

Final Independent External Peer Review Report Mobile Harbor, Alabama, Draft Integrated General Reevaluation Report and Supplemental Environmental Impact Statement

Prepared by
Battelle Memorial Institute

Prepared for
Department of the Army
U.S. Army Corps of Engineers
Deep Draft Navigation Planning Center of Expertise
New Orleans District

Contract No. W912HQ-15-D-0001
Task Order: W912HQ18F0078

November 12, 2018

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It can be done

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505 King Avenue
Columbus, Ohio 43201

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Executive Summary

PROJECT BACKGROUND AND PURPOSE

The U.S. Army Corps of Engineers (USACE) is working on improvements to Mobile Harbor, Alabama, which is located in the southwestern part of the state at the junction of the Mobile River with the head of Mobile Bay. The port is about 28 nautical miles north of the bay entrance from the Gulf of Mexico and 170 nautical miles east of New Orleans, Louisiana. The current dimensions of the existing navigation channel are: 47 feet deep by 600 feet wide across Mobile Bar, 45 feet deep by 400 feet wide in the bay, and 45 feet deep by 730 feet wide in the Mobile River to a point about 1 mile below the Interstate 10 highway tunnels. The channel then becomes 40 feet deep and proceeds north over the Interstate 10 and U.S. 90 highway tunnels to the Cochrane/Africatown Bridge. The Mobile River, on which the Alabama State Port Authority facilities are located, is formed some 45 miles north of the city with the joining of the Alabama and Black Warrior/Tombigbee Rivers. The Mobile River also serves as the gateway to international commerce for the Tennessee/Tombigbee Waterway. In the southern region of Mobile Bay, access can be gained to the Gulf Intracoastal Waterway, which stretches from St. Marks, Florida, to Brownsville, Texas.

Improvements to Mobile Harbor were most recently reauthorized in Section 201 of the Water Resources Development Act of 1986 (PL 99 – 662, Ninety-ninth Congress, Second Session), which was approved 17 November 1986 and subsequently amended by Section 302 of the Water Resources Development Act of 1996. This authorization recommended the following improvements to the Federal project:

- Deepen and widen the entrance channel over the bar (a distance of about 7.4 miles) to 57 feet deep by 700 feet wide;
- Deepen and widen Mobile Bay Channel from the mouth of the bay to south of Mobile River (a distance of about 27 miles) to 55 feet deep by 550 feet wide;
- Deepen and widen an additional 4.2 miles of Mobile Bay Channel to 55 feet deep by 650 feet wide;
- Provide a 55-foot-deep anchorage area and turning basin in the vicinity of Little Sand Island; and
- Deepen the Mobile River Channel to 55 feet to a point about 1 mile below the Interstate 10 and U.S. 90 highway tunnels.

The project area encompasses the primary Federal navigation channel within the harbor, including the 47-foot-deep bar channel and the 45-foot-deep navigation channel through the bay and into the Mobile River as well as the turning basin near Little Sand Island. Included are any shorelines and extensions of

the water bodies and disposal areas that are potentially impacted by channel enlargement alternatives as well as the ocean dredged material disposal site (ODMDS).

Basic structural measures considered for this study consist of deepening and widening the channel; easing bends in the bar channel, passing lanes, and meeting areas; and modifying the turning basin. Nonstructural measures considered include relocating navigation aids, using tugs, lightering, light-loading, topping-off offshore, and scheduling.

The study has examined the costs and benefits as well as the environmental impacts of increasing the dimensions of the existing Federal project within its authorized limits. Over time, cargo volume has grown. Likewise, the size and number of vessels calling on the port have also increased. This growth has resulted in harbor congestion and vessel delays as vessels often wait to transit the channel. Other inefficiencies relate to the existing channel depth, which limits the volume of cargo that can be carried during channel transit (i.e., loaded ship draft).

The Tentatively Selected Plan (TSP) consists of deepening the existing channel an additional 4 feet (the depth of the existing channel is -45 feet mean lower low water (MLLW) in the bay and -47 feet MLLW in the bar segment); adding 100 feet of widening for a distance of three miles beginning at the upper end of the bend area; conducting bend easing activities with the deepening at the upper end of the bar channel; and modifying the Choctaw Pass turning basin to ensure safe operations. The study has examined placement of construction dredged sediments as well as long-term placement of incremental operation and maintenance (O&M) sediments. It is anticipated that the dredged material would be placed in an approved area (either the Environmental Protection Agency (EPA)-approved ODMDS or in open-water placement areas) or made available for beneficial use.

The Mobile Harbor, Alabama, Draft Integrated General Reevaluation Report (GRR) and Supplemental Environmental Impact Statement (SEIS) has been developed to reflect the USACE modernized planning initiative, in which project studies use a risk-informed assessment, generally with only enough detail developed for each alternative to allow relative comparison, to determine the appropriate information to identify a TSP. Although this new process has altered the milestones and evaluation procedures in a feasibility study, the manner in which alternatives are developed from problems, opportunities, measures, and constraints remains the same.

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 Mobile Harbor, Alabama, Draft Integrated General Reevaluation Report and Supplemental Environmental Impact Statement (GRR/SEIS) (hereinafter: Mobile Harbor 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 (2018). Battelle has experience in establishing and administering peer review panels for USACE and was engaged to coordinate this IEPR. The IEPR was external to the agency and conducted following USACE and Office of Management and Budget (OMB) guidance described in USACE (2018) 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 decision documents and the overall scope of the project, Battelle identified potential candidates for the Panel in the following key technical areas: Civil Works planning, economics, environmental, hydraulic/coastal engineering, and geotechnical engineering. Battelle screened the candidates to identify those most closely meeting the selection criteria and evaluated them for COIs and availability. USACE was given the list of all the final candidates to independently confirm that they had no COIs, and Battelle made the final selection of the four-person Panel from this list.

The Panel received electronic versions of the decision documents (2,418 pages in total), along with a charge that solicited comments on specific sections of the documents to be reviewed. Following guidance provided in USACE (2018) and OMB (2004), USACE prepared the charge questions, which were included in the draft and final Work Plans.

The USACE Project Delivery Team (PDT) briefed the Panel and Battelle during a kick-off meeting held via teleconference at 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.

IEPR panel members reviewed the decision documents individually and produced individual comments in response to the charge questions. 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, eight Final Panel Comments were identified and documented. Of these, two were identified as having medium/high significance, four had medium significance, and two had medium/low significance.

Battelle received public comments from USACE on the Mobile Harbor study (four files containing approximately 945 pages of written comments and transcripts) and provided them to the IEPR panel members. Of the 945 pages, approximately 172 pages contained technical and scientific comments which were the focus of the Panel's review; however, panel members had access to all remaining public comments as supplemental information. The panel members were charged with determining if any information or concerns presented in the public comments raised any additional discipline-specific technical concerns with regard to the Mobile Harbor review documents. After completing its review, the Panel confirmed that no new issues or concerns were identified other than those already covered in the Final Panel Comments.

Results of the Independent External Peer Review

The panel members agreed on their "assessment of the adequacy and acceptability of the economic, engineering, and environmental methods, models, and analyses used" (USACE, 2018) in the Mobile Harbor 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 report is well-written and has documented the work done to date very well. The documents reviewed provide a detailed and comprehensive description and inventory of the potentially affected biological environment. The modeling studies conducted were very good. The Panel found several elements of the project, though, that should be completed, expanded, or clarified.

Economics / Plan Formulation: The Panel found that adequate and acceptable models were used to evaluate existing and future economic conditions. However, the Panel has two primary concerns: 1) no multiport analysis was conducted to identify relevant competing port trade flows based on analysis of trade routes, commodities, and competing port facilities; and 2) the Draft Integrated GRR/SEIS does not include a sensitivity analysis of the impacts of the risk and uncertainty associated with the commodity and vessel fleet forecasts to the National Economic Development (NED) benefits and selection of the TSP. The Panel recommends that a multiport analysis be conducted to characterize shared commodity flows between Mobile Harbor and other ports and that a sensitivity analysis be conducted to determine the potential impacts to NED benefits and to the TSP identification. The Panel also noted that a more detailed Purpose and Need statement is needed to clarify project needs as they relate to the forecasted number and size of ships in the channel, commodity transport growth in the region, and the impacts to shipping delays and inefficiencies that could continue if the TSP were not implemented.

Engineering: The Panel believes the Draft Integrated GRR/SEIS adequately addresses the stated need and intent from an engineering perspective relative to scientific and technical issues identified in this phase of the study. There appears to be an abundance of geotechnical boring data. However, the Panel noted that there appears to be very limited geotechnical strength data, resulting in uncertainty in slope stability estimates for the proposed dredging prisms. In addition, the absence of field data on any potentially chemically contaminated sediments is a source of uncertainty and risk for project cost and sediment disposal options. To address these concerns, the Panel recommends the following: 1) provide soil strength data and document slope stability analyses, and 2) justify the finding that chemically contaminated sediments are unlikely and describe contingencies in the event they are encountered.

Environmental: The Panel noted that an extensive modeling approach was undertaken and that no significant impacts appear likely on freshwater wetlands. Hydrodynamic modeling indicates no increased impacts to Dauphin Island or other offshore islands under the project. Most of the analyses appear well-done and sufficiently detailed and documented. The Panel did note, however, that the analysis of environmental impacts relies heavily on a modeling approach, making it difficult to verify whether other impacts will occur and, if so, what would be done to address them. Specifically, the impacts of open-water disposal on benthic macroinvertebrates, fisheries, and other biota such as sea turtles have not been adequately addressed. The Panel recommends including a discussion of why sea turtles and other offshore species would not be affected (incorporating regional data to support the discussion) and considering a monitoring plan for shoreline erosion to enable comparisons of pre- and post-project conditions.

Table ES-1. Overview of the Eight Final Panel Comments Identified by the Mobile Harbor IEPR Panel

No.	Final Panel Comment
Significance – Medium/High	
1	A multiport analysis to identify relevant competing port trade flows based on analysis of trade routes, commodities, and port facilities was not conducted.
2	The Mobile Harbor Draft Integrated GRR/SEIS does not include a sensitivity analysis of the impacts of the risk and uncertainty associated with the commodity and vessel fleet forecasts to the NED benefits and selection of the TSP.
Significance – Medium	
3	Limited geotechnical strength data and associated slope stability estimates for the proposed dredging prisms, particularly in the turning basin, are a source of risk and uncertainty for the project cost, schedule, and sediment disposal capacity.
4	The absence of field data on potentially chemically contaminated sediments is a source of risk and uncertainty for the project cost, schedule, and sediment disposal options.
5	The Purpose and Need statement for the project does not provide enough detail to allow clear identification and evaluation of project alternatives.
6	The analysis of environmental impacts relies heavily on a modeling approach, making it difficult to verify whether impacts will actually occur and, if so, what would be done to address them.
Significance – Medium/Low	
7	The analysis of beneficial use alternatives for dredged material does not provide sufficient details on the overall environmental, logistical, and economic impacts of beneficial reuse, nor does it adequately discuss direct shore placement at locations of specific concern to the public.
8	The drafts of the design vessels for the alternatives analysis are given as 50.8 and 51.6 feet, which are greater than the actual channel depth.

