US Army Corps of Engineers ®

LOWER MUD RIVER AT MILTON, WEST VIRGINIA

MAY 2004 LIMITED REEVALUATION REPORT AND ENVIRONMENTAL IMPACT STATEMENT – SUPPLEMENT 1.0 AND SUPPORTING DOCUMENTS

REVIEW PLAN

Milton, West Virginia – 1997 Flood

DECEMBER 2009

U.S. ARMY CORPS OF ENGINEERS
HUNTINGTON DISTRICT
HUNTINGTON, WEST VIRGINIA

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1.0 PURPOSE

The primary purpose of this Review Plan (RP) is to outline guidelines for ensuring the quality and credibility of the decision document associated with Lower Mud River at Milton, West Virginia. Overall, this RP, which is a component of the overall Project Management Plan (PMP) for Lower Mud, defines the scope and appropriate level of review for the 2004 Limited Reevaluation Report and Environmental Impact Statement – 1.0 including supporting documents such as the 2008 Economic Update.

2.0 REFERENCES

The following references were used during the preparation of this Review Plan:

- CECW-CP Memorandum, *Peer Review Process,* 30 March 2007
- CECW-CP Memorandum, *Initiatives to Improve Accuracy of Total Project Costs in Civil Works Feasibility Studies Requiring Congressional Authorization*, 19 September 2007
- EC 1105-2-407, *Planning Models Improvement Program: Model Certification,* 31 May 2005
- EC 1105-2-408, *Peer Review of Decision Documents,* 31 May 2005 (expired 30 September 2007, superseded by ER 1105-2-410)
- EC 1105-2-410, *Review of Decision Documents*, 22 Aug 2008
- ER 1105-2-100, *Planning Guidance Notebook*,
- Engineering Regulation (ER) 1110-2-12, *Quality Management*, 30 Sep 2006
- *Protocols for Certification of Planning Models*, July 2007
- Lower Mud River at Milton, West Virginia, *Project Management Plan (PMP)*, May 2000

3.0 REQUIREMENTS

The Review Plan for Lower Mud River at Milton, West Virginia was originally developed in accordance with EC 1105-2-408 in collaboration with the National Flood Risk Management Planning Center of Expertise (FRM-PCX). Subsequently, new guidance governing the review of decision documents was published. Given this new guidance supersedes EC 1105-2-408, it was necessary to revise the Review Plan accordingly.

This Review Plan has been updated in accordance with EC 1105-2-410, which establishes the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision documents through independent review. EC 1105-2-410 outlines three levels of review – District Quality Control, Agency Technical Review, and Independent External Peer Review. In addition to these three levels of review, decision documents are subject to policy and legal

compliance review and, if applicable, safety assurance review and model certification / approval.

3.1 District Quality Control (DQC)

DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). It is managed in the home district and may be conducted by staff in the home district as long as they are not doing the work involved in the study, including contracted work that is being reviewed. Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc. Additionally, the PDT is responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices and the recommendations before approval by the District Commander. The Major Subordinate Command (MSC) / District quality management plans address the conduct and documentation of this fundamental level of review; DQC is not addressed further in this review plan.

3.2 Agency Technical Review (ATR)

ATR, formerly known as Independent Technical Review (ITR), is an in-depth review, managed within USACE, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of the project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team reviews the various work products and assure that all the parts fit together in a coherent whole. ATR teams will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), etc.), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team shall be from outside the home MSC.

3.3 Independent External Peer Review (IEPR)

IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. IEPR is generally for feasibility and reevaluation studies and modification reports with Environmental Impact Statements (EISs). IEPR is managed by an outside eligible organization (OEO) that is described in Internal Revenue Code Section 501(c) (3), is exempt from Federal tax under section 501(a), of the Internal Revenue Code of 1986; is independent; is free from conflicts of interest; does not carry out or

advocate for or against Federal water resources projects; and has experience in establishing and administering IEPR panels. The scope of review will address all the underlying planning, engineering, including safety assurance, economics, and environmental analyses performed, not just one aspect of the project.

3.4 Policy and Legal Compliance Review

Decision documents will be reviewed throughout the study process for their compliance with law and policy. These reviews culminate in Washington-level determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the Chief of Engineers. Guidance for policy and legal compliance reviews is addressed further in Appendix H, ER 1105-2-100, *Planning Guidance Notebook*. When policy and/or legal concerns arise during DQC or ATR that are not readily and mutually resolved by the PDT and the reviewers, the District will seek issue resolution support from the MSC and HQUSACE in accordance with the procedures outlined in Appendix H, ER 1105-2-100. IEPR teams are not expected to be knowledgeable of Army and administration polices, nor are they expected to address such concerns. The home district Office of Counsel is responsible for the legal review of each decision document and signing a certification of legal sufficiency. Legal review has been accomplished and certification is contained in Appendix C

3.5 Safety Assurance Review

In accordance with Section 2035 of Water Resources Development Act (WRDA) of 2007, EC 1105-2-410 requires that all projects addressing flooding or storm damage reduction undergo a safety assurance review of the design and construction activities prior to initiation of physical construction and periodically thereafter until construction activities are completed on a regular schedule sufficient to inform the Chief of Engineers on the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring public health, safety, and welfare. A future circular will provide a more comprehensive Civil Works Review Policy that will address the review process for the entire life cycle of a Civil Works project. That document will address the requirements for a safety assurance review for the Pre-Construction Engineering Phase, the Construction Phase, and the Operations Phase. The decision document phase is the initial design phase; therefore, EC 1105-2-410 requires that safety assurance factors be considered in all reviews for decision document phase studies.

3.6 Model Certification / Approval

EC 1105-2-407 requires certification (for Corps models) or approval (for non-Corps models) of planning models used for all planning activities. The EC defines planning models as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision-making. The EC does not cover engineering models used in planning. Engineering software is being addressed under the Engineering and Construction (E&C) Science and Engineering Technology (SET) initiative. Until an appropriate process that documents the quality of commonly used engineering software is developed through the SET initiative, engineering activities in support of planning studies shall proceed as in the past. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed.

