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June 22, 2004

Correspondence Control Unit
Attention: Information Quality Complaint Processing
United States Fish and Wildlife Service
1849 C Street, N.W.
Mail Stop 3238-MIB
Washington, D.C. 20240

Re: Request for Correction of Information Pursuant to the Data Quality Act of Unsupported Information Disseminated by United States Fish and Wildlife Service in Connection with Relicensing of the Osage HydroElectric Project, Number 459-128

To Correspondence Control Unit:

This firm represents Union Electric Company d/b/a AmerenUE in the relicensing of a hydroelectric project known as the Osage Project, Federal Energy Regulatory Commission ("FERC") License Number 459-128, located at the Lake of the Ozarks, Missouri and within Benton, Camden, Miller and Morgan Counties (the "Project"). This letter is a Request for Correction of Information pursuant to the Data Quality Act ("DQA") (a/k/a the Information Quality Act) and the Department of Interior's ("DOI") and United States Fish and Wildlife Service's ("FWS") Information Quality Guidelines, and requests that FWS either: (1) provide data supporting the quality, objectivity, utility and integrity of certain information disseminated by FWS in connection with the relicensing of the Project by FERC; or (2) correct and retract the unsupported information.

Specifically, it has recently come to the attention of AmerenUE that FWS's failure to perform due diligence and ensure that its information be based on certain fundamental research may have resulted in FWS making misrepresentations to FERC. Ultimately, AmerenUE believes that FWS has failed to adequately support its statements with necessary studies and has presented certain policy positions that are unsupported by existing evidence. Disseminating such unsupported information violates the DQA and harms AmerenUE by suggesting that FERC consider imposing onerous licensing provisions for the Project which are not warranted by the true facts and circumstances at the Project.

Correspondence Control Unit
June 22, 2004
Page 2

I. Background

AmerenUE is seeking to relicense its Osage Hydroelectric Project. In 2000, AmerenUE requested and received approval from FERC to employ alternative licensing procedures (“ALP”) in the relicensing of the Project. Accordingly, AmerenUE instituted a stakeholder process to address the concerns of parties affected by the Osage Project, which has resulted in ongoing monthly meetings.

On February 24, 2004, AmerenUE filed its application for a renewed license to operate the Project. Thereafter, on March 4, 2004, FERC issued a Notice of Application and Applicant Prepared Environmental Assessment Tendered for Filing with the Commission, Establishing Procedural Schedule for Relicensing and Deadline for Submission of Final Amendments (“Notice”). In its Notice, the Commission set the deadline of April 26, 2004, for stakeholders to submit comments. Comments were properly submitted by many stakeholders, including a letter dated April 23, 2004 submitted by the Missouri Department of Conservation (“MDC”) and a letter dated April 22, 2004 submitted by FWS. *See* letter from Charles M. Scott, Field Supervisor, FWS, to Secretary, FERC, dated April 22, 2004, attached as Exhibit A. Interestingly, both the MDC and the FWS letters included similar parallel requests for additional studies and comments on fish protection.

II. The Data Quality Act

The DQA directs the Office of Management and Budget (“OMB”) to develop and issue government-wide standards to provide policy and procedural guidance to ensure the “quality, objectivity, utility, and integrity of information (including statistical information)” used and disseminated by federal agencies.¹ Moreover, each federal agency is required to issue tailored guidelines to ensure information integrity and quality and to establish administrative procedures to allow affected persons or organizations to challenge such information.²

On September 28, 2001, OMB published in the *Federal Register* guidelines for ensuring the quality, objectivity, utility, and integrity of information disseminated by federal agencies.³ OMB

¹ *See* Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554, § 515.

² “Affected persons or organizations” are defined as those who may use, be benefited by, or be harmed by the disseminated information.

³ Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies, 66 Fed Reg 49718 (Feb. 22, 2002), 67 Fed Reg

Correspondence Control Unit

June 22, 2004

Page 3

proposed that the guidelines apply to a wide range of government information and directed federal agencies to develop information resources management procedures for ensuring the quality of released information and to establish administrative mechanisms to allow affected persons the opportunity to challenge certain data inconsistent with OMB or agency guidelines.

Consistent with OMB and DOI guidelines, FWS published separate guidelines governing how the FWS would apply the DQA. FWS notes that the guidelines apply to "all information disseminated by the agency to the public, including information initiated or sponsored by the agency, and information from outside parties that is disseminated by the agency in a manner that reasonably suggests that the agency endorses or agrees with the information."⁴ To ensure the quality of the information, FWS states that information will undergo substantial oversight from senior management, peer review, product review and other controls. For information that is deemed to be influential, a higher standard must be met in the sense that there will be greater transparency and scrutiny of supporting data.⁵

III. FWS's Unsupported Statements

During the relicensing of the Project, the FWS has disseminated several pieces of information in violation of the DQA, thus harming AmerenUE in the relicensing of the Project.

First, FWS has stated that the proper environmental management goal for protection of spoonbill catfish, a/k/a paddlefish, at the Project must be one hundred percent survivability, either through fish passage or fish protection. *See* letter from Charles Scott, FWS, to Dave Wambold, AmerenUE, dated July 18, 2002, copied to FERC, attached as Exhibit B. FWS's goal has no scientific or technical basis, and no rational basis. Paddlefish do not reproduce naturally at the Project because their spawning grounds were flooded by an Army Corps of Engineers Project known as the Harry S. Truman Dam ("HST Dam"), which is upstream from AmerenUE's Project. In fact, paddlefish exist at the Project only as the result of a put, take and grow fishery supported by a hatchery financed by AmerenUE under its FERC License.

of fish of a certain size

8452 (February 22, 2002) (republished).

