DEPARTMENT OF THE ARMY
MISSISSIPPI VALLEY DIVISION, CORPS OF ENGINEERS
P.O. BOX 80
VICKSBURG, MISSISSIPPI 39181-0080

REPLY TO
ATTENTION OF:

12 DEC 2012

CEMVD-PD-SP

MEMORANDUM FOR Commander, St. Louis District

SUBJECT: Review Plan Approval for Locks No. 27, Major Rehabilitation Project, Review Plan Documentation

1. References:

a. Memorandum, CEMVS-PM-F, 11 December 2012, subject: Locks No. 27 Major Rehabilitation, Review Plan Documentation (encl 1).

b. Review Plan, CEMVS-PM-F, December 2012, subject: Locks No. 27 (Major Rehabilitation), St. Louis District (encl 2).

c. Memorandum, CEMVD-RB-T, 10 December 2012, subject: Locks No. 27 Major Rehabilitation Project, Review Plan Documentation (encl 3).

2. The enclosed Review Plan (RP) for the Locks No.27 Major Rehabilitation Project has been prepared in accordance with EC 1165-2-209. The RP has been coordinated with the Upper District Support Team and the Regional Business Technical team, who concurred with the plan in reference b. of the enclosed memorandum.

3. I hereby approve this RP, which is subject to change as circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this RP or its execution will require new written approval from this office. Non-substantive changes to this RP do not require further approval. The District should post the approved RP to its web site.

4. The MVD point of contact is Mr. Philip Hollis, CEMVD-PD-SP, (601) 634-5293.

3 Encls

EDWARD E. BELK, JR., P.E., SES
Director of Programs

US Army
Corp of Engineers
St. Louis District

Review Plan

LOCKS NO. 27 (MAJOR REHABILITATION)
ST. LOUIS DISTRICT

December 2012

P2# 330592

REVIEW PLAN

Locks NO. 27, Major Rehabilitation, IL

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REVIEW PLAN FOR LOCKS NO. 27 CONSTRUCTION

1. Purpose and Requirements. This document is to serve as the review plan for the St. Louis District (MVS) for the construction of the Locks No. 27 Major Rehabilitation project, as required by EC 1165-2-209 (Civil Works Review Policy). The purpose of this Review Plan is to define how the applicable requirements, procedures, and specific details of EC 1165-2-209 will be implemented for the ongoing construction of the project. The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. As this project is approximately eighty percent constructed, only DQC is applicable.

a. References

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010

(2) Engineering Regulation (ER) 1110-2-1150, Engineering and Design -Engineering and Design for Civil Works Projects, 31 August 1999.

(3) Project Management Plan, Locks NO. 27, Major Rehabilitation, Project No. 330592.

b. <u>Review Process Requirements.</u> The criteria of EC 1165-2-209 is to assure the proper levels of reviews are planned and accomplished based on the following guidance:

(1) **<u>DCQ.</u>** DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements. DCQ will be performed by the St. Louis District.

(2) **<u>ATR.</u>** Documents requiring ATR will have a separate review plan developed in coordination with the RMO.

(3) **<u>IEPR.</u>** Due to the nature of the projects covered by this plan, there are no IEPR, type I or type II anticipated for the products currently included in this plan. Should any project/product develop that would require a decision document a separate review plan will be developed in coordination with the RMO.

(4) **<u>Policy and Legal Compliance.</u>** In addition to the technical reviews, documents will be reviewed as applicable for their compliance with law and policy.

The project was designed, reviewed, and is being constructed in accordance with Corps of Engineers criteria contained in engineering regulations, manuals, and Engineering Technical Letters, and industry accepted codes and standards in effect at the time of design.

The review requirements applicable to this project (which included an Independent Technical Review (ITR) and DQC were outlined in ER1110-2-1150 and the Project Management Plan (PMP). The reviews were performed, and documented, as required. A copy of the ITR and legal review certifications is included as Attachment 2 and 3 respectively.

