

**PEER REVIEW PLAN
FOR
WHITE RIVER COMPREHENSIVE BASIN STUDY
MISSOURI AND ARKANSAS**

PEER REVIEW PLAN

February 14, 2008

1. General. This review plan was developed in accordance with Engineer Circular (EC) 1105-2-408, "Peer Review of Decision Documents," dated 31 May 2005. The EC establishes procedures to ensure the quality and credibility of Corps decision documents. It applies to all feasibility studies and reports and any other reports that lead to decision documents that require authorization by Congress. The level of review defined in this plan has been developed and coordinated with Mississippi Valley Division and vertical teaming is ongoing at every level of development.

2. Project Description.

a. Congress authorized the study of the White River Basin pursuant to Section 729 of the Water Resources Development Act (WRDA) of 1986 (Public Law 99-662), and as amended by Section 202 of the Water Resources Development Act of 2000 (Public Law 106-541). WRDA 2000 established the cost sharing of Section 729 studies at 50 % Federal/50% non-Federal, and half of the non-Federal funds can be in-kind services. WRDA 2007 recently amended the cost sharing of Section 729 studies to 75% Federal/25% non-Federal, and allows for all of the non-Federal funds to be in-kind services. The area of the Basin includes the First, Second, Third, and Fourth Congressional Districts of Arkansas, and the Seventh and Eighth Congressional Districts of Missouri.

b. The study purpose is to determine if there is a Federal interest in providing solutions to a full spectrum of water resource related problems and opportunities in the White River Basin, such as ecosystem restoration, navigation, flood damage reduction, agricultural and municipal water supply, waste water treatment, aquifer protection, water quality improvement, waterfowl management, and aquatic and wildlife habitat restoration. The primary focus of this study is to determine environmental, ecosystem, and economic options to address this spectrum of problems and opportunities in the basin. The problems and potential solutions will be examined in a comprehensive and holistic manner because of the interrelationships of the problems and potential solutions to all of the significant resources in the basin. It is not anticipated at this time that the study and feasibility report will produce any influential scientific information.

c. The White River Basin can be categorized into two distinct areas with its own issues and requirements. The upper basin problems are based on rapid population growth and development, which are increasing the amount of municipal and industrial water use and wastewater generated. While increased water needs, increased wastewater discharge, and agricultural uses are contributing to decreased water quality, the capability of the water resources to sustain these loading increases is not known. Studies are needed to determine the effects of the increased runoff on the ecosystem and to determine if the problems will affect the lakes and water based recreation in the future. In the lower basin, much of the previously forested area has been converted to cropland. The Alluvial and Sparta aquifers are being depleted in some areas, in part to increased agricultural demands. The counties suffer from the socio-economic problems common to the Mississippi Delta and some have lost population in recent years. The lower portion of the river is seasonally navigable, but during low flows, shipments must be diverted to other ports or light loaded. Water quantity has become a major concern since flows in the river are controlled and water is being used for a variety of purposes. In contrast to the upper basin,

the primary concerns expressed in the lower basin relate to water quantity, not quality. The wetlands in the lower basin are not only nationally significant, but are also recognized internationally. Studies are necessary to identify the effects that current and future flow regimes could have on wetlands.

d. The White River Basin comprises approximately 28,000 square miles in northeastern Arkansas and southern Missouri. The basin contains five large multi-purpose reservoirs and one reservoir primarily for flood control; over 150 miles of flood control levees along the White River and its tributaries; 2 major national wildlife refuges; and the largest remaining concentration of seasonally flooded bottomland hardwoods in the Mississippi Valley. The study will identify water resources needs and opportunities. Potential study outputs address water resources needs for water supply, flood control, waste water management, navigation, recreation, power generation, and other water resources related needs identified in the comprehensive study. The comprehensive plan will serve as a framework for the environmentally sustainable development of water resources within the White River Basin.

