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

REPLY TO
ATTENTION OF:

CEMVD-PD-SP

12 DEC 2012

MEMORANDUM FOR Commander, St. Louis District

SUBJECT: Wood River Levee System, Illinois - Deficiency Correction Project, Design and Construction Review Plan

1. References:

a. Memorandum, CEMVS-PM-N, 10 December 2012, subject: Approval of the Review Plan for the Design and Construction of the Wood River Levee System Design Deficiency Corrections Project (encl 1).

b. Memorandum, CEIWR-RMC, 4 December 2012, subject: Risk Management Center Endorsement - Wood River Levee System, Illinois - Deficiency Correction Project, Design and Construction Review Plan (encl 2).

c. EC 1165-2-209, 31 January 2010, subject: Civil Works Review Policy.

2. The enclosed Review Plan (RP) for the Wood River Levee System Project has been prepared in accordance with EC 1165-2-209. The RP has been coordinated with the Upper District Support Team and the Flood Risk Management Center, who concurred with the plan in reference a. 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 [redacted], CEMVD-PD-SP, [redacted].

[redacted]

2 Encls

Director of Programs

REVIEW PLAN

Underseepage Design Deficiency Correction Project
Design and Construction Activities

Wood River Drainage and Levee District
Madison County, Illinois

St. Louis District

November 2012

MSC Approval Date: *12 December 2012*
Last Revision Date: *None*

US Army Corps
of Engineers ®

REVIEW PLAN

Underseepage Design Deficiency Correction Project

Wood River Drainage and Levee District
Madison County, Illinois

St. Louis District

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the design and construction activities for the underseepage design deficiency correction project for the Wood River Levee System.

b. References

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010.
(2) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006.
(3) Project Management Plan (PMP) for Wood River Drainage and Levee District Design Deficiency Corrections, November 2011.

c. Requirements. This review plan was developed in accordance with EC 1165-2-209, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). It provides 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/Quality Assurance (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR).

(1) District Quality Control (DQC). DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc. DQC is managed in the home district. 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, these checks should not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts. Additionally, the PDT is responsible for a complete reading of any reports and accompanying appendices prepared by or for the PDT to assure the overall coherence and integrity of the report, technical appendices, and the recommendations before approval by the District Commander. 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, preferably recognized subject matter experts with the appropriate technical expertise such as regional technical specialists (RTS), 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). 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 USACE is warranted. For clarity, IEPR is divided into two types: Type I is generally for decision documents and Type II is generally for implementation documents. The design and construction activities for this project will require a Type II IEPR.

A Type II IEPR, or Safety Assurance Review (SAR), shall be conducted on design and construction activities for flood risk management projects, as well as other projects where potential hazards pose a significant threat to human life. This applies to new projects and to the major repair, rehabilitation, replacement, or modification of existing facilities. External panels will review the design and construction activities prior to initiation of physical construction and periodically thereafter until construction activities are completed. The review shall be on a regular schedule sufficient to inform the Chief of Engineers on 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.

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

With the exception of District Quality Control/Quality Assurance, all reviews shall be managed by an office outside the home district and shall be accomplished by professionals that are not associated with the work that is being reviewed. The USACE organization managing a particular review effort is designated the Review Management Organization (RMO) for that effort. The RMO for the peer review effort described in this Review Plan is the Risk Management Center (RMC). Per EC 1165-2-209, the Project Manager is responsible for coordination with the RMO.

3. STUDY INFORMATION

a. Project Description. The Wood River Drainage and Levee District flood risk management system requires design deficiency corrections that will allow it to function at its authorized level of protection against a 52-foot stage at the St. Louis gage on the Mississippi River, plus 2- feet of freeboard. Because of a deficiency in the original design of the underseepage controls, the system currently does not perform at its authorized level. This phase of the project will design and construct new underseepage controls that were recommended in the August 2011 Limited Reevaluation Report (LRR).