⁴ United States Fish & Wildlife Service Guidelines at 2 (emphasis added). Available at <http://irm.fws.gov/infoguidelines/FWS%20Information%20Quality%20Guidelines.pdf>. The FWS guidelines further state that information includes any communication or representation of knowledge, such as facts or data, in any medium or form.

⁵ "Influential" is defined by the FWS as scientific, financial or statistical information with a clear and substantial impact on important public policies or important private sector decisions.

Correspondence Control Unit
June 22, 2004
Page 4

Indeed, FWS's position is curious considering comments filed in 1983 with FERC. At that time, FWS's acknowledged the impact of the HST Dam and stated:

Although migratory fish species such as paddlefish and striped bass occur within Lake of the Ozarks and the Osage River below the dam, the FWS does not believe that fish passage facilities are currently needed for this project. Passage of paddlefish above Bagnell Dam would not be beneficial to the species since the known paddlefish spawning grounds have been inundated by the Harry S. Truman Dam reservoir. Artificial propagation of paddlefish as mitigation for HST Dam is currently being pursued. In addition, the applicant operates a hatchery primarily for striped bass, and this species is annually stocked in Lake of the Ozarks.

See letter from Bruce Blanchard, DOI to Secretary, FERC, dated December 16, 1983, attached as Exhibit C. FWS's position and statements as to the need for one hundred percent survivability of paddlefish at the Project violate the DQA.

Second, in its April 22 letter to FERC requesting additional studies, FWS states that AmerenUE's proposal to address paddlefish issues is "inadequate to meet the MDC's management plans for paddlefish."⁶ Again, FWS's statement violates the DQA.

First, FERC denied FWS's request to reopen the Osage Project license prior to the relicensing process because FWS presented no evidence of any adverse impact on fisheries due to Project operations. See FERC letter decision, dated June 27, 2003. In addition, the curious coincidence of FWS's and MDC's contemporaneous and parallel requests for additional information belies FWS' purported factual reliance on MDC's studies. In other words, FWS's statements violate the DQA because they purport to rely upon the MDC's evidence that its fish management goals are not being met. No such evidence exists. MDC has admitted that for the years 2002 and 2003 it did not conduct any surveys or studies to determine whether actual harvest levels of paddlefish met the MDC's annual fisheries goals, and that for those years the MDC prepared only Paddlefish Aerial Counts, a 2003 Paddlefish Plan Addendum and a fish kill report for purposes of litigation. In addition, the MDC has admitted that the only surveys of paddlefish harvests performed on an annual basis are aerial surveys, and thus it does not regularly conduct fish creel studies or other research to determine whether its fisheries goals are being met.

⁶ Exhibit A at p. 7.

Correspondence Control Unit
June 22, 2004
Page 5

IV. Conclusion

The DQA codifies an important governmental goal and public policy of ensuring the accuracy, quality and integrity of information disseminated by the federal government. FWS must adhere to DQA, and either correct or retract statements made in connection with the relicensing of the Project which have repeatedly violated the DQA. These statements harm AmerenUE by falsely suggesting to FERC that it must consider onerous licensing provisions which are, in fact, unnecessary.

Please feel free to contact me, as indicated above, should you have any questions regarding this Request for Correction of Information, or wish to discuss the matters addressed herein.

Sincerely,



Charles A. Zdebski

CAZ/mec

cc: Allen E. Creamer, Osage Project Manager, FERC
Magalie R. Salas, Secretary, FERC
Chris Iselin
Jerry Hogg
Susan Knowles, Esq.
John Molm, Esq.

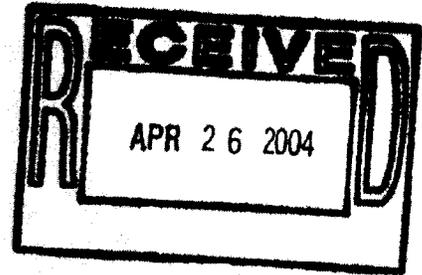


United States Department of the Interior



FISH AND WILDLIFE SERVICE
Columbia Ecological Services Field Office
101 Park DeVille Drive, Suite A
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April 22, 2004



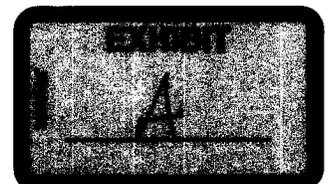
Ms. Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Dear Ms. Salas:

RE: Osage Project FERC No. 459-128, Benton, Camden, Miller, and Morgan Counties, Missouri.

In response to the March 4, 2004, Federal Energy Regulatory Commission (FERC) Notice of tendering of the Application for license renewal of the Osage Project, FERC No. 459-128 in central Missouri, the U.S. Fish and Wildlife Service (Service) herewith submits an original and eight copies of its additional studies/information requests. This information is requested by the Service under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4327), Endangered Species Act of 1973 (ESA), (16 U.S.C. 1531-1543), and Section 10(j) and 18 of the Federal Power Act, 16 USCS §811.

The Service and the Missouri Department of Conservation (MDC) have been working with AmerenUE (Licensee) since the beginning of the Alternative Licensing Procedure (ALP) for the Osage Project. Throughout this process we have identified, for AmerenUE, studies and other information needed to assess project impacts on fish and wildlife resources and make informed assessments of project alternatives. While AmerenUE has completed a number of studies as a result of this process, there are several imperative data needs that have been previously requested by one or more agencies, but have not been provided. These data needs are related to fish mortality, erosion potential, dissolved oxygen (D.O.), gas supersaturation, and freshwater mussels. Consequently, the Service does not yet have the reliable information needed to meet our mandate to conserve fish and wildlife resources affected by the project including federally endangered species and fishway prescription. We understand that it is the responsibility of the Licensee to provide this information.



