Final Independent External Peer Review Report Decision and Implementation Documents for Environmental Mitigation for Lake Pontchartrain and Vicinity, Hurricane and Storm Damage Risk Reduction System, Louisiana, Project Description Document

Prepared by
Battelle Memorial Institute

Prepared for
Department of the Army
U.S. Army Corps of Engineers
Coastal Storm Risk Management National Planning Center of Expertise
Baltimore District

Contract No. W911NF-11-D-0001
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January 24, 2014

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by

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Executive Summary

PROJECT BACKGROUND AND PURPOSE

The U.S. Army Corps of Engineers (USACE) designed and constructed the Greater New Orleans Hurricane and Storm Damage Risk Reduction System (HSDRRS). Several of the vital components of this system were built along Lake Pontchartrain and within its vicinity. The purpose of this part of the HSDRRS project is to provide compensatory mitigation for environmental impacts associated with Lake Pontchartrain and Vicinity (LPV) construction work. Activities included plan formulation; environmental clearance; real estate acquisition; development of plans and specifications; construction; monitoring; Operations, Maintenance, Repair, Replacement, and Rehabilitation; and adaptive management. Construction of the LPV HSDRRS components has had unavoidable impacts on five habitat types—marsh, bottomland hardwood wet, bottomland hardwood dry, swamp, and water bottoms. USACE will mitigate to the extent possible for impacts on marsh, bottomland hardwood wet, bottomland hardwood dry, and swamp. At this time the Mississippi Valley Division, New Orleans District is not planning to mitigate for open water impacts incurred from the LPV HSDRRS. Although open water areas may be productive for estuarine fisheries, there are continuing annual gains in various open water habitats due to the relatively high rates of wetland loss in Louisiana. Interspersed open water within and adjacent to marsh were assessed along with marsh impacts using the Wetland Value Assessment community model. Mitigation was included for lost functions of those aquatic habitats.

Implementation of authorized 100-year HSDRRS features for the LPV and HSDRRS will be accomplished through development of multiple Project Description Documents (PDDs), to include an overarching PDD that will demonstrate the overall comprehensive plan for implementation of the authorized feature, including but not limited to levees, floodwalls, armoring, and associated structures. The intended function of the PDD is to provide definition and analysis of the project, evidence of compliance with environmental laws and regulations through alternative National Environmental Policy Act (NEPA) arrangements, an evaluation of cost effectiveness, and a description of Federal and non-Federal responsibilities. The PDD also serves as the supporting documentation for executing Project Partnership Agreements (PPA) (formerly known as Project Cooperation Agreements) and for compliance with policy and authority.

The PDD describes how the Government arrived at the final plan, describes the project covered by the PPA, and documents what USACE plans to construct within USACE authority and policy.

Independent External Peer Review Process

Independent, objective peer review is regarded as a critical element in ensuring the reliability of scientific analysis. USACE is conducting an Independent External Peer Review (IEPR) of the Decision and Mitigation for LPV HSDRRS Louisiana, PDD (hereinafter LPV HSDRRS PDD IEPR). As a 501(c)(3) non-profit science and technology organization, Battelle is independent, is free from conflicts of interest (COIs), and meets the requirements for an Outside Eligible Organization (OEO) per guidance described in USACE (2012). Battelle has experience in establishing and administering peer review panels for USACE and was engaged to coordinate the IEPR of the LPV HSDRRS PDD. The IEPR was external to the agency and conducted following USACE and Office of Management and Budget (OMB) guidance described in USACE (2012) and OMB (2004). This final report presents the Final Panel Comments of the IEPR Panel (the Panel). Details regarding the IEPR (including the process for selecting panel members, the panel members' biographical information and expertise, and the charge submitted to the Panel to guide its review) are presented in appendices.

Based on the technical content of the LPV HSDRRS PDD review documents and the overall scope of the project, Battelle identified candidates for the Panel in the following key technical areas: Civil Works planning and biology/ecology. Civil Works planning and biology/ecology are both technical areas of expertise previously identified for the Louisiana Water Resources Council (LWRC, as defined in the Water Resources Development Act [WRDA] 2007, Section 7009) Primary Panel. Battelle selected two experts for the Panel: Dr. Ken Casavant and Ms. Kay Crouch, who are both members of the LWRC Primary Panel.

The Panel received an electronic version of the 1,653-page LPV HSDRRS PDD review documents, along with a charge that solicited comments on specific sections of the documents to be reviewed. USACE prepared the charge questions following guidance provided in USACE (2012) and OMB (2004), which were included in the draft and final Work Plans.

The USACE Project Delivery Team briefed the Panel and Battelle during a kick-off meeting held via teleconference prior to the start of the review to provide the Panel an opportunity to ask questions of USACE and clarify uncertainties. Other than Battelle-facilitated teleconferences, there was no direct communication between the Panel and USACE during the peer review process. The Panel produced individual comments in response to the charge questions.

IEPR panel members reviewed the LPV HSDRRS PDD documents individually. The panel members then met via teleconference with Battelle to review key technical comments and reach agreement on the Final Panel Comments to be provided to USACE. Each Final Panel Comment was documented using a four-part format consisting of: (1) a comment statement; (2) the basis for the comment; (3) the significance of the comment (high, medium/high, medium, medium/low, or low); and (4) recommendations on how to resolve the comment. Overall, four Final Panel Comments were identified and documented. Of these, one was identified as having medium/high significance, one had a medium significance, one had medium/low significance, and one had low significance.

Results of the Independent External Peer Review

The panel members agreed on their "assessment of the adequacy and acceptability of the economic… and environmental methods, models, and analyses used" (USACE, 2012; p. D-4) in the LPV HSDRRS PDD review documents. Table ES-1 lists the Final Panel Comment statements by level of significance.

The full text of the Final Panel Comments is presented in Section 4.2 of this report. The following summarizes the Panel's findings.

Based on the Panel's review, the PDD is a concise, well-written document, which records an efficient process for developing, analyzing, and screening the alternatives to develop the Tentatively Selected Mitigation Plan Alternative (TSMPA). The main issue identified by the Panel is the use of the 50-year versus 100-year planning horizon for mitigation of effects that may continue beyond 50 years. The pertinent USACE regulation, ER 1105-2-100 (USACE, 2000), offers flexibility in terms of allowing the possible use of a 100-year planning horizon instead of a 50-year planning horizon for complex projects, yet the 100-year horizon was not chosen for this project. The Panel's opinion is that given its level of complexity and the fact that it is providing mitigation for several projects, the project meets the criteria from ER 1105-2-100 (USACE, 2000) for using the 100-year planning horizon. If after further consideration the 100-year horizon is not chosen, the PDD should be updated to provide adequate reasons for selecting the limited 50-year planning horizon over the 100-year plan.

Environmental: Creating a large, well-conceived mitigation project to compensate for the many projects encompassed by the HSDRRS is noteworthy. Likewise, using existing mitigation banks while not depleting them of credits is a very solid decision. Minor concerns include cumulative impacts on Gulf sturgeon critical habitat in Lake Borgne; construction, dredging, and planting effects on anadromous fishes and migratory birds; and potential oil and gas resource development, the latter of which is not specifically excluded in the TSMPA. Inclusion of information clarifying future impacts or plans regarding these issues would strengthen the document.

Civic Works Plan Formulation and Economics: The Panel found that the plan formulation process is clearly developed and implemented and is supported by solid documentation. As a result, the assumptions, methodologies, and results lead to a defensible TSMPA. The Alternative Evaluation Process (AEP) serves very efficiently and effectively as the new planning process. A review of the economic aspects of the PDD found that the work, including modeling, is performed correctly using a well-defined methodology. Illustrations and tables are used effectively to support the decisions being made. Construction costs and temporal considerations are well-developed and presented, given the current stage of the project.

Table ES-1. Overview of Four Final Panel Comments Identified by the LPV HSDRRS PDD IEPR Panel.

No.	Final Panel Comment
Medium/High Priority	
1	Regulatory flexibility in terms of the use of a 100-year planning horizon for complex projects has not been explored, and the reasons for selecting the 50-year planning horizon have not been fully explained.
Medium Priority	
2	The potential impacts from oil and gas resource development in and around mitigation sites are not fully considered and may contravene the project's "no net loss" criterion for mitigation.
Medium/Low Priority	
3	A thorough cumulative effects analysis of the impacts of using borrow material from the Gulf Sturgeon critical habitat in Lake Borgne has not been conducted.
Low Priority	
4	Construction, dredging, and planting schedules as they relate to potential impacts on migratory birds and potentially affected anadromous fishes, including the Gulf sturgeon, have not been fully described.

