



Via Electronic Filing

July 13, 2020

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

**Subject: Constantine Hydroelectric Project (FERC No. 10661)  
Response to Comments on the Initial Study Report**

Dear Secretary Bose:

Indiana Michigan Power Company (I&M), a unit of American Electric Power (AEP), is the licensee, owner, and operator of the Constantine Hydroelectric Project (Project) (FERC Project No. 10661), located on the St. Joseph River in St. Joseph County, Michigan. The Project is operated under a license issued by the Federal Energy Regulatory Commission (FERC or Commission). The existing FERC license for the Project expires on September 30, 2023.

I&M has elected to utilize the Integrated Licensing Process (ILP) for the relicensing of the Project as defined in 18 Code of Federal Regulations (C.F.R.) Part 5. In accordance with the Commission's regulations at 18 C.F.R. § 5.15 and the Commission's April 9, 2019 Study Plan Determination (SPD), I&M filed the Initial Study Report (ISR) with FERC on April 14, 2020. Additionally, I&M held an Initial Study Report Meeting (ISR Meeting) with participants and FERC staff via Webex on April 23, 2020. An ISR Meeting summary was filed with FERC on May 8, 2020. The deadline to submit any disputes or requests to amend studies was June 13, 2020. The only comment letter received was from FERC, dated June 9, 2020. I&M is hereby providing responses to FERC's comments on the ISR.

### **Water Quality Study**

#### **FERC's Comment:**

(1) The water quality data collected in the project bypassed reach indicated that dissolved oxygen (DO) levels were not consistent at various times during the sampling period with the state water quality standards for DO. The exceedances of state standards for DO occurred at sampling sites located upstream and downstream of the confluence of the Fawn River in the bypassed reach.

There were 37 days from August 20 to September 25, 2019, when exceedances of DO levels persisted on and off. Many of the DO exceedances observed during the Water Quality Study correspond to times when water was diverted out of the bypassed reach and into the power canal. For example, on August 29, 2019, and September 26 to 28, 2019, when field crews were collecting water sampling data and also fish samples, respectively, they observed that the water surface elevation of the Constantine Reservoir was below the top of the dam.

To help us better understand the nexus between project operation and water flows in the bypassed reach, please identify frequency and duration of instances when project operation cause water levels in the reservoir to fall below the top of the Constantine Dam. Please also provide an estimate in the drop in water levels (in feet and inches) that occurred in the bypassed reach during these periods of no flows entering the bypassed reach from the Constantine dam.

**I&M's Response:**

I&M is still in the process of compiling and analyzing Project operations data. I&M will provide the results of their analyses to FERC within 14 days from the date of this filing.

**Fishery Survey**

**FERC's Comment:**

(2) Section 2.8 of the survey, states that the estimated point of collecting intake velocities for the project trashracks was located about 100 feet upstream from the trashracks. In the initial study report meeting, Indiana Michigan Power Company (I&M) stated that it was going to check to determine if the 100-foot estimate was correct; however, this information was not provided in the meeting summary. Please provide the correct distance to the intake velocity collection site for the power canal. The information would help us to verify intake velocity estimates with other intake velocity measurements made in the past at the project and with those recently made in the power canal.

**I&M's Response:**

The estimated distance from the trashrack structure to Transect #2 (the first intake velocity transect upstream of the trashracks) is approximately 136 feet. The average current velocity at Transect #2, as reported in the Fisheries Survey Report, was 1.33 feet per second (fps). Using Project-specific information, including the total maximum hydraulic capacity of the units and the cross sectional area one foot upstream of the trashrack structure, I&M's consultant (HDR) calculated the intake velocity one foot upstream of the trashracks to be approximately 2.07 fps. The formula used for this calculation was  $Q=VA$ , where Q equals the total maximum hydraulic capacity of the 4 units (cfs); V equals velocity (fps); and A equals cross sectional area one foot upstream of the trashracks.

**Mussel Survey**

**FERC's Comments:**

(3) The Mussel Survey portion of the meeting summary states that the project bypassed reach had been "recently dredged." Please identify when this dredging occurred and the depths the bypassed channel was dredged to.

