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Via Electronic Filing

August 10, 2020

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

**Subject: Racine Hydroelectric Project (FERC No. 2570)
Response to Comments on the Initial Study Report**

Dear Secretary Bose:

AEP Generation Resources Inc. (AEPGR), a unit of American Electric Power (AEP), is the licensee, owner, and operator of the Racine Hydroelectric Project (Project) (FERC Project No. 2570), located on the Ohio River in Meigs County, Ohio. 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 November 30, 2023.

AEPGR 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 May 13, 2019 Study Plan Determination (SPD), AEPGR filed the Initial Study Report (ISR) with FERC on May 5, 2020. Additionally, AEPGR held an Initial Study Report Meeting (ISR Meeting) with participants and FERC staff via Webex on May 14, 2020. An ISR Meeting summary was filed with FERC on June 11, 2020. The deadline to submit any disputes or requests to amend studies was July 11, 2020. Comment letters were received from West Virginia Division of Natural Resources (WVDNR), U.S. Fish and Wildlife Service (USFWS), and U.S. Army Corps of Engineers (USACE) on June 5, June 29, and July 9, 2020, respectively. Additional comments from Ohio Department of Natural Resources (ODNR) were received via email on July 21 and 22, 2020, after the comment response period ended. AEPGR is hereby providing responses to comments received on the ISR.

Water Quality Study

Stakeholder Comments:

WVDNR and USFWS requested that additional water quality monitoring be collected at the Project from July 1st through October 15th. In addition, USACE provided support for USFWS' request for additional water quality monitoring. Both WVDNR and USFWS agreed that it is not necessary for AEPGR to collect additional reservoir profile data. Due to biofouling that occurred

during the 2019 study season, the recommendation was also made to conduct maintenance and performance checks on a bi-weekly or weekly basis rather than monthly.

AEPGR's Response:

AEPGR has taken these additional study requests into consideration and has been working on procuring the necessary equipment and working on logistics to deploy water quality data loggers at the Project in 2020. AEPGR anticipates that continuous water quality data loggers will be deployed at the Project by mid-August and will remain in place through October 15th. Although the data loggers were not installed by July 1st as requested, AEPGR believes that the data collected will capture periods of low flow and high temperatures that are of the greatest concern to the resource agencies. AEPGR is also proposing to conduct bi-weekly maintenance and performance checks as opposed to monthly checks to address the agencies' concerns regarding biofouling.

Recreation Study

Stakeholder Comments:

WVDNR and ODNR requested that an additional year of recreational use data be collected. USFWS and USACE expressed support for WVDNR and ODNR's request for an additional year of study. Suggestions were made regarding using local newspaper advertisements, social media, in-person interviews, and/or continuing the hardcopy drop box surveys to collect additional recreational use information.

AEPGR's Response:

AEPGR installed two weatherproof boxes at the Project's recreation facility, which includes a tailrace fishing platform and picnic area, containing hardcopy survey forms. AEPGR also developed an online survey that was posted to their public relicensing website as well as displayed on signs at the recreation site, which directed recreationists how to access the survey. Additionally, AEPGR reached out to local fishermen with extensive knowledge and experience regarding recreation in the Project area and conducted phone interviews to obtain additional information about their recreational experience at the Project. As part of the phone interviews, AEPGR requested recommendations for any enhancements to the existing Project recreation facilities. A total of 21 online and hardcopy survey questionnaires were completed and phone interviews were conducted with two experienced local fishermen. AEPGR believes that the data that has been collected during this study is sufficient to inform current Project facility usage and inform potential facility enhancements to be considered in the development of the license application.

Mussel Survey

Stakeholder Comments:

WVDNR and USFWS indicated that they were satisfied with the results of the Mussel Survey as performed by AEPGR and stated their appreciation of AEPGR's coordination and additional effort in conducting this study.

AEPGR's Response:

AEPGR appreciates the comments.

Fisheries Survey

Stakeholder Comments:

WVDNR and USFWS expressed support for AEPGR's proposed modification during the ISR Meeting to forgo the spring trawl surveys due to safety concerns related to the COVID-19 pandemic. Additionally, USFWS mentioned that in AEPGR's Revised Study Plan, AEPGR agreed to provide information as requested by USFWS in order to conduct its own analysis related to potential fish passage at the Project. USFWS inquired as to whether this component of the study will be carried out.

AEPGR's Response:

AEPGR appreciates WVDNR and USFWS' support regarding the study modification in light of the current COVID-19 pandemic. As mentioned by USFWS, in the Revised Study Plan AEPGR agreed to provide the following data (as available) to resource agencies for the last five years in order to conduct their own analyses related to potential fish passage at the Project:

- Headpond elevations,
- Tailwater elevations,
- Gate (i.e., spill) operations (including the sequence and timing of specific gates),
- Unit 1 and 2 turbine discharge, and
- Lock operations (including any openings for maintenance).

AEPGR also agreed to provide any available dam/powerhouse elevation drawings and/or bathymetric data upstream or downstream.

This is an ongoing study in which AEPGR has installed a temporary eel ramp that will remain in place through fall 2020. AEPGR will compile available data as indicated above and provide these data to the resource agencies prior to the completion of this study.

Fish Entrainment and Impingement Study

Stakeholder Comments:

WVDNR and USFWS requested that AEPGR use sensor fish technology as developed by the Department of Energy's Pacific Northwest National Laboratory to bolster findings of the desktop entrainment analysis being performed by AEPGR. USFWS also requested that AEPGR use USFWS' Turbine Blade Strike Analysis model while conducting their analyses for this study.