The LRR investigated alternatives to correct the underseepage design deficiency and produced a recommendation that will allow the system to function in a safe, viable, and reliable manner at its authorized level of protection. The recommended plan included 94 new relief wells; filling 83 existing wood stave relief wells with grout; ditching; two 25-cubic feet per second (cfs) pump stations and one 20-cfs pump station; 815 linear feet of seepage berm; 1,010 linear feet of landside clay fill; 2,910 linear feet of slurry trench cutoff wall at the riverside levee toe to bedrock (140 ft deep); 1,060 linear feet of slurry trench cutoff wall (100 ft deep) at the riverside levee toe; 2,875 linear feet of slurry trench cutoff wall (25 ft deep) at the riverside levee toe; environmental and

archeological mitigation work; utility relocations; 9.88 acres flowage easement area; and wetland and bottomland hardwood mitigation areas. The incremental total project cost estimate of the design deficiency correction project at May 2011 price levels is [redacted].

b. General Site Location and Description. The Wood River Drainage and Levee District (Levee District) lays in southwestern Illinois, on the left descending bank of the Mississippi River flood plain, within Madison County, Illinois, between river miles 195 and 203 above the Ohio River (See Figure 1 below). The levee district is an urban design levee which lies across the Mississippi River from St. Louis and St. Charles counties in Missouri. The Wood River levee system is part of a larger Metro East levee system that includes the MESD, Chain of Rocks, and Prairie du Pont and Fish Lake levee systems to the south. The Wood River system is part of the containment feature of the Melvin Price Lock & Dam.

The project area has a mix of urban and industrial development. The project area contains the region's largest oil refinery, the highest concentration of petrochemical infrastructure in the country, steel manufacturing, and ammunitions production. The levee protects a residential population of approximately 20,000 in the urban areas of five towns – Alton, East Alton, Wood River, South Roxana, and Hartford. In addition, there is approximately 12,700 acres of bottomland in the project area.