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LIST OF ACRONYMS

ACHP	Advisory Council on Historic Preservation
ADH	Adaptive Hydraulics Modeling System
ADM	Agency Decision Milestone
ASPA	Alabama State Port Authority
BNC	Bremerton Naval Complex
CEM	Certified Energy Manager
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COI	Conflict of Interest
DDN	Deep Draft Navigation
DMMP	Dredged Material Management Plan
DrChecks	Design Review and Checking System
EC	Engineer Circular
EFDC	Environmental Fluid Dynamics Code
ELAM	Eulerian-Lagrangian-Agent Model
EPA	Environmental Protection Agency
ER	Engineer Regulation
ERDC	Engineer Research and Development Center
ETL	Engineer Technical Letter
FS	Factor of Safety
FY	Fiscal Year
GRR	General Reevaluation Report
HEC-RAS	Hydrologic Engineering Center River Analysis System
HEC-ResSim	Hydrologic Engineering Center Reservoir System Simulation
HSDRRS	Hurricane and Storm Damage Risk Reduction System
IEPR	Independent External Peer Review
IWR	Institute for Water Resources
LEED AP	LEED® Accredited Professional
LSRP	Licensed Site Remediation Professional
MARAD	U.S. Maritime Administration
MLLW	Mean Lower Low Water

NED	National Economic Development
NEPA	National Environmental Policy Act
NOV	New Orleans to Venice
O&M	Operation and Maintenance
OEO	Outside Eligible Organization
OMB	Office of Management and Budget
ODMDS	Ocean Dredged Material Disposal Site
P&G	Principles and Guidelines
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PDT	Project Delivery Team
PED	Preconstruction Engineering and Design
PWS	Professional Wetland Scientist
SAR	Safety Assurance Review
SEIS	Supplemental Environmental Impact Statement
SFWMD	South Florida Water Management District
TSP	Tentatively Selected Plan
TEU	Twenty-foot Equivalent Unit
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey

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1. INTRODUCTION

The U.S. Army Corps of Engineers (USACE) is working on improvements to Mobile Harbor, Alabama, which is located in the southwestern part of the state at the junction of the Mobile River with the head of Mobile Bay. The port is about 28 nautical miles north of the bay entrance from the Gulf of Mexico and 170 nautical miles east of New Orleans, Louisiana. The current dimensions of the existing navigation channel are: 47 feet deep by 600 feet wide across Mobile Bar, 45 feet deep by 400 feet wide in the bay, and 45 feet deep by 730 feet wide in the Mobile River to a point about 1 mile below the Interstate 10 highway tunnels. The channel then becomes 40 feet deep and proceeds north over the Interstate 10 and U.S. 90 highway tunnels to the Cochrane/Africatown Bridge. The Mobile River, on which the Alabama State Port Authority facilities are located, is formed some 45 miles north of the city with the joining of the Alabama and Black Warrior/Tombigbee Rivers. The Mobile River also serves as the gateway to international commerce for the Tennessee/Tombigbee Waterway. In the southern region of Mobile Bay, access can be gained to the Gulf Intracoastal Waterway, which stretches from St. Marks, Florida, to Brownsville, Texas.

Improvements to Mobile Harbor were most recently reauthorized in Section 201 of the Water Resources Development Act of 1986 (PL 99 – 662, Ninety-ninth Congress, Second Session), which was approved 17 November 1986 and subsequently amended by Section 302 of the Water Resources Development Act of 1996 to read:

(a) *“AUTHORIZATION OF CONSTRUCTION - The following projects for harbors are authorized to be prosecuted by the Secretary substantially in accordance with the plans and subject to the conditions recommended in the respective reports designated in this subsection:*

The project for navigation, Mobile Harbor, Alabama: Report of the Chief of Engineers, dated November 18, 1981, at a total cost of \$451,000,000, with an estimated first Federal cost of \$255,000,000 and an estimated first non-Federal cost of \$196,000,000.”

This authorization recommended the following improvements to the Federal project:

- Deepen and widen the entrance channel over the bar (a distance of about 7.4 miles) to 57 feet deep by 700 feet wide;
- Deepen and widen Mobile Bay Channel from the mouth of the bay to south of Mobile River (a distance of about 27 miles) to 55 feet deep by 550 feet wide;
- Deepen and widen an additional 4.2 miles of Mobile Bay Channel to 55 feet deep by 650 feet wide;
- Provide a 55-foot-deep anchorage area and turning basin in the vicinity of Little Sand Island; and
- Deepen the Mobile River Channel to 55 feet to a point about 1 mile below the Interstate 10 and U.S. 90 highway tunnels.

The project area encompasses the primary Federal navigation channel within the harbor, including the 47-foot-deep bar channel and the 45-foot-deep navigation channel through the bay and into the Mobile River as well as the turning basin near Little Sand Island. Included are any shorelines and extensions of

the water bodies and disposal areas that are potentially impacted by channel enlargement alternatives as well as the ocean dredged material disposal site (ODMDS).

Construction of Mobile Harbor to its current depth and width was completed in fiscal year (FY) 1994. The construction was limited to less than the authorized dimensions because the sponsor did not have the funds to construct to the fully authorized depth. A 1,300-foot extension in the river channel was completed in 2000. Extensions of 1,200 feet and 2,100 feet in the river channel were completed in FY 2008. The turning basin construction was completed in August 2010.

Basic structural measures considered for this study consist of deepening and widening the channel; easing bends in the bar channel, passing lanes, and meeting areas; and modifying the turning basin. Nonstructural measures considered include relocating navigation aids, using tugs, lightering, light-loading, topping-off offshore, and scheduling.

The study has examined the costs and benefits as well as the environmental impacts of increasing the dimensions of the existing Federal project within its authorized limits. Over time, cargo volume has grown. Likewise, the size and number of vessels calling on the port have also increased. This growth has resulted in harbor congestion and vessel delays as vessels often wait to transit the channel. Other inefficiencies relate to the existing channel depth, which limits the volume of cargo that can be carried during channel transit (i.e., loaded ship draft).

The Tentatively Selected Plan (TSP) consists of deepening the existing channel an additional 4 feet (the depth of the existing channel is -45 feet mean lower low water (MLLW) in the bay and -47 feet MLLW in the bar segment); adding 100 feet of widening for a distance of three miles beginning at the upper end of the bend area; conducting bend easing activities with the deepening at the upper end of the bar channel; and modifying the Choctaw Pass turning basin to ensure safe operations. The study has examined placement of construction dredged sediments as well as long-term placement of incremental operation and maintenance (O&M) sediments. It is anticipated that the dredged material would be placed in an approved area (either the Environmental Protection Agency (EPA)-approved ODMDS or in open-water placement areas) or made available for beneficial use.

The Mobile Harbor, Alabama, Draft Integrated General Reevaluation Report (GRR) and Supplemental Environmental Impact Statement (SEIS) has been developed to reflect the USACE modernized planning initiative, in which project studies use a risk-informed assessment, generally with only enough detail developed for each alternative to allow relative comparison, to determine the appropriate information to identify a TSP. Although this new process has altered the milestones and evaluation procedures in a feasibility study, the manner in which alternatives are developed from problems, opportunities, measures, and constraints remains the same.

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 Mobile Harbor, Alabama, Draft Integrated General Reevaluation Report and Supplemental Environmental Impact Statement (hereinafter: Mobile Harbor IEPR) in accordance with procedures described in the Department of the Army, USACE, Engineer Circular (EC) *Review Policy for Civil Works* (EC 1165-2-217) (USACE, 2018) and the Office of Management and Budget (OMB) *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 engineering, economic, environmental, and plan formulation analyses contained in the Mobile Harbor IEPR documents (Section 4). Appendix A describes in detail how the IEPR was planned and conducted, including the schedule followed in executing the IEPR. 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 in the final Work Plan according to the schedule listed in Table A-1. Appendix D presents the organizational COI form that Battelle completed and submitted to the Institute for Water Resources (IWR) prior to the award of the Mobile Harbor IEPR.

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, as described in USACE (2018).

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 engineering, economic, 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 Mobile Harbor was conducted and managed using contract support from Battelle, which is an Outside Eligible Organization (OEO) (as defined by EC 1165-2-217). 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. The IEPR was completed in accordance with established due dates for milestones and deliverables as part of the final Work Plan; the due dates are based on the award/effective date and the receipt of review documents.

Battelle identified, screened, and selected four panel members to participate in the IEPR based on their expertise in the following disciplines: Civil Works Planning/Economics, Environmental, Hydraulic/Coastal Engineering, and Geotechnical Engineering. The Panel reviewed the Mobile Harbor documents and produced eight Final Panel Comments in response to 18 charge questions provided by USACE for the review. This charge additionally included two overview questions and one public comment question added by Battelle. 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 1165-2-217), 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, engineering, and environmental methods, models, and analyses used" (USACE, 2018) in the Mobile Harbor IEPR review documents. The following summarizes the Panel's findings.

B Based on the Panel's review, the report is well-written and has documented the work done to date very well. The documents reviewed provide a detailed and comprehensive description and inventory of the potentially affected biological environment. The modeling studies conducted were very good. The Panel found several elements of the project, though, that should be completed, expanded, or clarified.

Economics / Plan Formulation: The Panel found that adequate and acceptable models were used to evaluate existing and future economic conditions. However, the Panel has two primary concerns: 1) no multiport analysis was conducted to identify relevant competing port trade flows based on analysis of trade routes, commodities, and competing port facilities; and 2) the Draft Integrated GRR/SEIS does not include a sensitivity analysis of the impacts of the risk and uncertainty associated with the commodity and vessel fleet forecasts to the National Economic Development (NED) benefits and selection of the TSP. The Panel recommends that a multiport analysis be conducted to characterize shared commodity flows between Mobile Harbor and other ports and that a sensitivity analysis be conducted to determine the potential impacts to NED benefits and to the TSP identification. The Panel also noted that a more detailed Purpose and Need statement is needed to clarify project needs as they relate to the forecasted number and size of ships in the channel, commodity transport growth in the region, and the impacts to shipping delays and inefficiencies that could continue if the TSP were not implemented.

Engineering: The Panel believes the Draft Integrated GRR/SEIS adequately addresses the stated need and intent from an engineering perspective relative to scientific and technical issues identified in this phase of the study. There appears to be an abundance of geotechnical boring data. However, the Panel noted that there appears to be very limited geotechnical strength data, resulting in uncertainty in slope stability estimates for the proposed dredging prisms. In addition, the absence of field data on any potentially chemically contaminated sediments is a source of uncertainty and risk for project cost and sediment disposal options. To address these concerns, the Panel recommends the following: 1) provide soil strength data and document slope stability analyses, and 2) justify the finding that chemically contaminated sediments are unlikely and describe contingencies in the event they are encountered.

Environmental: The Panel noted that an extensive modeling approach was undertaken and that no significant impacts appear likely on freshwater wetlands. Hydrodynamic modeling indicates no increased impacts to Dauphin Island or other offshore islands under the project. Most of the analyses appear well-done and sufficiently detailed and documented. The Panel did note, however, that the analysis of environmental impacts relies heavily on a modeling approach, making it difficult to verify whether other impacts will occur and, if so, what would be done to address them. Specifically, the impacts of open-water disposal on benthic macroinvertebrates, fisheries, and other biota such as sea turtles have not been adequately addressed. The Panel recommends including a discussion of why sea turtles and other offshore species would not be affected (incorporating regional data to support the discussion) and considering a monitoring plan for shoreline erosion to enable comparisons of pre- and post-project conditions.

[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

A multiport analysis to identify relevant competing port trade flows based on analysis of trade routes, commodities, and port facilities was not conducted.

