DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, MISSISSIPPI VALLEY DIVISION
1400 WALNUT STREET
VICKSBURG, MS 39180-3262

22 JUL 2019

CEMVD-ZA

MEMORANDUM FOR Commander, New Orleans District

SUBJECT: Approval of the Review Plan for the Freshwater Bayou Lock Structure, Sector Gate Replacement Project

1. References:

a. Memorandum, CEMVN-EDS, 12 April 2019, subject: Implementation Review Plan (RP) for Freshwater Bayou Lock Sector Gate Replacement (encl 1).

b. EC 1165-2-217, Review Policy for Civil Works, 20 February 2018.

2. The enclosed Review Plan (RP) (encl 2) which includes the memorandum from the Inland Navigation Design Center for the Freshwater Bayou Lock Structure, Sector Gate Replacement Project has been coordinated with MVD's Program Support Division, MVD's Business Technical Division, and the Inland Navigation Design Center, and all have concurred.

3. I hereby approve this RP, which is subject to change as circumstances require, consistent with project development under the Project Management Business Process. Subsequent revisions to this RP or its execution will require new written approval from this office. Non-substantive changes to this RP do not require further approval. The district should post the approved RP to its website.

4. The MVD point of contact for this action is Ms. Louise Williams, CEMVD-PDM, (601) 634-5841.

[redacted]

2 Encls

RICHARD G. KAISER
Major General, USA
Commanding

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
7400 LEAKE AVE
NEW ORLEANS LA 70118-3651

CEMVN-EDS

12 Apr 19

MEMORANDUM FOR Commander, Mississippi Valley Division (CEMVD-RB-T/ Mike Turner)

SUBJECT: Implementation Review Plan (RP) for Freshwater Bayou Lock Sector Gate Replacement

1. As required by EC 1165-2-217, the New Orleans District's Implementation RP for the Freshwater Bayou Lock Sector Gate Replacement requires your review and approval.

2. Enclosed is the Implementation RP for the Freshwater Bayou Lock Sector Gate Replacement contract.

3. The Review Management Organization (RMO), Inland Navigation Design Center (INDC) has endorsed the RP.

4. New Orleans District's Chief, Engineering Division, recommends approval of the subject Implementation RP.

5. POCs for this action are Mr. David P. Lovett Jr., P.E., Supervisory Civil Engineer, Engineering Division, Structures Branch, at 504-862-2680, and Mr. John Behrens, Technical Manager, INDC, at 309-794-5620.

[redacted]

Encl

MICHAEL N. CLANCY
COL, EN
Commanding

Enclosure 1

US Army Corps of Engineers®

Prepared by:

New Orleans District
Mississippi Valley Division

Freshwater Bayou, Freshwater Bayou Lock Structure, Sector Gate Replacement

Review Plan

PREPARED BY:

[redacted]

David Lovett, P.E.
Lead Engineer, Engineering Division, Structures Branch
USACE, New Orleans District

ENDORSED BY:

[redacted]

Frederick R. Joers, P.E.
Director
Inland Navigation Design Center
USACE, Rock Island District

[redacted]

Michael A. Turner, P.E.
Chief, Business Technical Division

[redacted]

Richard G. Kaiser
Major General, U.S. Army
Commander

Last Revision Date: *6/11/2019*

Section 1
Introduction

1.1 Purpose

This Review Plan (RP) for Freshwater Bayou Lock Structure, Sector Gate Replacement will help ensure a quality-engineering project is developed by the Corps of Engineers in accordance with EC 1165-2-217, "Review Policy for Civil Works". As part of the Project Management Plan this RP establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products. It lays out a value added process and describes the scope of review for the current phase of work. The EC outlines five general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Review, Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. This RP will be provided to the Project Delivery Team (PDT), and the DQC, ATR, and BCOES. The technical review efforts addressed in this RP, DQC and ATR, are to augment and complement the policy review processes. The District Chief of Engineering has assessed that the life safety risk of this minor work to design and construct a new set of sector gates to replace the existing gates at the north end of Freshwater Bayou Lock is not significant; therefore a Type II IEPR/Safety Assurance Review (SAR) will not be required, see Section 6.

