PEER REVIEW PLAN

COLDWATER RIVER BASIN BELOW ARKABUTLA, MISSISSIPPI FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT

1. Purpose and Requirements.

a. This document outlines the Peer Review Plan for the Coldwater River Basin Below Arkabutla, Mississippi, Mississippi River and Tributaries (MR&T), General Investigation (GI) Feasibility Study and Environmental Impact Statement (EIS) and Appendixes. Engineer Circular (EC) 1105-2-408 dated 31 May 2005, "Peer Review of Decision Documents," (1) establishes procedures to ensure the quality and credibility of U.S. Army Corps of Engineers 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. The feasibility report could lead to congressional authorization and is therefore covered by the Circular.

b. The Circular outlines the requirement of the two review approaches (independent technical review (ITR) and external peer review (EPR)) and provides guidance on Corps Planning Centers of Expertise (PCX) involvement in the approaches. This document addresses review of the decision document as it pertains to both approaches and planning coordination with the appropriate Center.

(1) <u>ITR</u>. Districts are responsible for reviewing the technical aspects of the decision documents and their supporting interim products through the ITR approach. The 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. The ITR is intended to confirm that such work was done in accordance with clearly established professional principals, practices, codes, and criteria. In addition to technical review, documents should also be reviewed for their compliance with laws and policy. The Circular also requires that DrChecks be used to document all ITR comments, responses, and associated resolution accomplished.

(2) <u>EPR</u>. The Circular added EPR to the existing Corps review process. This approach does not replace the standard ITR process. The peer review approach applies in special cases where the magnitude and risk of the project are such that a critical examination by a qualified person outside the Corps is necessary. The EPR can also be used where the information is based on novel methods, presents complex interpretation challenges, contains precedent-setting methods or models, or is likely to affect policy decisions that have a significant impact. The degree of independence required for technical review increases as the project magnitude and project risk increase.

(a) Projects with low magnitude and low risk may use a routine ITR.

(b) Projects with either high magnitude/low risk or low magnitude/high risk would require both Corps and outside reviewers on the ITR team to address the portions of the project that cause the project to rate high on the magnitude or risk scale.

(c) Projects with high magnitude and high risk require a routine ITR as well as an EPR.

(3) <u>PCX Coordination</u>. The Circular outlines PCX coordination in conjunction with preparation of the review plan. Districts should prepare the plans in coordination with the appropriate PCX. The Corps PCX are responsible for the accomplishment and quality of ITR and EPR for decision documents covered by the Circular. Centers may conduct the review or manage the review to be conducted by others. Reviews will be assigned to the appropriate Center based on business programs. The Circular outlines alternative procedures to apply to decision documents. Each Center is required to post review plans to its website every 3 months, as well as links to any reports that have been made public. The Office of Water Policy Review (OWPR) will consolidate the lists of all review plans and establish a mechanism for soliciting public feedback on the review plans.

2. Project Description.

a. <u>Decision Document</u>. The purpose of the decision document, "Coldwater River Basin Below Arkabutla, Mississippi, Mississippi River and Tributaries (MR&T), General Investigation (GI) Feasibility Study and Environmental Impact Statement," is to present the results of a feasibility study undertaken to address the problems and opportunities of the study area relative to water quality, ecosystem restoration, and flood damage reduction. The Coldwater River Basin Below Arkabutla study was authorized by study resolution adopted by the Committee of Public Works of the United States Senate on 29 June 1973. The feasibility phase of this project is cost shared 50/50 with the project sponsors (the Yazoo-Mississippi Delta Joint Water Management District and the Tunica County Soil and Water Conservation District). This report provides planning, engineering, and implementation details of the recommended plan to allow final design and construction to proceed subsequent to the approval of the plan.

b. General Site Description.

(1) The Coldwater River Basin Below Arkabutla study area is bounded on the west by the Mississippi River, on the north by the Mississippi-Tennessee state line, on the east by the Coldwater River levees, and on the south by the southern boundary of the Coldwater River Basin

in the vicinity of Marks, Mississippi. Counties included in the study area are Tunica, De Soto, Coahoma, Quitman, and Tate. The study area encompasses approximately 400,000 acres located in northwest Mississippi, approximately 10 miles southwest of Memphis, Tennessee. The northwest part of this watershed below Arkabutla Lake is the object of this study.

(2) The study area is characterized by level, mostly cleared land. This delta area has a flat to slightly undulating surface created by the sedimentation of flood deposits. The topography is further differentiated by crescent-shaped lakes, the remnants of changes in stream courses. Primary streams represented in the study area include McKinney Bayou, Lake Cormorant Bayou, White Oak Bayou, Muddy Bayou, Phillips Bayou, David Bayou, and numerous other creeks and bayous. Many of the streams or lakes in the study area are presently listed on the Environmental Protection Agency's Section 303(d) list of impaired waterways including Lake Cormorant Bayou, Buck Island Bayou, White Oak Bayou, McKinney Bayou, and Moon Lake. The Mississippi River lies outside the study area, but will be evaluated since it is a possible source of ground-water import for augmenting low base flows and improving water quality conditions.

(3) Tunica County has experienced rapid growth in recent years, and continued growth is expected in the years to come. The construction of an airport near the city of Tunica and Interstate 69 is slated to traverse the study area. These and other factors have created pressure on area streams to meet water quality standards while maintaining flood damage reduction goals. This study will address existing problems and potential impacts from increased development for water quality, local drainage, and flooding in the study area.

c. <u>Project Scope</u>. The proposed project area will include portions of the overall study area and will be defined by the final array of alternatives proposed to be developed during the summer of 2008. The cost of the proposed project is not likely to exceed \$45 million and therefore, the report will not be subject to External Peer Review. A summary of these estimated project costs is presented below:

Feature	Amount (\$)
Lands and Damages	3,791,000
Channels and Canals	7,409,000
Pumping Plants	3,156,000
Water Control Structure	1,580,000
Engineering and Design	4,171,000
Construction and Management	1,668,000
Total	21,775,000

SUMMARY OF FIRST COSTS

d. Problems and Opportunities.

