HURRICANE ISAAC WITH & WITHOUT 2012 100-YEAR HURRICANE & STORM DAMAGE RISK REDUCTION SYSTEM (HSDRRS) EVALUATION

USACE Independent External Peer Review (IEPR) Response Report

8 February 2013

Results of the Independent External Peer Review (from Final IEPR Report, Battelle 2013)

Based on the Panel's review, the report adequately assesses the effects of the 2012 100-year HSDRRS on areas outside the system, although the analyses are preliminary as acknowledged in the report. The Panel believes that the models used in the Hurricane Isaac Assessment were appropriately chosen and used and realistically represents the actual system. The modeling assumptions were sound, although the Panel found that the limitations of the models (while not unexpected given the preliminary nature of the input data) could have been described in more detail. Overall, the report presents a strong compilation of field measurement and analysis, and numerical modeling using state-of-the-art techniques. The description of the HSDRRS is clear and appropriate for the report, and the report sufficiently and satisfactorily answers the question of whether the HSDRRS impacted areas outside the system during Hurricane Isaac.

The Panel thinks that the wind and pressure data ultimately used for model input should have been better described and documented in the report, and that supplemental, currently available meteorological data might be a beneficial addition to the model input and may help produce more precise storm surge predictions. The Panel also believes that additional graphics, including conceptual illustrations of the storm's winds and surge as it unfolded, and a system-wide figure depicting where hydraulic overtopping would have occurred, would be helpful in demonstrating the causes of severe storm surge during Hurricane Isaac.

Overall, the Panel suggests that the question posed by the analysis should have been whether the HSDRRS impacted areas outside the system during Hurricane Isaac *differently than the range of impacts predicted during the design phase*. The effects outside the HSDRRS during Hurricane Isaac were large enough to have been measureable in the field if two identical storms were to occur, but the report effectively demonstrates that those potential impacts were clearly predicted during analyses conducted in the HSDRRS design phase.

IEPR PANEL COMMENTS, USACE RESPONSES AND REPORT MODIFICATIONS

Panel Comment 1 – *Medium Significance*

The description and documentation of the wind and pressure data that were ultimately used for storm surge modeling are insufficient to convey the overall input data quality.

USACE Response to Comment 1 - *Concurred*

PDT agrees that report would benefit from additional detail. Both recommendations are incorporated into the suggested update to the report (attached).

Report Modifications to Address Comment 1

The text in Chapter 1, pp 1-5 to 1-9 added to include additional detail about wind and pressure data used in the modeling.

Panel Comment Closeout

Concur. The suggested report modifications provide sufficient detail regarding the basis and reliability of the input wind and pressure fields to convey an understanding of their suitability for use on the project.

Panel Comment 2 – *Low Significance*

The report does not include graphics that would improve comprehension of the storm surge build-up during Hurricane Isaac, particularly for someone unfamiliar with the geographic area.

USACE Response to Comment 2 - *Concurred*

The PDT agrees that additional graphics would be helpful to the reader and provide some additional clarity. However, we also agree that the addition of this information does not change conclusions and therefore not necessary given the level of effort required to produce the appropriate graphics.

Report Modifications to Address Comment 2

N/A. The report was not modified to address this comment.

Panel Comment Closeout

Concur.

Panel Comment 3 – *Low Significance*

The report does not include a system-wide figure that graphically shows where hydraulic overtopping would have occurred.

USACE Response to Comment 3 - *Concurred*

A system wide map that graphically shows where surge overflow is likely to have occurred with the pre-HSDRRS in place would be beneficial to the reader. The attached map will be added to Chapter 4.

Report Modifications to Address Comment 3

Added text “Figure 4.21 shows the locations of likely surge overflow and inundation for the pre-100-year HSDRRS” on pg 4-27 and added Figure 4.21 on pg 4-28 in Chapter 4 to address Comment 3.

Panel Comment Closeout

Concur. The Panel believes the provided graphic aids in an understanding of the limited likely overtopping of the pre-HSDRSS system, which adds further credence to the report's conclusions based on numerical modeling.