

**PEER REVIEW PLAN**

**POOL 5 WATER LEVEL MANAGEMENT  
NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM  
PROJECT IMPLEMENTATION REPORT WITH  
INTEGRATED ENVIRONMENTAL ASSESSMENT**

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### POOL 5 WATER LEVEL MANAGEMENT NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM PROJECT IMPLEMENTATION REPORT WITH INTEGRATED ENVIRONMENTAL ASSESSMENT September 20, 2007

#### I. PURPOSE AND REQUIREMENTS

This document is the Peer Review Plan (PRP) for the Pool 5 Water Level Management Ecosystem Restoration Project Implementation Report (PIR) with Integrated Environmental Assessment and Appendices (Pool 5 WLM Decision Document). The project is a component of the Navigation and Ecosystem Sustainability Program (NESP). The PIR for this project builds on the comprehensive feasibility study and provides the site specific planning details necessary for project approval.

This PRP has been developed in accordance with Engineering Circular (EC) 1105-2-408 dated 31 May 2005, "Peer Review of Decision Documents", which 1) establishes procedures to ensure the quality and credibility of Corps decision documents by adjusting and supplementing the review process and 2) requires that documents have a peer review plan. The Circular applies to all feasibility studies and reports and any other reports that lead to decision documents that require authorization by Congress.

#### II. PROJECT DESCRIPTION

**A. Decision Document.** The purpose of the Pool 5 WLM Decision Document is to present the results of a study undertaken to help restore aquatic habitat in Pool 5 of the Upper Mississippi River System (UMRS). This report provides planning, engineering, and implementation details of the recommended restoration plan to allow final design and construction to proceed subsequent to the approval of the plan.

**B. General Site Description.** Pool 5 is located at Upper Mississippi River Mile 738.2 – 752.8 in Wabasha and Winona Counties, MN, and Buffalo County, WI. It is 10 miles upstream of Winona, MN.

**C. Project Scope.** The proposed project area is 12,580 acres. The preliminary estimated total project cost is \$2-5 million.

**D. Problems and Opportunities.** Since construction of the locks and dams for commercial navigation purposes in the late 1930's, impoundment and river regulation has modified the hydrologic regime on the UMRS. Impoundment and river regulation has only slightly attenuated flood peaks, but has eliminated the low summer water levels that occurred before the navigation system was constructed. The dams also cause sediment and nutrients to accumulate in the backwaters and the lower portion of the navigation pools. These physical and water level changes have contributed to reduced habitat diversity and quality, loss of aquatic vegetation and invertebrates, reduced water clarity, and reduced abundance of fish and wildlife.

Opportunities exist to:

- 1) Increase fish and wildlife habitat by improving growing conditions to increase the production, extent, and diversity of aquatic vegetation, with special emphasis on perennial emergent species.
- 2) Increase understanding of the effects of pool drawdown to support an adaptive management for future decisions concerning the use of this management measure.
- 3) Meet or approach the systemic ecosystem goals and objectives, and SMART criteria, established by the NESP Science Panel.

**E. Pool 5 Drawdowns in 2005 and 2006.** The St. Paul District, Corps of Engineers, in cooperation with the Upper Mississippi River Resources Forum (RRF) and associated sub-group, the Water Level Management Task Force (WLMTF), conducted a pool-scale drawdown of Pool 5 in the summer of 2005, and again in the summer of 2006. Both drawdowns were 1.5-foot below normal pool level at Lock and Dam 5 with a 1.0-foot restriction at the primary control point (Alma Gage). The 2005 drawdown commenced on 13 June 2005, and was completed by 30 September 2005. The 2006 drawdown was initiated on June 12, 2006, but had to be terminated on July 10, 2006 due to very low river flows and main channel conditions. Planning for this project, and the required main channel dredging, were funded with Operation and Maintenance funding.

The Pool 5 drawdowns conducted in 2005 and 2006, particularly in 2005, resulted in the substantial achievement of the project goals and objectives as outlined in this PMP. The drawdown resulted in the establishment of perennial emergent vegetation in target areas identified (i.e., Spring Lake, Weaver Bottoms, Lost Island Lake, Krueger Slough, Belvidere Slough). Adverse impacts to commercial navigation, recreational boating, and freshwater mussels were successfully managed.

