



DEPARTMENT OF THE ARMY  
SOUTHWESTERN DIVISION, CORPS OF ENGINEERS  
1100 COMMERCE STREET, SUITE 831  
DALLAS TX 75242-1317

REPLY TO  
ATTENTION OF

CESWD-RBT

19 DEC 2012

MEMORANDUM FOR Commander, Tulsa District

SUBJECT: Review Management Plan (RMP) Defines the Scope and Level of Peer Review for the Civil Works Major Maintenance Project to Replace Keystone Bridge Over Keystone Dam, Oklahoma

1. Reference EC 1165-2-209, Civil Works Review Policy, 31 Jan 2010; and Change 1, 31 Jan 2012.
2. The attached RMP has been approved for design and construction work that will be performed by the Tulsa District. This work is necessary due to failure of the bridge deck and the fracture critical nature of the bridge superstructure. This RMP has been reviewed and coordinated with the RMC.
3. The point of contact for this action is Donald Mark McMahon at [Donald.M.McMahon@usace.army.mil](mailto:Donald.M.McMahon@usace.army.mil) or office phone 409-771-6316.

Encl

  
THOMAS W. KULA  
Brigadier General, USA  
Commanding



**US Army Corps  
of Engineers®**

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# **REVIEW MANAGEMENT PLAN**

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**Replace Keystone Bridge**

**Keystone Dam, Oklahoma**

**December 2012**

# REVIEW MANAGEMENT PLAN

*Replace Keystone Bridge, Keystone Dam, Oklahoma*

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## 1. PURPOSE AND REQUIREMENTS

**a. Purpose.** This Review Management Plan (RMP) defines the scope and level of peer review for the Civil Works Major Maintenance Project to Replace Keystone Bridge over Keystone Dam.

### **b. References**

- (1) Engineer Regulation (ER) 1110-2-12, Quality Management, 30 Sep 2006
- (2) Replace Keystone Bridge, Project Management Plan
- (3) Tulsa District E&C, Quality Management Plan, May 2009
- (4) Engineer Circular (EC) 1165-2-209, Civil Works Review Policy, 31 January 2010; and Change 1, 31 Jan 2012
- (5) Director of Civil Works' Policy Memorandum #1, Continuing Authority Program Planning Process Improvements, 19 January 2011

**c. Requirements.** This review plan was developed in accordance with EC 1165-2-209 and Director of Civil Works' Policy Memorandum #1, which establishes the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision, implementation, and operations and maintenance documents and work products. The EC outlines three levels of review: District Quality Control, Agency Technical Review, and Independent External Peer Review. In addition to these three levels of review, documents are subject to policy and legal compliance review and, if applicable, safety assurance review and model certification/approval.

(1) District Quality Control (DQC). DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). It is managed in the home district and may be conducted by staff in the home district as long as they are not doing the work involved in the study, including contracted work that is being reviewed. Basic quality control tools include a District Quality Management Plan (QMP) providing for seamless quality checks and reviews (including quality control performed by contractors), supervisory reviews, Project Delivery Team (PDT) reviews, etc. Additionally, the PDT is responsible for a complete review of plans, specifications, and design documentation to assure overall integrity. The Major Subordinate Command (MSC)/District quality management plans address the conduct and documentation of this fundamental level of review.

(2) Agency Technical Review (ATR). ATR is an in-depth review managed within USACE and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of the project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team reviews the various work products and assures that all the parts fit together in a coherent whole. ATR teams will be comprised of senior USACE personnel (Regional Technical Specialists

(RTS), etc.) and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team shall be from outside the home MSC.

- (3) Independent External Peer Review (IEPR), Safety Assurance Review (SAR). A Type II IEPR (SAR) shall be conducted on design and construction activities for flood risk management projects. This applies to major repair, rehabilitation, replacement, or modification of existing facilities. The requirement is based upon Section 2035 of WRDA 2007, the OMB Peer Review Bulletin and other USACE policy considerations. External panels will conduct reviews of the design and construction activities prior to the initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The Federal Advisory Committee Act (FACA) imposes requirements on groups established by statute, or established or utilized by an agency that provide advice or recommendations to the agency pertaining to policy. Section 2035 of WRDA 2007 does not specifically exempt panels for Type II IEPR from FACA.

## 2. PROJECT INFORMATION

- a. **Project Description.** This project is to replace the bridge deck, superstructure, catwalk, and utilities crossing over the Keystone Spillway. This project is required due to failure of the bridge deck and the fracture critical nature of the bridge superstructure.
- b. **Project Phasing.** None.
- c. **In-Kind Contributions.** None.