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LIST OF ACRONYMS

ATR	Agency Technical Review
COI	Conflict of Interest
DrChecks	Design Review and Checking System
EAR	Engineering Alternatives Report
EC	Engineer Circular
ER	Engineer Regulation
ERDC	Engineer Research and Development Center
HSDRRS	Hurricane and Storm Damage Risk Reduction System
IEPR	Independent External Peer Review
LPV	Lake Pontchartrain and Vicinity
LWRC	Louisiana Water Resources Council
NEPA	National Environmental Policy Act
OEO	Outside Eligible Organization
OMB	Office of Management and Budget
PDD	Project Description Document
PDT	Project Delivery Team
PIER	Programmatic Individual Environmental Report
PPA	Project Partnership Agreements
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Services
TSMPA	Tentatively Selected Mitigation Plan Alternative
WRDA	Water Resources Development Act

1. INTRODUCTION

The U.S. Army Corps of Engineers (USACE) designed and constructed the Greater New Orleans Hurricane and Storm Damage Risk Reduction System (HSDRRS). Several of the vital components of this system were built along Lake Pontchartrain and within its vicinity. The purpose of this part of the HSDRRS project is to provide compensatory mitigation for environmental impacts associated with Lake Pontchartrain and Vicinity (LPV) construction work. Activities included plan formulation; environmental clearance; real estate acquisition; development of plans and specifications; construction; monitoring; Operations, Maintenance, Repair, Replacement, and Rehabilitation; and adaptive management. Construction of the LPV HSDRRS components has had unavoidable impacts on five habitat types—marsh, bottomland hardwood wet, bottomland hardwood dry, swamp, and water bottoms. USACE will mitigate to the extent possible for impacts on marsh, bottomland hardwood wet, bottomland hardwood dry, and swamp. At this time the Mississippi Valley Division, New Orleans District is not planning to mitigate for open water impacts incurred from the LPV HSDRRS. Although open water areas may be productive for estuarine fisheries, there are continuing annual gains in various open water habitats due to the relatively high rates of wetland loss in Louisiana. Interspersed open water within and adjacent to marsh were assessed along with marsh impacts using the Wetland Value Assessment community model. Mitigation was included for lost functions of those aquatic habitats.

Implementation of authorized 100-year HSDRRS features for the LPV and HSDRRS will be accomplished through development of multiple Project Description Documents (PDDs), to include an overarching PDD that will demonstrate the overall comprehensive plan for implementation of the authorized feature, including but not limited to levees, floodwalls, armoring, and associated structures. The intended function of the PDD is to provide definition and analysis of the project, evidence of compliance with environmental laws and regulations through alternative National Environmental Policy Act (NEPA) arrangements, an evaluation of cost effectiveness, and a description of Federal and non-Federal responsibilities. The PDD also serves as the supporting documentation for executing Project Partnership Agreements (PPA) (formerly known as Project Cooperation Agreements) and for compliance with policy and authority.

The PDD documents how the Government arrived at the final plan, describes the project covered by the PPA, and documents what USACE plans to construct within USACE authority and policy.

Independent, objective peer review is regarded as a critical element in ensuring the reliability of scientific analysis. The objective of the work described here was to conduct an Independent External Peer Review (IEPR) of the Decision and Mitigation for LPV HSDRRS Louisiana, PDD (hereinafter LPV HSDRRS PDD IEPR) in accordance with procedures described in the Department of the Army, USACE, Engineer Circular (EC) *Civil Works Review* (EC 1165-2-214) (USACE, 2012) and the Office of Management and Budget (OMB) bulletin *Final Information Quality Bulletin for Peer Review* (OMB, 2004). Supplemental guidance on evaluation for conflicts of interest (COIs) was obtained from the *Policy on Committee Composition and Balance and Conflicts of Interest for Committees Used in the Development of Reports* (The National Academies, 2003).

This final report presents the Final Panel Comments of the IEPR Panel (the Panel) on the existing environmental, plan formulation, and economic analyses contained in the LPV HSDRRS PDD IEPR documents (Section 4). Appendix A describes in detail how the IEPR was planned and conducted. Appendix B provides biographical information on the IEPR panel members and describes the method

Battelle followed to select them. Appendix C presents the final charge to the IEPR panel members for their use during the review; the final charge was submitted to USACE on December 6, 2013.

2. PURPOSE OF THE IEPR

To ensure that USACE documents are supported by the best scientific and technical information, USACE has implemented a peer review process that uses IEPR to complement the Agency Technical Review (ATR), as described in USACE (2012).

In general, the purpose of peer review is to strengthen the quality and credibility of the USACE decision documents in support of its Civil Works program. IEPR provides an independent assessment of the environmental and plan formulation analyses of the project study. In particular, the IEPR addresses the technical soundness of the project study's assumptions, methods, analyses, and calculations and identifies the need for additional data or analyses to make a good decision regarding implementation of alternatives and recommendations.

In this case, the IEPR of the LPV HSDRRS PDD was conducted and managed using contract support from Battelle, which is an Outside Eligible Organization (OEO) (as defined by EC 1165-2-214). Battelle, a 501(c)(3) organization under the U.S. Internal Revenue Code, has experience conducting IEPRs for USACE.

3. METHODS FOR CONDUCTING THE IEPR

The methods used to conduct the IEPR are briefly described in this section; a detailed description can be found in Appendix A. Table 1 presents the major milestones and deliverables of the LPV HSDRRS PDD IEPR. Due dates for milestones and deliverables are based on the pre-award funding date of November 14, 2013.[1] Note that the work items listed under Task 6 occur after the submission of this report. Battelle anticipates submitting the pdf printout of the USACE's Design Review and Checking System (DrChecks) project file (the final deliverable) on February 27, 2014.

Table 1. Major Milestones and Deliverables of the LPV HSDRRS PDD IEPR

Task	Action	Due Date
1	Pre-Award Funding Authorization	11/14/2013
	Notice to Proceed	11/19/2013
	Review documents available	11/272013
2	Battelle submits list of selected panel members	11/22/2013
	USACE confirms the panel members have no COI	12/02/2013

[1] Pre-award funding authorization was received from the USACE Contracting Officer's Representative and the Army Research Office's (ARO) Contracting Officer to begin initial work on the project on November 14, 2013 to meet the expedited schedule.

Table 1. Major Milestones and Deliverables of the LPV HSDRRS PDD IEPR (continued)

Task	Action	Due Date
3	Battelle convenes kick-off meeting with USACE	11/25/2013
	Battelle convenes kick-off meeting with USACE and panel members	12/11/2013
4	Panel members complete their individual reviews	12/23/2013
	Panel members provide draft Final Panel Comments to Battelle	01/08/2014
5	Battelle submits Final IEPR Report to USACE	01/24/2014
6[a]	Battelle convenes Comment-Response Teleconference with panel members and USACE	02/11/2014
	Battelle submits pdf printout of DrChecks project file to USACE	02/27/2014
	Contract End/Delivery Date	11/13/2014

[a] *Task 6 occurs after the submission of this report.*

Battelle identified, screened, and selected two panel members to participate in the IEPR based on their expertise in the following disciplines: Civil Works planning and biology/ecology. The Panel reviewed the LPV HSDRRS PDD document and produced four Final Panel Comments in response to 11 charge questions provided by USACE for the review. This charge included two additional questions added by Battelle that sought summary information from the IEPR Panel. Battelle instructed the Panel to develop the Final Panel Comments using a standardized four-part structure:

1. Comment Statement (succinct summary statement of concern)
2. Basis for Comment (details regarding the concern)
3. Significance (high, medium/high, medium, medium/low, or low; in accordance with specific criteria for determining level of significance)
4. Recommendation(s) for Resolution (at least one implementable action that could be taken to address the Final Panel Comment).

Battelle reviewed all Final Panel Comments for accuracy, adherence to USACE guidance (EC 1165-2-214, Appendix D), and completeness prior to determining that they were final and suitable for inclusion in the Final IEPR Report. There was no direct communication between the Panel and USACE during the preparation of the Final Panel Comments. The Panel's findings are summarized in Section 4.1; the Final Panel Comments are presented in full in Section 4.2.

