

Peer Review of Research Priorities Roadmap to Enhance Dam Infrastructure Sustainability

Date: March 4, 2016

Originating Office: Research and Development Office, Bureau of Reclamation, Mail Code 08-10000, PO Box 25007, Denver CO 80225

Reclamation Roles:

Director or Delegated Manager: Levi Brekke, Chief, Research and Development Office, Bureau of Reclamation

Peer Review Lead: Erin Foraker, Renewable Energy Research Coordinator, Bureau of Reclamation

Subject and Purpose: Reclamation's Research and Development Office recently engaged in infrastructure research roadmapping to determine where future research efforts should focus to provide the greatest benefit. The purpose of the prioritized roadmap is to fill gaps in Reclamation's current toolbox to extend the useful life of critical infrastructure. Reclamation field and Denver Office personnel generated the data used in this roadmapping process. A team of subject matter experts completed the roadmap and prioritized the identified research needs. The dam infrastructure research roadmap describes the research need by identifying adverse outcomes, causes, current mitigation practices, and outstanding needs for tools, technology, etc.

The purpose of this Peer Review Plan is to facilitate stakeholder and expert review of the roadmap for use in future decision processes amongst Reclamation leadership. The report (roadmap) will also be distributed to the roadmap data respondents as an internal vetting exercise.

Impact of Dissemination: The Dam Infrastructure Research Roadmap report is not determined to be influential or highly influential as defined by Office of Management and Budget Final Information Quality Bulletin for Peer Review (70 FR 2664-2677) and the Reclamation Manual Peer Review of Scientific Information and Assessments (CMP P14).

Peer Review Scope: This peer review is focused solely on the research needs identified in the Dam Infrastructure Research Roadmap and their ranked priority. Peer reviewers are asked to provide responses relative to the questions below:

Question 1. Based on your experience, is the final list of highest priority research needs representative of the greatest dam infrastructure needs?

Question 2. What (if any) are your experiences with the research needs identified within this report?

Question 3. Are there other important research needs associated with dam infrastructure that were not identified in this report?

Manner of Review, Selection of Reviewers: The review will take place on Reclamation's Peer Review Agenda website. Public, expert, and stakeholder review will occur concurrently through targeted invitations from Reclamation. Professional and scientific societies dedicated to the engineering or operations of dams and associated structures will be asked to nominate potential peer reviewers. The expert peer reviewers will have at least 10 years of experience with dams, including such fields as dam design, dam construction, and dam operation. Public comments will not be provided to the expert peer reviewers. Reviewers will be given attribution for their comments and not remain anonymous.

Number of Peer Reviewers: It is anticipated that more than 10 peer reviewers will be utilized.

Timing of review: March 11, 2016 to April 8, 2016

Delivery of findings: Following the review period, the Peer Review Lead will consolidate and synthesize the input from individual peer reviewers. At a minimum, this peer review summary document will include a description of the peer review process, subject being reviewed, and reviewer comments. The final roadmapping report will be provided digitally and as a hardcopy to Reclamation Research Office.

Agency contact: Erin Foraker, Reclamation's Infrastructure and Renewable Energy Coordinator (eforaker@usbr.gov).

Comment Disposition Table

#	Reviewer, Org	Comment	Resolution
1	Kurt von Fay, Reclamation, Technical Service Center	<p><i>Question 1.</i> Based on your experience, is the final list of highest priority research needs representative of the greatest dam infrastructure needs?</p> <p>Yes. The report seems very well done.</p> <p>Since this project was completed, there has been new emphasis on composite materials for use by Reclamation. We may want to add language about investigating composite materials to improve durability of some of the dam components.</p> <p><i>Question 2.</i> What (if any) are your experiences with the research needs identified within this report?</p> <p>I have extensive experience with the concrete components of the structures and many of the repair issues associated with repairing deteriorating concrete. One of the biggest problems I see, and others in the concrete repair industry are having repairs last many years. Problems with repairs seem to fall into 2 broad categories – shrinkage and cracking of the repair material, leading to a poor service life and a poor understanding of the complexity of the interactions between a new concrete repair material, and old and possibly deteriorating existing concrete in a harsh service environment.</p> <p><i>Question 3.</i> Are there other important research needs associated with dam infrastructure that were not identified in this report?</p> <p>The work seems very comprehensive. Better tools to treat the underlying cause of concrete deterioration and modeling tools to predict the rate of deterioration are listed. There is renewed interest in the concrete and concrete repair industry to develop better tools to predict concrete service life – for both new, old, and repaired concrete. Reclamation may be able to partner with several other entities to help support this effort.</p> <p><i>Comments:</i> I think the report and the work that went into developing it are first rate. I think to make the roadmapping exercise complete, a few additional steps need to be taken, which may already be planned. For the items that are deemed most important, they should be assigned to a champion. The champion would be tasked with promoting, arguing for, obtaining research partners, and obtaining funding for the project. The champion would not necessarily perform most or all of the research needed, but would serve more in a supporting and coordinating role. A schedule to complete the project should also be established. Finally, an estimated budget for the project should be determined. As with all research projects, there will undoubtedly be findings as the project progresses that will likely mean that the budget and schedule may need to be adjusted.</p>	<p>The reviewer did not propose a specific location to add language. The phrase “and materials” was added to Item 3, Research Need A to suggest to researchers that new repair materials, including composite materials, are within the scope of that research need.</p> <p>The motivation for research roadmapping is to identify Reclamation’s high priority research needs for principal investigators’ consideration during the solicited research proposal development and submission process. Some research brokering is planned, ensuring the highest priorities are addressed.</p>
2	Nathaniel Gee Reclamation, Lower Colorado Reg.	<p>I have reviewed the document and have no comments. As with all the road maps the process was well thought out and followed. I think they will be valuable moving forward.</p>	<p>No changes requested.</p>