Basis for Comment

The Draft Integrated GRR/SEIS considers Mobile Harbor in isolation and offers no documentation for why systems considerations are not relevant. USACE Engineer Regulation (ER) 1105-2-100, Planning Guidance Notebook, states that a multiport analysis "...calls for a systematic determination of alternative routing possibilities, regional port analyses, and intermodal networks." (Section E-10, NED Benefit Evaluation Procedures: Transportation, Deep-Draft Navigation, p. E-49). Section E-10 further states that "A study that appropriately considers a port in isolation will be rare. In such a case the report shall document why systems considerations are not relevant." (Section E-10, p. E-50).

Significance – Medium/High

The inclusion of a multiport analysis that describes the interrelationship of Mobile Harbor with other ports will clarify the project's purpose and need.

Recommendations for Resolution

1. Provide a multiport analysis that describes the extent to which Mobile Harbor shares commodity flows with other ports, or explain why systems considerations are not relevant.

Literature Cited

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

Final Panel Comment 2

The Mobile Harbor Draft Integrated GRR/SEIS does not include a sensitivity analysis of the impacts of the risk and uncertainty associated with the commodity and vessel fleet forecasts to the NED benefits and selection of the TSP.

Basis for Comment

Risk and uncertainty associated with deviations from the commodity and vessel fleet forecasts are acknowledged in the decision document; however, no procedures to integrate the risk and uncertainty were incorporated into the analysis. USACE ER 1105-2-100, Planning Guidance Notebook, states that “Districts are expected to use risk and uncertainty techniques in all deep draft navigation studies at least in the form of sensitivity analysis. The uncertainty in the estimates of critical variables should be analyzed.” (Section E-10, NED Benefit Evaluation Procedures: Transportation, Deep-Draft Navigation, p. E-52).

Significance – Medium/High

Risk and uncertainty associated with the vessel and fleet forecasts have a high probability of influencing the technical or scientific basis for selection and justification of the TSP.

Recommendations for Resolution

1. Perform a sensitivity analysis to determine the potential impacts from risk and uncertainty associated with the vessel and fleet forecast on the expected NED benefits and TSP identification.

Literature Cited

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

Final Panel Comment 3

Limited geotechnical strength data and associated slope stability estimates for the proposed dredging prisms, particularly in the turning basin, are a source of risk and uncertainty for the project cost, schedule, and sediment disposal capacity.

Basis for Comment

While there seems to be an abundance of geotechnical boring data along the proposed dredge-channel alignment and turning basin, the amount of geotechnical strength testing data in support of the proposed dredge slopes appears to be very limited. The Draft Integrated GRR/SEIS, Attachment A-6 Test Data Summary (pdf p. 278), shows only five sample strength test results for drained phi (ϕ') angles from a total of only two borings (SC-12-83 and SC-13-83). The five reported phi angles (12, 15, 16, 17.5, and 27 degrees) average 17.5 degrees and imply calculated long-term factors of safety (FS) ranging from 1.1 to 2.6 with an average of 1.6 (three of five samples showing $FS < 1.5$) for a 1V:5H (11-degree) dredged slope, and 0.9 to 2.1 with an average of 1.3 (four of five samples showing $FS < 1.5$) for a 1V:4H (14-degree) dredged slope. (For the purpose of this comment, FSs were calculated using a simple infinite slope analysis without potentially adverse effects of seepage or erosion by currents, tides, or ship operations – effects that could result in localized instability).

By themselves, these limited strength test data do not adequately support the proposed dredging prisms, at either 1V:5H or 1V:4H, because the data (from only two borings) are too limited in spatial extent, given the evident spatial variability in sediment geotechnical properties, to adequately represent slope stability strength conditions along the dredging alignment. Furthermore, the data do not appear to adequately support a presumed long-term slope stability design FS of 1.5, particularly for a 1V:4H design, which appears to be critical to the design of the turning basin, as noted in Appendix A, Section 5.4.1:

“Slope stability is a concern where the Choctaw Pass Turning Basin will be expanded. The turning basin was initially constructed by creating slopes on the north, east, and south sides of Choctaw Pass, between Pinto Island and Little Sand Island. Pinto Island flanks the basin on the north side, and Little Sand Island lies to the south. Slope stability analyses, performed during the design of the turning basin, informed the decision to design the basin slopes at a 1V:4H. Slopes of 1V:5H were also analyzed; however, it showed that flatter slopes would require excavation far enough back toward Pinto and Little Sand Island that it would in effect remove resisting material that supports near shore portions of the Pinto Island Upland Disposal Area. The same rationale was applied for the design of the east and south basin slopes. The expansion of the turning basin will require excavation in either the north or south directions to accommodate longer ships. Since real estate is more developed and accounted for on Pinto Island, the majority of the expansion will be towards the southern side of the basin into Little Sand Island...As such, slope stability analyses are necessary to account for the design of both submarine and upland slopes. Additional slope stability analyses will be performed during Preconstruction Engineering and Design (PED) Phase of this project. Flatter slopes will be considered at that time in a suite of slope stability analyses.”

Final Panel Comment 3

The referenced slope stability analyses were requested from the PDT during the mid-review teleconference facilitated by Battelle, but they were not received by the Panel.

The Panel further notes that inadequate slope stability could also contribute to increased erosion and sedimentation, potentially affecting maintenance dredging, disposal capacity, and long-term stability of upland areas.

The potential adverse effects of slope instability and related erosion are also relevant to many of the public comments that were concerned with erosion, upland stability, sediment transport, and dredging and disposal options.

Significance – Medium

Less-than-currently expected soil strength could result in unacceptable dredged slope stability, leading to design modifications and resulting in higher project costs, schedule delays, and increased maintenance costs, including reduced disposal capacity.

Recommendations for Resolution

1. Provide documented soil strength data and slope stability analyses that support the proposed design dredge slopes, particularly in the Choctaw Pass turning basin and upland areas.
2. Explain how the TSP would change if adequate slope stability cannot be established with the available data after the PED geotechnical investigation, laboratory testing, and analyses.

Final Panel Comment 4

The absence of field data on potentially chemically contaminated sediments is a source of risk and uncertainty for the project cost, schedule, and sediment disposal options.

Basis for Comment

The Panel has not seen sediment contaminant-chemistry data (e.g., concentrations of heavy metals, polychlorinated biphenyls [PCBs], polycyclic aromatic hydrocarbons [PAHs], pesticides) that supplement existing sediment quality data (described in the Draft Integrated GRR/SEIS, Section 2.5.3.4, and in Appendix C, Section 2.3.4) to help assess the presence or absence of chemically contaminated sediments within the proposed dredging prisms. A sediment investigation that includes sediment testing for chemical contaminants is planned for the PED phase (SOW_Mobile_Pascagoula_Sed_Testing.pdf, USACE response to Mid Review Question 19). If chemically contaminated sediments are discovered at that time, the project schedule and cost could be adversely affected, potentially restricting disposal options.

It also appears that the PED testing will be limited to borings that are placed one or more miles apart. At that spacing, only very large areas of chemically contaminated sediments, if they exist, are likely to be detected. Of more concern is the possibility that any areas of chemically contaminated sediments less than the boring spacing would likely *not* be detected, and the sediments in those areas would be assumed to be uncontaminated (i.e., under this scenario, absence of evidence would be taken as evidence of absence). If not detected, chemical contamination could be spread locally or throughout the basin by dispersal of contaminated sediments during dredging.

If chemical contamination is discovered, the wide spacing of borings could require a follow-up phase of field investigation to delineate the extent of contamination, which could adversely impact schedule and budget. The Panel notes that there could be more than one area of contaminated sediment, which could complicate detection and mitigation.

If discovered, chemically contaminated sediments could affect dredging procedures and limit disposal options. Dredging of contaminated sediments, either discovered or undiscovered, could spread chemical contamination to other areas.

The Panel's concerns with potentially chemically contaminated sediments are also relevant to some of the public comments that were concerned with erosion, sediment transport, dredging and disposal options.

Significance – Medium

Discovery of chemically contaminated sediments during PED or construction could require design or construction modifications resulting in higher project costs, schedule delays, and reduced disposal options.

Recommendations for Resolution

1. Identify, discuss, and summarize historic data (including sediment contaminant chemistry) to justify and support the current expectation of no chemically contaminated sediments requiring design or construction modifications.

Final Panel Comment 4

2. Explain how the TSP would change if chemically contaminated sediments were discovered during the PED or during construction.
3. Identify and discuss the contingency plans if chemically contaminated sediments were discovered during PED or construction.

Final Panel Comment 5

The Purpose and Need statement for the project does not provide enough detail to allow clear identification and evaluation of project alternatives.

Basis for Comment

USACE has clearly performed significant work in evaluating dredging alternatives that resulted in selection of the TSP. However, from a National Environmental Policy Act (NEPA) compliance standpoint, the overall project Purpose and Need section does not clearly identify a project purpose statement that clearly relates to the need for the project. As written, the Purpose and Need statement does not allow stakeholders, including the public, to understand and objectively evaluate the project alternatives considered. For example, the text describes the need for the project as follows:

“The principal navigation problem is larger vessels are experiencing transportation delays and inefficiencies due to limited channel depth and width. This problem is a result of increasing number and size of vessels entering and departing Mobile Harbor. The existing channel depths and widths limit vessel cargo capability, restrict many vessels to one-way traffic and in some areas limit transit operations to daylight hours only.”

The Draft Integrated GRR/SEIS then explains that the TSP is the plan that would best improve efficiency of navigation; however, a target goal of improved navigational efficiency is not defined. Even with a calculated benefit-cost ratio of 3.0, without a clear metric quantifying the target level of efficiency for the project, it is difficult to understand why the project is needed and whether other alternatives could achieve the same purpose. Technically, based on the current language describing the need for the project, increased navigational efficiency could be achieved if only one less vessel per year were not delayed.

In addition, the relationship between throughput, the need for the port to be competitive with other ports, and similar issues are not clear from the Purpose and Need statement. If throughput is assumed to remain the same in the future, more information is needed, specifically on what benefit would result by enlarging the channel and how the improved navigational efficiencies would benefit the public interest. Section 2.3.7 of the Draft Integrated GRR/SEIS discusses, in detail, commodity forecasts for the future Port of Mobile, and uses that information to select two typical vessels representing the range of existing and future vessels for which the project should be designed. That information is used ultimately to generate a benefit-cost ratio of 3.0 for the TSP. But it is unclear in the Purpose and Need section how that information directly translates to the need for larger vessels using the port.

In particular, the text does not set forth a strong nexus between the forecasted growth in commodity demand to the number of twenty-foot equivalent units (TEUs) or bulk cargo units that would translate into the need for larger ships, thus necessitating vertical and horizontal expansion of the channel. For example, if the purpose were to allow the Port of Mobile to increase throughput by 25% by 2050, that would translate to specific freight volumes, which would then justify the need for larger vessels and, hence, expanded dredging. But the analysis apparently assumes that freight volumes will remain the same; therefore, the explanation given is unconvincing and defies quantitative measures of success.

Final Panel Comment 5

The Panel is concerned that a multiport analysis describing the interrelationship of Mobile Harbor with other ports in the Southeast is not included in the Draft Integrated GRR/SEIS, because such an analysis would clarify the project's purpose and need. This issue was also mentioned in some of the public comments, which expressed concern that the future shipping forecasts at Mobile Harbor did not consider developments at other ports in the Southeast.

The Panel also noted during its review of the public comments that several commenters stated the need for a detailed, defensible Purpose and Need statement that more adequately defines the proposed project and provides a solid basis for analysis of alternatives.