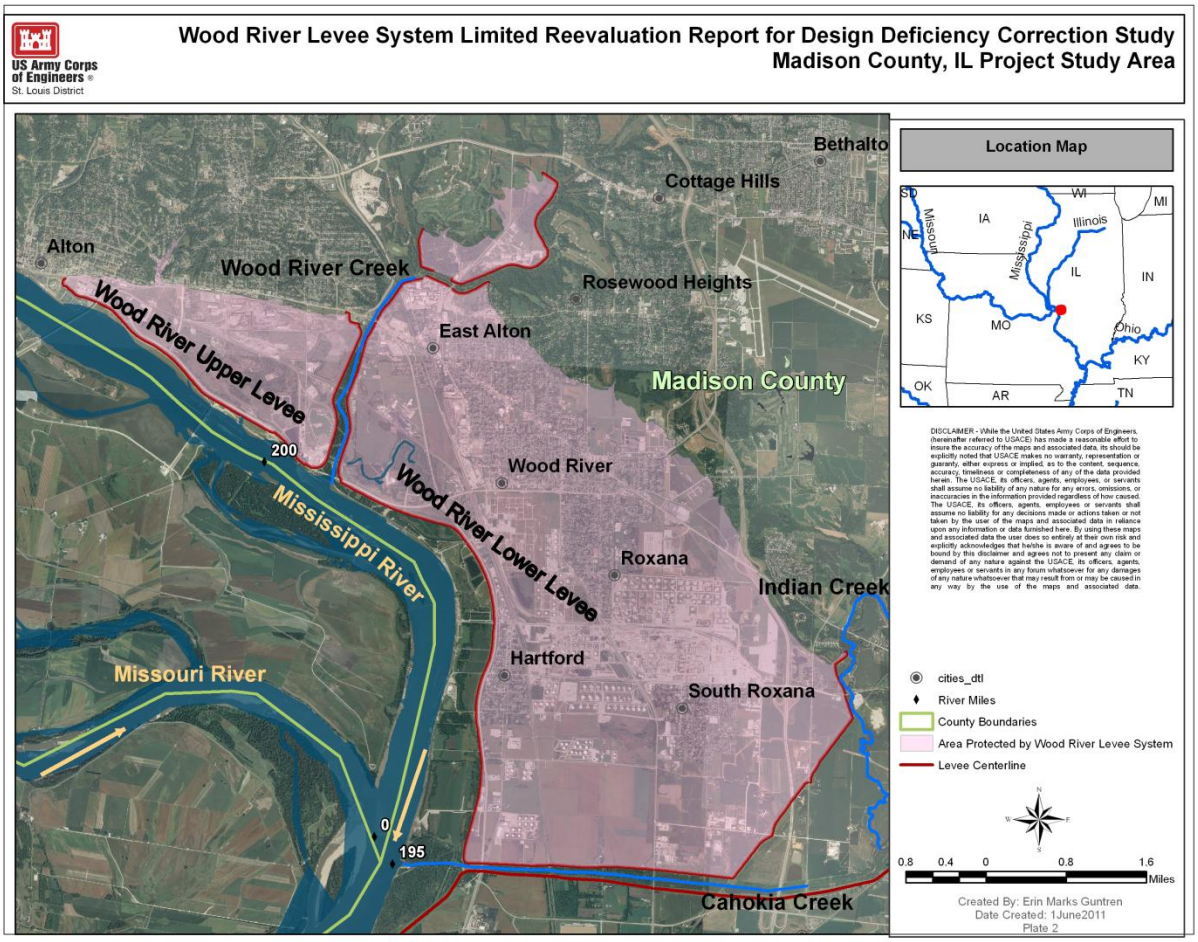

Figure 1: Project Area Map

c. Factors Affecting the Scope and Level of Review. The Wood River, East St. Louis, Chain of Rocks, and Prairie Du Pont/Fish Lake levees in the Metro East area have net levee grades higher than a 500-year flood; however, these levees have significant underseepage problems that do not allow the levee systems to protect against a 100-year flood. The Federal Emergency Management Agency (FEMA) requires a professional engineer's certification that the levees will protect against a 100-year flood. Otherwise, after a period of time for public input and map preparation, FEMA will revise the Flood Insurance Rate Maps and change the designation of the areas behind the levees from protected areas to flood hazard areas. There is tremendous interest in the communities and region to complete the work that will allow certification by a professional engineer before FEMA changes the floodplain designations.

The three counties in the Metro East area, Madison, St. Clair and Monroe Counties, have formed flood prevention districts and passed sales taxes to generate revenues for levee improvements. These flood prevention districts formed the Southwestern Illinois Flood Prevention District Council. This council has hired an engineering firm to design the improvements needed to allow the metro east levee systems to be certified for a 100-year level of protection. The council will complete any necessary construction, and ultimately the engineering firm will certify these levees for a 100-year flood.

Local interests also want the Wood River, East St. Louis, and Prairie Du Pont/Fish Lake levees brought back to their original level of protection, which is greater than the 500-year flood. However, achieving the 100-year certification is their top priority. Although higher floods would be very rare events, floods that exceed the 100-year or 500-year level of protection could occur. Level of review for these improvements will be determined by the Metro East St. Louis Levee Systems Modification Section 408 Submittal Review Plan.

d. In-Kind Contributions. No in-kind products are anticipated for this project.

4. DISTRICT QUALITY CONTROL (DQC)

DQC efforts will include the necessary expertise to address compliance with published Corps policy. Reviews under this heading may include Agency Technical Reviews performed within the District/Division boundaries; over the shoulder peer reviews; and Bid-ability, Constructability, Operability, and Environmental (BCOE) Reviews. Key products for review include plans, specifications, design documentation reports, and cost estimate for the final design review.

a. Products to Undergo DQC. Key products for review include plans, specifications, design documentation reports, and cost estimate for the final design review.

b. Required DQC Team Expertise: 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.

c. Documentation of DQC. DrChecks review software will be used to document all DQC comments, responses and associated resolutions accomplished throughout the review process (See Section 5.c for more information on DrChecks).