AEPGR's Response:

WVDNR and USFWS previously requested that AEPGR use sonar technology in order to assess the number of fish passing through the powerhouse, to inform the desktop study proposed by AEPGR in the Proposed and Revised Study Plans. FERC indicated in the SPD for the Project that the desktop Fish Entrainment and Impingement Study as proposed by AEPGR was consistent with generally accepted practices for evaluating fish entrainment at hydroelectric projects and is a widely accepted methodology that has been implemented at other FERC projects, in lieu of conducting site-specific entrainment studies. FERC also stated that "AEP Generation Resource's proposed desktop analysis would provide the necessary information for staff to conduct an analysis of fish entrainment and impingement at the project." AEPGR does not believe that adequate justification was provided for modification to the FERC-approved Fish Entrainment and Impingement Study according to the following criteria in 18 CFR 5.15(d):

- (1) Approved studies were not conducted as provided for in the approved study plan; or
- (2) The study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way.

For the reasons stated above, AEPGR is not proposing to modify the Fish Entrainment and Impingement Study as approved in FERC's SPD and does not believe a modification is warranted.

General Comments

Stakeholder Comments:

In addition to the request for an additional year of recreation data, ODNR provided information from the National Heritage Database for rare, threatened and endangered species, including but not limited to bats, mussels, and Eastern Spadefoot Toad.

AEPGR's Response:

AEPGR appreciates the additional information provided by ODNR and will consider this information during the development of the license application.

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

Sincerely,

A handwritten signature in black ink, reading "Jonathan M. Magalski". The signature is written in a cursive style with a large initial "J" and "M".

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

Attachment

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

Racine Hydroelectric Project (FERC No. 2570)

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Comments on Initial Study Report



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Jun 5, 2020

Electronic File

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Federal Energy Regulatory Commission
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Washington, DC 20426

**RE: Racine Hydroelectric Project (FERC no. P-2570) Initial Study Report Agency
Comments**

Dear Secretary Bose:

Thank you for allowing the West Virginia Division of Natural Resources, Wildlife Resources Section (WRS) the opportunity to provide comments with regards to the Initial Study Report for the Racine Hydroelectric Project (FERC No. 2570). The WRS has reviewed the referenced report and offers the following comments for consideration:

2.1 Water Quality Study

The WRS would request that an additional year of a water quality assessment be conducted at the Project. The stated purpose of the initial year of water quality assessment was to assess what relationship the Project's operation may have on dissolved oxygen concentrations and

temperature both upstream and downstream of the Project. There were long, extended periods during the first year of sampling that coincided with the Project not being in operation, therefore the true extent by which the Project may impact water quality in the tailrace and further downstream is inconclusive. An additional year of sampling may provide clearer evidence of impact or otherwise, provided that the Project maintains operational status throughout the term of the sampling period. The WRS would request that sampling be conducted from, at the very least, July 1st to October 15th to correspond with periods when water quality issues would be expected to occur.

Additionally, the WRS would request that an additional year of analysis be amended to focus specifically on the continuous water quality monitoring stations and exclude the reservoir profile locations. Data collected through the reservoir profile assessment is not expected to offer any new insights from year to year beyond what has already been provided. The purpose of the reservoir profile locations was to assess the likelihood of stratification and the degree by which the reservoir might become stratified. With the previous year being atypically dry and hot, the questions of stratification would have been sufficiently answered.

A review of available data from the water quality assessment indicates several periods when water quality conditions were violated. However, many, if not all, of these violations may be attributable to biofouling of the primary data loggers. With biofouling being a common and regular occurrence, it may be beneficial to increase the number of probe maintenance and performance checks by having weekly or bi-weekly checks as opposed to monthly checks.

2.2 Recreation Study

The WRS would request that an additional year of recreation study be conducted at the Project. With only 21 responses through online submittal and survey box questionnaires, the WRS does not have a high level of confidence that an adequate sample size was assessed. A second year of study should focus on increasing the sample size. The difficulty is in getting people to take the time and effort on their own accord to complete the survey. Steps should be taken to increase the public's awareness of the survey. This can be completed by taking ads out in the local newspapers, publishing social media posts across differing platforms, or providing an incentive for completing the survey. The WRS will also be willing to assist in informing the public through their own channels.

2.4 Mussel Survey

The WRS has reviewed the mussel survey and has no comments at this time. The study was conducted according to the plan as negotiated between the resource agencies and AEP. The WRS appreciates AEP's attention to this matter and in conducting the survey. Results from the survey were positive and indicated a diverse mussel community downstream of the Project.

2.5 Fisheries Survey

The fisheries survey has not been fully completed at this time but is expected to continue for the 2020 sampling season, albeit in a slightly modified condition. In light of safety concerns that have arisen due to the COVID-19 pandemic, the WRS would be in support of abandoning the

remaining trawl samples, provided that attention be focused on littoral sampling via electrofishing methodology.

Amendments and Additions to Study Plans in Accordance to 18 CFR § 5.9 (b)

In-Field Support of Fish Entrainment Study

1. Goals and Objectives:

The goal of this study is to provide a complimentary source of information to enhance the desktop entrainment analysis and to better estimate turbine mortality due to Project operation.

2. Resource Management Goals:

As the state resource agency, the WRS is charged with the protection and management of all wildlife, including fish, within West Virginia. As such, the WRS may prescribe conditions that avoid, minimize, or mitigate for any damages likely to incur to West Virginia wildlife and fisheries. It is understood that the Project's operation results in the loss of fish as they pass through turbine and intake structures. As per state rule §47-5A-6, the applicant would be required to compensate the state of West Virginia for any loss of fish. Therefore, the WRS seeks the most accurate estimation of Project impacts as related to fish loss.

3. Existing Information:

To date, the WRS is not aware of any similar analyses conducted at the Racine Project. This would be a novel approach to obtaining a clearer picture of project effects on the ichthyofauna.