## 3. DISTRICT QUALITY CONTROL (DQC) REVIEWS

- a. **General.** The DQC will be managed by the Tulsa District in accordance with ER 1110-1-12 and the Southwest Division and Tulsa District Quality Management Plans. Reviews under this heading may include Agency Technical Reviews performed within the District/Division boundaries; over the shoulder peer reviews; and Bidability, Constructability, Operability, and Environmental (BCOE) Reviews. Project stakeholders including the Oklahoma Department of Transportation and others may be asked to perform reviews for design quality control.
- b. **Products for Review.** Key products for review include plans, specifications, design documentation reports, and cost estimate for the final design review.

## 4. AGENCY TECHNICAL REVIEW (ATR)

- a. **General.** ATR for implementation documents covered by EC 1165-2-209 paragraph 9 and Appendix C is managed and performed outside of the home district. The Review Manager for Southwestern Division (SWD) for this project is Donald Mark McMahon, P.E., Bridge Safety Program Manager. The ATR shall ensure that the product is consistent with established criteria, guidance, procedures, and policy. The ATR for this project was completed in July 2012. The ATR assessed whether the analyses presented are technically

correct and comply with published USACE guidance, and that the documentation explained the analyses and the results in a reasonably clear manner for the public and decision makers. Members of the ATR team and the ATR lead were from Philadelphia District, outside of the MSC as required.

- b. Products for Review.** Key products for review included plans, specifications, and design documentation reports.
- c. Required ATR Team Expertise.** The ATR team was comprised of senior USACE personnel (Regional Technical Specialists (RTS), etc.). The disciplines represented on the ATR team reflected the significant disciplines involved in the engineering and design effort. A list of the ATR members and disciplines is provided in ATTACHMENT 1. The chief criterion for being a member of the ATR team is knowledge of the technical discipline and a minimum of ten years of relevant experience in projects similar to the Replace Keystone Bridge project.
- d. Documentation of ATR.** DrChecks review software was used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments were limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:
  - (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
  - (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
  - (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the design components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
  - (4) The probable specific action needed to resolve the concern – identify the action(s) that the PDT must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist. The ATR documentation in DrChecks included the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical coordination, and lastly the agreed upon resolution.

ATR was certified when all ATR concerns are either resolved or referred to HQUSACE for resolution and the ATR documentation is complete.

## **5. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)**

- a. General.** The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring that good science, sound engineering, and public health, safety, and welfare are the most important factors that

determine a project's fate. The Review Management Office for Type II IEPR reviews is the USACE Risk Management Center. Panel members will be selected using the National Academies of Science (NAS) policy for selecting reviewers. The IEPR will be conducted on only the second phase of the project.

**b. Products for Review.** A listing of key products for review can be found in ATTACHMENT 2.

**c. Required IEPR Panel Expertise.** The RMO will use IDIQ contracts with A/E firms. A list of available IDIQ contracts, along with capacity request, scope of work and independent government estimate templates can be found at:

<https://kme.usace.army.mil/Centers/TWR/RMC/External/Quality/default.aspx>. The A/E firms will be responsible for assembling a panel that meets the requirements set forth by the National Academy of Sciences. The RMO will require that each member of the IEPR panel shall have a professional engineer license or a professional geologist license, and a minimum of 20 years of experience in their field of expertise. The IEPR should consist of a the following disciplines on the panel that have expertise in the following areas: a) bridge safety design; b) structural design and c) concrete structure repair. The information on proposed panel disciplines is in ATTACHMENT 1. The RMC's IDIQ contract and standard documents are being used to obtain the panel members.

**d. Documentation of IEPR.** Dr Checks review software will be used to document IEPR comments and aid in the preparation of the Review Report. Comments should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 4. The IEPR team will prepare a Review Report that will accompany the publication of the final report for the project and shall:

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions; and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

The MSC Chief of Business Technical Division will approve the final report. After receiving the report from the panel, the District Chief of Engineering and Construction Division shall consider all comments contained in the report and prepare a written response for all comments and note concurrence and subsequent action or non-concurrence with an explanation. The District Chief of Engineering and Construction Division shall submit the panel's report and District responses to the MSC for final MSC Commander approval and then make the report and responses available to the public on the District's website.

## **6. REVIEW SCHEDULES AND COSTS**

- a. **ATR Schedule and Cost.** ATR was completed in July 2012 and certification received in November 2012. Cost to complete the ATR review totaled approximately \$20,000.
  
- b. **IEPR Schedule and Cost.** Milestones to consider for a Type II IEPR (SAR) are at the record of final design in the Design Documentation Report; at the completion of the plans, specifications, and cost estimate; at the midpoint of construction for a particular contract, prior to final inspection, or at any critical design or construction decision milestones. The guidelines listed in section 17b of EC 1165-2-209 provide the Type II Review Cost Guidelines at range from \$54,000 to \$90,000. Cost to complete the design and construction SARs is approximately \$180,000. This includes cost for in-house personnel, RMO administration and management, and the panel member participation. More detailed information on key products can be found in ATTACHMENT 2 and more detailed information on schedule can be found in ATTACHMENT 3. This includes a comment resolution meeting. Since this is a small project with cost concerns, the comment resolution meeting will be conducted via teleconference.
  
