



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

REPLY TO
ATTENTION OF:

CEMVD-PD-N

30 Jun 2011

MEMORANDUM FOR Commander, New Orleans District

SUBJECT: Review Plan (RP) for Bayou Sorrel Lock Replacement Project, Louisiana, Post Authorization Change Report (PACR)

1. References:

- a. Memorandum, CEMVN-PM-B, 9 June 2011, subject as above.
- b. EC 1165-2-209, Civil Works Review Policy, 31 January, 2010.

2. I approve subject Review Plan (RP) as enclosed and concur in the conclusion that an independent external peer review of this project is necessary. The proposed RP was coordinated with the Planning Center of Expertise for Inland Navigation (PCX-IN). The RP, in accordance with EC 1165-2-209, complies with all applicable requirements for the implementation phase of the subject project. Non-substantive changes to this RP do not require further approval.

3. The District should post the RP to its web site and provide a link to the PCX-IN for their use.

4. The MVD point of contact is Mr. Mincer Minor, CEMVD-PD-N, at (601)634-5841.

MICHAEL J. WALSH
Major General, USA
Commanding



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

JUN 9 2011

CEMVN-PM-B

MEMORANDUM FOR Commander, Mississippi Valley Division (MVN-DST/R. Wilbanks)

SUBJECT: Review Plan for Bayou Sorrel Lock Replacement Project, Louisiana, Post Authorization Change Report (PACR).

1. References:

a. Memorandum, CELRD-PDS-P, 1 June 2011, subject: Review Plan for Bayou Sorrel Lock Replacement Project, Louisiana, Post Authorization Change Report (PACR) (Encl 1).

b. EC 1165-2-209, Civil Works Review Policy, 31 January 2010.

2. The enclosed Review Plan (RP) for the Bayou Sorrel Lock Replacement Project, Louisiana, has been prepared in accordance with EC 1165-2-209 and is hereby submitted for your review and approval (Encl 2). The RP has been coordinated with the Planning Center of Expertise for Inland Navigation (PCXIN) of the Great Lakes and Ohio River Division, which is the lead office to execute this plan. Given the multipurpose nature of the project, the PCXIN also coordinated with the Flood Risk Management PCXIN and received its endorsement.

3. I recommend that the subject RP be approved. Upon approval, the RP will be posted to the Mississippi Valley New Orleans District website for public comment. The RP will also be updated, as needed, throughout the project life cycle.

4. The POC for this study is Mr. Thomas A. Holden Jr., Deputy District Engineer for Project Management. He can be reached at (504) 862-2204.

A handwritten signature in black ink, appearing to read "E. Fleming".

EDWARD R. FLEMING
Colonel, EN
Commanding

Encls
as



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DIVISION, GREAT LAKES AND OHIO RIVER
CORPS OF ENGINEERS
550 MAIN STREET
CINCINNATI, OHIO 45201-1159

REPLY TO
ATTENTION OF

CELRD-PDS-P

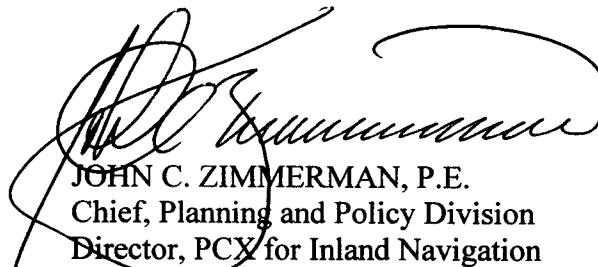
1 June 2011

MEMORANDUM FOR Commander, New Orleans District

SUBJECT: Review Plan for Bayou Sorrel Lock Replacement Project, Louisiana, Post Authorization Change Report (PACR).