Significance – Medium

The Purpose and Need statement for the project does not adequately support the selection of, justification of, or ability to implement the recommended plan over other alternatives.

Recommendations for Resolution

1. In the Purpose and Need statement, clarify the need for the project as it relates to commodity growth in the region.
2. Explain how that need relates to the number and size of ships forecasted to use the channel.
3. Describe the anticipated delays and inefficiencies that would continue to prevail if the TSP were not implemented.

Final Panel Comment 6

The analysis of environmental impacts relies heavily on a modeling approach, making it difficult to verify whether impacts will actually occur and, if so, what would be done to address them.

Basis for Comment

An extensive modeling approach was undertaken to ensure that the project would not increase salinity within the harbor area to the point where freshwater wetland communities would be impacted. Reviewing the results, even if a sensitivity analysis were applied using a significant margin of error, it appears unlikely that the project would have a major significant impact on freshwater wetlands. On the other hand, the impacts of open-water disposal on benthic macroinvertebrates, fisheries, and other biota have not been adequately addressed. There appears to be an inherent assumption that because hydrodynamic modeling indicates no increased impacts to Dauphin Island or other offshore areas under the project, potential impacts do not warrant mention in the natural resources sections. Potential impacts to sea turtles are not adequately addressed, even if they are not anticipated (the section on reptiles focuses on freshwater impacts). In addition, barrier islands appear to have been disregarded under the assumption that the project will not impact erosion on offshore islands. Much rests on the modeling results with little evidence of a monitoring plan to ensure success. Regional data on birds, reptiles, and other species occurring at nearby wildlife refuges are readily available; these data could be incorporated into the text, along with a discussion of why USACE feels these resources would not be impacted.

During review of the public comments, the Panel noted several comments from the general public that called out an overreliance on modeling to project environmental impacts, the need for monitoring and contingency plans in the event that unforeseen impacts are realized, and the need for more detailed analysis of potential indirect project impacts, including offshore habitats and species. These comments are similar to what the Panel is suggesting here.

Significance – Medium

The sole reliance on modeling to analyze environmental impacts potentially introduces uncertainty with regard to the analysis results.

Recommendations for Resolution

1. Discuss why sea turtles and other offshore species would not be affected under the project, incorporating regional data to support the discussion.
2. If the analysis is to be based entirely on modeling, consider at a minimum a monitoring plan for shoreline erosion comparing baseline pre-project versus post-project conditions.

Final Panel Comment 7

The analysis of beneficial use alternatives for dredged material does not provide sufficient details on the overall environmental, logistical, and economic impacts of beneficial reuse, nor does it adequately discuss direct shore placement at locations of specific concern to the public.

Basis for Comment

The Panel understands that the Mobile USACE District has had ongoing discussions with U.S. Fish and Wildlife Service and others regarding potential beneficial reuse of dredged sediments for habitat improvement (e.g., former shell beds that are now anoxic). However, the discussion of expansion of existing open-water disposal sites does not contain a detailed discussion of:

- 1) Environmental impacts (e.g., impacts to aquatic biota such as benthic macroinvertebrates, fish, etc.). While these impacts have been assessed at some locations in the past, the most recent analysis/data cited is Bolam & Rees 2003.
- 2) Logistical and economic considerations (e.g., geographic location and economic analysis of using other locations, including upland disposal) affected under the disposal alternatives selected.
- 3) Dredging methods that influence the choice of disposal alternatives.

There is precedence for this level of analysis: other USACE Districts have fully evaluated dredge material management alternatives for beneficial reuse (such as habitat improvement) under separate Feasibility Study documents that are open to public and interagency comment. Given the scale of this project, and the large number of public comments indicating concern regarding erosion of Dauphin Island, alternatives that reuse material from the channel to combat beach erosion on Dauphin Island and other locations warrant more rigorous evaluation. This is true even if USACE believes that the alternatives are not feasible from a scientific, logistical, or cost perspective.

Review of the public comments noted similar comments about the need for a separate analysis of dredged material management alternatives that includes detailed discussion of potential beneficial reuse alternatives from the perspectives of feasibility, environmental benefits, and cost.

Significance – Medium/Low

Without an adequate analysis of beneficial reuse alternatives, implementation of disposal options under the recommended plan could be affected, and public concerns, specifically regarding impacts of direct placement of dredged material on Dauphin Island, would likely continue.

Recommendations for Resolution

1. Include a full alternatives analysis of dredged material management sites/uses that addresses both the benefits and costs of different disposal methods and sites and their respective environmental impacts.
2. Provide a more detailed discussion of direct placement of dredged material on Dauphin Island.

Final Panel Comment 8

The drafts of the design vessels for the alternatives analysis are given as 50.8 and 51.6 feet, which are greater than the actual channel depth.

Basis for Comment

The discussion of the current channel's limitations (Appendix A, Section 4.1 "Existing Channel Design") briefly mentions "light-loading" current vessels and states "The existing subject channels were thus intended for operation of ships with a static draft of no greater than 41 feet."

The stated design vessel drafts for the new channel are 50.8 and 51.6 feet. Vessels drawing this much water would not have the required amount of underkeel clearance in the 50-foot main channel. There is no discussion within the existing documents that gives the light-loaded drafts of the design vessels.

Significance – Medium/Low

Without a full explanation of the actual drafts of the design vessels including underkeel clearance, stakeholders may not clearly understand what types of vessels would be able to access the harbor.

Recommendations for Resolution

1. Clearly state the actual vessel drafts used in the modeling study in Appendix A, Section 4.3 "Design Vessel" (i.e., a draft of 50.8 feet (light-loaded to 46 feet to account for underkeel clearance)).

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, 2003.

USACE (2018). Water Resources Policies and Authorities: Review Policy for Civil Works. Engineer Circular (EC) 1165-2-217. Department of the Army, U.S. Army Corps of Engineers, Washington, D.C. February 20, 2018.

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

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APPENDIX A

IEPR Process for the Mobile Harbor Project

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

Table A-1 presents the major milestones and deliverables of the Mobile Harbor IEPR. Due dates for milestones and deliverables are based on the award/effective date listed in Table A-1. The review documents were provided by U.S. Army Corps of Engineers (USACE) on July 25, 2018. Note that the actions 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 January 22, 2019. The actual date for contract end will depend on the date that all activities for this IEPR are conducted and subsequently completed.

Table A-1. Major Milestones and Deliverables of the Mobile Harbor IEPR

Task	Action	Due Date
1	Award/Effective Date	6/26/2018
	Review documents available	7/25/2018
	Public comments available	9/24/2018
	Battelle submits draft Work Plan ^a	7/6/2018
	USACE provides comments on draft Work Plan	7/13/2018
	Battelle submits final Work Plan ^a	8/20/2018
2	Battelle submits list of selected panel members ^a	7/13/2018
	USACE confirms the panel members have no COI	7/18/2018
3	Battelle convenes kick-off meeting with USACE	7/5/2018
	Battelle convenes kick-off meeting with panel members	7/31/2018
	Battelle convenes kick-off meeting with USACE and panel members	8/1/2018
4	Panel members complete their individual reviews	9/4/2018
	Panel members provide draft Final Panel Comments to Battelle	9/14/2018
	Battelle sends public comments to panel members for review	9/24/2018
	Panel confirms no additional Final Panel Comment is necessary with regard to the public comments ^b	11/7/2018
	Panel finalizes Final Panel Comments	11/7/2018
5	Battelle submits Final IEPR Report to USACE ^a	11/12/2018
6 ^c	Battelle convenes Comment Response Teleconference with panel members and USACE	1/2/2019
	Battelle submits pdf printout of DrChecks project file ^a	1/22/2019
	Agency Decision Milestone (ADM) meeting ^d	11/20/2018
	Contract End/Delivery Date	11/30/2019

^a Deliverable.

^b Review of the public comments was delayed due to a larger volume of comments being received, requiring a Modification to the Performance Work Statement and additional hours and funds for the Panel to review all the public comments.

^c Task 6 occurs after the submission of this report.

^d The ADM meeting was listed in the Performance Work Statement under Task 3 but was relocated in this schedule to reflect the chronological order of activities.

At the beginning of the Period of Performance for the Mobile Harbor 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., terminology to use, access to DrChecks, etc.). Any revisions to the schedule were submitted as part of the final Work Plan. The final charge consisted of 18 charge questions provided by USACE, two overview questions and one public comment question added by Battelle (all questions were included in the draft and final Work Plans), and 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 after their subcontracts were finalized, all the 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 review documents and reference/supplemental materials listed in Table A-2.

Table A-2. Documents to Be Reviewed and Provided as Reference/Supplemental Information

Review Documents	No. of Review Pages
Draft Integrated GRR and SEIS	320
Appendix A: Engineering	130
Appendix A, Attachment 1: Engineer Research and Development Center (ERDC) Modeling Report	180
Appendix A, Attachment 2: United States Geological Survey (USGS) Modeling Report	45
Appendix A, Attachment 3: Ship Simulation Report	91
Appendix A, Attachment 4: Wave Energy Assessment	84
Appendix A, Attachment 5: Data Collection Report	40
Appendix A, Attachment 6: Boring Logs	410
Appendix A, Attachment 7: Cost Estimate	8
Appendix B: Economics	80
Appendix C: Environmental (Sections 1-4)	348
Appendix C 1 - C-5	297
Appendix C6 - Agency Meeting MRF's	241
Appendix D: Real Estate	36
Appendix E: Additional Documentation	8
Public Review Comments*	945
Total Number of Review Pages	2,418
Risk Register**	20
Total Number of Reference Pages	20

* Page count for public comments is approximate. USACE will submit public comments to Battelle, which will in turn submit the comments to the IEPR Panel.

** Supporting documentation only. These documents are not for Panel review and should be used as information sources only. They are not included in the total page count.

In addition to the materials provided in Table A-2, the panel members were provided the following USACE guidance documents.

- USACE guidance, *Review Policy for Civil Works* (EC 1165-2-217), February 20, 2018
- Office of Management and Budget, *Final Information Quality Bulletin for Peer Review*, December 16, 2004.

About halfway through the review, a teleconference was held with USACE, Battelle, and the Panel so that USACE could answer any questions the Panel had concerning either the review documents or the project. Prior to this teleconference, Battelle submitted 23 panel member questions to USACE. USACE was able to provide responses to all the questions during the teleconference, or was able to provide written responses to all the questions prior to the end of the review.

In addition, throughout the review period, USACE provided documents at the request of panel members. These documents were provided to Battelle and then sent to the Panel as additional information only and were not part of the official review. A list of these additional documents requested by the Panel is provided below.

- SOW_Mobile_Pascagoula_Sed_Testing.pdf
- Mobile Harbor GRR – Typical Cross-sections.pdf.

A.2 Review of Individual Comments

The Panel was instructed to address the charge questions/discussion points within a charge question response form 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 into a preliminary list of overall comments and discussion points. Each panel member's individual comments were shared with the full Panel.

A.3 IEPR Panel Teleconference

Battelle facilitated a 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 should 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.