e. A Feasibility Cost Sharing Agreement (FCSA) was signed on May 22, 2002, with the following sponsors: Arkansas Game and Fish Commission, Arkansas Natural Heritage Commission, Arkansas Soil and Water Conservation Commission (now Arkansas Natural Resources Commission), Arkansas Waterways Commission, Missouri Department of Conservation, Missouri Department of Natural Resources, and the Arkansas Chapter of The Nature Conservancy. The estimated study costs were \$8,548,100 and the sponsor's share of the total estimated cost was \$4,274,050 prior to WRDA 2007. The sponsors were to provide a cash contribution estimated to be \$2,137,025.

f. A Project Study Plan (PSP) was developed in October 2001 to describe the study effort and to provide a detailed time and cost estimate for the study. The Memphis District and the sponsors developed the Project Study Plan as a cooperative effort. This Plan contains a Quality Control Plan (QCP), which provides a technical review mechanism to insure that quality products are developed during the course of the study. A Technical Review Team (TRT) was identified in the QCP to be responsible for performing an independent technical review. The TRT members were identified in the PSP from functional areas from within the Memphis District and Little Rock District. The QCP also indicated that the TRT members may be modified as the study progresses to match the review requirements, and may result in the use of additional out-of-house resources. Based on the requirements of the EC, this TRT will not be used to conduct the ITR.

3. Product Delivery Team (PDT). The Memphis District, U.S. Army Corps of Engineers and the sponsors identified above are jointly conducting this study. The entire PDT is presented in Table 1.

TABLE 1.

FEASIBILITY PHASE PROJECT DELIVERY TEAM

<u>Discipline</u>	<u>Name</u>	<u>Office/Agency</u>
Project Manager		CEMVM-PM-P
Program Analyst		CEMVM-PM-P
Environmental Coordinator		CEMVM-PM-E
Environmental Lead		CEMVM-PM-E
Hydraulics & Hydrology Lead		CEMVM-EC-H
Hydraulics & Hydrology		CEMVM-EC-H
Economist		CEMVM-PM-D
Public Affairs Office		CEMVM-PAO
Office of Counsel		CEMVM-OC
Fisheries Biologist		CEERD-EE-A
PCX Director		CEMVD-RB-T
PCX POC		CELRN-PM-P

4. Review and Quality Control.

a. **Independent Technical Review.** As per EC 1105-2-408, Independent Technical Review (ITR) is the primary method of quality control. 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.

b. The ITR will be ongoing throughout product development, rather than a cumulative review performed at the end of the investigation. The ITR will be performed by the National Ecosystem Restoration Planning Center of Expertise (PCX), Mississippi Valley Division. This PCX was chosen to conduct the ITR due to the potential environmental and ecosystem impacts resulting from the project study focus. This review plan will be submitted to the PCX Director, and PCX Deputies for approval. The expertise and technical backgrounds of the ITR team members qualify them to provide a comprehensive technical review of the product. If the National PCX is not available to conduct the ITR, then they will select an alternate action engineer district to conduct the ITR. The members participating in the ITR will be selected at the time when the district is identified. The number of reviewers will be selected by the PCX and as a minimum should include the following disciplines and expertise (See Table 2).

**TABLE 2
INDEPENDENT TECHNICAL REVIEW TEAM**

<u>Discipline</u>	<u>Description</u>	<u>Reviewer</u>
Review Team Leader	Plan Formulation experience on ecosystem restoration projects	TBD
Environmental	Fisheries biologist and/or riparian ecologist with experience on ecosystem	TBD
Cultural Resources	Archaeologist	TBD
Economic Evaluation	Economist with experience on ecosystem restoration projects	TBD
Geomorphology	Geologist or hydraulic engineer with ecosystem restoration project experience	TBD
Civil Design	Civil engineer with experience in designing grading plans, levees (and levee and bank-protection removal or modification), and habitat structures	TBD
Hydraulics and Hydrology	Hydrologist or hydraulic engineer with HEC-RAS unsteady state, floodplain mapping, and ecosystem restoration experience	TBD
Structures	Civil or structural engineer experienced with design and construction of structures related to environmental projects.	TBD

c. ITR comments and responses will be recorded in the online DrChecks system (www.projnet.org). Documentation of the independent technical review will be included with the submission of the reports to Mississippi Valley Division and HQUSACE. All comments resulting from the ITR 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.