(1) The feasibility study for Coldwater River Basin Below Arkabutla will be conducted to fully evaluate a range of alternatives to provide a plan for environmental protection/restoration and flood damage prevention. Alternatives will be developed and analyzed to the extent required for identifying the plan that best meets the needs of the study area based on Federal planning criteria.

(2) The predominant emphasis of the Coldwater River Basin Below Arkabutla Lake study is flood risk management along with the restoration of the degraded ecosystem and the impacts it has on water resources, aquatic habitat, and the potential for future development in the study area. The evaluation of possible alternatives during the reconnaissance phase yielded measures which could improve the aquatic ecosystem and address flood risk management impacts from future development in the study area. The implementation of weirs/grade control structures, floodwater-retarding structures, farm conservation measures, and ground/surface water imports provides the opportunity to enhance the environment and improve local drainage for existing conditions and increases in future conditions with development.

(3) The implementation of a combination of measures will be required to fully realize potential benefits; however, further evaluation during the feasibility phase will narrow the scope of those alternatives serving the same function. Comparative evaluation of alternative measures to address the problems and opportunities, including the extent and scale of the measures proposed, will be according to their ability to meet project objectives, taking into account cost effectiveness, economics, and environmental sustainability.

e. <u>Model Certification</u>. Hydraulic and hydrologic models expected to be used include (1) Geo-Hydrologic Modeling System, (2) Geo-HecRaz, and (3) Hydrologic Modeling System. These models were developed by the Hydraulic Engineering Center and are certified models for use in water resource investigations. Environmental models likely to be used include (1) Hydro-Geomorphic Classification of Wetlands Model, (2) Aquatic Habitat Evaluation Procedures (HEP), and (3) Terrestrial HEP. Economic models likely to be used include (1) HEC/FDA, (2) CACFDAS, and (3) Excel spreadsheets to factor in risk and uncertainty. Certification/ approval is still required for any models proposed for use in the study.

f. <u>Product Delivery Team (PDT)</u>. The PDT is comprised of those individuals directly involved in the development of the decision document. Contact information and disciplines are listed below.

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Discipline	Office
Project Manager	Planning and Project Management Branch (CEMVK-PP-D)
Biologist	Environmental Analysis Team (CEMVK-PP-PQ)
Archeologist	Environmental Analysis Team (CEMVK-PP-PQ)
Economist	Economic Analysis Team (CEMVK-PP-PE)
Structural Design	Structures Section (CEMVK-EC-DS)
Channel Design	Levee and Drainage Section (CEMVK-EC-DL)
Mechanical/Electrical	Architectural, Civil, Mechanical and Electrical Section (CEMVK-EC-DC)
Real Estate Appraisal	Appraisal and Planning Branch (CEMVK-RE-E)
Real Estate Planning	Appraisal and Planning Branch (CEMVK-RE-E)
Cost Engineering	Cost Engineering and Specifications Section (CEMVK-EC-TC)
Hydrologic Engineering	Hydrologic Engineering Section (CEMVK-EC-HD)
Geotechnical	Analytical Section (CEMVK-EC-GA)
Water Quality	Water Quality Section (CEMVK-EC-HW)
Operations	Operations Division (CEMVK-OS-FS)
Regulatory	Regulatory Branch (CEMVK-OD-FS)

g. <u>Vertical Team</u>. The Vertical Team includes District management, District Support Team (DST), and Regional Integration Team (RIT) staff, as well as members of the Planning Community of Practice (PCoP). The District Project Manager can be contacted at 601-631-5043, and the DST manager for this project can be contacted at 601-634-5065.

3. <u>ITR Plan</u>. As outlined in paragraph 1.b(1) above, the District is responsible for ensuring adequate technical review of decision documents and their supporting interim work products described below. The responsible PDT District of this decision document is Vicksburg (CEMVK).

a. <u>General</u>. An ITR team leader shall be designated for the ITR process. The designated PCX for Flood Risk Management is the South Pacific Division (CESPD). CESPD will assign the ITR team (ITRT) and ITR team leader. In accordance with CEMVD policy, the ITR team leader will be from outside CEMVD. The purpose of an ITR team leader from outside CEMVD is to ensure full objectivity, transparency, and review independence of the ITR. The ITR team leader is responsible for providing information necessary for setting up the review, communicating with the Project Manager (PM), providing a summary of critical review comments, collecting grammatical and editorial comments from ITRT, ensuring that ITRT has adequate funding to perform the review, facilitating the resolution of the comments, and certifying that ITR has been conducted and resolved in accordance with policy.

b. <u>Team</u>. The ITRT will be comprised of individuals who have not been involved in the development of the decision document or interim work products and will be chosen based on expertise, experience, and/or skills. The members will roughly mirror the composition of the PDT. It is anticipated that this team will be assigned by **Mathematical Science 1**, CESPD-PDS-P (415-503-6852), or other members of the CESPD staff with help from ECO-PCX and NWW, as necessary. This Peer Review Plan will be updated to include the ITRT members, their disciplines, and other relevant information once members are designated.

(1) It is anticipated that six to seven reviewers total should be available in the following disciplines:

(a) Hydraulic Engineering

(b) Cost Engineering

(c) Design Engineering

(d) Geotechnical Engineering

(e) Economics

(f) Environmental

(g) Real Estate

(h) Planning

(2) <u>Review Disciplines</u>. The expertise that should be brought to the review team includes the following:

(a) <u>Hydraulic Engineering</u>. The reviewer(s) should have extensive knowledge of HEC-RAS modeling, including the use of Geographic Information System (GIS) (ARC-INFO) inputs to the model. The reviewer(s) should also have a solid understanding of the geomorphology of alluvial rivers.