1. The enclosed Review Plan (RP) has been presented to the Planning Center of Expertise for Inland Navigation (PCXIN) for its review and endorsement in accordance with EC 1165-2-209 "Civil Works Review" dated 31 January 2010.
2. The PCXIN staff has reviewed the plan for technical sufficiency and policy compliance. Given the multi-purpose nature of the project, the PCXIN has also coordinated with the Flood Risk Management PCX (FRM-PCX) and received its endorsement. The PACR meets the mandatory trigger requirements for Type I independent external peer review (IEPR) as per EC 1165-2-209; accordingly, the review plan includes an estimated IEPR cost and schedule. The PACR will employ the Gulf Navigation Investment Model (GULFNIM), a revised version of the Ohio River Navigation Investment Model (ORNIM) with a Gulf Coast configuration. ORNIM is in the process of being certified for use on the Ohio River. The certification plan for GULFNIM should be developed in FY11, pending certification of ORNIM.
3. I concur with the findings of the PCXIN technical staff and endorse the enclosed review plan for the Bayou Sorrel Lock Replacement PACR. Following approval by Mississippi Valley Division, the District is requested to post the RP to its web site and provide the link to the PCXIN for their use. Prior to posting, the names of individuals in the RP should be removed.
4. If you have any questions or need additional information, please contact Ms. Rebecca Moyer of my staff at (513) 684-3598.

Encl



JOHN C. ZIMMERMAN, P.E.
Chief, Planning and Policy Division
Director, PCX for Inland Navigation
Great Lakes and Ohio River Division

REVIEW PLAN

**BAYOU SORREL LOCK REPLACEMENT, LOUISIANA PROJECT
POST AUTHORIZATION CHANGE REPORT**

Iberville Parish, LA

**US Army Corps of Engineers
New Orleans District**

MSC Approval Date: 30 June 2011

Last Revision Date: N/A

Table of Contents

1.	Purpose and Requirements.....	3
	A. Purpose	3
	B. References.....	3
	C. Requirements	3
2.	Review Management Organization (RMO) Coordination.....	4
3.	Study Information.....	4
	A. Decision Document.....	4
	B. Project Description.....	4
	C. Project Delivery Team.....	5
	D. Factors Affecting the Scope and Level of Review.....	5
	E. In Kind Contributions.....	7
4.	Review Process.....	7
	A. District Quality Control (DQC)	7
	B. Agency Technical Review (ATR)	9
	C. Independent External Peer Review (IEPR).....	12
	D. Policy and Legal Compliance Review	14
	E. Cost Engineering Directory of Expertise (DX) Review and Certification	15
	F. Model Certification	15
	G. Safety Assurance Review	16
5.	Public Participation.....	16
6.	Review Plan Approval and Updates.....	16
7.	Points of Contact	16
	ATTACHMENT 1: TEAM ROSTERS.....	17
	ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS.....	19
	ATTACHMENT 3: REVIEW PLAN REVISIONS.....	20

Project Review Plan

Bayou Sorrel Lock Replacement

Post Authorization Change Report

1. Purpose and Requirements

A. Purpose

This Review Plan defines the scope and level of peer review for the Bayou Sorrel Lock Replacement, Louisiana project Post Authorization Change Report. This review plan was developed in accordance with EC 1165-2-209, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

B. References

- EC 1165-2-209, Civil Works Policy Review, 31 Jan 2010
- EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2010
- ER 1110-1-12, Quality Management, 31 Mar 2010
- ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- PMP for Bayou Sorrel Lock Replacement, currently in routing for signature

C. Requirements

This review plan was developed in accordance with EC 1165-2-209, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

2. Review Management Organization (RMO) Coordination

This project is multipurpose (flood risk management and inland navigation), but the focus of the PAC is on modifications to the lock for navigation improvements. Pursuant to EC 1105-2-209, the District will coordinate with the Inland Navigation Planning Center of Expertise (PCXIN) in Huntington, West Virginia as the lead PCX to organize teams to perform the reviews at various stages throughout the study. This PCX is responsible for the accomplishment and quality of ATR and IEPR for this study. The PCX for Inland Navigation will coordinate with the PCX for Flood Risk Management, as appropriate. The PCX will also coordinate with Cost Engineering Directory of Expertise at Walla Walla for ATR of the MII estimate, construction schedules, and contingencies.

