Office of Resource Conservation

Enclosures

Authorization for Incidental Take and Implementing Agreement

Pursuant to the Illinois Endangered Species Protection Act (520 ILCS 10/5.5) the Exelon/Braidwood Generating Station outfall and multiport diffuser (new outfall and multiport diffuser) for the incidental take of the State threatened black sandshell mussel (*Ligumia recta*), purple wartyback mussel (*Cyclonaias tuberculaya*), sheepnose mussel (*Plethobasus cyphys*), spike mussel (*Elliptio dilatata*), pallid shiner fish (*Hybopsis amnis*), river redhorse fish (*Moxostoma carinatum*), and the western sand darter (*Ammorcrypta clarum*) impacting the Kankakee River in Will County, Illinois (as described/shown in the conservation plan received by the Department on 11 May, 2009) is hereby granted, subject to the terms and conditions described in the attached Authorization and Implementing Agreement. The Illinois Department of Natural Resources has determined that this authorized take is incidental to the construction of a new outfall and multiport diffuser impacting the Kankakee River in Will County, Illinois.

Procedural History

Mostardi Platt Environmental (MPE), acting as environmental consultant for the Exelon Nuclear-Braidwood Generating Station prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5). That plan and MPE's request for authorization for incidental take of the State threatened black sandshell mussel (*Ligumia recta*), purple wartyback mussel (*Cyclonaias tuberculaya*), sheepnose mussel (*Plethobasus cyphys*), spike mussel (*Elliptio dilatata*), pallid shiner fish (*Hybopsis amnis*), river redhorse fish (*Moxostoma carinatum*), and the western sand darter (*Ammorcrypta clarum*) were received by the Illinois Department of Natural Resources (Department) on 11 May, 2009. Public notice of MPE's request for authorization of incidental take of these listed species was published in the Northwest Daily Herald (Official State newspaper) and the Braidwood/Free Press (Braidwood, Wilimington, and Coal City, Illinois) on August 21, 26, and 28, 2009 as well as September 2, 4, and 9, 2009. Public comments on MPE's conservation plan were accepted by the Department until October 9, 2009. No comments were received by the public during the period of August 21 through October 9, 2009.

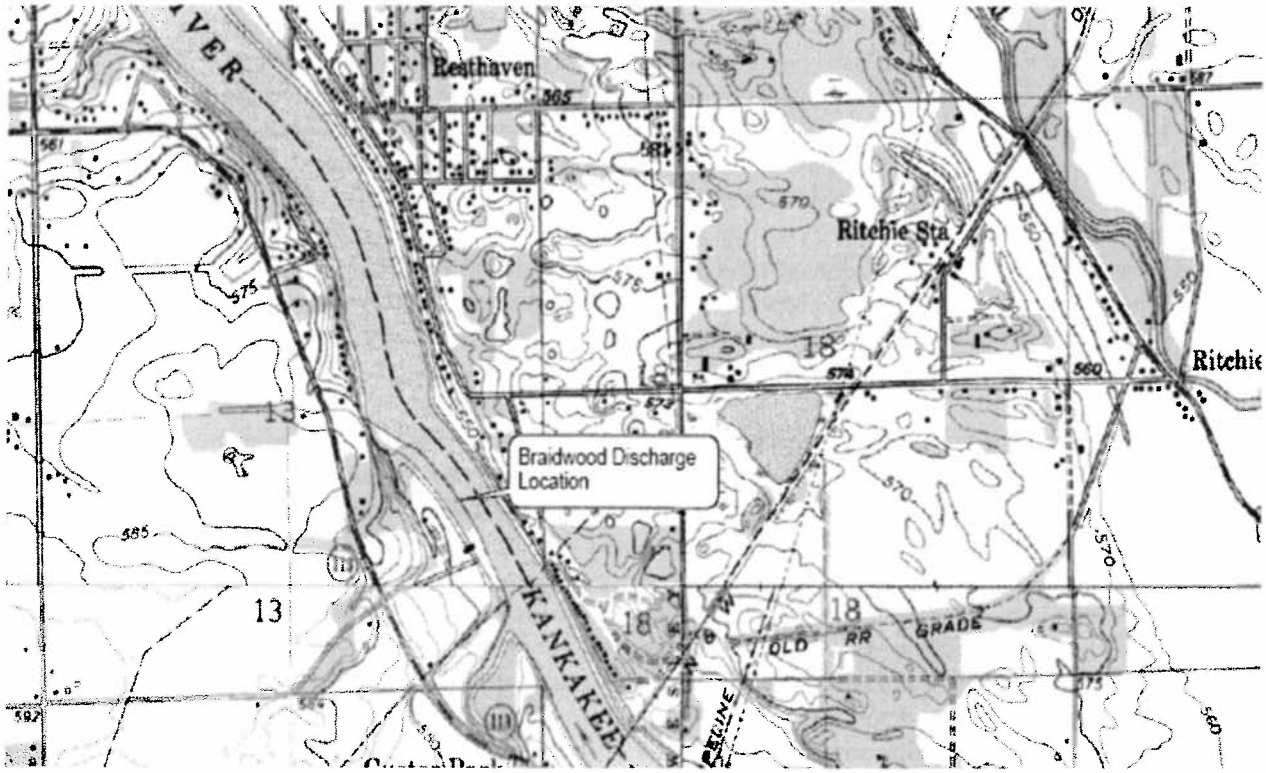
Exelon Corporation, Braidwood Generating Station (Braidwood) will be installing a multiport diffuser in the Kankakee River that would more than likely result in significant environmental benefits over the existing river outfall that would continue operation only as back-up to the diffuser. This project will have an in-stream construction zone of approximately 132 feet by 245 feet.

