Additional Information Request:

Exhibit A

1. **In response to Additional Information Request (AIR) no. 3, you updated Exhibit A, Table A-1, to include the rating of the turbines in horsepower. Exhibit A, section 1, states that the project has four turbine-generator units with a combined nameplate generating capacity of 1,300 kilowatts. For each of the four turbines, the horsepower you provided is equal to a direct conversion of the generator rating in kilowatts. Please confirm that you have provided the nameplate ratings of the turbines and generators, and update Appendix A as necessary.**

   The nameplate rating of the turbines is not available. Based on the types of turbines and assuming a conservative efficiency of 90%, Table A-1 has been updated to include estimated turbine ratings in horsepower. The total estimated turbine rating is 1,592 horsepower.

2. **In section 1.iii of Exhibit A, you state that the average head at the project is 14 feet. However, in your response to AIR no. 31, you state that the normal headwater elevation is 653.75 feet mean sea level (msl) and the tailwater elevation is 640.90 feet msl. These elevations yield an average head of 12.85 feet. Please clarify the average head at the project and provide the reservoir and tailwater elevations used for your calculations.**

   The average head at the project is 14 feet, with an average reservoir elevation of 653.75 feet msl and tailwater elevation of 639.75 feet msl. The exhibits and tables in the application have been revised accordingly.

3. **In response to AIR no. 11, you updated Exhibit A, section 1.vi.d to state that there are two open flumes for the turbine-generators, with two adjustable wicket gates; one on each flume. However, wicket gates are not shown in either Exhibit F, sheets F-2 or F-3. Exhibit F shows a gate structure at the entrance to each flume that appears to be a vertical slide gate. Typically, wicket gates would be located radially around each turbine so there would be one wicket-gate structure for each turbine for a total of four wicket gate structures. Please confirm that wicket gates control flow in each flume and, if so, how these wicket gates operate.**

   There is a vertical slide gate across the entire flume for units 1 and 2. There are also vertical slide gates on the flume to units 3 and 4 that can be operated independently of one another. Additionally, there are wicket gates on each of the turbines that operate independently. All gates are typically left open 100% unless a repair is needed that requires flow to a unit be stopped.

4. **There are inconsistencies throughout the application as to whether the 0.25-mile-long transmission line is a project or non-project feature. The existing license, issued on February 28, 1991, includes this 0.25-mile-long transmission line as a project feature. Please confirm whether the 0.25-mile-long transmission line is a project or non-project feature. If you determine that this 0.25-mile-long primary transmission line is not a project feature, please revise the license application to propose its removal, clearly describing the primary transmission line and the location of its point of interconnection with the Indiana Michigan Power Company's transmission line.**

The transmission line is a project feature. The application has been revised to include this as a project feature accordingly.

5. **In section 1.vii of Exhibit A, you state that you propose to maintain the level of the French Paper reservoir at a minimum elevation of 653.75 feet msl. You state that confirmation of the elevation and datum would be performed by a professional land surveyor, which would have a one-time cost of approximately $2,500. You also propose to install a calibrated staff gage referenced to the confirmed and surveyed datum in the French Paper reservoir and include a capital expense of $5,000. It is not clear whether the $2,500 one-time confirmation survey described in your proposal to maintain the reservoir at a minimum elevation of 653.75 feet msl is also included in the survey cost in this proposal to install a calibrated staff gage referenced to a confirmed survey. In your response, please clarify if the $5,000 capital expense to install a calibrated staff gage includes the $2,500 one-time survey cost described in your proposal to maintain the level of the French Paper reservoir at a minimum elevation.**

   The $5,000 capital expense to install a calibrated staff gage does not include the $2,500 one-time survey cost. These are separate items and are listed in Table E-5.3-1 of the License Application as such.

6. **In section 1.vii of Exhibit A, you state that the development of a proposed streamflow monitoring plan has an "initial operation and maintenance expense" of $3,000; however, it is unclear whether this cost represents a "capital cost" or an "operation and maintenance expense." We note that in Table E-5.3-1, $3,000 is included as an initial cost for the proposed streamflow monitoring plan. In your response, please clarify what is meant by "initial operation and maintenance expense."**

   The $3,000 is the cost to develop the streamflow monitoring plan.

7. **In section 1.vii of Exhibit A, you state that you propose to develop a water quality monitoring plan that would be submitted to the Michigan Department of Environment, Great Lakes, and Energy (Michigan EGLE) for approval. You propose that this plan would include provisions to monitor water temperature and dissolved oxygen levels upstream and downstream of the project from June 1 through September 30. However, you did not include a cost to develop this plan. In your response, please clarify if there is a cost to prepare a water quality monitoring plan and, if so, please provide the cost.**

   The cost to develop the water quality monitoring plan is estimated to be $3,500.

