

# **REVIEW PLAN**

## **FABRICATE AND DELIVER OF STENNIS SPILLWAY GATE**

**P2 # 111601**

**JOHN C. STENNIS LOCK AND DAM, COLUMBUS  
MISSISSIPPI**

**U.S. Army Corps of Engineers  
Mobile District  
South Atlantic Division**

**27 SEPTEMBER 2016**

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**US Army Corps  
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\*Attachments and Appendix will be removed from this Review Plan prior to posting on the web.

## **REVIEW PLAN**

# **FABRICATE AND DELIVER of STENNIS SPILLWAY GATE JOHN C. STENNIS LOCK AND DAM, MISSISSIPPI**

## **1. INTRODUCTION**

### **a. Purpose**

The purpose of this Review Plan (RP) is to describe the technical review process for the fabrication and delivery of a spillway gate located at John C. Stennis Lock and Dam, Columbus Mississippi. The RP is a living document and may change as the project progresses. The documents to be reviewed are the Design Documentation Report (DDR) and the proposed technical plans and specifications (P&S). The documents are considered “implementation documents” as identified in Engineering Circular (EC) 1165-2-214, Civil Works Review, dated 15 Dec 2012. The RP is a living document and may change as the project progresses. This RP and the RP approval memo shall be posted to the Mobile District’s website when completed.

U.S. Army Corps of Engineers (Corps) guidance for conduct of this review is contained in EC 1165-2-214, provides procedures for ensuring the quality and credibility of the Corps decision and implementation documents through an independent review process. It complies with Section 515 of Public Law (P.L.) 106-554 (referred to as the “Information Quality Act”); and the Final Information Quality Bulletin for Peer Review by the Office of Management and Budget (referred to as the “OMB Peer Review Bulletin”). It also provides guidance for the implementation of Section 2034 of WRDA 2007 (P.L. 110-114).

### **b. John C. Stennis Lock and Dam Project Description and Information**

John C. Stennis (Columbus) Project, formerly known as Columbus Lock and Dam, is located on the Tombigbee River at river mile 334.7, which is 27.9 miles upstream from Aliceville Lock and Dam and about 4 miles northwest of the City of Columbus, Mississippi. The watershed above the site has an area of 4,440 square miles, or 22 percent of the 20,100 square miles in the Tombigbee River Basin. The dam is located in Lowndes County, Mississippi, and the reservoir formed by the project extends through the edge of Clay County and into Monroe County to the Aberdeen Lock and Dam.

John C. Stennis project consists of a of a navigation lock with nominal dimensions of 110 x 600 feet located in a channel excavated across a bend in the left river bank; a gated spillway consisting of 5 bays controlled by spillway tainter gates, each 60 feet long by 26 feet high, with an overall spillway length of 348 feet, located in an excavated channel adjacent to the lock; a minimum flow structure located in the right bank non-overflow dike, with earth dikes connecting the structures to high ground on both banks and 7 cutoffs within the reservoir impoundment.

On December 26, 2015 spillway tainter gate number 3 was impacted by a run-away barge during a flood event. The barge impact occurred about 12 feet to the east of the gate centerline leaving

the upper portion of the gate severely damaged with significant amount of damage extending all the way to the bottom horizontal girder. Structural analysis of the damage recommends replacement of this gate.

### **c. Information for Review**

This Review Plan covers the design of a new spillway gate for the existing spillway. The original spillway gate functioned well and therefore the original design of the spillway gate will be used as the basis for the design of the new spillway gate. The new spillway gate design will incorporate the appropriate current design requirements contained in ETL 1110-2-584, dated 30 June 2014. The acquisition strategy for this spillway gate project is to award a supply contract in FY-17 for the fabrication and delivery of the spillway gate to the John C. Stennis Dam. As identified above, the documents to be reviewed under this RP are the DDR and P&S.

### **d. Real Estate Requirements**

There are no additional Real Estate or perpetual easement acquisitions required for the project.

### **e. Project Delivery Team**

The Project Delivery Team (PDT) is comprised of those individuals involved directly in the development of the implementation documents. The individual contact information and disciplines of the Mobile District PDT are included in Attachment 2 of this document.

### **f. Levels of Review**

This Review Plan (RP) describes the levels of review and the anticipated review process for the documents to be produced. All levels of review are addressed in this RP: District Quality Control (DQC), Biddability, Constructability, Operability, Environmental, and Sustainability (BCOES), and Agency Technical Review (ATR), Policy and Legal Compliance Review, and Independent External Peer Review (IEPR).

### **g. Review Team**

**Review Management Office:** The USACE South Atlantic Division (SAD), the Major Subordinate Command (MSC), is the Review Management Organization (RMO) for this project. Contents of this review plan have been coordinated with SAD and the Risk Management Center (RMC). The RMC's concurrence of SAD functioning as the RMO is documented via the RMC's endorsement of this RP. Informal coordination with SAD will occur throughout the project development on as needed basis. In-Progress Review (IPR) team meetings with the SAD, and HQ will be scheduled on an "as needed" basis to discuss programmatic, policy, and technical matters.

