



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

REPLY TO
ATTENTION OF:

28 Sep 2011

CEMVD-PD-SP

MEMORANDUM FOR HQUSACE (CECW-MVD/Mr. John Lucyshyn), WASH DC
20314-1000

SUBJECT: Approval of Upper Mississippi River Restoration -
Environmental Management Program, St. Paul, Rock Island, and St.
Louis Districts, Programmatic Review Plan and Model Review Plan

1. References:

a. Memorandum, CEMVD-PD-N, 12 August 2011, subject: Upper
Mississippi River Restoration - Environmental Management
Program, St. Paul, Rock Island, and St. Louis Districts,
Ecosystem Planning Center of Expertise Recommendation (encl 1).

b. EC 1165-2-209, Water Resources Policies and
Authorities, Civil Works Review Policy, 31 January 2010.

c. EC 1105-2-407, Planning Models Improvement Program;
Model Certification, 31 May 2005.

d. ER 1110-2-12, Quality Management, 30 September 2006.

e. Implementation Guidance for the Environmental
Management Program, 12 May 2000.

2. The enclosed Programmatic Review Plan (PRP) (encl 2) and
accompanying Model Review Plan (RP) (encl 3) complies with all
applicable policy and provides an adequate agency technical
review of the plan formulation, engineering, and environmental
analyses, and other aspects of plan development. This document
will serve as the Upper Mississippi River Restoration (UMRR) -
Environmental Management Program (EMP) PRP for studies and
projects conducted under EMP. The Ecosystem Restoration
Planning Center of Expertise (ECO-PCX) has reviewed the PRP and
RP and recommends approval.

CEMVD-PD-SP

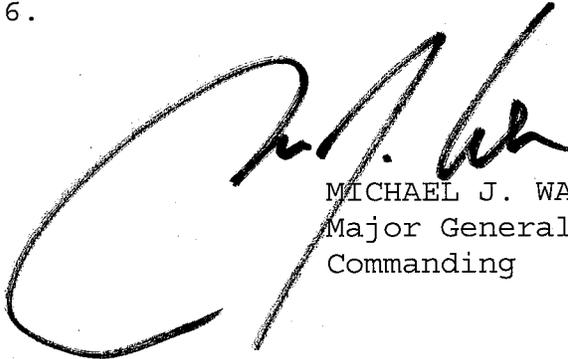
SUBJECT: Approval of Upper Mississippi River Restoration - Environmental Management Program, St. Paul, Rock Island, and St. Louis Districts, Programmatic Review Plan and Model Review Plan

3. The Model RP will be used for projects consistent with the criteria presented in paragraph 1.b of the RP. If these criteria are not met, a project specific review plan must be prepared in accordance with EC 1165-2-209.

4. If substantive revisions are made to the PRP and RP, due to changes in project scope or Corps policy, revised documents would be provided to MVD and the ECO-PCX for review. Non-substantive changes would not require additional approval.

5. The MVD point of contact is Fredrick Ragan, CEMVD-PD-SP, at (601) 634-5926.

3 Encls



MICHAEL J. WALSH
Major General, USA
Commanding



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

REPLY TO
ATTENTION OF:

CEMVD-PD-N

12 August 2011

MEMORANDUM FOR Commander, Mississippi Valley Division
ATTN: (Charles Barton, CEMVD-PD-SP)

SUBJECT: Upper Mississippi River Restoration - Environmental Management Program, St. Paul, Rock Island, and St. Louis Districts, Ecosystem Planning Center of Expertise Recommendation for Programmatic Review Plan and Model Review Plan Approval.

1. References:

- a. Engineering Circular (EC) 1165-2-209, Water Resources Policies and Authorities, CIVIL WORKS REVIEW POLICY, 31 Jan 2010
- b. EC 1105-2-407, Planning Models Improvement Program: Model Certification, 31 May 2005
- c. Engineering Regulation (ER) 1110-2-12, Quality Management, 30 Sep 2006

2. The enclosed Programmatic Review Plan (PRP) and accompanying Model Review Plan (RP) complies with all applicable policy and provides an adequate agency technical review of the plan formulation, engineering, and environmental analyses, and other aspects of plan development. This document will serve as the Upper Mississippi River Restoration (UMRR) - Environmental Management Program (EMP) PRP for studies and projects conducted under the EMP. The Ecosystem Restoration Planning Center of Expertise (ECO-PCX) has reviewed the PRP and Model RP.

3. The Model RP may be used for projects consistent with the criteria presented in Paragraph 1.b. of the PRP. If these criteria are not met, a project specific review plan must be prepared in accordance with EC 1165-2-209.

4. The ECO-PCX clears the PRP and the Model RP for approval by the MSC Commander and HQUSACE. Upon approval of the PRP, please provide a copy, the MSC Commander's approval memorandum, and the link to the District posting of the PRP to Jodi Staebell.

5. If substantive revisions are made to the PRP or RP, due to changes in project scope or Corps policy, revised documents should be provided to the ECO-PCX for review. Non-substantive changes do not require further PCX review.

6. Thank you for the opportunity to assist in the preparation of the PRP and RP.

CEMVD-PD-N

12 August 2011

SUBJECT: Upper Mississippi River Restoration - Environmental Management Program, St. Paul, Rock Island, and St. Louis Districts, Ecosystem Planning Center of Expertise Recommendation for Programmatic Review Plan and Model Review Plan Approval.