4. RESULTS OF THE IEPR

This section presents the results of the IEPR. A summary of the Panel's findings and the full text of the Final Panel Comments are provided.

4.1 Summary of Final Panel Comments

The panel members agreed on their "assessment of the adequacy and acceptability of the economic … and environmental methods, models, and analyses used" (USACE, 2012; p. D-4) in the LPV HSDRRS PDD IEPR review document. The following summarizes the Panel's findings.

Based on the Panel's review, the PDD is a concise, well-written document, which records an efficient process for developing, analyzing, and screening the alternatives to develop the Tentatively Selected Mitigation Plan Alternative (TSMPA). The main issue identified by the Panel is the use of the 50-year versus 100-year planning horizon for mitigation of effects that may continue beyond 50 years. The pertinent USACE regulation, ER 1105-2-100 (USACE, 2000), offers flexibility in terms of allowing the possible use of a 100-year planning horizon instead of a 50-year planning horizon for complex projects, yet the 100-year horizon was not chosen for this project. The Panel's opinion is that given its level of complexity and the fact that it is providing mitigation for several projects, the project meets the criteria from ER 1105-2-100 (USACE, 2000) for using the 100-year planning horizon. If after further consideration the 100-year horizon is not chosen, the PDD should be updated to provide adequate reasons for selecting the limited 50-year planning horizon over the 100-year plan.

Environmental: Creating a large, well-conceived mitigation project to compensate for the many projects encompassed by the HSDRRS is noteworthy. Likewise, using existing mitigation banks while not depleting them of credits is a very solid decision. Minor concerns include cumulative impacts on Gulf sturgeon critical habitat in Lake Borgne; construction, dredging, and planting effects on anadromous fishes and migratory birds; and potential oil and gas resource development, the latter of which is not specifically excluded in the TSMPA. Inclusion of information clarifying future impacts or plans regarding these issues would strengthen the document.

Civic Works Plan Formulation and Economics: The Panel found that the plan formulation process is clearly developed and implemented and is supported by solid documentation. As a result, the assumptions, methodologies, and results lead to a defensible TSMPA. The Alternative Evaluation Process (AEP) serves very efficiently and effectively as the new planning process. A review of the economic aspects of the PDD found that the work, including modeling, is performed correctly using a well-defined methodology. Illustrations and tables are used effectively to support the decisions being made. Construction costs and temporal considerations are well-developed and presented, given the current stage of the project.

4.2 Final Panel Comments

This section presents the full text of the Final Panel Comments prepared by the IEPR panel members.

Final Panel Comment 1

Regulatory flexibility in terms of the use of a 100-year planning horizon for complex projects has not been explored, and the reasons for selecting the 50-year planning horizon have not been fully explained.

Basis for Comment

The planning horizon selected for the purpose and need for the TSMPA is 50 years, which matches the planning horizon for the HSDRRS projects. Page 20 of the PDD states that this planning horizon complies with USACE ER 1105-2-100 (USACE, 2000). The ER indicates that a 100-year planning horizon may be used for large, complex projects with multiple elements, and that these may be considered on a case-by-case basis under the ER. HSDRRS projects and their attendant wetlands and habitat impacts can be considered both large and complex.

Based on the modeling and analysis, the TSMPA will fulfill the mitigation requirement for the 50-year planning horizon. However, once monitoring and maintenance of the constructed mitigation projects cease, the habitat quality of the sites will begin to degrade even though the HSDRRS projects will persist. At that point, there will be a net loss of wetlands functions and values. Without review of the mitigation banking instruments (which were not provided to the Panel), it was not possible for the Panel to discern the long-term destiny of those sites.

The HSDRRS projects that are being compensated for by the TSMPA will survive, in terms of their footprints, far longer than 50 years. The Panel believes that a case can be made that a 100-year planning horizon would comply with ER 1105-2-100 and would be appropriate for the TSMPA, particularly in light of the “no net loss” criterion and a claim that the project will achieve that goal for the HSDRRS projects.

Significance – Medium/High

Given the allowance in ER 1105-2-100 of a 100-year horizon for multiple and complex projects, further analysis and explanation of the 50-year planning horizon would support the rationale for the TSMPA.

Recommendation for Resolution

1. Analyze the requirements of ER 1105-2-100 (USACE, 2000) with respect to the assertion that the 50-year planning horizon must be selected for the TSMPA for the HSDRRS projects in order to comply with the guidance.

2. Research the criteria that have led to the selection of a 100-year planning horizon for other complex USACE projects, and compare those criteria to the HSDRRS and the TSMPA scenario.

3. Analyze and explain how the TSMPA results in “no net loss” of wetlands once monitoring and maintenance are discontinued after 50 years, even though the HSDRRS projects will persist.

4. Compare the mitigation banking instruments and their requirements to the Adaptive Management Plan for the TSMPA and expected ongoing maintenance of the constructed elements, and explain any differences.

5. If the 50-year planning horizon is retained, explain the decision for its retention and clarify how this decision relates to the professional judgment anticipated by ER 1105-2-100 (USACE, 2000) for complex projects.

Final Panel Comment 2

The potential impacts from oil and gas resource development in and around mitigation sites are not fully considered and may contravene the project's "no net loss" criterion for mitigation.

Basis for Comment

The development of access canals, drilling sites, and other appurtenances of the oil and gas industries may result in significant habitat loss, degradation, and fragmentation; land loss within and near the TSMPA; and a loss of wetland functions and values over time.

The Panel was unable to evaluate exclusions (activities that will not be permitted to occur) within the identified mitigation banks because the banking instruments were not provided for review. However, exclusions spelled out for activities within the constructed elements of the TSMPA did not include a prohibition on oil and gas resource development. Allowing oil and gas resource development within or adjacent to either the banks or the constructed elements of the TSMPA may adversely affect the project, including degradation of functions and values of the sites such that they no longer meet the "no net loss" criterion.

Significance – Medium

The analysis of the functions and values to be achieved by the TSMPA is not complete without considering the potential cumulative effects of allowing oil and gas resource development within or adjacent to the mitigation sites.

Recommendations for Resolution

1. Describe activities that are prohibited within the mitigation banks being considered for the TSMPA, and clarify whether oil and gas resource development is to be allowed.
2. Analyze the potential adverse environmental effects (direct and cumulative) of allowing oil and gas resource development in and around the mitigation sites comprising the TSMPA (both banks and constructed elements).
3. Analyze potential regulatory authorities that can be used by USACE to protect the project from the adverse effects of oil and gas resource development. For example, special conditions can be included in permits issued under Section 404 of the Clean Water Act requiring oil and gas resource developers to restore affected areas to their original conditions.
4. Evaluate any effects that oil and gas resource development within the TSMPA might have on operating and maintenance expenses within the projects.
5. Explain how the functions and values of the TSMPA sites would be assured if the sites were subject to the effects of oil and gas resource development.

Final Panel Comment 3

A thorough cumulative effects analysis of the impacts of using borrow material from the Gulf Sturgeon critical habitat in Lake Borgne has not been conducted.

Basis for Comment

Neither the PDD nor the Programmatic Individual Environmental Report #36 (PIER) fully addresses the impacts of using borrow material from Lake Borgne. Therefore, the Panel was unable to discern potential cumulative effects on the critical habitat of the Gulf Sturgeon, a listed species, from multiple projects planned in the project area that may potentially use borrow material from the lake. The proposed TSMPA concludes that the constructed elements of the project would not adversely impact the Gulf Sturgeon. However, in its coordination report, the U.S. Fish and Wildlife Service (USFWS) indicated that such a conclusion is optimistic and that a more correct assessment would be that the Gulf Sturgeon may be, but is unlikely to be, affected by the constructed elements of the project.

In order to support a statement that the Gulf Sturgeon may be, but is unlikely to be, affected, as recommended by the USFWS, a more thorough cumulative effects analysis regarding the borrow area is required. If cumulative effects on this species resulting from this project, in conjunction with multiple other planned projects, are underestimated, there may indeed be an adverse effect on the Gulf Sturgeon and its critical habitat.

Significance – Medium/Low

Without a thorough cumulative effects analysis regarding the Lake Borgne borrow location, the statement that the Gulf Sturgeon and its critical habitat will not be adversely affected is unsubstantiated in the project documentation.