(b) <u>Cost Engineering</u>. The reviewer should have a solid background in cost engineering and MCACES cost estimating procedures. The Cost Engineering Center at the Walla Walla District will also review the cost estimates in accordance with HQUSACE guidance.

(c) <u>Design Engineering</u>. The reviewer(s) should have extensive knowledge in the design of water control structures to include floodgates, pumping stations, and weirs. Expertise in mechanical and electrical is desirable.

(d) <u>Geotechnical Engineering</u>. The reviewer should have a thorough understanding of soils and soils analysis. The soils in the study area are generally fined grained silts.

(e) <u>Economics</u>. The reviewer should have a solid understanding of Flood Risk Management models for agricultural and rural residential areas along with Ecosystem Restoration models and incremental analysis.

(f) <u>Environmental</u>. The reviewer should have a solid background in wetland and stream channel restoration and understand the factors that influence the reestablishment of native species of plants and animals. The reviewer should also understand environmental incremental analysis.

(g) <u>Real Estate</u>. The reviewer should have recent experience in reviewing Real Estate plans for feasibility studies and be able to draw on "lessons learned" in advising the PDT of best practices.

(h) <u>Planning</u>. The reviewer should have recent experience in reviewing Plan Formulation processes for multiobjective studies and be able to draw on "lessons learned" in advising the PDT of best practices.

(i) The ITR will focus on:

1. Review of the planning process, criteria applied, and models used.

2. Review of the methods of NER and incremental environmental analysis.

<u>3</u>. Compliance with client, program, and National Environmental Policy Act (NEPA) requirements.

4. Completeness of preliminary design and support documents.

5. Adequacy of MCACES cost estimates.

c. <u>Communication</u>. The communication plan for the ITR is as follows:

(1) The team will use DrChecks to document the ITR process. The PM will facilitate the creation of a project portfolio in the system to allow access by all PDT and ITRT members. An electronic version of interim technical work products for the Feasibility Scoping Meeting (FSM), Alternative Formulation Briefing (AFB), and the draft report, with appendixes and NEPA document, in Word format shall be posted at ftp://ftp.usace.army.mil/pub/ or a hard copy will be provided at least 1 business day prior to the start of the comment period.

(2) The PDT shall send the ITRT leader one hard copy (with color pages, as applicable) of the draft report and appendixes and NEPA document for each ITRT member such that the copies are received at least 1 business day prior to the start of the comment period. Interim technical work products will be provided to the appropriate ITRT members.

(3) The PDT shall host an ITR kickoff meeting virtually to orient the ITRT during the first week of the comment period for the draft report and NEPA document. If funds are not available for an onsite meeting, the PDT shall provide a presentation about the project, including photographs of the site, for the team.

(4) The PM shall inform the ITRT leader when all responses have been entered into DrChecks and conduct an in-progress review to summarize comment responses.

(5) A revised electronic version of the report and appendixes and interim technical work products with comments incorporated shall be posted at ftp://ftp.usace.army.mil/pub/ for use during back checking of the comments.

(6) PDT members shall contact ITRT members or leader as appropriate to seek clarification of a comment's intent or provide clarification of information in the report. Discussions shall occur outside of DrChecks, but a summary of discussions may be provided in the system.

(7) Reviewers will be encouraged to contact PDT members directly via e-mail or telephone to clarify any confusion. DrChecks shall not be used to post questions needed for clarification.

(8) The ITRT, PDT, and vertical team shall conduct an After Action Review (AAR) no later than 3 weeks after ITR certification.

d. Funding.

(1) The PDT district shall provide labor funding by cross charge labor codes. Funding for travel, if needed, will be provided through Government order. The PM will work with the ITRT leader to ensure that adequate funding is available and commensurate with the level of review needed. The current cost estimate for this review is \$50,000. Any funding shortages will be negotiated on a case-by-case basis and in advance of a negative charge occurring.

(2) The ITRT leader shall provide organization codes for each team member and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes.

(3) Reviewers shall monitor individual labor code balances and alert the ITRT leader to any possible funding shortages.

e. Timing and Schedule.

(1) Throughout the development of this document, the PDT will brief Senior staff and subject matter experts from the PDT District to ensure planning quality. Members of the vertical team (DST, Planning CoP, RIT) and ITRT will be invited to attend and provide comments on the product to date.

(2) The ITR will be accomplished in accordance with ER 1105-2-100, Appendix G. Three ITRs are planned:

(a) Technical work products that support the FSM documentation to include surveying and mapping, hydrology and hydraulics, average annual damage computation, etc., will be subject to ITR prior to submitting the technical products for the FSM.

(b) Technical work products that support the AFB documentation in addition to those listed in (a) above to include environmental/NEPA documentation, average annual damage benefit calculation, cost estimates, etc., will be subject to ITR prior to the AFB. If the draft report is available, that report may serve as the AFB documentation.

(c) ITR will be conducted on the draft report and NEPA document.

(3) The PDT will review the interim products including FSM materials, AFB materials, and draft feasibility report with NEPA document to ensure consistency across the disciplines and resolve any issues prior to the start of ITR on these items.

(4) The ITR process for the interim products, feasibility report, and NEPA document will follow the timeline below. Actual dates will be scheduled once the period draws closer. It is estimated that review of the feasibility report and NEPA document will begin in the first quarter of FY 2010.