The Service has been working with AmerenUE, as FERC's designated non-federal representative, to identify and assess impacts of the project specifically to federally endangered species. AmerenUE prepared a draft Biological Assessment (BA) and determined that the project may adversely impact the federally endangered scaleshell (*Leptodea leptodon*) and pink mucket (*Lampsilis abrupta*). If federally listed species may be adversely affected, FERC should consult with the Service in accordance with the procedures set forth in 50 CFR 402. The results from the requested studies outlined in this letter will assist FERC in fulfilling its responsibilities to produce an acceptable BA pursuant to Section 7 of the ESA. They will also aid the Service in formation of a biological opinion on project-related impacts to endangered species. At this time, this consultation will be difficult without the outstanding data that are needed related to erosion potential, D.O. enhancement, and studies specific to freshwater mussels as outlined below.

Because the project impacts fish and wildlife and their habitat, including federally endangered species, the Secretary of the Interior's authorities under the sections 10(j) and 18 of the Federal Power Act may apply to this proceeding. To support the Secretary's exercise of these authorities, the study and additional information requests contained herein are designed to produce information and data which will assist the Service to make an informed decision on the Application and to determine the need for, and types of protection, mitigation, and enhancement measures and fishway prescriptions.

The following is a description of additional data that is needed by FERC and the Service to make informed decisions regarding project impacts to fish and wildlife resources. All these data needs have been previously requested to the Licensee during the ALP process by either the Service or MDC. The Service is willing to assist FERC and AmerenUE with developing these studies. In some cases, we may be willing to assist in conducting these studies.

1. Conduct a reliable analysis of alternative measures to reduce bank erosion: A) Assess the overall stability of riverbanks throughout the lower Osage River; B) Evaluate shear stress caused by unsteady flow; and C) Analyze effectiveness of up ramping and down ramping and year around "load following" with reduced "peaking" in reducing erosion.

Example reference where study was previously requested: June 26, 2003, letter from MDC to AmerenUE, Jerry Hogg.

Erosion of riverbanks on, and islands in, the Osage River has been a serious concern of numerous stakeholders for many years. The erosion pattern exhibited from the dam to the mouth of the river clearly indicates a cause and effect relationship between dam operations and erosion. The recent studies on erosion (*Review and Evaluation of Historical Erosion Potential on the Osage River Downstream from Bagnell Dam* by Simons and Associates and *Erosion Potential of the Osage River Downstream from Bagnell Dam* by University of Missouri - Rolla) have verified this relationship. While both studies have their respective strong points, they are too narrowly focused to provide information needed to make decisions regarding project alternatives to reduce erosion.

Further studies are needed, as outlined below, to provide an analysis that will include important erosion factors and river characteristics. This information is critical for relicensing and evaluation of the potential impacts of further turbine upgrades on fish and wildlife resources including endangered species.

The concept of riverbank classification according to Simons and Associates (2003) was used to assess the overall stability of riverbanks throughout the lower Osage River. This classification system was used to categorize bank material, bank geometry, vegetation, and erosion/stability characteristics. However, the use of only a few riverbank characteristics to assess the overall stability of the river is deficient by not including the following key areas: channel type, channel pattern, bed load to total load ratio, sediment load, flow velocity, and stream power. The stability of riverbanks is influenced by important morphological characteristics of the river they border (Shen *et al.* 1981). Hence, the analysis by Simons and Associates is severely limited by not considering characteristics that likely play a crucial role in determining the overall resistance of the lower Osage River's banks to erosion. To adequately assess the overall stability of riverbanks throughout the lower Osage River, an analysis combining the riverbank classification system used by Simons and Associates, information satisfying the deficiencies listed above, reach classifications, and aerial photographs of the lower Osage River is needed.

The Erosion Potential Model (EPM) developed by the University of Rolla in 2003 for AmerenUE used by the Licensee to assess potential erosion was based only on steady flow conditions. Steady flow has a constant depth during the time interval under consideration. To be applicable to the Osage Project, the EPM should include an evaluation of shear stress caused by unsteady flow because the lower Osage River is a system dominated by unsteady flow. An analysis of the effectiveness of up ramping and down ramping and year around "load following" with reduced "peaking" in reducing erosion for all project discharges should be included in the analysis.

2. Investigate methods to increase D.O. levels in side channels on the downside of power generation runs.

Example reference where study was previously requested: May 16, 2002, joint e-mail from USFWS/MDC to Mike Bollinger regarding Draft Consensus Agreement Regarding Year Two Water Chemistry Monitoring.

The potential impact of low D.O. to aquatic fauna in backwaters that are inundated by low-oxygen water during generational high flows was not measured or evaluated during water quality studies in 2001 and 2002. When water recedes, the water remaining in those backwaters and side channels (e.g. adjacent to islands and training structures) do not receive flow of oxygenated water. The fauna in those backwaters are likely subjected to extended periods of low oxygen following cessation of generational flows. This investigation should evaluate the effectiveness of re-aeration run on the downside of a power generation run in providing oxygenated water to backwaters. The information gained from this investigation is vital to determining appropriate methods to enhance this important habitat and reduce impacts to federally endangered species.