The Bayou Sorrel Lock PAC Report study primarily falls under the PCX business program “Inland Navigation.” ATR for studies grouped in this program are performed in Huntington, West Virginia currently under the supervision of the PCXIN Manager and technical point of contact, Wesley Walker (304) 399-6938. The Center may conduct the ATR themselves or manage the review conducted by others. If the PCX decides to manage the review from an outside source, these potential reviewers may include nominations from scientific or professional societies, if the PCX so chooses. At this time, it is anticipated that the PCX will perform some of the ATR for the PAC Report. Coordination with the PCX for Flood Risk Management may be required and the level of coordination needed will be determined by the lead PCX (PCXIN).

Although the PCXIN will be responsible for managing the IEPR, peer reviewers will be selected by the Louisiana Water Resources Council. It is anticipated that IEPR will be conducted by a panel, but the final decision will be left up to the PCX manager and the external entity.

The PCX will also coordinate with Cost Engineering Directory of Expertise at Walla Walla for ATR of the MII estimate, construction schedules, and contingencies.

3. Study Information

A. Decision Document

A Post Authorization Change (PAC) Report is being prepared for Bayou Sorrel Lock, to be submitted to Congress in accordance with Section 902 of the Water Resources Development Act (WRDA) 1986. The purpose of the Post Authorization Change (PAC) report is to address the cost estimate prepared at the 35% Preconstruction Engineering and Design (PED) milestone, which demonstrates that the project may not be executed at the authorized amount plus the maximum 20% cost increase permitted by Section 902 of the Water Resources Development Act (WRDA) 1986.

B. Project Description

Bayou Sorrel Lock is located in Iberville Parish in south central Louisiana, approximately 20 miles southwest of Baton Rouge. This is a multipurpose project that includes navigation and flood risk management components. The lock is an integral part of the East Atchafalaya Basin

Protection Levee, a feature of the Atchafalaya Basin, Louisiana, project designed to pass the MR&T project design flood flow safely to the Gulf of Mexico, while reducing navigation delays on the GIWW, Morgan City - Port Allen Route.

Bayou Sorrel Lock was completed in 1951. The existing structure consists of two, U-frame, reinforced concrete gate structures. Each gate structure has a clear width of 56 feet and consists of an 80-foot approach section, a 68-foot gate bay section, and an 83.5-foot chamber section connected by 600-feet of earth chamber. The lock chamber has a useable length of 790-feet with a bottom width of 56 feet and 1 on 2.5 side slopes protected with riprap and articulated concrete mattresses. The sill of the lock is at elevation -14.8 NGVD, and the top of the concrete walls and gates is at elevation +24.0 NGVD. The lock is stable for its original design loading conditions and is in good operating condition; however, the elevation of the gate bays is well below the project flood design grade. Due to this deficiency, Bayou Sorrel Lock must be modified to pass the project flood.

Modification of the existing lock is authorized under the Flood Control Act of 1928 (Public Law 70-391), as amended, and plan approved by Chief of Engineers Report, 28 Feb 83, Atchafalaya Basin Floodway System, Louisiana. The navigation study was conducted under resolutions adopted by the Committee on Public Works of the U.S. Senate and House of Representatives, 29 September 1972 and 12 October 1972, respectively. Construction of a larger lock for navigation enhancement was authorized at \$9.6M by Section 1001 (23), WRDA 2007 (Public Law 110-114). The cost estimate developed at 35% PED totaled approximately \$297M, of which \$205M was attributed to the navigation component. This preliminary cost estimate demonstrates that the project will likely exceed the Section 902 limit (WRDA 1986).

The scope of the PAC will include development of an updated MII cost estimate for the four alternatives and a review of several design changes made during PED that contributed to the cost escalation. The Post Authorization Change report will require Congressional authorization.

C Project Delivery Team

The Project Delivery Team (PDT) is comprised of those individuals directly involved in the development of the decision document. Senior Project Management duties reside at the New Orleans District, although through regionalization of the project, Project Management is being conducted by the Vicksburg District. The PDT is composed of individuals from each of the six districts and members are listed in Attachment A.