The Braidwood Generating Station is a nominal 2,362 MW base load generating facility located in Will County, Illinois, approximately 20 miles south of Joliet, Illinois. The facility, which serves northeastern Illinois, consists of two Westinghouse pressurized water reactors. Unit 1 began operation on July 2, 1987, and Unit 2 began operation on May 5, 1988. Commercial operation began in May and October 1988, respectively. The license expiration date is October 17, 2026 for Unit 1, and December 18, 2027 for Unit 2.

Braidwood is owned by Exelon Corporation, and operated by one of its business units-Exelon Nuclear. Braidwood is built on a 4,457-acre site, and its 2,537-acre cooling pond was formed from scarred farming land and an old strip mine.

Braidwood has been coordinating this project with MOSTARDI PLATT ENVIRONMENTAL (MPE) as the lead consultant dealing with: U.S. Army Corps of Engineers (USACE) permitting, Illinois Department of Natural Resources (IDNR) incidental take permitting, Illinois Environmental Protection Agency (IEPA) National Pollutant Discharge Elimination System (NPDES) permit modifications and 401 Water Quality Certification, and the Illinois Historic Preservation Agency (IHPA) for impact on cultural and historical resources.

The location of the existing cooling lake outfall is shown below. Two (2) recent biological surveys of the proposed in-river construction site have been conducted. HDR Engineering, Inc. (HDR) performed a survey for fish and mussels in August 2008. Ecological Specialists, Inc. (ESI) conducted a more comprehensive follow-up mussel survey in October 2008. The surveys identified two (2) State listed T&E fish species and three (3) State listed T&E mussel species and one (1) species of special concern in the project area.



A preliminary review of fish and freshwater mussel studies conducted in this general reach of the river indicated that fish monitoring, including the proposed area for diffuser pipe placement, has been conducted annually for the past 30 years (with the exception of 1980)(HDR|LMS, 2008); but that, while several freshwater mussel surveys had been conducted in the river between Kankakee and Wilmington in the past, none had been conducted at the proposed site.

Compliance with the Endangered Species Protection Act

The Illinois Endangered Species Protection Act includes six (6) criteria which must be met for the authorization of incidental take of an endangered or threatened species. These criteria and the Department's determination for each criteria are listed below.