8. **In section 1.vii of Exhibit A, you state that you propose to develop an erosion monitoring plan that would be submitted to the Michigan EGLE. You propose that this plan would include a provision to identify any new erosion caused by the project. However, you did not include a cost to develop this plan. In your response, please clarify if there is a cost to prepare an erosion monitoring plan and, if so, please provide the cost.**

   Since there is an approved erosion monitoring plan that was used to obtain the 401 water quality certification from Michigan EGLE, it is assumed the cost to prepare an erosion monitoring plan post-license issuance will be minimal at approximately $500.

9. **In section 1.vii of Exhibit A, you state that you propose to develop a debris passage plan that would be submitted to the Michigan EGLE for approval. You propose that this plan would include provisions to: (1) pass natural debris (e.g., logs, stumps, sticks, limbs, leaves) downstream of the dam that collects on the trash racks and log booms; and (2) properly dispose of all other material. In your response, please clarify if there is a cost to prepare a debris passage plan and, if so, please provide the cost.**

Since the French Paper Company already performs debris passage, the cost to develop the plan and document its procedures is assumed to be minimal at approximately $500.

10. **In section 1.vii of Exhibit A, you estimate the lost generation associated with maintaining a continuous 120 cubic feet per second (cfs) flow through the fish ladder. In your response to AIR no. 5, you state that the normal surface elevation of the reservoir (653.75 feet msl) supplies 192 cfs to the fish ladder. Therefore, the lost generation should be based on an average flow of 192 cfs, not 120 cfs. If you do not agree with this conclusion, please provide the reason or reasons why 120 cfs is more appropriate to estimate the lost generation associated with the operation of the fish ladder. If you agree with our conclusion, please revise your estimate of the lost generation associated with fish ladder operations based on an average flow of 192 cfs. In your response, please provide adequate detail so that we can fully understand how your estimate is calculated. For example, your license application states that the period of record is from October 6, 1930 through the present, but you do not specify the end date of the flow data used for these calculations. In your response, at a minimum, please include the beginning and end dates of the flow data used for your calculations and the type of flow data used in your calculations (for example, average daily flow rates, hourly flow rates).**

The period of record of the flow data was from October 6, 1930 through January 31, 2016. The type of flow data used in the calculations were average daily flow rates. Using the 192 cfs to the fish ladder as a basis for the calculations, the flow availability is approximately 89%. Compared to the flow availability of the hydraulic capacity of the plant of 93%, the lost generation is approximately 450,000 kWh. The power having to be replaced with power purchased from I&M at 2018's rate of $0.1238/kWh, the cost associated with maintaining flow to the fish ladder is approximately $55,710.

11. **In response to AIR no. 5, you state that the only condition that would result in the fish ladder not receiving the required 120 cfs minimum flow is if flow in the river is too low. Based on your response, it is not clear what conditions in the river would prevent the required 120 cfs from being provided to the fish ladder. Therefore, please describe the river conditions, elevation, flow, or other conditions that would prevent a minimum flow of 120 cfs from entering the fish ladder.**

The condition that would prevent a minimum flow of 120 cfs from entering the fish ladder is an elevation upstream of 647.00 m.s.l. At this elevation, flow through the powerhouse would have already stopped and generation ceased due to operational procedures to prevent damage to generating equipment.

12. **In response to AIR no. 5, you state that the auxiliary water intake structure pipes are two 30-inch reinforced concrete pipes. However, Exhibit F, sheet F-7 shows the auxiliary water intake structure as two 24-inch ductile iron pipes. Please clarify the size and material of the auxiliary water intake structure pipes, as well as the headrace entrance invert and fish ladder exit invert of these pipes, if available.**

The auxiliary water intake pipes are two 30-inch, ductile iron pipes. Sheet F-7 has been revised accordingly. The headrace invert of these pipes is 646.50 msl, and the fish ladder exit invert of these pipes is 640.00 msl.

13. **In Table A-1, you state that trash rack no. 1, which serves units 3 and 4, is 13.5 feet wide by 16 feet high and trash rack no. 2, which serves units 1 and 2, is 28 feet wide by 13 feet high. Based on these dimensions, the total area (length x width) of trash rack nos. 1 and 2 are 216 and 364 square feet, respectively. However, these calculations do not match the total area calculations provided in section 1.vi.b of Exhibit A, which state the total area of trash rack nos. 1 and 2 are 325.6 and 396.4 square feet, respectively. Additionally, you state that trash rack no. 2 has 104.25-inch-long vertical steel bars, which does not match the 13-foot-high dimensions given for these trash racks. Similarly, you state that trash rack no. 1 has 82.25-inch-long vertical steel bars, which does not match the 16-foot-high dimensions given for these trash racks. Please confirm the height and width of each of the trash racks at the project and make any necessary corrections to the trash rack velocity calculations made in section 1.vi.b of Exhibit A. Additionally, please provide a schematic of each of the project trash racks that clearly shows the dimensions of the trash racks, including the length and width, top and bottom elevations, whether the bars are straight or have bends along its length, the "horizontal spacers," etc., to allow Commission staff to clearly understand the physical dimensions of the trash rack facilities at the project. When you file your response, please file the trash rack schematic separately as Critical Energy/Electric Infrastructure Information (CEII).**

The dimensions in Table A-1 were incorrect and the areas given in section 1.vi.b of Exhibit A have been revised. Corrections to the trash rack velocity calculations are included in section 1.vi.b. Table A-1 has been revised to include the correct width and height of the trash racks. The schematics of the trash racks are included as details on Exhibits F-2 and F-3.