4.0 Project Background

Under the Watershed Protection and Flood Prevention Act of 1969, the Natural Resources Conservation Service (NRCS) completed a Watershed Plan and Environmental Impact Statement (EIS) for the Lower Mud River Basin in 1992. This plan considered an array of flood risk management alternatives for the City of Milton, Cabell County, West Virginia, including impoundments, levee / floodwall alignments, snagging and clearing operations, and channel modifications. The final recommendation documented in the NRCS report consisted primarily of channel improvements along the Mud River in the vicinity of Milton.

Pursuant to Section 580 of the Water Resources and Development Act (WRDA) of 1996, the Lower Mud River Basin effort was transferred to the Corps of Engineers. Within this authorization, Congress instructed the Secretary of the Army to conduct a limited reevaluation of the watershed plan prepared by NRCS. Section 340 of WRDA 2000 later modified this authorizing language to direct the Secretary of the Army to carry out the project.

In accordance with VTC guidance, a design agreement was executed on November 22, 1999, cost sharing the limited reevaluation 75 percent Federal and 25 percent non-Federal with the West Virginia Conservation Agency (WVCA). Subsequently, concerns related to the viability of the NRCS recommended plan were identified. In collaboration with the non-Federal sponsor, the decision was made to fully reevaluate the NRCS Watershed Plan under the existing design agreement. Using current planning criteria, a draft report recommending the National Economic Development (NED) plan – a levee alignment – was

completed and transmitted to the Great Lakes and Ohio River Division (LRD) for review and approval in 2004.

Following the policy review and development of comment responses, concern regarding the intent of the construction authority was raised and the report approval authority was elevated to Headquarters in February 2007. Section 3170 of WRDA 2007 later addressed these concerns by amending prior legislation to authorize the construction of a "project for flood control at Milton, West Virginia, substantially in accordance with the draft report of the Corps of Engineers dated May 2004."

Upon completion of an economic update in March 2008, the May 2004 report and supporting documentation were transmitted to LRD and Headquarters for concurrent review and approval. Policy review comments, which are subject to the receipt of implementation guidance for Section 3170 of WRDA 2007, were provided in May 2008. Once implementation guidance is issued, the report will be revised accordingly and the review and approval process will be completed.

4.1 Decision Document

Section 580 of WRDA 1996 instructed the Secretary to conduct a "limited reevaluation" of the NRCS watershed plan. ER 1105-2-100 defines a limited reevaluation as a post-authorization study, which "provides an evaluation of a specific portion of a plan under current policies, criteria and guidelines, and may be limited to economics, environmental effects or, in rare cases, project formulation."

While examining the NRCS watershed plan, concerns related to the viability of the recommended plan were identified. In collaboration with the non-Federal sponsor, the decision was made to reexamine a full array of flood risk management alternatives. Given project formulation can be conducted in rare cases under a limited reevaluation, the primary objective of this post authorization study became to develop the most economically feasible and environmentally and socially acceptable plans for providing flood protection in the City of Milton.

In order to evaluate flood risk management alternatives for Milton, West Virginia, three levels of screening – initial, intermediate, and final – were employed. During this process, upstream impoundments, floodwall and levee alignments, channel modifications, and nonstructural measures were considered. Based on the results of the intermediate screening, the final array of alternatives consisted of two levee alignments – one along the existing river bank and the other following a modified channel. After optimizing the level of protection for each alignment, design information was developed, cost estimates were generated, an economic analysis was performed, and social and environmental impact assessments were

completed. Based on the results of this evaluation, the NED plan – a .4% (250-year) level of protection levee with channel modification – was recommended for implementation.

A combined Limited Reevaluation Report and Supplemental Environmental Impact Statement (LRR/SEIS) documenting this effort was completed and submitted to LRD for review and approval in 2004. This report consists of three volumes – 1) Main Report and Supplemental Environmental Impact Statement, 2) Real Estate Plan, and 3) Engineering Appendix.

While the LRR/SEIS has not been modified since the first submission, two separate addenda have been prepared to support this decision document. The first addendum documents the resolution of comments generated during the first policy review. The second addendum serves as an Economic Update revising costs and benefits to current price levels and confirming the recommendation of the May 2004 report. The development of a third addendum is anticipated to address the combined LRD and Headquarters policy review comments provided in May 2008.

Although the decision document for Lower Mud was completed as a Limited Reevaluation Report (LRR) in accordance with legislation and VTC guidance, the report structure and content better align with the definition of a General Reevaluation Report (GRR). A GRR is a "reanalysis of a previously completed study, using current planning criteria and policies, which is required due to a changed conditions and/or assumptions. The results may affirm the previous plan; reformulate and modify it, as appropriate; or find that no plan is currently justified."

Given the decision document better aligns with a GRR and project authorization occurred without the benefit of a Secretary-approved feasibility-level report, approval authority has not been delegated to the MSC. Authority to approve the report and sign the Record of Decision (ROD) is provided to the Director of Civil Works in accordance with ER 1105-2-100, Appendix H.

4.2 Recommended Plan

As documented in the May 2004 LRR/SEIS, the recommended plan – the NED alternative – includes the construction of an earthen levee, which would protect the majority of Milton including the business district from flooding up to the 0.4% annual chance (250-year) event, and the relocation of approximately 4,200 feet of the Mud River. The project also requires two pump stations to address interior drainage on John's Branch and Newman's Branch and a gate closure on Mud River Road. Based on

the Economic Update completed in March 2008, the recommended plan is estimated at a total project cost of $65 million (Price Level 1-Oct-07).

4.3 Non-Federal Sponsor

A design agreement cost sharing the limited reevaluation and corresponding detailed design for Lower Mud River at Milton, West Virginia was executed in November 1999 with the West Virginia Conservation Agency (WVCA). While WVCA plans to provide financial support during the implementation of recommended plan, the City of Milton provided a letter in September 2006 expressing their intent to serve as the non-Federal sponsor. Upon report approval, a Project Partnership Agreement (PPA) will be developed and executed with the City of Milton. The City of Milton will be responsible for cost sharing the construction phase and operating and maintain the project subsequent to implementation.

