

**US Army Corps  
of Engineers®  
Memphis District**

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**Review Plan  
for  
Grand Prairie Area Demonstration Project  
Grand Prairie Region, Arkansas**

**Implementation Phase**

**28 January 2013**

**P2# 109425**



**DEPARTMENT OF THE ARMY**

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

REPLY TO  
ATTENTION OF:

CEMVD-PD-KM

8 February 2013

MEMORANDUM FOR Commander, Memphis District, ATTN: CEMVM-PM-P

SUBJECT: Review Plan (RP) for Grand Prairie Area Demonstration Project, Grand Prairie Region, Arkansas (P2# 109425)

1. References:

- a. Memorandum, CEMVM-DE, 30 January 2013, subject as above (encl 1).
- b. Memorandum, CEMVD-RB-T, 5 February 2013, subject as above (encl 2).
- c. EC 1165-2-214, Civil Works Review, 15 December 2012.

2. MVD staff has reviewed the Review Plan (RP) and related documents for the subject project. The RP was also reviewed and endorsed by the Review Management Organization (encl 2). The RP was developed in accordance with reference 1.c., which establishes an accountable, comprehensive, life cycle review strategy for civil works projects from initial planning through design, construction, and Operation, Maintenance, Repair, Replacement and Rehabilitation.

3. The subject RP plan is approved. Please post the approved RP to your web page.

4. The MVD point of contact for this action is Ms. Sarah Palmer, CEMVD-PD-KM, (601) 634-5910.

A handwritten signature in black ink, appearing to read "Edward E. Belk, Jr.", written in a cursive style.

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

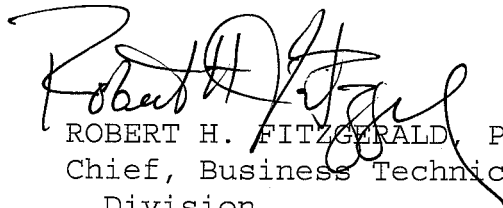
2 Encls

5 February 2013

MEMORANDUM FOR CEMVD-PD-KM (Dennis Norris)

SUBJECT: Review Plan for Grand Prairie Area Demonstration  
Project, Grand Prairie Region, Arkansas (P2#109425)

1. Reference memorandum, CEMVM, 30 January 2013, subject as above.
2. This office concurs with subject Review Plan.
3. The RB-T point of contact is Mr. Will Bradley, 601-634-5644.

  
ROBERT H. FITZGERALD, P.E.  
Chief, Business Technical  
Division



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, MISSISSIPPI VALLEY DIVISION  
1400 WALNUT STREET  
VICKSBURG, MS 39181-0080

30 Jan 13

CEMVM-DE

MEMORANDUM FOR Commander, US Army Corps of Engineers, Mississippi Valley Division  
(CEMVD-RB-T/Mr. Robert Fitzgerald)

SUBJECT: Review Plan (RP) for Grand Prairie Area Demonstration Project, Grand Prairie  
Region, Arkansas (P2# 109425) (Encl)

1. The review plan for the Grand Prairie Area Demonstration Project, Grand Prairie Region, Arkansas (P2# 109425), located in central eastern Arkansas is attached for Mississippi Valley Division's review and approval. The Review Plan was prepared in accordance with EC 1165-2-209.
2. The Grand Prairie Area Demonstration Project is currently in the implementation phase. As required by EC 1165-2-209, request review and approval of the Review Plan.
3. The point of contact for this memorandum is the project manager, Mr. Greg Grugett, at (901) 544-0879, or e-mail: [gregory.j.grugett@usace.army.mil](mailto:gregory.j.grugett@usace.army.mil).

*CA Williamson 30 Jan 13*

Encl

*for* THOMAS MINYARD, P.E.  
Chief, Engineering & Construction Division

# Review Plan

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## Grand Prairie Area Demonstration Project Grand Prairie Region, Arkansas 28 January 2013

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# Review Plan

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## **Grand Prairie Area Demonstration Project Grand Prairie Region, Arkansas 28 January 2013**

### **1 INTRODUCTION**

#### **1.1 Purpose and Authority**

This Review Plan defines the scope and level of quality management activities for the Grand Prairie Area Demonstration Project, Grand Prairie Region, Arkansas (Project). The purpose of this Review Plan (RP) is to define the scope and level of review for implementation documents for the Project. This RP is a stand-alone document, and is also included as an appendix to the Project Management Plan. This project is being carried out under the PL 104-303, as reauthorized, to provide ground water protection and conservation, agricultural water supply and waterfowl management throughout the Grand Prairie region of central eastern Arkansas in response to ground water depletion within the region. The Memphis District is executing the Project and reports to the Mississippi Valley Division (MVD) in Vicksburg, MS.

#### **1.2 Documents for Review**

The project is in the implementation phase. The implementation documents are the 100% plans, specifications, design documentation reports, and updates (as required) to the Grand Prairie Area Demonstration Project, Grand Prairie Region, Arkansas operations and maintenance manual. To date portions of this project have been implemented and are completed or currently under construction. Review of the implementation documents for these portions of work were accomplished through peer reviews and/or independent technical reviews. These portions include:

- Item 1 –The inlet channel from the White River to the DeValls Bluff Pump Station is complete. The substructure for the DeValls Bluff Pump Station is currently under construction with completion scheduled for August 2013.
- Item 1B – The westernmost 3,600 L.F. of twin - 10 foot diameter discharge pipe (designated Discharge Pipes, Segment 1) has been completed. The next implementation phase for review is the easternmost 3,700 L.F. of twin – 10 foot diameter discharge pipes (designated Discharge Pipes, Segment 2).

See Section 2.1 - Project Description for a list and description of the items of work associated with this project. See the sections on Agency Technical Review (ATR) and Appendix A for details on the next implementation phase of the Project.

### 1.3 Review Requirements

This RP was developed in accordance with EC 1165-2-209, which establishes the procedures for ensuring the quality and credibility of US Army Corps of Engineers (USACE) decision and implementation documents through independent review. This RP describes the scope of review for the current phase of work. All appropriate levels of review, District Quality Control Plan (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR) and Policy and Legal Review, will be included in this RP and any levels not included will require documentation in the RP of the risk-informed decision not to undertake that level of review. The RP identifies the most important skill sets needed in the reviews and the objective of the review and the specific advice sought, thus setting the appropriate scale and scope of review for the individual Project.

### 1.4 Primary Points of Contact

#### 1.4.1 District Quality Control

Memphis District	Mr. Greg Grugett	901-544-0879
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#### 1.4.2 Agency Technical Review

Mississippi Valley Division Review Management Office	Mr. William Bradley	601-634-5644
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### 1.5 References

- |    |  |  |
|----|--|--|
| a. | ER 1105-2-100  | <i>Planning Guidance Notebook</i> , 20 November 2007   |
| b. | ER 1110-1-12   | <i>Engineering and Design - Quality Management</i> , 21 July 2006, incorporating Change 1, 30 September 2006 |
| c. | ER 1110-2-1150   | <i>Engineering and Design for Civil Works</i> , 31 August 1999   |
| e. | EC 1105-2-408  | Peer Review of Decision Documents, 31 May 2005   |
| f. | EC 1105-2-410  | <i>Review of Decision Documents</i> , 22 August 2008   |
| g. | EC 1165-2-209  | <i>Civil Works Review Policy</i> 31 January 2010, with Errata Sheet 1 dated 15 July 2010                     |
| h. | Army Regulation 15-1, <i>Committee Management</i> , 27 November 1992 (Federal Advisory Committee Act Requirements)                     |  |
| i. | National Academy of Sciences, <i>Background Information and Confidential Conflict Of Interest Disclosure, BI/COI FORM 3</i> , May 2003 |  |

## 2 PROJECT INFORMATION

### 2.1 Project Description

Section 204 of the Flood Control Act of 1950 (64 Stat 174) authorized a project for the Grand Prairie Region in eastern Arkansas. Due to a lack of local sponsorship, this project was never funded and was subsequently de-authorized by Section 1001 (B) of the Water Resources Development Act of 1986 (33 U.S.C. 579A (B)). However, removal of rice production limits, a severe drought in 1980, and a renewed concern for declining groundwater levels prompted interest in developing water conservation and supply projects. Responding to the concerns of state agencies, local officials, and Review Plan for Grand Prairie, AR\_Final\_30Jan13.docx

individuals; the Committee on Public Works and Transportation of the United States House of Representatives adopted a resolution on 23 September 1982 which directed the Corps of Engineers to study the feasibility of developing water conservations and water supply project in eastern Arkansas.

The major resource problem in the project area and eastern Arkansas is the lack of a dependable water supply to continue irrigation of cropland. The alluvial aquifer, which is the primary source of agricultural irrigation water for all eastern Arkansas is seriously depleted. Groundwater withdrawals over several decades in excess of recharge (safe yield) have resulted in several large cones of depression in the aquifer. The largest cone is centered over the Grand Prairie in Arkansas, Prairie, and Lonoke counties. Groundwater depletion is one of the most serious and far reaching problems that face the eastern Arkansas region. Impacts will be of national significance as this region produces approximately 42 percent of the national product of rice and significantly contributes in soybean, wheat, and other grain crops.

