

**FINAL**  
**19 Sep 08 – Initial HQ Approval Date**  
**22 Oct 08 – Revised HQ Approval Date**

**PEER REVIEW PLAN**

Implementation of Section 2035 of WRDA 2007  
for the Greater New Orleans (GNO)  
Hurricane and Storm Damage Risk Reduction System (HSDRRS)



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## **1. PURPOSE**

This Peer Review Plan (PRP) provides a technical peer review mechanism for design and construction efforts of the Greater New Orleans (GNO) Hurricane and Storm Damage Risk Reduction System (HSDRRS) under Section 2035 of WRDA 2007. Section 2035 of WRDA 2007, entitled *Safety Assurance Review*, addresses requirements for the “design and construction activities for hurricane and storm damage reduction and flood damage reduction projects”.

Draft interim policy for an Independent External Peer Review for the HSDRRS 100-Year Level of Protection was provided by HQUSACE dated 1 Feb 08. Since the HSDRRS is in a Post-Authorization phase for a civil works project, the interim policy brings the system’s review processes into compliance with the new Independent External Peer Review (IEPR) requirements in WRDA 2007, Section 2035. The purpose of the *Safety Assurance Review* is to ensure that good science, sound engineering, and public welfare are the most important factors that determine a project’s fate. In accordance with Section 2035, efforts shall include the review of design and construction activities prior to the initiation of physical construction and periodically thereafter. Peer review during construction will include observation and comment on the critical construction elements of the project.

This PRP focuses primarily on a programmatic IEPR plan for the HSDRRS, providing for a system-wide approach rather than piecemeal. The PRP does not provide the specific details of overall quality management and Agency Technical Review (ATR) procedures for individual efforts within the HSDRRS.

The State of Louisiana, through the Louisiana Coastal Protection and Restoration Authority (CPRA), the Southeast Louisiana Flood Protection Authority – East (SLFPA-E) and the Southeast Louisiana Flood Protection Authority – West (SLFPA-W) and the levee districts under their supervision, were engaged in the development of this PRP. The State’s engagement in the IEPR process affords the opportunity to build on the existing State and Federal partnership as the Corps undertakes the design and construction of the HSDRRS.

## **2. REFERENCES**

- a. ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
- b. ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
- c. National Research Council, “Review Procedures for Water Resources Project Planning”, 2002
- d. OMB “Final Information Quality Bulletin for Peer Review,” Dec 2004

- e. WRDA 2007 H. R. 1495 Public Law 110-114, 8 Nov 2007
- f. Draft Interim Policy for an Independent Peer Review for the 100-Year level of Protection, Hurricane and Storm Damage Risk Reduction System (HSDRRS), New Orleans, LA, dated 1 Feb 08 (included as Appendix A)
- g. EC 1105-2-410, Review of Decision Documents, 22 Aug 08
- h. CECW-CP Memorandum, Peer Review Process, 30 Mar 2007
- i. Supplemental Information for the “Peer Review Process” Memo, dated March 2007
- j. ER 5-1-11, USACE Business Process, 1 Nov 2006

### **3. PROJECT BACKGROUND**

#### **3.1 Authority and Funding**

The \$14.7 Billion HSDRRS is authorized in accordance with Department of Defense, Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, to include: Pandemic Influenza Act, 2006 (P.L. 109-148, dated 30 Dec 2005), commonly called the “3<sup>rd</sup> Supplemental”; Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Hurricane Recovery, 2006 (P.L. 109-234, dated 15 Jun 2006), commonly called the “4<sup>th</sup> Supplemental”; U. S. Troop Readiness, Veterans’ Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (P.L. 110-28, dated 25 May 2007), commonly called the “5<sup>th</sup> Supplemental”; and the Supplemental Appropriations Act, 2008 (P.L. 110-252, dated 30 Jun 2008), commonly called the “6<sup>th</sup> Supplemental”.

Federal funding for the HSDRRS is provided by the supplemental appropriations as follows:

- 3<sup>rd</sup> Supplemental - \$2.08 Billion
- 4<sup>th</sup> Supplemental - \$3.647 Billion
- 5<sup>th</sup> Supplemental - \$1.325 Billion
- 6<sup>th</sup> Supplemental - \$5.7 Billion

#### **3.2 Description/Location**

The HSDRRS consists of more than 200 projects forming a comprehensive system of levees, floodwalls, gates, internal drainage and pumping stations and other structures, integrated into a single system designed to reduce the risk of hurricane and storm damage to the Greater New Orleans area. It is located in southeastern Louisiana, and includes all or a portion of six parishes: Jefferson, Orleans, St. Bernard, St. Charles, Lafourche and Plaquemines.

The HSDRRS is integrated with the Mississippi River flood system along the main stem of the Mississippi River which protects against riverine flooding. The HSDRRS is designed to perform as an integrated system when completed.