1.2 References

- EC 1165-2-217, Review Policy For Civil Works, 20 February 2018
- ER 1110-1-12, Quality Management, 31 Mar 2011
- ER 415-1-11, Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Reviews, 31 July 2018
- QMS Process 22800- MVN Quality Control (QC) for USACE Prepared E&D Products and Technical Engineering Work Items

1.3 Review Management Organization

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for this project is the Inland Navigation Design Center (INDC).

Section 2
Project Description

2.1 Project Description

The Freshwater Bayou Lock was constructed under Contract No. DA-16-047-CIVENG-65-323 at a total cost of $4,265,300.00. Work started on 3 August 1965 and was completed on 28 August 1968 and opened to navigation in July 1968. The lock is located 1.4 miles inland from the Gulf shoreline approximately 20 miles south of Intracoastal City in Vermillion Parish, Louisiana. The lock prevents excessive drainage of the marsh and saltwater intrusion associated with normal high tides. It also protects wildlife by minimizing tide effects.

The project consists of two reinforced concrete gate bays, each 90 feet long with 84-foot wide chambers, supported on untreated timber piling. The gate bays are connected by 561 feet of earthen chamber, with 1V on 4H side slopes, having timber chamber walls on each side. The chamber bottom is 84 feet wide by 600 feet useable length. The northwest approach channel guide wall extends approximately 323 feet from the lock gate bay and consists of plastic piles and plastic wales. The southwest approach channel guide wall extends approximately 323 feet from the lock gate bay and consists of timber piles and plastic wales. Tops of gate bay walls and walkways on both chamber walls and guide walls are at EL +9.0 with gate bay sills and chamber floor at EL -16.0. In each gate bay, two 70-degree steel sector gates are individually operated by an electro-hydraulic system operating a mechanical drive. The gates are spaced 651 feet center-to-center of pintles and were designed to operate against a five-foot differential head in either direction. The sector gates were protected against corrosion by an impressed current cathodic protection system until 1977. This system was replaced with a sacrificial anode cathodic protection system during the 1977 dewatering.

The condition of the north sector gates is considered poor as it is in an advanced state of deterioration. Therefore, a new set of sector gates will be designed and fabricated. The gates will be modernized and detailing will be improved to minimize fatigue/fracture concerns. The design will also be updated as necessary with respect to materials and fabrication requirements consistent with current guidance. Each gate will consist of a pintle socket pipe column and hinge pin housing integrally framed with horizontal and vertical trusses supporting vertical ribs faced with a continuous skin plate. Gate leaves shall be completely shop fabricated. The fabricator must have the new AISC certification for HSS or the AISC bridge certification. The sector gate will be designed according to the Allowable Stress Design requirements of EM 1110-2-2105 and the AISC ASD 9th edition. The new sector gate will be designed to operate against a five-foot differential head in either direction as the original design. However, it will be designed for a new boat impact load of 125 kips as specified by EM 1110-2-2703, instead of the previous 120 kips.

Section 3
Risk Informed Decisions on Appropriate Review

3.1 Project Risks

(1) Fracture Critical Member Fabrication
(2) Fabrication Sequencing to minimize warping and built-in stresses
(3) Delivery of large Hydraulic Steel Structures
(4) Design for longevity in saltwater environment
(5) Quality Control during fabrication
(6) Connection of new gate to existing hinge and pintle anchorage

3.2 Risk Analysis

The Freshwater Bayou Gate Fabrication project will require DQC and ATR level reviews to mitigate the potential risks related to the welding of hydraulic steel structures and fracture critical members. Each gate structure is composed of structural wide flange sections with wide flange horizontal beams supporting the vertical ribs and skin plate. The top chords of the sector gate will be the primary tension members of the structure and considered to be fracture critical members of the structure. Detailed analysis may indicate additional fracture critical members.