Recommendations for Resolution

1. Research and include in the documentation a list of all projects that may use the Lake Borgne borrow location.
2. Describe the cumulative effects of multiple projects, if there are others, using Lake Borgne and the Gulf Sturgeon designated critical habitat as a borrow location.
3. Evaluate the USFWS recommendation to state that there may be, but is unlikely to be, an adverse effect on the Gulf Sturgeon or its critical habitat as a result of using the borrow location.
4. In the project documentation, using the cumulative effects analysis as a basis for discussion, elaborate on the conclusion that there is unlikely to be an adverse effect on the Gulf Sturgeon or its critical habitat from construction of the TSMPA.

Final Panel Comment 4

Construction, dredging, and planting schedules as they relate to potential impacts on migratory birds and potentially affected anadromous fishes, including the Gulf sturgeon, have not been fully described.

Basis for Comment

The project documentation does not specify whether the timing of construction, dredging, and planting has been fully considered with respect to potential effects on anadromous fishes and migratory birds.

Migratory bird use of the chenieres is mentioned in the documentation. However, construction and planting schedules are not described for constructed elements of the plan for this and other habitats, such as bottomland hardwoods. How construction and planting will comply with the Migratory Bird Act is not fully explained.

Construction, dredging, and planting of the constructed elements of the TSMPA, as well as use of the borrow area in Lake Borgne, may affect anadromous fish species, including the Gulf sturgeon. The timing of dredging and construction may mitigate these effects to some extent. The documentation does not clearly state whether the timing of construction, dredging, and planting has been considered in this light. The documentation is also unclear as to whether construction timing would affect project costs, and, if so, whether it would impact the selection of alternatives.

Significance – Low

By taking into account the mitigating effects of judiciously scheduling construction, dredging, and planting activities with respect to migratory birds and anadromous fishes such as the Gulf sturgeon, the discussion of construction impacts associated with the proposed TSMPA would be strengthened.

Recommendation for Resolution

1. Describe potential mitigating effects of judicious timing of construction, dredging, and planting on migratory birds and anadromous fishes.
2. Adopt recommendations of the USFWS, the National Marine Fisheries Service, and other resource agencies with respect to the timing of construction, dredging, and planting constructed elements of the TSMPA.
3. Include a schedule for construction, dredging, and planting in the project documentation that considers mitigating effects of construction timing.
4. Describe impacts that construction timing may have on project costs, if any, and discuss whether those costs would affect the selection of specific alternatives.

5. REFERENCES

OMB (2004). Final Information Quality Bulletin for Peer Review. Executive Office of the President, Office of Management and Budget, Washington, D.C. Memorandum M-05-03. December 16.

The National Academies (2003). Policy on Committee Composition and Balance and Conflicts of Interest for Committees Used in the Development of Reports. The National Academies (National Academy of Science, National Academy of Engineering, Institute of Medicine, National Research Council). May 12.

USACE (2012). Water Resources Policies and Authorities: Civil Works Review. Department of the Army, U.S. Army Corps of Engineers, Washington, D.C. Engineer Circular (EC) 1165-2-214. December 15.

USACE (2000). Planning – Planning Guidance Notebook. Department of the Army, U.S. Army Corps of Engineers, Washington, D.C. Engineer Regulation (ER) 1105-2-100. April 22.

APPENDIX A

IEPR Process for the LPV HSDRRS PDD Project

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A.1 Planning and Conduct of the Independent External Peer Review (IEPR)

Table A-1 presents the schedule followed in executing the Lake Pontchartrain and Vicinity Hurricane Storm Damage Risk Reduction System Project Description Document Independent External Peer Review (LPV HSDRRS PDD IEPR). Due dates for milestones and deliverables are based on the pre-award funding date of November 14, 2013. The review documents were provided by U.S. Army Corps of Engineers (USACE) on November 27, 2013. Note that the work items listed under Task 6 occur after the submission of this report. Battelle will enter the four Final Panel Comments developed by the Panel into USACE's Design Review and Checking System (DrChecks), a Web-based software system for documenting and sharing comments on reports and design documents, so that USACE can review and respond to them. USACE will provide responses (Evaluator Responses) to the Final Panel Comments, and the Panel will respond (BackCheck Responses) to the Evaluator Responses. All USACE and Panel responses will be documented by Battelle. Battelle will provide USACE and the Panel a pdf printout of all DrChecks entries, through comment closeout, as a final deliverable and record of the IEPR results.

Table A-1. LPV HSDRRS PDD Complete IEPR Schedule

Task	Action	Due Date
1	Pre-award funding authorization	11/14/2013
	Notice to Proceed	11/19/2013
	Review documents available	11/27/2013
	Battelle submits draft Work Plan[a]	11/22/2013
	USACE provides comments on draft Work Plan	11/26/2013
	Battelle submits final Work Plan[a]	12/06/2013
2	Battelle requests input from USACE on the conflict of interest (COI) questionnaire	11/18/2013
	USACE provides comments on COI questionnaire	11/20/2013
	Battelle submits list of selected panel members[a]	11/22/2013
	USACE confirms the panel members have no COI	12/02/2013
	Battelle completes subcontracts for panel members	12/06/2013
3	Battelle convenes kick-off meeting with USACE	11/25/2013
	Battelle sends review documents to panel members	12/05/2013
	Battelle convenes kick-off meeting with panel members	12/06/2013
	Battelle convenes kick-off meeting with USACE and panel members	12/11/2013
4	Panel members complete their individual reviews	12/23/2013
	Battelle provides panel members with talking points for Panel Review Teleconference	12/30/2013
	Battelle convenes Panel Review Teleconference	12/30/2013
	Battelle provides Final Panel Comment templates and instructions to panel members	01/08/2014

Table A-1. LPV HSDRRS PDD Complete IEPR Schedule (continued)

Task	Action	Due Date
4	Panel members provide draft Final Panel Comments to Battelle	01/08/2014
	Battelle provides feedback to panel members on draft Final Panel Comments; panel members revise Final Panel Comments	1/9/14-1/13/14
	Panel finalizes Final Panel Comments	01/13/2014
5	Battelle provides Final IEPR Report to panel members for review	1/17/2014
	Panel members provide comments on Final IEPR Report	1/22/2014
	Battelle submits Final IEPR Report to USACE[a]	1/24/2014
6[b]	Battelle inputs Final Panel Comments to DrChecks and provides Final Panel Comment response template to USACE	1/28/2014
	Battelle convenes teleconference with USACE to review the Post-Final Panel Comment Response Process	1/28/2014
	Battelle convenes teleconference with Panel to review the Post-Final Panel Comment Response Process	1/28/2014
	USACE provides draft Project Delivery Team (PDT) Evaluator Responses to Battelle	1/31/2014
	Battelle provides the panel members the draft PDT Evaluator Responses	2/4/2014
	Panel members provide Battelle with draft BackCheck Responses	2/7/2014
	Battelle convenes teleconference with panel members to discuss draft BackCheck Responses	2/10/2014
	Battelle convenes Comment-Response Teleconference with panel members and USACE	2/11/2014
	USACE inputs final PDT Evaluator Responses to DrChecks	2/19/2014
	Battelle provides final PDT Evaluator Responses to panel members	2/20/2014
	Panel members provide Battelle with final BackCheck Responses	2/25/2014
	Battelle inputs the Panel's final BackCheck Responses in DrChecks	2/26/2014
	Battelle submits pdf printout of DrChecks project file[a]	2/27/2014
	Contract End/Delivery Date	11/14/2014

a Deliverable.

b Task 6 occurs after the submission of this report

After receiving the pre-award funding for the LPV HSDRRS PDD IEPR, Battelle held a kick-off meeting with USACE to review the preliminary/suggested schedule, discuss the IEPR process, and address any questions regarding the scope (e.g., clarify expertise areas needed for panel members). Any revisions to the schedule were submitted as part of the final Work Plan. In addition, 11 charge questions were provided by USACE and included in the draft and final Work Plans. Battelle added two additional questions that sought summary information from the IEPR Panel. The final charge also included general guidance for the Panel on the conduct of the peer review (provided in Appendix C of this final report).

Prior to beginning their review and within three days of their subcontracts being finalized, both members of the Panel attended a kick-off meeting via teleconference planned and facilitated by Battelle in order to review the IEPR process, the schedule, communication procedures, and other pertinent information for the Panel. Battelle planned and facilitated a second kick-off meeting via teleconference during which USACE presented project details to the Panel. Before the meetings, the IEPR Panel received an electronic version of the final charge as well as the LPV HSDRRS PDD review documents and reference materials listed below. The documents and files in bold font were provided for review; the other documents were provided for reference or supplemental information only.