4. Public Interest:

The WRS is a state resource agency in service of the public.

5. Nexus Between Project Operation:

During operation of the facility, fish may be able to pass through the trash racks and become entrained through the turbines. As the turbines operate, it is likely that some fish will be struck by turbine blades while others may succumb to changes in barometric pressure and shear stresses as they pass through the intake. The likelihood of experiencing turbine-induced mortality varies from species to species and increases as the size of the fish increases.

6. *Study Methodology:*

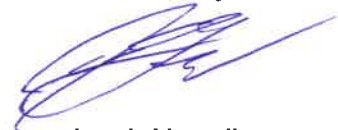
The WRS is requesting the use of sensor fish technology as developed by the Department of Energy's Pacific Northwest National Laboratory to be incorporated and used to bolster findings of the desktop entrainment analysis. The sensor fish can be deployed within the turbine units to assess shear forces, collision potential, pressure changes, and other conditions associated with turbine passage. This information can then be used as a companion source of data for the desktop entrainment study to provide more site-specific information and can be used with existing turbine mortality data to arrive at a more accurate estimate of turbine influence at the Racine Project.

7. *Level of Effort and Cost:*

This type of study would cost comparatively less and require less effort than other in-field measurement studies (i.e. net survey, sonar survey, etc.) The WRS estimates that the cost and effort of this addition analysis would be low and attainable.

Thank you again for allowing the WRS the opportunity to provide comments and for your consideration in this matter. If you have questions regarding this letter please contact me by telephone at (304)825-6787, or by email at Jacob.D.Harrell@wv.gov.

Sincerely,



Jacob Harrell

Hydropower Coordination Biologist

Cc: Jonathan Magalski, AEP Generation Resources
Rick MacCorkle, USFWS
John McClosky, USFWS
Michael Greenlee, ODNR
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United States Department of the Interior

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June 29, 2020

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Federal Energy Regulatory Commission
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RE: Racine Hydroelectric Project (FERC No. 2570); Initial Study Report (ISR) Meeting
Summary Disagreements and Requests to Amend Study Plan to Include New or Modified
Studies

Dear Secretary Bose:

The U.S. Fish and Wildlife Service (Service) participated in American Electric Power Generation Resources' (AEPGR) May 14, 2020, ISR meeting for the Racine Hydroelectric Project (FERC No. 2570) to discuss progress toward completing approved relicensing studies. Pursuant to 18 CFR § 5.15(c)(4), the Service provides the following comments and requests.

2.2, Water Quality Study:

The Federal Energy Regulatory Commission's (Commission; FERC) August 21, 2018, Scoping Document 1 (SD1) and December 12, 2018, Scoping Document 2 (SD2) identified the following environmental resource issue to be analyzed in the Environmental Assessment (EA) for the Project relicensing:

- Effects of continued project operation on water quality (e.g., dissolved oxygen and water temperature) in the Ohio River downstream of the project.

In the Commission's Study Plan Determination (SPD), they state: "We also recommend that the analysis for this study incorporate data from the operation of the Corps' Racine Locks and Dam facilities at the time of the water quality sampling to determine whether any observed effects on downstream water quality are the result of project operation or the operation of the Corps' facilities." For this analysis to be possible, the Project must be operating during most of the study. The Commission also states in their SPD that "Staff's environmental analysis would need to assess the effects of continued operation on aquatic resources, including water quality, in the Ohio River downstream of the project."

However, from June 17 to October 7, October 10 to October 12, and October 28 to October 31, 2019, overlapping most of the summer low flow season when water temperatures reach their maximum and dissolved oxygen issues are most likely, hydroelectric operations were inactive. Therefore, results of the water quality study cannot be expected to achieve the Commission's stated objectives (above). The Service requests that most of the study be repeated in 2020. Results of the repeated study would not be considered acceptable unless the Project is operating during most of the low-flow summer season. The Service identified this issue during the ISR meeting, and we stated that we would be making this request. Therefore, we expect that AEPGR has anticipated the likely need to repeat most of the study and has already begun the study as of the date of this letter. If that is not the case, then we request that the study be re-initiated immediately in order to evaluate possible effects of Project operations on water quality during the time period beginning July 1 and extending through October 15.

It is also our understanding that weather and precipitation during the summer of 2019 may not have been typical at the Project location, with drought conditions occurring during a portion of the study period, further supporting the need to repeat this study.

There is at least one study task that the Service does not see a need to repeat. We do not consider it necessary to repeat the instantaneous depth profile sampling in the forebay.

It is not entirely clear whether requesting a repeat of this study qualifies as a modification of an approved study. According to 18 CFR 5.15(d), any proposal to modify an ongoing study must be accompanied by a showing of good cause why the proposal should be approved and must include, as appropriate to the facts of the case, a demonstration that:

- (1) Approved studies were not conducted as provided for in the approved study plan; or
- (2) The study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way.

The Service believes that both of the above criteria apply because the study was not conducted as provided in the approved study plan in that the Project was not operating during most of the study, thus failing to achieve the primary study objective of identifying effects of Project operations on water quality, and because much of the study was conducted during atypically dry and hot conditions at the Project location.

We would also like to note that the map in the ISR showing the water quality monitoring stations is unreadable.

There were fouling issues with the primary continuous data loggers during this study in 2019. The Service requests that AEPGR consider checking and cleaning data loggers at a greater frequency during the requested 2020 repeat of this study. Instead of checking and cleaning loggers on a monthly basis, we request that the loggers be checked and cleaned on a weekly basis to reduce fouling issues.

2.3, Recreation Study:

The Service supports the positions of West Virginia Division of Natural Resources (WVDNR) and Ohio Department of Natural Resources (ODNR) that an additional year of recreation study should be conducted at the Project.