Use of water in eastern Arkansas is closely related to economic growth and development. The economic results of exhausting the aquifer would be catastrophic. The social well being of the people would be jeopardized. The future of the industry that is the economic base of the region and supports all other industry -agriculture, is threatened to non-existence. Many farms within the project area cannot meet all of an average year's water needs and as such only partially irrigate their crops. Farmers have started tapping a deep aquifer to supplement their water needs. Studies have shown that this is only a short term solution. The deep aquifer cannot sustain a yield to meet the irrigation requirements and is very expensive both in capital investment and operating costs. Farmers can only justify using the deep aquifer in conjunction with the much cheaper surface and shallow aquifer costs. Without an alternative source of water, irrigation to sustain farming at profitable levels cannot continue. This will have a significant, adverse economic impact on the local economy. It will force farmers, farm supply dealers, and lending institutions into bankruptcy along with others not directly related to agriculture, whose livelihood depends on the moneys provided by agriculture to the local economy.

The consequences of aquifer depletion can be prevented or at least limited by providing a supplemental source of irrigation water, thereby maintaining the aquifer at a level which would allow for a sustained yield. The only solution to eastern Arkansas's and particularly the Grand Prairie's groundwater problem is an alternative water supply with conservation.

The plan includes the following 5 elements: groundwater, increased irrigation efficiencies, on-farm storage, import water, and environmental features.

- Groundwater - In the Grand Prairie Area, almost 85% of irrigation water is currently pumped from the ground. At this rate, withdrawals far exceed recharge of the aquifer. Although groundwater will still be used in the developed plan, it will be at a volume that will permit stabilization of the aquifer. Approximately 8% of the with-in project water supply will be groundwater.
- Increased irrigation efficiencies - The proposed plan requires utilizing existing and proposed water supplies more efficiently. The Natural Resources Conservation Service (NRCS) will work with individual landowners in planning and implementing conservation practices such as tailwater recovery systems, underground pipelines, and irrigation water management practices.

- On-Farm Storage - The selection of the Grand Prairie Area as the site for the demonstration project was due, in part, to the large amount of land already dedicated to on-farm storage reservoirs. Currently, these reservoirs account for approximately 15% of the existing water supply. Approximately 9,800 acres of new reservoirs are included in the proposed plan.
- Import Water - A major pumping station located on the White River will provide import water to the Grand Prairie Area via a system of new canals, check structures, turnouts, bridges, siphons, and weirs located in existing streams. The import system and additional on-farm storage will provide over 59% of the with-project water supply.
- Environmental Features - The proposed plan provides an opportunity for fish and wildlife enhancement. Included in the environmental features of the project are: 38,525 flooded acres for waterfowl; approximately 1,500 additional surface acres for fisheries; and native prairie grass restoration along the project rights-of-way.

The project plans were developed keeping the problems and needs of the area relative to flood damage reduction, groundwater protection and conservation, agricultural water supply, and ecosystem and waterfowl management foremost as project objectives. This was done by developing a plan to protect groundwater resources and reduce flooding in the area while providing a supplemental agricultural water supply for irrigation, aquaculture, and fish and wildlife, specifically waterfowl management and conservation. Water is essential to eastern Arkansas' farmers. Each year, these farmers risk planting crops that may be lost due to a lack of water. In this day of tight credit and high production cost, one bad crop can put a farmer in bankruptcy. Water is the insurance that producers cannot be without. When securing financing, producers utilizing irrigation systems are considered much better risks. Today, a majority of lending institutions insist on irrigation systems before a loan application will be considered. Water has always been essential in growing rice -which is a billion dollar industry in eastern Arkansas. Now, irrigation of other crops has become essential in sustaining production at profitable levels.

An environmental assessment (EA) supplementing the EIS which covered the elimination of streams and adding pipeline was finalized in April 2004, with a finding of no significant impact (FONSI) in April 2004. Another EA on a canal realignment and pumping station borrow placement was completed in September 2010, with the FONSI signed that same month. In April 2007, a supplemental biological assessment was completed on the project's potential impacts to the ivory-billed woodpecker.

The project is cost shared in accordance with the Water Resources Development Act of 1986, P.L. 99-662. This Act requires that the local sponsor be responsible for 35% of total project costs and for 100% of the operation and maintenance of the project. The local sponsor will contribute lands, easements, rights-of-way, relocations, dredged material disposal areas (LERRDs), and/or cash up to this total. If this total is reached, the Federal government will reimburse the local sponsor for acquisition of LERRDs which exceed 35% of the total project cost. All relocations and acquisition of real estate will be performed by the local sponsor to eliminate possible conflicts with differing agencies acquiring LERRDs for the same project. The US Army Corps of Engineers (Corps) will be responsible for design, contracting, and construction management activities. While the Corps will have responsibility for construction management, the local sponsor will take an active role in design and construction management to ensure that the resulting project meets their needs and can be operated and maintained. The Federal government is responsible for cultural resources mitigation costs up to 1% of the total project costs. The cultural resources mitigation costs under 1% of the project costs will not be

included in the total project costs for determining local cost share. The cost sharing responsibilities will be clearly defined in the financing plan and Project Cost Sharing Agreement before construction.

The local sponsor for this project is the White River Region Irrigation Water Distribution District. In addition to the above commitments, the local sponsor will be required to operate and maintain each separable element of the project upon its completion. The waterfowl component of the project (flooding acreage for waterfowl) is a responsibility of the local sponsor and will be outlined in the operation and maintenance responsibilities of the project.

<b>GRAND PRAIRIE AREA DEMONSTRATION PROJECT</b>	
<b><u>Project Cost Summary</u></b>	
<b><u>Descriptions</u></b>	<b><u>Project Cost</u></b>
<i>Land and Damages</i>	<b>\$ 16,519,000</b>
<i>Relocations</i>	<b>18,701,000</b>
<i>Channel and Canals (includes On-Farm Component)</i>	<b>244,332,000</b>
<i>Pumping Plants</i>	<b>71,573,000</b>
<i>Diversion Structures</i>	<b>7,871,000</b>
<i>Cultural Resources</i>	<b>2,724,000</b>
<i>Mitigation</i>	<b>231,000</b>
<i>Planning, Engineering, and Design</i>	<b>57,000,000</b>
<i>Construction Management</i>	<b>20,549,000</b>
<i>Contingencies</i>	<b>10,500,000</b>
<b>Total Project Cost</b>	<b>\$ 450,000,000</b>

Due to the heavy initial capital investment, project benefits are dependent on the time to initial operation of the completed system. Project benefits will begin accruing as soon as the major pumping station and Item 3 are completed. The other items will add more benefits. Timely construction is necessary to reduce cost to the customer and maximize benefits to the nation. The capital applied to project construction will be accruing interest without benefits being provided to the nation until the pumping station can be brought on line to divert flows into the supply canals. Based on construction time estimates of the various items, construction of the pumping station is the most time consuming item. The distribution canals will be built beginning at the pumping station and proceeding downstream so as to maximize benefits. Construction would then proceed southward until project completion.

The project was divided into construction items. Where Federal funding allows, the construction contracts will consist of all work within an item to eliminate potential problems with scheduling different contractors to work on different features within an item. It is anticipated that the main contractor for an item will subcontract work on various features to specialized contractors. Items 1 and 1B are a 1640 CFS Pump Station, discharge pipes and outlet structure which will supply the project with water from the White River. Portions of these two items are currently under construction. Items