- **LPV HSDRRS PDD including some Appendices (300 pages)**
- **LPV HSDRRS PDD Appendix A – Programmatic Individual Environmental Report (PIER) (826 pages)**
- **LPV HSDRRS PDD Appendix D – Engineering Alternatives Report (EAR) (527 pages)**
- HSDRRS Mitigation Policy Guidance (333 pages)
- Video Teleconference Fact Sheets (50 pages)
- Public Review Comments on PIER Comments (114 pages)
- USACE guidance Civil Works Review, (EC 1165-2-214) dated 15 December 2012
- Office of Management and Budget's *Final Information Quality Bulletin for Peer Review* released December 16, 2004.

About halfway through the review of the LPV HSDRRS PDD IEPR documents, the Panel provided Battelle two questions regarding the project. USACE answered the questions via email. Based on a review of the information provided in the email, the Panel determined that a mid-review teleconference was not necessary with USACE.

A.2 Review of Individual Comments

The Panel was instructed to address the charge questions/discussion points within a charge question response table provided by Battelle. At the end of the review period, the Panel produced individual comments in response to the charge questions/discussion points. Battelle reviewed the comments to identify overall recurring themes, areas of potential conflict, and other overall impressions. At the end of the review, Battelle summarized the individual comments in a preliminary list of four overall comments and discussion points. Each panel member's individual comments were shared with the full Panel in a merged individual comments table.

A.3 IEPR Panel Teleconference

Battelle facilitated a 1.5-hour teleconference with the Panel so that the panel members could exchange technical information. The main goal of the teleconference was to identify which issues should be carried forward as Final Panel Comments in the Final IEPR Report and decide which panel member would serve as the lead author for the development of each Final Panel Comment. This information exchange ensured that the Final IEPR Report would accurately represent the Panel's assessment of the project, including any conflicting opinions. The Panel engaged in a thorough discussion of the overall positive and negative comments, added any missing issues of significant importance to the findings, and merged any related individual comments. At the conclusion of the teleconference, Battelle reviewed each Final Panel

Comment with the Panel, including the associated level of significance, and confirmed the lead author for each comment.

At the end of these discussions, the Panel identified five comments and discussion points that should be brought forward as Final Panel Comments.

A.4 Preparation of Final Panel Comments

Following the teleconference, Battelle prepared a summary memorandum for the Panel documenting each Final Panel Comment (organized by level of significance). The memorandum provided the following detailed guidance on the approach and format to be used to develop the Final Panel Comments for the LPV HSDRRS PDD IEPR:

- Lead Responsibility: For each Final Panel Comment, one Panel member was identified as the lead author responsible for coordinating the development of the Final Panel Comment and submitting it to Battelle. Battelle modified lead assignments at the direction of the Panel. To assist each lead in the development of the Final Panel Comments, Battelle distributed the merged individual comments table, a summary detailing each draft final comment statement, an example Final Panel Comment following the four-part structure described below, and templates for the preparation of each Final Panel Comment.

- Directive to the Lead: Each lead was encouraged to communicate directly with the other panel member as needed and to contribute to a particular Final Panel Comment. If a significant comment was identified that was not covered by one of the original Final Panel Comments, the appropriate lead was instructed to draft a new Final Panel Comment.

- Format for Final Panel Comments: Each Final Panel Comment was presented as part of a four-part structure:

    1. Comment Statement (succinct summary statement of concern)

    2. Basis for Comment (details regarding the concern)

    3. Significance (high, medium/high, medium, medium/low, and low; see description below)

    4. Recommendation(s) for Resolution (see description below).

- Criteria for Significance: The following were used as criteria for assigning a significance level to each Final Panel Comment:
    1. **High:** Describes a fundamental issue with the project that affects the current recommendation or justification of the project, and which will affect its future success, if the project moves forward without the issue being addressed. Comments rated as high indicate that the Panel determined that the current methods, models, and/or analyses contain a “showstopper” issue.

    2. **Medium/High:** Describes a potential fundamental issue with the project, which has not been evaluated at a level appropriate to this stage in the Planning process. Comments rated as medium/high indicate that the Panel analyzed or assessed the methods, models, and/or

analyses available at this stage in the Planning Process and has determined that if the issue is not addressed, it could lead to a “showstopper” issue.

3. **Medium:** Describes an issue with the project, which does not align with the currently assessed level of risk assigned at this stage in the Planning process. Comments rated as medium indicate that, based on the information provided, the Panel identified an issue that would raise the risk level if the issue is not appropriately addressed.

4. **Medium/Low:** Affects the completeness of the report at this time in describing the project, but will not affect the recommendation or justification of the project. Comments rated as medium/low indicate that the Panel does not currently have sufficient information to analyze or assess the methods, models, or analyses.

5. **Low:** Affects the understanding or accuracy of the project as described in the report, but will not affect the recommendation or justification of the project. Comments rated as low indicate that the Panel identified information that was mislabeled or incorrect or that certain data or report section(s) were not clearly described or presented.

- Guidelines for Developing Recommendations: The recommendation section was to include specific actions that USACE should consider to resolve the Final Panel Comment (e.g., suggestions on how and where to incorporate data into the analysis, how and where to address insufficiencies, areas where additional documentation is needed).

During the Final Panel Comment development process, the Panel determined that one of the Final Panel Comments no longer met the criteria for at least a low-level of significance. At the end of this process, four Final Panel Comments were prepared and assembled. There was no direct communication between the Panel and USACE during the preparation of the Final Panel Comments. The Final Panel Comments are presented in the main report.

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APPENDIX B

Identification and Selection of IEPR Panel Members
for the LPV HSDRRS PDD Project

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B.1 Panel Identification

The candidates for the Lake Pontchartrain and Vicinity Hurricane Storm Damage Risk Reduction System Project Description Document Independent External Peer Review (LPV HSDRRS PDD IEPR) Panel were evaluated based on their technical expertise in the following key areas: Civil Works planning and biology/ecology. These areas correspond to the technical content of the LPV HSDRRS PDD IEPR review documents and overall scope of the LPV HSDRRS PDD project.

Civil Works planning and biology/ecology are both technical areas of expertise previously identified for the Louisiana Water Resources Council (LWRC, as defined in the Water Resources Development Act [WRDA] 2007, Section 7009) Primary Panel. Battelle consulted with the appropriate LWRC Primary Panel Members for these expertise areas (Dr. Ken Casavant and Ms. Kay Crouch) and confirmed that their expertise and schedule commitments made them suitable to serve on the Panel.

Battelle made the final selection of panel members according to the selection criteria described in the Work Plan. The final Panel was composed of two expert reviewers, with both experts coming from the LWRC Primary Panel. Information about the candidate panel members, including brief biographical information, highest level of education attained, and years of experience, was provided to USACE for feedback.

The two selected reviewers constituted the final Panel. The remaining candidates were not proposed for a variety of reasons, including lack of availability, disclosed COIs, or lack of the precise technical expertise required.

The candidates were screened for the following potential exclusion criteria or COIs.[2] These COI questions were intended to serve as a means of disclosure and to better characterize a candidate's employment history and background. Providing a positive response to a COI screening question did not automatically preclude a candidate from serving on the Panel. For example, participation in previous USACE technical peer review committees and other technical review panel experience was included as a COI screening question. A positive response to this question could be considered a benefit.

- Previous and/or current involvement by you or your firm[3] in the LPV HSDRRS PDD project, including the project's PDD.
- Previous and/or current involvement by you or your firm[2] in any work on the HSDRRS.
- Previous and/or current involvement by you or your firm[2] in LPV HSDRRS-related projects.

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[2] Battelle evaluated whether scientists in universities and consulting firms that are receiving USACE-funding have sufficient independence from USACE to be appropriate peer reviewers. See OMB (2004, p. 18), "….when a scientist is awarded a government research grant through an investigator-initiated, peer-reviewed competition, there generally should be no question as to that scientist's ability to offer independent scientific advice to the agency on other projects. This contrasts, for example, to a situation in which a scientist has a consulting or contractual arrangement with the agency or office sponsoring a peer review. Likewise, when the agency and a researcher work together (e.g., through a cooperative agreement) to design or implement a study, there is less independence from the agency. Furthermore, if a scientist has repeatedly served as a reviewer for the same agency, some may question whether that scientist is sufficiently independent from the agency to be employed as a peer reviewer on agency-sponsored projects."