3. Investigate the potential for gas supersaturation to occur by operating new turbines for all operational flows.

Example reference where study was previously requested: Comments from the MDC Regarding Preliminary Draft Environmental Assessment for Hydropower Relicensing. Osage Hydroelectric Project FERC Project No. 459. October 6, 2003

Fish kills have been documented in the lower Osage River due to gas supersaturation. Lutz (1995) documented the occurrence of sublethal and lethal gas bubble trauma in fish downstream from Red Rock Dam, Iowa. In this case, periodic gas supersaturation-induced fish kills were linked to continued high dissolved gas pressures when the discharge from the reservoir was substantially decreased. Lower discharge rates decreased river depth and lowered compensating hydrostatic pressure. Sub-lethal gas bubble trauma is difficult to document. Chronic gas supersaturation may induce emphysema and tympanites, which interfere with physiological function and behavior. Emphysema in the lateral line of fish can lessen sensitivity and hamper food detection, and over-inflation of hollow organs can cause abnormal buoyancy and loss of orientation. Behavioral effects may indirectly increase mortality through predation. Overall, gas bubble trauma may restrict the impacted area to the most resistant species, thus reducing species diversity near the dam.

Total Dissolved Gas (TDG) was monitored for the upgraded turbine (MG3) during the Supplemental Turbine Testing, and TDG levels (110%) were exceeded on only 4 of the 24 test runs. However, a fish kill occurred February 20-22, 2003 due to nitrogen supersaturation, a result of excessive TDG, during flow testing with additional aeration unrelated to the Supplemental Turbine Testing performed for this project. The final report for turbine testing did not become available until December 2003, and therefore, the opportunity to request additional studies was limited. More testing is needed to determine from where the excessive amounts of TDG are coming from. The Licensee should consider procedures to address gas supersaturation during project operations and adopt appropriate measures to minimize its occurrence.

4. Determine temperature and flow requirements for successful mussel reproduction in the Osage River.

Example reference where study was previously requested: Osage Project Study, Reassessment of the Freshwater Mussel Fauna of the Lower Osage River Basin, document prepared and presented by MDC/Service for Mussel subcommittee meeting. August 31, 2000.

The downstream effects of dams on freshwater mussels are complex and are not well understood. Dams control water quality and hydrograph downstream and there is evidence to suggest that hydrograph may be a major influence on the recruitment success of mussels. An ongoing 20+ year study of demography and recruitment of mussels in the Lower Ohio River has shown a strong correlation between recruitment and hydrograph pattern at particular times of the year (Payne and Miller 2000). These results suggest that

altering releases from dams at certain times of the year could enhance mussel recruitment. Knowing the requirements for successful mussel recruitment is vital to understand how potential project enhancements may affect mussels and to develop measures to reduce the impacts of generation flows to the pink mucket, scaleshell, and other mussel species.

This study would require the expertise of a qualified Malacologist with laboratory capabilities. The study should investigate the effects of the project on reproduction of the pink mucket, scaleshell, and/or surrogates and other mussel species representing bradytic (long-term brooders) and tachytic (short-term brooders) species (see document referenced above for more details). The study needs to include: age analysis of shells to identify successful recruitment years and correlate with historical hydrograph, a histological approach to identify spawning cues for mussels, documentation of in-stream behavior of mussels during varying (incremental) flow conditions, analysis of fish host movement during reproductive time periods, and field verification of lab-identified and/or suspected host fish species.

5. Determine the tolerance of the pink mucket, scaleshell, and other representative mussel species (including all life stages) to low dissolved oxygen.

Example reference where study was previously requested: Osage Project Study, Reassessment of the Freshwater Mussel Fauna of the Lower Osage River Basin, document prepared and presented by MDC/Service for Mussel subcommittee meeting. August 31, 2000.

Low D.O. likely exerts both direct and indirect negative effects on freshwater mussels. Little is known of the tolerance of mussels to acute and chronic exposures to low dissolved oxygen. The current water quality standard for Missouri (10 CSR 20-7.031) is 5 mg/l for protection of aquatic life in a warm-water fishery such as the Osage River. However, it is unknown whether this standard is protective of freshwater mussels particularly pink mucket and scaleshell. More information is also needed to assess the effects of low D.O. on brooding females and developing embryos, because most species, including the federally endangered pink mucket and scaleshell, spawn during the summer and fall when D.O. in the Osage River is critically low.

This study would require the expertise of a qualified Malacologist and could be conducted in the field by documenting mussel behavior and/or in laboratory assessments. Laboratory investigations would evaluate the effects of acute and chronic exposures of low D.O. on brooding females, developing glochidia, glochidia, and juvenile pink mucket, scaleshell, and/or surrogate species and other mussels of conservation concern representing bradytic and tachytic species.

6. Investigate major habitat characteristics of mussel beds in lower Osage River

Example reference where study was previously requested: Osage Project Study, Reassessment of the Freshwater Mussel Fauna of the Lower Osage River Basin, document prepared and presented by MDC/Service for Mussel subcommittee meeting. August 31, 2000.

Freshwater mussels naturally have a patchy distribution in rivers, but the factors controlling their distribution are not well understood. Little is known about the natural habitat requirements of freshwater mussels, particularly what physical parameters create suitable conditions for mussel recruitment and accumulation (mussel beds). The lower Osage River is a unique case because the effects of Bagnell dam, particularly flows, have greatly influenced mussel distribution in the river.

This study should investigate major habitat characteristics of mussel beds in the Osage River to identify important habitat parameters that support diverse concentrations of mussels and mussel recruitment. In particular, this study should evaluate channel flow dynamics at various operational flows, substrate stability, and shear stress near mussel beds. Heterogeneous habitat, including areas that are sufficiently sheltered from flow to allow deposition of juveniles and the sediment they require as substrate, might allow recruitment on a smaller scale despite high flows. This study should also investigate the possible effects of artificial structures to create such habitat. This study is needed to understand how flows influence the distribution of suitable mussel habitat in the river and what enhancements might create suitable habitat for pink mucket, scaleshell, and other mussel species.