D. Factors Affecting the Scope and Level of Review

All work products will undergo review by the PDT for adequacy and will undergo DQC by the New Orleans District. The draft PAC report and supporting appendices will undergo ATR prior to submission of the report to Congress in accordance with Section 902 of the Water Resources Development Act (WRDA) 1986. Because the estimated total cost for the project is currently estimated at \$200 million, which greater than the \$45 million threshold specified in Section 2034 of the Water Resources Development Act of 2010, IEPR will be conducted on this project.

An EIS is not anticipated at this time, as the project is not likely to have significant economic, environmental, or social effects to the nation or to have more than negligible adverse impacts on

scarce or unique cultural, historic, or tribal resources. The project is not likely to have substantial adverse impacts on fish and wildlife species or their habitat and is not likely to have more than negligible adverse impacts on species listed as endangered or threatened, or to the designated critical habitat of such species, under the Endangered Species Act, prior to implementation of mitigation. An EA is expected to be sufficient for the Bayou Sorrel Lock PAC Report. No significant interagency interests are anticipated.

The PAC report is not likely to contain influential scientific information or be a highly influential scientific assessment. The parts of the study that will be the most challenging include development and certification of the GULFNIM model for the economics effort. Other challenges include development of comparable design for all four alternatives due to inherent differences between the floodgate and lock alternatives. Coordination between all six districts in MVD also poses a challenge to general project execution.

The PAC report is not likely to be highly controversial; no public dispute is expected. Information in the decision document will not likely be based on novel methods as the GULFNIMS model that will be used will be certified by the time the draft decision document is completed.

Other risks include model development and certification as any problems with model development or certification will impact the project schedule. The magnitude of this risk is also low as this process has already been initiated for use on another project.

It is important to note that this project may involve significant threats to human life. The lock passes inland barge tows moving on the Morgan City-to-Port Allen Alternate Route of the Gulf Intracoastal Waterway project through the East Atchafalaya Basin Protection Levee. As such, the lock is located within the levee. The project would provide for modification to the existing lock, which is a structure whose performance involves potential life safety issues. Non-performance of the lock could impact the navigation purposes (and associated economic impacts) and flood risk management purposes (and associated social and environmental impacts) of the project.

Failure of the lock could result in staggering economic consequences for the navigation industry. The Morgan City-to-Port Allen Alternate Route of the GIWW provides a 64-mile route for tows moving between the Mississippi River north of Baton Rouge and the GIWW west of Morgan City. The Mississippi River and the main stem of the GIWW provides an alternate route that is 224 miles long, adds 32 hours of travel time, and tows must go through either the Harvey Lock or the Algiers Lock in the New Orleans area and Bayou Boeuf Lock immediately east of Morgan City. At the time of the feasibility report (2004), delays to navigation caused by short-term closure of this waterway were estimated to cost the navigation industry \$800,000 per day while long-term closure was estimated at \$534,000 per day.

Failure of the lock could also result in significant social impacts. The Bayou Sorrel community lies about one and one-half miles north of the Bayou Sorrel Lock. The community lies mainly along the high bank of Lower Grand River, just outside of the Atchafalaya Basin Floodway. Development in the area is severely limited by the lack of land with sufficient elevation to avoid flooding. Although the community of Bayou Sorrel is protected from the floodwaters of the Atchafalaya Basin Floodway, the community occasionally sustains minor damages from high

water levels of Lower Grand River caused by regional rainfall and poor drainage. Failure of the lock could allow flows in the Atchafalaya Basin to enter Morgan City-to-Port Allen Alternate Route. This could result in flooding of homes and business, as well as risks to life safety.

Failure of the lock is could also result in environmental impacts. Undeveloped land, both inside and outside of the Atchafalaya Basin Floodway, is almost entirely cypress swamp and bottomland hardwood forest. These types of ecosystems have developed in response to periodic flooding and basin-wide flow regimes. However, additional flows from the Basin could result in higher water levels, inundating drier or more sensitive habitat types. Flooding caused by failure of the lock could also displace wildlife. Impacts to environmental resources, though possible, are not anticipated to be significant.