### **3.3 Prior Peer Review Efforts**

An external peer review of the overall system was completed in May 2007. This review was a high-level, independent external peer review of ongoing HSDRRS projects and plans for future HSDRRS projects with the objective “to determine if the authorized approach will achieve the desired level of protection and will effectively and efficiently operate as a system”. This PRP does not include another system-wide review, rather the PRP will focus on outlining recommended IEPRs of individual features of the overall HSDRRS.

## **4. AGENCY TECHNICAL REVIEW (ATR)**

All project work through development of product specific guidance, engineering, construction, and the operations and maintenance (O&M) program will undergo an Agency Technical Review (ATR), formerly called Independent Technical Review (ITR), to “ensure the quality and credibility of the government’s scientific information” in accordance with the quality assurance and quantity control procedures of each major subordinate command. The Corps will manage the ATR internally and it will be conducted by individuals and organizations that are separate and independent from those that accomplished the work, in accordance with policy. At a minimum, TFH will accomplish all such reviews outside the district office that performed the work. The ATR could include reviewers external to Corps.

Agency Technical Review (ATR) is being conducted for the HSDRRS on a project-by-project basis in accordance with ER 1110-1-12, Engineering and Design Quality Management. Independent External Peer Review (IEPR) is an extension (not a replacement) of the ATR requirements.

## **5. INDEPENDENT EXTERNAL PEER REVIEW PLAN**

### **5.1 General**

In accordance with the draft interim policy dated 1 Feb 08 (Appendix A), Task Force Hope (TFH) led the development of the Peer Review Plan (PRP), in cooperation with the execution offices (Mississippi Valley Division (MVD) - New Orleans District (MVN), Protection and Restoration Office (PRO); and the Hurricane Protection Office (HPO)). Task Force Hope has identified products where IEPR of the design and construction efforts are appropriate (see Table 1 and Figure 2). Local stakeholders, to include the Louisiana Coastal Protection and Restoration Authority (CPRA) and the Southeast Louisiana Flood Protection Authority – East (SLFPA-E) and Southeast Louisiana Flood Protection Authority – West (SLFPA-W) and levee districts under their supervision, have reviewed the list of projects to undergo IEPR and have offered their concurrence. It is

anticipated that the State will be fully engaged during individual project reviews and will participate in the process alongside Corps project managers.

## **5.2 Independent External Peer Review (IEPR) Requirement Determination**

Task Force Hope used the following factors to determine the need for IEPR on particular features of the HSDRRS. Project managers were asked to submit information on their project(s) related to the below factors:

- Significant threat to human life
- Cases where information 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
- Project has a reduced or overlapping design-construction schedule
- Project has unique construction sequencing
- Project involves use of innovative materials or techniques
- Project lacks redundancy

Task Force Hope consulted ER 1110-2-1150, Engineering and Construction for Civil Works Projects, which outlines typical products prepared for Civil Works projects during Pre-Construction, Construction, and O&M phases. Listed below are examples of engineering and construction products that can be subject to an IEPR when applicable to the triggers. Project managers were asked to submit information on their project(s) related to the below:

- Survey and Investigations studies to insure sufficient quality of data
- Design Documentation Reports, the record of final design
- Engineering Documentation Reports, a report to support when there are minor changes to design and costs
- Value Engineering Studies
- The Design for remediation of Hazardous, Toxic, and Radioactive Waste
- Utility relocations
- Physical model studies
- Engineering support to preparation of Project Partnership Agreements
- Plans, specifications, and cost estimates of critical project features
- Engineering considerations and instructions for field personnel
- Critical construction placement
- Construction Foundation and Concrete Reports
- Project O&M Manuals
- Post Project Monitoring Plans
- Contractor Submittals of critical project features
- Contract Change Order of critical project features
- Post Construction Reports such as Foundation Completion, Embankment Criteria and Performance Evaluations, and Concrete Materials Reports
- Construction Inspections

Task Force Hope considered information compiled from the above factors to develop the list of projects to undergo IEPR. A series of meetings were held in which senior representatives from TFH, HPO and MVN/PRO participated. At these meetings, project managers were all invited and many attended. Prior to these meetings, TFH discussed the IEPR process at HPO and MVN/PRO meetings where handouts of the draft Independent Peer Review Program Management Plan (PgMP), WRDA Sections, 2034, 2035, and 7009; along with HQ Interim Policy was presented to all in attendance. The series of meetings were completed and project recommendations were requested and agreed upon by senior leadership from TFH, HPO, and MVN/PRO. It was agreed to aggregate the list into the following project types:

- floodwalls
- levees
- pump stations
- drainage structures
- sector gates
- fronting protection

In addition, unique features/activities (i.e., storm surge barriers, permanent pump stations, design guidelines, armoring manual and quality management plan) were added to the list. As a result, the final list ensures that the design guidelines used to design and construction the HSDRRS, representative features, and unique features of the HSDRRS are independently peer reviewed.