A.4 Preparation of Final Panel Comments

Following the teleconference, Battelle distributed 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 Mobile Harbor 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 a summary email 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 members 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:** There is a fundamental issue within study documents or data that will influence the technical or scientific basis for selection of, justification of, or ability to implement the recommended plan.
 2. **Medium/High:** There is a fundamental issue within study documents or data that has a strong probability of influencing the technical or scientific basis for selection of, justification of, or ability to implement the recommended plan.
 3. **Medium:** There is a fundamental issue within study documents or data that has a low probability of influencing the technical or scientific basis for selection of, justification of, or ability to implement the recommended plan.
 4. **Medium/Low:** There is missing, incomplete, or inconsistent technical or scientific information that affects the clarity, understanding, or completeness of the study documents, and there is uncertainty whether the missing information will affect the selection of, justification of, or ability to implement the recommended plan.
 5. **Low:** There is a minor technical or scientific discrepancy or inconsistency that affects the clarity, understanding, or completeness of the study documents but does not influence the selection of, justification of, or ability to implement the recommended plan.

- **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).

Battelle reviewed and edited the Final Panel Comments for clarity, consistency with the comment statement, and adherence to guidance on the Panel's overall charge, which included ensuring that there were no comments regarding either the appropriateness of the selected alternative or USACE policy. At the end of this process, eight 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 full text of the Final Panel Comments is presented in Section 4.2 of the main report.

A.5 Conduct of the Public Comment Review

Following the schedule in Table A-1, Battelle received three PDF files containing 945 pages of public comments on the Mobile Harbor study from USACE. Of the 945 pages, approximately 172 pages contained technical and scientific comments which were the focus of the Panel's review; however, panel members had access to all remaining public comments as supplemental information. Battelle then sent the public comments to the panel members in addition to the following charge question:

- 1. Do the public comments raise any additional discipline-specific technical concerns with regard to the overall report?**

The Panel produced individual comments in response to the charge question. Each panel member's individual comments for the public comment review were shared with the full Panel. Battelle reviewed the comments to identify any new technical concerns that had not been previously identified during the initial IEPR. Upon review, Battelle determined, and the Panel confirmed, that no new issues or concerns were identified other than those already covered in the Final Panel Comments. However, the Panel noted that some of the issues raised in the public comments were similar to concerns raised in the IEPR Final Panel Comments, particularly relating to erosion, sediment disposal, modeling of impacts, dredged material management, and the Purpose and Need. The Panel included statements in their Final Panel Comments when similar concerns were noted in the public comment review, which occurred after their Final Panel Comments had been fully developed.

A.6 Final IEPR Report

After concluding the review and preparation of the Final Panel Comments, Battelle prepared a final IEPR report (this document) on the overall IEPR process and the IEPR panel members' findings. Each panel member and Battelle technical and editorial reviewers reviewed the IEPR report prior to submission to USACE for acceptance.

A.7 Comment Response Process

As part of Task 6, Battelle will enter the eight 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.

APPENDIX B

Identification and Selection of IEPR Panel Members for the Mobile Harbor Project

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B.1 Panel Identification

The candidates for the Mobile Harbor, Alabama, Draft Integrated General Reevaluation Report and Supplemental Environmental Impact Statement (hereinafter: Mobile Harbor IEPR) Panel were evaluated based on their technical expertise in the following key areas: Civil Works Planning/Economics, Environmental, Hydraulic/Coastal Engineering, and Geotechnical Engineering. These areas correspond to the technical content of the review documents and overall scope of the Mobile Harbor project.

To identify candidate panel members, Battelle reviewed the credentials of the experts in Battelle’s Peer Reviewer Database, sought recommendations from colleagues, contacted former panel members, and conducted targeted Internet searches. Battelle evaluated these candidate panel members in terms of their technical expertise and potential conflicts of interest (COIs). Of these candidates, Battelle chose the most qualified individuals, confirmed their interest and availability, and ultimately selected four experts for 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.

Candidates were screened for the following potential exclusion criteria or conflicts of interest (COIs). These COI questions were intended to serve as a means of disclosure in order to better characterize a candidate’s employment history and background. Battelle evaluated whether scientists in universities and consulting firms that are receiving USACE-funding have sufficient independence from USACE to be appropriate peer reviewers. Guidance in OMB (2004, p. 18) states,

“...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.”

Panel Conflict of Interest (COI) Screening Questionnaire for the IEPR of the Mobile Harbor GRR and SEIS

1. Previous and/or current involvement by you or your firm in the Mobile Harbor, Alabama, Draft Integrated General Reevaluation Report (GRR) and Supplemental Environmental Impact Statement (SEIS) and related projects.
2. Previous and/or current involvement by you or your firm in deep draft navigation in Mobile Harbor, Alabama, specifically, at the junction of the Mobile River with the head of Mobile Bay.
3. Previous and/or current involvement by you or your firm in the conceptual or actual design, construction, or operation and maintenance (O&M) of any tasks related to the Mobile Harbor, Alabama, Draft Integrated GRR and SEIS or related projects.
4. Current employment by the U.S. Army Corps of Engineers (USACE).

Panel Conflict of Interest (COI) Screening Questionnaire for the IEPR of the Mobile Harbor GRR and SEIS

5. Previous and/or current involvement with paid or unpaid expert testimony related to the Mobile Harbor, Alabama, Draft Integrated GRR and SEIS.
6. Previous and/or current employment or affiliation with members of the cooperating agencies or local sponsors (*for pay or pro bono*). For Federal agencies, we are only interested in work in the Mobile Alabama area.:
 - Alabama State Port Authority (ASPA)
 - U.S. Environmental Protection Agency Region 4,
 - Alabama Advisory Council on Historic Preservation (ACHP),
 - U.S. Fish and Wildlife Service – Southeast Region
 - Alabama State Historic Preservation Officer,
 - U.S. Coast Guard – District 8CR,
 - U.S. Maritime Administration (MARAD),
 - U.S. Geological Survey Southeast,
 - State of Alabama
7. Past, current, or future interests or involvements (financial or otherwise) by you, your spouse, or your children related to Mobile Harbor, Alabama at the junction of the Mobile River with the head of Mobile Bay.
8. 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, ERDC, etc.), and position/role. Please highlight and discuss in greater detail any projects that are specifically with the Mobile District.
9. Previous or current involvement with the development or testing of models that will be used for, or in support of the Mobile Harbor, Alabama, Draft Integrated GRR and SEIS project.
10. Current firm involvement with other USACE projects, specifically those projects/contracts that are with the Mobile 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 Mobile District. Please explain.
11. Any previous employment by USACE as a direct employee, notably if employment was with the Mobile District. If yes, provide title/description, dates employed, and place of employment (district, division, Headquarters, ERDC, etc.), and position/role.
12. Any previous employment by USACE as a contractor (either as an individual or through your firm) within the last 10 years, notably if those projects/contracts are with the Mobile District. If yes, provide title/description, dates employed, and place of employment (district, division, Headquarters, ERDC, etc.), and position/role.

Panel Conflict of Interest (COI) Screening Questionnaire for the IEPR of the Mobile Harbor GRR and SEIS

13. Previous experience conducting technical peer reviews. If yes, please highlight and discuss any technical reviews concerning deep draft navigation and include the client/agency and duration of review (approximate dates).
14. Pending, current, or future financial interests in Mobile Harbor, Alabama, Draft Integrated GRR and SEIS related contracts/awards from USACE.
15. Significant portion of your personal or office’s revenues within the last three years came from USACE contracts.
16. Significant portion of your personal or office’s revenues within the last three years came from Alabama State Port Authority contracts.
17. Any publicly documented statement (including, for example, advocating for or discouraging against) related to the Mobile Harbor, Alabama, Draft Integrated GRR and SEIS.
18. Participation in prior and/or current Federal studies relevant to the Mobile Harbor, Alabama, Draft Integrated GRR and SEIS project.
19. Previous and/or current participation in prior non-Federal studies relevant to the Mobile Harbor, Alabama, Draft Integrated GRR and SEIS project.
20. Has your research or analysis been evaluated as part of the Mobile Harbor, Alabama, Draft Integrated GRR and SEIS?
21. 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.

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. The term “firm” in a screening question referred to any joint venture in which a firm was involved. It applied to whether that firm serves as a prime or as a subcontractor to a prime. Candidates were asked to clarify the relationship in the screening questions.

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. Table B-1 provides information on each panel member’s affiliation, location, education, and overall years of experience. 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.

Table B-1. Mobile Harbor IEPR Panel: Summary of Panel Members

Name	Affiliation	Location	Education	P.E.	Exp. (yrs)
Civil Works Planning / Economics (Dual Role)					
Don Ator	Independent Consultant	Baton Rouge, LA	M.S., Economics and Agriculture Economics, M.B.A., Concentration in Finance and Accounting	N/A	40
Environmental					
Paul Bovitz	Ecological Consulting, LLC	Hillsborough, NJ	M.S., Ecology	NA	32
Hydraulic/Coastal Engineering					
Christopher Hall	Dynamic Solutions, LLC	Knoxville, TN	Ph.D., Civil and Environmental Engineering	Yes	10
Geotechnical Engineering					
Charles "Chuck" Vita	Independent Consultant	Seattle, WA	Ph.D., Civil Engineering	Yes	45

Table B-2 presents an overview of the credentials of the final four members of the Panel and their qualifications in relation to the technical evaluation criteria. More detailed biographical information on the panel members and their areas of technical expertise is given in Section B.3.

Table B-2. Mobile Harbor IEPR Panel: Technical Criteria and Areas of Expertise

Technical Criterion	Ator	Bovitz	Hall	Vita
Civil Works Planner / Economist (Dual Role)				
Minimum 10 years of demonstrated experience as a water resources planner for Deep Draft Navigation (DDN) projects	X			
Demonstrated experience applying USACE plan formulation processes, procedures, and standards to DDN channel improvement projects and dredged material management plans	X			
Minimum of 15 years of demonstrated experience or combined equivalent of education and experience in DDN economics, specifically with container, bulk, and tanker trade	X			
Demonstrated experience in applying USACE procedures and standards for DDN economic analyses and in formulating and evaluating alternative plans for those projects	X			

Table B-2. Mobile Harbor IEPR Panel: Technical Criteria and Areas of Expertise (continued)

Technical Criterion	Ator	Bovitz	Hall	Vita
Knowledge of tools employed for economic analysis, risk analysis, including HarborSym, risk analysis multiport analysis and trade forecasts	X			
M.S. degree in a related field	X			
Active participation in related professional societies	X			
Environmental				
At least 15 years of demonstrated experience directly related to water resource environmental evaluation and NEPA compliance for DDN channel improvement and offshore dredged material management projects (i.e., to include open water, ocean disposal, and beneficial use)		X		
Minimum M.S. degree or higher in a related field		X		
Expert in coastal and estuarine habitats and associated natural resources and the environmental impacts of harbor deepening		X		
Familiar with dredged material disposal and Offshore Dredge Material Disposal Sites		X		
Expert in compliance requirements of environmental laws, policies, and regulations, including the Fish and Wildlife Coordination Act and the Endangered Species Act		X		
Hydraulic/Coastal Engineer				
15 years of demonstrated experience or combined equivalent of education and experience in DDN channel design			X	
M.S. degree in coastal or hydraulic engineering			X	
Knowledge of coastal processes to evaluate the impacts of deepening and/or widening the navigation channel on hydrodynamics, water quality, sediment transport, ship wake induced erosion, and channel design			X	
Experience in the design and use of dredged material placement areas (open water, ocean disposal, and beneficial use)			X	
Familiar with standard USACE hydrologic and hydraulic computer models			X	
Five to 10 years of experience working with numerical modeling applications for navigation projects			X	
Registered Professional Engineer			X	
Geotechnical Engineer				
Minimum of 15 years of demonstrated engineering experience or combined equivalent of education and experience in geo-civil design and geotechnical evaluation of DDN projects				X

Table B-2. Mobile Harbor IEPR Panel: Technical Criteria and Areas of Expertise (continued)

Technical Criterion	Ator	Bovitz	Hall	Vita
M.S. degree or higher in geotechnical engineering				X
Must have an understanding of the behavior of aquifers and soils, as well as the classification, dredging, and disposal of material for deep draft navigation projects				X
Experience in geotechnical risk analysis				X
Active participation in related professional engineering and scientific societies				X
Registered Professional Engineer				X

B.3 Panel Member Qualifications

Detailed biographical information on each panel members' credentials and qualifications and areas of technical expertise are summarized in the following paragraphs.