Task	Date (Week)
Feasibility Scoping Meeting	To be determined
Alternative formulation ongoing	To be determined
Feasibility Report and NEPA Document	To be determined
Comment period begin	1
Kickoff meeting	1
ITR comments due	4
PDT responses due	6
Responses back check	8
Certification	10
Alternative formulation briefing (AFB)	14
AFB policy memorandum issued	18
Recertification, if needed	· · · · · · · · · · · · · · · · · · ·
AAR NLT	20

f. <u>Review</u>.

(1) ITRT responsibilities are as follows:

(a) Reviewers shall review the interim work products for the FSM, AFB, and draft report and NEPA documents to confirm that work was done in accordance with established professional principals, 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 who 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 ITRT leader via electronic mail using tracked changes feature in the Word document or as a hard copy markup. The ITRT leader shall provide these comments to the PM. (d) Review comments shall contain these principal elements:

 $\underline{1}$. A clear statement of the concern

2. The basis for the concern, such as law, policy, or guidance

<u>3</u>. Significance for the concern

4. 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 PM first.

(2) The 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," "Nonconcur," or "For Information Only." Concur responses shall state what action was taken and provide revised text from the report, if applicable. Nonconcur 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 "nonconcur" responses prior to submission.

g. <u>Resolution</u>.

(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. The ITRT members shall keep the ITR leader informed of problematic comments. The vertical team will be informed of any policy variations or other issues that may cause concern during Headquarters review.

h. <u>Certification</u>. To fully document the ITR process, a statement of technical review will be prepared. Certification by the ITR leader and PM 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.

i. <u>AFB</u>. 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.

4. EPR Plan.

a. This decision document will present the details of a feasibility study undertaken to address Flood Risk Management and Ecosystem Restoration needs in the Coldwater River Basin Below Arkabutla Lake. The scope and technical complexity do not warrant an EPR. The Section 905(b) analysis indicated total project costs of approximately \$21.8 million. Should the Government estimate for the recommended plan exceed \$45 million, the decision to forego an EPR will be revisited based on the Water Resources Development Act (WRDA) of 2007 implementation guidance. The WRDA 07 includes provisions that require an EPR for projects that exceed \$45 million.

(1) It is unlikely that the Corps report to be disseminated will contain influential scientific information. The ecosystem restoration measures that were identified within the Section 905(b) analysis will be evaluated using standard hydrologic, hydraulic, geotechnical, environmental, and economic processes. The efforts envisioned to date will not result in a highly influential scientific assessment.

(2) It is anticipated that while this study will be challenging and beneficial, it will not be novel, controversial or precedent setting, nor have significant national importance.

(3) <u>Project Magnitude</u>. The magnitude of this project is determined as low. While the hydrology of the study area is considered complex, the project is not particularly complex and involves flood risk reduction measures along with restoration of wetland and aquatic habitat through the implementation of standard concepts. The project will likely have positive long-term cumulative effects.

(4) <u>Project Risk</u>. This project is considered low risk overall. The potential for failure is considered to be low. Stream modifications for flood risk management and restoration of wetland areas are straightforward concepts with numerous successful applications. The potential for controversy regarding project implementation is low because the recommended plan will take into account the public concerns. A socioeconomic analysis will be prepared and at least one public meeting will be held. The uncertainty of success of the project is low because the methods used for evaluating the project are standard. The ecosystem has not reached an irreversible state so it is likely that a restoration effort of the magnitude proposed will be successful.

(5) The Louisiana black bear is the only endangered species listed for the study area. Primary alternatives under investigation include diversion of freshwater into the study area during low-flow conditions. The Louisiana black bear is not expected to be impacted either positively or negatively by the project. The thrust of the investigation is directed at aquatic restoration.

(6) The subject matter covered in the decision document is not expected to be novel, controversial, or precedent-setting, and the project will not have significant interagency interest or significant economic, environmental, or social effects.

(7) Therefore, a separate EPR will not be conducted on the decision document, provided the project cost estimate does not exceed the \$45 million threshold established in WRDA 07 and external members will not be part of the ITR team. The ITR, public, and agency review will serve as the main review approaches.

5. Public and Agency Review.

a. Public review of the document will occur after issuance of the AFB policy guidance memorandum, after ITR of the draft feasibility report and NEPA document, and concurrence by HQUSACE that the document is ready for public release. The period will last 30 days as required by law. As such, public comments other than those provided at any public meetings or workshops held during the planning process will not be available to the review team. Significant public comments that result in changes to the formulation will require a new ITR.

b. The public review of necessary state or Federal permits will also take place during this period.

c. 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. Possible public concern issues are related to potential increases in flooding downstream as a result of project implementation. Possible state and agency issues are concerned over sediment removal from streams causing pesticides and other contaminants to be resuspended in the water column.

d. Upon completion of the review period, comments will be consolidated 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.

6. <u>PCX coordination</u>. The appropriate PCX for this document is the National Flood Risk Management Center of Expertise located at CESPD. This review plan will be submitted through the PDT District (CEMVK) Planning, Programs, and Project Management Chief to the PCX Director (**Director**) for approval. Since it was determined that this project is low magnitude and low risk, an EPR will not be required. The PCX is requested to review and comment on the sufficiency of this Peer Review Plan and assist in assigning an ITRT and ITRT leader. The approved review plan will be posted to the PCX website. Any public comments on the review plan will be collected by OWPR and provided to the PDT District for resolution and incorporation, if needed.

7. <u>Approvals</u>. The PDT will carry out the review plan as described. The PM will submit the plan to the PDT District Planning, Programs, and Project Management Chief for approval. Coordination with PCX will occur through the PDT District Planning, Programs, and Project Management Chief. Signatures by the individuals below indicate approval of the plan as proposed.