All consequences to project non-performance will be addressed through a Type 1 IEPR (including a safety assurance review).

An additional level of policy review for the Bayou Sorrel Lock PAC Report will be performed at the Headquarters of the United States Army Corps of Engineers (HQUSACE) and will ensure that all applicable statutes have been applied with respect to cost sharing, project purpose, and budget criteria.

E. In Kind Contributions

All work products will be produced by the USACE. No in-kind contributions are expected to be provided by the cost share sponsor (Inland Waterways Trust Fund).

4. Review Process

A. District Quality Control (DQC)

1. General

DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the PMP. 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. DQC will be managed by the New Orleans District (home district) in accordance with the MSC and district Quality Management Plans (QMP). This review process involves a critical examination by qualified persons that are not involved in the day-to-day technical work that supports the decision documents. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The DQC team reviews the various work products and assures that all the parts fit together in a coherent whole.

2. Documentation of DCQ

Documentation of DQC activities is required and will be in accordance with the Quality Manual of the District and the home MSC. The DQC process will be conducted throughout the study process. All comments and responses to comments will be documented in DrChecks.

- i. Quality Checks.** The Bayou Sorrel Lock PAC Report will undergo Quality Checks performed by staff responsible for the work, such as

supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel, but will not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts.

- ii. **PDT Reviews.** PDT reviews are performed by members of the PDT to ensure consistency and effective coordination across all project disciplines. Additionally, the PDT is responsible for a complete reading of any reports and accompanying appendices prepared by or for the PDT to assure the overall coherence and integrity of the report, technical appendices, and the recommendations before approval by the District Commander.

3. Products to Undergo DQC

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC will be conducted throughout the study on the engineering and economic technical appendices. DQC will also be conducted at the end of the study on the draft decision document and supporting information.

4. Required DQC Expertise

The disciplines involved in the DQC will include:

- Economics (one individual) – The reviewer will have experience in Inland Navigation projects as well as Flood Risk Management projects. The team member should have experience with the ORNIM/GULFNIM model, as well as traffic forecasting, transportation rate studies, and lock capacity calculations.
- Hydraulics and Hydrology (one individual) – The reviewer will have systematic knowledge of Corps guidance related to engineering requirements for inland navigation studies. They will have extensive knowledge of the various data and models employed to design a lock or floodgate.
- Structural Engineering (one individual) – The review will have experience in lock design for inland waterways, including but not limited to floodgates, chambers, and approach channels.
- Geotechnical (one individual) – This reviewer will have an understanding of the behavior of aquifers, soils, as well as the analysis and disposal of dredged material.
- Cost Engineering (one individual) – The reviewer will be associated with the Cost Estimating Center of Expertise in Walla Walla, Washington. They will be familiar with Corps requirements for cost engineering including the development of economic and financial costs, and the preparation of the MII Cost Estimate.
- Operations (one individual) – The reviewer will have an understanding of dredging operations and placement of dredged material for new construction as well as maintenance.
- Real Estate (one individual) – The reviewer will have a comprehensive understanding of real estate acquisition and appraisal for inland navigation projects.

- Environmental (one individual) – The reviewer will have experience in environmental compliance related to Federal, State, and local regulations.

The DQC Team will be comprised the following:

Discipline	Organization
Economics	CEMVN-PDE-N
Hydraulics and Hydrology	CEMVN-ED-H
Structural Engineering	CEMVN-ED-T
Geotechnical	CEMVN-ED-F
Cost Engineering	CEMVN-ED-S
Environmental	CEMVN-RPEDS
Operations	CEMVN-OD-DS
Real Estate	CEMVN-RE-E

3. Review Costs

DCQ is expected to be in the range of \$50,000 to \$75,000.

4. Review Schedule

DQC of each work product will be complete prior to initiating ATR on that work product.