1. The taking will not be the purpose of, but will only be incidental to, the carrying out of an otherwise lawful activity:

> The stated and apparent purpose of this proposed action is to construct a new outfall and multiport diffuser for "Braidwood" impacting a portion of the Kankakee River in Will County, Illinois. This portion of the Kankakee River potentially contains habitat for freshwater mussels and fish, including State listed species. In the course of these construction activities, *HDR and/or ESI* (acting as subcontracting environmental consultants) shall relocate all observed/captured mussels and fish (listed or non-listed species) disturbed by construction, hence a technical "taking" of these species. Such taking is not the purpose of the activities proposed by Braidwood but is incidental to the carrying out of a lawful activity.
>
> Overall, Braidwood is proposing to replace the existing Braidwood Nuclear Station Cooling Pond discharge (shoreline discharge channel) with a diffuser pipe placed on the bottom of the Kankakee River extending across the river near the location of the current discharge channel. A preliminary review of fish and freshwater mussel studies conducted in this general reach of the river indicated that fish monitoring, including the proposed area for diffuser pipe placement, has been conducted annually for the past 30 years (with the exception of 1980)(HDR|LMS, 2008); but that, while several freshwater mussel surveys had been conducted in the river between Kankakee and Wilmington in the past, none had been conducted at the proposed site.
>
> In retrospect, the Kankakee River supports some of Illinois' most diverse and abundant mussel populations with 27 extant and 40 historical species. It was surveyed several times for mussels in the 20th century. Some regard the mussel populations of the Kankakee River to be of national importance. Several freshwater mussel species currently listed as either endangered or threatened by the State of Illinois were collected during these earlier surveys. No freshwater mussel species currently listed as threatened or endangered by the Federal government have been reported in this reach of the Kankakee River.

To limit impact on the unionid community, the multiport diffuser will be placed in an area of the river known to be nearly devoid of mussels and from which no specimens representing State-listed species were taken. Because the diffuser will only traverse a nominal 60% of the Kankakee River, there will likely be minimal impact on the unionid population known to inhabit the near-shoreline opposite and downstream of the existing outfall and new diffuser installation site.

Early diffuser designs studied by Braidwood included diffusers crossing the entire width of the river. The final design minimized the width by locating the multiport diffuser in a 20 meter section of the deepest, middle portion of the river. By minimizing the width, the diffuser can be constructed with one (1) single cofferdam installation and avoid the area on the opposite shoreline where mussel species had a higher density.

2. The parties to the conservation plan will, to the maximum extent practicable, minimize and mitigate the impact caused by the taking.

The Braidwood conservation plan stated that freshwater mussel and fish surveys, and subsequent relocations, shall be conducted prior to initiation of in-stream construction and most likely during the spring/summer while water temperatures are at or above 50 degrees Fahrenheit. All mussels and fish observed/captured (listed or non-listed species) are to be relocated in order to minimize impacts. Mussel surveys shall be conducted using standard survey techniques including searching by feel to methodically cover the area to be disturbed by the project (viewing boxes, wading in shallow water, SCUBA in deeper water-if applicable). All mussels found will be identified to species. Mussels shall be relocated into areas of suitable habitat, in the same stream/river, preferably upstream of the construction site. Specifically, the transplant site will be close to the collection area and have similar to better water quality and substrate. The proposed contractor is Ecological Specialists, Inc. (ESI) that has worked on several similar projects and have extensive experience with Midwestern mussels. Braidwood shall provide the Department (Attn: Joseph Kath) with a report detailing the results of all mussel surveys and relocation efforts within 45 days of completing all surveys/relocations.

In addition, all fish retained within the cofferdam during dewatering shall be netted and immediately returned to the river as addressed in the 2009 Conservation Plan. Overall, mussel and fish surveys and related relocations shall occur only after Department authorization and prior to any construction activities.

The river diffuser project will require the construction of a temporary cofferdam approximately 132 feet by 245 feet. The cofferdam will consist of sheet pile with rock backfill. After the cofferdam is constructed, the area will be dewatered to allow for construction of the river diffuser beneath the river bottom. Upon completion of the construction program, the sheet pile and temporary rock backfill will be removed from the river and the area will return to its natural state. In the absence of any conservation plan, there would be the potential for mussel and fish species to be adversely impacted or killed since the area would be temporarily drained and filled (gravel).

Fisheries

Two (2) state protected species of fish, the pallid shiner and river redhorse, were taken during the survey conducted August 2008. None of the state-listed specimens were taken in the immediate proximity of the proposed project and are not expected to pose a regulatory effect on the permitting process. Fish are motile and often occupy different areas under varying flow and environmental conditions. Project related effects to state-listed fish species are expected to be minimal if any. Fish would most likely not be attracted to the construction activity and daytime noise associated with sheet pile driving.