### **5.3 Development of Independent External Peer Review (IEPR) Scopes and Review Panels**

The U. S. Army Corps of Engineers National Planning Center of Expertise for Coastal Storm Damage Reduction (PCX) directed by North Atlantic Division (NAD) has responsibility for managing the review of coastal storm damage reduction “Planning” products in New Orleans; that responsibility was extended to include all IEPR requirements during the TFH design and construction phase. The PCX, through Baltimore District (NAB), works with TFH and the execution offices to develop the “charge” (scope) for the reviews. The U. S. Army Research Office (ARO) serves as the contracting arm and contracts with Battelle to perform the peer review. This ensures a third-party relationship is maintained between the project’s execution office and Battelle. A diagram showing the TFH/PCX organization/process is shown in Figure 1.

WRDA 2007 further directs the use of the National Academy of Science’s (NAS) policy for the selection of reviewers and the review. That direction is consistent with existing Office of Management and Budget (OMB) requirements for IEPR. Consistent with OMB and NAS guidelines, the Corps has defined the IEPR as a review in which the responsibility for coordinating the review is granted to an organization independent of Corps; that entity must be in charge of selecting the reviewers, all of whom should be independent of the Corps and free of conflicts of interest. All IEPR efforts for the HSDRRS are and will be conducted in accordance with these policies.

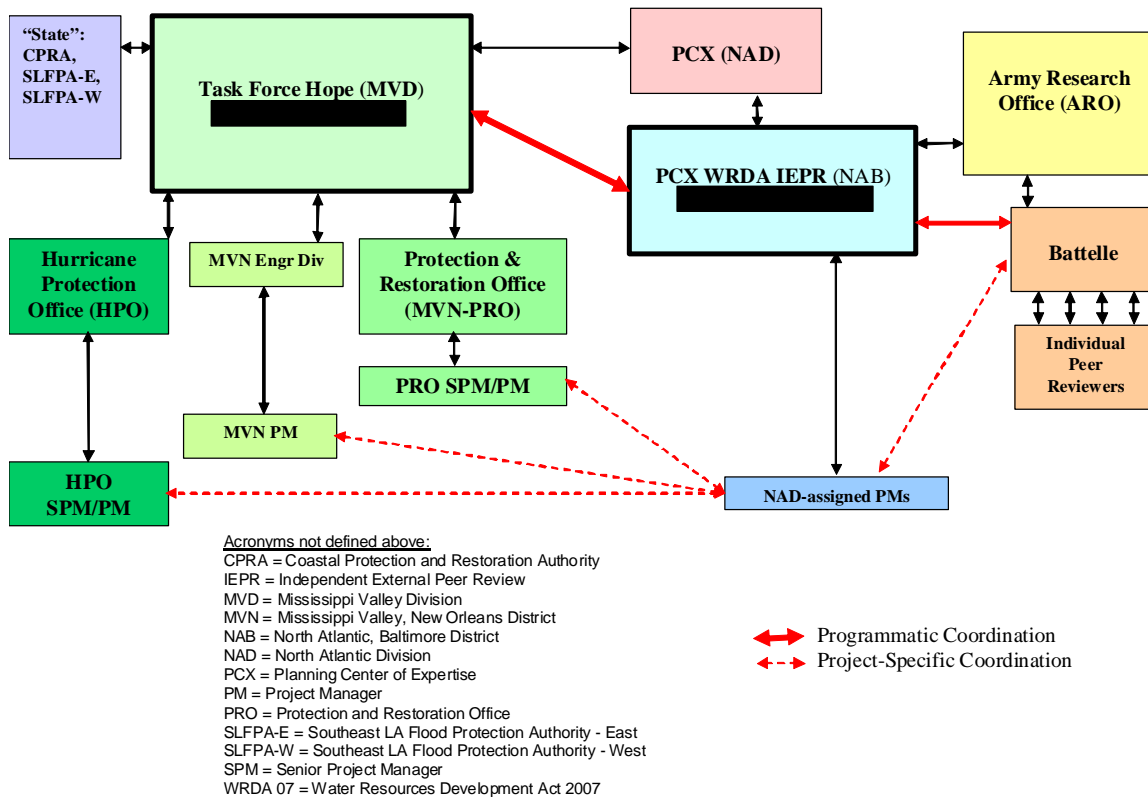


Figure 1. TFH/PCX WRDA 07 IEPR Organization

To date, Notice to Proceed (NTP) has been issued for the following HSDRRS IEPR efforts:

- IHNC-02, Inner Harbor Navigation Canal (IHNC), Lake Borgne Surge Barrier, NTP issued 16 May 08
- HSDRRS Design Guidelines, NTP issued 1 Aug 08
- Armoring Manual, NTP issued 18 Aug 08
- LPV 18.2, NTP issued 8 Sep 08
- WBV 16b, NTP issued 18 Sep 08
- Harvey-Algiers 100-Year Alternatives, NTP issued 18 Sep 08
- WBV 18.2/14f.2/12, NTP issued 19 Sep 08
- LPV 144, NTP issued 26 Sep 08
- LPV 146/149, NTP issued 26 Sep 08
- LPV 105.01/105.02, NTP issued 30 Sep 08
- LPV 07d.2/10.2, NTP issued 30 Sep 08