Jodi Staebell
Operational Director,
National Ecosystem Planning
Center of Expertise

Enclosures (2)

CF:

CEMVD-PD-N (Wilbanks, Smith, Staebell)
CEMVD-PD-SP (Turner, Ivy, Ragan, Peukert)
CEMVR-PM-M (Hubbell, Rumpel, Hamilton)
CEMVR-PM (Perk)
CEMVP-PM-A (Novak)
CEMVS-PM-N (Markert)
CESAJ-PD-PW (Baker)
CERPED-N-PD-F (Knollenberg)

Upper Mississippi River Environmental Management Program
Section 1103, Water Resources Development Act of 1986, and
Section 509, Water Resources Development Act of 1999

(Also known as the Upper Mississippi River Restoration Program)

PROGRAMMATIC REVIEW PLAN

U.S. Army Corps of Engineers

September 2011

Acronyms and Abbreviations

AFB – Alternative Formulation Briefing

AHAG – Aquatic Habitat Appraisal Guide

ARRA – American Recovery and Reinvestment Act of 2009

ATR – Agency Technical Review

BCOE – Biddability, Constructability, Operability, and Environmental

CAP – Continuing Authorities Program

CE/ICA – Cost Effectiveness/Incremental Cost Analysis

Cost Estimating DX - Walla Walla District Directorate of Expertise for Civil Works
Cost Engineering

DCW – Director of Civil Works

DET – District Ecological Team

DPR – Definite Project Report

DQC – District Quality Control

DrChecks - Document Review and Checking System

DST – District Support Team

EC – Engineering Circular

ECO-PCX - National Ecosystem Planning Center of Expertise

EIS – Environmental Impact Statement

EMP – Environmental Management Program

EPA – Environmental Protection Agency

ER – Engineering Regulation

ERDC – Engineering Research and Development Center

FPIC – Fish Passage Connectivity Index

FSM – Feasibility Scoping Meeting
GIS – Geographic Information System

HEP – Habitat Evaluation Procedure

HGM – Hydrogeomorphic

HQ – Headquarters, U.S. Army Corps of Engineers

HREP – Habitat Rehabilitation and Enhancement Project

HIS – Habitat Stability Index

IEPR – Independent External Peer Review

IWR – Institute for Water Resources

LTRMP – Long Term Resource Monitoring Program

MCACES – Micro-Computer Aided Cost Estimating System

MSC – Major Subordinate Command

MVD – Mississippi Valley Division

NEPA – National Environmental Policy Act

NGO – Nongovernmental organization

NRCS – Natural Resources Conservation Service

OC – Office of Counsel

OMB – Office of Management and Budget

P&S – Plans and specifications

PAR – Problem Appraisal Report

PCX – National Planning Center of Expertise

PDT – Project Delivery Team

PMP – Project Management Plan

PRP – Programmatic Review Plan

QMP – Quality Management Plan

RIT – Regional Integration Team

RMO – Review Management Organization

RP - Review Plan

RTS – Regional Technical Specialists

SET – System Ecological Team

SME – Subject Matter Expert

TPC – Total Project Cost

UMR – Upper Mississippi River

UMRS-Upper Mississippi River and Illinois Waterways System

UMRR – Upper Mississippi River Restoration

UMRS-EMP – Upper Mississippi River System-Environmental Management Program

USACE – United States Army Corps of Engineers

USFWS – United States Fish and Wildlife Service

USGS – U.S. Geological Service

WHAG – Wildlife Habitat Appraisal Guide

WRDA - Water Resources Development Act

Definitions

Agency Technical Review (ATR) – Review of products within the USACE but outside of the project delivery team. For feasibility studies ATR is conducted outside of the district responsible for planning but within the Corps of Engineers.

Decision document – For the Environmental Management Program, a Definite Project Report is prepared during the planning phase which serves as the decision document. This report documents the existing site conditions, problems and opportunities, alternatives to address the problems, and a description of the costs, benefits, and environmental impacts of selected alternatives.

District Quality Control (DQC) - Internal review process within the Home District of basic science and engineering work products focused on technical quality and conducted according to the Home District's Quality Management Plan.

District Support Team (DST) – Division level team focused on assisting the Home Districts in program management, technical assurance, and study review and approval support.

DrChecks– A Web-based data system designed to facilitate the review and feedback of project related work products, and to document DQC, ATR and, if necessary IEPR review.

Implementation document – Documents generated after a decision document that lead to construction (implementation of the action). These documents include plans and specifications.

Independent External Peer Review (IEPR) – Process of reviewing products for technical accuracy and completeness that is conducted outside of the Corps of Engineers.

Mississippi Valley Division (MVD) –The structure within the U.S. Army Corps of Engineers is a hierarchy with multiple districts overseen by a division which is overseen by Headquarters. The Mississippi Valley Division office is located in Vicksburg, MS and oversees the St. Paul, Rock Island, St. Louis, Memphis, Vicksburg, and New Orleans Districts.

Project Delivery Team (PDT) – Interdisciplinary team responsible for conducting a planning study. Under the Project Management Business Process and collaborative planning approach, teams may include members from outside of the Corps of Engineers.

Regional Integration Team (RIT) – A cross-functional Washington level team focused on clearing the way for regional business success. The RIT serves as the doorway for teams and products through the stages of Washington-level report review and processing.

Upper Mississippi River (System) – River reaches having commercial navigation channels including and connecting to the Mississippi River main stem north of Cairo, IL.

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I. Overview

This document serves as the Upper Mississippi River Restoration (UMRR) - Environmental Management Program (EMP) Programmatic Review Plan (PRP) for studies and projects conducted under the EMP. In this document, the program will be denoted as the EMP, because this is the program name most commonly used by the Corps of Engineers, the river partnership, and the public.

This PRP is prepared in accordance with the regulations contained in Engineering Circular (EC) 1165-2-209 (Civil Works Review Policy) (EC 209) and other related Federal policies. Appendix B of EC 1165-2-209 addresses development of PRPs for regional programs/authorities.

This PRP is intended to meet this requirement for all decision documents (Definite Project Reports, or DPR), and implementation documents (Plans and Specifications, or P&S) under the EMP authority that meet the criteria outlined in Section II: Applicability. Review plans are intended to help ensure the production and approval of high quality water resource project decision and implementation documents. The purposes of the PRP are to (1) provide guidelines for future planning of Habitat Rehabilitation and Enhancement Projects (HREPs) as it relates to the EC 209 requirements; (2) address the performance of applicable peer review (e.g., District Quality Control (DQC) and Agency Technical Review (ATR); and (3) provide justification for waiver of some EC 209 requirements. This PRP is a component of the Project Management Plan (PMP) for each EMP project and, as such, communicates critical project information to all interested parties.

