

FEDERAL ENERGY REGULATORY COMMISSION
Office of Energy Projects -Division of Dam Safety and Inspections
Chicago Regional Office -230 South Dearborn Street, Room 3130
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VIA Electronic Mail

In reply, refer to: P-10856
August 4, 2020

Mr. Jason Kreuzer
Vice President
Renewable World Energies, LLC
jason@rwehydro.com

Re: Request for Authorization to Commence Interim Risk Reduction Measures

Dear Mr. Kreuzer:

This letter concerns your request to modify project features at the Au Train Project No. 10856. The project does not currently meet the Commission's guidelines for spillway adequacy because it cannot safely pass its inflow design flood which is the Probable Maximum Flood (PMF).

As recently as March 21, 2019, you submitted 90-percent design drawings for making modifications to pass the full PMF. However, in a June 2, 2020 filing, you stated your intent to surrender the license. Instead of implementing the 90-percent design package, you proposed to modify the project to meet the State of Michigan's spillway capacity requirements. Your June 2, 2020 submittal also included a supporting report prepared by your consultant, Ayres Associates, which includes a flood frequency analysis, the determined 200-year inflow/outflow with corresponding headwater and tailwater levels, stability analyses, and construction plans for the improvement.

On July 17, 2020, you filed a license surrender application along with your proposal to modify the North spillway and South levee to meet Michigan's spillway capacity requirements. At the North spillway, you propose to lower the spillway's crest by 5.56 feet to 773.45 NAVD88 and regrade the embankment in the vicinity of the left abutment wall. You propose to partially lower a section of the South levee so that this structure would no longer be considered a dam under State of Michigan regulations.

Because the project does not contain gates, you have proposed to commence the above modifications this month (August) while the reservoir is at its lowest elevation. While you first planned to lower the reservoir further to facilitate the work, you now state an additional drawdown is not needed. Finally, you state this work must be started this month, otherwise you must wait until next August, when reservoir levels are again at their lowest elevations.

We have completed our initial review of your proposed modifications to the North spillway and South levee. At this time, we are considering only the modifications to the North spillway as an interim risk reduction measure for the projects' inadequate spillway

capacity as compared with FERC guidelines. However, we need additional information regarding this work. Our comments are in the Enclosure.

We are not considering your proposed modifications to the South levee because it would direct flows to pass through U.S. Forest Service lands during high flow events. The Commission will consider your proposed modifications at the South levee in the surrender proceeding. This letter does not address your proposal to surrender the license. That proposal will be reviewed and analyzed by Commission staff in a separate proceeding. In this letter, we are only focused on your proposed work at the North spillway. Any Commission action to approve this work does not prejudice the outcome of the upcoming surrender proceeding. In the surrender proceeding, the Commission could require additional modifications and/or complete dam removal and restoration.

The Michigan Department of Environment, Great Lakes, and Energy and the Michigan Department of Natural Resources provided comments on your surrender application in separate letters dated July 9, 2020. While both agencies acknowledge your proposed spillway upgrades, neither agency provided specific comments on your proposed work to lower the North spillway. You must reconsult with both agencies to obtain comments on this specific proposal.

Additionally, by letter dated July 21, 2020, the Commission designated you as the non-federal representative for consultation under section 7 of the Endangered Species Act and section 106 of the National Historic Preservation Act. Please provide updates on any consultations you have had with the U.S. Fish and Wildlife Service and the Michigan State Historic Preservation Officer concerning the proposed modifications to the North spillway. Please provide documentation of this consultation, and how you have addressed any concerns or recommendations provided by the agencies.

In summary, we are considering your proposed modifications to the North spillway to be an interim risk reduction measure because this work will incrementally increase the project's spillway capacity. However, until we receive and review the additional information requested in the attachment, **you are not authorized to start any work related to your proposed modifications. You must wait until you receive written authorization from this office.**

Please address our comments included in the enclosure of this letter by **August 18, 2020** or submit a plan and schedule to address them. Please contact Ms. Margaret Sullivan, P.E. at (312) 596-4458 or me at (312) 596-4430 if you have any questions.

Sincerely,

John A. Zygaj, P.E.
Regional Engineer

Enclosure – FERC Review Comments on Interim Spillway Remediation Measures.