5. AGENCY TECHNICAL REVIEW (ATR)

The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

a. Products to Undergo ATR. All plans and specifications completed subsequent to approval of this review plan will undergo ATR.

b. Required ATR Team Expertise. ATR expertise will vary based on the particular needs of each project feature, but will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), Subject Matter Experts, etc) and may be supplemented by outside experts as appropriate. The ATR team and the review itself will be scaled to the size and complexity of the individual products being reviewed. The disciplines represented on the ATR team will reflect the significant disciplines involved in the planning, engineering, design and construction of each project feature. These disciplines include civil, geotechnical, structural, mechanical, electrical, hydraulics and hydrology, real estate, and construction. The primary consideration for being a member of the ATR team is knowledge of the technical discipline and relevant experience. The names, organizations, contact information, and years of experience of the ATR members can be found in Attachment 1.

c. Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses, and associated resolutions accomplished throughout the review process. Comments should be 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 be 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; and
4. The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers 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 team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- 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;
- Identify and summarize each unresolved issue (if any); 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.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

a. Decision on IEPR. According to EC 1165-2-209, a Type II IEPR (SAR) shall be conducted on design and construction activities for flood risk management projects. This applies to new projects and to the major repair, rehabilitation, replacement, or modification of existing facilities. Because this project fits those criteria, a SAR will be conducted for design and construction work. 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 (RMC). Panel members will be selected using the National Academies of Science (NAS) policy for selecting reviewers.

A type I IEPR was completed during the study phase for the Limited Reevaluation Report (LRR) and for the Environmental Assessment (EA). An Environmental Impact Statement (EIS) is not anticipated for this project, so a Type I IEPR will not be required.

b. Products to Undergo Type II IEPR. 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, and before substantial completion of construction activities. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health, safety, and welfare.

c. Required IEPR Panel Expertise. The RMO will use IDIQ contracts with A/E firms. 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 and/or a professional geologist license, and a minimum of 20 years of experience in their field of expertise. The IEPR should consist of a five person panel to include members that have expertise in the following areas: a) levee safety design; b) seepage and piping analysis; c) geotechnical, structural, civil, hydraulic design; and d) geological concerns.

The Type II IEPR panel members will be comprised of individuals that have not been involved in the development of the decision document, meet the National Academy of Sciences guidelines for independence, and will be chosen by an outside organization. The IEPR team and the review itself will be scaled to the size and complexity of the individual products being reviewed. The following types of expertise may be represented on the Type II IEPR team:

(1) IEPR team leader. The IEPR team leader shall hold a professional license in structural or civil engineering with a MS degree or higher civil or structural engineering. The IEPR leader shall have a minimum of 20 years of design experience and experience with multi-million dollar, flood risk management projects. The team leader shall be a recognized leader with good communication skills to lead a diverse review team comprised of individuals located across the nation.

(2) Hydraulics. The reviewer for hydraulics shall be a registered professional engineer with a minimum of a MS degree or higher in engineering science. The reviewer shall have a minimum of 20 years experience in hydrologic analysis and design of hydraulic structures as it relates to riverine flood risk management projects. Reviewer should have experience in the analysis and design involving interior drainage and riverine models using HEC-RAS and hydrology models using HEC-HMS. This member should also be knowledgeable in coincidence of frequency and the application of USACE risk and uncertainty analyses on flood risk management projects. Reviewer should be experienced with similar projects in an urban setting and participated in review of riverine flood risk management projects.