The appropriate PCX for EMP projects is the National Ecosystem Planning Center of Expertise (ECO-PCX) located at Mississippi Valley Division (MVD). For projects covered by this PRP, an individual Review Plan (RP) will be prepared and will reference the approved PRP. The Home District will post the approved RP, along with the PRP, on the peer review page of the Home District's website.

This PRP was developed by the St. Paul, Rock Island and St. Louis Districts and was submitted to the ECO-PCX and the MSC for review and comment. The approved PRP will be posted to the PCX website. Any public comments on the PRP will be collected by the EMP Program Manager for resolution and incorporation, if needed.

The Home District Project Delivery Teams (PDTs) will implement the PRP as described. The MVD Regional Integration Team (RIT) will submit the final draft PRP to the Headquarters, U.S. Army Corps of Engineers (HQ) Director of Civil Works. Signature by the Director of Civil Works on the final page of this document indicates approval. Nonsubstantive changes such as updates to web addresses, model certification status, etc., may be made without seeking re-approval.

II. Applicability

This document (PRP) will apply to all EMP projects within the USACE that the Home District in coordination with MVD determines:

- Do not require an Environmental Impact Statement (EIS).
- Do not pose a significant threat to human life.
- Have not received a request, or expect to receive a request, from the Governor of an affected State that peer review be conducted by independent experts.
- Do not expect the project study to be controversial in nature.
- Have an estimated construction cost of less than \$45 million.

If any of the above items are not met for an individual EMP project, a separate RP for that project will be developed by the Home District and approved through the RP approval process as outlined in EC 1165-2-209. The decision as to whether an EMP project falls within this PRP should be made no later than the Fact Sheet milestone. In addition, the Home District and MVD should reassess at the Alternatives Formulation Briefing (AFB) whether the project still conforms to the requirements for inclusion under this PRP or if a separate RP should be prepared.

III. Reviews and Certifications Described in EC 1165-2-209

As described in EC 1165-2-209, a Civil Works project may require four types of reviews: District Quality Control/Quality Assurance, Agency Technical Review, Independent External Peer Review and Policy and Legal Compliance Reviews. Following is a detailed discussion of the four types of reviews and an identification of the types of reviews anticipated for projects covered under this PRP.

A. District Quality Control (DQC). DQC is an internal review process of basic science and engineering work products focused on technical quality and policy compliance and conducted in accordance with the Home District's Quality Management Plan (QMP). The Quality Management Plan prescribes specific procedures for the conduct of DQC including documentation requirements and maintenance of associated records for internal audits to check for proper DQC implementation. DQC efforts will 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 will seek issue resolution support from MVD in accordance with the procedures outlined in Appendix H, ER 1105-2-100, or other appropriate guidance. All work products (e.g., decision documents, implementation documents, design documentation, Operation and Maintenance Plans, etc.) must undergo DQC.

(1) Quality checks and reviews occur during the development process and are carried out as a routine management practice. Quality checks may be performed by staff responsible for the work, such as supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel. However, quality checks would not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts.

(2) 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 appendixes prepared by or for the PDT to ensure the overall coherence and integrity of the report, technical appendixes, and the recommendations before final project approval.

B. Agency Technical Review (ATR). ATR is undertaken to "ensure the quality and credibility of the Government's scientific information" in accordance with EC 1165-2-209 and the MVD QMP. This level of review shall also cover any necessary National Environmental Policy Act (NEPA) documents and other environmental compliance products and any in-kind services provided by non-Federal sponsors. ATR is required for all decision documents and implementation reports. For all other products (such as design documentation, etc.), a risk-informed decision, as described in paragraph 15 of EC 1165-2-209, shall be made by the Home District and MVD as to whether ATR is required. Management of ATR reviews is dependent upon the phase of work. As described in EC 1165-2-209, reviews are intended to be scalable. ATR teams will be comprised of senior USACE personnel, preferably recognized subject matter experts (SMEs) with the appropriate technical expertise such as regional technical specialists (RTS), and may be supplemented by outside experts as appropriate.

C. Independent External Peer Review (IEPR). IEPR is the most independent level of review. IEPR is applied in cases that meet certain criteria where the risk and magnitude of the proposed project warrant a critical examination of the report by a qualified team outside of USACE. Any work product, report, evaluation, or assessment that undergoes DQC and ATR also may be required to undergo IEPR. A risk-informed decision, as described in paragraph 15 of EC 1165-2-209, is made as to whether IEPR is appropriate for that product.

IEPR is divided into two types. Type I IEPR is completed on decision documents for projects that have public safety concerns; significant controversy; a high degree of complexity; or significant environmental, economic, or social effects to the nation. Type II IEPR is completed on implementation documents as an external safety assurance review for hurricane and storm risk management and flood risk management projects. The differing criteria can result in work products being required to have Type I IEPR only, Type II IEPR only, or both Type I and Type II IEPR. The requirement for Type I IEPR is based on Section 2034 of the Water Resources Development Act (WRDA) of 2007, the Office of Management and Budget (OMB) Peer Review Bulletin and other USACE policy considerations. The requirement for Type II IEPR is based on Section 2035 of WRDA 2007, the OMB Peer Review Bulletin and other USACE policy considerations.

D. Policy and Legal Compliance Reviews. Decision documents are reviewed throughout the study process for their compliance with law and policy. These reviews culminate in determinations that report recommendations, supporting analyses and coordination comply with law and policy and warrant approval or further recommendation to higher authority. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents. Counsel in the Home District will review all decision and implementation documents for legal compliance. For decision documents, MVD will ensure the document is policy and legally compliant before the report is approved by the MVD Commander. Any policy deviations will be vetted with HQUSACE and resolved before

the report is approved. Policy review of decision documents will occur during the AFB and Final DPR approval.