Name	Donald Ator
Role	Civil Works Planner/Economist
Affiliation	Independent Consultant

Mr. Ator is an independent consultant and serves as Research Associate, Professor, and Undergraduate Advisor in the Department of Agriculture Economics and Agribusiness at Louisiana State University. He earned his M.S. in economics and agriculture economics in 1978 and his M.B.A. with a concentration in finance and accounting in 1984, both from Louisiana State University. Mr. Ator's current research is in financial resiliency planning for local governments in Louisiana, Texas, Alabama, Mississippi, Florida, Georgia, Kentucky, and Nebraska.

He has 40 years of experience working for 26 USACE districts, first as a full-time employee with USACE Vicksburg District for one year, then in the private sector with a not-for-profit research institute, and later at three architect-engineer firms. He has demonstrated experience related to deep draft navigation (DDN) for USACE as evidenced by participation in the following relevant studies: Savannah Harbor Expansion Project Economic Analysis, Phase III Benefits Calculation Methodology and Model, Multiport Analysis and Regional Port Analysis, GA, USACE, Savannah District; Deep Draft Channel Improvement Economic Analysis, La Quinta Ship Channel, Corpus Christ, Texas, USACE, Galveston District; Houma Navigation Canal Deepening, Integrated Feasibility Study and EIS, Houma, Louisiana, USACE, New Orleans District; Economic Feasibility Report, San Diego Harbor Deep Draft Channel Improvements, California, USACE, Los Angeles District; Dredge Material Management Plan (DMMP) Analysis of O&M Dredging Economic Benefits for the Miami River, FL, USACE, Jacksonville District; Commodity and Fleet Forecast for Deep Draft Navigation Channel Improvements, Coos Bay, Oregon, USACE, Portland District; Economic Evaluation of Benefits from Beneficial Use of Dredged Material Alternatives for Consistency with State of Texas Coastal Management Plan, USACE, Galveston District; Dredge Material Management Plan, Economic Feasibility Report, Marina Del Rey Harbor/Ballona Creek Watershed, Los Angeles, California,

USACE Los Angeles District; EIS for U.S. Navy Home Porting Projects, Corpus Christi and Galveston, Texas, USACE, Galveston District; Reconnaissance Report, Channel Improvements and Turning Basin Feasibility Study, Buffalo Harbor, New York, USACE, Buffalo District; and General Cargo Analysis, Coos Bay Channel Deepening Study, Oregon, USACE, Portland District

He has worked extensively with USACE conducting Civil Works planning/economics studies in accordance with ER 1105-2-100 and other pertinent guidance, laws, and regulations applicable to the USACE Six-Step Planning Process and EC 1165-2-209 review requirements. Representative studies include Sensitivity Analysis of Benefit and Cost Evaluation Criteria to Risk and Uncertainty Associated with Study Parameters, Passaic River Basin, New Jersey (USACE New York District) and the Licking River Watershed and Dillon Lake Ecosystem Restoration Project Feasibility Study, Ohio (USACE Huntington District). He has participated in two IEPRs of Federal water resources planning documents justifying construction of Civil Works projects: Grays Harbor, Washington, Navigation Improvement Project (USACE Seattle District) and Sutter Basin Pilot Feasibility Study (USACE Sacramento District).

Mr. Ator's demonstrated proficiency in the USACE procedures and standards for DDN economic analyses and in formulating and evaluating alternative plans is evidenced by his extensive experience as a Civil Works planner/economist on the following projects: Port of Panama City, Limited Reevaluation Report, Navigation Feasibility Report, Economic Appendix, Florida, USACE, Mobile District; and Projection of Study Area Involvement in Present and Future Petroleum Industry Activities on the Outer Continental Shelf (OCS), Channel Deepening Study, Port of Iberia, Louisiana, USACE, New Orleans District; Commodity and Fleet Forecast for the Columbia River, Oregon and Washington USACE, Portland District; Identification and Quantification of Risk and Uncertainty for the Charleston Harbor Channel Deepening Study, South Carolina, USACE, Charleston District; Regional Economic Impact, Financial and Cost Recovery Analysis for Gulfport Harbor Deepening and Container Yard Expansion, Mississippi, USACE, Mobile District Forecast of Commodity Flows, Northern Sea Route Reconnaissance Study, Alaska, USACE, Alaska District; Initial Appraisal of Rock Removal at San Francisco Bar Channel, CA, USACE, San Francisco District; and Regional Economic Impact, Financial and Cost Recovery Analysis for the Proposed Deepening and Neobulk Expansion Project at the Port of Pascagoula, Mississippi, USACE, Mobile District.

Mr. Ator has experience working directly for or with the USACE in applying Principles and Guidelines to Civil Works project evaluations through such projects as: Preparation of Project Management Plan (PMP) for Louisiana Coastal Ecosystem Restoration Study, Mississippi River Gulf Outlet, LA, USACE, New Orleans District; Economic Analysis of Alternate Regulation Plans for the Arkansas River, Oklahoma and Arkansas, USACE, Tulsa District; Feasibility Report, Caño Martín Peña Ecosystem Restoration Project, San Juan, Puerto Rico, ENLACE and USACE, Jacksonville District; Economic Analysis of Agricultural Flood Damages and Evaluation of the Impacts of Operational Changes, Lac Qui Parle Reservoir and the Minnesota River, Minnesota, USACE, St. Paul District; Feasibility Study and EIS for Phase 2 General Reevaluation Report, L-8 Basin, West Palm Beach, Florida, USACE, Jacksonville District; Licking River Watershed and Dillon Lake Ecosystem Restoration Project Feasibility Study, Ohio, USACE, Huntington District; Missouri River Authorized Purposes Study (MRAPS) Project Management Plan, Montana, Wyoming, Colorado, Kansas, North Dakota, South Dakota, Minnesota, Indiana, Nebraska, and Missouri, USACE, Omaha and Kansas City districts; Municipal, Industrial, Hydropower, and Agricultural Use Inventory for the Apalachicola-Chattahoochee-Flint and Alabama-Coosa-Tallapoosa River Basins Comprehensive Study, Alabama, Georgia, and Florida, USACE, Mobile District; Navigation Facility Inventory for the Apalachicola-Chattahoochee-Flint and Alabama-Coosa-Tallapoosa River Basins

Comprehensive Study, Alabama, Georgia, and Florida, USACE, Mobile District; Rancho Palos Verdes, Rolling Hills Shoreline Erosion and Storm Damage Study, Los Angeles, California, USACE, Los Angeles District; and Shore Protection Alternative Analysis, Section 222 National Shoreline Erosion Control Demonstration Project, Jefferson County, Texas, USACE, Galveston District.

Mr. Ator is actively involved in related professional engineering and scientific societies, including the Society of American Military Engineers and the American Society of Civil Engineers.

Name	Paul Bovitz, PWS, LSRP, CEM, LEED AP
Role	Environmental
Affiliation	Ecological Consulting, LLC

Mr. Bovitz is an environmental scientist and project manager with Ecological Consulting, LLC in Hillsborough, New Jersey. He has more than 30 years of experience in environmental assessments, including several Department of Defense sites, and U.S. Environmental Protection Agency (EPA) National Priority List sites nationwide. He has 29 years of technical experience in ecological assessment and natural resources management in public, private, and academic sectors, engaging in both theoretical and applied aspects of ecological research and encompassing a variety of geographic regions and aquatic environments. He earned an M.S. in ecology from Rutgers University in 1992. He has managed and participated as principal investigator in a variety of projects and programs with varied environmental impacts including environmental assessments under NEPA, water quality and storm water studies, wetlands delineation, assessment, mitigation and permitting, and essential fish habitat investigation.

Mr. Bovitz has expertise in water resource environmental evaluation and NEPA compliance for DDN channel improvement and offshore dredged material management projects (i.e., to include open water, ocean disposal, and beneficial use) as demonstrated by his work experience on a variety of projects throughout the United States. He has served as an IEPR panel member for several flood control and ecological restoration projects on behalf of USACE, including those with coastal components and dredging issues such as the Delaware River beneficial reuse project and the Jamaica Bay and East Rockaway Inlet coastal flooding control project. His experience in ecotoxicology and management of contaminated sediments is extensive: he has worked on ecological risk assessments nationwide on behalf of USACE, EPA, and private entities such as ExxonMobil.

Mr. Bovitz is an expert in coastal and estuarine habitats and associated natural resources and in the environmental impacts of harbor deepening. He is familiar with dredged material disposal and Offshore Dredge Material Disposal Sites. Mr. Bovitz was a primary author of the New Jersey Intracoastal Waterway Feasibility Study, which evaluated dredging alternatives and disposal options involving beneficial reuse for habitat restoration along the New Jersey coast. He was also a significant contributor to the DMMPs for San Francisco Bay and for the Baltimore Harbor and the Virginia Channels section of Chesapeake Bay. In addition to having worked extensively with dredged material management issues in the New York/New Jersey Harbor area on behalf of the Port Authority of New York and New Jersey and other clients, he was worked locally in the Mobile area on the Mobile Causeway ecological restoration project on behalf of the State of Alabama.

Mr. Bovitz has expertise in compliance requirements of environmental laws, policies, and regulations, including the Fish and Wildlife Coordination Act and the Endangered Species Act. He is a Licensed Site Remediation Professional (LSRP) in New Jersey and has extensive experience as a USACE and EPA

contractor in investigation and remediation of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. He is also a certified Professional Wetland Scientist (PWS), a Certified Energy Manager (CEM), and is a LEED® Accredited Professional (LEED AP). He is a member of the New Jersey Governor’s Science Advisory Board, Ecological Sciences Committee, and served on the New Jersey Department of Environmental Protection, Comparative Ecological Risk Analysis Panel.

Mr. Bovitz is an active member of the Society of American Military Engineers and a New Jersey chapter of the Society of Environmental Toxicology and Chemistry, and attends Association of Environmental and Engineering Geologist meetings. In 2014, he chaired a session on urban ecological restoration for the Conference on Ecological and Ecosystem Restoration meeting in New Orleans.

Name	Christopher Hall, Ph.D., P.E.
Role	Hydraulic/Coastal Engineer
Affiliation	Dynamic Solutions, LLC

Dr. Hall is a water resources and environmental engineer with Dynamic Solutions, LLC. He has 10 years of experience specializing in hydrodynamic and hydraulic modeling, two- and three-dimensional surface water modeling, sediment transport and fluid mud modeling, and resource conservation. He earned his Ph.D. in civil and environmental engineering from Mississippi State University and is a registered professional engineer in Tennessee. He has a strong background in coastal engineering, river hydrology, and hydraulics. Dr. Hall’s education and experience in biological engineering, environmental engineering, and civil engineering have provided him with an understanding of the biological processes that occur in the environment and unique insight into the biological effects and hydrodynamics within coastal and riverine environments.

