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

24 March, 2012

MEMORANDUM FOR Commander, New Orleans District

SUBJECT: Calcasieu Lock, Calcasieu Parish, Louisiana, Feasibility Report Review Plan (RP)

1. References:

a. Memorandum, CEMVN-PM-B, 9 March 2012, subject: Review Plan for Calcasieu Lock, Calcasieu Parish, Louisiana, Feasibility Report.

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

2. The subject RP provided under Reference 1.a. has been reviewed. It is consistent with the purpose and policy of EC 1165-2-209. Therefore, the RP is approved.

3. The RP should be posted to the District website.

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

JOHN W. PEABODY
Major General, USA
Commanding

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

REPLY TO
ATTENTION OF

CEMVN-PM-B

09 MAR 2012

MEMORANDUM FOR Commander, Mississippi Valley Division (CEMVD-PD-N/M. Minor)

SUBJECT: Review Plan for Calcasieu Lock Replacement Project, Louisiana

1. References:

a. Memorandum, CELRD-PDS-P, 17 August 2011, Review Plan for Calcasieu Lock Replacement Project, Louisiana, Feasibility Report and Environmental Impact Statement (encl 1).

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

2. The enclosed revised Review Plan (RP) for the Calcasieu 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 review plan has been updated to address new study efforts that were not included in the originally approved RP. 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. An earlier version of the RP, developed in accordance with EC 1105-2-410 was already endorsed by the PCXIN in its memorandum dated 20 October 2008 (encl 3).

3. I recommend that the subject RP be approved. Upon approval, the RP will be posted to the US Army Corps of Engineers, New Orleans District website for public comment. The RP will be updated, as needed, throughout the project life cycle.

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

3 Encls
as

EDWARD R. FLEMING
Colonel, EN
Commanding

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 17 August 2011

MEMORANDUM FOR Commander, New Orleans District

SUBJECT: Review Plan for Calcasieu Lock, Calcasieu, Louisiana, Feasibility Report and Environmental Impact Statement.

1. The enclosed revised 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. An earlier version of the RP, developed in accordance with EC 1105-2-410 was already endorsed by the PCXIN in its memorandum dated 20 October 2008 (encl).

2. The PCXIN staff has reviewed the plan for technical sufficiency and policy compliance. The feasibility study 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 feasibility study 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 FY12, pending certification of ORNIM.

3. I concur with the findings of the PCXIN technical staff and endorse the enclosed review plan for the Calcasieu Lock Feasibility Report and Environmental Impact Statement. 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.

Encls

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

REVIEW PLAN

CALCASIEU LOCK, CALCASIEU PARISH, LOUISIANA
Feasibility Report

U.S. Army Corps of Engineers, New Orleans District

August 2011
MSC Approval Date: Pending
Last Revision Date: November 2008

US Army Corps
of Engineers ®

PRELIMINARY DRAFT REVIEW PLAN

Calcasieu Lock, Calcasieu Parish, Louisiana
Feasibility Report

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Calcasieu Lock, Calcasieu Parish, Louisiana Feasibility Report.

b. References

(1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010

(2) EC 1105-2-407, Planning Models Improvement Program: Model Certification, 31 May 2005

(3) EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2011

(4) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006

(5) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007

(6) Calcasieu Lock Draft PMP

(7) Quality Management Plan, US Army Corps of Engieers, New Orleans District, 6 Oct 2006

(8) Review Plan, Calcasieu Lock, Calcasieu, Louisiana, September 2008

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).

(1) District Quality Control/Quality Assurance (DQC). All **decision documents** (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home Major Subordinate Command (MSC).

(2) Agency Technical Review (ATR). 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 US Army Corps of Engineers (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 a designated Risk Management Organization (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. To assure independence, the leader of the ATR team shall be from outside the home MSC.

(3) Independent External Peer Review (IEPR). 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 is generally for decision documents and Type II is generally for implementation products.

(a) 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 an biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all the 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.

(b) 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.

(4) 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 Chief of Engineers. 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.

(5) Cost Engineering Review and Certification. All **decision documents** shall be coordinated with the Cost Engineering Directory of Expertise (DX), located in the Walla Walla District. The DX, or in some circumstances regional cost personnel that are pre-certified by the DX, will conduct the cost ATR. The DX will provide certification of the final total project cost.

(6) Model Certification/Approval. 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. 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. Use of engineering models is also subject to DQC, ATR, and IEPR.

(7) National Planning Center of Expertise Coordination. EC 1165-2-209 outlines PCX coordination in conjunction with preparation of the Review Plan. This Review Plan is being coordinated with the National Planning Certer of Expertise for Inland Navigation (PCXIN). The PCXIN is responsible for the accomplishment of IEPR for the Calcasieu Lock feasibility study. The DQC is the responsibility of the MSC/District. The PCXIN will manage the IEPR review to be conducted by others.

(8) Review Plan Approval and Posting. In order to ensure the Review Plan is in compliance with the principles of EC 1165-2-209 and the MSC's Quality Management Plan, the Review Plan must be endorsed by the PCXIN and approved by the applicable MSC, in this case the Commander, Mississippi Valley Division (MVD). Once the Review Plan is approved, the District will post it to its district public website and notify MVD and the PCXIN.

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the National Planning Center of Expertise for Inland Navigation (PCXIN).

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to conduct ATR of cost estimates, construction schedules and contingencies.

3. STUDY INFORMATION

a. Decision Document. The title of the decision document to be prepared is "Calcasieu Lock, Calcasieu Parish, Louisiana, Feasibility Report. The study is being undertaken to identify the best long term comprehensive program for maintaining safe and reliable navigation through the lock, while preventing salt water intrusion in the Gulf Intracoastal Waterway (GIWW) east of the Calcasieu River. An Environmental Impact Statement will be prepared and will accompany the Feasibility Report.

b. Study/Project Description.