(3) Structural. The reviewer for structural features shall be a registered professional structural engineer with a MS degree or higher in civil or structural engineering. The reviewer shall have a minimum of 20 years experience in the design, layout, and construction of large urban flood risk management projects. Reviewer should be familiar with the design and construction of closure structures, interior drainage facilities, concrete placement, and relocation of underground utilities. The reviewer should have experience with static and seismic design per industry code standards and USACE design regulations for Civil Works projects including soil-structure interaction evaluation and design. The reviewer shall also have a working knowledge of the software Mathcad 15, CWALSHT - USACE Sheet Pile Design, CPGA - USACE Pile Group Analysis, CFRAME - USACE Frame Analysis, CTWALL – USACE Cantilever Wall Analysis, STAAD Pro- Finite Element Analysis, RISA-3D- Finite Element Analysis, and Microsoft Excel.

(4) Civil. The reviewer for civil features shall be a registered professional engineer with a minimum MS degree or higher in civil or construction engineering. They shall have a minimum of 20 years experience in the design, layout, and construction of a large urban flood risk management projects to include knowledge regarding levees, interior drainage facilities, earthwork, concrete placement, design of access roads, and relocation of underground utilities. The reviewer must be familiar with USACE regulations and standards.

(5) Mechanical. The reviewer for mechanical features shall be a registered professional engineer with a BS degree or higher in mechanical engineering. Reviewer shall have a minimum of 20 years in mechanical design of pump stations. The Reviewer must be familiar with USACE regulations and standards

(6) Geotechnical. The reviewer for geotechnical features shall be a registered professional engineer with a minimum BS degree or higher in civil or geotechnical engineering. Reviewer shall have a minimum of 20 years experience in subsurface investigations, floodwall and levee design, seepage and slope stability evaluations, erosion protection design, and construction and earthwork construction. The reviewer must be familiar with USACE regulations and standards.

(7) Electrical. The reviewer for electrical features shall be a registered professional engineer with a BS degree or higher in electrical engineering. Reviewer shall have a minimum of 20 years in electrical design of pump stations. The reviewer must be familiar with USACE regulations and standards.

d. Documentation of Type II IEPR. Dr Checks review software will be used to document IEPR comments and aid in the preparation of the Review Report. Comments should address 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 5.c. The Contractor will be responsible for compiling and entering comments into Dr Checks. 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.

7. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. The estimated cost per ATR is [redacted], but will vary based on the complexity of the project feature being reviewed. The ATR will occur during key stages in the P&S for each feature completed following this review plan. The next scheduled milestone for ATR is the Slurry Trench Cutoff Wall 95% design submittal, which is scheduled to begin 13 May 2013. The following is a preliminary ATR schedule:

Design Package	Start Date
Slurry Trench Cutoff Wall Reach 1 & 2	5/13/2013
Slurry Trench Cutoff Wall Reach 5	5/13/2013
Relief Wells	FY 14
Seepage Berms	FY 14
Pumping Plants	FY 15

b. Type II IEPR Schedule and Cost. The IEPR costs are paid from Project funds and is a 100% Federal 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 milestone. The IEPR schedule is established by the RMO in conjunction with the District (PM and PDT). It is anticipated that the cost of the IEPR effort for this project will be between [redacted] and [redacted]. This estimate includes cost for in-house personnel, RMO administration and management, and the panel member participation. Type II IEPR has not been scheduled at this time, but will be coordinated with the RMC. It is anticipated that Type II IEPR will be performed on the cutoff wall designs in FY 13.

c. Model Certification/Approval Schedule and Cost. Not Applicable

d. Policy and Legal Compliance Review. Policy and Legal Compliance Review is required for decision documents. Since the decision document for this project has already gone through policy and legal compliance review and subsequently been approved, this phase of the project does not require a Policy and Legal Compliance Review.

8. PUBLIC PARTICIPATION

As required by EC 1165-2-209, the approved Review Plan will be posted on the District public website (http://www.mvs.usace.army.mil/pm/pmPeerReview.html). Information will be conveyed to the public through the use of press releases and media interviews, as necessary, and through the use of posting information to the St. Louis District's website. There is no formal public review for the DDR, plans and specifications and construction phases. However, the cost share partner, the Southwestern Illinois Flood Prevention District Council, will have opportunities to review the DDR, plans and specifications and construction phases as part of the PDT.