The mitigation of incidental take of fish during construction should more than likely be fairly simple. The IDNR fisheries specialists shall be notified (per their request) of the dewatering of the cofferdam area following its construction. The water contained within the cofferdam will be pumped back to the river. As the water level recedes, all fish retained within the cofferdam will be netted and safely/humanely returned to the river. No construction shall take place during the spawning season of the last three weeks of May, and first week of June. This activity will be photographed and documented in a formal diffuser construction report and shall be made available to the Department upon request.

Mussels

Two (2) Illinois protected species *C. tuberculata, E. dilitata*) and one (1) Illinois Special Concern species (*V. ellipsiformis*) and the Federal Candidate species *P. cyphyus* were present. Habitat within the survey area is not typically ideal for unionids within the Kankakee River. Run habitats within the Kankakee River, like the habitat within the survey area, are not known to foster abundant and species-rich unionid communities. Other Kankakee River surveys have shown that unionid communities in pools or runs generally ranked low in abundance and diversity compared to areas with riffles or dam tail waters. Although the survey area appears to contain a relatively moderate to high species richness, unionid density was relatively low and unionids were scattered throughout the survey site.

In-stream construction activity may disrupt the substrate and, consequently, the animals living in the substrate. Unionids within the area directly affected by construction could be crushed by equipment or permanently buried under excavation spoil. Disruption of the substrate could result in displacement of unionids to unsuitable habitat, which could lead to reduced fitness or death. Construction activities could also lead to altered flow patterns that may increase sedimentation, which is a putative source of unionid declines throughout North America. Construction impacts to unionids have successfully been mitigated by minimizing the area used for constructing and relocating unionids from areas of unavoidable impact.

Exelon Nuclear/Braidwood shall perform a pre-construction mussel survey, coordinated by a qualified diver(s), to locate and move/relocate any and all mussels within the impact area in the deeper portions of the river, or through wading in the shallower portions of the river. This survey shall be performed within 30 days of the start of construction.

Mussels in the construction area will be relocated to areas of suitable habitat. The relocation site will be located in the Kankakee River, relatively close to the project site upstream of the construction activities. It will contain similar or better water quality and substrate. An area has been identified approximately 1,000 feet upstream of the proposed construction area known to contain a relatively dense mussel population. This area will be considered for the relocation site. The IDNR shall be notified 14 days prior to the start of this survey activity.

The mussel survey and relocation activity shall also be documented in a formal diffuser construction report. The report will discuss the methods of the mussel relocations, and include a quantification of the relative number and species of mussels relocated. The report will also identify any state-listed species that are relocated, if any. This report shall be made available to the Department upon request.

To minimize the extent and duration of project-related disturbance to the Kankakee River and any potential for indirect impacts on mussels or mussel habitat, Braidwood shall implement sediment control and construction management measures during construction. These measures will include use of the cofferdam, plus silt fencing or other sediment control measures to limit downstream sedimentation during construction. The in-stream construction will take approximately 150 days and any potential short-term effects will be limited to this time period.

3. The parties to the conservation plan will ensure that adequate funding for the conservation plan will be provided:

Braidwood Station confirms that adequate funding exists to support and implement all (mitigation) activities described in the official 2009 Conservation Plan. Braidwood has committed to budget and authorize, during their Fiscal Year 2009-2010 budget appropriation ordinance, adequate funding to provide for project construction activities and implementation of all mitigation activities required and described in the official conservation plan.

4. Based on the best available scientific data, the Department has determined that the taking will not reduce the likelihood of the survival or recovery of the endangered species or threatened species in the wild in Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois:

Construction and operation of Braidwood's multiport diffuser project in Will County, Illinois will more than likely not reduce the likelihood of the survival of state-listed threatened or endangered mussels in Illinois.

For the purposes of biological comparison, HDR Engineering, Inc. (HDR) completed an investigation of fish and freshwater mussel studies in the river and proposed diffuser area in August 2008. In addition, Ecological Specialists, Inc. (ESI) completed a characterization of unionid communities near Braidwood's diffuser project to investigate freshwater mussels in the proposed diffuser area in October 2008.

For the purposes of biological comparison, it should be noted that the freshwater mussel and fish fauna of the Kankakee River, HDR identified 212 live mussels from 15 species in August 2008 and ESI identified 126 live mussels and 13 species in October 2008. Three (3) purple wartyback mussels were collected upstream of the discharge channel with one (1) fresh dead sheepnose shell and relic spike and black sandshell mussels by HDR.