Project Authorization. The Calcasieu Lock was authorized by the River and Harbor Act of 24 July 1946, Public Law No. 525, 79th Congress, 2d Session, in accordance with the plan outlined in Senate Document No 231. This document recommended modification of the existing project for the Gulf Intracoastal Waterway to provide for a salt-water guard lock in the waterway west of Harvey Lock at or near Mile 238

Study Authorization. The Calcasieu Lock study is being performed under the authority of the following resolutions:

> A resolution adopted by the Committee on Public Works of the United States Senate on September 29, 1972, that the "Board of Engineers for Rivers and Harbors, be, and is hereby, requested to review the reports on the Gulf Intracoastal Waterway (Louisiana-Texas Section, including the Morgan City-Port Allen Route) submitted in House Document 556, 87th Congress, Second Session, and subsequent reports, with a view to determining the advisability of modifying the existing project in any way at this time, particularly with regard to widening and deepening the existing and/or authorized channel."
>
> A resolution adopted by the Committee on Public Works of the United States House of Representatives on October 12, 1972, that the "Board of Engineers for Rivers and Harbors, be, and is hereby, requested to review the reports on the Gulf Intracoastal Waterway (Louisiana-Texas Section, including the Morgan City-Port Allen Route) submitted in House Document 556, 87th Congress, second session, and subsequent reports, with a view to determining the advisability of modifying the existing project in any way at this time, particularly with regard to widening and deepening the existing and/or authorized channel."

History and Purpose of Structure. At a public hearing held at Lake Charles, Louisiana, on 6 June 1944, relative to the deepening of the Calcasieu Ship Channel, the Mermentau Basin Association, Inc. protested such deepening without provision for prevention of saltwater intrusion into the GIWW east of the Calcasieu River. At that time, the Mermentau basin produced about one-fourth of the rice grown in the United States. A model study was conducted at the Waterways Experiment Station (now Engineer Research and Development Center) in Vicksburg, Mississippi, relative to the effects of deepening the Calcasieu Ship Channel on salinity conditions in the GIWW east of the ship channel. The model tests disclosed that salinity advances in the Calcasieu River to and into the GIWW east increased greatly after enlargement of the Calcasieu channel under the project authorized by the River and Harbor Act of 26 August 1937. The test also revealed that under

existing conditions eastward flow into the GIWW from the Calcasieu River, resulting from Mermentau basin pumping withdrawals, involves salinity concentrations in excess of those tolerated by rice growing. These studies led to development of plans and construction of Calcasieu Lock, to serve as a salt-water barrier. Other structures used to prevent saltwater intrusion and tidal flows into the Mermentau basin are Leland Bowman Lock, Schooner Bayou Control Structure and Catfish Point Control Structure. These five structures also provide for draining water from the basin (due to excessive rainfall events). Calcasieu Lock was constructed between 4 October 1948 and 17 December 1950 at a cost of $2,133,527.00.

Project Location and Description. Calcasieu Lock is located at mile 238 on the GIWW, about ½ mile east of the Calcasieu River, in Calcasieu Parish, Louisiana as shown on Figure 1. The lock is approximately 11 miles southwest from the City of Lake Charles, Louisiana. The study area is in Louisiana's 7th Congressional District.

Figure 1. Project Location

The lock's major features are as follows:

Gate Bays. The two soil-founded reinforced concrete gate bays are of U-frame design, 83 feet long and 169 feet wide to provide 75 feet of usable lock chamber width. The floor slab is 6-½ feet thick. The walls are 22 feet high extending from a sill elevation of –13.0 to a top of wall

elevation of +9.0. Each gate bay has two control houses. The gate bays are protected from foundation erosion by 30-foot wide strips of riprap contiguous to each end of each gate bay. The riprap thickness ranges from 5 feet adjacent to the structure to 2 feet at the other extremity, and is underlain by 6-inches of gravel underlain by 6-inches of sand. There are no filling/emptying culverts in the lock.

Gates. The steel gates are of the sector-type design and extend from the sill elevation (-13.0) to the top of wall elevation (+9.0). Viewed in plan, each leaf has a radius of 42 feet from pintle to skin plate and a circumferential length of 51.3 feet. Both gates are oriented with the skin plates facing west, the direction of normal head. Reverse heads occur from the opposite direction. Since there are no culverts, filling and emptying of the lock is accomplished by operation of the gates. Primary gate machinery is of the rack and pinion type. Commercial electric power is normally used to drive hydraulic pumps which actuate hydraulic motors to drive the pinions through speed reducers.

Sector Gate Operating Equipment. T he sector gate operating equipment is a hydraulic system. Main components of the system consist of a rotary hydraulic motor, drive gear, and a hydraulic power unit (HPU). The HPU consists of two electrical motors, a gear pump, valve manifold, gages and hydraulic oil reservoir.

Sector Gate Control. The gates are controlled from the control consoles located in the control houses on the north side of the lock, through a programmable controller.

Lock Chamber. The earth lock chamber is 1,167 feet long between gate bays, providing 1,180 feet of usable lock length. The chamber was excavated to a 75-foot bottom width at elevation -13.0 with 1 on 2 side slopes. The side slopes were protected using articulated concrete mattress, with no underlying bedding or filter material.