As part of each IEPR effort, the peer review panel's conclusions will be provided in a final report. A final report will be prepared by Battelle following completion of each phase of the project being peer reviewed (design and construction). Each report shall have an executive summary describing the recommendations and resolutions. Following



the executive summary the report shall list in detail all the critical items reviewed, referenced criteria, computations, and all other pertinent information along with IEPR panel recommendations and final resolution. The reports are intended to provide final documentation of the ongoing review process for each phase. The report shall also include the methodology for conducting peer reviews of each phase. TFH and the appropriate execution office shall consider all comments in the report and prepare a written response to each comment either adopting the comment or not adopting the comment and explaining why. However, if review comments indicate an inherent weakness in a project, TFH needs to assess impacts and consult with Mississippi Valley Division, Regional Integration Team (MVD-RIT) for resolution. TFH will elevate comments on policy to HQUACE for consideration under a non-project specific policy review. Review results will be presented to the Chief of Engineers before a final decision is made. This response to the comments completes the review cycle for the specific peer review effort. Once final, results will be made available to the public.

Task Force Hope and the PCX hold weekly conference calls to discuss issues, scopes, next steps, etc. regarding the overall program management of the peer review effort. In addition, quarterly program status reviews of all HSDRRS IEPR projects are scheduled to begin shortly. The program review will be a non-technical program-level briefing that will be scheduled by Task Force Hope in conjunction with scheduled site visits or peer review conferences. The review will take place at the New Orleans District, New Orleans, Louisiana and will involve the PCX, TFH, and Battelle managers. The State will be provided notification of the quarterly status reviews and may attend these meetings. The quarterly program review will cover accomplishments in the previous quarter, plans for the following quarters, and a discussion of an open issues or problem areas. Battelle will submit read ahead materials prior to each briefing and will submit documentation of each quarterly program review following each review.

#### **5.4 The Role of Peer Reviewers**

As required by WRDA 2007, the NAS policy for selection of reviewers and the review will be followed. This is consistent with existing Office of Management and Budget (OMB) requirements for IEPR.

Reviews will be conducted to identify, explain, and comment upon assumptions that underlie engineering analyses, as well as to evaluate the soundness of models, surveys, investigations, and methods. Review panels will be given the flexibility to bring important issues to the attention of decision makers. Review panels will evaluate whether the interpretations of analysis and the conclusions based on analysis are reasonable. However, review panels will be instructed to not present a final judgment on whether a project should be constructed or whether a particular operations plan should be implemented, as the Chief of Engineers is ultimately responsible for this final decision.

Independent reviews, no matter how useful, are not expected to resolve fundamental disagreements and controversies. Reviews will focus on assumptions, data, methods, and models.

Reviewers could assist the Corps in making decisions, but they will not be asked to make decisions themselves. Indeed, reviewers engaged in the independent review processes should be identified for their professional expertise, deemed independent, and should not be “stakeholders” at all. Frequent communication will help the review panel understand the technical and practical implications of its recommendations.

An issue that frequently arises in review, and one not always easily agreed upon, is defining a review panel’s boundaries of inquiry. It is not uncommon for an agency or other administrative group to try to limit a review panel’s deliberation. However, the line between technical and policy issues is often blurred, and it is often difficult to clearly separate them. Task Force Hope will accept comments, but make a distinction in responses when comments pertain to policy which is beyond the scope of a Safety Assurance Review. Task Force Hope will respond accordingly and elevate comments on policy to HQUSACE for consideration under a non-project specific policy review.

## **6. ADDITIONAL REVIEW CONSIDERATIONS**

### **6.1 General**

All Project Management Plans (PMP) for projects that will undergo IEPR will have a new project specific section developed to incorporate the requirement. The section of the PMP should be in accordance with ER 5-1-11.

Following final review and approval of this Peer Review Plan by HQUSACE, this list of products will be made public. Recommendations for additions or deletions from the approved list will be based on experience gathered as the program advances. It is understood that HQUSACE approval will be required for the removal of any projects from the approved list.

In accordance with the requirements of WRDA 2007 Section 2035, the written responses of the review panels and the responses of the Chief of Engineers shall be made available to the public, including through electronic means on the Internet.