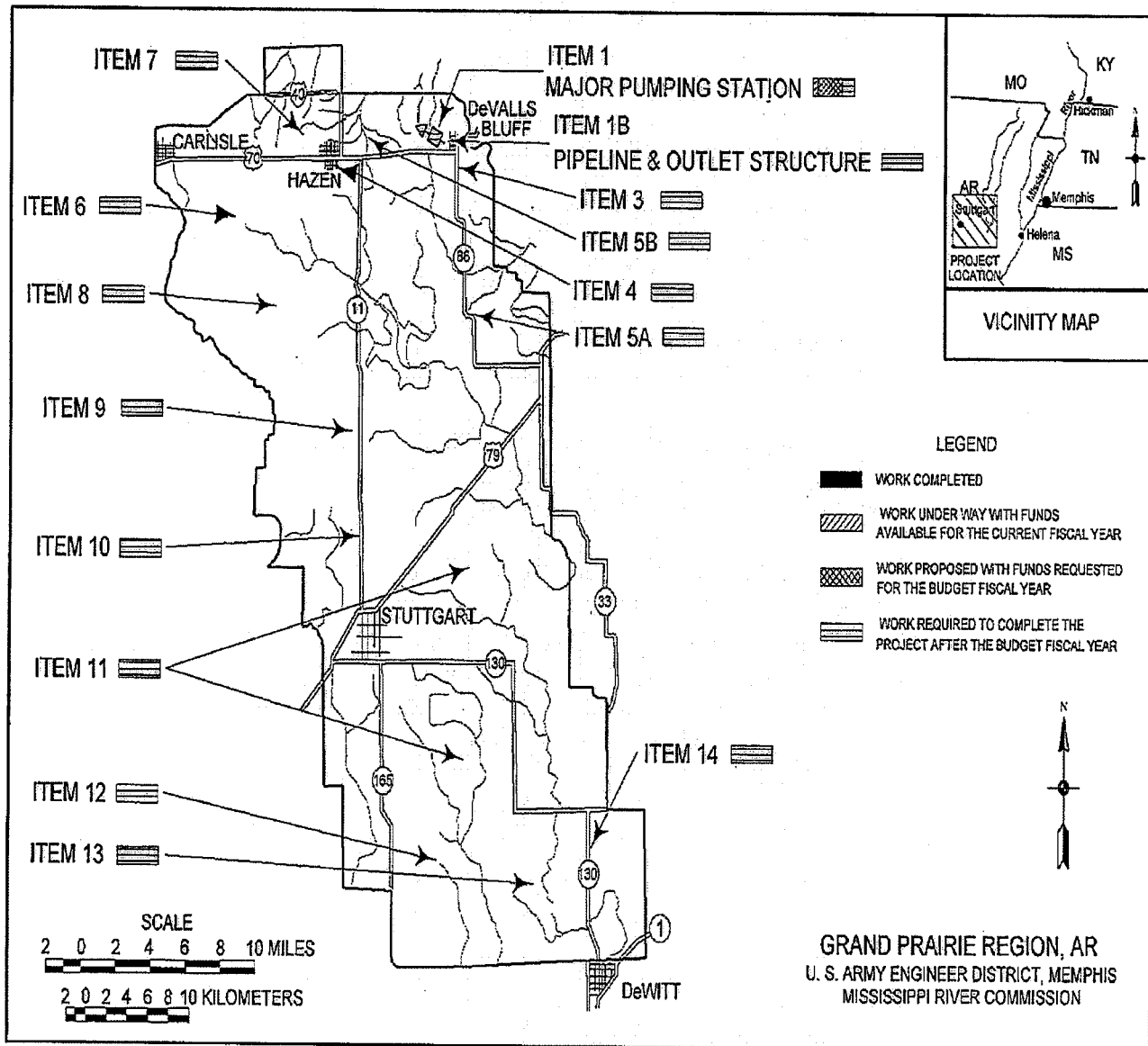
3 to 14 are the construction of canals with various bottom widths, pipelines, a 100 CFS lift station, 4 major gated structures, and weirs in the existing streams. The main canals have pump structures and turnout structures for control of the water supply to smaller canals and pipelines. The supply and monitoring of the water resources will be controlled by an electronic instrumentation system. The road crossings will consist of reinforced concrete pipe, reinforced box culverts, or precast concrete bridges. All canal crossings which intersect a drainage ditch or natural stream will be constructed with an inverted siphon of reinforced concrete pipe. Some items may be combined for contracting in order to speed construction. However, for design purposes the items will be kept separate. This was done to provide options to minimize any delays resulting from right-of-way (ROW) acquisition problems, relocations delays, cultural resources mitigation, or other events. All aspects of the pumping station were originally designed together to insure functionality. Construction of the pump station structure and inlet channel began in 2005. However, due to Federal lawsuits and the re-discovery of the Ivory-billed Woodpecker, construction was halted and the pump station contract was terminated for convenience in 2006. The lawsuit was dismissed in December 2008 and construction resumed on the pump station inlet channel in August 2009. Subsequent Federal funding issues required Items 1 and 1B to be split into several segments in order to continue momentum with project construction and recognize benefits as soon as possible. Items 1 and 1B are now segmented in the following packages:

- Pump station inlet channel (completed)
- Pump station substructure below elevation 190 (under construction)
- Pump station pumps and motors (completed and in storage)
- Pump station superstructure above elevation 190
- Pump station electric substation
- Discharge pipes, segment 1 (completed)
- Discharge pipes, segment 2 (90% design complete)
- Outlet structure (90% design complete)

Items 3 through 7 will be scheduled to be complete when the pumping station and outlet structure are complete (Items 1 and 1B). This encompasses most of the north half of the project area. The remaining segments, Items 8 through 14, will then be completed. The description and an area map of the items of work are as follows.

- **Item 1** – A 1640 CFS DeValls Bluff Pump Station which is connected to the White River by approximately 2,000 LF of inlet channel.
- **Item 1B** – About 1.7 miles of twin -10' diameter discharge pipes and an outlet control structure (reservoir) connect the Pump Station to the canal 1000.
- **Item 3** – Construction of new canals 1000, 1500 and 1520 and pipelines 1300, 1400, 1500, and 1520 and construction of weirs and/or outlets on existing streams 1300, 1400, 1510.
- **Item 4** – Construction of new canals 2000A, 2000B, a portion of canal 3000, and pipeline 2000
- **Item 5** – Construction of new canals 2200, 2300, 2400A, 2400B, and 2500, and pipelines 2100, 2200, 2210, 2230, 2240, 2300, 2410, and 2500 and construction of weirs and/or outlets on existing streams 2100, 2210, 2211, 2220, 2230, 2240, 2250, 2260, and 2410.
- **Item 6** – Construction of new canals 3100, 3110, 3300, a portion of canal 3000; pipelines 3000, 3110, 3300, and 3400 a mechanical gated structure in canal 3000; and construction of weirs and/or outlets on existing stream 3110.

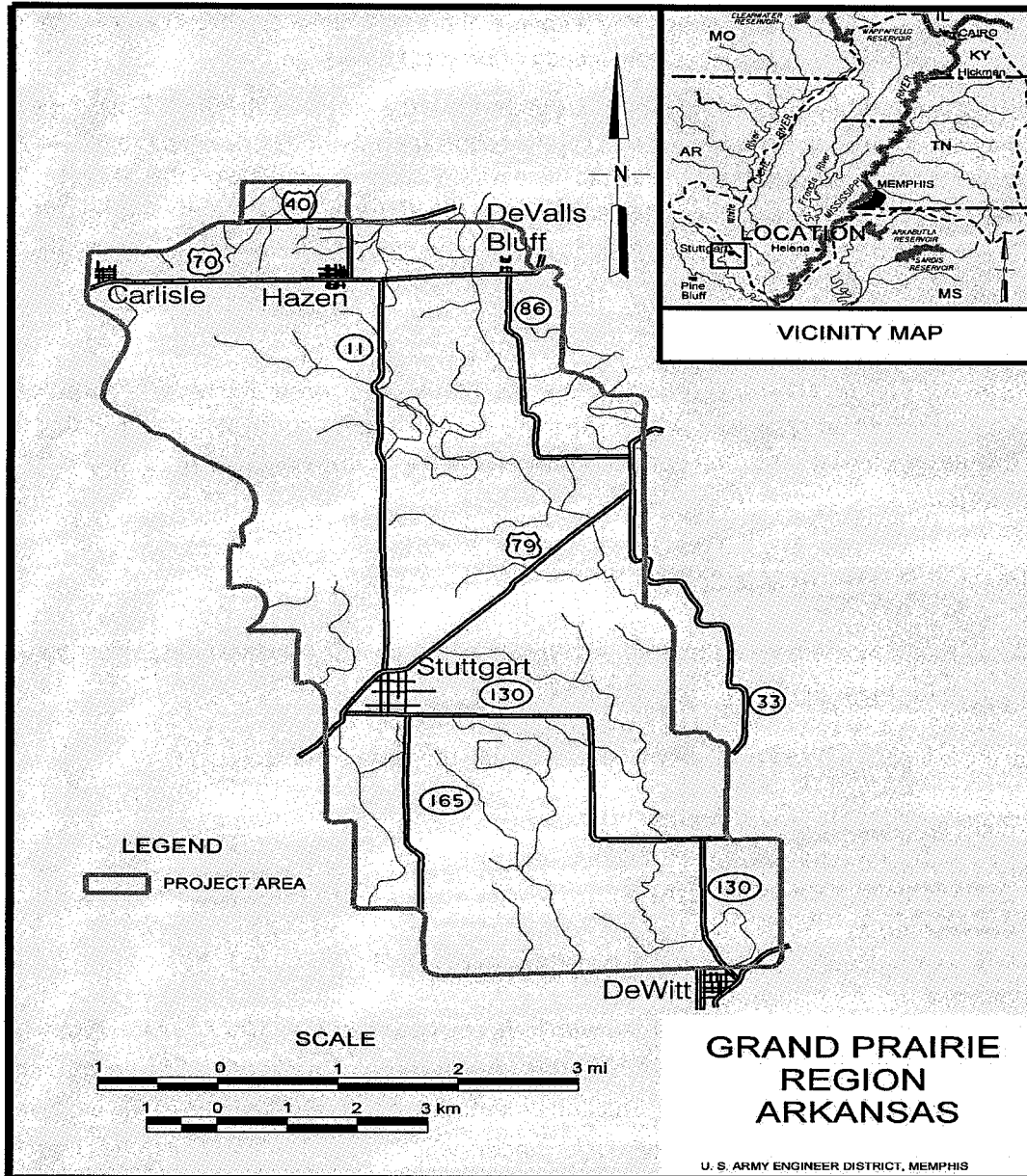
- **Item 7** – Construction of new canals 3200, 3220; pipelines 3200, 3221, 3261 the 100 CFS Pump Station in canal 3200 and construction of weirs and/or outlets on existing streams 3200, 3210, 3221, 3230, 3240, 3250, 3260, 3261.
- **Item 8** – Construction of new canals 3500, 3510, 40-50, pipelines 3500, 4000A, 4000B; a mechanical gated structure in canal 4000; and construction of weirs and/or outlets on existing stream 510.
- **Item 9** – Construction of new canals 4100, 4200, 4400A, 4400B, 4500A, 4500B, 4520, 5000, 5100, 5200A, 5200B; pipelines 4100, 4200, 4300, 4400A, 4400B, 4500, 4510, 4520, 5200; a mechanical gated structure for canal 15000; and construction of weirs and/or outlets on existing stream 5100.
- **Item 10** – Construction of new canals 5300A, 5300B, 5310, 5400; pipelines 5300A, 5300B, 5310, 5311, and 5400; and construction of weirs and/or outlets on existing stream 5311.
- **Item 11** – Construction of new canals 5500, 6000A, 6300, 6400; pipelines 5500, 5510, 5520, 5530, 6000, 6100, 6300, 6310, 6500; a mechanical gated structure in canal 6000; and construction of weirs and/or outlets on existing streams 5510, 5520, 5530, 6100, 6300, 6310, 6410, 6500.
- **Item 12** – Construction of new canals 6000B, 6600; pipelines 6600; and construction of weirs and/or outlets on existing streams 6610.
- **Item 13** Construction of new canals 6200A (Station 0+00 - 743+56), 6200B (Station 743+56 - 1160+54); pipelines 6200; and construction of weirs and/or outlets on existing stream 6210.
- **Item 14** – Construction of new canals 6205, 6215, 6216, 6230, pipelines 6100, 6230; and construction of weirs and/or outlets on existing stream 6100.