Guidewalls. There are six sections of timber guidewalls. The northeast and southwest approach sections are 563-feet long, the chamber sections are 1,167-feet long, the southeast approach section is 257-feet long, and the northwest approach section is 259-feet long. The guidewalls are constructed of timber piles with both timber and plastic wales. The guide wall sections have a 3-foot wide walkway at the top.

Levees. All of the land in the vicinity of the lock is flat, from 2 to 5 feet above sea level. Levees were constructed from the lock east to Highway No. 211. The levees were built to a minimum elevation of +6.0. The south levee was constructed with a 10-foot wide crown and the north levee was constructed with a 30-foot wide crown to accommodate the lock access road. The levees, with the existing highway embankment, prevent salt water bypassing the lock into the Mermentau Basin.

Operation. The lock operates on a 24-hour, 7-day basis. Requirements for rice irrigation, flood control, navigation, fish and wildlife, and drainage are quite divergent and vary with the seasons and with hydrologic events. Therefore, a flexible plan has been developed for the operation of the structures controlling the fresh water reservoir of the Mermentau River Basin. Regulation of the fresh-water reservoir must provide for:

(1) the conservation of fresh water by maintenance of normal lake stages and prevention of uncontrolled tidal inflow during the rice-irrigating season;

(2) the prompt and efficient release of floodwaters during abnormal stages;

(3) the limitation of minimal stages to zero mean low gulf for navigational requirements; and

(4) the periodic operation of gates for fish and wildlife interests when not detrimental to other major interests.

The Calcasieu Lock serves as a barrier preventing salt-water intrusion from the Calcasieu River on the west into the rice-growing Mermentau Basin via the GIWW. During the rice-growing season (March to September), all vessels are locked through the chamber when the water level is approximately Elevation 2.5 feet and below on the Mermentau Basin side. This helps to conserve the freshwater in the basin.

When the water level exceeds Elevation 2.5 feet on the Mermentau Basin side and floodwaters must be released, both gates are fully opened and water is allowed to flow through the lock into Calcasieu Lake, which empties into the Gulf of Mexico.

During the months of October to March the lock is operated according to the differential head and backlog of water traffic. If the differential head (either way) is between zero and approximately ½ foot, the gates may be opened and several tows allowed to pass through the lock, thereby speeding the flow of traffic. For differential heads greater than ½ foot, the gates are used to fill and empty the lock for each lockage.

During the period 1 September to 30 November, gates will be operated as stage conditions require for the overall optimum benefit of flood control, navigation, evacuation of intruded salt water, and fish and wildlife conservation.

Problems and Opportunities. Calcasieu Lock is one of the busiest locks in the nation, processing an average of 15,000 tows per year and moving about 40 million tons per year. Traffic is mostly made up of chemical and petroleum products. LPMS records show average delays usually from 1-2 hours per tow, but, these delay times are misleading. The Calcasieu Lock is used for drainage by opening the gates whenever the head differential reaches a certain level, which occurs approximately 50 percent of the year. The use of the lock for drainage impacts traffic going through the Calcasieu Lock. There are times during these drainage events when tows, with insufficient horsepower, find it difficult to transit the lock and tend to wait until the flow recedes to an extent that will allow them to transit safely. According to the lockmaster, delays during these drainage events can reach levels greater than 24 hours per tow. What should be noted, however, is that the tows that choose to wait also do not call the lock operator expressing an interest to transit. As a result, these delay times are not officially recorded into LPMS.

Both the Calcasieu Lock and the pontoon Bridge on the east side of the lock are relatively old structures, so reliability will be a growing concern. The Lock is nearly 60 years old and the bridge is nearly so. Mechanical failures at both structures have been increasing over time causing delays to navigation.

There is no alternate water route that navigation can use to bypass the lock whenever it is shutdown due to scheduled or unscheduled closures. Consequently, delays can be very significant during these events, especially if the lock is dewatered for maintenance every 10 years with an average 2 month closure time.

c. Factors Affecting the Scope and Level of Review.

The proposed construction components of the project are typical of hydrologic, geotechnical, mechanical, electrical, civil, operational, and real estate components of a navigation lock. The construction methods are not expected to pose any significant challenges or risks.

Some of the potential project locations are in close proximity to commercial businesses, private residences, roads (Highway 384, Airhart Road, Calcasieu Lock Road), a bridge, an NRCS water control structure and marsh areas that may pose challenges for real estate access and construction operations. Reviewers will need to carefully evaluate the constructability of the design with regard the existing Highway 384 bridge across the GIWW.

Other than access and coordination concerns and physical risks typical of construction sites, other project risks include the potential for schedule delays if a weather system (fronts, tropical systems, etc.) impacts the area.

The feasibility study will use tools and data only recently developed as part of the Navigation Economic Technologies (NETS) program and tools still under development by the University of Tennessee. This NETS and University of Tennessee work represents significant new scientific information and tools. These tools and data are being used to evaluate and screen plans that could recommend hundreds of millions of dollars of navigation efficiency improvements. The sufficiency of the GULFNIM model will require special attention. For these reasons, the feasibility study shall be subjected to both an IEPR and an ATR.

There are several planning models that will be used in the study that are in the model certification process or were approved for single use for the ORMSS or Upper Mississippi River Navigation and Environmental Sustainability Program.

It will be import to conduct design review with internal district quality review teams and agency technical review teams concurrent with design activities. This approach is intended to provide a shorter feedback loop to the PDT. These shorter loops will result in more near real-time input to design by reviewers and faster design throughput. The risk to this approach is the dependence on regular and efficient communications between the reviewers and the PDT. Should a divergent conflict arise between the DQC and ATR and the PDT, the issue will be raised to the Mississippi Valley Division office for resolution.