2.5, Mussel Survey:

The mussel survey was performed according to the agreed-upon modified West Virginia Mussel Survey Protocol. The Service is satisfied with the performance of this study, and appreciates the additional effort expended in adhering to the protocol. As a result of this additional effort, there were several mussel species found during this survey that were not found during the 2010 and 2015 surveys (in support of U.S. Army Corps of Engineers maintenance dredging program), three of which are Ohio State-listed endangered species, and one of which is a threatened species in Ohio. Five of the additional species found during this survey are considered very rare (S2) or extremely rare (S1) in West Virginia. No federally listed endangered or threatened species were found during the survey.

2.6, Fisheries Survey:

Based on the discussion during the May 14 ISR meeting, spring surveys were to be completed in 2020, with some proposed modifications due to the COVID-19 pandemic. As stated during the meeting, the Service supports AEPGR's decision to forgo the spring trawl surveys due to concerns regarding inability of personnel to maintain social distancing in this type of survey. The fall fisheries surveys, which were completed in 2019, documented a total of 25 species and only 2 species in the trawl surveys, whereas more than 60 fish species are known to occur in the Racine Pool (ORSANCO database, 2010-2018).

In their SPD, the Commission stated that "...we recognize that existing data and data collected as part of the approved study plan may be insufficient to satisfactorily estimate American eel entrainment, impingement, and turbine mortality at the project. Therefore, AEP Generation Resources may need to supplement existing desktop entrainment databases with additional studies upstream of the project that focus on American eels. AEP Generation Resources should evaluate the need for additional data or studies on American eel after completing the *Fish Entrainment and Impingement* and *Fisheries Studies*, as modified herein, and should discuss in the ISR the need for any additional data or analysis. The issue can be addressed at the ISR Meeting required under section 5.15(b)(2). Following this meeting, stakeholders can request modifications to the approved study plan for additional data or analysis, or request new site-specific information gathering or studies. Accordingly, we do not recommend targeted eels surveys upstream of the project at this time." Considering the very limited results of the fall 2019 electrofishing surveys (i.e., only 25 species collected and no American eels collected), the Service would like to discuss possible additional, targeted, American eel surveys in the Racine Pool during the fall of 2020.

It is worth noting that sauger (*Sander canadensis*), a migratory species and the only confirmed host for the federally listed endangered sheepsnose mussel (*Plethobasus cyphus*), was among the

most abundant species collected in the 2019 electrofishing surveys. However, the Service is unable to determine whether these collections occurred in the Racine Pool or in the RC Byrd Pool, because Figure 2.5-1 in the ISR, which is supposed to show the numbered transects, is unreadable. The sheepsnose mussel is known to occur a short distance downstream of the RC Byrd Locks and Dam, and any Project impacts to sauger may have negative reproduction and recruitment effects on this federally listed mussel species. The Service is responsible for recovering this species.

The Commission's August 21, 2018, SD1 and December 12, 2018, SD2 identified effects of continued project operation on upstream and downstream fish passage at Racine Locks and Dam as an environmental resource issue to be analyzed in the EA for the Project relicensing..

In comments filed by the Service in response to AEPGR's Proposed Study Plan¹, as an alternative to the Service's previously requested *Fish Protection and Upstream and Downstream Passage Study* which AEPGR did not agree to, the Service requested information in order to conduct its own analysis. In order to evaluate the magnitude and persistence of false attraction flows, and to develop a holistic model of flow management and operations at the site, the Service requested specific historical data on a daily (or finer) resolution for a period covering at least 10 years. This information was to include headpond elevations, tailwater elevations, gate (i.e., spill) operations (including the sequence and timing of specific gates), unit 1 and unit 2 turbine discharge, lock operations (including any openings for maintenance), and any dam/powerhouse elevation drawings and/or bathymetric data in the immediate upstream or downstream vicinity of the dam that would allow us to estimate mean velocities.

In their Revised Study Plan (RSP), AEPGR agreed to incorporate this information request into the modified Fisheries Study, and renamed the Study accordingly: *Fisheries Survey, Project Characteristics, and Project Operations Related to Potential Fish Passage* study in Section 10 of the RSP (Section 10.6.1 Task 1 – Data Review and Synthesis). While the Commission did not mention or discuss this aspect of the study in their SPD, they stated that “Studies for which no issues were raised in comments on the RSP are not discussed in this determination. Unless otherwise indicated, all components of approved studies not modified in this determination must be completed as described in AEP Generation Resources' RSP.” Because the “Fisheries Study” was approved with modifications, it is unclear to the Service whether this component of the study was approved by the Commission. The Service addressed this proposed study revision in RSP comments filed on April 29, 2019, by stating that we appreciated AEPGR's proposal to incorporate the requested information into the study. Will this component of the study be carried out?

2.7, Fish Entrainment and Impingement Study:

RSP Section 11.6.1, Task 1, involves the formation of a study working group including the Service, WVDNR, ODNR and other stakeholders who express interest in participating in this study. Interested parties will also communicate to identify target fish species and if needed, refine protocols specific to this study.

¹ FERC accession number 20190315-5127

Under RSP Section 11.6.6, Task 6 is to determine monthly turbine entrainment rates from existing empirical data and utilize these rates to estimate monthly turbine entrainment for the target species using existing hydrology and Project operations. The Service requests protocols be added to the study related to this task. In recently filed comments², the WVDNR has requested an additional analysis to complement the currently proposed entrainment evaluation, in order to ensure as accurate as possible entrainment mortality estimates to inform WV fish loss compensation requirements. WVDNR proposes the use of a sensor fish that can be released into the powerhouse intake to measure acceleration, pressure changes, rotational velocity, and orientation, conveying what real fish may experience during downstream passage through the specific Project turbines.