To mitigate these risks, all design methodology, weld procedure requirements, and weld detailing will undergo ATR review by technical experts from the Welding and Metallurgy Technical Center of Expertise and Inland Navigation Design Center (INDC). Additionally, risk will be addressed through the completion of formal DQC, BCOES, and Supervisory reviews. The New Orleans Engineering, Operations and District Safety Officers will also review the fabrication plans and specifications to ensure requirements of EM 385-1-1 are met. These independent reviews will ensure project safety, quality, and performance.

The delivery of similar gate structures have been successfully done by barge within the past 10 years. Therefore, the risk of having the completed gates not delivered due to size or weight is mitigated by past successful deliveries.

The replacement gates are being placed in a severe saltwater environment and corrosion and section loss of the structural members is a major concern over time. To mitigate these concerns, the design team will investigate sacrificial steel thickness and impressed current monitoring systems during design to extend the life of the gates.

To ensure proper connections to the existing hinge and pintle anchorages, gate components tying into the existing components will be provided with extra machine stock. After MVN HL removes the existing gates, a service contract can be awarded to measure the surfaces of the existing hinge and pintle and then perform final machining on the new components to ensure proper match to the existing. Additionally, the gate design is being performed to maintain equivalent loading on the hinge and pintle anchorage assemblies to ensure they are not overloaded by the new gates.

Ensuring sufficient quality control/assurance during construction is a risk in all USACE projects. The complexity and criticality of Hydraulic Steel Structures (HSS) makes proper QC/QA an even bigger priority on this gate fabrication contract. The contract will require AISC certifications for the fabricator to set minimum qualifications of the fabricator from a QC standpoint. Additionally, all FCM welds will be required to be NDT tested along with a random sampling of other welds. QA will also be critical to ensuring a

quality fabricated product. MVN will hire a third party testing firm to perform supplemental NDT testing on selected welds. MVN will work to staff a QA inspector who has sufficient technical background on steel fabrication. These QA activities will also be supplemented with staff from the USACE Welding and Metallurgy Technical Center of Expertise.

Section 4
District Quality Control

4.1 Requirements

All implementation documents (including supporting data, analyses, reports, environmental compliance documents, water control manuals, etc.) shall undergo DQC in accordance EC 1165-2-217. All computations, drawings or sketches shall undergo a rigorous independent check as part of the standard Quality Control (QC) process. Quality checks may be performed by staff responsible for the work, such as supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel. However, they should not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts. Quality Checks include a review of the alternatives considered, schedules, budgets, means and methods of construction, and have lessons learned been considered. DQC is assuring the math and assumptions are correct by having a checker initial each sheet of the computations. Checking is accompanied by a red dot, check mark or similar annotation next to the item that has been checked. For drawings the checker shall place a red dot, check mark or similar annotation on each dimension/elevation, note or reference showing concurrence with the correctness of the information show. Additionally, the PDT is responsible to ensure consistency and effective coordination across all project disciplines during project design and construction management. See Attachment 1 for PDT and DQC members and disciplines.

4.2 Documentation

Documentation of DQC activities is required and will be implemented by the process linked/described in paragraph 4.1. The checked versions of the documents that undergo DQC will be scanned and made an appendix to the DDR.

4.3 DQC Schedule and Estimated Cost

Although DQC is always seamless, the following milestone reviews are schedule in Table 1. The cost for the DQC is approximately $10,000.

Project Phase/Submittal	Review Start Date	Review End Date
DQC Final P&S Review	03/11/2019	04/03/2019

Table 1 DQC Schedule

Section 5
Agency Technical Review

5.1 Requirement

All implementation documents (including supporting data, analyses, reports, environmental compliance documents, water control manuals, etc.) shall undergo ATR in accordance EC 1165-2-217. ATR reviews will occur seamlessly at the scheduled milestones as shown in Section 5.7. A site visit will not be scheduled for the ATR Team.