4.4 Factors Affecting the Scope and Level of Review

Listed below are factors influencing the scope and level of peer review necessary for the decision document associated with Lower Mud River at Milton, West Virginia:

- The post authorization effort examining flood risk management measures in Milton, West Virginia was initiated in 1999. A decision document outlining this evaluation was completed and submitted for review and approval in 2004.
    - Section 3170 of WRDA 2007 amended prior legislation authorizing the construction of a “project for flood control at Milton, West Virginia, substantially in accordance with the draft report of the Corps of Engineers dated May 2004.”
- The decision document includes an Environmental Impact Statement (EIS), which supplements the National Environmental Protection Act (NEPA) documentation prepared by NRCS during the development of their watershed plan.
- The Supplemental EIS includes a plan to mitigate all adverse impacts.
- The decision document recommends the NED plan, which includes the construction of an earthen levee along a modified channel.
    - The recommended plan consists of a traditional levee design, which will be built from conventional materials using standard construction practices.
    - The channel modification incorporates natural design features in order to provide an environmentally acceptable plan.
    - The report does not contain influential scientific information outside the Corps’ expertise.

    - The recommended plan provides a level of flood protection equivalent to 0.4% exceedance interval (250-year).
- Risk was considered throughout the decision making process to help manage the potential for catastrophic flooding and loss of life.
    - The design includes provisions for controlled overtopping.
    - Flood warning time was considered.
        - A statewide flood warning system (FWS) is scheduled to be implemented in West Virginia under Section 205 of the Continuing Authorities Program (CAP)
    - Public meetings and workshops were conducted to ensure awareness of the project's function and to communicate the risk associated with flooding.
    - Partnerships were developed with local, state, and Federal agencies.
    - Pump stations will be optimized during detailed design to address internal drainage concerns.
- An economic update completed in March 2008 confirmed the findings presented in the 2004 decision document.
    - The recommended plan is estimated at a total project cost of $65 million (Price Level 1-Oct-07).
    - The average annual net benefits of the recommended plan were estimated as $1.05 million yielding a positive benefit-to-cost ratio of 1.27.
- Independent reviews were conducted upon the completion of technical products. Regional Technical Specialists (RTS) were utilized throughout the review process. Review teams were comprised of individuals with experience in geotechnical studies, hydraulics and hydrologic modeling, civil engineering, cost estimating, real estate, economics, NEPA/ecosystem restoration, cultural resources, and plan formulation.
- The public has had numerous opportunities to comment on the decision document at workshops and in formal settings at scoping meetings where comments were recorded.
- The decision document is not likely to have significant interagency interest.

4.4 In-Kind Contributions

All work necessary to complete the decision document was managed by the Corps of Engineers. No in-kind contributions were provided by the non-Federal sponsor.

5.0 Agency Technical Review (ATR)

ATR, formerly known as Independent Technical Review (ITR), is a critical examination by a team consisting of Corps technical specialists not involved in

the day-to-day technical work that supports the decision document. The ATR shall ensure that the product is consistent with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and the results in a reasonably clear manner for the public and decision makers.

The ATR is conducted through two processes. The first process is an informal, "seamless" review of individual products as they are produced, as well as a formal review of the entire report. The seamless ATR is ongoing throughout the study with the project delivery team (PDT) working with the ATR team counterparts. The second process is a formal review of the entire document and supporting appendices by the entire ATR team at the completion. Both of these reviews are documented and certified and the review document is included with the report package that is submitted for approval.

The ATR requirement for Lower Mud River at Milton, West Virginia was accomplished using the guidelines outlined in the Project Management Plan and EC 1105-2-408. Details regarding the products reviewed and the expertise of the review team members is listed in the subsequent sections. ATR certification sheets can be found in Appendix B.

5.1 Reviewed Products

The Lower Mud Limited Reevaluation Report and Supplemental Environmental Impact Statement (LRR/SEIS), which includes all supporting documentation such as the Real Estate Plan, Engineering Appendix, and 2008 Economic Update, has undergone both seamless and formal review. Reviews covered project formulation and planning process, NEPA documentation, economics, real estate, engineering analysis and design, detailed cost estimates, construction schedule, and future operation and maintenance.

Reviews have been documented at each stage of development since project initiation. The most recent review, which covered the entire decision document, was conducted in November 2007 upon the completion of the Draft Economic Update.

5.2 Review Team Expertise

The ATR team members are selected based on factors such as the project scope, complexity, and size; sponsor/customer expectations; public scrutiny; life safety; technical expertise required; and other appropriate guidelines. The ATR team for the most recent review consisted of seven members who were coordinated through the team lead. The ATR lead, a member of the flood risk management Planning

Center of Expertise (PCX), specialized in project formulation and the planning process. The remaining members specialized in economics, NEPA documentation, cost estimating, real estate, engineering, and operations and maintenance. A full list of PDT members and reviewers for each ATR is included in Appendix A. For security purposes, contact information is not included in the document released for public review. Questions regarding this information may be addressed by contacting the project manager.

5.2.1 COST ESTIMATE REVIEW

Based on current guidelines, cost estimates must be coordinated through the Cost Engineering Directorate of Expertise at the Corps' Walla Walla District. During the most recent ATR, the cost estimate was reviewed by member of the Walla Walla District. This review covered project cost estimates, construction schedules, and contingencies used in the development of the baseline cost estimate.

Pursuant to an ATR comment received during this review, a formal cost risk analysis for the project cost estimate and schedule is currently underway. The Corps' Project Manager and the PDT use project risk management principles and methods from the Project Management Institute's Project Management Body of Knowledge in developing a project risk management plan that includes a risk assessment and analysis and a risk response plan to support the cost risk analysis. Together, the project risk management plan, along with the cost risk analysis, produces a quality assessment of the Civil Works Total Project Cost Estimate.

5.3 DOCUMENTATION OF ATR

Multiple technical reviews have been conducted during the development of the decision document outlining the evaluation of flood risk management measures in Milton, West Virginia. While DrChecks review software has been the primary tool for documenting the ATR comments and responses, some comments and responses from reviews conducted prior to the issuance of EC 1105-2-408 were recorded using Microsoft Office products.