While the Service supports this proposed study enhancement, we also recommend as an additional verification of results, the use of the Service's Excel-based Turbine Blade Strike Analysis model developed by Service Fish Passage Engineering. As a complement to this model, Service engineers have identified the need to adjust one of the input parameters for evaluation of American eel, to more accurately predict blade-strike potential for this species.

Pursuant to 18 CFR 5.15(e), any proposal for new information gathering or studies must be accompanied by a showing of good cause why the proposal should be approved and must include, as appropriate to the facts of the case, a statement explaining:

- (1) Any material changes in the law or regulations applicable to the information request;
- (2) Why the goals and objectives of any approved study could not be met with the approved study methodology;
- (3) Why the request was not made earlier;
- (4) Significant changes in the project proposal or that significant new information material to the study objectives has become available; and
- (5) Why the new study request satisfies the study criteria in 18 CFR §5.9(b).

The Service's and WVDNR's previous requests for an in-field verification component (e.g., tailrace netting; hydroacoustic monitoring of fish entering the intake) were denied due to projected costs, despite pointing out that the only historical in-field entrainment studies conducted at projects on the Ohio River were flawed (e.g., < 4% discharge netting efficiency) and not accepted by the resource agencies. Those studies also did not meet the screening criteria for inclusion in the Electric Power Research Institute's (EPRI) entrainment survival database. The Service has commented extensively on this issue in previous comment letters³, but to date the Commission has not supported any in-field entrainment verification requests at any of the projects on the Ohio River.

A stated objective of the RSP is to conduct a desktop analysis that incorporates the impingement assessment, Project specifications, and hydrology to quantify turbine entrainment and mortality at the Project. The Service continues to be concerned about the ability of this study, as currently proposed, to accurately quantify turbine entrainment mortality at the Project, considering the

² FERC accession number 20200605-5046

³ FERC accession number 20190315-5127

study will largely rely on survival rates at other projects with similar turbines, documented in the EPRI entrainment survival database and other databases (Stone & Webster Environmental Services [1992] and FERC [1995]).

The Service did not previously request use of a sensor fish because Service representatives who are participating in the Racine Project relicensing were unaware of this technology until recently, and until the Commission issued its SPD, we were focused on promoting use of a more substantial in-field study component, such as the use of hydroacoustic monitoring at the Project intake. In previous comments on the Proposed Study Plan⁴ the Service requested “some type of in-field verification...” Regarding the Service’s Turbine Blade Strike Analysis Model, we have recommended its use in other project relicensing proceedings, including a proceeding for relicensing of another project owned by American Electric Power. It was mostly an oversight on our part that we did not request its use in this relicensing proceeding until now, although as previously stated, we were also focusing on pursuit of some type of in-field verification of desktop results.

It is unclear whether the requested use of a sensor fish and/or the Service’s Turbine Blade Strike Analysis model constitutes a modification to an approved study or new information gathering, but the Service believes the above requested approaches to better informing and/or verifying the results of the proposed desktop study satisfy the study criteria in 18 CFR §5.9(b) as follows:

I. Entrainment and Impingement Desktop Study Results Verification

The Licensee proposes to perform a desktop reverification Entrainment/Impingement Study to assess potential Project effects on fish mortality and injury using existing literature and site-specific information. The Licensee is consulting with interested stakeholders to establish appropriate methodology and to identify fish species that are potentially subjected to impingement and entrainment.

At the September 27, 2018, scoping meeting, the Service stated that an in-field entrainment study would likely be requested because it is our opinion that there has never been an acceptable in-field entrainment study conducted at any of the hydropower projects on the Ohio River, as discussed in FERC’s 1988 Final Environmental Impact Statement for Hydroelectric development in the Upper Ohio River Basin (FEIS: FERC 1988). In the FEIS, the Commission stated that the results of studies of turbine-induced fish mortality are highly varied, and they concluded that “all entrainment field studies to date are deemed incomplete and inconclusive for answering impact questions on the upper Ohio River system quantitatively, despite extensive effort. The Commission further stated that “no reliable, quantitative estimate of passage rates for sites on the upper Ohio River system is presently available...”

In addition to the Licensee’s intention to consult with interested stakeholders to establish appropriate methodology and to identify fish species that are potentially subjected to impingement and entrainment, we request that this consultation also include consideration of some type of verification or “ground-truthing.” The resource agencies do not have a high degree

⁴ FERC accession number 20190315-5127

of confidence in the studies included in the Electric Power Research Institute (EPRI) database as to their applicability to Ohio River Projects located at locks and dams.

1. *Goals and Objectives*

The goals and objectives of this study enhancement or modification are to provide a ground-truth or secondary verification of desktop study survival rates of all species and life stages of fish that may be entrained in powerhouse turbines, and improve or verify the accuracy of corresponding annual mortality rates. Estimates should also consider indirect, latent mortality of injured fish that are subjected to predation (e.g., due to disorientation or loss of equilibrium), disease (e.g., as a result of cavitation injuries) or physiological stress.

2. *Resource Management Goals*

These goals include: to protect native fish populations and ensure that entrainment impacts are not resulting in population-level effects to species of conservation concern (e.g., American eel, sauger, paddlefish), and to provide an accurate justification for protection, mitigation, and enhancement measures. Conclusions regarding potential population-level effects should consider the cumulative effects of multiple, stacked hydropower project on the Ohio River and its major tributaries (e.g., Allegheny River and Monongahela River).

3. *Public Interest*

The requestor is a resource agency.