5.1.1 Required ATR Team Expertises

ATR teams will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), etc.), and may be supplemented by outside experts as appropriate. The disciplines represented on the ATR team will reflect the significant disciplines involved in the planning, engineering, design, and construction effort. This project will require review by structural engineers. Specifically, the ATR team shall have expertise related to design and fabrication of navigation lock components and HSS such as gates. To assure independence, the leader of the ATR team will be outside of the MSC. A list of the ATR members and disciplines is provided below. The chief criterion for being a member of the ATR team is knowledge of the technical discipline.

5.2 General

ATR will be managed and performed outside of the New Orleans District. EC 1165-2-217 requires that the INDC is to serve as the RMO for this project. As required, there will be appropriate coordination and processing through CoPs; relevant PCXs, and other relevant offices to ensure that a review team with appropriate independence and expertise is assembled and a cohesive and comprehensive review is accomplished. The ATR shall ensure that the product is consistent with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and the results in a reasonably clear manner for the public and decision makers. Members of the ATR team will be from outside the New Orleans District. The ATR lead will be from outside the Mississippi River Valley Division.

5.3 Documentation of ATR

Documentation of ATR will occur using the requirements of EC 1165-2-217. This includes the four part comment structure and the use of DrChecks^{SM}. ATR may be certified when all ATR concerns are either resolved or referred to HQUSACE for resolution and the ATR documentation is complete. Certification of ATR should be completed, based on work reviewed to date, for the DDR and Plans and Specifications. A sample ATR certification form is included as Attachment 4.

5.4 Products to Undergo ATR

The 95% P&S and Design Documentation Report (DDR) will undergo ATR. While it is typically preferred to involve the ATR team at the front end of the design process, the design and fabrication of the sector gates will essentially be a replacement in-kind using improved and tested materials. Therefore, there are

no innovative materials or construction techniques needed to complete the project. Also, members of the design team have recent experience with designing similar hydraulic steel structures. No precedent will be set by this project.

5.5 Required Team Expertise and Requirements

ATR teams will be established in accordance with EC 1165-2-217.ATR teams will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), etc.), and may be supplemented by outside experts as appropriate. The disciplines represented on the ATR team will reflect the significant disciplines involved in the planning, engineering, design, and construction effort. This project will require review by structural engineers. Specifically, the ATR team shall have expertise related to design and fabrication of navigation lock components and HSS such as gates. To assure independence, the leader of the ATR team will be outside of the MSC. A list of the ATR members and disciplines is provided below. The chief criterion for being a member of the ATR team is knowledge of the technical discipline.

ATR Lead: The ATR team lead is a senior professional outside the home MSC with extensive experience in preparing Civil Works documents and conducting ATRs. The lead has the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline, in this case, Structural Engineering, Mechanical Engineering, Electrical Engineering, or Welding/Fabrication Subject Matter Expert (SME).

Structural Engineer – shall have experience and be proficient in design of HSS structures. The structural engineer shall have specialized experience in the design, construction and analysis of sector gate projects with particular emphasis on fracture critical connection detailing.

Mechanical Engineer – Reviewer should be a senior level, professionally registered engineer with extensive experience in the design of hinge and pintle components on large hydraulic steel structures such as sector and miter gates. The reviewer should have a minimum of 10 years of experience.

Electrical Engineer – Reviewer should be a senior level, professionally registered engineer with extensive experience in Cathodic Protection for sector gate projects. The reviewer should have a minimum of 10 years of experience.

Welding/Fabrication SME – Reviewer should be a senior level, with extensive experience in welding and fabrication of steel structures. The reviewer should have a minimum of 10 years of experience.

5.6 Statement of Technical Review Report

At the conclusion of each ATR effort, the ATR team will prepare a review report with a completion and certification memo. The report will be prepared in accordance with EC 1165-2-217.

5.7 ATR Schedule and Estimated Cost

Although ATR is always seamless, the preliminary ATR milestone schedule is listed in Table 2. The cost for the ATR is approximately $40,000.