HDR identified 1,308 fish consisting of 45 taxa (43 species) dominated by longer sunfish (26.5%), spotfin shiner (13.1%), bluntnose minnow (11.7%), rock bass (5.3%), smallmouth bass (4.8%) and largemouth bass (4.8%) from electroshocking. HDR also completed seining which included 686 fish comprised of 22 taxa (20 species) dominated by spotfin shiner (36.2%), bluntnose minnow (15.3%), striped shiner (11.7%), sand shiner (9.0%), and Johnny darter (8.3%). According to HDR, none of the three (3) state listed fish species were taken within the immediate proximity of the proposed diffuser.

The black sandshell mussel (*Ligumia recta*) is listed as threatened in Illinois because of its range and it was formerly widespread in the state where it was found in medium to large river systems. Although it is possible that live individuals of the black sandshell are present in the project area, it is unlikely due to the fact that only one (1) was found alive in August 2008 and one (1) was found dead in October 2008.

The purple wartyback mussel (*Cyclonaias tuberculata*) is listed as threatened in Illinois and was once widespread in Illinois including the Kankakee River. It is possible that live individuals of the purple wartyback are present in the project area, since three (3) were found alive in August 2008 and one (1) alive in October 2008.

The sheepnose mussel (*Plethobasus cyphyus*) is listed as endangered in Illinois because its range and abundance have declined in recent decades. It was formerly widespread in the state where it was found in medium to large river systems. Currently, it is found in small, isolated populations in rivers including the Kankakee River. Although it is possible that live individuals of the sheepnose are present in the project area, it is unlikely due to the fact one (1) was found dead in August 2008 and none (0) were found dead in October 2008.

The spike mussel (*Elliptio dilatata*) is listed as threatened in Illinois because it was formerly wide spread in Illinois, including the Kankakee River. Although it is possible that live individuals of the spike are present in the project area, it is unlikely due to the fact that a relic shell was in August 2008 and two (2) were collected alive in October 2008.

The pallid shiner fish (*Hybopsis amnis*) is listed as threatened in Illinois and found in medium to large rivers and streams. Commonly, this fish is found in the sand and mud in shallow, slow-moving, moderately clear, warm, and well-oxygenated waters. Two (2) were identified by HDR in 2008 downstream from the discharge channel, near a sand bar drop off.

The river redhorse fish (*Moxostoma carinatum*) is listed as threatened in Illinois and is found in swift waters of large rivers, lower portions of main tributaries, reservoirs, and pools over clean gravel and rubble. One (1) was identified by HDR in 2008 collected upstream from the discharge channel.

The western sand darter fish *(Ammocrypta clarum)* is listed as threatened in Illinois and is found in medium to large streams with sandy areas and moderate current. HDR identified no (0) western sand darter fish in August 2008.

Any live animals that are overlooked during the relocation effort could be at risk of injury or death as a result of construction activities. The relocation of all mussels and fish encountered will make it unlikely that a significant number of individuals will be exposed to threats related to the Exelon Nuclear plant outfall and multiport diffuser project in Braidwood, Illinois. Relocation can be used to recolonize areas where previous populations were extirpated, to remove mussels from proposed construction sites, to boost numbers of endangered species. The survival of relocated mussels is closely linked to habitat quality.

As stated in the official conservation plan, Braidwood shall implement sediment control and construction management measures to minimize the extent and duration of project related disturbance to the Kankakee River and any potential for direct/indirect impacts on mussels and/or mussel habitat. These measures will include the use of cofferdams, silt fencing, or other sediment control measures to limit downstream sedimentation during construction. The in-stream construction will take approximately 150 days and any potential short-term affects will most likely be limited to this time period. All mussels shall be relocated from the outfall mixing zone limiting long-term operational effects.

For further purposes of *Statewide* biological comparison, it should be noted that the freshwater mussel fauna of the Fox River and its tributaries in Illinois and Wisconsin were surveyed by Department staff during the summers of 1997-2001. A total of 3,585 live individuals comprised of 23 species were collected from 96 sampling stations. Of this total, 60 spike mussels (*Elliptio dilatata*) and four (4) black sandshell mussels *(Ligumia recta)* were collected.