E. Model Certification/Approval Described in EC 1105-2-412. The use of certified or approved models for planning activities is mandatory to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined 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 selection and application of the model and the input and output data are still the responsibility of the users and are subject to DQC and ATR. EC 1105-2-412 does not cover engineering models used in planning. The responsible use, application, and documentation of well-known and proven USACE developed and commercial engineering software will continue. The use of engineering models is also subject to DQC and ATR.

IV. Environmental Management Program Authority

The Upper Mississippi River System-Environmental Management Program (UMRS-EMP) is currently a Federal-State partnership designed to (a) plan, construct and evaluate measures for fish and wildlife habitat improvement through HREPs and (b) monitor the natural resources of the river system through the Long Term Resource Monitoring Program (LTRMP). WRDA of 1986 (Public Law 99-662) states:

To ensure the coordinated development and enhancement of the Upper Mississippi River system, it is hereby declared to be the intent of Congress to recognize that system as a nationally significant ecosystem and a nationally significant commercial navigation system. Congress further recognizes that the system provides a diversity of opportunities and experiences. The system shall be administered and regulated in recognition of its several purposes (Section 1103).

Elements of the UMRS-EMP originally included HREP, LTRMP, Computerized Inventory and Analysis System, Recreation Projects, Economic Impacts of Recreation Study and Navigation Traffic Monitoring. Currently, EMP is only comprised of two elements: HREP and LTRMP, which includes the computerized database for inventory and analysis. The other EMP elements either have been successfully completed or are now carried out under other authorities.

The original authorizing legislation has been amended three times since its enactment. The 1990 WRDA, Section 406, extended the original EMP authorization an additional 5 years to fiscal year 2002, which allowed for ramping up of the program. The 1992 WRDA, Section 107, amended the original authorization by allowing limited flexibility in how funds are allocated between HREP and LTRMP. The 1992 WRDA also assigned sole responsibility for operation and maintenance of habitat projects to the agency that manages the lands on which the project is located. The 1999 WRDA, Section 509, reauthorized EMP as a continuing authority with reports to Congress every 6 years and changed the Non-Federal Sponsor cost sharing percentage from 25 percent to 35 percent.

V. Factors Affecting the Scope and Level of Review

EC 1165-2-209 lists several risk factors that must be considered when determining the level of review for a project. For a typical EMP HREP, none of the criteria in EC 1165-2-209 for requiring IEPR are met.

A. No Significant Threat to Human Life/Safety Assurance. No EMP HREP has ever presented a significant threat to human life/safety assurance. Typical HREP features include island building, deep water habitat creation, side channel restoration, sediment management, creation of forest diversity, dike rehabilitation, water control, floodplain restoration, wetland habitat restoration, and water level management on uninhabited lands.

B. Project Cost. The average cost of the 53 HREP projects constructed to date is approximately \$5.2 million with the most expensive being the Pool 8 Islands Phase III project, which costs approximately \$18 million. The current Definite Project Report for the Ted Shanks project is TPC of \$33 million fully funded.

C. Support of Governors in Affected States. The EMP program and all specific habitat projects have consistently received strong political support from the affected States and congressional representatives. No State governor has ever expressed dissatisfaction or requested external review by independent experts on an EMP project.

D. Controversial Due to Public Dispute. Projects are considered controversial when there is substantial dispute about the size, nature, or effect of the project. No EMP HREP has ever been deemed by the USACE Director of Civil Works, Chief of Engineers, or a Division Commander, to be of a controversial nature.

E. Significant Economic, Environmental, and/or Social Effects to the Nation. EMP habitat projects have an Environmental Assessment prepared in compliance with NEPA. An EIS has never been requested nor prepared for an EMP project. By their nature, EMP projects are designed to provide positive environmental benefits, which the program has consistently accomplished. These benefits have been documented through LTRMP monitoring, pre- and post-project monitoring and surveying, and other interagency project assessment efforts. Short-term adverse environmental impacts have been encountered on some projects (e.g., impacts on freshwater mussels), but the impacts were evaluated in the NEPA process and effectively offset or minimized by the interagency PDT. River managers and agencies uniformly agree that the environmental benefits of the EMP outweigh any short-term negative environmental impacts.

Positive social effects are created by the EMP because the habitat benefits improve the nature experience for river users, including fishing, hunting, bird watching, water sports, and other forms of river-based recreation. This positive social impact has been consistently demonstrated through the positive feedback received from the public and elected representatives, attesting to an improved river ecosystem.

Significant economic benefits accrue from EMP projects. Construction projects employ local contractors. For example, the multimillion-dollar Pool 8 Islands Phase III, Stage 3A and 3B projects, were contracted with local construction companies out of Newport, Minnesota, and La Crosse, Wisconsin, respectively. These two projects also received approximately \$4.7 million in American Recovery and Reinvestment Act of 2009 (ARRA) funding, providing tax dollars to the region.