The current work effort entails producing a Project Implementation Report (PIR) decision document. The basis of the PIR will be to reaffirm the system goals and objectives as outlined by the NESP Science Panel as applies to water level management actions. These goals and objectives will be further refined into project-specific metrics which quantify and locate the specific benefits desired as a result of a Pool 5 drawdown.

The drawdowns in 2005 and 2006 resulted in a condition of the Pool 5 ecosystem which appears to have substantially met or approached the goals and objectives metrics established by the Project Delivery Team. The PIR will confirm this finding. The PIR will project the future condition of the Pool 5 ecosystem, focusing on an expected degradation over time of the vegetation benefits achieved in 2005-06. At some point, the ecosystem will reach a condition in which another pool-scale drawdown in Pool 5 would be a cost-beneficial management action to restore the vegetation.

It is hoped that the Pool 5 water level management PIR will serve as a template that specifies metrics for evaluating the success of a pool-scale drawdown, and in estimating the point in time where vegetation benefits degrade to the point that another drawdown is desirable.

The earliest another pool-scale drawdown of Pool 5 will be conducted is estimated to be 2012. Actual implementation will depend on the ecological condition of Pool 5.

**F. Product Delivery Team.** The St. Paul District Corps of Engineers is conducting preparing the Pool 5 WLM Decision Document. The Corps' Project Manager is the primary point-of-contact for this document, and can be reached by telephone at (651) 290-5433.

### III. METHODOLOGY AND MODEL CERTIFICATION

**A. Planning Models.** EC 1105-2-407 provides the following definition of a planning model:

**“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.”**

**B. Habitat Evaluation.** Habitat outputs will be assessed and derived primarily using the Habitat Evaluation Procedures (HEP) developed by the U.S. Fish and Wildlife Service and other agencies. An area can have various habitats and the habitats can have different suitabilities for species that may occur in that area. The suitabilities can be quantified (via Habitat Suitability Indices, or HSIs). The overall suitability of an area for a species can be represented as a product of the areal extent of each habitat and the suitability of the habitats for the species.

As habitat changes through time, either by natural or human-induced processes, we can quantify the overall suitability through time by integrating the areal extent-suitability product function over time. Thus, we can quantitatively compare the forecasted future without-project condition to future conditions with alternative plans

The HEP is an established approach to assessment of natural resources. The HEP approach has been well documented and is approved for use in Corps projects as an assessment framework that combines resource quality and quantity over time, and is appropriate throughout the United States. The Habitat Suitability Index (HSI) models are the format for quantity determinations that are applied within the HEP framework. The following guidelines are provided to help determine the need for certification. ITR of input data is required in all instances.

- New HSI models developed by the Corps are subject to certification.
- Published HSI models, while peer-reviewed and possibly tested by the developers, are subject to review and approval by the PCX.
- Modifications to published HSI models, where relationships or formulas are changed, are subject to certification.

We do not anticipate using any planning models that are not currently certified. However, existing models proposed for use will be submitted to the Ecosystem Restoration Planning Center of Expertise (PCX) for review and approval. If new HSI models applicable to water level management are developed for use in this study, we will submit these new models for approval by the PCX.

**C. Ecological Goals and Objectives.** The Ecological Goals and Objectives for the UMRS and for Pool 5, and associated metrics, established by the NESP Science Panel and the PDT, will guide the planning, implementation, and evaluation of this project.

**D. Cost Effectiveness.** Cost effectiveness and incremental cost analyses will be based upon the Institute for Water Resources (IWR) PLAN program and other standard methods of analysis.

**IV. INDEPENDENT TECHNICAL REVIEW PLAN**

**A. Independent Technical Review.** ITR is the primary method of quality control for this decision document. ITR is a critical examination by a qualified person or team that was not involved in the day-to-day technical work that supports the decision document. ITR is intended to confirm that such work was accomplished in accordance with clearly established professional principles, practices, codes, and criteria, and that recommendations are in compliance with laws and policy. The St. Paul District is responsible for ensuring adequate technical review of this decision document.