Project Manager Coldwater River Basin Below Arkabutla Project (Date)

Chief, Planning, Programs, and Project Management Division Vicksburg District (Date)

APPENDIX A STATEMENT OF TECHNICAL REVIEW

COMPLETION OF INDEPENDENT TECHNICAL REVIEW FLOOD CONTROL PROJECT FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT (EIS)

The Vicksburg District has completed the feasibility report, EIS, and appendixes for the Coldwater River Basin Below Arkabutla Project. Notice is hereby given that an independent technical review, that is appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the Review Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of assumptions, methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The independent technical review was accomplished by an independent team composed of _______staff. All comments resulting from ITR have been resolved.

(To be designated by CEMVD) Team Leader, Coldwater River Basin Below Arkabutla Project, Independent Technical Review Team

(Date)

Project Manager Coldwater River Basin Below Arkabutla Project (Date)

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

A summary of all comments and responses is attached. Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impact and resolution)

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

Chief, Planning, Programs, and Project	
Management Division	
Vicksburg District	

(Date)

PEER REVIEW PLAN

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<u>No.</u>	<u>Title</u>
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A STATEMENT OF TECHNICAL REVIEW

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(3) <u>PCX Coordination</u>. The Circular outlines PCX coordination in conjunction with preparation of the review plan. Districts should prepare the plans in coordination with the appropriate PCX. The Corps PCX are responsible for the accomplishment and quality of ITR and EPR for decision documents covered by the Circular. Centers may conduct the review or manage the review to be conducted by others. Reviews will be assigned to the appropriate Center based on business programs. The Circular outlines alternative procedures to apply to decision documents. Each Center is required to post review plans to its website every 3 months, as well as links to any reports that have been made public. The Office of Water Policy Review (OWPR) will consolidate the lists of all review plans and establish a mechanism for soliciting public feedback on the review plans.

2. Project Description.

a. <u>Decision Document</u>. The purpose of the decision document, "Coldwater River Basin Below Arkabutla, Mississippi, Mississippi River and Tributaries (MR&T), General Investigation (GI) Feasibility Study and Environmental Impact Statement," is to present the results of a feasibility study undertaken to address the problems and opportunities of the study area relative to water quality, ecosystem restoration, and flood damage reduction. The Coldwater River Basin Below Arkabutla study was authorized by study resolution adopted by the Committee of Public Works of the United States Senate on 29 June 1973. The feasibility phase of this project is cost shared 50/50 with the project sponsors (the Yazoo-Mississippi Delta Joint Water Management District and the Tunica County Soil and Water Conservation District). This report provides planning, engineering, and implementation details of the recommended plan to allow final design and construction to proceed subsequent to the approval of the plan.

b. General Site Description.

(1) The Coldwater River Basin Below Arkabutla study area is bounded on the west by the Mississippi River, on the north by the Mississippi-Tennessee state line, on the east by the Coldwater River levees, and on the south by the southern boundary of the Coldwater River Basin

in the vicinity of Marks, Mississippi. Counties included in the study area are Tunica, De Soto, Coahoma, Quitman, and Tate. The study area encompasses approximately 400,000 acres located in northwest Mississippi, approximately 10 miles southwest of Memphis, Tennessee. The northwest part of this watershed below Arkabutla Lake is the object of this study.

(2) The study area is characterized by level, mostly cleared land. This delta area has a flat to slightly undulating surface created by the sedimentation of flood deposits. The topography is further differentiated by crescent-shaped lakes, the remnants of changes in stream courses. Primary streams represented in the study area include McKinney Bayou, Lake Cormorant Bayou, White Oak Bayou, Muddy Bayou, Phillips Bayou, David Bayou, and numerous other creeks and bayous. Many of the streams or lakes in the study area are presently listed on the Environmental Protection Agency's Section 303(d) list of impaired waterways including Lake Cormorant Bayou, Buck Island Bayou, White Oak Bayou, McKinney Bayou, and Moon Lake. The Mississippi River lies outside the study area, but will be evaluated since it is a possible source of ground-water import for augmenting low base flows and improving water quality conditions.

(3) Tunica County has experienced rapid growth in recent years, and continued growth is expected in the years to come. The construction of an airport near the city of Tunica and Interstate 69 is slated to traverse the study area. These and other factors have created pressure on area streams to meet water quality standards while maintaining flood damage reduction goals. This study will address existing problems and potential impacts from increased development for water quality, local drainage, and flooding in the study area.

c. <u>Project Scope</u>. The proposed project area will include portions of the overall study area and will be defined by the final array of alternatives proposed to be developed during the summer of 2008. The cost of the proposed project is not likely to exceed \$45 million and therefore, the report will not be subject to External Peer Review. A summary of these estimated project costs is presented below:

Feature	Amount (\$)
Lands and Damages	3,791,000
Channels and Canals	7,409,000
Pumping Plants	3,156,000
Water Control Structure	1,580,000
Engineering and Design	4,171,000
Construction and Management	1,668,000
Total	21,775,000

SUMMARY OF FIRST COSTS

d. Problems and Opportunities.

(1) The feasibility study for Coldwater River Basin Below Arkabutla will be conducted to fully evaluate a range of alternatives to provide a plan for environmental protection/restoration and flood damage prevention. Alternatives will be developed and analyzed to the extent required for identifying the plan that best meets the needs of the study area based on Federal planning criteria.

(2) The predominant emphasis of the Coldwater River Basin Below Arkabutla Lake study is flood risk management along with the restoration of the degraded ecosystem and the impacts it has on water resources, aquatic habitat, and the potential for future development in the study area. The evaluation of possible alternatives during the reconnaissance phase yielded measures which could improve the aquatic ecosystem and address flood risk management impacts from future development in the study area. The implementation of weirs/grade control structures, floodwater-retarding structures, farm conservation measures, and ground/surface water imports provides the opportunity to enhance the environment and improve local drainage for existing conditions and increases in future conditions with development.