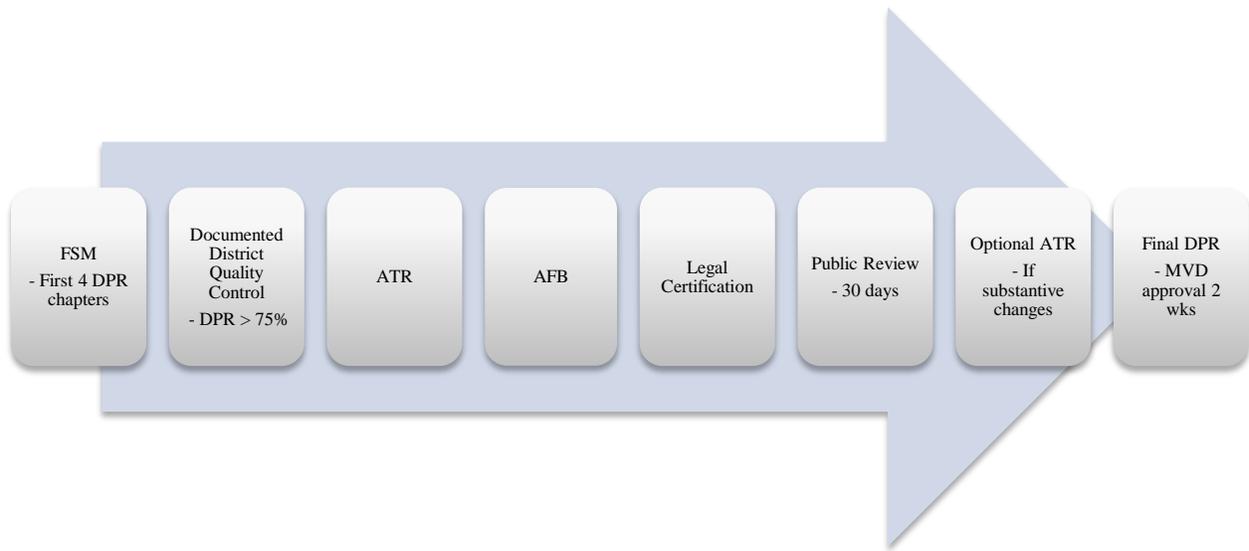
F. Interagency Interest. As indicated above, the EMP, since its inception in 1986, has been an interagency partnership collaborative effort. Key partners include the USFWS; USGS; the Minnesota, Wisconsin, Iowa, Missouri, and Illinois Departments of Natural Resources; other State natural resource agencies; the State Departments of Transportation; the U.S. Coast Guard, and NGOs such as the Nature Conservancy, the Audubon Society, the Sierra Club, and the Isaak Walton League. The public is also an important partner in all aspects of the EMP.

G. Influential Scientific Information. Lessons learned are gained from every EMP project through the LTRMP, and project monitoring. These lessons are used in an adaptive management process to implement improvements in the planning, design and implementation of future projects. For example, the Districts have produced an EMP Design Handbook that compiled lessons learned for ecosystem restoration. Lessons learned, and the overall experience in the EMP, have advanced the science of ecosystem restoration for large river systems. This design information has been freely shared with other entities planning or implementing large river ecosystem restoration projects, but the information has not been published in scientific journals or passed rigorous scientific review for potential as design standards.

H. Novel Methods, Innovative Designs, Etc. As indicated above, the EMP is a national leader in ecosystem restoration for large river systems. The techniques developed and improved upon through project implementation and monitoring are useful to future EMP projects and to other projects involving similar restoration work. Through repetition, lessons learned, adaptive management and monitoring, the techniques and designs used for EMP projects are continually modified and adjusted to fit site conditions and equipment capabilities.

VI. Review Protocols for EMP DPRs.

The DPR will undergo the following review/approval process:



A. Feasibility Scoping Meeting. The Home District will conduct a scoping meeting to develop the following information: existing conditions, problems, opportunities, constraints, goals, objectives, and potential measures. A documented Home DQC review will be conducted on this information following the Home District’s QMP.

B. Documented DQC on Draft DPR. The Home District will conduct a documented DQC review when the Draft DPR is at least 75 percent complete. This review will be performed in accordance with the Home District’s QMP.

C. ATR. ATR will be conducted after DQC on a 75 percent or greater Draft DPR to review for policy and legal compliance. The ATR will be conducted prior to the AFB.

MVD will be the review management organization for ATR. The Home District will propose the ATR team and lead to MVD for its approval. The ATR lead will be from outside MVD, and the team of SMEs will be from outside the Home District (Table 1). ATR lead and members may serve more than one review role. For projects with a TPC of less than \$10 million, a precertified cost engineer may conduct the Cost Engineering Review and certification instead of the Cost Engineering Directory of Expertise (DX). For projects with a TPC of \$10 million or greater, the Cost Engineering DX will perform the review and cost certification. The level of expertise and number of team members will be scaled consistent with the scope and complexity of each project.

When policy and/or legal concerns arise during ATR efforts that are not readily and mutually resolved by the PDT and the reviewers, the district will seek issue resolution support from MVD in accordance with the procedures outlined in ER 1105-2-100 (Appendix H). Once all comments are satisfactorily addressed, a Certification of ATR and Review Report will be prepared and signed by the ATR Team Leader and the Project Manager. A summary report of all comments and responses will follow the statement and accompany the report throughout the report approval process.

For projects with a TPC of less than \$10 million, an ATR will be conducted only on the AFB document unless the MVD and/or public review results in significant changes to the draft DPR. For projects with a TPC of \$10 million or more, ATR of the final DPR is also required.

D. Alternative Formulation Briefing. The 30-day AFB process and materials will follow ER 1105-2-100, Appendix H. Submission of a complete AFB package is required before the 30-day AFB process commences. Deviations from this timeframe must be coordinated with MVD to obtain concurrence.

E. Legal Certification. The Office of Counsel (OC) of the Home District will review the DPR for legal sufficiency. This review will result in a signed legal certification.

F. Public Review. Upon completion of AFB with MVD’s approval, the draft DPR will be released for 30-day public review.

G. Approval of Definite Project Report. The DPR and pertinent materials will be submitted for MVD approval in accordance with ER 1105-2-100, Appendix H. While MVD will attempt to complete its review within two weeks, it is not always possible given higher priority work. Therefore, for the purposes of scheduling, a minimum of 30 days should be scheduled for approval.

H. Review of P&S. For review of P&S Final Technical Review (FTR); Biddability, Constructability, Operability, and Environmental (BCOE) Review, and ATR (formerly known as Independent Technical Review, or ITR) are held at applicable stages of P&S development. All partner agencies are involved in the FTR and BCOE reviews. ATR may use the same team as the DPR ATR team. Legal review of the P&S will be accomplished using in-house OC.