B. Agency Technical Review (ATR)

1. General

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency 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 results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

The Bayou Sorrel Lock PAC Report study primarily falls under the PCX business program “Inland Navigation.” ATR for studies grouped in this program are performed in Huntington, West Virginia currently under the supervision of the PCXIN Manager, Wesley Walker (304) 399-6938. The Center may conduct the ATR themselves or manage the review conducted by others. If the PCX decides to manage the review from an outside source, these potential reviewers may include nominations from scientific or professional societies, if the Center so chooses. At this time, it is anticipated that the PCX will perform some of the ATR for the PAC Report. Coordination with the PCX for Flood Risk Management may be required and the level of coordination needed will be determined by the lead PCX (Inland Navigation).

2. Products to Undergo ATR

The ATR will examine draft decision documents and other supporting analyses (engineering and economic appendices) to ensure the adequacy of the presented methods, assumptions, criteria, decision factors, applications, and explanations. As currently anticipated, the NEPA document will be an Environmental Assessment and Finding of No Significant Impact. To date no significant impacts have been identified and an EIS is not anticipated.

3. Required ATR Team Expertise

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.

The ATRT will be comprised of the same disciplines on the PDT, and will have experience in the type of analyses in which they are responsible for reviewing. Each ATRT member will be senior or equal in experience to the analyst or production person. The ATR members will be from outside the home district and the ATR team leader will be from outside the home MSC. The PCX can identify the ATR members; however, candidates may be nominated by the home district or MSC. The amount of time it will take to conduct the ATR will depend on the Inland Navigation PCX workload and schedule. Consistent with recent Corps guidance, the ATR team member for cost engineering will be obtained through the Cost Engineering Directory of Expertise (DX) in Walla Walla District.

ATR is best conducted by experienced peers within the same discipline who are not directly involved with the development of the study or project being reviewed. Management of ATR reviews is conducted by professionals outside of the home district. For planning feasibility-level studies ATR is managed by the appropriate Planning Center of Expertise (PCX) with appropriate consultation with the allied Communities of Practice such as engineering and real estate. The Inland Navigation PCX is responsible for identifying the ATR team members. The ATR team members will reside outside the New Orleans District with the ATR team leader from outside the Mississippi Valley Division.

It is anticipated that the review team will consist of eight reviewers, one or more from each of the following disciplines: economics, hydraulics and hydrology, structural engineering, geotechnical engineering, cost engineering, operations, real estate, and environmental. A brief description of the disciplines required for the ATR team is included below:

- Economics (one individual) – The reviewer will have experience in Inland Navigation projects as well as Flood Risk Management projects. The team member should have experience with the ORNIM/GULFNIM model, as well as traffic forecasting, transportation rate studies, and lock capacity calculations.
- Hydraulics and Hydrology (one individual) – The reviewer will have systematic knowledge of Corps guidance related to engineering requirements for inland navigation studies. They will have extensive knowledge of the various data and models employed to design a lock or floodgate.

- Structural Engineering (one individual) – The reviewer will have experience in lock design for inland waterways, including but not limited to floodgates, chambers, and approach channels.
- Geotechnical (one individual) – This reviewer will have an understanding of the behavior of aquifers, soils, as well as the analysis and disposal of dredged material.
- Cost Engineering (one individual) – The reviewer will be associated with the Cost Estimating Center of Expertise in Walla Walla, Washington. They will be familiar with Corps requirements for cost engineering including the development of economic and financial costs, and the preparation of the MII Cost Estimate.
- Operations (one individual) – The reviewer will have an understanding of dredging operations and placement of dredged material for new construction as well as maintenance.
- Real Estate (one individual) – The reviewer will have a comprehensive understanding of real estate acquisition and appraisal for inland navigation projects.
- Environmental (one individual) – The reviewer will have experience in environmental compliance related to Federal, State, and local regulations.

4. Documentation of ATR

DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;
- (3) 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
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100,

Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- 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;
- Identify and summarize each unresolved issue (if any); 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.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for the draft report and final report. A sample Statement of Technical Review is included in Attachment 2.