(3) The implementation of a combination of measures will be required to fully realize potential benefits; however, further evaluation during the feasibility phase will narrow the scope of those alternatives serving the same function. Comparative evaluation of alternative measures to address the problems and opportunities, including the extent and scale of the measures proposed, will be according to their ability to meet project objectives, taking into account cost effectiveness, economics, and environmental sustainability.

e. <u>Model Certification</u>. Hydraulic and hydrologic models expected to be used include (1) Geo-Hydrologic Modeling System, (2) Geo-HecRaz, and (3) Hydrologic Modeling System. These models were developed by the Hydraulic Engineering Center and are certified models for use in water resource investigations. Environmental models likely to be used include (1) Hydro-Geomorphic Classification of Wetlands Model, (2) Aquatic Habitat Evaluation Procedures (HEP), and (3) Terrestrial HEP. Economic models likely to be used include (1) HEC/FDA, (2) CACFDAS, and (3) Excel spreadsheets to factor in risk and uncertainty. Certification/ approval is still required for any models proposed for use in the study.

f. <u>Product Delivery Team (PDT)</u>. The PDT is comprised of those individuals directly involved in the development of the decision document. Contact information and disciplines are listed below.

Discipline	Office
Project Manager	Planning and Project Management Branch (CEMVK-PP-D)
Biologist	Environmental Analysis Team (CEMVK-PP-PQ)
Archeologist	Environmental Analysis Team (CEMVK-PP-PQ)
Economist	Economic Analysis Team (CEMVK-PP-PE)
Structural Design	Structures Section (CEMVK-EC-DS)
Channel Design	Levee and Drainage Section (CEMVK-EC-DL)
Mechanical/Electrical	Architectural, Civil, Mechanical and Electrical Section (CEMVK-EC-DC)
Real Estate Appraisal	Appraisal and Planning Branch (CEMVK-RE-E)
Real Estate Planning	Appraisal and Planning Branch (CEMVK-RE-E)
Cost Engineering	Cost Engineering and Specifications Section (CEMVK-EC-TC)
Hydrologic Engineering	Hydrologic Engineering Section (CEMVK-EC-HD)
Geotechnical	Analytical Section (CEMVK-EC-GA)
Water Quality	Water Quality Section (CEMVK-EC-HW)
Operations	Operations Division (CEMVK-OS-FS)
Regulatory	Regulatory Branch (CEMVK-OD-FS)

g. <u>Vertical Team</u>. The Vertical Team includes District management, District Support Team (DST), and Regional Integration Team (RIT) staff, as well as members of the Planning Community of Practice (PCoP). The District Project Manager can be contacted at 601-631-5043, and the DST manager for this project can be contacted at 601-634-5065.

3. <u>ITR Plan</u>. As outlined in paragraph 1.b(1) above, the District is responsible for ensuring adequate technical review of decision documents and their supporting interim work products described below. The responsible PDT District of this decision document is Vicksburg (CEMVK).

a. <u>General</u>. An ITR team leader shall be designated for the ITR process. The designated PCX for Flood Risk Management is the South Pacific Division (CESPD). CESPD will assign the ITR team (ITRT) and ITR team leader. In accordance with CEMVD policy, the ITR team leader will be from outside CEMVD. The purpose of an ITR team leader from outside CEMVD is to ensure full objectivity, transparency, and review independence of the ITR. The ITR team leader is responsible for providing information necessary for setting up the review, communicating with the Project Manager (PM), providing a summary of critical review comments, collecting grammatical and editorial comments from ITRT, ensuring that ITRT has adequate funding to perform the review, facilitating the resolution of the comments, and certifying that ITR has been conducted and resolved in accordance with policy.

b. <u>Team</u>. The ITRT will be comprised of individuals who have not been involved in the development of the decision document or interim work products and will be chosen based on expertise, experience, and/or skills. The members will roughly mirror the composition of the PDT. It is anticipated that this team will be assigned by **Mathematical**, CESPD-PDS-P (415-503-6852), or other members of the CESPD staff with help from ECO-PCX and NWW, as necessary. This Peer Review Plan will be updated to include the ITRT members, their disciplines, and other relevant information once members are designated.

(1) It is anticipated that six to seven reviewers total should be available in the following disciplines:

(a) Hydraulic Engineering

(b) Cost Engineering

(c) Design Engineering

(d) Geotechnical Engineering

(e) Economics

(f) Environmental

(g) Real Estate

(h) Planning

(2) <u>Review Disciplines</u>. The expertise that should be brought to the review team includes the following:

(a) <u>Hydraulic Engineering</u>. The reviewer(s) should have extensive knowledge of HEC-RAS modeling, including the use of Geographic Information System (GIS) (ARC-INFO) inputs to the model. The reviewer(s) should also have a solid understanding of the geomorphology of alluvial rivers.

(b) <u>Cost Engineering</u>. The reviewer should have a solid background in cost engineering and MCACES cost estimating procedures. The Cost Engineering Center at the Walla Walla District will also review the cost estimates in accordance with HQUSACE guidance.

(c) <u>Design Engineering</u>. The reviewer(s) should have extensive knowledge in the design of water control structures to include floodgates, pumping stations, and weirs. Expertise in mechanical and electrical is desirable.

(d) <u>Geotechnical Engineering</u>. The reviewer should have a thorough understanding of soils and soils analysis. The soils in the study area are generally fined grained silts.

(e) <u>Economics</u>. The reviewer should have a solid understanding of Flood Risk Management models for agricultural and rural residential areas along with Ecosystem Restoration models and incremental analysis.