This review plan is applicable to the ongoing construction of the project, specifically to construction modifications of the projects' design. The project covered by this review plan has been previously authorized and construction is nearing completion. MVS is responsible for operation and maintenance of the project.

2. Review Management Organization (RMO) and Coordination

Review Management Organization (RMO) Coordination / MSC Approval: The Mississippi Valley Division (MVD) is the RMO for this review plan.

3. Project Description. Locks No. 27 is located in Madison County, Illinois, on the Chain of Rocks Canal at approximately Mile 185.1 above the mouth of the Ohio River in Granite City, Illinois was authorized by the River and Harbor Act of 1945 and Major Rehabilitation by the Water Resources Development Acts of 1986 and 1992. The project plan provides for the rehabilitation of portions of the structure.

Locks No. 27 opens the doors to navigation and commerce on the Mississippi River, Illinois River and the Missouri River. These locks are the first (for upbound tows) and the last (for downbound tows) in a series of 37 locks that define commercial navigation in the Midwest. During the year 2003, Locks 27 had approximately 9,100 lockages resulting in over 77.5 million tons of products contained in over 68,000 barges. When Locks 27 are closed due to equipment failures, shipping stops or is severely curtailed adding increased costs to the delivery of the all products in transit.

Locks No. 27 has been operating for more than 50 years. While maintenance has been performed to keep the facility operating, wear and tear on many items is beyond ordinary maintenance. Many lock features either have demonstrated or are predicted by risk analysis to have a low factor of continued reliable performance. The economic consequences of unsatisfactory performance are costs to the government, the general public and the navigation industry.

The work included replacement of main lock miter gate, replacement of the main lock lift gate downstream leaf, replacement of the culvert valves for both locks, restoring lock wall stability using drilled shafts, a new upstream protection cell and removal of the old deteriorated cell, replacement of the downstream bulkhead sill stability anchorages in both locks, replacement of the culvert valve machinery for both locks, replacement of the lift gate machinery for both leafs of the, main lock and the downstream leaf of the auxiliary lock, modification and addition of river training structures at the canal lower entrance, and construction of a bulkheads lifting beam for lock dewatering. The project is cost-shared 50/50 with the Inland Waterways Trust Fund.

4. Execution of District Quality Assurance.

1. Quality checks and reviews occur during the modification process and are carried out as a routine management practice. Quality checks may be performed by staff responsible for the work, such as supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel. However, they should not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts. All DQC efforts will include the necessary expertise to address compliance with published Corps policy. Key PDT members will review all design changes and accompanying IGEs, with the customer if appropriate. The Administrative Contracting Officer/Resident Engineer (ACO) is responsible to

ensure sufficient independent technical review and design review, including appropriate compliance with regulatory, environmental, or real estate permit requirements. DQC is required for all design changes and shall follow the process below.

a. The Engineering Division Technical Lead (TL) is the designated responsible person for design modifications. The TL shall distribute the design changes to the proper offices for review in accordance with current Engineering and Construction Division SOP. Additional offices for review shall be included as necessary.

b. If multiple offices are required to review the modification, the reviewers for each office shall be identified and become members of the Review Team. This Review Team is responsible for only the review of the changes.

c. The Review Team shall review the documents and provide written comments to the TL.

d. The TL shall resolve all comments provided by the Review Team prior to completion and/or release of the modification. If all attempts to resolve any conflicts with the Review Team are unsuccessful, the District Chief, Engineering and Construction Division shall ultimately make the decision. When policy and/or legal concerns arise during DQC efforts that are not readily and mutually resolved by the Review Team and the TL, the district will seek issue resolution support from the MSC.

e. All steps of this process shall be documented and kept in the project files for internal audits to check for proper DQC implementation.

5. Agency Technical Review (Not applicable)

6. Independent External Peer Review (IEPR) (Not applicable)

7. Policy and Legal Compliance Review

All implementation documents will be reviewed for their compliance with law and policy. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods. Certification of Legal Review is at Attachment 3.