The black sandshell mussel (*Ligumia recta*) is listed as threatened in Illinois because its range and abundance have declined in recent decades. This species was once fairly widespread in the state where it was found in most of the major river systems, but is now known from less than 25% of the counties with historic records. Although it is possible that live individuals of the black sandshell are present in the project area, it is unlikely due to the fact that only one (1) dead, weathered shell of spike and black sandshell mussels were found in the project area. Any live animals that are overlooked during the relocation effort could be at risk of injury or death as a result of construction activities. The relocation of all mussels encountered will make it unlikely that a significant number of individuals will be exposed to threats related to the Braidwood plant outfall and multiport diffuser project in Will County, Illinois.

As stated in the April 1996 Technical Report (working draft) titled - "Measures to minimize harm to *Lampsilis higginsi* [federally endangered Higgins Eye mussel] caused by passage of commercial navigation vessels in the upper Mississippi River" [prepared by the U.S. Army Corps of Engineers-Waterways Experiment Station]: Relocation is one of several methods that can be used to protect freshwater mussels. Relocation can be used to recolonize areas where previous populations were extirpated, to remove mussels from proposed construction sites, to boost numbers of endangered species, or to protect against high densities of the zebra mussel *(Dreissena polymorpha)*. The survival of relocated mussels is closely linked to habitat quality.

Relocation sites should have the same conditions of substratum type and stability, and water velocity as the original habitat. Research from the federally endangered Higgins Eye mussel *(Lampsilis higginsi)* recovery team, under the guidance of the United States Fish and Wildlife Service, has determined that minimal mortality (<12%) and high recovery rate (>88%) were shown when aerial exposure of mussels was less than four (4) hours and when relocations were conducted in spring or autumn when air (12-18 C) and water temperature (15-23 C) were moderate.

5. Any measures required under Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.40(b)], will be performed:

Additional measures are listed below under "Authorization." This authorization is, by definition, subject to those terms and conditions and official Exelon Corporation/Braidwood Generating Station signature(s) on this authorization indicates their commitment to performing those measures.

6. The public has received notice of the application and has had the opportunity to comment before the Department made any decision regarding the application:

Mostardi Platt Environmental (MPE), acting as environmental consultant for the Exelon Nuclear-Braidwood Generating Station prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5). That plan and MPE's request for authorization for incidental take of the State threatened black sandshell mussel (*Ligumia recta*), purple wartyback mussel (*Cyclonaias tuberculaya*), sheepnose mussel (*Plethobasus cyphys*), spike mussel (*Elliptio dilatata*), pallid shiner fish (*Hybopsis amnis*), river redhorse fish (*Moxostoma carinatum*), and the western sand darter (*Ammorcrypta clarum*) were received by the Illinois Department of Natural Resources (Department) on 11 May, 2009. Public notice of MPE's request for authorization of incidental take of these listed species was published in the Northwest Daily Herald (Official State newspaper) and the Braidwood/Free Press (Braidwood, Wilimington, and Coal City, Illinois) on August 21, 26, and 28, 2009 as well as September 2, 4, and 9, 2009.

Public comments on MPE's conservation plan were accepted by the Department until October 9, 2009. No comments were received by the public during the period of August 21 through October 9, 2009.

Authorization

It is the determination of the Department that the measures to be implemented by Mostardi Platt Environmental (MPE), acting as environmental consultant for the Exelon Nuclear-Braidwood Generating Station , would adequately minimize and mitigate for the anticipated taking (relocation) of a small number of the State threatened black sandshell mussel (*Ligumia recta*), purple wartyback mussel (*Cyclonaias tuberculaya*), sheepnose mussel (*Plethobasus cyphys*), spike mussel (*Elliptio dilatata*), pallid shiner fish (*Hybopsis amnis*), river redhorse fish (*Moxostoma carinatum*), and/or the western sand darter (*Ammorcrypta clarum*) impacting the Kankakee River in Will County. Further, it is our opinion that the take (relocation) authorized herein would not diminish the likelihood of the survival of the above listed species in the wild within the State of Illinois, the biotic community of which the species is a part or the habitat essential to the species' existence in Illinois.

Pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.40(b)], this authorization is issued subject to the following additional terms and conditions:

1. This authorization is effective upon signature by the Department and shall remain in effect for a period of five (5) years after completion of the construction of a multiport diffuser impacting the Kankakee River in Will County, Illinois, unless terminated as pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.80].