(f) <u>Environmental</u>. The reviewer should have a solid background in wetland and stream channel restoration and understand the factors that influence the reestablishment of native species of plants and animals. The reviewer should also understand environmental incremental analysis.

(g) <u>Real Estate</u>. The reviewer should have recent experience in reviewing Real Estate plans for feasibility studies and be able to draw on "lessons learned" in advising the PDT of best practices.

(h) <u>Planning</u>. The reviewer should have recent experience in reviewing Plan Formulation processes for multiobjective studies and be able to draw on "lessons learned" in advising the PDT of best practices.

(i) The ITR will focus on:

1. Review of the planning process, criteria applied, and models used.

2. Review of the methods of NER and incremental environmental analysis.

<u>3</u>. Compliance with client, program, and National Environmental Policy Act (NEPA) requirements.

4. Completeness of preliminary design and support documents.

5. Adequacy of MCACES cost estimates.

c. <u>Communication</u>. The communication plan for the ITR is as follows:

(1) The team will use DrChecks to document the ITR process. The PM will facilitate the creation of a project portfolio in the system to allow access by all PDT and ITRT members. An electronic version of interim technical work products for the Feasibility Scoping Meeting (FSM), Alternative Formulation Briefing (AFB), and the draft report, with appendixes and NEPA document, in Word format shall be posted at ftp://ftp.usace.army.mil/pub/ or a hard copy will be provided at least 1 business day prior to the start of the comment period.

(2) The PDT shall send the ITRT leader one hard copy (with color pages, as applicable) of the draft report and appendixes and NEPA document for each ITRT member such that the copies are received at least 1 business day prior to the start of the comment period. Interim technical work products will be provided to the appropriate ITRT members.

(3) The PDT shall host an ITR kickoff meeting virtually to orient the ITRT during the first week of the comment period for the draft report and NEPA document. If funds are not available for an onsite meeting, the PDT shall provide a presentation about the project, including photographs of the site, for the team.

(4) The PM shall inform the ITRT leader when all responses have been entered into DrChecks and conduct an in-progress review to summarize comment responses.

(5) A revised electronic version of the report and appendixes and interim technical work products with comments incorporated shall be posted at ftp://ftp.usace.army.mil/pub/ for use during back checking of the comments.

(6) PDT members shall contact ITRT members or leader as appropriate to seek clarification of a comment's intent or provide clarification of information in the report. Discussions shall occur outside of DrChecks, but a summary of discussions may be provided in the system.

(7) Reviewers will be encouraged to contact PDT members directly via e-mail or telephone to clarify any confusion. DrChecks shall not be used to post questions needed for clarification.

(8) The ITRT, PDT, and vertical team shall conduct an After Action Review (AAR) no later than 3 weeks after ITR certification.

d. Funding.

(1) The PDT district shall provide labor funding by cross charge labor codes. Funding for travel, if needed, will be provided through Government order. The PM will work with the ITRT leader to ensure that adequate funding is available and commensurate with the level of review needed. The current cost estimate for this review is \$50,000. Any funding shortages will be negotiated on a case-by-case basis and in advance of a negative charge occurring.

(2) The ITRT leader shall provide organization codes for each team member and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes.

(3) Reviewers shall monitor individual labor code balances and alert the ITRT leader to any possible funding shortages.

e. Timing and Schedule.

(1) Throughout the development of this document, the PDT will brief Senior staff and subject matter experts from the PDT District to ensure planning quality. Members of the vertical team (DST, Planning CoP, RIT) and ITRT will be invited to attend and provide comments on the product to date.

(2) The ITR will be accomplished in accordance with ER 1105-2-100, Appendix G. Three ITRs are planned:

(a) Technical work products that support the FSM documentation to include surveying and mapping, hydrology and hydraulics, average annual damage computation, etc., will be subject to ITR prior to submitting the technical products for the FSM.

(b) Technical work products that support the AFB documentation in addition to those listed in (a) above to include environmental/NEPA documentation, average annual damage benefit calculation, cost estimates, etc., will be subject to ITR prior to the AFB. If the draft report is available, that report may serve as the AFB documentation.

(c) ITR will be conducted on the draft report and NEPA document.

(3) The PDT will review the interim products including FSM materials, AFB materials, and draft feasibility report with NEPA document to ensure consistency across the disciplines and resolve any issues prior to the start of ITR on these items.

(4) The ITR process for the interim products, feasibility report, and NEPA document will follow the timeline below. Actual dates will be scheduled once the period draws closer. It is estimated that review of the feasibility report and NEPA document will begin in the first quarter of FY 2010.

Task	Date (Week)
Feasibility Scoping Meeting	To be determined
Alternative formulation ongoing	To be determined
Feasibility Report and NEPA Document	To be determined
Comment period begin	1
Kickoff meeting	1
ITR comments due	4
PDT responses due	6
Responses back check	8
Certification	10
Alternative formulation briefing (AFB)	14
AFB policy memorandum issued	18
Recertification, if needed	
AAR NLT	20

f. <u>Review</u>.

(1) ITRT responsibilities are as follows:

(a) Reviewers shall review the interim work products for the FSM, AFB, and draft report and NEPA documents to confirm that work was done in accordance with established professional principals, 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 who 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 ITRT leader via electronic mail using tracked changes feature in the Word document or as a hard copy markup. The ITRT leader shall provide these comments to the PM. (d) Review comments shall contain these principal elements:

<u>1</u>. A clear statement of the concern

 $\underline{2}$. The basis for the concern, such as law, policy, or guidance

<u>3</u>. Significance for the concern

 $\underline{4}$. 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 PM first.

(2) The 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," "Nonconcur," or "For Information Only." Concur responses shall state what action was taken and provide revised text from the report, if applicable. Nonconcur 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 "nonconcur" responses prior to submission.

g. <u>Resolution</u>.