4. *Existing Information*

The only Ohio River in-field entrainment studies to date, those at the Racine (WAPORA, Inc. 1987) and Greenup (Olson and Kuehl 1988; Olson et al. 1987) projects, did not satisfy screening criteria for inclusion in the EPRI entrainment survival database. All entrainment field studies to date are deemed incomplete and inconclusive for answering impact questions on the upper Ohio River system quantitatively (FERC 1988).

5. *Nexus to Project Operations and Effects*

Operations of the Project result in injury and mortality of a percentage of fish that are impinged on powerhouse intake trash racks or entrained in Project turbines.

6. *Methodology Consistent with Accepted Practice*

The sensor fish has been utilized at several hydropower projects in the western United States, and the Service's Turbine Blade Strike Analysis model is currently being used in relicensing studies at other hydropower projects in the Northeast.

7. *Level of Effort, Cost, and Why Alternative Studies Will Not Suffice*

The addition of a sensor fish ground-truth component would be relatively inexpensive compared to other in-field measurements (e.g., discharge netting, hydroacoustic monitoring at the intake). The Service estimates that the cost and level of effort for this study enhancement would be low and attainable. The cost and level of effort associated with the additional use of the Service's Turbine Blade Strike Analysis model would be minimal. The Service previously requested other approaches to verifying the results of the desktop analysis, but the Commission determined that those other approaches were cost-prohibitive.

Thank you for your consideration and for the opportunity to comment on the ISR and ISR meeting summary. If you have any questions regarding this matter, please contact Richard McCorkle of my staff at 302-382-0284 (personal cell number while teleworking during pandemic) or at richard_mccorkle@fws.gov.

Sincerely,

A handwritten signature in cursive script that reads "Sonja Jahrsdoerfer".

Sonja Jahrsdoerfer
Project Leader

cc: Jonathon Magalski, AEPGR
Jacob Harrell, WVDNR
Michael Greenlee, ODNR

Literature Cited:

- Federal Energy Regulatory Commission (FERC). 1995. Preliminary assessment of fish entrainment at hydropower projects, a report on studies and protective measures, volumes 1 and 2 (Paper No. DPR-10). Office of Hydropower Licensing, FERC, Washington, DC.
- FERC. 1988. Hydroelectric development in the upper Ohio River basin: Final Environmental Impact Statement. FERC Docket No. EL85-19-114, Ohio, Pennsylvania, West Virginia. Federal Energy Regulatory Commission, Office of Hydropower Licensing. FERC/FEIS-0051.
- Olson, F.W., and E.S. Kuehl. 1988. Fisheries Resource Studies, Vanceburg Hydroelectric Generating Station No. 1 (FERC Project No. 2614). Volume 2. Survival of sauger passing through bulb turbines and tainter gates at Greenup Dam, Ohio River. CH2M Hill and Biosonics. Report for the City of Vanceburg, Kentucky.
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- Stone & Webster Environmental Services. 1992. Fish entrainment and turbine mortality review and guidelines. EPRI Report TR-101232. September 1992.
- WAPORA, Inc. 1987. Fish passage studies at the Racine and New Martinsville hydroelectric projects. 4 vols. Cincinnati, Ohio.



**DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
HUNTINGTON DISTRICT
502 8TH STREET
HUNTINGTON, WV 25701**

July 09, 2020

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
Mail Code: DLC, HL-11.2
888 First St., NE
Washington, DC 20426

RE: Racine Hydropower Project (FERC No. 2570); Initial Study Report (ISR) Meeting
Summary USACE Comments

Dear Secretary Bose:

On May 14, 2020, the U.S. Army Corps of Engineers (Corps), Huntington District participated in an American Electric Power (AEP) ISR meeting for the Racine hydropower project. The ISR submittal contained Federal Energy Regulatory Commission (FERC) required studies for relicensing. The Corps provides the following comments.

The Corps has discussed the ISR studies with the appropriate state resource agencies and the US Fish and Wildlife Service (USFWS). In particular, the Huntington District had extensive discussions regarding the Water Quality Study and the Recreation Study.

Water Quality Study: Fish and Wildlife Conservation is a congressionally authorized project purpose and water quality remains a Federal interest for the project at Racine Locks and Dam. The Corps supports the USFWS request to reevaluate the impacts of hydropower and dam operation on water quality in 2020. The hydropower project was not in operation for a significant portion of the 2019 water quality analysis including the critical low flow summer period. As a result, the 2019 study is insufficient to make any determinations on water quality impacts.

Recreation Study: Recreation is a congressionally authorized project purpose at Racine Locks and Dam. The Corps supports the request by the West Virginia Division of Natural Resources and Ohio Department of Natural Resources for an additional year of analysis for the Recreation Study.

RE: Racine Hydropower Project (FERC No. 2570); Initial Study Report (ISR) Meeting
Summary USACE Comments

For questions, please contact me by phone (304) 399-5964 or email
Lesli.F.StoneSmith@usace.army.mil.

Sincerely,

Lesli Stone Smith
Program Manager
U.S. Army Corps of Engineers

CC: Honggang Cao, FERC
John Zygaj, FERC



Ohio Department of Natural Resources

MIKE DeWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate

John Kessler, Chief

2045 Morse Road – Bldg. E-2

Columbus, OH 43229

Phone: (614) 265-6621

Fax: (614) 267-4764

July 21, 2020

Danielle Hanson
HDR Inc.
11 Stanwix Street, Suite 800
Pittsburgh, PA 15222

Re: 20-512; Racine Hydroelectric Project (FERC No. 2570-032)

Project: he proposed project involves continued operation of the existing hydroelectric project under a new license.