## 2.2 Project Location

The Grand Prairie portion of the Grand Prairie Region and Bayou Meto Basin, Arkansas, Project is primarily located in Arkansas and Prairie Counties and a small portion in Lonoke and Monroe Counties. This project will provide for agricultural water supply, ground water protection, and fish and wildlife restoration and enhancement. Of the 362,662 acres in the project area, 254,406 acres are dedicated to crop production. Over 97 percent of this cropland is irrigated; the project features include a major pumping station, conveyance channels, and conservation measures for the Grand Prairie area.





### 2.3 Project Primary Risk Factors

Risk will be minimized using well-coordinated schedules, metrics, and the assignment of specific responsibilities to the PDT members who possess the background and expertise related to those responsibilities. Status review sessions will be held weekly with the project manager and monthly with the other PDT members. Discussions during these sessions will identify issues and problems that cause risk for the program, and to keep the key people on this project focused on execution.

Potential areas of risk include priority conflicts resulting in the non-availability of technical design team (TDT) members. Regular reviews will assess problems of this nature and establish work-around processes to include: Identification of the backup PDT members, use of A-E contractors to accomplish that work at risk, shifting the time for accomplishing non-critical activities to accommodate other priorities, reassignment of manpower resources to the problem areas, and assigning the work to other

in-house groups qualified to do the work. Key team members with historical project knowledge will be a priority to retain as team members to retain a body of project knowledge.

Other areas of risk include the allocation of funds to perform the work. While the PDT has little control over the allocation of funds, the awareness of funding shortage situations will allow the PDT to alter the schedule and reassign the resources that would have otherwise been working on this project. Conversely, if more funds are provided than anticipated, the PDT may use alternate methods for accomplishing that work that can be advanced in a logical manner. Those methods follow generally the work-around methods discussed above.

## **2.4 Project Authority**

The Grand Prairie Region, Arkansas, FCA 1950, Sec. 204 (authorized construction); WRDA 1986, Sec. 1001(b) (de-authorized project); WRDA 1996, Sec. 363 (authorized for construction, expanding the scope to include ground water protection and conservation, agricultural water supply, and waterfowl management).

## **3 PRODUCT INFORMATION**

The results of the Implementation Phase of the Project will be design, specifications, and supporting documentation for the Project to go to solicitation.

The following is a partial list of products produced during the course of the Project:

- A. Plans and Specifications
- B. Design Documentation Report (DDR)
- C. Design Quality Control Plan (DQCP)
- D. Cost Estimates
- E. Engineering Considerations and Instructions to the Field.

Implementation documents will be designed with in-house capabilities and/or A/E contractors to include regional assistance from other Districts within MVD. The purpose of implementation documents is to provide a detailed plan for construction. The implementation products listed above will be developed by a USACE project delivery team (PDT) with A/E support when needed. A construction contractor will complete the construction.

## **4 SCOPE OF REVIEWS**

All work products undergo District Quality Control (DQC) and Agency Technical Review (ATR). However, there is a level of judgment applied to determine if an Independent External Peer Review (IEPR) is required. Therefore, this Review Plan includes documentation in Attachment 4 of the risk-informed decision on IEPR level of review. Each level of review and how it applies to the Project is explained below.

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 decision document. Like the PMP, the Review Plan for Grand Prairie, AR\_Final\_30Jan13.docx

Review Plan is a living document and may change as the Project 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 vertical team members i.e. the RMO and home MSC.

#### **4.1 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 under review. Basic quality control tools used on the Project include a QMP providing for seamless review, peer quality checks and reviews, supervisory reviews, PDT reviews, a bid ability, constructability, operability, and environmental (BCOE) review, in-house product development checklists, and established Business Quality Practices (BQPs) used to ensure quality procedures are followed. Prior to implementation of EC 1165-2-209, the Project plans and specifications also received an Independent Technical Review (ITR) from reviewers of disciplines similar to those used for the ATR on the Project. DQC also includes certification of the plans, specifications, and the DDR by a BCOE signoff certification, which includes the chiefs of construction, engineering, and operations divisions and the chiefs of the civil construction and geotechnical functional elements.

DQC efforts include the necessary expertise to address compliance with published Corps policy. When policy and/or legal concerns arise during DQC efforts that are not readily and mutually resolved by the PDT and the reviewers, the district seeks issue resolution support from the vertical team in accordance with the procedures outlined in Appendix H, ER 1105-2-100 or other appropriate guidance.

DQC 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 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; 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.

Quality checks and reviews will be conducted during the development process and are carried out as routine management practice. Quality checks will 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 will not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts.

Project Delivery Team (PDT) reviews are performed by members of the PDT to ensure consistency and effective coordination across all project disciplines. 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 Memphis District Commander. PDT review disciplines are listed in Paragraph 7.1.1.

A copy of all comments and responses from DQC will be provided to the ATR team at each review in the form of a Quality Assurance Review Memo.

The MVD and Memphis District Quality Management Plans (QMPs) address the conduct and documentation of this fundamental level of review. DQC is required for this Project.

#### **4.1.1 Peer Reviews**

Prior to ATR, all implementation documents will receive a peer review. The peer review is conducted by a peer in the same discipline and double checks calculations, assumptions, and other design details used in the design and specifications. A certification will be prepared once issues raised by the reviewers have been addressed to the review team's satisfaction. Indication of this concurrence will be documented by the signing of a quality assurance certification statement by the MVM Chief of Engineering and Construction Division. The certification will state that the PDT team concurs with the Project design and that it is ready for advertising. Peer review disciplines are listed in Paragraph 7.1.2.

#### **4.1.2 A/E Product Reviews**

For products produced by A/E firms, at the submittal of their final products, the A/E shall provide certification that the products that they produced had undergone the A/E's quality control procedure. It is also noted that the A/E is required to have all the design drawings stamped by a registered professional engineer.

#### **4.1.3 Biddability, Constructability, Operability, and Environmental (BCOE) Review**

The BCOE review is the review of all aspects of the documents used to bid for a construction contract to ensure they will result in a biddable and constructible project. The BCOE Review occurs prior to advertising the contract for bids. The BCOE Review disciplines are listed in Paragraph 7.1.3.

### **4.2 Agency Technical Review (ATR)**

ATR is an in-depth review undertaken to ensure the quality and credibility of the government's scientific information, 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. ATR is mandatory for all decision and implementation documents. For other work products, a case specific risk-informed decision is made as to whether ATR is appropriate. The purpose of ATR is to ensure 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. The ATR review package includes the certified DQC review package. ATR teams are comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team is selected from outside MVD.

#### **4.2.1 Required ATR Team Expertise**

ATR reviewers will be comprised of individuals that have not been involved in the development of the design documents. The following paragraphs describe the list of all required disciplines as well as the experience required by each of the ATR team members. Other disciplines/functions may be added to the ATR team as necessary, in which case the added team member(s) will have the appropriate experience and educational requirements. For the entire Project, the ATR team could consist of up to 10 members including the ATR team leader. However, review of any given item of work would not necessarily require the efforts of all team members. See Appendix A for a list of required ATR team members for the next item of work (Item 1B – Discharge Pipes, Segment 2).

##### **4.2.1.1 ATR Team Leader**

The team lead should understand the requirements of EC 1165-2-209, 31 January 2010, Water Resources Policies and Authorities, CIVIL WORKS REVIEW POLICY and have experience conducting technical reviews; have a thorough understanding of Projnet's DrChecks ([www.projnet.org](http://www.projnet.org)); be accomplished in the management of multidisciplinary teams and issue resolution; be proficient in developing the review report to document the ATR; and have extensive knowledge of the authorities, regulations, and policies of the Corps of Engineers. The ATR lead may also serve as one of the technical reviewers. The team lead shall be a registered professional engineer with 10 years experience.

##### **4.2.1.2 Structural**

The reviewer for structural features shall be a registered professional engineer with a BS degree or higher in civil or structural engineering. The reviewer shall have a minimum of 10 years experience in the design, layout, and construction of large reinforced concrete structures and pump station projects. Reviewer should be familiar with the design and construction of removable flood walls, 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.

##### **4.2.1.3 Hydraulics**

The reviewer for hydraulics shall be a registered professional engineer with a minimum of a BS degree or higher in engineering science. The reviewer shall have a minimum of 10 years experience in hydrologic analysis and design of hydraulic structures as it relates to riverine flood risk management and water delivery system projects. Reviewer should have experience in the analysis and design involving interior drainage and riverine models using hydrology models HEC-HMS and hydraulic models HEC-RAS. This

member should also be knowledgeable in coincidence of frequency and the application of USACE risk and uncertainty analyses on flood risk management projects.