7. Data needs for Section 18 Fishway Prescription: A) Develop design requirements for construction of fish barriers; B) Identify the number and species of fish entrained and entrapped to ensure fishways consider all appropriate species; and C) Scope the design and implement studies to evaluate passage technologies that may be applicable at the Osage Project

The Service has an interest in ensuring that the Osage Project is operated in a manner that avoids or significantly reduces the likelihood of fish mortality and allows for fish passage from the reservoir to the lower Osage River (downstream passage). Throughout the ALP the need for fish protection has been identified as a necessary component for relicensing at the Osage Project.

Massive fish kills, such as the 2002 spring event, have occurred in the past and are likely to continue until proper safeguards are in place at the project. There is ample evidence that protective measures at the project are greatly needed for fish and are recognized as necessary by FERC, natural resource agencies, and AmerenUE. Immediately following the spring 2002 kill, the Service identified (in a July 18, 2002, letter to AmerenUE) five areas associated with the Osage Project that required action to protect against fish loss and injury. Additionally, the Service identified fish protection goals using 10 inch paddlefish as surrogates for all fish impacted by the Osage Project. The Service's position was supported by the MDC in a July 19, 2002, letter to AmerenUE. On April 8, 2003, the Department of Interior filed for a reopener of the existing license to address fish protection issues. The FERC denied the petition to reopen the license (June 27, 2003) and stated in part "The licensee is taking steps to reduce the fisheries impacts and the resource agencies and licensee are studying further protection enhancements as part of relicense." In a September 12, 2003, FERC letter responding to the MDC (in response to

an MDC August 6, 2003, letter), the FERC stated, in part "the licensee is consulting with the FWS, MDC and other agencies regarding fish protection during the license process" and "...the resource agencies and licensees are studying further protection enhancements as part of current project licensing." In an October 15, 2003 letter, the FERC assured the MDC that "...fish protection will be addressed in the relicensing of the Osage Project in a timely manner" and that "input by the resource agencies regarding fish protection will be carefully reviewed and considered before any new license is issued for the Osage Project." Only a few fish impingement/entrainment subcommittee meetings were held until AmerenUE suspended these meetings. During the August 14, 2002, impingement/entrainment meeting, AmerenUE staff noted that the type of flooding during the spring of 2002 that resulted in the fish kill occurred on average approximately every three years. Also, the Licensee noted that this type of event is not a unique and unusual event, and that a long term fix is needed. This information clearly documents that this important need was identified during the ALP.

AmerenUE commissioned a study entitled "Evaluation of Alternative Fish Protection Technologies for Osage Hydroelectric Project" (Alden Research Laboratory, Inc April 2003). The study screened various approaches for protection and provided guidance for an additional study which was conducted for AmerenUE by Alden Research Laboratory. This additional study, "Evaluation of Paddlefish Responses to Physical and Behavioral Fish Protection Technologies", was completed in December 2003. These two studies refined the protection measures that may be applicable for the Osage Project and the flows necessary for implementation of those measures. Based on analysis completed to date, the Service concludes that there is a technically feasible means to provide fish protection at the Osage Project. Interagency Guidance for the Prescription of Fishways Pursuant to Section 18 of the Federal Power Act, (May 2002) identifies that "the Services may prescribe facilities that include structures, devices and measures as necessary to isolate, capture and transport fish to a desired location" and "the physical structures, facilities, devices and related project operations and measures that are necessary for fish passage." To move fish away from areas of impact on the Lake of the Ozarks for collection and passage, barrier measures as identified in the Alden April 2003 report and confirmed as applicable to paddlefish in the Alden December 2003 report may be applicable. We recommend that FERC require the Licensee to develop design requirements for construction of fish barriers.

The MDC, in their Missouri Paddlefish Plan Addendum (September 2003) identifies impingement and entrainment as threats to paddlefish at the Osage Project. Strategy D of the Paddlefish Plan (Determine and minimize impacts to paddlefish and other fish) identified in Task 1 the need to "Provide safe downstream fish passage for paddlefish and other fish." In the February 2004 Application for License for Major Project - Existing Dam, AmerenUE proposes to increase stocking of paddlefish and to spread flood releases across 11 of the spill gates to minimize potential impacts to fish downstream. The application is inadequate to meet the MDCs management plans for paddlefish and additional data are needed to adequately protect and pass fish at the Osage Project. Studies are needed to identify the number and species of fish entrained and entrapped and ensure fishways consider all appropriate species.

In accordance with our Interagency Guidance (May 2002), the Service will work with AmerenUE and the MDC to scope the design and implement studies to evaluate passage technologies that may be applicable at the Osage Project. These passage features should be applicable to all fish species. As a surrogate for all fish species, AmerenUE should consider fish passage structures that would safely pass downstream paddlefish in a range of 10 to 60 inches in length. Information on fish number and species, designs for protection from impingement and entrainment, and fish passage features applicable to the Osage Project will be used by the Service for a Section 18 fishway prescription.

The Service's goals are compatible with the Federal Power Act Section 4 (e) which provides that: "...in addition to the power and development purposes for which licenses are issued, shall give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality." The Service is requesting the completion of the studies outlined in this letter so that the Secretary of the Interior's authorities under Sections 10(j) and 18 of the Federal Power Act may apply to this proceeding. Additionally, the requested studies and information sought will assist FERC in fulfilling its responsibilities pursuant to Section 7 of the Endangered Species Act. Studies to date, did not provide sufficient data and so additional studies must be conducted. We have described the study needs and established that the needs had been previously identified to AmerenUE. These study needs are not unique so methods are generally available and accepted by the scientific community. Additionally, these studies could be completed during a reasonable time period.

We appreciate your consideration of the critical studies outlined in this letter. Should you have questions, or if we can be of any further assistance, please contact Andy Roberts at (573) 876-1911, extension 110.