Location: The proposed project is located in Racine Township, Meigs County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has the following records at or within a one-mile radius of the project:

American eel (*Anguilla rostrate*), T
Tippecanoe darter (*Etheostoma Tippecanoe*), T
Goldeye (*Hiodon alosoides*), E
Channel darter (*Percina copelandi*), T
River darter (*Percina shumardi*), T
Paddlefish (*Polyodon spathula*), T
Eastern spadefoot (*Scaphiopus holbrookii*), E

The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Statuses are defined as: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; A = species recently added to state inventory, status not yet determined; X = presumed extirpated in Ohio; FE = federal endangered, FT = federal threatened, FSC = federal species of concern, FC = federal candidate species.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

Recreational

The Division of Wildlife (DOW) would like to see the number of online surveys and phone interviews increased and AEP expand efforts to gather additional information from anglers regarding recreational facility improvements at the abutment fishing access. Two approaches should be considered for expanding participation in the survey to gather additional feedback from anglers. The first would be to run an article through the local paper, both electronically and on printed copy, asking for input on the current recreational facilities and thoughts on additional improvements. Social media outlets should also be utilized that include information about where they can participate in the online survey. The second approach would include face to face interviews. However, with social distancing guidelines in place and current health and safety precautions, it may not be possible to conduct this type of survey. If that is the case, we would suggest continuing with drop box surveys to gather additional information from anglers on the current recreational facilities and the need for any additional features that would improve the angling opportunities and experience for anglers. Ideally, we would recommend surveys be extended to include the remaining summer months and into Fall of 2020 to increase participation and input from anglers.

Fish and Wildlife

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

The entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally threatened species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these species of bats predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. If trees are present within the project area, and trees must be cut, the DOW recommends cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH ≥ 20 if possible. If trees are present within the project area, and trees must be cut during the summer months, the DOW recommends a mist net survey or acoustic survey be conducted from June 1 through August 15, prior to any cutting. Mist net and acoustic surveys should be conducted in accordance with the most recent version of the "OHIO DIVISION OF WILDLIFE GUIDANCE FOR BAT SURVEYS AND TREE CLEARING". If state listed bats are documented, DOW recommends cutting only occur from October 1 through March 31, however, limited summer tree cutting may be acceptable after consultation with DOW (contact Sarah Stankavich, sarah.stankavich@dnr.state.oh.us).

The DOW also recommends that a desktop or field-based habitat assessment is conducted to determine if there are potential hibernaculum(a) present within the project area. Habitat

assessments should be conducted in accordance with the current USFWS “*Range-wide Indiana Bat Survey Guidelines*” and submitted to Sarah Stankavich, sarah.stankavich@dnr.state.oh.us if potential hibernacula are present within .25 miles of the project area. If a potential hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species.

Federally Endangered

sheepnose (*Plethobasus cyphus*)
fanshell (*Cyprogenia stegaria*)
pink mucket (*Lampsilis orbiculata*)
snuffbox (*Epioblasma triquetra*)

State Endangered

washboard (*Megalonaias nervosa*)
butterfly (*Ellipsaria lineolata*)
elephant-ear (*Elliptio crassidens*)
long-solid (*Fusconaia maculata maculata*)
Ohio pigtoe (*Pleurobema cordatum*)
pyramid pigtoe (*Pleurobema rubrum*)
monkeyface (*Quadrula metanevra*)
wartyback (*Quadrula nodulata*)

State Threatened

black sandshell (*Ligumia recta*)
threehorn wartyback (*Obliquaria reflexa*)
fawnsfoot (*Truncilla donaciformis*)

The DOW understands that a mussel survey has been conducted and has been coordinated with the resource agencies.

The project is within the range of the following listed fish species.

State Endangered

bigeye shiner (*Notropis boops*)
goldeye (*Hiodon alosoides*)
shoal chub (*Macrhybopsis hyostoma*)
speckled chub (*Macrhybopsis aestivalis*)
spotted darter (*Etheostoma maculatum*)
western banded killifish (*Fundulus diaphanus menona*)

State Threatened

American eel (*Anguilla rostrata*)
blue sucker (*Cycleptus elongatus*)
channel darter (*Percina copelandi*)
paddlefish (*Polyodon spathula*)
river darter (*Percina shumardi*)
Tippecanoe darter (*Etheostoma tippecanoe*)

The DOW recommends no in-water work in the Ohio River from March 15 through June 30, and in other perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic

species and their habitat. If no in-water work is proposed in the Ohio River or other perennial streams, this project is not likely to impact these or other aquatic species.

The project is within the range of the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species. This species is found in areas of sandy soils that are associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions. The DOW understands that an approved herpetologist has determined that suitable habitat is present within the project area, and that a presence/absence survey will be conducted.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or Sarah.Tebbe@dnr.state.oh.us if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator (Acting)



OHIO DIVISION OF WILDLIFE GUIDANCE FOR BAT SURVEYS AND TREE CLEARING JUNE 2020

Agency Contacts:

ODNR-DOW Permit Coordinator: Wildlife.Permits@dnr.state.oh.us, (614) 265-6315

ODNR-DOW Bat Survey Coordinator: Sarah Stankavich, sarah.stankavich@dnr.state.oh.us, (614) 265-6764

Due to the evolving situation with COVID-19, we are temporarily suspending bat-handling activities until more is known about the risk to North American bats. This document has been updated with new state guidance for the 2020 field season only, or until bat-handling activities are reinstated. These guidelines replace previous guidelines released in March 2020.

This guidance applies to state recommendations only. Contact the USFWS to determine if federal consultation is also necessary to comply with federal law.

Ohio Mist Net Surveys:

Mist-netting for presence/absence surveys, education events, or research activities will not be authorized for the 2020 season.