5. Review Costs

The costs for ATR are expected to be in the \$100,000 to \$150,000 range.

6. Review Schedule

ATR will be conducted on the 95% DDR in late-FY11 (June timeframe), on the draft PAC report in mid- to late-FY12, and on the final PAC report in mid-FY13. ATR of each technical work product will be complete prior to initiation of IEPR on that work product.

C. Independent External Peer Review (IEPR)

1. General

IEPR may be required for decision documents under certain circumstances. 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. A risk-informed decision, as described in EC 1165-2-209, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- Type I IEPR. Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of

alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-209.

- Type II IEPR. Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

2. Decision on IEPR

Because of the potential magnitude and cost of this project, the PAC Report does meet the IEPR criteria of EC 1165-2-209. Evaluating competing alternatives and developing a preferred course of action will require ongoing outreach efforts with a variety of stakeholders and may lead to significant economic, environmental, and social effects. The IEPR will address all planning, safety assurance, engineering, economic, and environmental analyses. The possibility exists for the study to contain precedent-setting methods and models and the scientific information disseminated may present conclusions that could change prevailing practices and contain a potential for failure and/or controversy. Recent MSC guidance has required studies that meet these criteria to undergo IEPR. It is assumed that a vertical team consensus exists on the level of review the District is recommending since the total project will cost more than \$200 million, which triggers IEPR on its own.

3. Products to Undergo Type I IEPR

Type I IEPR will be conducted on the draft Post Authorization Change report, NEPA documentation, and supporting information, including but not limited to the engineering and economic appendices.

4. Required Type I IEPR Panel Expertise

It is anticipated that the review team will consist of three reviewers, one or more from each of the following disciplines: structural engineering, environmental, and economics. A brief description of the disciplines required for the IEPR team is included below:

- Economics (one individual) – The reviewer will have experience in Inland Navigation projects as well as Flood Risk Management projects. The team member should have experience with the ORNIM/GULFNIM model, as well as traffic forecasting, transportation rate studies, and lock capacity calculations.

- Structural Engineering (one individual) – The reviewer will have experience in lock design for inland waterways, including but not limited to floodgates, chambers, and approach channels.
- Environmental (one individual) – The reviewer will have experience in environmental compliance related to Federal, State, and local regulations.

5. Documentation of Type I IEPR

The IEPR panel will be selected and managed by the Louisiana Water Resources Council (LWRC). Panel comments will be compiled by the LWRC and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section B.4 above. The LWRC will prepare a final Review Report that will accompany the publication of the final decision document 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 LWRC no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

6. Review Costs

The costs for IEPR are expected to be in the \$100,000 to \$250,000 range.

7. Review Schedule

IEPR will be conducted on the final PAC report in mid-FY13 after ATR is complete.

D. Policy and Legal Compliance Review

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in 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 home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

E. Cost Engineering Directory of Expertise (DX) Review and Certification

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

F. Model Certification

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

EC 1105-2-412 does not cover engineering models used in planning. 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. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

1. Planning Models

The following planning models are anticipated to be used in the development of the decision document:

- The OHIO RIVER NAVIGATION INVESTMENT MODEL (ORNIM) will be redefined to incorporate the GIWW waterway system, which, when done, will be called the Gulf Navigation Investment Model (GULFNIM). ORNIM is a partial equilibrium model that was built in 1994 by Oak Ridge National Laboratories in collaboration with the PCXIN. ORNIM is in the process of being certified for use on the Ohio River. The ORNIM model will be revised for the Gulf Coast (GULFNIM) and certified for use for all projects in FY11.
- The MCACES MII cost estimating model is considered to be an engineering model and is generally not addressed in this Review Plan. However the specific application for this study will be reviewed through the ATR process.

G. Safety Assurance Review

WRDA 2007, Section 2035, Safety Assurance Review, requires all projects addressing flooding or storm damage reduction to undergo a safety assurance review during design and construction activities. Failure of this project could lead to a significant threat to human life. Consequently, this safety assurance review will address the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring public health, safety, and welfare.