Reviewers will need to carefully evaluate the constructability of the design with regard to keeping the existing lock open during the construction phase.

d. In-Kind Contributions. As a feasibility study of a lock replacement on an inland waterway, the study is funded with 100 percent Federal funds (Section 102, WRDA 1986 (P.L. 99-662)), and there is no non-Federal sponsor requirements.

4. DISTRICT QUALITY CONTROL (DQC)

a. Documentation of DQC. District quality control will be conducted by the New Orleans District for all in-house prepared products in accordance with EC 1165-2-209 and as reflected in the PMP. In accordance with District Quality Management Plans, internal reviews or design checks will constitute quality control for each deliverable product. The DQC technical review team will be comprised of New Orleans District staff members who, to the fullest extent practicable, will not have produced the documents to be reviewed. It is the responsibility of each product development team member, their supervisors, and the project manager to ensure that every product receives an internal quality control review. It is the responsibility of the supervisor or section chief for each team member to ensure that a qualified DCQ Reviewer that has not been involved with the preparation of the technical product under review is selected and conducts a review of their product prior to delivery to the project manager, or prior to completion. The DQC review team will be responsible for performing a technical review of the feasibility report, feasibility report appendices, and EIS. The DQC review will be completed prior to submitting documents for ATR and IEPR. Duties of the DQC team include the following:

(1) Reviewing report contents for compliance with established principles and procedures, using clearly justified and valid assumptions,

(2) Reviewing methods and procedures used to determine appropriateness, correctness and reasonableness of results; and

(3) Providing review team leader with documentation of comments, issues, and decisions arising out of the DQC review. Comments and resolutions will be documented by using DrChecks.

A Certification of Independent Technical Review will be prepared for each product that undergoes DQC. A DrChecks report showing all comments by reviewer and comment resolutions shall be attached to the ITR Certification. ITR documentation shall be submitted concurrently with the product.

DQR's will be conducted as a first pass review of studies, plans and designs. DQR's are command driven; however, DQR's do not replace the need for branch chief oversight and the involvement of District experts as required for achieving the best design and study results.

b. Products to Undergo DQC. District Quality Reviews will evaluate the sufficiency of designs presented and the quality of studies used to select alternatives. Technical products that will be reviewed include:

(1) Engineering (surveys; climatology report; hydrologic records report; HEC-HMS and HEC-RAS model input and output for base conditions, future without and alternative plans; input to HEC-FDA model; lock filling and emptying times using the Sector-Gated Lock Filling and Emptying Program; alternative lock plans; drainage capacity of existing lock and new drainage structure; riprap design; design stages and design differential heads; WQ report and 404(b)(1) report input; H&H input to FSM, AFB, draft and final feasibility report; quantity take-off for channels; preliminary geotech design; soil foundation analysis; geology section; boring and testing results; general mechanical and electrical designs of alternative

plans; general mechanical and electric designs of the tentatively selected plan; mechanical and electrical input to FSM, AFB, draft and final feasibility report; structures design of alternative plans; structures design of tentatively selected plan; relocations report and relocations cost estimate of the alternaives and the tentatively selected plan; construction cost estimates of the alternative plans, tentatively selected plan, and recommended plan; risk analysis of the tentatively selected plan and the recommended plan; and value engineering study)

(2) Economics (commercial traffic data; lock capacity calculations; transportation rate study; traffic forecast; elasticity of demand for water transporation; externality study; reliability analysis; GULFNIM run for baseline condition; GULFNIM run for with project alternatives; benefits sensitivity analysis; flood damage products)

(3) Environmental (scoping report; environmental setting and significant resources; description of alternatives; most probable future condition; WVA / HES / HEP / Modified Charleston models; alternative plans impacts; mitigation plan; 404(b)(1) evaluation and public notice; WQC applications and newpaper ad; coastal zone consistency determination documents; air quality determination documents; preliminary draft EIS; preliminary draft feasibility report document; draft EIS, draft feasibility report document; public review transmittal letters; initial cultural resources evaluations; cultural resources scope of work; cultural resources input to feasibility report; recreational input to feasibility report; evaluation of aesthetics report; HTRW initial assessment and investigations docments; final EIS; final feasibility report document; and draft Record of Decision)

(4) Real estate (real estate appraisal; gross appraisal report; Real Estate Plan for FSM, AFB, draft feasibility report, and final feasibility report)

(5) Attorney's Preliminary Opinion of Compensability

Where practicable, these technical products that support subsequent analyses should be reviewed prior to being used in the study.

Additionally, the PDT will be responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices and the recommendations before the approval by the District Commander.

c. Required DQC Expertise. The DQC reviewers will be chosen from a pool of reviewers submitted by each technical element. The team will be made up of individuals who are familiar with the feasibility study design procedures but were not involved in the feasibility study. A copy of the QCP will be distributed to each member of the team. The QC process will be structured to maintain the principle of one level of technical review, with the number and type of Review Team members actually used dependent upon the level of detail in the report, the focus of the product, the consequence of errors, the overall technical complexity of the project features, and the project risk.

The DQC Team will be comprised of the same discipilines on the PDT and will have experience in the type of analysis in which they are responsible for reviewing. Each DQC Reviewer will be senior or equal in experience to the analyst or production person. The makeup of the DQC Team may be modified as the study progresses to match the review requirements.

DCQ Reviewers will consist of representatives from Plan Formulation Branch (Plan Formulation), Economics and Social Analysis Branch (Economics, Socio-Economics), Environmental Planning and Compliance Branch (NEPA, Cultural Resources, Recreation, HTRW), Hydraulics and Hydrology (drainage modeling, lock filling and emptying,channel and lock alignments, water quality), Geotechnical Branch (Geotechnical), Civil Branch (waterways design), Design Services Branch(relocations, cost estimates, GIS, surveys), Structures Branch (structural), and Acquisition and Leasing Branch (real estate plan, appraisals).