Project Phase/Submittal	Review Start Date	Review End Date	Site Visit
ATR Final P&S Review	05/1/19	05/31/19	N/A

Table 2 ATR Schedule

Section 6
Independent External Peer Review (IEPR)

6.1 General

Type I and Type II IEPRs are conducted in accordance with the guidance promulgated in EC 1165-2-217. Type I IEPRs are accomplished for decision documents, such as project studies. It is of critical importance for those decision documents and supporting work products where there are public safety concerns, significant controversy, a high level of complexity, or significant economic, environmental and social effects to the nation. However, it is not limited to only those cases and most studies should undergo Type I IEPR. In accordance with EC 1165-2-217 a Type II IEPR (SAR) shall be conducted on design and construction activities for hurricane and storm risk management and flood risk management projects, as well as other projects where potential hazards pose a significant threat to human life. This applies to new projects and to the major repair, rehabilitation, replacement, or modification of existing facilities

6.2 Decision on Type II IEPR

In accordance with EC 1165-2-217 a Type II IEPR (SAR) is not required for the following reasons: The project is not a hurricane, storm risk management or flood risk management project. The structure's primary purpose is to prevent excessive drainage of the marsh and saltwater intrusion associated with normal high tides, therefore, failure of the structure would not result in a significant threat to human life. In addition, the following factors and evaluations were considered:

(i) The project involves the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices.

Evaluation: The design and fabrication of the sector gates will essentially be a replacement in-kind using improved and tested materials. Therefore, there are no innovative materials or construction techniques needed to complete the project. Also, members of the design team have recent experience with designing similar hydraulic steel structures. No precedent will be set by this project.

(ii) The project design requires redundancy, resiliency, and robustness.

Evaluation: The project design requires appropriate levels of fracture toughness, resiliency, and robustness that are required by ETL 1110-2-584 Design of Hydraulic Steel Structures. The design concept has been utilized at multiple gate structures and has met all criteria.

(iii) The project has unique construction sequencing or a reduced or overlapping design construction schedule; for example, significant project features accomplished using the Design-Build or Early Contractor Involvement (ECI) delivery systems.

Evaluation: It is anticipated that this project will be awarded using a standard design-bid-build approach with no unique construction sequencing requirements.

Based on the assessment of the above answers a Type II IEPR will not be required. The signed memo approving the rationale not to conduct a Type II IEPR/SAR is shown in Attachment 3.

6.3 Decision on Type I IEPR

Type I IEPR is used for decision, or study, documents. The documents to be reviewed in this plan include the Design Documentation Report (DDR), Plans, and Specifications, which are all implementation documents. Therefore, Type I IEPR is not required.

Section 7
BCOES Reviews

Reviews to assure solicitation documents are readily understood; the product can be bid, built, operated and maintained efficiently; environmental concerns are protected, and sustainability is addressed. A 95% BCOES review will be conducted for this project. Design team members will conduct the BCOES reviews utilizing DrChecks. All DrChecks comments must be resolved and closed out by the reviewer.

Prior to the start of the BCOES Review, the Project Lead or Technical Manager should contact each office element to ascertain the name(s) of their representative(s) participating in the review. The plans and specifications shall be distributed to the office elements by memorandum with email link to the appropriate ProjectWise folder. The solicitation package including the 95% plans and specifications and DDR is being reviewed from 30 April 2019 – 28 May 2019. A follow-up Backcheck meeting will be discussed as whether it will be required and scheduled if necessary. The TM's supervisor will have reviewed the 100% solicitation package prior to dissemination to the team.

Section 8
Public Involvement

There is no expectation of obtaining support from personnel outside of the USACE to conduct reviews.

Section 9

In-Kind Contribution By Sponsor

There is no sponsor for this project. The structure is owned and operated by USACE New Orleans District.

Section 10
Value Engineering

The total project costs are expected to well exceed $2M, therefore a VE Study or Low Opportunity VE Justification is required. A Programmatic Value Engineering Study for gate fabrication was completed for the New Orleans District in 2018. The proposals to consider sacrificial steel and modification to the existing cathodic protection system will be investigated. While there are not anticipated to provide any savings during fabrication, the VE proposals are expected to extend the required maintenance cycles of the sector gates.