#### ***4.2.1.4 Civil Design***

The reviewer for civil features shall be a registered professional engineer with a minimum BS degree or higher in civil or construction engineering. The reviewer shall have a minimum of 10 years experience in the design, layout, and construction of a large pump station, outlet structures, open canals and closed water delivery systems 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.

#### ***4.2.1.5 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 10 years in mechanical design of pump stations. The reviewer must be familiar with USACE regulations and standards.

#### ***4.2.1.6 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 10 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.

#### ***4.2.1.7 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 10 years in electrical design of pump stations. The reviewer must be familiar with USACE regulations and standards.

#### ***4.2.1.8 Cost***

The reviewer for cost estimating shall be a registered or certified cost engineer with a BS degree or higher in engineering or construction management. Reviewer shall have a minimum of 10 years in cost estimating and have experience with estimating large pump station structures and water delivery projects. The reviewer shall have extensive knowledge of MII software and the Total Project Cost Summary (TPCS) as required during ATR.

#### ***4.2.1.9 Cultural Resources***

The team member will be an archaeologist familiar with records searches, cultural resource survey methodology, area of potential effects, Section 106 of the National Historic Preservation Act, and state and Federal laws/executive orders pertaining to American Indian Tribes.

#### ***4.2.1.10 Biologist / Environmental***

The team member will be experienced in NEPA/CEQA process and analysis, and have a biological or environmental background that is familiar with the project area and ecosystem restoration. The team member will be an expert in environmental evaluation and compliance requirements pursuant to the

“Procedures for Implementing NEPA” (ER 200-2-2), national environmental statutes, applicable executive orders, and other Federal planning requirements, into the planning of Civil Works projects.

#### **4.2.2 Documentation, Issue Resolution, and Certification of ATR**

DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. ATR team members must register with the DrChecks website and they will receive access to DrChecks through the project manager. A PDT member is assigned to take the lead in resolving comments for each of the primary project disciplines. It is the PDT member’s responsibility to coordinate resolution of the comment with other team members as required, evaluate the DrChecks comment, enter the PDT’s response into DrChecks, and ensure the ATR team member conducts a comment backcheck. It is the PDT member’s responsibility to ensure all DrChecks ATR comments in their discipline are properly addressed, resolved, and closed. 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 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; 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.

#### **4.2.3 ATR Issues**

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, MSC, RMC, and HQUSACE), and the agreed upon 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.

#### **4.2.4 ATR Issue 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.

#### **4.2.5 ATR Completion**

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, for the AFB, draft report, and final report. A sample ATR certification is included as Attachment 1.

#### **4.2.6 Other ATR Matters Specific to This Project**

As described in section 2.1 of this Review Plan, the Grand Prairie Project consists of fourteen (14) items of work with Items 1 and 1B segmented into smaller design and construction packages. The next segment of work requiring ATR is the Discharge Pipes, Segment 2. See Appendix A for the specific ATR team, schedule and cost associated with this next segment of work.

### **4.3 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. Any work product that undergoes ATR may also undergo Type I and/or Type II IEPR. In general, decision documents undergo Type I IEPR and implementation documents undergo Type II IEPR (or Safety Assurance Review). Meeting the specific conditions identified for possible exclusions is not, in and of itself, sufficient grounds for recommending exclusion.

#### **4.3.1 Type I IEPR**

Type I IEPR reviews are managed outside the USACE and are conducted on project studies. This project is not anticipated to require Type I IEPR because it is in the implementation phase and not the study phase.

#### **4.3.2 Type II IEPR**

Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the



design and construction activities in assuring public health safety and welfare. This project is not anticipated to require Type II IEPR because it does not pose a significant threat to public health, safety, or welfare.

### **4.3.3 Basis for Decision on IEPR Recommendation**

Based on the analysis provided in Attachment 4, MVM has determined that the Grand Prairie Region, Arkansas project does not require a Type II IEPR for the following reasons:

- It is not justified by life safety nor would failure of the project would pose a significant threat to human life;
- It does not involve the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations; does not contain precedent-setting methods or models; and does not present conclusions that are likely to change prevailing practices;
- It does not require redundancy, resiliency, and/or robustness; and
- It does not involve unique construction sequencing or a reduced or overlapping design construction schedule.

### **4.4 Model Certification and Approval**

EC 1165-2-209 requires certification (for Corps models) or approval (for non-Corps models) of planning models used for all planning activities. The EC defines planning models as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The EC does not cover engineering models used in planning; however engineering software used for models is currently addressed under the Engineering and Construction Science and Engineering Technology (SET) initiative. Until an appropriate process that documents the quality of commonly used engineering software is developed through the SET initiative, engineering activities in support of planning studies will proceed as in the past. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and will follow the professional practice of documenting the application of the software and modeling results.

The models which may be employed in the Project have either been developed by or for the use by USACE. More specifically, the models which may be employed in the completion of design are:

- MCACES (MII): This is a cost estimating model that was developed by Building Systems Design Inc. The Army Corps of Engineers began using this model in 1989.
- HEC-RAS: The function of this model is to complete one-dimensional hydraulic calculations for a full network of natural and manmade channels. HEC-RAS major capabilities are
  - User interface;
  - Hydraulic Analysis;
  - Data storage and Management; and
  - Graphics and reporting.

- HEC-HMS: The function of this model is to simulate precipitation-runoff process in watershed systems. This program provides:
  - Hydrologic simulations
  - Parameter estimation
  - Simulation analyses
  
- MathCAD 15: Ideal for knowledge capture, calculation, sharing and reuse. MathCAD lets individuals work with update-able, interactive designs, so users can capture the critical methods and values behind each of their engineering projects. MathCAD 15 calculates design computations, analyzes and plots data in a user friendly platform. MathCAD automatically creates an auditable trail of documented calculations, thus simplifying compliance, reporting, verification, and troubleshooting.
  
- CSETT: The function of this model is to compute consolidation settlement of compressible soils resulting from simple and complex loading conditions. Capabilities include:
  - ultimate settlement and time-rate of consolidation for the total soil mass specified and for the individual compressible soil layers within the soil mass.
  - in situ overburden pressures and the induced stresses
  - analysis of multiple soil layers and a variety of drainage conditions.
  
- Geostudio: Geostudio includes 8 modeling programs: Slope/W for slope stability; SEEP/W for groundwater seepage; SGMA/W for stress deformation; QUAKE/W for dynamic earthquake; TEMP/W for geothermal; CTRAN/W for contaminant transport; AIR/W for airflow; VADOSE/W for vadose zone and covers
  
- CFRAME: The function of this model is to utilize the stiffness methods of structural analysis. The Cholesky decomposition method is used to solve the resulting matrix equation. Automatic generation routines are available to simplify the data input.
  
- STAAD.Pro: Used for analyzing and designing buildings, bridges, towers, transportation, industrial and utility structures. It provides static, dynamic, and seismic analyses, load types and generation, finite element calculations, steel, timber, and concrete design analyses.
  
- RISA-3D: This modeling software analyzes and optimizes all types of structures and common structural materials including steel, concrete, wood, aluminum and masonry.
  
- MicroStation v8i: CAD Software used by engineers, architects, GIS professionals, constructors, and owner operators to design, model, visualize, document, map, and sustain infrastructure projects. It is primarily used to layout design plans.
  - InRoads, a tool within MicroStation, provides site analysis and graphic coordinate geometry
  - InRoads Site also offers sophisticated, easy-to-use site analysis tools; comprehensive, interactive graphic coordinate geometry; and user-definable XML reports.

#### **4.5 Policy Compliance and Legal Review**

The Memphis District Office of Counsel is responsible for legal review of decision and implementation documents and signs a certification of legal sufficiency prior to construction of the Project.

## **5 POSTING of REVIEW PLANS and PUBLIC COMMENT**

To ensure that the peer review approach is responsive to the wide array of stakeholders and customers, both within and outside the Federal Government, this RP will be published on the district's public internet site following approval by MVD. A link to the RP is available at the District's "Review Plan" hyperlink.

### **5.1 District Posting of Review Plans on Internet**

The Memphis District maintains a web site that hosts electronic versions of review plans for its studies/projects as well as a list of the current and active Review Plans with links to the documents. In posted documents, lists of the names of USACE reviewers may be displayed. The MVD and HQUSACE postings also link to the District's site. The district will establish a mechanism on their web site for allowing the public to comment on the adequacy of the RP, and will consider public comments on RPs. The RP is published on the Memphis District's public internet site following approval by MVD. The Memphis District website is located at <http://www.mvm.usace.army.mil/PPPMD/reviewplans.asp>.

### **5.2 Division Posting of Review Plans on Internet**

MVD will post on its website, and update at least every three months, an agenda of RPs. The agenda describes all decision and implementation documents, the RP for each entry on the agenda, and provides a link from the agenda to each document made public. MVD's website is located at <http://www.mvd.usace.army.mil>.

### **5.3 Comment Period and Handling of Comments**

The public comment period is 30 days. If and when comments are received, the PDT will consider them and decide if revisions to the Review Plan are necessary. Public comments on the Review Plan may be made by writing or emailing the following contact:

Memphis District, Corps of Engineers  
ATTN: PM-M (Greg Grugett)  
167 N. Main St. 5<sup>th</sup> Fl. RM. 511  
Memphis, TN. 38103  
Email: Gregory.J.Grugett@usace.army.mil

The Memphis District will consider public comments and recommend changes to the RP if necessary to MVD. Significant and relevant public comments will also be provided to reviewers prior to conduct of the review.