Sincerely,

Rick L. Hanson

for Charles M. Scott
Field Supervisor

cc: FWS; R3 (Attn: Laura Ragan)
NPS; (Attn: Randy Thoreson)
MDC; Sedalia, MO (Attn: Bill Turner)
✓AmerenUE; Eldon, MO (Attn: Jerry Hogg)
AmerenUE; St. Louis, MO (Attn: Susan Knowles)

References

- Lutz, D.S. 1995. Gas supersaturation and gas bubble trauma in fish downstream from a midwestern reservoir. *Transactions of the American Fisheries Society* 124:423-436.
- Payne B. S. and A. C. Miller. 2000. Recruitment of *Fusconaia ebena* (Bivalvia: Unionida) in relation to discharge of the Lower Ohio River. *American Midland Naturalist* 144:328-341.
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United States Department of the Interior



FISH AND WILDLIFE SERVICE
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July 18, 2002

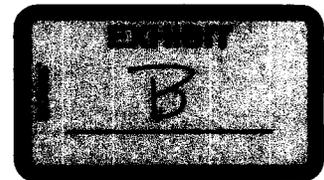
Dave Wambold
AmerenUE
One Ameren Plaza
P.O. Box 66149
Saint Louis, MO 63166-6149

Dear Mr. Wambold:

AmerenUE has requested input from resource agencies for potential short and long term solutions for the recent fish kill at the AmerenUE Osage Plant, Eldon, Missouri. The U.S. Fish and Wildlife Service (Service) supports AmerenUE efforts in solving this important resource concern. Service staff have identified a total of five areas located in the lake and river that require action to protect against fish loss and injury. The Service believes all fish species should be protected. However, the paddelfish protection goals identified below may serve as an adequate surrogate for other species.

| Location | Area |
|----------|------------------------------|
| Lake | Impingement on trash rack |
| Lake | Entrainment through turbines |
| Lake | Spillgate releases |
| River | Spill turbulence |
| River | Entrainment in draft tubes |

For all three areas on the lake, the goal should be 100 percent survival of all paddelfish with a total length of 10 inches and longer. For areas on the river, the goal should be 100 percent survival of paddelfish of reproductive age. The use of Best Available Technologies in each of these areas and reviewing (a minimum of every two years) the success of the program and needed upgrades is critical to achieve fish protection.



The Service is ready to assist Ameren UE with this issue to include reviewing any draft strategies or plans developed for protection of paddlefish. Please contact Jim Dwyer of my staff (573-876-1911 ext 108) if you have any questions or would like to have further discussions regarding these resource goals. We look forward to continuing efforts with AmerenUE regarding the Osage Plant.

Sincerely,



Charles M. Scott
Field Supervisor

- c: Missouri Department of Conservation (Attn: Bill Turner)
- Missouri Department of Natural Resources (Attn: Tom Lange)
- AmerenUE (Attn: Jerry Hogg)
- Federal Energy Regulatory Commission (Attn: Allan Creamer)



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

ER-83/1287

DEC 16 1983

Honorable Kenneth F. Plumb, Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, D.C. 20426

Dear Mr. Plumb:

We have reviewed the Application for Approval of Revised Exhibit S for the Osage Project, FERC No. 459-015, Benton, Camden and Miller Counties, Missouri. In conducting our review, we have noted some serious omissions and deficiencies which should be corrected before the application is approved.

General Comments

The situation at Bagnell Dam is unique in that the fish and wildlife resources of Lake of the Ozarks and the Osage River will be influenced by the operation of two dams for power generation rather than one. As described in the revised Exhibit S, the operation of the Harry S. Truman Dam (HST) for power generation will impact the fish and wildlife resources of the project area, and likely influence Union Electric Company's (UE) operation of Bagnell Dam. One cannot discuss the operation of Bagnell Dam and the effects on fish and wildlife resources without addressing the influences of the HST Dam. Unfortunately, the revised Exhibit S separates the impacts resulting from UE's operation of Bagnell Dam and those resulting from the operation of the Truman Dam.

The revised Exhibit S concludes that continued operation of Bagnell Dam (excluding HST operation) will have no detrimental effects on the fish and wildlife resources in the project area. This conclusion, however, is based substantially on the track record of the historical operation of Bagnell dam which has not resulted in a continued significant adverse impact on fish and wildlife resources. An underlying assumption in this conclusion is that future operations of Bagnell Dam will be similar to past operations. The Fish and Wildlife Service (FWS) is not convinced that this will be the case. Although past operations at Bagnell Dam have demonstrated Union Electric's good faith towards protecting fish and wildlife resources, the FWS remains concerned that the coordinated operation of the Truman Dam and the Bagnell Dam may drastically alter the future operation of the Bagnell Dam from previous operations, and thus alter the degree of impacts on fish and wildlife resources.

The revised Exhibit S provides no guarantees (in the form of restrictions on the operation of Bagnell Dam) that the future operations of Bagnell Dam will not change drastically, possibly to the detriment of fish and wildlife resources, due to influences of the HST Dam operation.

To ensure the continued operation of Bagnell Dam in a manner similar to past operations and, in turn, ensure the future integrity of the fish and wildlife resources, we request that the FERC consider as features of the license the inclusion of measures regulating the operation of Bagnell Dam that would protect the fish and wildlife resources of the

project area. Such measures include: requirement of minimum flow releases to the stream below the Dam to protect downstream resources and establishment of a lake level management scheme which reasonably optimizes benefits to the fish and wildlife resources without unduly restricting the applicant's ability to generate power. These areas of concern have not been addressed in the revised Exhibit S.

