

March 4, 2015

Memorandum for Record

Subject: *Mounds Lake Reservoir Phase II Study* Preliminary Peer Review

1. We the undersigned have completed separate elements of a Peer Review, examining primarily the Phase II Study elements of the proposed Mounds Lake Reservoir. This peer review was undertaken as part of the public mission of a state research university, and has been performed under the definition of peer review as established by the National Research Council of the National Academies of Science as detailed below:

A peer review is a documented, critical review performed by peers [defined in the USNRC report as "a person having technical expertise in the subject matter to be reviewed (or a subset of the subject matter to be reviewed) to a degree at least equivalent to that needed for the original work"] who are independent of the work being reviewed. The peer's independence from the work being reviewed means that the peer, a) was not involved as a participant, supervisor, technical reviewer, or advisor in the work being reviewed, and b) to the extent practical, has sufficient freedom from funding considerations to assure the work is impartially reviewed.

A peer review is an in-depth critique of assumptions, calculations, extrapolations, alternate interpretations, methodology, and acceptance criteria employed, and of conclusions drawn in the original work. Peer reviews confirm the adequacy of the work. In contrast to peer review, the term "technical review" . . . refers to a review to verify compliance to predetermined requirements; industry standards; or common scientific, engineering, and industry practice. (USNRC, 1988, p. 2)

2. The individual elements of this peer review are contained in the following documents and have been prepared by the researchers identified in each section. We do not share expertise, and so questions regarding specific elements of each review should be addressed to authors of those sections.

3. As a team we support the following preliminary observations regarding the efficacy and feasibility of the Mounds Lake Reservoir as described in the Phase II Study and proceeding documents.

(a) Adverse effects to floral and faunal communities within the affected areas are not sufficiently detailed. The cost associated with mitigation of these impacts is not explicitly considered and may render the project infeasible.

(b) The current Phase II study has not engaged with effected communities, including those with legal, historical or cultural links to the Mounds sites, additional archaeological sites and the White River watershed. Effected communities potentially include federally recognized tribes in Michigan, Kansas and Oklahoma and individual tribal citizens living within Indiana.

The NEPA phase, as the report correctly indicates, mandates working with federally recognized tribes. However, this is not only a matter of how tribes are treated appropriately under NEPA. It is also an environmental justice issue for the region. In 2014, the EPA approved new policies specifically regarding tribes and environmental justice issues. Possible environmental justice issues include damage to cultural/sacred as well as natural sites. Tribes with interests to the watershed and region should be engaged as agency/governmental partners, and findings of possible environmental justice issues should not be determined or dismissed prior to full consultation with all potentially effected tribes. The degree of adverse effect on cultural resources and traditional cultural landscapes is repeatedly minimized in the current report. A major concern is there is no estimate on the number and types of archaeological sites that could be partially or totally eliminated. The cost and timescale associated with mitigation of these impacts may render the project infeasible.

(c) The effects of Environmental Hazards on the feasibility of the proposed reservoir have not been evaluated with sufficient rigor so that remediation costs of industrial properties can be estimated. Even minimally larger costs in these areas are sufficient to render this project infeasible under the remaining assumptions.

(d) Discussion regarding the geology, hydrology, and groundwater resources in the study area, along with associated geotechnical concerns, are understudied and in some cases based upon incorrect data or assumptions.

(e) Cost analysis for land acquisition as part of wetland mitigation is unrealistically optimistic. If average costs for non-tidal riparian wetland replacement was applied to the entire required mitigation area (and there are no other mitigation needs) the cost estimate is more than \$56 million beneath the requirements. At this level the project is not feasible under the remaining assumptions

(f) There is no evidence of demand for water at this scale. The statewide water plan commissioned by the Indiana Chamber of Commerce does not imply an unmet demand of this size, nor are there current water plans which envision demand growth at the level envisioned by the Mounds Lake Reservoir Phase II Study. Moreover, the alternative plans for water provision offer to bridge the gap between anticipated demand and supply at a lower cost than assumed in the Phase II study. Even with a large scale commercial customer, residential water demand does not appear to justify this investment. Without clear evidence of unmet water demand, there is nothing to counterbalance the adverse effects of the proposed project, nor are there sufficient revenues to fund the project without significant public sector investment.

(g) The Phase II study acknowledges the potential for only minimal cost overruns (only in the timing of financing), though projects of this type typically incur 20% or more cost overruns. An average cost overrun (using the low end estimate of large scale transportation projects) would render this project infeasible under their current assumptions in other areas.

4. The Phase II study report should be viewed as an incremental step to determination of the feasibility of the Mounds Reservoir Project. Many of the criticisms we note in this report address elements that are not part of the existing Phase II analyses. Thus, this should be viewed as inadequacies of the overall study design, not the individual elements which we review. Nevertheless, these omissions represent significant gaps in data and analysis regarding the Mounds Reservoir proposal. We believe that neither the rigor of the methods of evaluation nor the detail of the information presented in both the Phase I and Phase II Studies are sufficient for the public to evaluate the degree of adverse effects or the financial feasibility of this proposal. In particular, at this juncture, the conclusion of financial feasibility of the Mounds Lake Reservoir is not supported by the data or analysis presented in the Phase I and Phase II studies.

5. We present the associated documents to supplement the information available to the public as the costs and consequences are weighed against the stated benefit and need.

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