[3] Includes any joint ventures in which a panel member's firm is involved and if the firm serves as a prime or as a subcontractor to a prime.

- Previous and/or current involvement by you or your firm[2] in the conceptual or actual design, construction, or operation and maintenance of the LPV HSDRRS project or in related projects.
- Current employment by USACE.
- Previous and/or current involvement with paid or unpaid expert testimony related to the LPV HSDRRS project or the HSDRRS in general.
- Previous and/or current employment or affiliation with the East Jefferson Levee District and/or Jefferson Parish, or with any of the following cooperating Federal, State, County, local and regional agencies, environmental organizations, and interested groups who are involved in this project (for pay or pro bono).
- Past, current, or future interests or involvements (financial or otherwise) by you, your spouse, or your children related to any HSDRRS project, notably the LPV project or future benefits from the project.
- Current personal involvement with other USACE projects, including whether involvement was to author any manuals or guidance documents for USACE. If yes, provide titles of documents or description of project, dates, and location (USACE district, division, Headquarters, Engineer Research and Development Center (ERDC), etc.), and position/role. Please highlight and discuss in greater detail any projects that are specifically with the New Orleans District.
- Previous or current involvement with the development or testing of models that will be used for or in support of the LPV HSDRRS project.
- Current firm[2] involvement with other USACE projects, specifically those projects/contracts that are with the New Orleans District. If yes, provide title/description, dates, and location (USACE district, division, Headquarters, ERDC, etc.), and position/role. Please also clearly delineate the percentage of work you personally are currently conducting for the New Orleans District. Please explain.
- Any previous employment by USACE as a direct employee, notably if employment was with the New Orleans District. If yes, provide title/description, dates employed, and place of employment (district, division, Headquarters, ERDC, etc.), and position/role.
- Any previous employment by the USACE as a contractor (either as an individual or through your firm[2]) within the last 10 years, notably if those projects/contracts are with the New Orleans District. If yes, provide title/description, dates employed, and place of employment (district, division, Headquarters, ERDC, etc.), and position/role.
- Previous experience conducting technical peer reviews. If yes, please highlight and discuss any technical reviews concerning hurricane and storm damage risk reduction projects or studies, and include the client/agency and duration of review (approximate dates).
- Pending, current, or future financial interests in LPV HSRDDS-related contracts/awards from USACE.
- A significant portion (i.e., greater than 50%) of personal or firm[2] revenues within the last 3 years came from USACE contracts.
- A significant portion (i.e., greater than 50%) of personal or firm[2] revenues within the last 3 years from contracts with the non-Federal sponsor (East Jefferson Levee District).
- Any publicly documented statement (including, for example, advocating for or discouraging against) related to the LPV HSDRRS project.
- Participation in relevant prior and/or current Federal studies relevant to the LPV HSDRRS project.

- Previous and/or current participation in prior non-Federal studies relevant to the LPV HSDRRS project.
- Is there any past, present, or future activity, relationship, or interest (financial or otherwise) that could make it appear that you would be unable to provide unbiased services on this project? If so, please describe.

Other considerations:

- Participation in previous USACE technical review panels
- Other technical review panel experience.

B.2 Panel Selection

In selecting the final members of the Panel, Battelle chose experts who best fit the expertise areas and had no COIs. One of the two final reviewers is affiliated with a consulting company; the other is an independent consultant. Battelle established subcontracts with the panel members when they indicated their willingness to participate and confirmed the absence of COIs through a signed COI form. USACE was given the list of candidate panel members, but Battelle selected the final Panel.

An overview of the credentials of the final two members of the Panel and their qualifications in relation to the technical evaluation criteria is presented in Table B-1. More detailed biographical information regarding each panel member and his or her area of technical expertise is presented in Section B.3.

Table B-1. LPV HSDRRS PDD IEPR Panel: Technical Criteria and Areas of Expertise

Technical Criterion	Casavant	Crouch
Civil Works Planning		
Minimum 10 years of experience in public works planning	X	
Direct experience working with or for USACE	X	
Familiarity with USACE plan formulation process, procedures, and standards	X	
Familiarity with USACE hurricane and coastal storm damage risk reduction projects	X	
Minimum of 5 years of experience directly dealing with the USACE six-step planning process, governed by ER 1105-2-100 (Planning Guidance Notebook)	X	
Experience identifying and evaluating impacts on environmental resources from structural flood risk management and hurricane and coastal storm damage reduction projects	X	
Biology/Ecology		
Minimum 10 years of experience in evaluating and conducting National Environmental Policy Act (NEPA) impact assessments, including cumulative effects analyses, for complex multi-objective public works projects with competing trade-offs		X
Knowledge of the Endangered Species Act with regional knowledge of south Louisiana-specific regulatory requirements		X
Experience working with NEPA impact assessment in marsh and urban areas and related ecosystem species and habitats		X
Familiarity with USACE calculation of evaluation of environmental benefits		X
Experience with and working knowledge of the implementation of the NEPA compliance process		X
M.S. degree or higher in an appropriate field of study		X

B.3 Panel Member Qualifications

Ken Casavant, Ph.D.

Role: Civil Works planning expertise.
Affiliation: Independent Consultant

Dr. Casavant is a professor and agricultural economist at the School of Economic Sciences at Washington State University, Director of the Freight Policy Transportation Institute, and adjunct professor at North Dakota State's Upper Great Plains Transportation Institute since 2002. He earned his Ph.D. in economics from Washington State University in 1971 and has 45 years of experience as an economist, with expertise in transportation economics and planning.

Dr. Casavant also has over 10 years' experience in plan formulation, evaluation, and comparison of alternative plans for numerous USACE projects, including coastal storm risk management, ecosystem restoration, and navigation studies. He provided technical reviews of the Lower Columbia River Channel Deepening Project, the Upper Mississippi and Illinois Navigation Study, the Barataria Basin Barrier Shoreline Restoration Study, the Donaldsonville to the Gulf flood control project, the Morganza to the Gulf of Mexico Hurricane Protection Project, and the Mississippi River Gulf Outlet Ecosystem Restoration Plan, among others. All of these technical reviews involved analyzing, evaluating, and comparing alternative plans and analyses and evaluating the projects against the USACE six-step planning process.

His review work on these USACE projects have familiarized him with a detailed and complete inventory of USACE standards and procedures including the IWR-Planning Suite methodologies, with a focus on ecological output per dollar of relevant expenditure for alternative project formulations. His experience with the USACE six-step planning process, which is governed by ER 1105-2-100, Planning Guidance Notebook (USACE, 2000), has been established from his work as a technical reviewer and peer reviewer on more than 20 projects. These include the Port of Iberia Channel Deepening Project in 2006 for USACE, the External Independent Economic Opinion on Identifying and Measuring National Economic Development Benefits: Navigation Shipping, and the Morganza to the Gulf study, a hurricane protection and storm damage risk reduction project.

Dr. Casavant has experience identifying and evaluating impacts to environmental resources from structural flood risk and impacts related to hurricane and coastal storm damage risk reduction projects. The six most recent projects he has contributed to had critical components concerning the impacts of environmental resources from flood risk and coastal storm damage. He has also been a plan formulator expert on five separate IEPRs, several of the projects had a specific objective to evaluate the damage reduction and the risk associated with achieving benefits of the flood risk management and one project focused specifically on the impact to shorelines.

Dr. Casavant has published more than 70 journal articles and has contributed to hundreds of other publications. He is a member of numerous professional associations including the Transportation Research Board, National Research Council, the International Agricultural Economics Association, and the Logistics and Physical Distribution Association.

Kay Crouch

Role: Biology/ecology expertise.
Affiliation: Crouch Environmental Services, Inc.

Ms. Crouch is the president of Crouch Environmental Services, Inc., a company specializing in National Environmental Policy Act (NEPA) analysis, environmental site assessment, permitting, and mitigation for projects with high public and interagency interests. She earned her M.S. in aquatic biology/ecology in 1978 from Steven F. Austin State University, and has received 100 hours of additional NEPA training from Duke University (2004-06).