Minimum Flow Releases

Adequate streamflow is essential in maintaining suitable habitat for fishery resources and other aquatic life upon which fish depend. As described in the revised Exhibit S, the Bagnell Dam tailwater supports a substantial and valuable fishery resource. Species, such as white crappie (Pomoxis annularis), white bass (Morone chrysops), channel catfish (Ictalurus punctatus), carp (Cyprinus carpio), paddlefish (Polyodon spathula), and a variety of other fish species, are abundant and popular game fish within the Osage River below Bagnell Dam. The harvest data compiled by the Missouri Department of Conservation indicate that past flow releases from Bagnell Dam have been adequate to support the downstream fishery resource. Also known to occur within the Osage River downstream of Bagnell Dam is the Federally listed endangered pink mucket pearly mussel (Lampsilis orbiculata).

According to Exhibit H of the application for new license filed in 1976, 324 cfs "has been considered the minimum daily average flow to be released." The 324 cfs was derived from the minimum recorded flow of the Osage River at the Bagnell Dam gaging station at the time Project 459-Missouri was placed in operation. However, according to Mr. Donald Holloway, Manager, Osage Plant, the operation guideline for minimum flow release from Bagnell Dam is 450 cfs. Based on this information and historical flows recorded at the Bagnell Dam gaging station, we believe that a required minimum daily flow release of 450 cfs would be adequate to maintain a viable fishery resource downstream of Bagnell Dam and would not be an unreasonable restriction on the applicant.

In addition to minimum flows, flow fluctuation is an important factor affecting the down-stream resources. Sudden significant changes in flows may result in the direct destruction of or damage to fish, benthos and streambanks. To minimize potential impacts resulting from flow fluctuations, changes in the volume of releases should be made gradually.

Lake Level Management Scheme

Due to the topographic features at Lake of the Ozarks, the Lake's configuration is one of hundreds of coves. A large percentage of these coves can be classified as wetlands. Additionally, extensive wetlands exist on the Lake's main arm in large shallow water sites. These wetlands provide habitat for wildlife species, such as migratory waterfowl, herons, egrets, mink, shorebirds and muskrats, as well as provide spawning and nursery sites for many aquatic species. The value of these extensive wetlands to fish and wildlife could be optimized with appropriate seasonal lake level management.

The following generalized annual water level manipulation scheme would be beneficial to the fish and wildlife resources of the project area, and should be followed whenever in-flow and operation criteria provide for such implementation.

| | |
|--------------------|--|
| Jan. 1 - March 1 | Lake levels should be lowered and held low (this would provide spring runoff and flood capacity; allow weather to clean rocky shorelines of algae, silt). |
| March 2 - June 1 | Gradually increase lake levels to elevation 658.5 (the flatter slopes above elevation 655 are more conducive to spawning activities for many of the game species within Lake of the Ozarks). |
| June 2 - July 1 | Lake levels should be held high (maintenance of fish nursery habitat). |
| July 2 - July 15 | Decrease lake levels (expose shorelines for revegetation; desiccate rough fish spawn). |
| July 16 - Sept. 30 | Hold lake levels low (exposure of forage fish to predation; allow vegetation to mature). |
| Oct. 1 - Nov. 15 | Increase lake levels gradually to partially inundate vegetation (increased waterfowl food and cover). |
| Nov. 16 - Dec. 15 | Hold lake levels at intermediate levels (maintain maximum waterfowl use). |
| Dec. 16 - Dec. 31 | Gradually decrease lake levels (prepare for next season; reduce ice and wave damage to vegetation). |

Although we would prefer to see UE manage the lake levels on a yearly scheme as outlined above, we are particularly concerned with the lake level management during the spring and summer months. As mentioned earlier, the flatter slopes above elevation 655 are more conducive to spawning activities for many game species within Lake of the Ozarks. Thus, we believe that the critical difference between this management scheme and the reservoir guide curves in Exhibit H is the earlier and higher increase in lake levels during the peak fish spawning season.

The impacts of this pool operation schedule on downstream flows has not been determined. These impacts should be determined and, if necessary, appropriate changes be made to the lake level management scheme to ensure releases greater than or equal to the minimum required low flows.

In addition to seasonal management of lake levels, pool fluctuation rates are an important consideration. Rapid fluctuations of the lake levels would adversely impact the fish and wildlife resources by causing the dewatering of benthic fauna, fish spawning areas and riparian vegetation. Increased shoreline erosion and sedimentation may also result due to rapid fluctuations. Therefore, to minimize adverse impacts to the fish and wildlife resources, lake level fluctuations should be made gradually.

Honorable Kenneth F. Plumb, Secretary

4

Memorandum of Agreement Between Union Electric and the Corps of Engineers

It is recognized that UE's ability to perform these measures will depend, in part, upon the Corps of Engineers' (COE) operation of Truman Dam. Thus, it is essential that a truly balanced Memorandum of Agreement (MOA) between UE and the COE be developed. Article 40 of the License provides that "the Licensee shall file with the Commission.....an agreement with the Corps of Engineers providing for coordinated operation of the Harry S. Truman and Osage projects to assure optimum utilization of the Lake of the Ozarks and Osage River for beneficial public purposes, including but not limited to, flood control, power and recreation." We believe that maintenance of fish and wildlife is a "beneficial public purpose" that should be considered in the development of the MOA. The importance of a balanced MOA for protection, preservation and enhancement of the fish and wildlife resources of the project area cannot be overemphasized. Power releases from the HST Dam pose significant threats to the extensive network of mainstem wetlands which occur at the upper reaches of Lake of the Ozarks. Rapid lake level fluctuations resulting from power releases from HST may result in the destruction of these very productive wetlands.