Dr. Hall’s coastal expertise includes experience in DDN channel design. He has worked on modeling studies in San Francisco Bay and Jacksonville Harbor to study the hydrodynamics in and around the navigation channel, as well as the water quality within the channels and effects from potential channel deepening.

Through his work in hydrodynamic modeling, Dr. Hall is knowledgeable in coastal processes to evaluate the impacts of deepening and/or widening the navigation channel on hydrodynamics, water quality, sediment transport, ship wake induced erosion, and channel design. He has done extensive hydrodynamic modeling in and around the coastal areas of Atchafalaya Bay, Cole’s Bayou/Vermillion Bay, and Breton Sound in Louisiana and the coastal estuaries in Florida and California. Dr. Hall has extensive background in the coastal and hydraulic evaluation of nearshore restoration actions in these areas. The Cole’s Bayou Coastal Marsh Restoration modeling work was completed in support of restoring more than 350 acres of coastal marsh and supplying sediment and nutrients to the marsh under various restoration scenarios; the Breton Sound work was conducted to evaluate the impacts of various Mississippi River Diversion scenarios on salinity in the system. His riverine experience includes scour analysis and supercritical flow from his work with USACE Jacksonville District on the S65-E structure on the Kissimmee River, sediment transport modeling experience on the Fox and Kalamazoo Rivers, and two-dimensional (2-D) hydrodynamic modeling of 70 miles of the Sacramento River. He has modeling experience with the Adaptive Hydraulics Modeling System (ADH), Environmental Fluid Dynamics Code (EFDC), HEC-RAS, and HEC-Reservoir System Simulation (ResSim).

Dr. Hall has experience in the design and use of dredged material placement areas (open water, ocean disposal, and beneficial use). His modeling work for the Cole’s Bayou system involved the beneficial use of dredged material for marsh creation, levee building, and terrace construction. As the coastal engineer for the Malibu Creek IEPR, he reviewed and evaluated the use of captured river sediments as beach nourishment.

He assisted in the development and calibration of a 2-D ADH model for more than 70 miles of the Sacramento River, from Freeport to Wilkins Slough. Hydrographs from several time periods were used to calibrate the model, ensuring its fidelity to a range of low to moderate flow conditions. The hydrodynamics from the ADH model will drive the Eulerian-Lagrangian-agent model (ELAM), which uses bioenergetic data and movement algorithms to provide travel time estimates of anadromous fish in the system. This unique synthesis of hydraulic and ecological models allows for the integration of environmental function into bank stabilization designs. He also assisted in the development and testing of a 3-D EFDC hydrodynamic model of the larger San Francisco Bay-Delta domain, which was used for sea-level rise analyses and assessments for salinity intrusion and inundation of shoreline areas.

Dr. Hall’s firm reviewed the Environmental Impact Statement and provided modeling support to evaluate the appropriateness and validity of the approach and models used by USACE in developing the water control plan for the Alabama-Coosa-Tallapoosa River Basin. During this analysis, he assisted with the HEC-ResSim model evaluation and the water quality analysis. Additionally, Dr. Hall led the modification of the HEC-ResSim model to evaluate effects from model changes on the water quality results downstream.

Name	Charles “Chuck” Vita, Ph.D., P.E., G.E.
Role	Geotechnical Engineer
Affiliation	Independent Consultant

Dr. Vita, an independent consultant, has 45 years of professional civil and geotechnical engineering experience with an extensive background in large river processes in complex systems and in geotechnical theory and practice. He earned his B.S. in civil engineering from the University of California, Berkeley, in 1972, his M.S. in civil (geotechnical) engineering from the University of California, Berkeley, in 1973, and his Ph.D. in civil engineering (geosystems) from the University of Washington in 1985. He is a registered professional civil engineer (P.E.) in California, Washington, and Alaska and a registered geotechnical engineer (G.E.) in California.

Dr. Vita’s geotechnical engineering practice includes geomorphology factors and issues based on his Ph.D. research and project experience with the Coeur d’Alene River Basin Project, the California Levee Evaluation Program, and geotechnical evaluation for a site on the North Fork of the Stillaguamish River associated with channel instability and river avulsions due to geotechnical instability. His work at the Bremerton Naval Complex (BNC), Pearl Harbor Naval Base, the Duwamish River in Seattle, Portland Harbor, and the Port of Anchorage demonstrate his extensive experience in performing geotechnical and geo-environmental evaluations and supporting geo-civil designs for DDN projects, including the classification, dredging, and disposal of material. He also has conducted IEPRs for major USACE flood control and storm damage risk reduction projects and river ecosystem restoration projects. He understands the behavior of aquifers and soils based on his extensive geotechnical and geo-environmental experience.

Dr. Vita is experienced in geotechnical risk analysis and is familiar with USACE risk registers and cost and schedule risk analysis. He has addressed safety assurance review (SAR) aspects on several USACE projects, including the Greater New Orleans Hurricane and Storm Damage Risk Reduction System (HSDRRS) Design Elevation Report, the New Orleans to Venice (NOV) Project, and the Morganza to the Gulf of Mexico Project. Dr. Vita is particularly skilled in the analysis and evaluation of uncertainty and risk and in the reliability of complex infrastructure systems. As part of California's Urban Levee Geotechnical Evaluation Program, he developed a probabilistic formulation of underseepage analysis for risk and uncertainty considerations. He also initiated development of a geotechnical analysis of levee-system slope stability as part of risk and uncertainty consideration of length effects in levee system reliability. In addition, Dr. Vita investigated the use of statistical analysis to characterize the probability of undiscovered geologic and geotechnical details affecting levee stability and reviewed and commented on USACE's draft Engineer Technical Letter (ETL) 1110 2-570, Certification of Levee Systems for the National Flood Insurance Program, with a focus on geotechnical risk and uncertainty considerations.

Dr. Vita has a long history of being active in the American Society of Civil Engineers. He has published many professional papers in journals and conference proceedings and has made many technical presentations to professional and lay audiences.

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APPENDIX C

Final Charge for the Mobile Harbor IEPR

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Charge Questions and Guidance to the Panel Members for the Independent External Peer Review (IEPR) of the Mobile Harbor, Alabama, Draft Integrated General Reevaluation Report (GRR) and Supplemental Environmental Impact Statement (SEIS)

This is the final Charge to the Panel for the Mobile Harbor IEPR. This final Charge was submitted to USACE as part of the final Work Plan, originally submitted on July 6, 2018. The dates and page counts in this document have not been updated to match actual changes made throughout the project.

BACKGROUND

Mobile Harbor, Alabama, is located in the southwestern part of the state, at the junction of the Mobile River with the head of Mobile Bay. The port is about 28 nautical miles north of the Bay entrance from the Gulf of Mexico and 170 nautical miles east of New Orleans, Louisiana. The current dimensions of the existing navigation channel are: 47 feet deep by 600 feet wide across Mobile Bar and 45 feet deep by 400 feet wide in the bay and 45 feet deep by 730 feet wide in the Mobile River to a point about 1 mile below the Interstate 10 highway tunnels. The channel then becomes 40 feet deep and proceeds north over the Interstate 10 and U.S. 90 highway tunnels to the Cochrane/Africa town Bridge. The Mobile River, on which the Alabama State Port Authority facilities are located, is formed some 45 miles north of the city with the joining of the Alabama and Black Warrior/Tombigbee Rivers. The Mobile River also serves as the gateway to international commerce for the Tennessee/Tombigbee Waterway. In the southern region of Mobile Bay, access can be gained to the Gulf Intracoastal Waterway, which stretches from St. Marks, Florida, to Brownsville, Texas.

Improvements to Mobile Harbor were most recently reauthorized in Section 201 of the Water Resources Development Act of 1986 (PL 99 – 662, Ninety-ninth Congress, Second Session), which was approved 17 November 1986, and subsequently amended by Section 302 of the Water Resources Development Act of 1996.

The following improvements are recommended to the Federal project:

- Deepen and widen entrance channel over the bar to 57 by 700 feet, a distance of about 7.4 miles
- Deepen and widen Mobile Bay Channel from mouth of bay to south of Mobile River, 55 by 550 feet, a distance of about 27.0 miles
- Deepen and widen an additional 4.2 miles of Mobile Bay Channel to 55 by 650 feet
- Provide a 55-foot deep anchorage area and turning basin in the vicinity of Little Sand Island
- Deepen the Mobile River channel to 55 feet to a point about 1 mile below the Interstate 10 and U.S. 90 highway tunnels.

The project area encompasses the primary Federal navigation channel within the harbor, including the 47-foot-deep bar channel and the 45-foot-deep navigation channel through the bay and into the Mobile River as well as the turning basin near Little Sand Island. Included are any shorelines and extensions of the water bodies and disposal areas that are potentially impacted by channel enlargement alternatives as well as the ocean dredged material disposal site (ODMDS).

Construction of Mobile Harbor to its current depth and width was completed in fiscal year (FY) 1994. The construction was limited to less than the authorized dimensions because the sponsor did not have the

funds to construct to the fully authorized depth. A 1300-foot extension in the river channel was completed in 2000. A 1200-foot and a 2100-foot extension in the river channel were completed in FY 2008. The Turning Basin construction was completed in August 2010.

Basic structural measures considered for this study consist of deepening the channel, widening the channel, bend easing in the bar channel, passing lanes, meeting areas, and modifying the turning basin. Nonstructural measures considered include relocation of navigation aids, use of tugs, lightering, light-loading, topping-off offshore, and scheduling.

The study has examined the costs and benefits as well as the environmental impacts of increasing the dimensions of the existing Federal project within its authorized limits. Over time, cargo volume has grown. Likewise, the size and number of vessels calling on the port have also increased. This growth has resulted in harbor congestion and vessel delays as vessels oftentimes wait to transit the channel. Other inefficiencies relate to the existing channel depth, which limits the volume of cargo that can be carried during channel transit (i.e., loaded ship draft).

The Tentatively Selected Plan consists of deepening the existing channel an additional 4 feet (existing channel is at a depth of -45 feet mean lower low water (MLLW) in the bay and -47 feet MLLW in the bar segment); adding an additional 100 feet of widening for three miles beginning at the upper end of the bend area; bend easing with the deepening at the upper end of the bar channel; and modification to the Choctaw Pass turning basin to ensure safe operations. The study has examined placement of construction dredged sediments, as well as long-term placement of incremental operation and maintenance sediments. It is anticipated that placement will occur in a combination of the Environmental Protection Agency-approved Ocean Dredged Material Disposal Site (ODMDS), open water placement areas, and beneficial use.

OBJECTIVES

The objective of this work is to conduct an independent external peer review (IEPR) of the Mobile Harbor, Alabama, Draft Integrated General Reevaluation Report (GRR) and Supplemental Environmental Impact Statement (SEIS) (hereinafter: Mobile Harbor IEPR) in accordance with the Department of the Army, U.S. Army Corps of Engineers (USACE), Water Resources Policies and Authorities' *Review Policy for Civil Works* (Engineer Circular [EC] 1165-2-217, dated February 20, 2018), 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 and environmental assumptions and projections, project evaluation data, economic analyses, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in evaluation of economic or environmental impacts, and any biological opinions” (EC 1165-2-217; p. 39) for the decision 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) who meet the technical criteria and areas of expertise required for and relevant to the project.

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 1165-2-217 (p. 41), 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. The review assignments per panel member may vary slightly according to discipline.