Ms. Crouch has over 30 years of nationwide experience in conducting environmental site assessments and NEPA impact assessments for complex multi-objective public works projects with competing trade-offs. Examples of such projects include the Clear Creek Flood Damage Reduction Project (USACE, Galveston), the Bayport Container Terminal (Port of Houston, Texas), and a number of highway and roadway projects for the Texas Department of Transportation. For the first 10 years of her consulting career, Ms. Crouch worked predominately in Louisiana performing NEPA analyses for oil and gas pipelines crossing the Louisiana Coastal Zone. She also has over 30 years of experience in the application and analysis of species and habitats pursuant to the Endangered Species Act, including specific experience in Louisiana. Every NEPA project she has performed and every wetlands permit she has obtained have required a field investigation, literature research, and documentation of listed species.

Ms. Crouch is a specialist in marsh habitat (both freshwater and saline) and she has been analyzing marsh habitats (including those in urban areas) for over 30 years. Specific cases include the award-winning Baytown Nature Center project, which was a 60-acre marsh created from an abandoned subdivision as mitigation for a Superfund site; marsh creation projects at the mouth of Cedar Bayou and at Barbours Cut Container Terminal; the restoration of prairie lowland in Deer Park, Texas; and gama grass restoration projects in coastal prairies.

Ms. Crouch is familiar with USACE calculations and application of environmental impacts and benefits and routinely performs cumulative effects analyses on high visibility public works projects as part of her extensive NEPA practice. All NEPA projects that she has performed for USACE have required the calculation of environmental benefits, using Hydrogeomorphic Model, Habitat Evaluation Procedures, Wetland Value Assessment, and other models to establish losses and benefits. Most recently, she performed this analysis for the Addicks and Barker Dams Environmental Assessment in Harris County, Texas for the Galveston District. In addition, all of the IEPRs that she has participated in have involved benefit calculation analyses.

APPENDIX C

Final Charge to the IEPR Panel
as Submitted to USACE on December 6, 2013,
for the LPV HSDRRS PDD Project

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CHARGE QUESTIONS AND GUIDANCE TO THE PANEL MEMBERS FOR THE IEPR OF THE DECISION AND IMPLEMENTATION DOCUMENTS FOR ENVIRONMENTAL MITIGATION FOR LPV HSDRRS PDD

BACKGROUND

The purpose of this project is to provide compensatory mitigation for environmental impacts associated with Lake Pontchartrain and Vicinity (LPV) construction work and is funded through the 3rd through the 7th Supplemental Appropriations Acts. Activities included plan formulation, environmental clearance, real estate acquisition, development of plans and specifications, construction, monitoring, Operations, Maintenance, Repair, Replacement and Rehabilitation, and adaptive management. Construction of the LPV HSDRRS has caused unavoidable impacts to five habitat types—marsh, bottomland hardwood wet, bottomland hardwood dry, swamp, and water bottoms. USACE will mitigate to the extent possible for impacts to marsh, bottomland hardwood wet, bottomland hardwood dry, and swamp. At this time the Mississippi Valley Division, New Orleans District is not planning to mitigate for open water impacts incurred from the LPV HSDRRS. Although open water areas may be productive for estuarine fisheries, there are continuing annual gains in various open water habitats due to the relatively high rates of wetland loss in Louisiana. Interspersed open water within and adjacent to marsh were assessed along with marsh impacts using the Wetland Value Assessment community model. Mitigation was included for lost functions of those aquatic habitats.

Implementation of authorized 100 Year Hurricane Damage Risk Reduction System features for the LPV and HSDRRS will be accomplished through development of multiple Project Description Documents (PDDs), to include an overarching PDD that will demonstrate the overall comprehensive plan for implementation of the authorized feature, including but not limited to levees, floodwalls, armoring, and associated structures. The intended function of the PDD is to provide definition and analysis of the project, evidence of compliance with environmental laws and regulations through alternative National Environmental Policy Act (NEPA) arrangements, an evaluation of cost effectiveness, and a description of Federal and non-Federal responsibilities.

The PDD provides definition and analysis of the LPV HSDRRS project, from both the engineering and real estate perspectives, as well as evidence of environmental compliance, cost effectiveness, and a description of Federal and non-Federal responsibilities. The PDD also serves as the supporting documentation for execution of the Project Partnership Agreements (PPA) (formerly known as Project Cooperation Agreements) and provide documentation for compliance with policy and authority.

The PDD provides documentation that tells how the Government arrived at the final plan, describes the project covered by the PPA, and documents what USACE plans to construct within USACE authority and policy.

OBJECTIVES

The objective of this work is to conduct an independent external peer review (IEPR) of the Brazos Island Harbor, Texas, Channel Improvement Project Draft Integrated Feasibility Report and Environmental Assessment (hereinafter: LPV HSDRRS PDD IEPR) in accordance with the Department of the Army, USACE, Water Resources Policies and Authorities' *Civil Works Review* (EC 1165-2-214, dated December 15, 2012), and the Office of Management and Budget's *Final Information Quality Bulletin for Peer Review* (December 16, 2004).

Peer review is one of the important procedures used to ensure that the quality of published information meets the standards of the scientific and technical community. Peer review typically evaluates the clarity of hypotheses, validity of the research design, quality of data collection procedures, robustness of the methods employed, appropriateness of the methods for the hypotheses being tested, extent to which the conclusions follow from the analysis, and strengths and limitations of the overall product.

The purpose of the IEPR is to assess the "adequacy and acceptability of the economic, engineering, and environmental methods, models, and analyses used" (EC 1165-2-214; p. D-4) for the LPV HSDRRS PDD IEPR documents. The IEPR will be limited to technical review and will not involve policy review. The IEPR will be conducted by subject matter experts (i.e., IEPR panel members) with extensive experience in engineering, economic, environmental, plan formulation, and real estate issues relevant to the project. They will also have experience applying their subject matter expertise to deep draft navigation.

The Panel will be "charged" with responding to specific technical questions as well as providing a broad technical evaluation of the overall project. Per EC 1165-2-214, Appendix D, review panels should identify, explain, and comment upon assumptions that underlie all the analyses, as well as evaluate the soundness of models, surveys, investigations, and methods. Review panels should be able to evaluate whether the interpretations of analysis and the conclusions based on analysis are reasonable. Reviews should focus on assumptions, data, methods, and models. The panel members may offer their opinions as to whether there are sufficient analyses upon which to base a recommendation.

DOCUMENTS PROVIDED

The following is a list of documents, supporting information, and reference materials that will be provided for the review.

Documents for Review

The following documents are to be reviewed by designated discipline:

Review Documents	
Title	**Number of Pages**
Project Description Document (Includes Real Estate Plan and 2 Fact Sheets)	
PDD_PD_Memo.pdf	1
PDD_PRO_MFR_(Signed).pdf	3
PDD_framework.pdf	1
20131024_LPV_HSDRRS_Mitigation_PDD_(compressed_to_reduce_file_size).pdf	295
PDD Appendix A Programmatic Individual Environmental Report (PIER)	
Final_PIER_36_LPV_HSDRRS_Mitigation.pdf	341
PIER_36_Appendix_A_(figures).pdf	39
PIER_36_Appendix_B_(tables).pdf	85
PIER_36_Appendix_C_through_P.pdf	177
PIER_36_Appendix_Q_Agency_Coorespondance1.pdf	168
PIER_36_Decision_Record_(Signed).pdf	9
PDD Appendix D Engineering Alternatives Report (EAR)	
LPV_Mitigation_EAR_(Signed).pdf	527
Total Pages	**527**
Supplemental Documents	
HSDRRS Mitigation Policy Guidance	
3rd_and_4th_Supplemental_Crediting_Approval_06-09-27.pdf	2
3rd_Supp_Waivers_06-08-21.pdf	3
3rd_Supplemental_Appropriation_Policy_Guidance_06-02-14.pdf	6
20080414_Approved_Request_for_Exemption_from_NWRS_Mitigation_Policy.pdf	4