To assure that fish and wildlife resources are given adequate consideration in the development of the MOA between UE and the COE, we recommend that FERC require a review and concurrence of the MOA by appropriate State and Federal resource agencies prior to approval of the agreement. The Missouri Department of Conservation already has been cooperating with UE in this regard, and we encourage the continued coordination between these two groups. We believe that this effort is necessary to ensure the integrity of the fish and wildlife resources at Lake of the Ozarks.

Other Fish and Wildlife Resource Concerns

The following is a discussion of various resource concerns at Lake of the Ozarks which were not fully addressed within the revised Exhibit S.

Fish Passage Facilities

The terms of the present operating license do not require fish passages or other protective facilities. Although migratory fish species such as paddlefish and striped bass occur within Lake of the Ozarks and the Osage River below Bagnell Dam, the FWS does not believe that fish passage facilities are currently needed for this project. Passage of paddlefish above Bagnell Dam would not be beneficial to the species since the known paddlefish spawning grounds have been inundated by the Harry S. Truman Dam reservoir. Artificial propagation of paddlefish as mitigation for HST Dam is currently being pursued. In addition, the applicant operates a hatchery primarily for striped bass, and this species is annually stocked in the Lake of the Ozarks.

Dissolved Oxygen Levels

As discussed in Exhibit W of the application, due to the location of the intake structures, waters are occasionally released from below the thermocline, resulting in low dissolved oxygen concentrations in the tailrace of the project area. These periodic low dissolved oxygen concentrations in the discharge have not resulted in a demonstrable problem on the downstream fishery resources. Therefore, increased restrictions on minimum

dissolved oxygen levels of the releases are not warranted at this time. However, to enhance the quality of the downstream habitat, we encourage UE to investigate the relatively inexpensive method of adapting the turbines with an oxygenating enhancer.

Shoreline Development

Lake of the Ozarks has a shoreline of approximately 1,375 miles of which approximately 90% is privately owned. The shallow water shorelines and wetlands of Lake of the Ozarks have been under increasing pressure from development of lakeside property owners. Frequently, this development involves fill and/or excavation of material below the ordinary high water elevation in high to moderate quality fish spawning and nursery grounds. Cumulatively, this piecemeal shoreline development by lakeside property owners could result in a significant and possibly devastating loss of spawning and nursery grounds, as well as a significant reduction in water storage capacity of the reservoir. Although these activities are regulated by the Kansas City District, Army Corps of Engineers, through the Section 10 and Section 404 permitting processes, the majority of the activities are performed without prior authorization and mitigation for the resource losses is difficult to achieve after the activity has occurred. This issue of adequate shoreline management was expressed in the revised Exhibit S which stated that Union Electric, in cooperation with the U.S. Army Corps of Engineers, inspects and/or reviews all applications for shoreline development. In an effort to reduce these avoidable losses of valuable spawning and nursery sites, we encourage Union Electric to adopt a strong policy regarding unauthorized development by lakeside property owners.

Endangered Species Comments

To facilitate compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, Federal agencies are required to obtain from the Fish and Wildlife Service information concerning any species, listed or proposed to be listed, which may be present in the area of a proposed action. Therefore, we are furnishing you the following list of species which may be present in the concerned area:

Endangered

Bald eagle

Indiana bat

Gray bat

Pink mucket pearly mussel

(*Haliaeetus leucocephalus*)

(*Myotis sodalis*)

(*Myotis grisescens*)

(*Lampsilis orbiculata*)

Lake of the Ozarks, the Osage River and the surrounding resources provide valuable habitat for the above-listed endangered species. The Lake's fishery resource provides a suitable food source for wintering bald eagles and gray bats are known to forage for insects over the Lake. Riparian habitat along the Lake and Osage River provides suitable foraging and perhaps maternity habitat for the Indiana bat. Continued operation of Bagnell Dam as outlined in the application for new license, or as proposed within this letter, will not affect the value and/or utility of this habitat for the bald eagle, gray bat or Indiana bat.

Honorable Kenneth F. Plumb, Secretary

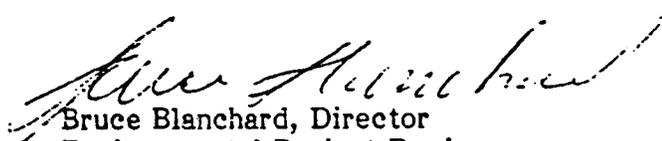
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Pink mucket pearly mussels are known to occur within the lower Osage River between river miles 5.9 and 79.5 (Grace and Buchanan 1981). According to Grace and Buchanan, a scarcity of naiades in the main river channel occurs between river mile 81.7 (Bagnell Dam) and 66.0 (Tuscumbia, Missouri). As Grace and Buchanan suggest, the apparent poor quality naiad habitat provided by this section of the river may be attributed to the cold-water releases and high volume discharges from Bagnell dam. Although past and ongoing operations at Bagnell dam may be responsible for the reduced suitability of this section of the Osage River for pink mucket pearly mussel, continued operation of Bagnell Dam (unless operations are drastically changed) is unlikely to further alter the habitat suitability of the lower Osage River for L. orbiculata. This precludes the need for further action on this project as required under Section 7 of the Endangered Species Act of 1973, as amended. Should this project be modified or new information indicates endangered species may be affected, consultation should be reinitiated.

For further information regarding the fish and wildlife concerns presented above, please contact the Field Supervisor, Columbia Field Office, U.S. Fish and Wildlife Service, 105 East Ash, Columbia, Missouri 65201 (314-875-5374).

We appreciate the opportunity to comment on this revised Exhibit S.

Sincerely,


Bruce Blanchard, Director
Environmental Project Review

cc: Mr. Fred Springer
Mr. James J. Cook