5. AGENCY TECHNICAL REVIEW (ATR)

a. Products to Undergo ATR. Specific products to undergo ATR include the following:

(1) Geotechnical Design Report

(2) H&H HEC-HMS, HEC-RAS, and lock filling and emptying system modeling

(3) Construction Cost Estimates

(4) Operation & Maintenance Cost Estimates

(5) Economic Analysis

(6) Feasibility Scoping Meeting documentation

(7) Alternative Formulation Briefing documentation

(8) Draft Feasibility Report/Environmental Impact Statement with supporting appendicies

(9) Final Feasibility Report/Environmental Impact Statement with supporting appendiceis

b. Required ATR Team Expertise. Additional team members for expertise in other disciplines may be added by the ATR Lead as the review progresses.

ATR Team Members/Disciplines	Expertise Required
ATR Lead/Planning	The ATR Lead/Planning reviewer should be a senior professional/water resources planner with extensive experience in preparing Civil Works decision documents and conducting ATR. The ATR Lead/Planning reviewer should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR Lead/Planning reviewer should have 10 – 15 years experience as a plan formulator who has worked with project teams to identify and evaluate navigation (lock replacement) measures and alternatives using appropriate planning methodologies to address navigation studies in accordance with

ATR Team Members/Disciplines	Expertise Required
	ER 1105-2-100, the Planning Guidance Notebook. Must have extensive plan formulation experience reviewing the analysis with which the measures and alternatives were evaluated and determining that they are sufficiently comprehensive and complete to result in approval of a recommended alternative. Review the documentation of the selection of a recommended plan and ensure the team used an approved plan selection methodology.
Economics	The Economics reviewer should have 5-10 years USACE economics experience or equivalent education. Should have extensive experience in analyzing navigation and flood risk management projects in accordance with ER 1105-2-100, the Planning Guidance Notebook. Should have economics experience working with the USACE risk informed approach to decision making, risk models and disaster scenarios with regard to economic impact. Should also have at least two years direct experience in the areas of forecasting, externalities, capacity, navigation performance, system reliability, transportation rates, and the HEC-FDA modeling software.
Environmental Resources	The Environmental Resources reviewer should have 5-10 years environmental resources experience or equivalent education. Should have extensive experience working with the assessment of construction impacts in marsh and rural areas and related ecosystem species and habitat. Should have environmental resources experience working on design or construction teams that worked on navigation projects including lock replacements in or around a coastal inland waterway system. Should have detailed knowledge of the National Environmental Protection Act, Endangered Species Act with regional knowledge of south Louisiana specific regulatory requirements, and Federal services regulations.
Hydrology & Hydraulic (H&H) Engineering	The H&H Engineering reviewer should have 10 years H&H experience or equivalent education. Should have extensive H&H experience on a design on construction team that worked on navigation (lock replacement)and flood risk reduction projects. Must be experience in computer modeling techniques such as HEC-HMS, HEC-RAS, lock filling and emptying system, etc.
Geotechnical Engineering	The Geotechnical Engineering reviewer should have at least 10 years geotechnical engineering experience and graduate study in engineering or a related field. Should have several years of direct geotechnical experience on design or construction teams that worked on navigation (lock replacement) projects in a coastal inland waterway system.
Civil Engineering	The Civil Engineering reviewer should have at least 10 years civil engineering experience or equivalent education. Should have extensive civil engineering experience on design or construction

ATR Team Members/Disciplines	Expertise Required
	teams related to navigation (lock replacement) projects elements such channels.
Structural Engineering	The Structural Engineering reviewer should have at least 10 years structural engineering experience or equivalent education. Should have extensive structural engineering experience on design or construction teams that worked on navigation (lock replacement) projects elements such as lock gates and gate bays, lock chambers, lock guidewalls, and levees. Should have design experience evaluating reinforced concrete structures and steel gates.
Electrical Engineering	The Electrical Engineering reviewer should have 5-10 years electrical engineering experience or equivalent education. Should have extensive electrical engineering experience on design or construction teams that worked on navigation (lock replacement) project elements such as navigation gates, gate controllers and electrical service. Should have design experience evaluating navigation gates, gate controllers and electrical service.
Mechanical Engineering	The Mechanical Engineering reviewer should have 5-10 years mechanical engineering experience or equivalent education. Should have extensive mechanical engineering experience on design or construction teams that worked on navigation (lock replacement) project elements such as navigation gates operating equipment. Should have design experience evaluating navigation gates operating equipment.
Cost Engineering	The Cost Engineering reviewer should have 5-10 years experience working with estimating complex, phased costing of multi-year civil construction projects. Should have direct experience working with navigation(lock replacement) projects in a design or construction management capacity.
Construction	The Construction reviewer should have 10 years construction experience or equivalent education assessing navigation (lock replacement) projects. Should have extensive construction management experience on design or construction teams that worked on navigation (lock replacement) projects in the coastal inland waterway system.
Operations	The Operations reviewer should have 10 years operations experience or equivalent education assessing navigation (lock replacement) projects. Should have extensive construction management experience on design or construction teams that worked on navigation (lock replacement) projects in the coastal inland waterway system.

c. **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 AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

a. Decision on IEPR. In accordance with EC 1165-2-209, Paragraph 11.d.(1), a Type I IEPR will be mandatory for the Calcasieu Lock feasibility study as the cost of the project will exceed the $45

million threshold. Additionally, the potential alignment of the new lock could be controversial as alternatives encroach on commercial and residential areas and will impact Highway 364. An Environmental Impact Statement will be prepared as part of the feasibility study.