Section 11
Public Posting of Review Plan

As required by EC 1165-2-217, the approved RP will be posted on the District public website (https://www.mvn.usace.army.mil/About/Offices/Programs-Project-Management/Project-Review-Plans/). This is not a formal comment period and there will be no set timeframe for the opportunity for public comment. If and when comments are received, the PDT will consider them and decide if revisions to the RP are necessary.

Section 12

Review Plan Approval and Updates

The MSC Commander, or delegated official, is responsible for approving this RP. The Commander's approval reflects vertical team input (involving the District, the RMO, and MVD Business Technical Division) as to the appropriate scope, level of review, and endorsement by the RMO. The RP is a living document and should be updated in accordance with 1165-2-217. All changes made to the approved RP will be documented in Attachment 2, Table 8 RP Revisions. The latest version of the RP, along with the Commanders' approval memorandum, will be posted on the following District's webpage https://www.mvn.usace.army.mil/About/Offices/Programs-Project-Management/Project-Review-Plans/ and linked to the HQUSACE webpage. The approved RP should be provided to the RMO.

Section 13
Engineering Models

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 resource 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 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 still are the responsibility of the users and is subject to DQC, ATR, and IEPR reviews (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 commercially available 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 reviews. All appropriate reviews will be conducted in accordance with policy during the implementation phase of the project.

13.1 Model Certification/Approval Schedule and Cost

(1) Use of existing certified or approved design/planning models is encouraged. Where uncertified or unapproved models are used, approval of the model for use will be accomplished through the ATR process. The ATR team will apply the principles of EC 1105-2-412 during the ATR to ensure the model is theoretically and computationally sound, consistent with USACE policies, and adequately documented. If specific uncertified models are identified for repetitive use within a specific district or region, the appropriate PCX, MSC(s), and home District(s) will identify a unified approach to seek certification of these models.

(2) The models listed below may be used in the design of the Freshwater Bayou Lock Sector Gate Replacement project.

Table 3 Engineering Models

Model Name	Model Description	Model Type
MCACES or MII	These are cost estimating models. This is a cost estimating model that was developed by Building System Design Inc. Crystal Ball risk analyses software will also be used.	Cost Engineering
Microsoft Excel	Computational Analysis	Engineering
STAAD.Pro V8i	Structural Analysis and Design	Engineering
Mathcad	Minor Structural Load Development and Design	Engineering

Section 14
Review Plan Points of Contact

Title	Organization	Phone
Fred Joers INDC Director	CEMVR-DC	Frederick.R.Joers@usace.army.mil (309) 794-5248
John Behrens INDC Technical Manager	CEMVR-DC	John.T.Behrens@usace.army.mil (309) 794-5620
David Lovett/Lead Engineer	CEMVN-EDS	David.P.Lovett@usace.army.mil 504-862-2680
Ida Betances-Torres/Technical Manager	CEMVN-EDS	Idazabeth.Betances-Torres@usace.army.mil 504-862-2473
Tracy Falk/Operations Manager	CEMVN-OD	Tracy.A.Falk@usace.army.mil 504-862-2971

Table 4 RP POC's

ATTACHMENT 1
Team Rosters (FOUO)

Discipline/Role	Name	Description of Credentials
Technical Lead/Structural Engineer	[redacted]	[redacted]
Technical Manager/Structural	[redacted]	[redacted]
Electrical Engineer	[redacted]	[redacted]
Mechanical Engineer	[redacted]	[redacted]

Table 5 PDT Members

Discipline/Role	Name	Description of Credentials
DQC Review Lead/ Structural	[redacted]	[redacted]
Electrical Engineer	[redacted]	[redacted]
Mechanical Engineer	[redacted]	[redacted]

Table 6 DQC Reviewers

Discipline/Role	Name	Description of Credentials
ATR Lead/Structural Engineer	[redacted]	[redacted]
Welding/Fabrication/ Structural Engineer	[redacted]	[redacted]
Electrical Engineer	[redacted]	[redacted]
Mechanical Lead Engineer	[redacted]	[redacted]
Mechanical Guest Reviewer	[redacted]	[redacted]