Overall, the ATR requirement for Lower Mud at Milton, West Virginia has been accomplished. All ATR concerns have been adequately addressed and no outstanding issues raised during the technical reviews remain. Upon comment resolution, each review was certified by the corresponding review team. Certification sheets along with all ATR comments and responses have been incorporated within the appendices of the decision

document. While Appendix G of the main report dated May 2004 contains documentation of all technical reviews conducted prior to the initial submittal of the LRR/SEIS for review and approval, Appendix D of the 2008 Economic Update – the second addendum supporting the decision document – contains subsequent documentation from the most recent ATR certified in February 2008.

6.0 INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

An IEPR is conducted for decision documents if there is a vertical team decision (involving the district, MSC, PCX, and HQUSACE members) that the covered subject matter meets certain criteria (described in EC 1105-2-410) where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside the USACE is warranted. IEPR is coordinated by the appropriate PCX and managed by an Outside Eligible Organization (OEO) external to the USACE. IEPR panels shall evaluate whether the interpretations of analysis and conclusions based on analysis are reasonable. To provide effective review, in terms of both usefulness of results and credibility, the review panels should be given the flexibility to bring important issues to the attention of decision makers; however, review panels should be instructed to not make a recommendation on whether a particular alternative should be implemented, as the Chief of Engineers is ultimately responsible for the final decision on a planning or reoperations study.

IEPR panel members will accomplish a concurrent review covering the entire decision document and address all underlying engineering, economics, and environmental aspects of the study. The IEPR panel will be responsible for producing a Review Report outlining all review comments and recommendations. After considering the Review Report, the District will develop comment responses and coordinate the Review Report and draft response package with the vertical team. Once comment responses are adopted by Headquarters, the Review Report and USACE response package will be posted to the public website.

6.1 DECISION ON IEPR

According to EC 1105-2-410, an IEPR is mandatory “in cases where there are public safety concerns, a high level of complexity, novel or precedent-setting approaches; where the project is controversial, has significant interagency interest, has a total project cost greater than $45 million, or has significant economic, environmental and social effects to the nation, or where requested by the Governor of an affected state.” Given the decision document for Lower Mud includes a Supplemental EIS and the current cost estimate for recommended plan exceeds $45 million, an IEPR is warranted and must be conducted prior to final report approval.

6.2 PRODUCTS FOR REVIEW

The IEPR panel will be responsible for reviewing the Limited Reevaluation Report and Supplemental Environmental Impact Statement (LRR/SEIS) dated May 2004 and all supporting documentation such as the Real Estate Plan, Engineering Appendix, and 2008 Economic Update. The panel members will be provided the decision document transmitted for review and approval in March 2008. To ensure a completely independent review, comments and responses from all prior technical and policy reviews will be removed from the package and replaced with placeholders.

6.3 REQUIRED IEPR PANEL EXPERTISE

While the OEO will be responsible for determining the final participants, the team recommends the following disciplines be represented on the IEPR panel. Each panel member should have a minimum of 10 years of related experience and each engineering representative should be registered as a Professional Engineer.

- Plan Formulation / Environmental: The panel member should have extensive experience associated with the six-step planning process, which is governed by ER 1105-2-100. This process provides a rational framework for the development of a decision document that will clearly outline problems and opportunities, identify and evaluate alternatives, and make a recommendation. In addition, the panel member should have extensive experience in NEPA regulations and policy and have a good understanding of USACE mitigation requirements.

- Economics: The panel member should have extensive experience associated with the economic evaluation of flood risk management alternatives including the development of average annual costs and benefits, calculation of net benefits, and identification of the National Economic Development (NED) plan. In addition, the panelist should have a good understanding of commonly used models such as HEC-FDA, MCASES, and HEC-RAS.

- Hydraulic Engineering: The panel member should have extensive experience modeling water surface profiles for flood risk management projects. The panel member should have a thorough understanding of the dynamics of open channel flow systems, floodplain hydraulics, and interior flood control systems. In addition, the panelist should have a good understanding of commonly used models such as XP-SWMM, HEC-RAS, and HEC-FDA.

- Geotechnical Engineering: The panel member should have extensive experience in geotechnical evaluation of floodwalls and levee/dam embankments, including slope stability, through seepage, under seepage, settlement, and bearing capacity evaluations.

- Civil Site Engineering: The panel member should have extensive experience in the design, layout, and construction of flood risk management projects including floodwalls and levee/dam embankments. The panel member should have a thorough understanding of earthwork, erosion control, concrete placement, drainage structures, design of access roads, and relocation of overhead and underground utilities. In addition, the panelist should have experience developing quantities and cost estimates for large civil works projects. The panel member should be familiar with USACE regulations and industry building codes.

6.4 DOCUMENTATION OF IEPR

DrChecks review software will be used to document IEPR comments and aid in the preparation of the Review Report. Comments should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include four key parts:

- The review concern – identify the product's information deficiency or incorrect application of policy, guidance, or procedures;
- The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

The OEO will be responsible for compiling and entering comments into DrChecks. The IEPR team will prepare a Review Report that will accompany the publication of the final report for the project and shall:

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions; and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

The final Review Report will be submitted by the IEPR panel no later than 60 days following the notice to proceed. After considering the Review Report, the District will prepare a package documenting how issues noted during the IEPR were resolved or will be resolved in the future. The recommendations and responses will be coordinated with the vertical team. The final Review Report and USACE response package will be posted to the public website for informational purposes once Headquarters adopts the response package.

6.5 Time Table for IEPR

Listed below is an approximate time table for accomplishing the IEPR.

IEPR Tasks & Milestones	Planning Documents Package (estimated in working days)
District / PCX begin work on IEPR Scope & Independent Government Cost Estimate (IGCE)	0
Submit contracting documents to Contracting Office (CO)	15-30
CO processes contract & issues Request for Proposal (RFP) to OEO	10-30
OEO submits proposal to CO	10
District/PCX approves OEO proposal and cost	5
CO Contract Award / Notice to Proceed (NTP)	10
Final IEPR Report	75
Final IEPR Report Comment/Response in DrChecks	20-30
IEPR Completion Timeframe	**145-190**
IEPR Cost (Budget Figure)	**$150K**
PCX Level of Effort	**15**

6.6 Funding for IEPR

While all in-house work associated with the IEPR will be cost shared with the non-Federal sponsor, the cost for the panel of experts will be a Federal expense born by the project. In accordance with EC 1105-2-410 the panel cost shall not exceed $500,000. Based on IEPRs conducted to date, the anticipated panel cost for the external peer review of the Lower Mud decision document is approximately $150,000.