Review Documents	Subject Matter Experts				
	Actual Count	Civil Works Planner/Economics	Environmental	Hydraulic/Coastal Engineer	Geotechnical Engineer
Draft Integrated GRR and SEIS	328	328	328	328	328
Appendix A: Engineering	132			130	130
Appendix A, Attachment 1: ERDC Modeling Report	440			440	440
Appendix A, Attachment 2: USGS Modeling Report					
Appendix A, Attachment 3: Ship Simulation Report		90			
Appendix A, Attachment 4: Wave Energy Assessment					
Appendix A, Attachment 5: Data Collection Report					
Appendix A, Attachment 6: Boring Logs	380				380
Appendix A, Attachment 7: Cost Estimate		3			
Appendix B: Economics	81	81			
Appendix C: Environmental (Sections 1-2)	334		334		
Appendix C: Environmental (Section 3)					
Appendix C: Environmental (Section 4)					
Appendix C: Environmental (Section 5)					
Appendix C: Attachment 1: Aquatic Resources	303		303		
Appendix C: Attachment 2: Draft 404(b)(1)					
Appendix C: Attachment 3: Air Quality Analysis					
Appendix C: Attachment 4: T/E Species					
Appendix C: Attachment 5: Transportation					
Appendix C: Attachment 6: Agency Meeting Memoranda	242		242		
Appendix D: Real Estate	31	31	31		
Appendix E (Really F): Design Agreements	8	8	8	8	8

Review Documents	Subject Matter Experts				
	Actual Count	Civil Works Planner/Economics	Environmental	Hydraulic/Coastal Engineer	Geotechnical Engineer
Appendix G - References	35	35	35	35	35
Public Comments ^a	100	100	100	100	100
Total Review Document Pages	2414	556	1261	921	1301
Supplemental Information					
Appendix E: Public Comments * **	1060	1060	1060	1060	1060
Risk Register*	20	20	20	20	20
Total Supplemental Pages	1080	1080	1080	1080	1080

Documents for Reference

- USACE guidance *Review Policy for Civil Works*, (EC 1165-2-217, February 20, 2018)
- Office of Management and Budget's *Final Information Quality Bulletin for Peer Review* (December 16, 2004)
- Foundations of SMART Planning
- Feasibility Study Milestones (PB 2017-013, January 10, 2017)
- SMART – Planning Overview
- Planning Modernization Fact Sheet.

SCHEDULE & DELIVERABLES

This schedule is based on the receipt date of the final review documents and may be revised if review document availability changes. This schedule may also change due to circumstances out of Battelle’s control such as changes to USACE’s project schedule and unforeseen changes to panel member and USACE availability. As part of each task, the panel member will prepare deliverables by the dates indicated in the table (or as directed by Battelle). All deliverables will be submitted in an electronic format compatible with MS Word (Office 2003).

Task	Action	Due Date Working Days
Attend Meetings and Begin Peer Review	Battelle convenes kick-off meeting with USACE	7/3/2018
	Battelle sends review documents to panel members	7/30/2018
	Battelle convenes kick-off meeting with panel members	8/1/2018
	Battelle convenes kick-off meeting with USACE and panel members	8/1/2018
	Battelle convenes mid-review teleconference for panel members to ask clarifying questions of USACE	8/15/2018
	Battelle participates in the ADM Meeting	11/1/2018
Prepare Final Panel Comments	Panel members complete their review of the documents	9/4/2018
	Battelle provides talking points to panel members for Panel Review Teleconference	9/6/2018
	Battelle convenes Panel Review Teleconference	9/7/2018

Task	Action	Due Date Working Days
	Battelle provides Final Panel Comment templates and instructions to panel members	9/10/2018
	Panel members provide draft Final Panel Comments to Battelle	9/14/2018
	Battelle provides feedback to panel members on draft Final Panel Comments; panel members revise Final Panel Comments	9/15/2018 - 9/23/2018
	Panel finalizes Final Panel Comments	9/24/2018
Review Public Comments	Battelle receives public comments from USACE	9/17/2018
	Battelle sends public comments to Panel**	9/19/2018
	Panel members complete their review of the public comments	9/24/2018
	Battelle and Panel review the Panel's responses to the charge question regarding the public comments	9/25/2018
	Panel drafts Final Panel Comment on public comments, if necessary	9/26/2018
	Panel finalizes Final Panel Comment regarding public comments, if necessary	9/28/2018
Review Final IEPR Report	Battelle provides Final IEPR Report to panel members for review	10/2/2018
	Panel members provide comments on Final IEPR Report	10/4/2018
	Battelle submits Final IEPR Report to USACE*	10/9/2018
	USACE Planning Center of Expertise (PCX) provides decision on Final IEPR Report acceptance	10/16/2018
Comment/Response Process	Battelle inputs Final Panel Comments to Design Review and Checking System (DrChecks) and provides Final Panel Comment response template to USACE	10/18/2018
	Battelle convenes teleconference with USACE to review Comment Response process	10/18/2018
	Battelle convenes teleconference with Panel to review Comment Response process	10/18/2018
	USACE Project Delivery Team (PDT) provides draft Evaluator Responses to USACE PCX for review	11/1/2018
	USACE PCX reviews draft Evaluator Responses and works with USACE PDT regarding clarifications to responses, if needed	11/7/2018
	USACE PCX provides draft PDT Evaluator Responses to Battelle	11/8/2018
	Battelle provides draft PDT Evaluator Responses to panel members	11/12/2018
	Panel members provide draft BackCheck Responses to Battelle	11/15/2018
	Battelle convenes teleconference with panel members to discuss draft BackCheck Responses	11/16/2018
	Battelle convenes Comment Response Teleconference with panel members and USACE	11/19/2018
	USACE inputs final PDT Evaluator Responses to DrChecks	11/28/2018
	Battelle provides final PDT Evaluator Responses to panel members	11/29/2018
	Panel members provide final BackCheck Responses to Battelle	12/4/2018
	Battelle inputs the panel members' final BackCheck Responses to DrChecks	12/7/2018
Battelle submits pdf printout of DrChecks project file*	12/10/2018	

Task	Action	Due Date Working Days
	Contract End/Delivery Date	11/30/2019

* Deliverables

** Battelle will provide public comments to the Panel after they have completed their individual reviews of the project documents to ensure that the public comment review does not bias the Panel's review of the project documents.

CHARGE FOR PEER REVIEW

Members of this IEPR Panel are asked to determine whether the technical approach and scientific rationale presented in the decision documents are credible and whether the conclusions are valid. The Panel is asked to determine whether the technical work is adequate, competently performed, and 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 decision 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 that the Panel will be asked to provide an overall statement related to 2 and 3 below per USACE guidance (EC 1165-2-217).

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 (Project Manager; Jessica Tenzar; tenzarj@battelle.org) or Program Manager (Lynn McLeod; mcleod@battelle.org) for requests or additional information.
3. In case of media contact, notify the Battelle Program Manager, Lynn McLeod (mcleod@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 the Project Manager, tenzarj@battelle.org no later than 10 pm ET by the date listed in the schedule above.

Independent External Peer Review of the Mobile Harbor, Alabama, Draft Integrated General Reevaluation Report (GRR) and Supplemental Environmental Impact Statement (SEIS)

Charge Questions and Relevant Sections as Supplied by USACE

Broad Evaluation Review Charge Questions

1. Is the need for and intent of the decision document clear?
2. Does the decision document adequately address the stated need and intent relative to scientific and technical issues?

Given the need for and intent of the decision document, assess the adequacy and acceptability of the following:

3. Project evaluation data used in the study analyses
4. Economic, environmental, and engineering assumptions that underlie the study analyses
5. Economic, environmental, and engineering methodologies, analyses, and projections
6. Models used in the evaluation of existing and future without-project conditions and of economic or environmental impacts of alternatives
7. Methods for integrating risk and uncertainty
8. Formulation of alternative plans and the range of alternative plans considered
9. Quality and quantity of the surveys, investigations, and engineering sufficient for conceptual design of alternative plans
10. Overall assessment of significant environmental impacts and any biological analyses.

Further,

11. Evaluate whether the interpretations of analysis and the conclusions based on analysis are reasonable.
12. Assess the considered and tentatively selected alternatives from the perspective of systems, including systemic aspects being considered from a temporal perspective, including the potential effects of climate change.
13. Does information or do concerns provided in the public comments raise any additional discipline-specific technical concerns with regard to the overall report?

Specific Technical and Scientific Review Charge Questions

14. Are there other areas of potential environmental impact that have not been considered in the report?
15. Have environmental impacts been reasonably and sufficiently captured and, if required, sufficient mitigation provided in accordance with regulations?
16. Is there 20-year disposal capacity provided for dredged material?
17. Have Environmental Justice concerns to include traffic, air, and noise been sufficiently addressed?
18. Have potential impacts on the cultural resources been sufficiently addressed?

Battelle Summary Charge Questions to the Panel Members¹

Summary Questions

19. Please identify the most critical concerns (up to five) you have with the project and/or review documents. These concerns can be (but do not need to be) new ideas or issues that have not been raised previously.
20. Please provide positive feedback on the project and/or review documents.

Public Comment Questions

21. Do the public comments raise any additional discipline-specific technical concerns with regard to the overall report?

¹ Questions 19 through 21 are Battelle-supplied questions and should not be construed or considered part of the list of USACE-supplied questions. These questions were delineated in a separate appendix in the final Work Plan submitted to USACE.

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APPENDIX D

Conflict of Interest Form

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Conflicts of Interest Questionnaire
Independent External Peer Review
MOBILE HARBOR, ALABAMA
DRAFT INTEGRATED GENERAL REEVALUATION REPORT AND
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

The purpose of this document is to help the U.S. Army Corps of Engineers identify potential organizational conflicts of interest on a task order basis as early in the acquisition process as possible. Complete the questionnaire with background information and fully disclose relevant potential conflicts of interest. Substantial details are not necessary; USACE will examine additional information if appropriate. Affirmative answers will not disqualify your firm from this or future procurements.

NAME OF FIRM: **Battelle Memorial Institute Corporate Operations**
REPRESENTATIVE'S NAME: **Jason Jenkins**
TELEPHONE: **614-424-4873**
ADDRESS: **505 King Avenue, Columbus, Ohio 43201**
EMAIL ADDRESS: **jenkinsj@battelle.org**

I. INDEPENDENCE FROM WORK PRODUCT. Has your firm been involved in any aspect of the preparation of the subject study report and associated analyses (field studies, report writing, supporting research etc.) **No** Yes (if yes, briefly describe):

II. INTEREST IN STUDY AREA OR OUTCOME. Does your firm have any interests or holdings in the study area, or any stake in the outcome or recommendations of the study, or any affiliation with the local sponsor? **No** Yes (if yes, briefly describe):

III. REVIEWERS. Do you anticipate that all expert reviewers on this task order will be selected from outside your firm? **No** **Yes** (if no, briefly describe the difficulty in identifying outside reviewers):

IV. AFFILIATION WITH PARTIES THAT MAY BE INVOLVED WITH PROJECT IMPLEMENTATION. Do you anticipate that your firm will have any association with parties that may be involved with or benefit from future activities associated with this study, such as project construction? **No** Yes (if yes, briefly describe):

V. ADDITIONAL INFORMATION. Report relevant aspects of your firm's background or present circumstances not addressed above that might reasonably be construed by others as affecting your firm's judgment. Please include any information that may reasonably: impair your firm's objectivity; skew the competition in favor of your firm; or allow your firm unequal access to nonpublic information.

No additional information to report.



Jason Jenkins

6/20/2018

Date

BATTELLE

It can be done