### **6.2 Review of Harvey-Algiers 100-Year Alternatives (Plan Selection)**

Included in the list of projects that will undergo IEPR of design and construction efforts, is one effort that is recommended to undergo a “Section 2034-type” peer review. WRDA 2007 Section 2034 addresses IEPR requirements for decision documents. This review would include the alternative evaluation and determination process during the preliminary assessment and evaluation phase for providing 100-Year Level of Protection to the Harvey-Algiers Canal portion of the West Bank and Vicinity, LA project. The peer review will consist of a review of the completed Alternative Evaluation Process (AEP) and the Project Description Document (PDD) for the area (PDD#9). The IEPR review of PDD#9 will be concurrent with final MVD review and approval of the PDD. The MVD will not take action to approve the PDD until comments from the IEPR have

been incorporated or otherwise resolved. Review of the final PDD submittal will include review of the following items included as part of the PDD: Individual Environmental Report (IER), Engineering Alternative Reports (EARs), and Alternative Evaluation Process (AEP). The PCX is engaged in developing the appropriate “charge” (scope) for this effort.

## **7. SCHEDULE**

Peer review efforts for the HSDRRS are already underway and 11 task orders have been awarded. The PCX and TFH will work with the execution offices to ensure that remaining peer review efforts are scoped and undertaken in an expeditious manner to ensure project schedules are not impacted. The IEPR of the HSDRRS will take place through the design and construction of the system; therefore, efforts will be ongoing until construction is substantially complete for the listed projects.

## **8. POINTS OF CONTACT**

Due to confidentiality law requirements with posting documents on website for public review, only the TFH Program Manager is listed as the point of contact for any questions concerning this PRP. The TFH Program Manager, [REDACTED], can be contacted at [REDACTED] or via email at [REDACTED].

Table 1. WRDA Independent External Peer Review List

**General:**

1. **HSDRRS Design Guidelines**
2. **Armoring Manual**
3. **Quality Management Plan**

**HPO:**

1. **IHNC Surge Protection:**
  - a. IHNC-01 Seabrook Surge Barrier
  - b. IHNC-02 Lake Borgne Surge Barrier
2. **Pump Stations at outfall canals:**
  - a. PCCP-01 (17<sup>th</sup> St, Orleans Ave, London Ave)
3. **Levee/Floodwall in St. Bernard Parish:**
  - a. LPV 149 (Chalmette Loop Caernarvon Floodwall / St. Bernard)
  - b. LPV 146 (Chalmette Loop B. Dupre to Hwy 46 Levee / St. Bernard)
  - c. LPV 144 (Chalmette Loop to B. Dupre Floodgate / St. Bernard)
4. **Levee/Floodwall in Orleans Parish:**
  - a. LPV 105.01 (Floodwalls / Lakefront Airport / New Orleans East)
  - b. LPV 105.02 (T-wall / Lakefront Airport / New Orleans East)
  - c. LPV 111.01 (NO East Levee, CSX RR to Michoud / New Orleans East)

**MVN/PRO:**

1. **Levees:**
  - a. LPV 04.2 Reach 1A & 1B, (Levee, St. Charles)
  - b. WBV 18.2 (Levee, Highway 90 to Lake Cataouatche, Phase 2 / Jefferson)
  - c. WBV 14f.2 (Westwego to Harvey / Jefferson)
  - d. WBV 12 (Hero Canal Levee Enlargement / Jefferson)
2. **Floodwalls:**
  - a. LPV 18.2 (Floodwall and Gate at Williams Blvd. Boat Launch / Jefferson)
3. **Fronting Protection:**
  - a. LPV 10.2 ( Pumping Station #4, Suburban / Jefferson)
  - b. WBV 16b (Segnette Pump Station Fronting Protection / Jefferson)
4. **Drainage Structures:**
  - a. LPV 07d.2 (Almedia Drainage Structure / St. Charles)
5. **Sector Gate and Alternatives:**
  - a. WBV 16.2 (Company Canal Closure / Jefferson)
  - b. WBV (Algiers and Harvey Canals – 100 year Alternatives / Jefferson)

