



# Ecological Specialists, Inc.

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24 February 2015

Mr. John Petro  
Exelon Generation  
4300 Winfield Road  
Warrenville, IL 60555

Dear Mr. Petro:

Construction of Exelon's Braidwood Nuclear Station's diffuser pipe across the Kankakee River to replace their existing discharge canal was completed in 2010. An initial survey in 2008 indicated unionids (freshwater mussels) were present (including state protected species) within the area of the river potentially impacted by construction. Therefore, an Incidental Take Permit (ITP) was applied for and subsequently issued by the Illinois Department of Natural Resources. The ITP stated that a unionid relocation effort shall be conducted prior to construction and a monitoring effort be conducted 5 years after the start of operation of the river diffuser. The relocation was conducted in 2010 prior to construction that same year. The purpose of this survey is to determine if listed species have colonized/recolonized within 300 ft. (91m) upstream and downstream of the construction direct impact area.

To fulfill the ITP requirement, we propose a scope of work similar to the initial 2008 survey. Semi-quantitative, qualitative, and quantitative sampling methods will be used to characterize the unionid community present within approximately 91 m upstream and downstream of the impact area post-construction. Five 200 m transect lines will be placed parallel to the flow starting approximately 100 m upstream of the diffuser. Transects 1 and 5 will be positioned about 10 m from each bank and Transects 2-4 will be spaced approximately 15-30 m across the width of the river. A diver will traverse each transect while collecting all unionids within 1 m of the line in 10 m sections for a total of 20 samples per transect. Five 10 min. qualitative samples and five 0.25 m<sup>2</sup> quantitative whole substrate samples will be collected in areas with higher densities and/or where listed species are present.

Substrate (Wentworth scale) and depth will be recorded for all samples. Catch per unit effort (number of unionids/minute) will be recorded for each qualitative sample. All unionids will be identified to species. Live unionids will be counted and a representative number of each species will be measured (length in mm) and aged (external annuli count). Freshly dead unionids (with or without meat, nacre lustrous, valves still intact, periostracum present; animal likely dead less than one year) will be counted and noted as adults or juveniles. Weathered (no meat, nacre chalky, valves may or may not be intact, periostracum present; animal probably dead more than one year) or subfossil shells

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(entire shell chalky, valves not intact, no periostracum; animal dead from several years to centuries) will be noted as present. Live unionids of non-listed species will be hand placed in the substrate at the point of collection. Each species will be photographed. If found, any live state or federal listed species will be aged, measured (length, width, and height in mm), and photographed (side view and beak sculpture). A GPS position will be recorded at the location. Zebra mussels (*Dreissena polymorpha*) and snails will also be noted. GPS coordinates will be recorded at collection locations.

A summary email will be sent within 10 days following the survey. A draft report will be submitted for review within 45 days following completion of the mussel survey. The report will include a summary of field procedures, survey results (including maps and GPS coordinates of mussel locations, if necessary), and representative photographs of the site and unionid species. A final report incorporating draft comments will follow.

[COST INFORMATION DELETED]

Sincerely,



Eric Belt, Senior Malacologist  
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