2. Freshwater mussel surveys shall be conducted prior to construction activities (related to a new multiport diffuser impacting the Kankakee River) in the area(s) of direct impact, as well as the immediate downstream reaches (100 feet downstream). All mussels observed (listed or non-listed species) are to be relocated in order to minimize impacts. Mussel surveys will be conducted using standard survey techniques including searching by feel to methodically cover the area to be disturbed by the project (viewing boxes, wading in shallow water, SCUBA in deeper water-if applicable). All mussels found will be identified to species. Mussels shall be relocated into areas of suitable habitat, in the same stream, preferably upstream of the construction site. Specifically, the transplant site will be close to the collection area and have similar to better water quality and substrate. MPE (or another qualified ecological consultant) shall provide the Department with a report detailing the results of all mussel surveys and relocation efforts within 45 days of completing all surveys/relocations.

3. Regardless of whether any live black sandshell *(Ligumia recta),* purple wartyback (*Cyclonaias tuberculata*), sheepnose (*Plethobasus cyphyus*), and/or spike *(Elliptio dilatata)* live mussels and/or any other live Federal or State endangered or threatened mussels are removed and/or relocated within the Will County, Illinois construction zone (approximately 132 feet by 245 feet) at Braidwood, either solely and/or through a qualified environmental consultant(s), Exelon Nuclear-Braidwood shall perform (or cause to be performed) a survey of the entire construction zone +/- 300 feet in the (fifth) 5th year following initial operation of the river diffuser. The purpose of the survey is to determine if these listed species have colonized/recolonized areas directly impacted by the river diffuser construction and operation. Again, this survey shall be conducted at five (5) years after the start of operation for the river diffuser. Braidwood, either solely or through its environmental consultant, shall provide a copy of these survey reports to the Department within 45 days of survey completion. In addition, Braidwood shall continue to perform their annual fisheries surveys in order to document that the river diffuser project had no adverse impact on the aquatic environment. These annual fisheries reports shall be made available to the Department upon request.

4. All mussels encountered within the State of Illinois during this project shall be subject to the general U.S. Fish and Wildlife Service handling protocol for determining presence/absence of species as found in "Section H" of the attached Federal Fish and Wildlife document.

5. The mitigation of incidental take of fish during Braidwood construction shall involve the following: The local IDNR fisheries specialist(s) shall be notified prior to dewatering of the cofferdam area following its construction. The water contained within the cofferdam will be pumped back to the river. As the water level recedes, all fish retained within the cofferdam will be netted and safely/humanely returned to the river. No construction shall take place during the spawning season of the last three weeks of May, and first week of June. This dewatering activity will be photographed and documented in a formal diffuser construction report and shall be made available to the Department upon request.

6. The effective period of this authorization may be altered by mutual agreement between Exelon Nuclear-Braidwood Generating Station and the Department only.

7. This authorization may be revoked pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.80] if the Department finds that the Exelon Nuclear-Braidwood Generating Station has failed to comply with any of these terms and conditions and/or has been responsible for the unauthorized taking (relocation) of the State threatened black sandshell mussel (*Ligumia recta*), purple wartyback mussel (*Cyclonaias tuberculaya*), sheepnose mussel (*Plethobasus cyphys*), spike mussel (*Elliptio dilatata*), pallid shiner fish (*Hybopsis amnis*), river redhorse fish (*Moxostoma carinatum*), and/or the western sand darter (*Ammorcrypta clarum*) impacting the Kankakee River in Will County, Illinois

8. The Exelon Nuclear-Braidwood Generating Station Official(s) identified below is authorized to execute this agreement. Execution by such Exelon Nuclear-Braidwood Generating Station Official(s) indicates acceptance of all terms and conditions described in this agreement.

Illinois
Department of
Natural Resources
One Natural Resources Way • Springfield, Illinois 62702-1271
http://dnr.state.il.us

For the IL. Department of Natural Resources

Dr. James Herkert, Director
IDNR-Office of Resource Conservation

12-17-09
Date Signed

For the Exelon Nuclear-Braidwood Generating Station

Signature

LAWRENCE M. COYLE / Plant Manager
Please print name and official title

1/13/10
Date Signed