(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. The ITRT members shall keep the ITR leader informed of problematic comments. The vertical team will be informed of any policy variations or other issues that may cause concern during Headquarters review.

h. <u>Certification</u>. To fully document the ITR process, a statement of technical review will be prepared. Certification by the ITR leader and PM 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.

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i. <u>AFB</u>. 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.

4. <u>EPR Plan</u>.

a. This decision document will present the details of a feasibility study undertaken to address Flood Risk Management and Ecosystem Restoration needs in the Coldwater River Basin Below Arkabutla Lake. The scope and technical complexity do not warrant an EPR. The Section 905(b) analysis indicated total project costs of approximately \$21.8 million. Should the Government estimate for the recommended plan exceed \$45 million, the decision to forego an EPR will be revisited based on the Water Resources Development Act (WRDA) of 2007 implementation guidance. The WRDA 07 includes provisions that require an EPR for projects that exceed \$45 million.

(1) It is unlikely that the Corps report to be disseminated will contain influential scientific information. The ecosystem restoration measures that were identified within the Section 905(b) analysis will be evaluated using standard hydrologic, hydraulic, geotechnical, environmental, and economic processes. The efforts envisioned to date will not result in a highly influential scientific assessment.

(2) It is anticipated that while this study will be challenging and beneficial, it will not be novel, controversial or precedent setting, nor have significant national importance.

(3) <u>Project Magnitude</u>. The magnitude of this project is determined as low. While the hydrology of the study area is considered complex, the project is not particularly complex and involves flood risk reduction measures along with restoration of wetland and aquatic habitat through the implementation of standard concepts. The project will likely have positive long-term cumulative effects.

(4) <u>Project Risk</u>. This project is considered low risk overall. The potential for failure is considered to be low. Stream modifications for flood risk management and restoration of wetland areas are straightforward concepts with numerous successful applications. The potential for controversy regarding project implementation is low because the recommended plan will take into account the public concerns. A socioeconomic analysis will be prepared and at least one public meeting will be held. The uncertainty of success of the project is low because the methods used for evaluating the project are standard. The ecosystem has not reached an irreversible state so it is likely that a restoration effort of the magnitude proposed will be successful.

(5) The Louisiana black bear is the only endangered species listed for the study area. Primary alternatives under investigation include diversion of freshwater into the study area during low-flow conditions. The Louisiana black bear is not expected to be impacted either positively or negatively by the project. The thrust of the investigation is directed at aquatic restoration.

(6) The subject matter covered in the decision document is not expected to be novel, controversial, or precedent-setting, and the project will not have significant interagency interest or significant economic, environmental, or social effects.

(7) Therefore, a separate EPR will not be conducted on the decision document, provided the project cost estimate does not exceed the \$45 million threshold established in WRDA 07 and external members will not be part of the ITR team. The ITR, public, and agency review will serve as the main review approaches.

5. Public and Agency Review.

a. Public review of the document will occur after issuance of the AFB policy guidance memorandum, after ITR of the draft feasibility report and NEPA document, and concurrence by HQUSACE that the document is ready for public release. The period will last 30 days as required by law. As such, public comments other than those provided at any public meetings or workshops held during the planning process will not be available to the review team. Significant public comments that result in changes to the formulation will require a new ITR.

b. The public review of necessary state or Federal permits will also take place during this period.

c. 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. Possible public concern issues are related to potential increases in flooding downstream as a result of project implementation. Possible state and agency issues are concerned over sediment removal from streams causing pesticides and other contaminants to be resuspended in the water column.

d. Upon completion of the review period, comments will be consolidated 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.

6. <u>PCX coordination</u>. The appropriate PCX for this document is the National Flood Risk Management Center of Expertise located at CESPD. This review plan will be submitted through the PDT District (CEMVK) Planning, Programs, and Project Management Chief to the PCX Director (**Director**) for approval. Since it was determined that this project is low magnitude and low risk, an EPR will not be required. The PCX is requested to review and comment on the sufficiency of this Peer Review Plan and assist in assigning an ITRT and ITRT leader. The approved review plan will be posted to the PCX website. Any public comments on the review plan will be collected by OWPR and provided to the PDT District for resolution and incorporation, if needed.

7. <u>Approvals</u>. The PDT will carry out the review plan as described. The PM will submit the plan to the PDT District Planning, Programs, and Project Management Chief for approval. Coordination with PCX will occur through the PDT District Planning, Programs, and Project Management Chief. Signatures by the individuals below indicate approval of the plan as proposed.

Project Manager Coldwater River Basin Below Arkabutla Project (Date)

Chief, Planning, Programs, and Project Management Division Vicksburg District (Date)

APPENDIX A STATEMENT OF TECHNICAL REVIEW

COMPLETION OF INDEPENDENT TECHNICAL REVIEW FLOOD CONTROL PROJECT FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT (EIS)

The Vicksburg District has completed the feasibility report, EIS, and appendixes for the Coldwater River Basin Below Arkabutla Project. Notice is hereby given that an independent technical review, that is appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the Review Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of assumptions, methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The independent technical review was accomplished by an independent team composed of _______staff. All comments resulting from ITR have been resolved.

(To be designated by CEMVD) Team Leader, Coldwater River Basin Below Arkabutla Project, Independent Technical Review Team

(Date)

Project Manager Coldwater River Basin Below Arkabutla Project (Date)

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

A summary of all comments and responses is attached. Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impact and resolution)

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

(Date)
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PEER REVIEW PLAN

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COLDWATER RIVER BASIN BELOW ARKABUTLA, MISSISSIPPI FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT

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<u>No.</u>	<u>Title</u>
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A STATEMENT OF TECHNICAL REVIEW