Due to changes in the Project, the RP may require updates. Updates are posted to the same website and the Public will have a similar opportunity to comment on RP updates. Since the Project does not meet the requirements for IEPR, the Public, including scientific or professional societies, is not asked to nominate potential reviewers.

## 6 REVIEW SCHEDULE AND COSTS

The recommended schedule should show the timing and sequence of all reviews, to include a milestone schedule with the critical features of the Project design and construction. All costs for reviews should be provided to include expected in-kind contributions provided by the sponsor.

### 6.1 Review Plan Schedule

Review Plan receives District approval	January 28, 2013
Draft Review Plan sent to MSC and RMO (MVD)	January 28, 2013
ATR begins on implementation documents	February 4, 2013
RMC reviews and endorse Review Plan	March 25, 2013
MVD approves Review Plan	April 4, 2013
Review Plan sent to RIT	April 18, 2013

### 6.2 DQC Schedule and Cost

The DQC, which includes peer reviews, an ITR, and a BCOE review, is accomplished prior to ATR. The DQC costs are paid from Project funds. As noted in section 2.1, certain items of work for the Project are complete or under construction. The schedule for completing future items of work is dependent on Federal funding through each fiscal year. The last DQC completed for the Project was the review for the Discharge Pipes – Segment 2 Plans and Specifications:

Discharge Pipes, Segment 2 - Plans Complete	July 6, 2012
Discharge Pipes, Segment 2 - Specifications Complete	July 6, 2012
Discharge Pipes, Segment 2 - DQC Complete	July 17, 2012

### 6.3 ATR Schedule and Cost

Due to the timing of the release of EC 1165-2-209, the Project was already in the implementation phase with some items completed or under construction. See Appendix A for the cost and schedule of the next item of work requiring ATR (Discharge Pipes – Segment 2). The schedule for completing future ATRs is dependent on Federal funding through each fiscal year.

### 6.4 ATR Schedule

See Appendix A for specific schedule dates.

### 6.5 ATR Cost

The ATR costs are paid from Project funds. Upon establishment of an ATR team, the organization performing the reviews will provide a cost estimate along with information on how to fund this work to the MVM POC so that funding can be set up.

### 6.6 Model Certification/Approval Schedule and Cost

Not Applicable.

Review Plan for Grand Prairie, AR\_Final\_30Jan13.docx

## 7 REVIEW TEAMS

### 7.1 District Quality Control Activities

This is the list of the review teams who will perform the DQC activities. It should be stated that the DQC will be managed by the home district in accordance with Major Subordinate Command (MSC) and District Quality Management Plans.

#### 7.1.1 Project Delivery Team

NAME <sup>1</sup>	ROLE	PHONE NUMBER	E-MAIL
Greg Grugett	Project Manager	901-544-0879	Gregory.J.Grugett@usace.army.mil
Jason Flowers	Civil Design Engineer	901-544-3049	Jason.R.Flowers@usace.army.mil
Daphlyn Koester	Mechanical Engineer	901-544-3897	Daphlyn.L.Koester@usace.army.mil
Norman Newman	Geotechnical Engineer	901-544-3815	Norman.E.Newman@usace.army.mil
Neal Newman	Cost Engineering	901-544-0890	Neal.E.Newman@usace.army.mil
Gary Billingsley	Construction Branch	901-544-4085	Gary.Billingsley@usace.army.mil
Loy Hamilton	Wynne Area Office	870-238-7983	Loy.A.Hamilton@usace.army.mil
Kevin Pigott	Environmental Branch	901-544-4309	Kevin.R.Pigott.@usace.army.mil
Dr. Robert Dunn	Cultural Resources	901-544-0706	Robert.A.Dunn@usace.army.mil
Douglas Young	Real Estate	901-544-3154	Douglas.B.Young@usace.army.mil
Ann Bruck	Office of Counsel	901-544-3775	Ann.M.Bruck @usace.army.mil

<sup>1</sup> Names will be removed in version posted for public review to protect privacy.

#### 7.1.2 Peer Reviewers

NAME <sup>1</sup>	ROLE	PHONE NUMBER	E-MAIL
Greg Grugett	Project Manager	901-544-0879	Gregory.J.Grugett@usace.army.mil
Shane Callahan	Civil Design	901-544-3665	Doanld.S.Callahan@usace.army.mil
Jeremy Carpenter	Relocations	901-544-0810	Jeremy.Carpenter@usace.army.mil
Robert Smith	Construction	901-544-4085	Robert.H.Smith@usace.army.mil
Jerry Welch	Cost Engineering	901-544-3236	Jerry.R.Welch@usace.army.mil

Roger Gaines	Hydrology	901-544-3055	Roger.A.Gaines@usace.army.mil
William Grantham	Civil Engineer	901-544-0210	William.B.Grantham@usace.army.mil
Mark Smith	Environmental	901-544-0705	Mark.Smith@usace.army.mil
Gene McAvoy	Wynne Area Office	870-238-7983	Richard.E.McAvoy@usace.army.mil

Names will be removed in version posted for public review to protect privacy.

### 7.1.3 BCOE Reviewers

NAME <sup>1</sup>	DISTRICT / SECTION	DISCIPLINE
Tom Morgan	CEMVM-EC-C	Construction Branch
Edward Lambert	CEMVN-PD-E	Environmental Branch
Shane Callahan	CEMVM-EC-D	Design Branch
Matt Turner	CEMVM-EC-G	Geotechnical Branch
James Pendergrass	CEMVM-EC-H	Hydraulic Branch

<sup>1</sup> Names will be removed in version posted for public review to protect privacy.

### 7.1.4 Drawing Approval for In-House Design

NAME <sup>1</sup>	DISTRICT / SECTION	DISCIPLINE
Thomas Minyard	CEMVM-EC	Engineering- Construction Division
David Berretta	CEMVM-EC-H	Hydraulic Branch Chief
Janet Berry	CEMVM-EC-D	Design Branch Chief
Cory Williams	CEMVM-EC –G	Geotechnical Chief
Roger Funderburk	CEMVM-EC-T	Technical Services Chief

<sup>1</sup> Names will be removed in version posted for public review to protect privacy.

### 7.2 Agency Technical Review

NAME <sup>1</sup>	DISTRICT / ORGANIZATION	DISCIPLINE
TBD	TBD	MSC Point of Contact
TBD	TBD	ATR Team Leader
TBD	TBD	Structural Engineer
TBD	TBD	Hydraulics Engineer
TBD	TBD	Civil Design Engineer
TBD	TBD	Mechanical Engineer

TBD	TBD	Geotechnical Engineer
TBD	TBD	Electrical Engineer
TBD	TBD	Cost Engineer
TBD	TBD	Cultural Resources
TBD	TBD	Biologist / Environmental

<sup>1</sup> Names will be removed in version posted for public review to protect privacy.

## 8 SUMMARY OF REVIEW PLAN UPDATES

Revision No.	Date	Description of major change(s)
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## 9 APPENDICES (Listing/History of Completed Review Packages)

Review Date	Type of Review	Review Title / Description)
1 November 1999	Approval	General Reevaluation Report
26 February 2000	Approval	Record of Decision on EIS
4 August 2000	Approval	PCA Execution
26 February 2009	P& S Approval	Pump Station Inlet Channel (Item 1)
13 May 2009	P&S Approval	Pump Station Substructure to Elev. 190 (Item 1)
3 December 2010	P&S Approval	Discharge Pipes, Segment 1 (Item 1)
13 January 2012	95% Design Review (BCOE)	Widened Canal Reservoir (Outlet Structure, Item 1B)
17 July 2012	95% Design Review (BCOE)	Discharge Pipes , Segment 2

## 9.1 APPENDIX A – ATR Requirements – Discharge Pipes, Segment 2

**Table 1.** Milestone Schedule – Discharge Pipes, Segment 2

MILESTONE CODE	MILESTONE	DATE
	Begin ATR	28 JAN 2013
	ATR Complete	8 FEB 2013
CW330	P&S Approval	15 FEB 2013
CW400	RTA (Ready to Advertise)	22 FEB 2013
CC800	Contract Award	3 MAY 2013
CC820	Construction Completion	4 SEP 2014

**Table 2.** ATR Schedule – Discharge Pipes, Segment 2

ACTION	DATE
MVD approves ATR Team	17 JAN 2013 (complete)
Review documents and charge sent to ATR Team	17 JAN 2013 (complete)
Begin ATR Review	28 JAN 2013
ATR DrChecks comments complete	4 FEB 2013
PDT DrChecks evaluations complete	8 FEB 2013
ATR backchecks complete; DrChecks closed	13 FEB 2013
ATR certification form signed	13 FEB 2013
ATR final report complete	19 FEB 2013
ATR Report sent to MVD for approval	19 FEB 2013
ATR Report approved by MVD	22 FEB 2013

**Table 3.** ATR Team – Discharge Pipes, Segment 2

NAME <sup>1</sup>	DISTRICT / ORGANIZATION	DISCIPLINE
William Bradley	MVD/ CEMVD-RB-T	MVD Quality Manager
Marc Masnor	Tulsa/CESWT-PE-P	ATR Team Leader
Daphlyn Koester	Memphis/CEMVM-EC-D	P&S Lead/ Mechanical Engineer
TBD	TBD	Civil Design Engineer
TBD	TBD	Geotechnical Engineer
TBD	TBD	Elec/Mech Engineer

<sup>1</sup> Names will be removed in version posted for public review to protect privacy.