7.0 Model Certification and Approval

The use of certified or approved models for all planning activities is required by EC 1105-2-407. This policy is applicable to all planning models currently in use, models under development and new models. The appropriate PCX will be responsible for model certification/approval. The goal of certification/approval is to establish that planning products are theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. The use of a certified or approved model does not constitute technical review of the planning product. Independent review of the selection and application of the model and the input data and results is still required through conduct of DQC, ATR, and, if appropriate, IEPR. Independent review is applicable to all models, not just planning models. Both the planning models (including the certification/approval status of each model) and engineering models used in the development of the decision document are described in the following sections.

7.1 Planning Models

The following planning models were used to develop the recommended plan:

- HEC-FDA 1.2 – The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program was used to evaluate and compare the future without- and with-project plans along the Lower Mud River in Milton, West Virginia to aid in the selection of a recommended plan to manage flood risk.
    - HEC-FDA is the officially recognized Corps economic model for flood damage reduction evaluations.
    - HEC-FDA 1.2.4 was released following the completion of the Draft Economic Update in November 2008. The model was certified in accordance with EC 1105-2-407.
    - Damages were originally computed using @RISK; however, the economic analysis was updated using HEC-FDA 1.2.

- Marshall & Swift valuation software (Commercial Estimator 7 and Residential Estimator 7) – Using current building cost data, Commercial Estimator 7 and Residential Estimator 7 provide accurate cost valuations for commercial and residential real estate by interpolating between effective age, building quality, occupancy / construction type, and square footage. These programs also employ local multipliers to ensure estimates are localized and relative to current market conditions. Local multipliers, which are based on zip codes, are embedded within the software and updated on a quarterly basis.

- Habitat Evaluation Procedure (HEP) – HEP was designed to evaluate and predict the suitability of changing habitats for species and communities. The HEP methodology is an objective and reliable biological accounting system that quantifies environmental effects in a well-documented fashion. The following HEP models were used for twelve species which were selected to provide a representative selection of species from each guild, class, and stratum of habitat present. The twelve species models used in this study were:

    - **Open Agriculture:** Meadowlark, Red-tailed Hawk, Eastern garter snake
    - **Bottomland Hardwood/Riparian/Wetland:** Wood Duck, Green-backed Heron, Mink, Red-spotted newt
    - **Bottomland Hardwood/Mixed Hardwood:** Downy woodpecker, Fox squirrel, Barred owl
    - **Riverine:** Snapping turtle, Green sunfish, Mink

  HEP was used to determine the existing habitat suitability for each species through the development of a Habitat Suitability Index (HSI). The HSI was used to calculate mitigation requirements for the project.

  Several HEP HIS models developed by US Fish and Wildlife Service have already been approved for use. Models currently approved for use can be found in Appendix A of the Memorandum: Policy Guidance on Certification of Ecosystem Output Models dated August 13, 2008 (http://www.usace.army.mil/CECW/PlanningCOP/Pages/models.aspx).

  According to this list, three HIS models – red-tailed hawk, eastern garter snake, and green-backed heron – have not been approved for use at this time. The team is currently coordinating the technical

quality review of these models with the Ecosystem Restoration PCX.

- IWR Plan (Version 3.3) – IWR Planning Suite was developed by US Army Corps of Engineers Institute for Water Resources (IWR) to assist with plan formulation and the comparison of alternatives. The IWR Planning Suite provides a mechanism to perform the cost effectiveness and incremental cost analysis (CE / ICA) required for USACE planning projects. Overall, the program combines user-defined solutions to planning problems in order to calculate the effects of each plan and the best financial investment. IWR Plan (Version 3.3) has been certified in accordance with EC 1105-2-407.

7.2 ENGINEERING MODELS

The following engineering models were used to develop the recommended plan:

- SLOPE/W – This software by GEO-SLOPE International was used to conduct the slope stability analysis.

- HEC-6T – The full name of HEC-6T is Sedimentation in "Stream Networks (HEC-6T)." It is an enhancement of the U.S. Government Computer Program "Scour and Deposition in Rivers and Reservoirs (HEC-6)." HEC-6 is a one-dimensional open channel flow model capable of simulating changes of river profile due to scour and/or sediment deposition. Based upon flow records, a water surface profile is calculated that provides an energy slope, velocity, and depth at each cross-section. These predictions are used to estimate potential sediment transport rates at each section, which are considered with volume of flow and sediment yield from upstream sources to determine the scour and deposition. Changes in bed elevation, which impacts channel geometry and subsequent sediment transport potential, are also computed for each section. HEC-6 can be used to simulate both channel and reservoir sediment deposition and can include analysis of impacts of dredging.

- XP-SWMM – XP-SWMM is a commercial software package used throughout the United States and around the world for simulation of storm, sanitary and combined sewer systems. It was designed based on the Environmental Protection Agency Storm Water Management Model (EPA SWMM), but has enhancements and additional algorithms for the analysis of urban runoff and drainage. Simulation models like EX-SWMM are used for planning new systems, extending existing systems to accommodate growth, and

to mitigate undesirable overflows and adverse water quality impacts. Models are also used for the study and design of wet weather facilities, including the sizing of conveyance systems, storage facilities, pump stations and treatment plants. In practice, the model selected to perform an evaluation is often chosen with little understanding of the background processes involved in producing rainfall-runoff responses or conveyance through a collection system.

- HEC-RAS – The HEC-RAS program is the first of the US Army Corps of Engineers Next Generation (NexGen) engineering software packages to be released. This water surface profiles program replaces the HEC-2 backwater, the UNET Unsteady Flow, and will eventually replace the HEC-6 erosion and sedimentation programs. The program will import HEC-2 input data files and perform a hydraulics analysis yielding the same results as the HEC-2 and UNET models.

- MCACES 2nd Generation (MII) – Developed by Project Time and Cost, Inc. (PT&C), MII is a detailed cost estimating application used by the USACE and its A-E contractors for military, civil works and hazardous, toxic and radioactive waste (HTRW) projects. MII was first released in June 2003 and replaced the MCACES and MCACES for Windows programs.