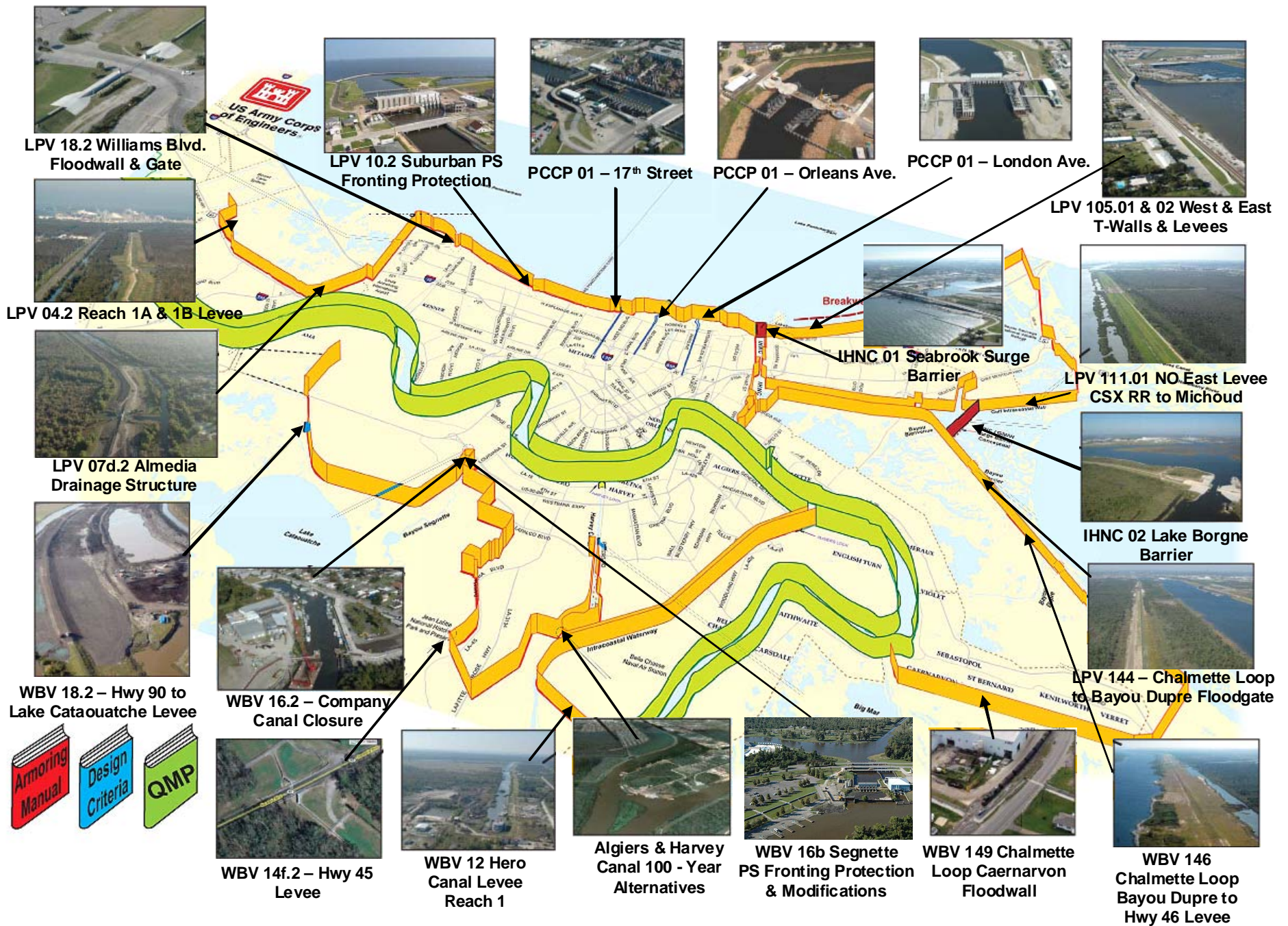


Figure 2. WRDA IEPR Projects

## APPENDIX A

CECW-CE

UPDATED: 1 Feb 2008

### MEMORANDUM FOR COMMANDER Mississippi Valley Division

**SUBJECT: Interim Policy for an Independent Peer Review for the 100-Year Level of Protection, Hurricane and Storm Damage Risk Reduction System (HSDRRS), New Orleans, LA**

1. The Water Resources Development Act (WRDA) of 2007, Public Law 110-114, contains three specific requirements for independent external peer review (IPR)
  - a. Section 2034 addresses IPR requirements for decision documents.
  - b. Section 2035 of WRDA 2007 contains explicit requirements for the *Safety Assurance Review* of the design and construction activities for hurricane and storm damage reduction and flood damage reduction projects.
  - c. Section 7009 outlines IPR requirements specific to the areas in Louisiana declared a disaster following Hurricane Katrina and Rita 2005. In particular, the Secretary shall establish a council known as the “Louisiana Water Resources Council,” which shall serve as the exclusive peer review panel for the disaster recovery activities.
2. Since this program is in a Post-Authorization phase for a civil works project, the purpose of the interim policy is to bring the Hurricane and Storm Damage Risk Reduction System (HSDRRS) review processes into compliance with the new IPR requirements in section 2035. The purpose of the *Safety Assurance Review* is to ensure that good science, sound engineering, and public welfare are the most important factors that determine a project’s fate. WRDA 2007 further directs the use of the National Academy of Science’s policy for the selection of reviewers and the review. That direction is consistent with existing Office of Management and Budget (OMB) requirements for IPR.
3. The policy is based on the following references:
  - a. ER 1110-2-1150, Engineering and Construction for Civil Works Projects
  - b. ER 1110-1-12, Engineering and Design Quality Management
  - c. National Research Council, “Review Procedures for Water Resources Project Planning”, 2002
  - d. OMB “Final Information Quality Bulletin for Peer Review,” Dec 2004
  - e. WRDA 2007 H. R. 1495 Public Law 110-114
4. Consistent with OMB and National Academy of Sciences guidelines, USACE has defined the IPR as a review in which the responsibility for coordinating the review is granted to an



organization independent of USACE; that entity must be in charge of selecting the reviewers, all of whom should be independent of USACE and free of conflicts of interest.