**Table 4. ATR Cost - Discharge Pipes, Segment 2**

<b>DISCIPLINE</b>	<b>ESTIMATED LABOR COST</b>
ATR Team Lead	\$10000
Supporting Disciplines	\$3000 ea. @ 3 ea. =\$9,000
<b>TOTAL</b>	<b>\$19,000</b>



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, 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<sup>sm</sup>.

SIGNATURE

Name  
ATR Team Leader  
Office Symbol/Company

Date

SIGNATURE

Name  
Project Manager  
Office Symbol

Date

SIGNATURE

Name  
Architect Engineer Project Manager<sup>1</sup>  
Company, location

Date

SIGNATURE

Name  
Review Management Office Representative  
Office Symbol

Date

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.

SIGNATURE

Name  
Chief, Engineering Division  
Office Symbol

Date

<sup>1</sup> Only needed if some portion of the ATR was contracted



**STATEMENT OF LEGAL REVIEW**

CERTIFICATION OF LEGAL REVIEW:

All implementation documents have been reviewed for their compliance with law and policy. This Review Plan and all associated documents have been fully reviewed by the Office of Counsel, Memphis District and are approved as legally sufficient.



STEPHAN C. ROTH  
Interim District Counsel  
CEMVM-OC

1/30/13  
Date



<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>





**STATEMENT OF RATIONALE FOR DECISION TO NOT HAVE AN IEPR**

The Project is in the implementation phase and therefore does not require a Type I IEPR. This attachment documents the vertical team’s risk informed recommendation to conduct Type II IEPR. According to EC 1165-2-209, the vertical team must make a risk-informed decision whether or not to conduct Type II IEPR, make a risk-informed decision to conduct Type II IEPR or make a risk informed recommendation to the Chief of Engineers or Director of Civil Works to not conduct Type II IEPR.

The following table, based on the US Army Field Manual 5-19, Composite Risk Management, was used to assess each risk in the IEPR tables.

**TABLE 1: RISK ASSESSMENT MATRIX**

		Risk Probability			
		Frequent	Likely	Seldom	Unlikely
Severity	Catastrophic	E	E	H	M
	Critical	E	H	M	L
	Marginal	H	M	M	L
	Negligible	M	L	L	L
<b>E (Extremely High)</b>		Loss of ability to accomplish Project			Red
<b>H (High)</b>		Significantly degrades capabilities to accomplish Project			Blue
<b>M (Moderate)</b>		Degrades Project accomplishment capabilities			Yellow
<b>L (Low)</b>		Little or no impact on Project accomplishment			Green

Tables 2 - 4 detail the risks, frequency, severity, risk assessment, and how the risk contributes to the IEPR decision. The risk assessment is divided into three segments to individually assess the common elements of work associated with the Project. These three elements are:

1. Item 1: Inlet Channel and the pump station – including the electrical substation
2. Item 1B: Discharge pipes and outlet structure
3. Items 3 – 14: Canals and pipelines, including lift station and water delivery structures

**TABLE 2: TYPE II IEPR RISK ASSESSMENT – ITEM 1: INLET CHANNEL AND PUMP STATION (FOR IMPLEMENTATION DOCUMENTS)**

Risk	Probability	Severity	Assessment	Contributes to IEPR Decision?	Notes
The item poses a significant threat to human life	Unlikely	Catastrophic	Moderate	No	Failure of the pump station operation will result in the inability to deliver water to the project but will not pose any threat to human life. The completed inlet channel construction is complete.
The item involves the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent setting methods or models, or presents conclusions that are likely to change prevailing practices	Unlikely	Marginal	Low	No	The inlet channel is a standard open channel earthen structure. The pump station is a standard reinforced concrete structure. The electric substation is a standard configuration to be designed and constructed by Entergy Corporation.
The item design requires redundancy, resiliency, and robustness	Unlikely	Critical	Low	No	Pump Station structures or inlet channels in rural areas do not require redundancy, resiliency and robustness to ensure proper level of protection.

Risk	Probability	Severity	Assessment	Contributes to IEPR Decision?	Notes
The Project has unique construction sequencing or a reduced or overlapping design construction schedule	Likely	Marginal	Moderate	No	The pump station structure has been split into several separable elements for construction due to funding issues. This requires certain sequencing related to one element being constructed after another, which delays completion of the project versus constructing the pump station all at once. However, each element will undergo DQC and ATR to ensure quality P&S of each element and the Project as a whole.
Risk of interrupting power generation	Seldom	Negligible	Low	No	Pump stations will maintain separate backup generator power in the event power is lost by the local utility supplier. This mitigates the risk of power generation interruption
Risk of a faulty or incomplete design making it to construction	Unlikely	Critical	Low	No	DQC and ATR by personnel with experience on similar projects will mitigate the risk of a faulty or incomplete design
Risk of contractor misinterpreting design, which results in Project failure	Unlikely	Critical	Low	No	Construction quality control procedures will mitigate this risk

**TABLE 3: TYPE II IEPR RISK ASSESSMENT – ITEM 1B: DISCHARGE PIPES AND OUTLET STRUCTURE (FOR IMPLEMENTATION DOCUMENTS)**

Risk	Probability	Severity	Assessment	Contributes to IEPR Decision?	Notes
The Item poses a significant threat to human life	Unlikely	Catastrophic	Moderate	No	The discharge pipes and outlet structure are located in a 100% rural area with farm fields and woodland at the perimeter of each. Discharge pipes are underground pipes. Failure of the outlet structure operation will not pose any threat to human life.
The Item involves the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent setting methods or models, or presents conclusions that are likely to change prevailing practices	Unlikely	Marginal	Low	No	Design and construction of Item 1B are standard methods.
The Item design requires redundancy, resiliency, and robustness	Unlikely	Critical	Low	No	Outlet structures or below ground pipelines in rural areas do not require redundancy, resiliency and robustness to ensure proper level of protection.
The Project has unique construction sequencing or a reduced or overlapping design construction schedule	Unlikely	Marginal	Low	No	
Risk of interrupting power generation	Unlikely	Negligible	Low	No	No power generation involved

Risk	Probability	Severity	Assessment	Contributes to IEPR Decision?	Notes
Risk of a faulty or incomplete design making it to construction	Unlikely	Critical	Low	No	DQC and ATR by personnel with experience on similar projects will mitigate the risk of a faulty or incomplete design
Risk of contractor misinterpreting design, which results in Project failure	Unlikely	Critical	Low	No	Construction quality control procedures will mitigate this risk

**TABLE 4: TYPE II IEPR RISK ASSESSMENT – ITEMS 3 – 14: CANALS AND PIPELINES (FOR IMPLEMENTATION DOCUMENTS)**

Risk	Probability	Severity	Assessment	Contributes to IEPR Decision?	Notes
The Item poses a significant threat to human life	Unlikely	Catastrophic	Moderate	No	Open canals are of minimal depths and will not pose any threat to human life.
The Item involves the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent setting methods or models, or presents conclusions that are likely to change prevailing practices	Unlikely	Marginal	Low	No	Design and construction of Items 3 - 14 are standard methods.
The Item design requires redundancy, resiliency, and robustness	Unlikely	Critical	Low	No	Outlet structures or below ground pipelines in rural areas do not require redundancy, resiliency and robustness to ensure proper level of protection.
The Project has unique construction sequencing or a reduced or overlapping design construction schedule	Unlikely	Marginal	Low	No	
Risk of interrupting power generation	Unlikely	Marginal	Low	No	Power generation for lift gates and pumps will be fuel or solar driven with manual backup systems.

Risk	Probability	Severity	Assessment	Contributes to IEPR Decision?	Notes
Risk of a faulty or incomplete design making it to construction	Unlikely	Critical	Low	No	DQC and ATR by personnel with experience on similar projects will mitigate the risk of a faulty or incomplete design
Risk of contractor misinterpreting design, which results in Project failure	Unlikely	Critical	Low	No	Construction quality control procedures will mitigate this risk

Based on the above assessments, as well as the fact that the Project is Agricultural Water Supply, it is the risk-informed recommendation of the PDT that Type II IEPR will not be required for any element of this Project or for the Project as a whole. See Appendix 5 for the signed MVD Statement of Risk Rationale.





**RECOMMENDATION REGARDING TYPE II IEPR (SAR)**

Based on the above assessment, it is the risk-informed recommendation of the Project Delivery Team and the Chief of E&C or Engineering that Type II IEPR (SAR) is NOT required for this project.

The decision to not conduct a Type II IEPR (SAR) is recommended by:

*Tom Williamson*  
for THOMAS MINYARD, P.E.  
Chief, Engineering and Construction Division

30 Jan 13  
Date

The above recommendation is  Approved  Disapproved by

*Robert H. Fitzgerald*  
ROBERT H. FITZGERALD  
Chief, Regional Business - Technical

2/06/13  
Date



## Review Plan Checklist for Implementation Documents

**Date:** 28 January 2013  
**Originating District:** Memphis District (MVM)  
**Project/Study Title:** Grand Prairie Area Demonstration Project,  
 Grand Prairie Region, Arkansas  
**P2 #:** 109425  
**District POC:** Gregory Grugett  
**PCX Reviewer:** N/A

Please fill out this checklist and submit with the draft Review Plan when coordinating with the appropriate RMO. For DQC, the District is the RMO; for ATR of Dam and Levee Safety Studies, the Risk Management Center is the RMO; and for non-Dam and Levee Safety projects and other work products, MVD is the RMO; for Type II IEPR, the Risk Management Center is the RMO. Any evaluation boxes checked 'No' indicate the RP possibly may not comply with EC 1165-2-209 and should be explained. Additional coordination and issue resolution may be required prior to MSC approval of the Review Plan.