Ohio Acoustic Surveys:

Acoustic bat surveys for presence/absence will be accepted by ODNR for the 2020 season. Surveys should follow guidelines laid out in the USFWS Range-wide Indiana Bat Survey Guidelines (March 2020) with the following exceptions:

- Ohio survey dates are June 1 – August 15, 2020
- After conducting automated analyses using one or more of the currently available ‘approved’ acoustic bat ID programs¹, qualitative analysis (i.e., manual vetting) of any calls recorded from state-endangered species (*Myotis sodalis*, *M. septentrionalis*², *M. lucifugus*², and *Perimyotis subflavus*²) must be completed.
 - At a minimum, for each detector site/night a program considered presence of state-listed bats likely, review all files (including no IDs) from that site/night. If more than one acoustic bat ID program is used, qualitative analysis must also include a comparison of the results of each program by site and night.

During Field Season:

- **Prior to initiation of field work (a minimum of two weeks in advance)**, permittees must provide proposed survey plans to ODNR-DOW via e-mail. **Plans must be reviewed and approved by ODNR-DOW before ANY surveys take place.** Study plans must specify objectives, location details, dates of proposed work, and all other relevant details.

¹ <https://www.fws.gov/midwest/Endangered/mammals/inba/surveys/inbaAcousticSoftware.html>

² State listing as endangered effective July 1, 2020

After Field Season:

- By March 15, you must submit your final ODNR-DOW report(s) from the previous summer. You are not required to fill out the ODNR-DOW Wildlife Diversity Bat Excel Spreadsheet; instead, please forward your USFWS Midwestern US Spreadsheet (found here: <http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>) to the ODNR-DOW Bat Survey Coordinator and ODNR-DOW Permit Coordinator and include your state permit number along with an electronic copy of the project report. Electronic summaries emailed during the field season are NOT considered as full compliance of this reporting requirement.

Ohio Environmental Review Recommendations for projects involving disturbance near potential/known bat hibernacula (cliffs, caves, mines) or tree cutting:

Step 1: Coordinate with Ohio Division of Wildlife (DOW) regarding existing records for state-listed endangered bat summer and/or winter occurrence information.

If project site contains a known bat hibernaculum(a) –

- For state-listed endangered species other than the Indiana bat, a recommendation of 0.25-mile tree cutting buffer around all known entrances to protect existing conditions at the hibernaculum(a). If the project involves subsurface disturbance, consultation with DOW is required.
- Limited summer and winter tree cutting may be permitted within the buffer following guidelines detailed below. Coordinate with DOW before cutting.

If a project site does not contain known bat hibernaculum(a)

- Conduct a habitat assessment (desktop or field-based, using methods detailed in current USFWS Range-wide Indiana Bat Guidelines) to determine if a potential hibernaculum(a) is present within the action area.

Step 2: When conducted, a presence/absence survey must follow current DOW guidelines.

Step 3: If a state-listed endangered bat is captured or recorded during the survey:

- Recommendation of no summer tree cutting, or limited cutting following guidelines detailed below, within 5 miles of the capture site if a roost is not located.
- Recommendation of no summer tree cutting, or limited cutting following guidelines detailed below, within 2.5 miles of a roost tree if located.

If no state-listed endangered bat is captured or recorded during the survey:

- Summer tree cutting may proceed for 5 years before a new survey is needed under state guidance.

Limited summer tree cutting guidance for bats that are only state-listed endangered: Limited tree cutting in summer may be permitted after consultation with DOW, but clearing trees with the following characteristics should be avoided unless they pose a hazard: dead or live trees of any size with loose, shaggy bark; crevices, holes, or cavities; live trees of any species with DBH \geq 20.

FREQUENTLY ASKED QUESTIONS

When does the Bat Survey protocol have to be used?

This protocol should be used anytime Indiana bat, northern long-eared bat, little brown bat, or tricolored bat summer presence/probable absence surveys are conducted in the state of Ohio. For 2020 only, acoustic surveys will meet the ODNR-DOW requirements unless new guidance allowing for the handling of bats during presence/absence surveys is released from USFWS.

How many net surveys are required for presence/probably absence?

As described in the current USFWS Range-wide Indiana Bat Guidelines: Linear projects: a minimum of 2 detector nights per km (0.6 miles) of suitable summer habitat

Non-linear projects: a minimum of 8 detector nights per 123 acres (0.5 km²) of suitable summer habitat. At least 2 detector locations per 123 acre "site" shall be sampled until at least 8 detector nights has been completed over the course of at least 2 calendar nights (may be consecutive). For example:

- 4 detectors for 2 nights each (can sample the same location or move within the site)
- 2 detectors for 4 nights each (can sample the same location or move within the site)
- 1 detector for 8 nights (must sample at least 2 locations and move within the site)

How long are the results of the surveys valid for an assessment of an area?

Mist-net or acoustic surveys documenting probable absence of state-listed endangered bats are valid for five years.

When can acoustic surveys occur in Ohio?

In Ohio, acoustic surveys may only be conducted from June 1 through August 15 unless indicated otherwise in your state permit. Any surveys outside of the June 1 - August 15 timeframe cannot be used in Ohio to assess the presence/probable absence of state-listed bats.

Can a presence/probable absence survey be conducted within a known Indiana bat and/or northern long-eared bat capture/detection buffer?

Surveys generally cannot be used to document presence/probable absence of state-listed endangered bats where presence of the species has already been confirmed by prior surveys.

What if a project is proposing to clear trees between April 1 and September 30 when bats may be present but no bat records exist in the project area?

Any Ohio project that is not within a known bat record buffer, and tree clearing between April 1 and September 31 is being proposed, may have a presence/absence survey conducted between June 1 and August 15 following the range-wide guidance. If a presence/absence survey is not performed, presence of listed bats is assumed.

How does take of northern long-eared bats differ from Indiana bats?

Under Ohio law, there is no exemption for take of any listed bat species.