- Crystal Ball – Developed by Oracle, this Excel add-in is used to perform a risk analysis based on the Monte-Carlo principles. It involves selecting a distribution type for an identified risk, determining the input parameters to fit the selected distribution, completing the correlation matrix, running the simulation, selecting total project cost and schedule from simulation's confidence curve, allocating the contingency back to the appropriate line items, and running final reports on the analysis. The confidence curves that result from these simulations allow the PDT to select a project cost and schedule duration with an associated level of confidence of not being exceeded. Typically, the USACE recommends presenting project costs and durations with an 80% level of confidence. The difference between the base estimate and/or schedule and the 80% confidence represent contingency to the project. This method of risk-based contingency development aids decision-makers when evaluating the project against funding and schedule targets by providing a graphical representation of the PDT's confidence at varying values of total project cost and duration. In addition, the analysis also produces a sensitivity chart that highlights key risk items driving uncertainty for the project providing the PDT a roadmap to optimize risk reduction and study costs.

- Primavera Project Management (P5) – Developed by Primavera Systems, Inc., P5 is a comprehensive planning application built on Oracle and Microsoft SQL Server relational databases. P5 was used to develop a detailed, resource-loaded construction schedule from the MII estimate as a basis construction duration and fully-funding.

- Analysis of Two-Dimensional U-frame or W-Frame (CWFRAM) – This software was developed by the Army Corp of Engineers Computer-Aided Structural Engineering (CASE) project. The program facilitated the structural analysis and design of the pump stations substructure including pile foundations. The pump station substructure was modeled as two dimensional W-frames.

- Design and Analysis of Inverted T Retaining Walls and Floodwalls (CTWDA) – CTWDA is a computer–aided structural design system for analysis and/or design of inverted cantilever walls founded on earth or rock. The software was also developed by the Army Corps of Engineers CASE project and facilitated the design and analysis of the project retaining walls allowing the investigation of multiple loading conditions.

7.3 Model Certification and Approval Requirements

While models developed by or for the Corps of Engineers require certification, commercial-off-the-shelf models along with models developed by non-Federal entities or other Federal agencies are only subject to approval for general use by the appropriate PCX.

Model certification and approval for all planning models used during the development of the decision document will be coordinated with the appropriate PCX as needed.

8.0 Public Participation

Public involvement is integral not only to the development, but also the implementation of the recommended plan. As part of the review process, multiple opportunities have been provided for the public to comment on the investigation of flood risk management measures in Milton, West Virginia and the development of the decision document. Feedback, from both the general public and scientific or professional agencies, was considered during the formulation of the recommended plan and completion of the environmental documentation necessary to meet both Federal and State requirements.

In addition to conducting several scoping meetings and workshops to obtain public input, the draft decision document for Lower Mud – the Limited Reevaluation Report and Supplemental Environmental Impact Statement (LRR/SEIS) – was circulated for public review from August 2003 to October 2003. In conjunction with this review, a public hearing was held on September 9, 2003. Significant and relevant public comments were addressed and then incorporated within Appendix E – Public Involvement in the May 2004 LRR/SEIS. These comments were made available to the review teams for consideration during the technical and policy reviews.

Once the IEPR has been conducted and comment responses has been coordinated through the vertical team, the final IEPR Review Report and comment responses will be made available via a public website.

9.0 PCX Coordination

Review plans for decision documents and supporting analyses outlined in EC 1105-2-410 are to be coordinated with the appropriate Planning Center(s) of Expertise (PCXs) based on the primary purpose of the basic decision document to be reviewed. The lead PCX for Lower Mud River at Milton, West Virginia is the National Flood Risk Management PCX located in the South Pacific Division.

10.0 MSC Approval

The MSC that oversees the home district is responsible for approving the review plan. Approval is provided the MSC Commander. The commander's approval should reflect vertical team input (involving district, MSC, PCX, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the review plan is a living document and may change as the study progresses. Changes to the review plan should be approved by following the process used for initially approving the plan. In all cases, the MSCs will review the decision on the level of review and any changes made in updates to the project.

11.0 Review Plan Points of Contact

Questions and/or comments on this review plan can be directed to the following points of contact:

- Huntington District
    - Project Manager – (304) 399-5864
    - Lead Planner – (304) 399-5143
- MSC – Great Lakes and Ohio River Division
    - District Liaison – (513) 684-2997
- USACE Flood Risk Management PCX
    - PCX Regional Technical Specialist – (917) 557-7440

APPENDIX A
TEAM ROSTERS

Project Delivery Team (PDT)				
PDT Member	**Role**	**Office Symbol**	**Telephone**	**Email**
	Local Sponsor	Mayor, City of Milton		
	Financial Sponsor	West Virginia Conservation Agency (WVCA)		
	Project Manager	CELRH-PM-PP-P		
	Project Analyst	CELRH-PM-PP-P		
	Lead Planner / Economist	CELRH-PM-PD-F		
	Environmental Planner	CELRH-PM-PD-R		
	Archeologist	CELRH-PM-PD-R		
	Archeologist	CELRH-PM-PD-R		
	Attorney	CERLH-OC		
	Lead Engineer / Relocations Specialist	CELRH-EC-DC		
	HTRW Specialist	CELRH-EC-CE		
	Mechanical Engineer	CELRH-EC-DE		
	Geologist	CELRH-EC-GG		
	Soils Engineer	CELRH-EC-GS		
	Civil Engineer / Surveys	CELRH-EC-TI		
	Hydraulic Engineer	CELRH-EC-WH		
	Hydraulic Engineer	CELRH-EC-WH		
	Structural Engineer	CERLH-EC-DS		
	Cost Engineer	CERLH-EC-TC		
	Cost Engineer	CERLH-EC-TC		