Table 1. Potential ATR Roles and Recommended Expertise.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional preferably with experience in preparing decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc). The ATR Lead MUST be from outside MVD.
Plan Formulation	The Plan Formulation reviewer should be a senior water resources planner with experience in riverine aquatic ecosystem restoration consistent with the features/measures evaluated in the EMP HREPs. The Plan Formulation reviewer should also be fully familiar with USACE ecosystem restoration policies to meet the policy review requirement of ATR.
Economics (CE/ICA)	The Economics (Cost Effectiveness/Incremental Cost Analysis (CE/ICA)) reviewer should be a senior economist with demonstrated experience and understanding in CE/ICA and the Institute for Water Resources (IWR) Planning Suite.

	The reviewer should have experience generating developing CE/ICA's for aquatic ecosystem restoration projects. The reviewer should be familiar with ecosystem output analyses and concepts.
Biology/NEPA/Ecosystem Output Evaluation	The Biology/Aquatic Ecology/NEPA Reviewer should be a senior biologist with experience working on large river systems and with water resources and aquatic ecology; reviewer should have detailed knowledge of NEPA statute and regulations; reviewer should have experience in calculating ecosystem benefits and be able to ascertain if the ecological output models were appropriately applied.
Cultural Resources	The Cultural Resources Reviewer should be a full-time professional in archaeological research, administration, or management and should have field experience in general North American archaeology, with an emphasis on large river systems cultural resources.
Hydrology	Reviewer should be a senior hydrologist proficient in hydrologic engineering computer models and working experience with large river basin hydrology and natural watershed runoff and should have working knowledge and experience in water resources studies including hydrographic surveys, Geographic Information System (GIS), and basic terrain modeling techniques
Hydraulic Engineering	The hydraulic engineering reviewer will be an expert in the field of hydraulics and have a thorough understanding of engineering computer models and working experience with large river systems. Experience in water resource studies, hydrodynamics, sediment transport and modeling, and GIS is necessary The hydraulic engineering reviewer will be an expert in the field of hydraulics and have a thorough understanding of engineering computer models and working experience with large river systems.
Geotechnical Engineering	The reviewer should have experience in geotechnical engineering in large river systems to include island construction.
Civil Engineering	This review may be performed by a dedicated team member or may be satisfied by a geotechnical reviewer, depending on individual qualifications. Team member will have experience in civil design in wetland and large river systems. A certified professional engineer is suggested.
Structural Engineering	The reviewer should have a thorough understanding of structural and nonstructural methods typically associated with ecosystem restoration projects (pump stations, gate well structures, and stop logs). A certified professional engineer is recommended though not required.
Electrical/Mechanical	The reviewer should have experience with

Engineering	mechanical/electrical engineering for ecosystem restoration projects in the floodplain. A certified professional engineer with experience in restoration feature design (pump stations etc.) is recommended though not required.
Cost Engineering	For projects with a TPC of less than \$10 million, a Cost DX Pre-Certified Professional with experience preparing cost estimates for habitat restoration and enhancement projects in large riverine systems will serve on the ATRT. For projects with a TPC of \$10 million or greater, the Cost Engineering DX will assign the ATRT member.
Construction/Operations	The reviewer should have several years experience with construction overview and operating civil works projects in the floodplain. Ideally this reviewer would have this experience with environmental management projects.
Real Estate	The Real Estate reviewer will be an expert in the field of real estate and have a thorough understanding of real estate transactions for ecosystem restoration projects and working experience with large river systems

I. Team Communication. Communication is a key element in conducting a technical review. From the beginning, clear lines of communication will be established among the PDT, the ATR Team Leader, MVD, and the ECO-PCX (as needed). Communication will begin with clear delineation of the review process and schedule on each individual EMP project. The ATR team leader will ensure that all technical comments are exchanged using DrChecks in accordance with ER 1110-1-8159.

VII. Planning and Engineering Models Used in EMP Projects

For decision documents prepared under this PRP, approval of planning models will be in compliance with EC 1105-2-412. If the PDT elects to use a model which has not been approved or certified for use, then the ECO-PCX will be contacted prior to the Feasibility Scoping Meeting regarding model review requirements.

A. Planning Models. The following planning models are the typical models being used in the development of an EMP project decision document (Table 2). Use of models varies by District, location, and project type.

Table 2. Planning Models That May Be Used in the Development of EMP projects.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
IWR-Plan	The IWR-Plan was developed by Institute of Water Resources as accounting software to compare habitat benefits among alternatives.	Certified
A Modification of USFWS Habitat	The current USFWS Habitat Suitability Index Model (Stueber et al., 1982) does not contain	Review In Process

Suitability Index Model for Bluegill (<i>Lepomis macrochirus</i>) for Winter Conditions for Upper Mississippi River Backwater Habitats	variables that allow for the consideration of winter habitat conditions. In northern climates, where ice cover can last 5 months, winter habitat conditions take on a great importance in an evaluation of the quality of aquatic habitat for bluegill and other fish species. The model was modified to address the limitations with the existing bluegill model.	
Shorebird Migration Model for Portions of the Northern Plains/Prairie Pothole Region of the USA. December 2002	This habitat suitability index model was developed to address habitat for all shorebirds migrating through the Northern Plains/Prairie Pothole Region between 45° and 50° N latitude during spring and summer/fall. The model was developed to cover all shorebirds found in the region because collective shorebird management, rather than single species management, is often the goal for shorebird habitat. Both migrational seasons were included in the model because they are each important for shorebird populations.	Review In Process
A Dabbling Duck Migration Model for the Upper Mississippi River	The habitat suitability index model was developed to address potential quality of fall habitat for dabbling ducks in large riverine systems and associated backwaters.	Review In Process
A Modification of USFWS Habitat Suitability Index Model for Mink	The current USFWS Habitat Suitability Index Model (Allen 1986) does not contain variables that allow for the consideration of mink habitat along disturbed corridors. Therefore, the model was modified to incorporate a categorical delineation of corridor condition.	Review In Process
A Migratory Habitat Model for Diving Ducks Using the Upper Mississippi River	The habitat suitability index model was developed to address potential quality of fall habitat for diving ducks in large riverine systems and associated backwaters.	Review In Process
USFWS Small-mouth Bass Habitat Suitability Index Model	The habitat suitability index and in-stream flow models were developed by the USFWS to address either lentic or lotic habitat.	Approved; spreadsheet in process of certification
Wildlife Habitat Appraisal Guide (WHAG)	The WHAG model is a field evaluation procedure, originally developed by the Missouri Department of Conservation, NRCS and USACE, designed to measure the quality of habitat for 12 select, representative avian and wildlife species. These indicator species were chosen to represent the needs of a wider variety of species and habitat	Review In Process