5. IPR is an extension (not a replacement) of the Independent Technical Review (ITR) requirements outlined in ER 1110-1-12, Engineering and Design Quality Management; however, the intent of the reviews is to complement the existing process and to avoid impacts to program schedules and cost. Where appropriate and reasonable, TFH can conduct the ITR and IPR concurrent and in concert if it enhances the review process.

6. TFH can apply this policy concurrent with current project schedules. However, if review comments indicate an inherent weakness in a project, TFH needs to assess impacts and consult with Mississippi Valley Division, Regional Integration Team (MVD-RIT) for resolution.

7. IPR costs should be within reasonable limits, commensurate with the project magnitude and scale, and in line with other project study costs.

8. TFH will lead the development of a Review Plan. At a minimum, the Review Plan will include the Hurricane and Storm Damage Risk Reduction System Protection System Design Guide which serves as the basis for all subsequent engineering design for the program. Though the document is evolving, the review should begin immediately and the review should remain flexible to additions and changes to the design guide. In developing the review plan the following guidance applies:

a. The North Atlantic Division Planning PCX already has responsibility for managing the review of coastal storm damage reduction “Planning” products in New Orleans; that responsibility is being extended to include all IPR requirements during the TFH design and construction phase. The PCX shall work with those familiar with the design guide to develop the “charge” (scope) for the review. That charge shall be reviewed and approved by the Chief of Engineering and Construction, HQUSACE.

b. TFH, in concert with the MVD RIT and stakeholders, should identify the products where IPR is appropriate. The expectation is that applying the criteria in Section 2035 will clearly identify some critical products where an independent peer review is required. That list of products shall be reviewed and approved by HQUSACE and made public. Additions or deletions from the list should be based on experience gathered as the program advances. HQUSACE approval is required for the removal of any projects from the approved list.

c. Another area for WRDA compliance is IPR requirements during construction. The screening, review and approval process used to identify IPR requirements for Pre-Construction phase work should also be applied to the construction phase. For those products selected, an assessment of corresponding construction activities should be made and the charge to the IPR panel would be to observe and comment on those critical construction elements.

d. All work through development of product specific guidance, engineering, construction, and the operations and maintenance (O&M) program will undergo an ITR to “ensure the quality and credibility of the government’s scientific information” in accordance with the quality assurance and quantity control procedures of each major subordinate command. USACE will manage the ITR internally and it will be conducted by individuals and organizations that are separate and independent from those that accomplished the work. At a minimum, TFH should accomplish all such reviews outside the district office that performed the work. The ITR can include reviewers external to USACE.

e. The IPR is a function of various triggers identified in Section 2035. The level of review is commensurate with the project’s magnitude and risk. Past experience has shown the importance of IPR in improving USACE plans, projects, and programs. USACE will use the following factors to determine the need for IPR.

- Significant threat to human life
- Cases where information 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
- Project has a reduced or overlapping design-construction schedule
- Project has unique construction sequencing
- Project involves use of innovative materials or techniques
- Project lacks redundancy

f. TFH should consult ER 1110-2-1150, Engineering and Construction for Civil Works Projects, which outlines typical products prepared for Civil Works projects during Pre-Construction, Construction, and O&M phases. Listed below are examples of engineering and construction products that can be subject to an IPR when applicable to the triggers:

- Survey and Investigations studies to insure sufficient quality of data
- Design Documentation Reports, the record of final design
- Engineering Documentation Reports, a report to support when there are minor changes to design and costs
- Value Engineering Studies
- The Design for remediation of Hazardous, Toxic, and Radioactive Waste
- Utility relocations
- Physical model studies
- Engineering support to preparation of Project Partnership Agreements
- Plans, specifications, and cost estimates of critical project features
- Engineering considerations and instructions for field personnel
- Critical construction placement
- Construction Foundation and Concrete Reports
- Project O&M Manuals
- Post Project Monitoring Plans
- Contractor Submittals of critical project features
- Contract Change Order of critical project features



- Post Construction Reports such as Foundation Completion, Embankment Criteria and Performance Evaluations, and Concrete Materials Reports

9. The IPR may take the form of a standing advisory panel of experts that will provide non-binding review of engineering and construction documentation, and inspect construction placement. The IPR panel will perform reviews and site visits in accordance with milestones identified in the Review Plan. The IPR panel has the option to request additional or alternate milestones where warranted and reasonable.

10. An important step in ensuring effective use of the results of review is to clarify at the outset the review panel's roles and how results from the panel's report are to be used. The charge to the review panel should be defined as to whether consistency with an agency's mission and goals is part of the review ("right job"), and/or whether the review is confined to the methods used and the validity of the conclusions and recommendations derived there from ("job right").

11. Recommendations of review panels are not binding. A review panel is to provide a credible assessment of the program or products, which should serve as an evaluation aid to the "Louisiana Water Resources Council", and the Chief of Engineers who is ultimately responsible for the final decision. A review panel should also be able to evaluate whether interpretation of analysis and conclusions based on analysis are reasonable. A review panel should not, however, present a final judgment regarding whether a project alternative or a particular operation plan should be implemented.