d. Quality control will be monitored via internal/District functional element reviews, Local Sponsor reviews, and Higher Authority/vertical team conferences and reviews.

e. The Sponsor will be responsible for quality control over deliverables provided as in-kind contributions. The Corps will verify that such contributions meet negotiated requirements and standards before granting cost-sharing credit for those contributions.

f. **Peer Review Plan.** This basin study is subject to External Peer Review (EPR). The magnitude of the study is large, as it covers a considerable amount of land in Arkansas and Missouri. The study has the potential to be controversial, as the White River evokes emotional reactions concerning the usage and environmental impacts on the river. For these reasons, the External Peer Review as described in Engineering Circular 1105-2-408 will be required in addition to the ITR. It is anticipated that the EPR will be conducted by individual experts in the appropriate fields of study. The PDT, PCX, and interagency team will determine the disciplines or expertise required to conduct the EPR. The EPR reviewers would be selected by the Corps, the authors of the individual work items, or the interagency team. The interagency team should include members from the following organizations:

- a. U.S. Fish and Wildlife Service
- b. The Nature Conservancy of Arkansas
- c. Arkansas Game and Fish Commission
- d. Arkansas Natural Heritage Commission
- e. Arkansas Natural Resources Commission
- f. Arkansas Waterways Commission
- g. Missouri Department of Conservation
- h. Missouri Department of Natural Resources

The PCX will coordinate the EPR review and any decision documents generated as a result of the EPR review with the Mississippi Valley Division (MVD) National Ecosystem Restoration Planning Center of Expertise. It is not anticipated that the public will be asked to nominate individuals to serve as an EPR reviewer. However, any significant public comments will be provided to the EPR reviewers before the review is conducted. The external peer review team will be qualified to review and ensure:

- Scientific data used in the study was accurate and complete
- Modeling methods used were pertinent to the type of study results required, and sound modeling methodology was used
- The analysis contained clearly justified and valid assumptions
- Concepts, features, analytical methods, analyses, and details are appropriate, fully coordinated, and correct
- Problems/issues are properly defined and scoped
- Conclusions and recommendations are reasonable and justified

The alternatives that the team should consider should include potential significant economic, environmental, ecosystem, and social effects, interagency interest, controversial matters, complex basin challenges, and possible changes in practices and/or policy. The number of reviewers will be dependent on the number of work items that comprise the overall study. The disciplines and expertise required for the EPR are presented in Table 3.

**TABLE 3.
EXTERNAL PEER REVIEW PANEL**

<u>Discipline</u>	<u>Description</u>	<u>Reviewer</u>
White River Comprehensive Basin Study Peer Review Plan	6	February 14, 2008

Plan Formulation	Plan Formulation experience on ecosystem restoration projects	TBD
Environmental	Fisheries biologist and/or riparian ecologist with experience on ecosystem restoration projects	TBD
Economic Evaluation	Economist with experience on ecosystem restoration projects	TBD
Hydraulics and Hydrology	Hydrologist or hydraulic engineer with HEC-RAS unsteady state, floodplain mapping, ecosystem restoration experience	TBD

g. Review.

(1) ITR Team responsibilities are as follows:

(a) Reviewers shall review the draft report to confirm that work was done in accordance with established professional principles, practices, codes, and criteria and for compliance with laws and policy. Comments on the report shall be submitted into DrChecks.

(b) Reviewers shall pay particular attention to one's discipline but may also comment on other aspects as appropriate. Reviewers that do not have any significant comments pertaining to their assigned discipline shall provide a comment stating this.