Project Delivery Team (PDT) Continued				
PDT Member	**Role**	**Office Symbol**	**Telephone**	**Email**
	Construction Engineer	CELRH-EC-C		
	Reality Specialist	CELRH-RE-P		
	Reality Specialist / Rights-Of-Entry	CELRH-RE-A		
	Operations & Maintenance	CELRH-OR-E		
	Contract Specialist	CERLH-CT		
	Public Affairs Officer	CERLH-PA		
Independent Technical Review (ITR) Following Completion of Economic Update - November 2008				
ITR Team Member	**Discipline**	**Office Symbol**	**Telephone**	**Email**
	ITR Lead / Plan Formulation	Chief – CELRD PCX FRM CELRL-PM-P		
	Cost Engineering	CENWW-EC-X		
	Economics	CELRN-PM-P		
	RTS, Environmental	CELRN-PM-P		
	Operations & Maintenance	CELRH-OR-TR		
	Engineering	CELRH-EC-DE		
	Real Estate	CELRH-RE-PP		

Independent Technical Review (ITR) of Quality Assurance and Policy Review Comment / Response Package - September 2006				
ITR Team Member	**Discipline**	**Office Symbol**	**Telephone**	**Email**
	RTS, Environmental	CELRN-PM-P		
	Chief, Planning Section Real Estate	CELRH-RE-P		
	RTS, Engineering	CELRH-EC-DS		

Independent Technical Review (ITR) of May 2004 Limited Reevaluation Report and Supplemental Environmental Impact Statement (Main Report)				
ITR Team Member	**Discipline**	**Office Symbol**	**Telephone**	**Email**
	RTS, ITR Lead, Plan Formulation	CELRH-PM-PD-F		
	Construction	CELRH-EC-C-NGV		
	Operations	CELRH-OR-TR		
	Real Estate	CELRH-RE-P - Moved to NWK		
	RTS, Engineering	CELRH-EC-DC		
	RTS, Economics	CELRL-PM-P - Moved to LRN		
	RTS, Environmental	CELRN-PM-P		

Independent Technical Review (ITR) of May 2004 Limited Reevaluation Report and Supplemental Environmental Impact Statement (Engineering Appendix)				
ITR Team Member	**Discipline**	**Office Symbol**	**Telephone**	**Email**
	RTS, ITR Lead, Civil Design and Hydraulics & Hydrology	CELRH-EC-DC		
	Soils Engineering	CELRH-EC-GS		
	Geology	CELRH-EC-GG		
	Chief, Relocations	CERLH-EC-MR		
	RTS, Cost Engineering	CELRH-EC-TC		
	Chief, Electrical / Mechanical	CELRH-EC-DC		
	HTRW	CELRH-EC-CE		
	Construction	CELRH-EC-CM		

Independent Technical Review (ITR) of May 2004 Limited Reevaluation Report and Supplemental Environmental Impact Statement (Real Estate Plan)				
ITR Team Member	**Discipline**	**Office Symbol**	**Telephone**	**Email**
	Real Estate	CELRH-RE-P - Moved to NWK		

Planning Center of Expertise Flood Risk Management				
Flood Risk Management Planning Center of Expertise	**Role**	**Office Symbol**	**Telephone**	**Email**
	FRM PCX Program Manager	CESPD-PDS-P		
	RTS, FRM PCX	CESPK-PD-W		

APPENDIX B
ATR CERTIFICATION

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW (ITR)

The undersigned, as members of the ITR team, hereby certify an independent technical review of the Economic Update, which supports the Limited Reevaluation Report and Supplemental Environmental Impact Statement dated May 2004 for the Lower Mud River at Milton, West Virginia, has been conducted. During the review of this document, compliance with established policy principles and procedures was verified by examining assumptions, methodologies, and results documented in the analysis. All comments generated during the review have been adequately addressed and there are no outstanding issues associated with the supplemental economic update package.

The approach in preparing the Economic Update is sound and adheres to current Corps guidance and regulations. Further, WRDA 2007 gives specific authorization and funding limits for the Lower Mud project, thereby negating the regulatory requirement of performing a risk analysis. However, the PDT recognizes that such an analysis would significantly improve the management of the project. Accordingly, the PDT has committed to providing a full cost and schedule risk analysis – complete with a separate ITR review – subsequent to this submission as an addendum to the economic update.

29 FEB 2008
Date

22 FEB 08
Date

7 Feb 08
Date

7 FEB 08
Date

7 February 2008
Date

7 Feb 08
Date

7 Feb 08
Date

CERTIFICATION OF REGIONAL TECHNICAL SPECIALIST REVIEW
LOWER MUD RIVER LIMITED REEVALUATION REPORT COMMENTS

Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control 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 of data obtained, and reasonableness of the results; including whether the products meets the customers' needs consistent with law and existing Corps policy. The study was accomplished by the District team and the independent technical review was accomplished by the Regional Technical Specialists Review Team. A listing of the RTS team comments and production team resolutions is attached.

Regional Technical Review

[redacted]

22 Sep 06
Date

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW
LOWER MUD RIVER LIMITED REEVALUATION REPORT COMMENTS

Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control 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 of data obtained, and reasonableness of the results; including whether the products meets the customers' needs consistent with law and existing Corps policy. The study was accomplished by the District team and the independent technical review was accomplished by the Real Estate Review Team.

Technical Review

9-25-06
Date

9-25-06
Date

STATEMENT OF TECHNICAL REVIEW
14 September 2006
Lower Mud River at Milton, West Virginia
Engineering Appendix to Limited Reevaluation Report (LRR)

ADDENDUM TO COMPLETION OF INDEPENDENT TECHNICAL REVIEW

The District has completed the Engineering Appendix to the Limited Reevaluation Report (LRR) for the Lower Mud River Project at Milton, West Virginia. Notice is hereby given that an idependent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control 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 of data obtained; and reasonableness of the results, including whether the product meets the customer's requirements as described in the Customer Service Agreement (CSA) and is consistent with law and existing Corps policy. The design was accomplished by a District team and the independent technical review (ITR) was accomplished by an independent District team.

Design Team **ITRT**

[redacted]

CERTIFICATION OF REGIONAL TECHNICAL SPECIALIST REVIEW
LOWER MUD RIVER LIMITED REEVALUATION REPORT PACKAGE

Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control 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 of data obtained, and reasonableness of the results; including whether the products meets the customers' needs consistent with law and existing Corps policy. The study was accomplished by the District team and the independent technical review was accomplished by the Regional Technical Specialists Review Team. A listing of the RTS team comments and production team resolutions is attached.