**B. ITR Team.** The ITR will be performed by the Corps of Engineers, Rock Island District in coordination with the Ecosystem Restoration Planning Center of Expertise. The ITR team also includes one person from *[TO BE DETERMINED]* Division. The expertise and technical backgrounds of the ITR team members qualify them to provide a comprehensive technical review of the product. Review of cost estimates will be coordinated with the Walla Walla District Cost Estimating Directory of Expertise. The ITR team members are identified in the following table:

<b>Discipline</b>	<b><u>Name</u></b>	<b><u>District</u></b>	<b><u>Office Symbol</u></b>
Team Leader		TBD*	
Planning		Rock Island	
Plan Formulation		Rock Island	
Cultural resources		Rock Island	MVR-PM-A
Economics		Rock Island	MVR-PM-A
Cost/value engineering		Rock Island	MVR-EC-DE
Real Estate		Rock Island	MVR-RE-P
Environmental/NEPA		Rock Island	MVR-PM-A

\* The ITR Team Leader will be from a Corps Division outside of Mississippi Valley Division (MVD)

The ITR team will use DR CHECKS software to record its comments and to document resolution of issues, as required by EC 1105-2-408. All comments resulting from the independent technical review will be resolved prior to forwarding the feasibility study to higher authority and local interests. The report will be accompanied by a certification, indicating that the independent technical review process has been completed and that all technical issues have been resolved.

The names of the individual reviewers will be removed prior to posting on the web.

**C. Value Engineering Plan.** Value Engineering (VE) evaluations provide another method for ensuring quality. The goal of VE on this project is to ensure that a full array of alternatives is considered in order to maximize cost effectiveness. A VE study will be conducted during the plan formulation before the final array of alternatives has been defined. The VE study objectives will be to build upon the design team's preliminary plan formulation efforts, clarify the functional requirements of project features, and recommend additional conceptual alternatives to meet those requirements. The same team that performs ITR will conduct the VE study.

**D. Quality Control.** Quality control will also be monitored via internal/District functional element reviews, and Higher Authority/vertical team conferences and reviews.

**E. External Peer Review.** It is recommended that the feasibility study will not be subject to External Peer Review. The study is not anticipated to generate influential scientific information that would be either controversial or of sufficient risk and magnitude as to require External Peer Review as described in EC 1105-2-408. Implementation costs are expected to be in the \$2 million to \$5 million range.

Once PCX endorsement of this plan has occurred, MVD will verify the level of review decision with the HQ vertical team as part of the final approval of the PRPs."

**F. Public Review.** The St. Paul District Corps of Engineers, in conjunction with the Water Level Management Task Force of the River Resources Forum, conducted an extensive public involvement program prior to the 2005 and 2006 drawdowns. This program included six public meetings, 6 informational newsletters, and numerous press interviews, public speaking appearances, and one-on-one collaboration with various stakeholders. Prior to implementation, this decision document will provide additional opportunities for public involvement, and will incorporate that public input into the final document. The draft PIR and environmental assessment will be distributed for public review as part of the normal NEPA review process. The formal public review will be scheduled after the Alternative Formulation Briefing and before submitting the report to the Civil Works Review Board in accordance with the study schedule defined in the Project Management Plan.

**V. SCHEDULE.** The schedule for study tasks related to review and public input are shown in the following table. As of this writing, there is uncertainty regarding the amount and timing of FY 2008 NESP for any given project. Because of this, the schedule is expressed as time durations rather than specific dates.

ID	Task Name	Duration	Start Date	Finish Date
1	<b>Start Project (Sign FCSA)</b>	<b>0 days</b>	<b>TBD</b>	<b>TBD</b>
11	ITR Review & VE Study	4 wks	TBD	TBD
12	<b>Feasibility Scoping Meeting</b>	4 wks	TBD	TBD
20	ITR Review	4 wks	TBD	TBD
22	<b>Alt. Formulation Briefing</b>	4 wks	TBD	TBD
25	HQ/MVD/public review	6 wks	TBD	TBD
26	Public meeting (local)	1 day	TBD	TBD
27	ITR review of public comment	5 days	TBD	TBD
28	<b>Division Engineer transmit to HQ</b>	<b>0 days</b>	<b>TBD</b>	<b>TBD</b>
29	HQUSACE policy review	4 wks	TBD	TBD
32	Agency and Public Review	6 wks	TBD	TBD

Bold font designates Major Milestones.