A Type II IEPR to include safety assurance will not be performed during the feasibility phase and will not be required during the design (Preconstruction Engineering and Design) and construction phase.

b. Products to Undergo Type I IEPR. Products to undergo the Type I IEPR include:

(1) Draft Feasibility Report/Environmental Impact Statement with supporting documentation.

c. Required Type I IEPR Panel Expertise. Additional team members for expertise in other disciplines may be added by the RMO as the review progresses

IEPR Panel Members/Disciplines	Expertise Required
Planning	The Planning panel member should be from academia, a public agency, a non-governmental entity, or an Architect-Engineer or Consulting Firm with at least a Bachelors degree and have 15 years demonstrated experience as a senior water resources planner who has worked with project teams to identify and evaluate measures and alternatives using appropriate planning methodologies to address navigation (lock replacement) projects in a coastal inland waterway system. Must have extensive experience reviewing the analysis with which the measures and alternatives were evaluated and determining that they are sufficiently comprehensive and complete to result in approval of a recommended alternative. Review the documentation of the selection of a recommended plan and ensure the team used an approved plan selection methodology. Five years experience directly dealing with USACE planning process as outlined in ER 1105-2-100, Planning Guidance Notebook, is highly recommended.
Economics	The Economics panel member should 15 years demonstrated experience or combined equivalent of education and experience. Should have MS degree or higher in economics and be a recognized expert in applied economices related to transportation economics including experience with financing transportation infrastructure and national and international logistics and transportation requirements. Should have experience working with risk informed approaches to decision making, risk models and disaster scenarios with regard to economic impact.
Environmental	The Environmental panel member should be a scientist from academia, a public agency, a non-government entity, or an Architect-Engineer or Consulting Firm with a minimum 15 demonstrated experience working with the NEPA impact assessment of public works projects. The panal member should have a minimum MS degree or higher in an appropriate field of

IEPR Panel Members/Disciplines	Expertise Required
	study. Experience should encompass determining the scope and appropriate methodologies for environmental impact analyses for projects and programs with high public and interagency interests and having project impacts to nearby sensitive habitats along the GIWW or similar systems. Should have detailed knowledge of the National Environmental Protection Act, Endangered Species Act with regional knowledge of south Louisiana specific regulatory requirements, and Federal services regulations. Active participation in related professional societies is encouraged.
Hydrology and Hydraulic (H&H) Engineering	The H&H Engineering panel member should have 15 years demonstrated experience or combined equivalent of education and experience assessing navigation (lock replacement) projects in an inland waterway system. Member should be a Registered Professional Engineer from academia, a public agency, or an Architect-Engineer or Consulting Firm with at least a Bachelors degree. Should have direct H&H design or construction management experience centered around lock and dam design and construction along the coastal inland waterway system. Should also have 5-10 years experience working with numerical modeling applications for flood risk reduction projects. Should be familiar with USACE applications of risk and uncertainty analysis in navigation transportation projects. Active participation in related professional societies is encouraged.
Geotechnical Engineering	The Geotechnical Engineering panel member should have a minimum 20 years demonstrated experience and graduate study in soils engineering or related field. Member should be a Registered Professional Engineer from academia, a public agency, or an Architect-Engineer or Consulting Firm with at least a MS degree. Must have lock and dam design and construction experience. Should have several years of direct experience with regard to locks and dams as either a designer or construction project engineer. Must be skillful with the USACE risk informed approach to navigation transportation and flood risk reduction projects. Active participation in related professional societies is encouraged.
Structural Engineering	The Structural Engineering panel member should have a minimum 15 years demonstrated civil engineering experience or combined equivalent of education and experience assessing navigation (lock replacement) projects. Member should be a Registered Professional Engineer from academia, a public agency, or an Architect-Engineer or Consulting Firm with at least a Bachelors degree. Should have direct civil engineering design or construction management experience with regard to lock gates and gate bays, lock chambers, lock guidewalls, levees, reinforced concrete structures, and steel gates. Active participation in related professional societies is encouraged.

IEPR Panel Members/Disciplines	Expertise Required
Cost Engineering	The Cost Engineering panel member should have a miminum 15 years demonstrated experience or combined equivalent of education and experience working with extimating complex, phased costing of multi-year civil works construction projects. Member should be a Registered Professional Engineer from academia, a public agency, or an Architect-Engineer or Consulting Firm with at least a Bachelors degree. Should have direct experience working with navigation (lock replacement) projects in a design or construction management capacity. Active participation in related professional societies is encouraged.

d. Documentation of Type I IEPR. The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. Panel comments will be compiled by the OEO 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 4.d above.

In accordance with EC 1165-2-209, the IEPR panel must be provided with a statement of work and charge questions. Below are the charge questions which need to be answered. HQ is currently coordinating an effort to develop standardized list of questions for IEPR and this list will be updated accordingly.

(1) In accordance with ER 1110-2-1150, are the quality and quantity of the surveys, investigations, and engineering sufficient for the design?

(2) Are the engineering and planning models used to assess hazards appropriate, properly certified and used consistent with their intended purpose?

(3) Are the assumptions made for the hazards appropriate?

(4) Does the analysis adequately address the uncertainty given the consequences associated with the potential for loss of life for this type of project?

(5) Do the assumptions made during the decision document phase for hazards remain valid through the completion of design as additional knowledge is gained and the state-of-the-art evolves?

(6) Do the project features adequately address redundancy, robustness, and resiliency with an emphasis on interfaces between structures, materials, members, and project phases?