**Agency Technical Review Team:** At a minimum, the following disciplines should be represented on the ATR team. All reviewers on the ATR team shall be certified in the Corps of Engineers Reviewer Certification and Access Program (CERCAP) system.

**Required ATR Team Expertise:** The ATR team will be chosen based on each individual's qualifications and experience with similar projects.

**ATR Lead:** The ATR lead will be from outside SAD. The ATR Lead is a senior professional with extensive experience in preparing Civil Works documents and conducting ATRs (or ITRs). The lead has the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline, in this case, Structural Engineering.

**Structural Engineer:** Team member should have at least 10 years of experience in the analysis, design, and fabrication of large hydraulic steel structures and shall be very familiar with the design criteria contained in ETL 1110-2-584, Design of Hydraulic Steel Structures, 30 June 2014.

## **2. REQUIREMENTS**

### **a. Reviews**

The review of all work products will be in accordance with the requirements of EC 1165-2-214 by following the guidelines established within this review plan.

i. District Quality Control: The DDR and P&S produced will undergo District Quality Control (DQC). DQC is the review of basic science and engineering work products focused on fulfilling the project quality. District quality management plans address the conduct and documentation of this fundamental level of review. DQC will be managed by SAM in accordance with ER 1110-1-12, Engineering & Design Quality Management, EC 1165-2-214, Civil Works Review Policy, and the District Quality Management Plan. The DQC will include quality checks and reviews, supervisory reviews, PDT reviews, and BCOES reviews required by ER-1110-1-12. The DQC review will be completed prior to submitting documents for ATR. Documentation of the DQC review will be certified during the ATR which will assess that DQC activities were sufficient and documented.

ii. Engineering and Construction, Biddability, Construct Ability, Operability, Environmental and Sustainability (BCOES): The value of BCOES reviews is based on minimizing problems during the construction phase through effective checks performed by knowledgeable, experienced personnel prior to advertising for a contract. Biddability, Constructability, Operability, Environmental, and Sustainability requirements must be emphasized throughout the planning and design processes. This will help to ensure that the government's contract requirements are clear, executable, and readily understandable by private sector bidders or proposers. It will also help ensure that the construction may be done efficiently and in an environmentally sound manner, and that the construction activities and projects are sufficiently sustainable. Finally,

effective BCOES reviews of design and contract documents will reduce risks of cost and time growth, unnecessary changes and claims, as well as support safe, efficient, sustainable operations and maintenance by the facility users and maintenance organization after construction is complete.

iii. Agency Technical Review (ATR): As required by EC 1165-2-214 the implementation documents produced as part of this effort will undergo ATR to ensure consistency with established criteria, guidance, procedures, and policy. 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 will assess whether the analyses presented are technically correct and comply with published Corps guidance, that design plans and specifications and supporting analyses are clear, constructible, environmentally sustainable, operable, and maintainable.

The ATR team will consist of the individuals that represent the significant disciplines involved in the accomplishment of the work. ATR will be managed within the Corps and conducted by senior Corps personnel outside of the Mobile District that are not involved in the day-to-day production of the project. DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. The documents to be reviewed are the DDR and the proposed P&S. The original spillway gate contract drawings will be provided to the ATR Team for its information and use in review of the new documents. . The PDT will evaluate comments in DrChecks and revise the documents as necessary. The ATR leader will be from outside the MSC, and must complete a statement of technical review for all final products and final documents. By signing the ATR certification, the district leadership certifies policy compliance of the document and also that the DQC activities were sufficient and documented.

iv. Independent External Peer Review: Independent External Peer Review (IEPR) is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of the Corps is warranted. This project is in the implementation phase; thus, the Type I IEPR, which is related to decision documents, is not required. Based on criteria contained in EC 1165-2-214, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR Safety Assurance Review (SAR) for this spillway gate replacement effort. Innovative materials or novel engineering methods will not be used. Also, the project has no reduced or overlapping design construction schedule. As previously indicated, the DDR and P&S will be based on the design of the original spillway gates which have functioned well and met all necessary life safety concerns. The new spillway gate design will incorporate the appropriate current design requirements contained in ETL 1110-2-584 and thus ensure that the current design requirements are met. Thus this design effort represents a replacement-in-kind following the latest design guidance. Coordination between the District and the RMC has resulted in the decision that the Federal action is not justified by life safety, and as a replacement-in-kind and construction/installation does not increase any existing significant threat to human life. The RMC agrees with the recommendation to forego a Type II IEPR.

v. Policy and Legal Compliance Review: Policy and Legal Compliance Review is required for decision documents. Since this RP is not a decision document it does not require a Policy and Legal Compliance Review. The project consists of the replacement of existing components and therefore presents no environmental implications. Construction will comply with applicable industry codes and EM 385-1-1, USACE Safety and Health Requirements. All contract documents and supporting environmental documents will be reviewed by the Mobile District Office of Counsel prior to contract award.

vi. Peer Review of Sponsor In-Kind Contributions: There will be no in-kind contributions for this replacement design effort.