	requirements. Results of the WHAG model are used to evaluate among potential species-specific or aggregate habitat improvements or detriments associated with proposed project alternatives as part of the overall USACE ecosystem restoration planning process.	
Fish Habitat Appraisal Guide (MOFISH)	The MOFISH model is a field evaluation procedure, originally developed by the Missouri Department of Conservation, designed to measure the quality of habitat for select, representative fish species.	Review In Process
Aquatic Habitat Appraisal Guide (AHAG)	The AHAG model is a field evaluation procedure, originally developed by the Engineer Research and Development Center (ERDC) and Rock Island District, designed to measure the quality of habitat for 11 select, representative fish species. These indicator species were chosen to represent the needs of a wider variety of species and habitat requirements. Results of the AHAG model are used to evaluate among potential species-specific or aggregate habitat improvements or detriments associated with proposed project alternatives as part of the overall USACE ecosystem restoration planning process.	Review In Process
USFWS Habitat Suitability Index Models for other species (HEP or Bluebooks)	Habitat Evaluation Procedure (HEP) is a species-habitat approach to impact assessment and habitat quality for selected evaluation species documented with an index, the Habitat Stability Index (HIS). This value is derived from an evaluation of the ability of key habitat components to compare existing habitat conditions and optimum habitat conditions for the species of interest. There are currently 166 models for invertebrates, fish, amphibians, reptiles, birds, mammals, and communities.	Approved, pending certification of spreadsheets or other accounting software
Fish Passage Connectivity Index	The Fish Passage Connectivity Index (FPCI) was developed to evaluate ecosystem outputs of alternative measures for fish passage improvements on the Upper Mississippi River and Illinois Waterway System (UMRS) for cost effectiveness and incremental analysis. The model has potential for application to fish passage projects on other river systems.	Review In Process
HGM	Hydrogeomorphic (HGM) Approach to Assessing Wetland Function	Certification needs to be

		completed for regional model
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B. Engineering Models. The following engineering models are anticipated to be used in the development of the decision document:

Table 3. Engineering Models That May Be Used in the Development of EMP projects.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study
ADH 2-dimensional hydraulic model	<p>ADH is a state-of-the-art ADaptive Hydraulics Modeling system developed by the Coastal and Hydraulics Laboratory, ERDC, USACE (www.chl.ercd.usace.army.mil), and is capable of handling both saturated and unsaturated groundwater, overland flow, three-dimensional Navier-Stokes flow, and two- or three-dimensional shallow water problems. One of the major benefits of ADH is its use of adaptive numerical meshes that can be employed to improve model accuracy without sacrificing efficiency. It also allows for the rapid convergence of flows to steady state solutions. ADH contains other essential features such as wetting and drying, completely coupled sediment transport, and wind effects. A series of modularized libraries make it possible for ADH to include vessel movement, friction descriptions, as well as a host of other crucial features. ADH can run in parallel or on a single processor and runs on both Windows systems and UNIX based systems.</p> <p>ADH will be used to simulate 2-dimensional (longitudinal and lateral) variation in water surface elevation, flow velocity, and flow direction in project areas. Both steady and unsteady flow conditions may be simulated depending on needs. For steady-state simulations, flows ranging from low flow to the 1-percent probability flood will be used. Model results for existing conditions, future without, and alternatives will be compared to determine whether project objectives are being achieved. Sediment transport simulations can be done if needed.</p>
HEC-RAS 4.0 (River Analysis System)	<p>The Hydrologic Engineering Center’s River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for steady flow analysis to evaluate the future without- and with-project conditions at project sites. For a particular study the model could be used for unsteady flow analysis or both steady and unsteady flow analysis. Sediment transport simulations can be done if needed.</p>

VIII. Compliance of EMP Projects with EC 1165-2-209

The compliance of EMP projects with EC 1165-2-209 – CIVIL WORKS REVIEW POLICY is detailed below. The compliance and modifications are similar to those described for CAP projects in the Director of Civil Works' Policy Memorandum #1.

A. IEPR. According to EC 1165-2-209, decision documents and implementation documents of projects that meet certain risk criteria must undergo Type I IEPR. These criteria include the following: (1) a significant threat to human life; (2) the estimated total cost of the project, including mitigation costs, is greater than \$45 million based on a reasonable estimate at the end of the reconnaissance phase; (3) the Governor of an affected State requests a peer review by independent experts; or (4) the Chief of Engineers determines that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project. If, however, the estimated total cost of the project subsequently increases to more than \$45 million, the need for IEPR must be reevaluated by MVD in coordination with HQUSACE. Section 11(3)(c) of EC 1165-2-209 states that a project study may be excluded from Type I IEPR by the Chief of Engineers or Director of Civil Works (DCW) in cases where none of the mandatory risk criteria are met and if the project study does not include an EIS.

The implementation documents of projects that present a life safety risk must undergo Type II IEPR, Safety Assurance Review. A Type II IEPR shall be conducted on design and construction activities for hurricane and storm risk management and flood risk management projects, as well as other projects where existing and potential hazards pose a significant threat to human life. The Review Management Office for Type II IEPR reviews is the USACE Risk Management Center. Panel members will be selected using the National Academies of Science policy for selecting reviewers.