(7) Do the assumptions made during design remain valid through construction?

(8) Have the proper alternatives to meet the project objectives been adequately considered?

(9) Is the recommended plan the most prudent development of the selected alternative?

The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

(1) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;

(2) Include the charge to the reviewers;

(3) Describe the nature of their review and their findings and conclusions; and

(4) 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 OEO 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.

7. MODEL CERTIFICATION AND APPROVAL

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

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HEC-FDA: 1.2.4 (Flood Damage Analysis)	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 will be used to evaluate and compare the future without- and with-project plans along the GIWW at Calcasieu Lock to aid in the selection of a recommended plan to manage flood risk associated with the lock operations.	Certified
Gulf Navigation Investment Model	Gulf Navigation Investment Model (GULFNIM) – Developed by the Center for Transportation Analysis (CTA) in cooperation with the Great Lakes and Ohio River Division of the Corps of Engineers (LRD), GULFNIM is a three component model; the Waterway Supply and Demand Module (WSDM), the Lock Risk Module (LRM), and the Optimization Module. The three components of the GULFNIM model determine shipper equilibrium, use a Monte Carlo simulation to determine closure probabilities, and optimize investments, respectively.	To Be Certified

Wetland Value Assessment (WVA)	The United States Fish and Wildlife Service Habitat Evaluation Procedure (HEP) (USFWS, 1980) (certified) was used to evaluate habitat conditions that would result from alternative plans. A habitat suitability index (HSI) for indicator species is derived by aggregating suitability indices (SIs) critical for habitat variables. These SIs are based on field measurements for existing conditions and on professional judgment for future conditions under alternative plans. The index ranges from 0.0 to 1.0, with 1.0 representing the highest habitat quality possible. A habitat unit (HU) is the product of the HSI multiplied by an area (acre) of available habitat. HSIs and Hus were developed for different times during the period of analysis (at year 1, 15, 25, and 50), and HUs are annualized to estimate an average annual habitat unit (AAHU). In this system, future habitat conditions can be estimated for both baseline (without project) and design (with project) conditions. Projected long-term effects of the project can be predicted using Average Annual Habitat Unit (AAHU) values. Based on the AAHU outcomes, alternative designs can be formulated and trade-off analyses can be simulated to promote environmental optimization. AAHUs are determined by multiplying the HSI by the number of acres in the study area, and therefore, HEP provides information for two general types of wildlife habitat comparisons. The first is the relative value of different areas at the same point in time. The second is the relative value of the same area at future points. Therefore, the impact of land and water use changes on wildlife habitat can be estimated.	Certified

b. Engineering Models. The following engineering models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study
HEC-HMS 3.3 (Hydrologic Modeling System)	The Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS) program simulates precipitation-runoff processes. The program will be used to evaluate the future without- and with-project conditions along the the GIWW in the vicinity of the Calcasieu Lock. [For a particular study the model could be used for unsteady flow analysis or both steady and unsteady flow analysis. Explain how the model will be used for this feasibility study.
HEC-RAS 4.0 (River Analysis System)	The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for steady flow analysis to evaluate the future without- and with-project conditions along the GIWW in the vicinity of the Calcasieu Lock. Explain how the model will be used for this feasibility study.

8. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. ATR is currently estimated to be $xxx,xxx. ATR is a project cost and will be cost-shared expense. The current schedule for the ATR milestones are shown below.

Product	Start Date	Finish Date
Geotechncial Design Report		
H&H HEC-HMS Modeling		
H&H HEC-RAS Modeling		
H&H Lock Filling and Emptying System Modeling		
Construction Cost Estimates		
Operation and Maintenance Cost Esimates		
Economic Analysis (GULFNIM)		
Feasibility Scoping Meeting documentation		
Alternative Formulation Briefing documentation		
Draft Feasibility Report/Environmental Impact Statement with supporting appendices		
Final Feasibility Report/Environmental Impact Statement with supporting appendices		

The ATR schedule and milestones will be reviewed by the PDT and the ATR team after the ATR team has been established. Scheduled milestones will be reviewed on a regular basis to accurately determine study progress.

Additionally, the ATR budget will be reviewed by the PDT and ATR team and reviewed regularly for progress reporting.

b. Type I IEPR Schedule and Cost. The cost of IEPR is currently estimated to be $150,000. IEPR is a project cost. The IEPR panel review will be Federally-funded and is currently estimated to be $150,000. In-house costs associated with facilitatin g the IEPR, obtraining the IEPR panel contract as well as responding to IEPR comments will be cost-shared expenses. The current schedule for the two IEPR milestones are shown below.

Product	Start Date	Finish Date
Draft Feasibility Report/Environmental Impact Statement with supporting appendices		

The IEPR schedule and milestones will be reviewed by the PDT and the PCXIN Lead after the IEPR team has been established. Scheduled milestones will be reviewed on a regular basis to accurately determine study progress.

Additionally, the IEPR budget will be reviewed by the PDT team and the PCXIN Lead and reviewed regularly for progress reporting.

c. **Model Certification/Approval Schedule and Cost.** The cost to certify the GULFNIM model is currently estimated to be $150,000. At this time the schedule for certification of the GULFNIM model is not known.

9. PUBLIC PARTICIPATION

The public will have several opportunities to comment on the feasibility study documents through a public involvement plan implemented through a notice of study initiation, public meetings, and public workshops. This will allow the USACE the opportunity to exchange information with the public and insure 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.

Public meetings and workshops will be conducted to gather and provide feedback from the public, formulate a consensus, and generally keep interested parties informed. A public meeting will be scheduled subsequent ot the pbulci release of the draft feasibility report and environmental impact statement to present the study conclusions. Throughout the study other public meetings and workshops will be held as necessary.