9. REVIEW PLAN APPROVAL AND UPDATES

The Mississippi Valley Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the project. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 4. 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, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

10. REVIEW PLAN POINTS OF CONTACT

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

- St. Louis District Office: [redacted] Project Manager [redacted]
- Mississippi Valley Division (MSC): [redacted] District Support Team POC
- Risk Management Center (RMO): [redacted] Review Manager

ATTACHMENT 1: TEAM ROSTERS

Project Delivery Team (PDT):

Name	ROLE/DISCIPLINE	EMAIL
[redacted]	Project Manager	[redacted]
[redacted]	Hydrology and Hydraulics/Lead Engineer	[redacted]
[redacted]	Civil Engineering	[redacted]
[redacted]	Structural Engineering	[redacted]
[redacted]	Cultural Resources	[redacted]
[redacted]	Geotechnical Engineering	[redacted]
[redacted]	Cost Estimating	[redacted]
[redacted]	Regulatory	[redacted]
[redacted]	Environmental Compliance	[redacted]
[redacted]	Civil Engineering	[redacted]
[redacted]	Mechanical Engineering	[redacted]
[redacted]	Real Estate	[redacted]
[redacted]	Electrical Engineering	[redacted]
[redacted]	Economics	[redacted]
[redacted]	Civil Engineering	[redacted]
[redacted]	Construction	[redacted]
[redacted]	Plan Formulation	[redacted]
[redacted]	Geotechnical Engineering	[redacted]
[redacted]	Geotechnical Engineering	[redacted]

District Quality Control (DQC):

NAME	DISCIPLINE	Contact Information
TBD	Civil Engineering	
TBD	Geotechnical Engineering	
TBD	Structural Engineering	
TBD	Mechanical Engineering	
TBD	Electrical Engineering	
TBD	Hydrology and Hydraulics	

Agency Technical Review (ATR):

Agency Technical Review members will vary by review. This list includes recommended disciplines and will be populated as reviewers are selected.

NAME	ROLE/DISCIPLINE	Education & Experience
TBD	ATR Team Lead/Civil Engineering	BS in Civil Engineering, 15+ years experience in the civil design and construction of levees
TBD	Geotechnical Engineering	BS in Civil/ Geotechnical Engineering, 10+ years experience in the geotechnical design and construction of levees
TBD	Structural Engineering	BS in Structural Engineering, 10+ years experience in the structural design and construction of levee enclosure structures
TBD	Mechanical Engineering	BS in Mechanical Engineering, 10+ years experience in mechanical design
TBD	Electrical Engineering	BS in Civil/Hydraulic Engineering, 10+ years experience in electrical design
TBD	Hydrology and Hydraulics	BS in Civil/Hydraulic Engineering, 10+ years experience in the hydrology and hydraulic design

Independent External Peer Review (IEPR) Panel:

The selection of the IEPR panel will be coordinated by the RMC.

NAME	ROLE/DISCIPLINE	EDUCATION AND EXPERIENCE
To be independently selected		
To be independently selected		
To be independently selected		
To be independently selected		
To be independently selected		

Vertical Team:

The Vertical Team consists of members of the HQUSACE and CEMVD 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 teleconferences, as required, and will attend In Progress Reviews and other key decision briefings. The CEMVD District Liaison is the District PM's primary Point of Contact on the Vertical Team.

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECSION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the *<type of product>* for *<project name and location>*. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks[sm].

Name — Date
ATR Team Leader
Office Symbol/Company

[redacted] — Date
Project Manager
CEMVS-PM-N

[redacted] — Date
Director, Risk Management Center
CEIWR-RMC

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: *Describe the major technical concerns and their resolution.*

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

Name — Date
Chief, Engineering Division
Office Symbol

SIGNATURE
Name — Date
Chief, Planning Division
Office Symbol

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number