Table 7 ATR Team

ATTACHMENT 2
Review Plan Revisions

Revision Date	Description of Change	Page/Paragraph Number

Table 8 RP Revisions

ATTACHMENT 3: Rationale Not to Conduct Type II IEPR (SAR)

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
7400 LEAKE AVENUE
NEW ORLEANS LA 70118

CEMVN-EDS

MEMORANDUM FOR RECORD

SUBJECT: Rationale Not to Conduct Type II IEPR (SAR) for Freshwater Bayou Lock Sector Gate Replacement

1. A Type II Independent External Peer Review (IEPR) Safety Assurance Review (SAR) is not recommended for this contract.

2. The contract consists of the design and construction of new set of sector gates to replace the existing gates at the north end of Freshwater Bayou Lock. The gates will be modernized and detailing will be improved to minimize fatigue/fracture concerns. The design will also be updated as necessary with respect to materials and fabrication requirements consistent with current guidance. Each gate will consist of a pintle socket pipe column and hinge pin housing integrally framed with horizontal and vertical trusses supporting vertical ribs faced with a continuous skin plate. Gate leaves shall be completely shop fabricated. The fabricator must have the new AISC certification for HSS or the AISC bridge certification. There is nothing in the design of the replacement gate that would be considered innovative or unusual, rather the design is a typical sector gate designed according to the Allowable Stress Design requirements of EM 1110-2-2105 and the AISC ASD 9th edition. The project is not a hurricane, storm risk management or flood risk management project. The structure's primary purpose is to prevent excessive drainage of the marsh and saltwater intrusion associated with normal high tides, thus, failure of the structure would not result in a significant threat to human life. Therefore, it is not recommended that a Type II IEPR SAR be conducted. The explanation of the rationale for this recommendation is included (Encl 1).

3. For any questions related to this project, please contact David Lovett Jr., P.E., at 504-862-2680; email: David.P.Lovett@usace.army.mil.

[redacted]

Encl

JEAN S. VOSSEN, P.E.
Chief, Engineering Division

Freshwater Bayou Lock Sector Gate Replacement

EXPLANATION OF RATIONALE FOR RECOMMENDATION TO NOT CONDUCT A TYPE II IEPR SAFETY ASSURANCE REVIEW (SAR)

Risk Based Determination of Need to NOT conduct a Type II IEPR (aka SAR)

Per EC 1165-2-214, two factors mandate an SAR and three additional factors should be considered in the determination whether or not an SAR should be conducted. These factors and their relevancy to this project are discussed below. If there is any lingering concern regarding the Rationale presented in the following table, a vertical team should be assembled upon request.

Factor		Relevancy to this Project
1) Is the project justified by life safety?	Mandate	No
2) Would the project's failure pose a significant threat to human life?	Mandate	No. The project is not a hurricane, storm risk management or flood risk management project. The structure's primary purpose is to prevent excessive drainage of the marsh and saltwater intrusion associated with normal high tides, thus, failure of the structure would not result in a significant threat to human life.
3) Does the project involve the use of innovative materials or techniques where the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent setting methods or models, or presents conclusions that are likely to change prevailing practices?	Consider	No. Standard construction procedures will be used.
4) Does the project design require redundancy, resiliency, or robustness?	Consider	No. No changes to existing features will not affect their existing redundancy, resiliency or robustness.

5) Does the project have unique construction sequencing or a reduced or overlapping design construction schedule?	Consider	No. This is a standard construction project.

ATTACHMENT 4: Sample ATR Certification

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the XXX Project. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-217. 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].

ATR Team Leader	Date
Operations Manager New Orleans District	Date
Frederick R. Joers, PE Review Management Office Representative Inland Navigation Design Center – CEMVR-DC	Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:
1) *Concern:*.

Resolution:

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

Jean S. Vossen, PE Chief, Engineering Division New Orleans District – CEMVN-ED	Date