Although all comments will not be provided to the ATR team, significant and relevant public comments will have been addressed prior to ATR submittal. Any major changes in the study resulting from these comments will be made available to the PCX.

10. REVIEW PLAN APPROVAL AND UPDATES

The Mississippi Valley Division 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.

11. REVIEW PLAN POINTS OF CONTACT

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

- Jeffry J Varisco
  Project Manager
  U.S. Army Corps of Engineers, New Orleans District

(504) 862-2853

- Marti M Lucore
  Senior Project Manager
  U.S. Army Corps of Engineers, New Orleans District
  (504) 862-2057

- Mincer Minor
  Navigation Program Manager
  U.S. Army Corps of Engineers, Mississippi Valley Division
  (601) 634-5841

- John Zimmerman
  Chief, Planning and Policy Division
  National Planning Center of Expertise for Inland Navigation (RMO)
  (513) 684-3488

ATTACHMENT 1: TEAM ROSTERS

Project Delivery Team Members			
Discipline	**Name**	**Phone**	**Email**
USACE			
Project Management			
Senior Project Manager	Marti M Lucore	(504) 862-2057	Martha.M.Lucore@usace.army.mil
Project Manager	Jeffrey J Varisco	(504) 862-2853	Jeffrey.J.Varisco@usace.army.mil
Planning Division			
Plan Formulator	Marshall B. Plumley	(309) 794-5447	Marshall.B.Plumley@usace.army.mil
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Economist	Kevin Levetro	(504) 862-1917	Kevin.Lovetro@usace.army.mil
Economist	Matthew P Napolitano	(504) 862-2445	Matthew.P.Napolitano@usace.army.mil
Economist	Courtney R Reed	(504) 862-1913	Courtney.R.Reed@usace.army.mil
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Cultural Resources	Ron W. Deiss	(309) 794-5185	Ron.W.Deiss@usace.army.mil
Recreation Planner	Diane E. Karnash	(309)-794-5006	Diane.E.Karnish@usace.army.mil
Archeologist	Rebecca Hill	(504) 862-1474	Rebecca.Hill@usace.army.mil
Environmental Resources Specialist	Kellen A Smith	(504) 862-2347	Kellen.A.Smith@usace.army.mil
Aestehtics	Diane E. Karnash	(309)-794-5006	Diane.E.Karnish@usace.army.mil
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Geotechnical Engineer	Jeremy P Daigle	(504) 862-2170	Jeremy.P.Daigle@usace.army.mil
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Hydraulic Engineer	Mayra A Flores	(504) 862-2459	Myra.A.Flores@usace.army.mil
H&H/Water Quality	Eric J. Glisch	(504-862-2066	Eric J. Glisch@usace.army.mil
Design Services (ED-SE)	Andre D. DeHaan	(504) 862-2324	Andre.D.Dehaan@usace.army.mil
Cost Engineering	Benjamin E. Salamone	(504) 862-1676	Benjamin.E.Salamone@usace.army.mil
Civil Branch (ED-L)	Brian M Leaumont	(504) 862-2777	Brian.M.Leaumont@usace.army.mil
Relocations			
Structures	Rob M Dauenhauer	(504) 862-1840	Rob.M.Dauenhauer@usace.army.mil
GIS	Andre D Dehaan	(504) 862-2324	Andre.D.Dehaan@usace.army.mil

Project Delivery Team Members			
Discipline	**Name**	**Phone**	**Email**
Office of Counsel			
Counsel	Mary V Kinsey	(504) 862-2828	Mary.V.Kinsey@usace.army.mil
Operations Division			
Operations & Maintenance	Doyle E Hunt	(504) 862-2306	Doyle.E.Hunt@usace.army.mil
Operations & Maintenance (Calcasieu Lock)	Kevin G Galley	(337) 477-1482	Kevin.G.Galley@usace.army.mil
Real Estate			
Realty Specialist	Karen E Vance	(504) 862-1349	Karen.E.Vance@usace.army.mil
PCXIN			
Regional Economist	Mark R Hammond	(304) 399-6928	Mark.R.Hammond@usace.army.mil
Regional Economist	Dale W Kelz	(304) 399-6939	Dale.W.Kelz@usace.army.mil
Regional Economist	Virgil L Langdon, Jr.	(304) 399-6957	Virgil.L.Langdon.JR@usace.army.mil
IWR			
Economist	Mark W Lisney	(502) 499-5675	Mark.W.Lisney@usace.army.mil
Economist	Bill Frechione (LRP)	(412) 395-7207	William.Frechione@usace.army.mil
Contractors			
GEC	Kevin Horn		Khorn@gecinc.com
GICA	Ray Sick		rpsick@eprod.com

Project Delivery Team Members			
Discipline	Name	Phone	Email

Vertical Team Members			
Name	Discipline	Phone	Email

District Quality Control Team Reviewers			
Name	Discipline	Phone	Email

Agency Technical Review Team Members			
Name	Discipline	Phone	Email
Mark Hammond	PCX-CSDR Lead		

Independent External Peer Review Panal Members		
Name	**Discipline**	**Education & Experience**

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 DrChecks[sm].

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

SIGNATURE _____ _____
Jeffrey Varisco Date
Project Manager
PM-W

SIGNATURE _____ _____
Name Date
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 _____ _____
Name Date
Chief, Engineering Division
Office Symbol

SIGNATURE _____ _____
Name Date
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
12/13/2010	Updated Review Plan to be consistent with new RP model	Report Wide

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

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