(c) Grammatical and editorial comments shall not be submitted into DrChecks. Comments should be submitted to ITR manager via electronic mail using tracked changes feature in the Word document or as a hard copy mark-up. The ITR manager shall provide these comments to the Study Manager.

(d) Review comments shall contain these principal elements:

- A clear statement of the concern
- The basis for the concern, such as law, policy, or guidance
- Significance for the concern
- Specific actions needed to resolve the comment

(e) The "Critical" comment flag in DrChecks shall not be used unless the comment is discussed with the ITR manager and/or the Study Manager first

(2) PDT Team responsibilities are as follows:

(a) The team shall review comments provided by the ITRT in DrChecks and provide responses to each comment using "Concur", "Non-Concur", or "For Information Only". *Concur* responses shall state what action was taken and provide revised text from the report if applicable. *Non-Concur* responses shall state the basis for the disagreement or clarification of the concern and suggest actions to negotiate the closure of the comment.

(b) Team members shall contact the PDT and ITRT managers to discuss any "non-concur" responses prior to submission.

h. Resolution.

(1) Reviewers shall back check PDT responses to the review comments and either close the comment or attempt to resolve any disagreements. Conference calls shall be used to resolve any conflicting comments and responses.

(2) Reviewers may “agree to disagree” with any comment response and close the comment with a detailed explanation. ITRT members shall keep the ITR manager aware of problematic comments. The vertical team will be informed of any policy variations or other issues that may cause concern during Headquarter review.

i. Certification. To fully document the ITR process, a statement of technical review will be prepared. Certification by the ITR manager and the Study Manager will occur 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 certification statement (Appendix A). A summary report of all comments and responses will follow the statement and accompany the report throughout the report approval process.

j. Model Certification and Implementation Measures. It is not anticipated at this time that any specific planning or implementation models will be determined from the Peer Review Plan. Therefore, no specific implementation costs will be addressed and coordination with the NWW Cost Estimating Directory of Expertise is not needed.

There are engineering models currently being performed as part of the overall White River Comprehensive Basin Study in an attempt to collect data needed to determine the problems and opportunities in the basin. It is possible that outcomes from the comprehensive report will result in the development of future feasibility reports from the identified problems and opportunities. The following is a list of the engineering models currently ongoing as part of the overall study for the White River Basin:

- Unsteady Flow Model
- Sedimentation Study
- Recreation Study
- Eco-Flows Study
- Fisheries Study
- Forebay Oxygen Diffuser Study

k. Alternative Formulation Briefing (AFB). The AFB for this project will occur after ITR certification. It is possible that the briefing will result in additional technical or policy comments for resolution. After resolution of significant comments, the ITR will be recertified, if needed.

l. The draft feasibility report and environmental assessment will be distributed for public review as part of the normal NEPA review process. The 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. Public review of this document will begin approximately one month after the completion of the ITR process and policy guidance memo. The period will last 30 days as required by law. A formal State and Agency review will occur concurrently with the public review. However, it is anticipated that intensive coordination with these agencies will have occurred concurrent with

the planning process. Upon completion of the review period, comments will be consolidated in a matrix and addressed, if needed. A comment resolution meeting will take place if needed to decide upon the best resolution of comments. A summary of the comments and resolutions will be included in the document.

5. Schedule. The schedule for study tasks related to review and public input are shown in Table 4. It is meant to be generic in nature due to uncertainties with both Federal and non-Federal funding. Actual dates will be scheduled once the review period draws closer. Currently, it is estimated that review of this document will begin in the 1st Quarter of FY 2012.

**TABLE 4.
STUDY TASKS SCHEDULE**

<u>Task</u>	<u>Date</u>
ITR Review and Comments	Oct-Nov 2012
PDT Responses & Backcheck	Dec-Jan 2012
HQ/MVD/Public Review	Feb-Mar 2012
Certification and Transmit to HQ	April 2012
HQUSACE Policy Review	May-Jun 2012
Agency and Public Review	Jul-Aug 2012
Draft Chief's Report	Sep 2012