14. **In section 8 of Exhibit A, you include a single-line electrical drawing as figure A-1. This drawing shows the voltage on the powerhouse side of the 4,000 amp transformer as 480 volts. On the outside power supply of this transformer you show a value of 34,500 but no units are provided. In your response, please provide the units associated with the outside power supply (34,500). Note that section 1.vi.f of Exhibit A states that the non-project transmission line begins at the 12-kilovolt (kV) terminals of a 480- to 12,000-volt step-up transformer, adjacent to the project powerhouse. Please revise figure A-1 to clearly show the 480- to 12,000-volt step-up transformer and label this location as the interconnection point.**

The units associated with the outside power supply of 34,500 are volts.Figure A-1 has been revised.

Exhibit E

Recreation

15. **It is unclear from your application who owns the upstream boat launch, parking lot, bathroom facility and canoe portage in the vicinity of the project dam. Please provide the owner of these facilities as well as the entity who operates and maintains these facilities. If you determine that French Paper has no ownership or operation and maintenance responsibilities for these facilities, these facilities are to be removed from Exhibit G.**

French Paper Company was required by a FERC license order issued November 7, 1991, to construct the upstream boat launch, bathroom facility and canoe portage as part of their recreation requirements. These facilities exist on land that is owned, operated, and maintained by the City of Niles, Michigan. These facilities have been removed from Exhibit G accordingly since French Paper Company does not own the land where these facilties exist, nor is responsible for the operation and maintenance of these facilities.

Cultural Resources

16. **In response to AIR no. 26, you provided a copy of your correspondence record with the Michigan State Historic Preservation Officer (Michigan SHPO). In an email dated April 22, 2019, the Michigan SHPO states that he is writing a letter commenting on the project; however, the status of the Michigan SHPO's concurrence letter is unclear. Please clarify if you have received a concurrence letter from the Michigan SHPO and, if not, please follow up with the Michigan SHPO to determine the status of the letter. Please continue to provide documentation of all correspondence with the Michigan SHPO.**

At the time of writing this letter, no concurrence from the Michigan SHPO has been received, although several attempts have been made to elicit their concurrence. Exhibit E, Appendix E-1 has been updated to incorporate the latest correspondence with the Michigan SHPO.

Exhibit F

17. **In response to AIR no. 28, you updated Exhibit F, sheet F-1 to show and label the 480- to 12,000-volt step-up transformer as well as the point of interconnection with Indiana Michigan Power Company's transmission line. Sheet F-1 identifies the point of interconnection as being approximately 825 feet (0.16 mile) from the 480- to 12,000-volt step-up transformer. Therefore, the transmission line shown on Exhibit F-1 is labeled to indicate that the 12-kV is a project feature and is considered a primary transmission line. The length of the transmission line shown on sheet F-1 has an approximate length of 0.16 mile, which is less than the 0.25-mile length provided in other parts of the license application. Furthermore, the location of the 12-kV transmission line does not correspond to power lines visible from aerial photographs. Please ensure that Exhibit F, sheet F-1, accurately reflects the location of the primary transmission line and its length closely scales to those lengths provided in Appendix A of the license application. When you file your response, please file the updated Exhibit F separately as Critical Energy/Electric Infrastructure Information (CEII).**

The Exhibit F sheet F-1 accurately reflects the location of the primary transmission line and the length in the Exhibit A of the application has been revised to reflect the correct length of 0.16 miles.

Exhibit G

18. Exhibit G-1 identifies waters of the State of Michigan within the project boundary to have an area of 111.53 acres, which is set at an elevation of 653.75 feet msl. Because the normal reservoir surface elevation is 653.75 feet msl, it stands to reason that the area of the project reservoir is 111.53 acres. However, section 1.iv of Appendix A, states that the project reservoir has an area of 80 acres and a storage capacity of 510 acre-feet. In your response, please confirm the area of the project reservoir. If the area of the project reservoir is not 80 acres, please revise the storage capacity to conform to the revised area.

The project reservoir area is 112 acres. The corresponding storage capacity is approximately 864 acre-feet. The storage volume was calculated based on a stage-storage curve that was included in a September 8, 1988 letter to FERC under Project No. UL-87-4 regarding an exemption request from the requirements of Part 12, Subpart D. The letter references that the stage-storage curve was developed for a 1979 inspection report prepared by the Detroit District Army Corps of Engineers as part of the National Dam Safety Program Corresponding sections of the license application have been revised accordingly.