8. Review Plan Approval and Changes.

The Mississippi Valley Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input to the appropriate scope and level of review for the P&S documents. Like the PMP, the Review Plan is a living document and may change as the work progresses. MVS will keep the Review Plan up to date. Significant changes to this Review Plan (such as changes to the scope and/or level of review) will 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 MVS public webpage. Changes to this plan will be annotated in the following table.

Review Plan Changes Summary		
Revision Date	**Description of Change**	**Page / Paragraph Number**

9. Review Plan Points of Contact.
The MVS technical point of contact for this plan is the Project Manager, Dennis Gilmore, phone 314-331-8108.

The MVD point of contact is Mr. Philip Hollis, CEMVD-PD-SP, at (601) 634-5293.

Attachment 1 (Locks No. 27 Major Rehabilitation PDT)

Contact information and disciplines are listed below for the Locks No. 27 Major Rehabilitation Product Delivery Team (PDT).

Last	First	Role	Phone
Gilmore	Dennis	Project Manager	314-331-8108
Kelsey	Robert	Structural Engineer	314-331-8232
Moeller	Bill	Structural Engineer	314-331-8233
Zacher	John	Structural Engineer	314-331-8362
Farkas	Steve	Supervisory Mechanical Engineer	314-331-8264
Nieukirk	Shane	Electrical Engineer	314-331-8254
Tokraks	Nancy	Civil Engineer	314-331-8225
Schiffer	Robert	Construction Manager	636-899-0066
Allen	Teri	Biologist	314-331-8084
Frerker	Chuck	Regulatory	314-331-8583
Linkowski	Daniel	Economist	314-331-8284
Beller	Steele	Real Estate	314-331-8167
Ringgenberg	Archie	Contracting Officer	314-331-8505
Sanders	Dawayne	Cost Engineer	314-331-8321
Navin	Mike	Geotechnical Engineer	314-331-8440
Atchley	Daryl	Value Engineer	314-331-8223
Wunsch	Mark	Attorney	314-331-8732
Meadows	Kathy	Safety Officer	314-331-8307
Schimpf	Andy	Navigation Business Line Manager	636-899-0044
Hipkins	Gary	L27 Lockmaster	618-452-7107
Fisher	Patti	Geospatial	314-331-8391

Attachment 2 (ITR Certification)

STATEMENT OF COMPLETION OF INDEPENDENT TECHNICAL REVIEW

The District has completed the Major Rehabilitation Evaluation Report for Locks 27. Notice is hereby given that an independent technical review, that is appropriate for the level of risk and complexity inherent in the project, has been conducted as defined in the Quality Control Plan. During the independent technical review, compliance with established policy, principles and procedures, utilizing justified and valid assumptions were verified. This included review of assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy. The independent technical review was accomplished by an independent district team/personnel supplemented by persons from the Rock Island and Vicksburg Districts.

Tom Quigley, Technical Review Team Leader — Date: 2-28-02

for Michelle Brown, Policy Review Team Leader — Date: 2-28-02

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW:
Outstanding significant concerns and the explanation of the resolution are as follows:
(Describe the major technical concerns, possible impact, and resolution)

All comments from the independent technical review team have been addressed. No significant concerns remain.

All concerns resulting from independent technical review of the project have been considered. The report and all associated documents required by the National Environmental Policy Act have been fully reviewed.

Project Manager — Date: 2/28/2002

Chief, Programs and Project Management — Date: 3/1/02

Chief, Engineering Division — Date: 2/28/02

Chief, Construction - Operations Division — Date: 2-28-02

Chief, Real Estate Division — Date: 3/1/02

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Attachment 2 (Certification of Legal Review)

CERTIFICATION OF LEGAL REVIEW:

The report for Locks 27 Major Rehabilitation Evaluation Report, including all associated documents required by the National Environmental Policy Act, has been fully reviewed by the Office of Counsel, District and is approved as legally sufficient.

Mark Wunsch
Mark Wunsch, District Counsel
Assistant

3/1/02
Date