- c. **Model Certification/Approval Schedule and Cost.** Not applicable.

## **7. PUBLIC PARTICIPATION**

As discussed in EC 1165-2-209, the approved Review Management Plan shall be made available on the District public website for public comment if appropriate and feasible. While there is not a formal comment period, the public will have an opportunity to comment on the types of reviews to be carried out. If and when comments are received, the PDT shall consider them and decide if revisions to the review plan are necessary.

## **8. RMC COORDINATION**

The lead center of expertise for this Review Plan and the IEPR reviews listed is the Headquarters Risk Management Center. Per EC 1165-2-209, the Project Manager is responsible for coordination with the RMC.

## **9. MSC APPROVAL**

The MSC that oversees the home district is responsible for approving the review plan. Approval is provided by the MSC Commander. The commander's approval should reflect vertical team input (involving district, MSC, RMC, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the review plan is a living document and may change as the project progresses. Changes to the review plan should be approved by following the process used for initially approving the plan. In all cases the MSCs will review the decision on the level of review and any changes made in updates to the project.

## **10. REVIEW PLAN POINTS OF CONTACT**

Questions and/or comments on this review plan can be directed to the following points of contact:

- Donald Mark McMahon, P.E., Bridge Safety Program Manager, Southwestern Division ATR Review Manager, 409-776-3154
- Richard Bilinski, PMP, Tulsa District Project Manager, 918-669-7236
- David Jarvis, P.E., Tulsa District Bridge Safety Program Manager, 918-669-7117
- Michelle Lay, P.E., Chief Tulsa District Civil Design Section, 918-669-4380
- Shawn Painter, P.E., Civil Engineer, Tulsa District Technical Manager, 918-669-4933
- Christ Strunk, P.E., Structural Engineer, 918-669-7137
- Steve Isaacs, P.E., Mechanical Engineer, 918-669-7574
- Daniel Morales, P.E., Structural Engineer, 918-669-7013
- Michael McGill, Cost Engineer, 918-669-4308
- Steve Lucas, Specifications, 918-669-7567

## ATTACHMENT 1: TEAM ROSTERS

### Agency Technical Review

<b>TABLE 1: Agency Technical Review Team – 95% Design Submittal</b>		
<b>NAME</b>	<b>DISCIPLINE</b>	<b>OFFICE SYMBOL</b>
Jiten K. Soneji, P.E.	ATR Team Leader/Structural Engineer	CENAP-EC-ER
Nestor Delgado, P.E.	Structural Engineer	CENAP-EC-ER
Benjamin B. Mangaser, P.E.	Electrical Engineer	CENAP-EC-ED
David DePolo, P.E.	Structural Engineer	CENAP-EC-ER
Feliks Plotnikov, P.E.	Structural Engineer	CENAP-EC-E

### External Peer Review Panel

The SARs reviews will be conducted via Task Order with INCA Engineers, Inc./Shannon & Wilson, Inc. JV. The review panel consists of a Level 3 Civil/Construction Engineer, Level 3 Structural Engineer, Level 1 Structural Engineer, and Level 3 Electrical Engineer. The POC for the task order (SAR lead) is Mr. James Costello, P.E.

### Project Delivery Team

A complete listing of the project delivery team can be found in the Project Management Plan.

### Vertical Team

The Vertical Team consists of members of the HQUSACE and CESWD Offices. The Vertical Team plays a key role in facilitating execution of the project in accordance with the PMP. The Vertical Team is responsible for providing the PDT with Issue Resolution support and guidance as required. The Vertical Team will remain engaged seamlessly throughout the project via monthly telecons as required and will attend In Progress Reviews and other key decision briefings. The CESWD District Liaison is the District PM's primary Point of Contact on the Vertical Team.

## **ATTACHMENT 2: PRODUCTS FOR IEPR REVIEW**

This attachment provides a listing of key products that should be considered for review by the IEPR panel. ATTACHMENT 3 contains key scheduled milestones for future products.

### SAR in December 2012:

- 100% plans and specifications
- Associated Design Documentation Report

### SAR 50% Construction Documentation and 95% Construction Documentation:

- Submittals
- Daily Reports
- 3-Phase Inspection Reports
- Construction Schedule
- Other appropriate construction documentation

## **ATTACHMENT 3: CURRENT SCHEDULE**

This attachment outlines remaining key milestones for some of the products listed in ATTACHMENT 2 as well as construction durations for out years.

SAR Contract Award 2012/12/14

SAR Submit Interim Design Review Report on DDR and 100% Plans & Specs 2012/02/28

SAR Submit Interim Construction Review Report on 50% Construction Documentation TBD

SAR Submit Interim Construction on 95% Construction Documentation TBD

SAR Submit Final IEPR SAR Report 2014/01/16

Bridge Replacement Contract Award 2013/01/24

Physical Complete 2014/01/16

Fiscal Complete 2014/05/16