12. TFH should provide to the panel information necessary for conducting the review. In addition, the review panel should receive input from relevant stakeholders. The panel's conclusions are provided in a final report. TFH shall consider all comments in the report and prepare a written response to each comment either adopting the comment or not adopting the comment and explaining why. TFH's response to the comments completes the review cycle.

13. The following bullets are guidance for developing the "Charge".

a. Reviews should be conducted to identify, explain, and comment upon assumptions that underlie engineering analyses, as well as to evaluate the soundness of models, surveys, investigations, and methods. A review panel should be given the flexibility to bring important issues to the attention of decision makers. Review panels should be able to evaluate whether the interpretations of analysis and the conclusions based on analysis are reasonable. However, review panels should be instructed to not present a final judgment on whether a project should be constructed or whether a particular operations plan should be implemented, as the Chief of Engineers is ultimately responsible for this final decision.

b. Independent reviews, no matter how useful, should not be expected to resolve fundamental disagreements and controversies. Reviews should focus on assumptions, data, methods, and models.

c. Reviewers could assist USACE in making decisions, but they should not be asked to make decisions themselves. Indeed, reviewers engaged in the independent review processes should be identified for their professional expertise and should not be “stakeholders” at all.

d. Frequent communication will help the review panel understand the technical and practical implications of its recommendations.

e. An issue that frequently arises in review, and one not always easily agreed upon, is defining a review panel’s boundaries of inquiry. It is not uncommon for an agency or other administrative group to try to limit a review panel’s deliberation. However, the line between technical and policy issues is often blurred, and it is often difficult to clearly separate them. TFH should accept comments, but make a distinction in responses when comments pertain to policy which is beyond the scope of a Safety Assurance Review. TFH should respond accordingly and elevate comments on policy HQUSACE for consideration under a non-project specific policy review.

f. Review results should be presented to the Chief of Engineers before a final decision is made. Results should be available to the public.

14. Review panels might carry out their duties in numerous ways. Reviews are often conducted in the traditional style of face-to-face panel discussion led by a panel chair. These meetings often extend over a one to three-day period, and over the course of a study or project, several such meetings may be held. There are, however, other ways in which reviews might be conducted. Review panels might conduct their work sequentially, with pre-meeting assignments followed by discussions in subgroups, followed by reports and plenary discussion by the entire panel. A review panel could employ a professional facilitator, leaving the chair free to fully participate in the discussions. Panels might operate in the open or (consistent with applicable laws) behind closed doors, or both. Panels might meet once or dozens of times. Panels can be standing or ad hoc.

15. A review does not necessarily require panels to meet. There may be instances in which meetings are not feasible because of time, resource, or other constraints, and there are many alternatives to face-to-face meetings. For example, federal agencies commonly use “mail” or “ad hoc” reviews in which draft reports are mailed to expert reviewers. Mail reviews are much less expensive, as there are no travel costs, but they may be far less effective, as reviewers are not able to engage in face-to-face discussion. There may even be instances when a single expert, rather than a panel, is used to review an issue or report. Reviews can employ multiple review levels, in which a parent panel coordinates the review activities of smaller panels, or task forces that are engaged in specific review activities. Difference review panels could be employed at different stages of a study. Telephone calls have been used as a review mechanism, and video-conferencing is increasingly employed. In revising its review procedures, the Corps should be aware of the range of review options, and it may wish to experiment with some of them as its review process matures and improves.

16. In accordance with Reference 3.c, the National Research Council offers the following guidelines for the reviewer’s role:

a. Reviewers should identify, explain, and comment upon assumptions that underlie engineering, analyses, as well as to evaluate the soundness of models, surveys, investigations, and methods. A review panel has the flexibility to bring important issues to the attention of decision makers. Review panels should be able to evaluate whether the interpretations of analysis and the conclusions based on analysis are reasonable. However, review panels should avoid presenting a final judgment on whether a project should be constructed or whether a particular operations plan should be implemented, as the Chief of Engineers is ultimately responsible for this final decision.

b. Review panels should highlight areas of disagreement and controversies that may need resolution.

c. It is important that panelists focus on their review, and not become defenders of their recommendations.

d. Reviewers should assist the Corps in making decisions, but should avoid making decisions themselves.

e. Reviewers should avoid findings that become “directives” in that they call for modifications or additional studies or suggest new conclusions and recommendations. In such circumstances the reviewers may have assumed the role of advisors as well as reviewers, thus introducing bias and potential conflict in their ability to provide objective review later in the project.

f. Reviewers should aim to draw distinctions between criticisms of the regulations and guidelines and criticisms of how well the Corps conformed to the guidance.

17. This is the first application of Section 2035 to a civil works project. It is important to capture lessons learned for incorporation in to the development and evolution of national policy. If you have any questions, please contact David A. Pezza or Zoltan L. Montvai of my office.

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