5. Public Participation

The public may be asked to nominate potential peer reviewers and will have several opportunities to comment on the proposed action through the 30-day public review period scheduled for the Environmental Assessment. This public review period will give the Corps the opportunity to exchange information with the public and ensure that individuals with an inherent interest in the study are identified and contacted allowing them to voice their views and concerns relative to the study process. Significant and relevant public comments will be provided to the ATR team prior to ATR submittal along with any changes in the study resulting from these comments.

In addition, the public will have the opportunity to comment on this peer review plan. Upon approval, the plan will be posted to the New Orleans District's website where the public will be able to view and provide any comments relating to the reviewable process they might have.

6. Review Plan Approval and Updates

The MVD Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, 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. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

7. Points of Contact

Questions about this Review Plan may be directed to the Project Manager, New Orleans District, Ms. Sarah Nash (504) 862-1723 or the PCXIN Technical Co-Lead, Rebecca Moyer (513) 684-3598.

ATTACHMENT 1: TEAM ROSTERS

PROJECT DELIVERY TEAM	
Name	Discipline
Brad Inman	Project Management
Sarah Nash	Project Management
Gary Walker	Project Management
Gary Young	Environmental Manager
John Burnworth	Technical Lead
James Bartek	Engineering
Tim Grundhoffer	Engineering
Mark Mazzone	Engineering
Tom Ruf	Engineering
Walter Teckemeyer	Engineering
Michael Weiland	Engineering
Janet Berry	Engineering
Henry Dulaney	Engineering
Glenda Hill	Engineering
Christie Nunez	Engineering
Christopher Behling	Engineering
Adele Braun	Engineering
Josh Broome	Engineering
Sirobe Carstafhnur	Engineering
Jennifer Chambers	Engineering
Michael Clay	Engineering
Ivan Esquilin-Diam	Engineering
Cory DeLong	Engineering
Tony Fares	Engineering
Jeffrey Farmer	Engineering
Dario Franzl	Engineering
Chad Goche	Engineering
Phil Hegwood	Engineering
Jeremy Herring	Engineering
Robert Hite	Engineering
Eric O. Johnson	Engineering
Noeun Kol	Engineering
Jan Lassen	Engineering
Charles (Randy) Lord	Engineering
Randy McAlpin	Engineering
Michelle Moore	Engineering
Ronne Muoorw	Engineering
Darren Mulford	Engineering
Hasan Pourtaheri	Engineering
Bryan G. Radtke	Engineering
Erik Redd	Engineering
Emery Sayre	Engineering
John Stouffer	Engineering
Greg Wachman	Engineering

Tanya Wells	Engineering
Cory Williams	Engineering
Gerald McClintonck	Engineering
Phillip Haskins	Engineering
Conrad Stacks	Engineering
John Zacher	Engineering
Donald Alette	Engineering
Steven Ayres	Engineering
David Beck	Engineering
Joshua Hardy	Engineering
Daniel Haggerty	Engineering
George Krausser	Engineering
Rachael Maltzahn	Engineering
Keith O'Cain	Engineering
Ellsworth Pilie	Engineering
John Petitbon	Engineering
Jabeen Pasha	Engineering
Craig Waugaman	Engineering
Doyle Hunt	Operations
Michelle Daigle	Operations
TBD	Real Estate
TBD	Office of Counsel

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the <type of product> for <project name and location>. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, 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 results, including whether the product meets the customer’s needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE _____ Date _____
Name
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ Date _____
Name
Project Manager
Office Symbol

SIGNATURE _____ Date _____
Name
Architect Engineer Project Manager¹
Company, location

SIGNATURE _____ Date _____
Name
Review Management Office Representative
Office Symbol

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

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

SIGNATURE _____ Date _____
Name
Chief, Engineering Division
Office Symbol

SIGNATURE _____ Date _____
Name
Chief, Planning Division
Office Symbol

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number