Regional Technical Review Team

[redacted]

29/Mar/05
Date

29 Mar 05
Date

30 Mar 05
Date

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW
LOWER MUD RIVER LIMITED REEVALUATION REPORT PACKAGE

The District has completed the Lower Mud River, Milton, WV, Limited Reevaluation Report Package. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control 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 of data obtained, and reasonableness of the results; including whether the products meets the customers' needs consistent with law and existing Corps policy. The study was accomplished by a District team and the independent technical review was accomplished by an Independent District Technical Review Team. A listing of the ITR team comments and production team resolutions is attached.

Independent Technical Review Team

[redacted]

July 21, 2004
Date

7-28-04
Date

8/4/2004
Date

7-27-04
Date

7-27-04
Date

STATEMENT OF TECHNICAL REVIEW

22 March 2004
Lower Mud River at Milton, West Virginia
Engineering Appendix to Limited Reevaluation Report (LRR)

COMPLETION OF INDEPENDENT TECHNICAL REVIEW

The District has completed the Engineering Appendix to the Limited Reevaluation Report (LRR) for the Lower Mud River Project at Milton, West Virginia. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control 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 of data obtained; and reasonableness of the results, including whether the product meets the customer's requirements as described in the Customer Service Agreement (CSA) and is consistent with law and existing Corps policy. The design was accomplished by a District team and the independent technical review (ITR) was accomplished by an independent District team.

Design Team **ITRT**

[redacted]

Design Team **ITRT**

[redacted]

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

No significant concerns were raised as a result of this review. Some minor revisions to the report write-up, drawings and cost estimate were made. As noted above, all concerns resulting from independent technical review of the project have been considered.

[redacted]

4/13/04

Date

The following procedures and actions will be accomplished for all Real Estate Planning Documents completed by the District:

A. EVALUATION PREPARATION:

1. A technical check of preliminary activity descriptions, cost estimates, and schedules formulated by the Real Estate Team has been completed. Cost estimates have been approved by the appropriate Branch Chiefs, and they have committed to the delivery of their respective products in accordance with the approved schedule. (Approved documentation is on file)

3-31-04
Date

[redacted]

2. A technical review of the Real Estate Section to be included in the PMP has been completed. The document is complete and has been fully coordinated.

N/A
Date

[redacted]

3. Where appropriate, a technical check of local sponsor coordination and assessment has been completed. (Approved documentation is on file)

3-31-04
Date

[redacted]

4. A technical check of structures, etc. has been completed and coordinated with Planning Division. Preliminary mapping has been completed and certified correct. Work limits adequately depict all required Real Estate. (Approved documentation is on file)

3-31-04
Date

[redacted]

5. A technical review of gross appraisal has been completed. The appraisal is approved within delegated authorities and is in accordance with ER 405-1-12. (Review Appraiser's summary is on file) GROSS APPRAISAL COST ESTIMATES HAVE BEEN ADMINISTRATIVELY REVIEWED AND WILL BE RECOMMENDED TO THE DIVISION CHIEF APPRAISER FOR APPROVAL. 3-31-04
Date

[redacted]

6. A technical review of Replacement Housing Survey, where appropriate, is complete and was performed in conformance with P.L. 91-646 and applicable regulations. (Approved documentation is on file)

3-31-04
Date

[redacted]

7. A technical review of public facility/utility relocation study, where appropriate, has been completed and coordinated with Engineering Division. Associated costs (if any) are identified. (Approved documentation is on file).

3-31-04
Date

[redacted]

8. A technical review of REP text has been completed. The document is complete, in concert with appropriate laws, regulations and guidance, has been fully coordinated within Real Estate and with other District elements, and was completed without exceeding available funding. The REP was forwarded for Independent Technical Review this date.

3-31-04
Date

[redacted]

B. INDEPENDENT TECHNICAL REVIEW

1. Real Estate participated on the District Independent Technical Review Team or established an internal Independent Technical Review Team.

3-31-04
Date

[redacted]

2. All ITR Team comments and resolutions attached.

3-31-04
Date

[redacted]

3-31-04
Date

APPENDIX C
LEGAL REVIEW CERTIFICATION

CERTIFICATION OF LEGAL REVIEW

I hereby certify the Economic Update, which supports the original Limited Reevaluation Report and Supplemental Environmental Impact Statement dated May 2004 for the Lower Mud River at Milton, West Virginia, has been fully reviewed by the Office of Counsel, Huntington District, and is approved as legally sufficient.

[redacted]

14 May 08

Date

APPENDIX D
ACRONYMS AND ABBREVIATIONS

Term	Definition
AFB	Alternative Formulation Briefing
ASA(CW)	Assistant Secretary of the Army for Civil Works
ATR	Agency Technical Review (formerly ITR)
CSDR	Coastal Storm Damage Reduction
CWRB	Civil Works Review Board
DPR	Detailed Project Report
DQC	District Quality Control
DX	Directory of Expertise
EA	Environmental Assessment
EC	Engineer Circular
EIS	Environmental Impact Statement
EO	Executive Order
ER	Ecosystem Restoration
FDR	Flood Damage Reduction
FRM	Flood Risk Management
FSM	Feasibility Scoping Meeting
GRR	General Reevaluation Report
HQUSACE	Headquarters, U.S. Army Corps of Engineers
IEPR	Independent External Peer Review
ITR	Independent Technical Review (now ATR)
LRR	Limited Reevaluation Report
MSC	Major Subordinate Command
NED	National Economic Development
NER	National Ecosystem Restoration
NEPA	National Environmental Policy Act
O&M	Operation and maintenance
OMB	Office and Management and Budget
OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
OEO	Outside Eligible Organization
OSE	Other Social Effects
PCX	Planning Center of Expertise
PDT	Project Delivery Team
PAC	Post Authorization Change
PMP	Project Management Plan
PL	Public Law
QMP	Quality Management Plan
QA	Quality Assurance
QC	Quality Control
RED	Regional Economic Development
RTS	Regional Technical Specialist
SEIS	Supplemental Environmental Impact Statement
USACE	U.S. Army Corps of Engineers