None of the 53 EMP projects constructed to date have met any of the criteria presented above. By their very nature, EMP projects are extremely low risk to human life and because of the extensive coordination with the public, elected officials, partner agencies and nongovernmental organizations they consistently received broad support from these entities. For these reasons it is highly unlikely that a future recommended EMP project would meet these criteria. Therefore, it is strongly recommended that HQUSACE grant a programmatic exclusion of IEPR for EMP projects. This exclusion would be similar to the exclusion for CAP projects granted in CECW-P Policy Memorandum #1, dated 19 January 2011, subject: Continuing Authority Program Planning Process Improvements. As with the CAP exclusion, if a future individual project were to meet the criteria, an individual review plan for that project, including the appropriate IEPR processes, would be prepared and forwarded for approval.

B. Review plans. As stated in EC 1165-2-209, RPs are required for all projects. MSCs are strongly urged to adopt a programmatic approach to review. The home MSC will establish an

appropriate review procedure in keeping with the principles established in EC 209 and established in the approved PRP. A model RP has been developed for EMP HREPs.

The MVD DST Chief (for Decision documents) or RB-T Chief (for Implementation documents) is responsible for ensuring that use of the MVD Model Review Plan is appropriate for the specific project covered by the plan. 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 MVD approval are documented in Attachment 2. Significant changes to the review plan (such as changes to the scope and/or level of review or changes which trigger the need for IEPR) should be reapproved by MVD following the process used for initially approving the plan. Significant changes may result in MVD determining that use of the MVD Model Review Plan is no longer appropriate. In these cases, a project specific review plan will be prepared and approved in accordance with EC 1165-2-209. The latest version of the review plan, along with the MVD approval memorandum, will be posted on the home district's webpage.

C. Review Management Organization. As stated in EC 1165-2-209, paragraph 9.1, the ATR RMO will generally be the appropriate PCX. For EMP projects covered under this PRP, the RMO for ATR will be MVD in lieu of the ECO-PCX. The PCX will continue to serve in its advisory role. For projects not covered under this PRP, the ECO-PCX will serve as the RMO.

D. Cost Certification. As stated in EC 1165-2-209, paragraph 9(d), the Cost Engineering Directory of Expertise (DX) will provide the cost engineering review and resulting certification. For EMP projects with a TPC of less than \$10 million, ATR of the cost estimate will be conducted by precertified cost personnel within the region. The precertified list of cost personnel has been established and is maintained by the Walla Walla Cost DX. The cost ATR member will coordinate with the Cost DX for execution of cost ATR and cost certification. For projects with a TPC of \$10 million or greater, the Cost DX will assign the ATRT member and certify the cost estimate.

E. Model certification. For decision documents prepared under this PRP, approval of planning models will be in compliance with EC 1105-2-412.

IX. Summary

More than 50 HREPs have been constructed under EMP since program inception in 1986. These projects have restored more than 90,000 acres of habitat for fish and wildlife. Project monitoring has demonstrated that important habitat for target species has been created. Outstanding habitat benefits have been achieved at a reasonable cost when compared with other ecosystem restoration projects in the Nation.

By their very nature, EMP projects are extremely low risk to human life, and have consistently received broad support from the public, elected officials, partner agencies and NGOs. No significant controversy has occurred for an EMP project.

EC 1165-2-209 states “...review approaches will be scalable and customized for each effort, commensurate with the level of complexity and relative importance of the actions being supported. All decisions on the types and scopes of review required on a particular product will be risk-informed.” In accordance with this policy statement, quality reviews for EMP projects should be reasonably tailored to fit the program, as indicated above. Several of the key requirements in EC 1165-2-209 are routinely accomplished for EMP projects. These include District Quality Control/Quality Assurance, Agency Technical Review, and Policy and Legal Compliance Review. In most cases, the requirement for IEPR is not applicable to EMP projects. This PRP recommends a customization of these processes to reflect the low risk, noncontroversial nature of EMP projects.

Reference Materials

Section 515 of the Treasury and General Government Appropriations Act of 2001 (Public Law 106-554; often called The Data Quality Act).

Privacy Act, 5 U.S.C. § 522a, as amended.

Executive Order 12866. Regulatory Planning and Review.

OMB Circular A-130, Appendix I, 61 Federal Register 6428 (February 20, 1996).

Office of Management and Budget. 2005. Final Information Quality Bulletin for Peer Review. (http://www.whitehouse.gov/omb/fedreg/2005/011405_peer.pdf).

ER 1105-2-100. Planning Guidance U.S. Army Corps of Engineers. 2000. (<http://www.usace.army.mil/inet/usace-docs/eng-regs/er1105-2-100/toc.htm>).

ER 5-1-1. Project Management.

EC 1110-1-105. Engineering and Design-Independent Technical Review.

ER 1165-2-502. Resources, Policies and Authorities: Delegation of Review and Approval Authority for Post-Authorization Decision documents.

EC 1105-2-407. Planning Models Improvement Program: Model Certification. U.S. Army Corp of Engineers. 2003. Report of the Planning Models Improvement Task Force. (<http://www.iwr.usace.army.mil/iwr/planning/pmip.htm>)

National Research Council. 2002. Review Procedures for Water Resources Project Planning. Washington, DC. <http://www.nap.edu/books/030908508X/html/>

EIG Inspection Report on Quality Management for Civil Works Planning, March 31, 2004.

Recommendations for Independent Science Review, Submitted by the Environmental Advisory Board to the Chief, U.S. Army Corps of Engineers. May 13, 2004. http://www.usace.army.mil/inet/functions/cw/hot_topics/isrr.pdf

U.S. Environmental Protection Agency. 2000. Peer Review Handbook, 2nd Edition. Washington, DC. (<http://www.epa.gov/OSA/spc/html/prhandbk.pdf>).