## **b. Approvals**

The MSC for this RP is the South Atlantic Division. The MSC Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving the Mobile District, MSC, RMC and HQUSACE members) as to the appropriate scope and level of review for the study and endorsement by the RMC. Like the PMP, the Review Plan is a living document and may change as the study progresses. The District is responsible for keeping the Review Plan up to date. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, will be posted on the District's webpage and linked to the HQUSACE webpage.

## **3. GUIDANCE AND POLICY REFERENCES**

- EC 1165-2-214, Civil Works Review, 15 Dec 2012
- ER 5-1-11, USACE Business Process, 1 Nov 2006
- ER 415-1-11, Engineering and Construction, Biddability, Construct Ability, Operability, Environmental and Sustainability (BCOES) Reviews, 1 Jan 2013
- ER 1110-1-12, Engineering and Design Quality Management, 31 March 2011(Change 2)
- ER 1110-2-1156, Safety of Dams – Policy and Procedure, 31 Mar 2014
- ETL 1110-2-584, Design of Hydraulic Steel Structures, 30 June 2014

## **4. SUMMARY OF REQUIRED LEVELS OF REVIEW**

In accordance with the review process described in EC1165-2-214, Civil Works Review, this Review Plan recommends the DQC and ATR as the appropriate level of review. A BCOES review will also be prepared as part of the Mobile District Standard Operating Procedure.



## 5. REVIEW SCHEDULE AND COSTS

The cost for DQC, BCOE, and ATR, is estimated to be approximately \$10,000, \$5,000, and \$10,000 respectively. The documents to be reviewed and scheduled dates for review are as follows:

Documents	Review	Schedule Dates
100% Unreviewed P&S	DQC	TBD
Final P&S, and DQC Cmts	BCOES	TBD
Final P&S, and DQC and BCOES Cmts	ATR	TBD

## 6. PUBLIC PARTICIPATION

The review plan will be made accessible to the public for thirty (30) days through the Mobile District website link <http://www.sam.usace.army.mil/>. (Names and other personal information will be removed prior to posting to the web). Public review of the review plan can begin as soon as it is approved by the Division Commander and posted by the Mobile District. Comments made by the public will be available to the review team.

## 7. EXECUTION PLAN

### a. District Quality Control

i General: DQC will be conducted after completion of the final plans and specifications. DQC requires both supervisory oversight and District technical experts. The District will conduct a DQC in accordance with EC 1165-2-214, the District's Quality Management Plan, and ER 1110-2-12, Quality Management. Documentation of DQC activities is required and will be in accordance with the District Quality manuals. Comments and responses from DQC will be available for the ATR team to review through ProjNet DrChecks.

ii DQC Review and Control: The District Project Manager will schedule DQC review meetings. The in-progress review meetings will include PDT members from Dam Safety, Structures, General Engineering, Cost Engineering, Project Management, and Operations. DQC Review will be conducted on the completed final plans and specifications and will include comments, backcheck, and revisions. ProjNet DrChecks review software will be used to document reviewer comments, responses and associated resolutions. Comments should be limited to those that are required to ensure the adequacy of the product.

iii BCOES Review and Certification: Final plans and specifications and comments from the DQC review shall be reviewed by the Columbus Area Office (SAMOP-CO) who will administer the Awarded Supply Contract. Again, ProjNet DrChecks review software will be used to document reviewer comments, responses, and associated resolutions.

## **b. Agency Technical Review**

i. General: The ATR will be conducted by a qualified team from outside of the home district. The ATR Lead, and ATR reviewers will be selected and/or approved by the RMO. For this project the ATR team (Attachment 4) will consist of the ATR Lead which will also serve as the structural engineer reviewer.

i. ATR Review and Control: Reviews will be conducted in a fashion which promotes dialogue regarding the quality and adequacy of the Final Plans and Specifications. The level of effort for each ATR reviewer is expected to be between 16 and 32 hours. DrChecks review software will be used to document reviewer comments, responses and associated resolutions. Comments should be limited to those that are required to ensure the adequacy of the product. The MSC in conjunction with the district, will prepare the charge to the reviewers, containing instructions regarding the objective of the review and the specific advice sought.

The four key parts of a 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 plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability.
- (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 will include 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. The ATR team will prepare a Review Report which includes a summary of each unresolved issue; each unresolved issue will be raised to the vertical team for resolution. Review Reports will be considered an integral part of the ATR documentation and shall also:

- (1) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer.
- (2) Include the charge to the reviewers prepared by the RMO in accordance with EC 1165-2-214.

(3) Describe the nature of their review and their findings and conclusions.

(4) Include a verbatim copy of each reviewer's comments and the PDT's responses. ATR may be certified when all ATR concerns are either resolved or referred to HQUSACE for resolution and the ATR documentation is complete. Certification of ATR should be completed, based on work reviewed to date, for the final report. A sample certification is included in Attachment 1.

**c. Independent External Peer Review – Not Required/recommended.**

## **8. REVIEW PLAN POINTS OF CONTACT – See Appendix A**