Supplemental Documents	
bayouauxcarpes404c2009finaldetermmod5-2009hr.pdf	21
FWS_on-refuge_impacts_mitigation.pdf	6
Implementation_Guidance_WRDA_07_Sec_2036.pdf	10
Implementation_Guidance_WRDA_2007_Sec_2036(c).pdf	3
LPV_HSDRRS_Mitigation_Applicable_Policies.docx	1
MemoWVA_Application_Guidance_20110321CEMVD.pdf	3
NPS_77-1_Proc_Manual_2011_FINAL.pdf	42
NPS_Management_Policies_2006.pdf	180
USACE_alternative_arrangements_NEPA_process.pdf	13
USACE_alternative_arrangements_NEPA_process_appendix.pdf	38
WBV_HSDRRS_Mitigation_Applicable_Policies.docx	1
Video Teleconference Fact Sheets	
Armoring_VTC_FS_Approved__9_Jul_07.doc	6
Barataria___VTC_FS_Approved_9_Jul_07.doc	4
Caernarvon_Freshwater_Diversion_VTC_FS_Approved_9_Jul_07.doc	4
IHNC_VTC_FACT_SHEET_-_Approved_11_Mar_08_Final.pdf	6
MRGO_DDD_VTC_FS_Approved_9_Jul_07.doc	3
MRGO_OM_VTC_Fact_Sheet_Final_Approved_17_Aug_07(1).doc	3
PCCP-Canal_Closures_VTC__Approved_3_Dec_08.doc	5
Plaquemines_Parish_NFL_VTC_FS_Approved_9_Jul_07.doc	4
Stormproofing_VTC_Fact_Sheet_Final_Approved_23_May07.doc	5
Terrebonne_Parish_NFL_VTC_FS_Approved_9_Jul_07.doc	3
Terrebonne_Parish_NFL_VTC_FS_Approved_9_Jul_07_map.doc	3
Vertical_Settlement_VTC_Fact_Sheet_Final_Approved_17_Aug_07.doc	4

Supplemental Documents	
Public Review Comments on PIER Comments	
FINAL_21_Oct_13__PIER_36_Comment-Response_Spreadsheet.pdf	9 (107 Comments)
Total Page Count	**2036**

Documents for Reference

- USACE guidance *Civil Works Review*, (EC 1165-2-214) dated 15 December 2012
- Office of Management and Budget's *Final Information Quality Bulletin for Peer Review* released December 16, 2004.

SCHEDULE

This final schedule is based on the November 20, 2013, receipt of the final review documents.

Task	Action	Due Date
Conduct Peer Review	Battelle sends review documents to panel members	12/06/2013
	Battelle convenes kick-off meeting with panel members	12/06/2013
	Battelle convenes kick-off meeting with USACE and panel members	12/11/2013
	Battelle convenes mid-review teleconference for panel members to ask clarifying questions of USACE	12/16/2013
	Panel members complete their individual reviews	12/23/2013
Prepare Final Panel Comments and Final IEPR Report	Battelle provides panel members with talking points for Panel Review Teleconference	12/30/2013
	Battelle convenes Panel Review Teleconference	12/30/2013
	Battelle provides Final Panel Comment templates and instructions to panel members	12/31/2013
	Panel members provide draft Final Panel Comments to Battelle	01/08/2014
	Battelle provides feedback to panel members on draft Final Panel Comments; panel members revise Final Panel Comments	01/08/2014-01/13/2014
	Panel finalizes Final Panel Comments	01/13/2014
	Battelle provides Final IEPR Report to panel members for review	01/17/2014
	Panel members provide comments on Final IEPR Report	01/22/2014
	Battelle submits Final IEPR Report to USACE	01/24/2014

Task	Action	Due Date
Comment/ Response Process	Battelle inputs Final Panel Comments to DrChecks and provides Final Panel Comment response template to USACE	01/28/2014
	Battelle convenes teleconference with Panel to review the Post-Final Panel Comment Response Process (if necessary)	01/28/2014
	USACE provides draft PDT Evaluator Responses to Battelle	01/31/2014
	Battelle provides the panel members the draft PDT Evaluator Responses	02/04/2014
	Panel members provide Battelle with draft BackCheck Responses	02/07/2014
	Battelle convenes teleconference with panel members to discuss draft BackCheck Responses	02/10/2014
	Battelle convenes Comment-Response Teleconference with panel members and USACE	02/11/2014
	USACE inputs final PDT Evaluator Responses to DrChecks	02/19/2014
	Battelle provides PDT Evaluator Responses to panel members	02/20/2014
	Panel members provide Battelle with final BackCheck Responses	02/25/2014
	Battelle inputs the panel members' final BackCheck Responses to DrChecks	02/26/2014
	Battelle submits pdf printout of DrChecks project file	02/27/2014

CHARGE FOR PEER REVIEW

Members of this IEPR Panel are asked to determine whether the technical approach and scientific rationale presented in the LPV HSDRRS PDD documents are credible and whether the conclusions are valid. The Panel is asked to determine whether the technical work is adequate, competently performed, properly documented, satisfies established quality requirements, and yields scientifically credible conclusions. The Panel is being asked to provide feedback on the economic, engineering, environmental resources, and plan formulation. The panel members are not being asked whether they would have conducted the work in a similar manner.

Specific questions for the Panel (by report section or Appendix) are included in the general charge guidance, which is provided below.

General Charge Guidance

Please answer the scientific and technical questions listed below and conduct a broad overview of the LPV HSDRRS PDD documents. Please focus your review on the review materials assigned to your discipline/area of expertise and technical knowledge. Even though there are some sections with no questions associated with them, that does not mean that you cannot comment on them. Please feel free to make any relevant and appropriate comment on any of the sections and appendices you were asked to review. In addition, please note the following guidance. Note that the Panel will be asked to provide an overall statement related to 2 and 3 below per USACE guidance (EC 1165-2-214; Appendix D).

1. Your response to the charge questions should not be limited to a “yes” or “no.” Please provide complete answers to fully explain your response.
2. Assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, and any biological opinions of the project study.
3. Assess the adequacy and acceptability of the economic analyses, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, and models used in evaluating economic or environmental impacts of the proposed project.
4. If appropriate, offer opinions as to whether there are sufficient analyses upon which to base a recommendation.
5. Identify, explain, and comment upon assumptions that underlie all the analyses, as well as evaluate the soundness of models, surveys, investigations, and methods.
6. Evaluate whether the interpretations of analysis and the conclusions based on analysis are reasonable
7. Please focus the review on assumptions, data, methods, and models.

Please **do not** make recommendations on whether a particular alternative should be implemented, or whether you would have conducted the work in a similar manner. Also please **do not** comment on or make recommendations on policy issues and decision making. Comments should be provided based on your professional judgment, **not** the legality of the document.

1. If desired, panel members can contact one another. However, panel members **should not** contact anyone who is or was involved in the project, prepared the subject documents, or was part of the USACE Agency Technical Review (ATR).
2. Please contact the Battelle Project Manager (Lynn McLeod, mcleod@battelle.org) or Program Manager (Karen Johnson-Young (johnson-youngk@battelle.org) for requests or additional information.
3. In case of media contact, notify the Battelle Program Manager, Karen Johnson-Young (johnson-youngk@battelle.org) immediately.
4. Your name will appear as one of the panel members in the peer review. Your comments will be included in the Final IEPR Report, but will remain anonymous.

Please submit your comments in electronic form to Lynn McLeod, mcleod@battelle.org, no later than December 23, 2013, 10 pm ET.

IEPR of the Decision and Implementation Documents for Environmental Mitigation for Lake Pontchartrain and Vicinity, Hurricane and Storm Damage Risk Reduction System, Louisiana, Project Description Document

CHARGE QUESTIONS AND RELEVANT SECTIONS AS SUPPLIED BY USACE

1. Is the purpose and need for the project clearly defined?
2. Is the no action alternative clearly described and legal requirements clearly described?
3. Are the models used to assess the habitat impacts and mitigation potential of alternatives appropriate in this context?
4. Is the period of analysis appropriate for the purpose and need of this project?
5. Are the objectives and constraints reasonable and were they adequately considered during the development and evaluation of mitigation alternatives?
6. Were the methods used to develop and screen alternatives adequate and acceptable?
7. Are the alternatives adequately developed such that they can be compared? Was the level of engineering input and data gathering sufficient to make an evaluation and decision, given the project constraints?
8. Is the use of programmatic NEPA compliance adequately explained?
9. Are the criteria used to evaluate the alternatives adequate and appropriate?
10. Was the process used to select the recommended alternative rational and was the process implemented in a reasonable manner given the project constraints?
11. Will the selected plan adequately fulfill the mitigation requirement?

Overview Questions

12. Please identify the most critical concerns (up to five) you have with the project and/or review documents.
13. Please provide positive feedback on the project and/or review documents

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