(4) For the Mussel Survey, the mussel sampling protocols stated that methods used to collect mussels was supposed to include water depths at each sampling site, as well as several other habitat parameters. However, no information was given on the water depths at the mussel survey sites in the bypassed reach. For example, Digital image 5 (Downstream Portion of Site 2, substrate) and Digital image 50 (Site 3 substrate) in the Mussel Survey report appear to show mussel sampling sites that are very shallow, but no water depth is provided. Please provide water depths for the mussel sampling sites in the bypassed reach.

### **I&M's Responses:**

(3) During the ISR Meeting it was mentioned that another contractor (Cardno) conducted a Stranded Fish and Mussel Survey in the Project's power canal in March and April of 2019 to support dewatering of the canal. The purpose of the dewatering was to allow for inspection of the intake screens. Cardno surveyed the area for stranded fish and mussels as the canal was being dewatered and relocated all stranded fish and mussels to the bypass reach. The full report was filed with FERC as Attachment B of ISR Meeting summary on May 8, 2020 which includes information regarding species collected and relocated. While the power canal was dewatered, approximately 163 cubic yards of accumulated sediment was removed in front of the screens to help facilitate inspection and remove logs that were pinned against the screens that likely caused some of the sediment deposition. The depth to which the sediment was removed match those of original contours.

(4) Figures have been developed that detail the water depth and substrate type for each of the Mussel Survey sampling locations. The figures are included in Attachment A of this filing.

### **Cultural Resources Study**

#### **FERC's Comment:**

(6) In the *Methods* section of the Cultural Resources Study titled Archaeology Survey for the Constantine Hydroelectric Project Relicensing (FERC No. 10661), St. Joseph County, Michigan, I&M states that a "Stream Bank Inventory Schema" was implemented to determine shoreline erosion. However, the locations on the shoreline where this schema was implemented and the results of said method were not included in the study. Please provide this information.

Furthermore, in the *Methods* section, I&M states a combination of pedestrian transects and excavation of shovel test pits were conducted. Please provide a map depicting the locations of these transects including positions of the excavated shovel test pits, the number of shovel test pits excavated, any soil information collected during excavation of the shovel test pits, and any photographs and/or drawings of excavated shovel test pits in plan and profile perspective. Please file the information as privileged.

**I&M's Response:**

Based on the visual assessment of the Project area conducted by Commonwealth Heritage Group, no shovel testing or formal pedestrian transects were required. The methods and results section of the Archaeology Survey Report has been revised for clarification. The revised report is included in Attachment B of this filing and is being filed with FERC as privileged.

If there are any questions regarding this filing, please do not hesitate to contact me at (614) 716-2240 or [jmmagalski@aep.com](mailto:jmmagalski@aep.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Jonathan M. Magalski". The signature is fluid and cursive, with the first name "Jonathan" and last name "Magalski" clearly distinguishable.

Jonathan M. Magalski  
Environmental Specialist Consultant  
American Electric Power Services Corporation, Environmental Services

**Attachments:**

Attachment A - Mussel Survey Figures

Attachment B - Archaeology Survey Report (filed as privileged)

Cc: Distribution List  
Liz Parcell (AEP)  
Rob Quiggle (HDR)

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**ATTACHMENT A**  
**MUSSEL SURVEY FIGURES**





Figure 4. River Depth within Each 10 Minute Search Spot. Constantine Hydroelectric Project (FERC NO. 10661) Relicensing Studies: Mussel Survey. Constantine, St. Joseph County, Michigan, 2019.

Survey Area Cell (10m x 10m)  
Project Boundary

0 75 150 300 Feet  
0 25 50 100 Meters

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Substrate Composition

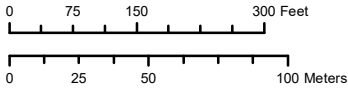
\*Substrate Did Not Vary within Each Site/Subreach Combination, therefore General Substrate Composition is Provided.

- Mud
- Sand
- Gravel
- Wood



Figure 5. Substrates within Each 10 Minute Search Spot. Constantine Hydroelectric Project (FERC NO. 10661) Relicensing Studies: Mussel Survey. Constantine, St. Joseph County, Michigan, 2019.

- Survey Area Cell (10m x 10m)
- Project Boundary





**ATTACHMENT B**  
**ARCHAEOLOGY SURVEY REPORT**  
**(Filed as privileged)**