REQUIREMENT	REFERENCE	EVALUATION
<b>1. Is the Review Plan (RP) a stand alone document?</b>	EC 1165-2-209, Appendix B Para 4a	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
a. Does it include a cover page identifying it as a RP and listing the project/study title, originating district or office, and date of the plan?		a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
b. Does it include a table of contents?		b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
c. Is the purpose of the RP clearly stated and EC 1165-2-209 referenced?	EC 1165-2-209 Para 7a	c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
d. Does it reference the Project Management Plan (PMP) of which the RP is a component including P2 Project #?	EC 1165-2-209 Para 7a (2)	d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
e. Does it include a paragraph stating the title, subject, and purpose of the work product to be reviewed?	EC 1165-2-209 Appendix B Para 4a	e. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
f. Does it list the names and disciplines in the home district, MSC and RMO to whom inquiries about the plan may be directed?*	EC 1165-2-209, Appendix B, Para 4a	f. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

<p><i>*Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.</i></p>		
<p><b>2. Documentation of risk-informed decisions on which levels of review are appropriate.</b></p>	<p>EC 1165-2-209, Appendix B, Para 4b</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does it succinctly describe the three levels of peer review: District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR)?</p> <p>b. Does it contain a summary of the CW implementation products required?</p> <p>c. DQC is always required. The RP will need to address the following questions:</p> <p>i. Does it state that DQC will be managed by the home district in accordance with the Major Subordinate Command (MSC) and district Quality Management Plans?</p> <p>ii. Does it list the DQC activities (for example, 30, 60, 90, BCOE reviews, etc)</p> <p>iii. Does it list the review teams who will perform the DQC activities?</p> <p>iv. Does it provide tasks and related resource, funding and schedule showing when the DQC activities will be performed?</p> <p>d. Does it assume an ATR is required and if an ATR is not required does it provide a risk based decision of why it is not required? If an ATR is required the RP will need to address the following questions:</p> <p>i. Does it identify the ATR District, MSC, and RMO points of contact?</p> <p>ii. Does it identify the ATR lead from outside the home MSC?</p> <p>iii. Does it provide a succinct description of</p>	<p>EC 1165-2-209,7a</p> <p>EC1165-2-209 Para 15</p> <p>EC1165-2-209 Para 15a</p> <p>EC1165-2-209 Para 8a</p> <p>EC 1165-2-209 Appendix B (1)</p> <p>EC 1165-2-209 Appendix B, 4g</p> <p>EC 1165-2-209 Appendix B Para 4c</p> <p>EC1165-2-209 Para 15a</p> <p>EC 1165-2-209 Para 7<sup>a</sup></p> <p>EC 1165-2-209</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>i. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>ii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>iii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>iv. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>i. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>ii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>

<p>will be selected using the National Academy of Science (NAS) Policy which sets the standard for "independence" in the review process?</p> <p>vi. If the Type II IEPR panel is established by USACE, has local (i.e. District) counsel reviewed the Type II IEPR execution for FACA requirements?</p> <p>vii. Does it provide tasks and related resource, funding and schedule showing when the Type II IEPR activities will be performed?</p> <p>viii. Does the project address hurricane and storm risk management or flood risk management or any other aspects where Federal action is justified by life safety or significant threat to human life?</p> <p><i>Is it likely? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></i> <i>If yes, Type II IEPR must be addressed.</i></p> <p>ix. Does the RP address Type II IEPR factors?</p> <p>Factors to be considered include:</p> <ul style="list-style-type: none"> <li>• Does the project involve the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent setting methods or models, or presents conclusions that are likely to change prevailing practices?</li> <li>• Does the project design require redundancy, resiliency and robustness?</li> <li>• Does the project have unique construction sequencing or a reduced or overlapping design construction schedule; for example, significant project features accomplished through Design Build or Early Contractor delivery systems?</li> </ul> <p><i>Is it likely? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></i> <i>If yes, Type II IEPR must be addressed.</i></p> <p>g. Does it address policy compliance and legal</p>	<p>Para's 1a &amp; 7</p> <p>EC 1165-2-209 Para 6b (4) and Para 10b</p> <p>EC1165-2-209 Appendix E, Para 7c(1)</p> <p>EC1165-2-209 Appendix E, Para 5a</p> <p>EC1165-2-209 Appendix E Para 2</p>	<p>v. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>vi. Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/></p> <p>vii. Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/></p> <p>viii. Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/></p> <p>ix. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
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<p>the primary disciplines or expertise needed for the review (not simply a list of disciplines)? If the reviewers are listed by name, does the RP describe the qualifications and years of relevant experience of the ATR team members?*</p> <p>iv. Does it provide tasks and related resource, funding and schedule showing when the ATR activities will be performed?</p> <p>v. Does the RP address the requirement to document ATR comments using Dr Checks?</p>	<p>Para 9c</p> <p>EC 1165-2-209 Appendix B 4g</p> <p>EC 1165-2-209 Appendix C Para 3e</p>	<p>iii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>iv. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p><i>*Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.</i></p>	<p>EC 1165-2-209 Para 7d (1)</p>	<p>v. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>e. Does it assume a Type II IEPR is required and if a Type II IEPR is not required does it provide a risk based decision of why it is not required including RMC/ MSC concurrence? If a Type II IEPR is required the RP will need to address the following questions:</p>	<p>EC1165-2-209 Para 15a</p>	<p>e. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>i. Does it provide a defensible rationale for the decision on Type II IEPR?</p>		
<p>ii. Does it identify the Type II IEPR District, MSC, and RMO points of contact?</p>	<p>EC 1165-2-209 Para 7a</p>	<p>i. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>iii. Does it state that for a Type II IEPR, it will be contracted with an A/E contractor or arranged with another government agency to manage external to the USACE</p>	<p>EC 1165-2-209 Appendix B Para 4a</p>	<p>ii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>iv. Does it state for a Type II IEPR, that the selection of IEPR review panel members will be made up of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of expertise suitable for the review being conducted?</p>	<p>EC 1165-2-209 Appendix B Para 4k (4)</p>	<p>iii. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>v. Does it state for a Type II IEPR, that the selection of IEPR review panel members</p>	<p>EC 1165-2-209 Appendix B, Para 4k(1) &amp; Appendix E,</p>	<p>iv. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>

review? If no, does it provide a risk based decision of why it is not required?	EC 1165-2-209 Para 14	g. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>3. Does the RP present the tasks, timing, and sequence of the reviews (including deferrals)?</b>	EC 1165-2-209, Appendix B, Para 4c	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
a. Does it provide an overall review schedule that shows timing and sequence of all reviews?	EC 1165-2-209, Appendix C, Para 3g	a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>4. Does the RP address engineering model certification requirements?</b>	EC 1165-2-209, Appendix B, Para 4i	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
a. Does it list the models and data anticipated to be used in developing recommendations?		a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
b. Does it indicate the certification /approval status of those models and if certification or approval of any model(s) will be needed?		b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
c. If needed, does the RP propose the appropriate level of certification and/or approval for the model(s) and how it will be accomplished?		c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>5. Does the RP explain how and when there will be opportunities for the public to comment on the study or project to be reviewed?</b>	EC 1165-2-209, Appendix B, Para 4d	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
a. Does it discuss posting the RP on the District website?		a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
b. Does it indicate the web address, and schedule and duration of the posting?		b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>6. Does the RP explain when significant and relevant public comments will be provided to the reviewers before they conduct their review?</b>	EC 1165-2-209, Appendix B, Para 4e	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

<p>a. Does it discuss the schedule of receiving public comments?</p> <p>b. Does it discuss the schedule of when significant comments will be provided to the reviewers?</p>		<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p><b>7. Does the RP address whether the public, including scientific or professional societies, will be asked to nominate professional reviewers?*</b></p>	<p>EC 1165-2-209, Appendix B, Para 4h</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. If the public is asked to nominate professional reviewers then does the RP provide a description of the requirements and answer who, what, when, where, and how questions?</p> <p><i>* Typically the public will not be asked to nominate potential reviewers</i></p>		<p>a. Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>N/A <input checked="" type="checkbox"/></p>
<p><b>8. Does the RP address expected in-kind contributions to be provided by the sponsor?</b></p>	<p>EC 1165-2-209, Appendix B, Para 4j</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. If expected in-kind contributions are to be provided by the sponsor, does the RP list the expected in-kind contributions to be provided by the sponsor?</p>		<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p><b>9. Does the RP explain how the reviews will be documented?</b></p> <p>a. Does the RP address the requirement to document ATR comments using Dr Checks and Type II IEPR published comments and responses pertaining to the design and construction activities summarized in a report reviewed and approved by the MSC and posted on the home district website?</p> <p>b. Does the RP explain how the Type II IEPR will be documented in a Review Report?</p> <p>c. Does the RP document how written responses to the Type II IEPR Review Report will be prepared?</p> <p>d. Does the RP detail how the</p>	<p>EC 1165-2-209, Para 7d</p> <p>EC 1165-2-209 Appendix B Para 4k (14)</p> <p>EC 1165-2-209 Appendix B Para 4k (14)</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>



district/PCX/MSC and CECW-CP will disseminate the final Type II IEPR Review Report, USACE response, and all other materials related to the Type II IEPR on the internet?	EC 1165-2-209 Appendix B Para 5	d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>10. Has the approval memorandum been prepared and does it accompany the RP?</b>	EC 1165-2-209, Appendix B, Para 7	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