Enclosure – FERC Review Comments on Interim Spillway Remedial Measures

1. Supporting calculations of the spillway stability should be provided that include:
 - a. The stability safety factor calculations for both the existing and modified spillway under the maximum flood that the proposed spillway can safely pass.
 - b. Stability calculations along lift joints for normal and flood pool, and ice loading for both the existing and modified spillway.
 - c. The stability calculations should consider nappe forces induced by the flow over the spillway.
 - d. A discussion of these results, including the comparison of the calculated safety factors for the existing and proposed spillway configuration to demonstrate that the proposed modifications would not detract from the stability of the existing spillway.
2. The overflow spillway has the potential to develop recirculation eddies in the tailrace that could scour the spillway training walls and embankment toe. The following items should be addressed in the design/construction documents:
 - a. Provide a riprap protection for the tailrace channel to prevent scouring of the channel floor and side slopes. Include supporting analyses and calculations demonstrating adequacy of the proposed erosion protection measures.
 - b. For tailrace areas that are proposed to remain unchanged, include your detailed evaluation of the adequacy of the existing erosion protection.
 - c. In the construction drawings, show limits of the existing riprap detailing the transition between existing stone wall and the grouted riprap.
3. Include the following protection measures in the plans and specifications:
 - a. Clearly show in the plans the location of embankment cutoff walls, embankment toe drains, wall drains, drainage manholes and instrumentation. Include the requirement to protect them during construction. Any damage of project features should be immediately repaired.
 - b. Restrictions of construction loads on the embankment crest and near spillway walls to ensure the protection of structures.
 - c. Staging areas and access routes for haul trucks, barges, crane equipment, etc. Also, plans should clearly identify the allowed locations of material stockpiles.
 - d. Protection measures for the embankment dam and spillway walls within the zone of influence of construction loads. It is noted that Section 2.4 of the February 2019 STID indicated that there is clay blanket on the upstream slopes of the North Dam, and your March 21, 2019 submittal (Spillway Capacity Remediation – 90% Design Package, Appendix B Slope Stability Models) indicated that there is a timber crib wall on the left upstream slope of the North Dam. The construction plans should include specific measures to protect the clay blanket and the timber crib wall from damage by construction activity and equipment.
 - e. Restricted barge area to be off of the upstream embankment toe.
 - f. Develop contractor protocols for barge operations and monitoring, including barge mooring protocols during high flow and adverse weather conditions.
 - g. Require the protection of the penstock from debris/construction equipment impact.

4. Plans should include typical minor concrete repairs for spillway crest that may be needed after concrete removal. Also, define the minimum thickness of existing concrete required between the proposed spillway crest and the underlying nearest lift joint. Also, the construction plans should require the contractor to locate in the field the lift joint closest to the proposed spillway crest. Based on the provided lift joint location, the consultant should confirm if additional adjustment to the spillway crest are required.
5. Concrete demolition work should include vibration monitoring to ensure that integrity of existing structures is not impacted.
6. Clarify the proposed final grading contours for the left embankment of the North Dam near the spillway left abutment wall. The drawings do not show elevations for the proposed contour excavation lines. Considering the following in the grading design:
 - a. Include the requirement for the contractor to field verify location of the core wall by probing or test pits prior to start embankment excavation.
 - b. Specify that the embankment excavation is performed first, prior to lowering the spillway crest.
 - c. Require inspection by your consultant of the geometry and conditions of the left spillway abutment wall. Your consultant should confirm that the actual wall conditions and geometry are consistent with their wall stability analyses. **These assessments and checks by your consultant must be completed prior to proceeding with the spillway crest removal.**
 - d. Embankment excavations should be graded to enhance runoff drainage and avoid standing water.
 - e. Provide the available freeboard for the proposed lower elevation of the crest excavation for normal and flood condition considering wind-induced waves. Include supporting computations. If the proposed excavation is below pool level, including wave action, the top of the cutoff wall may need to be extended to provide a positive freeboard.
 - f. Provide erosion protection measures.
 - g. Require the removing of the middle third of the spillway crest first to allow initial lowering of the impoundment to avoid creating differential hydraulic loading on the abutment walls
7. Clarify if there is any proposed work for the area labeled as “CREST AREA BELOW EL. 788.70” in drawing sheet C-4.
8. Submit a Temporary Construction Emergency Action Plan, Erosion and Sediment Control Plan, and a Quality Control Inspection Plan in accordance with our Engineering Guidelines.