

**MINUTES OF
SOUTHEAST LOUISIANA FLOOD PROTECTION AUTHORITY-EAST
SPECIAL ISSUES COMMITTEE MEETING
HELD ON AUGUST 5, 2010**

PRESENT: Thomas Jackson, Chair
Stephen Estopinal, Vice Chair
Louis Wittie, Commissioner
Timothy Doody, President
Robert A. Turner, Jr., SLFPAE Regional Director
Gerry Gillen, O.L.D. Executive Director
Stuart Williamson, LBBLD Executive Director
Ricky Brouillette, OCPR

The Special Issues Committee met on August 5, 2010, in the Second Floor Hall of the Lake Vista Community Center, 6500 Spanish Fort Blvd., New Orleans, Louisiana. Chairman Thomas Jackson called the meeting to order at 10:40 a.m.

Opening Comments: Mr. Jackson explained that technically this is a meeting of the Special Issues Committee; however, upon approval of the Board, future meetings will be conducted under the name “Engineering Advisory Committee” (EAC). The EAC membership will consist of the Board members who are engineers and the engineering staff of the SLFPA-E and levee districts at the leadership level (Regional Director, Regional Chief Engineer and Executive Director). The EAC will address issues of an engineering nature and the participants will be registered professional engineers. Mr. Doody noted that the EAC will also consider issues that are of a technical nature and that the committee can draw upon any technical expertise that is needed. Mr. Jackson added that the EAC will also draw upon the expertise and talents of individuals from outside entities, such as the CPRA and USACE, depending upon the issue under consideration. The EAC will be a sounding board for issues and a tool to assist the Board in its decision making process.

Adoption of Agenda: The agenda was adopted as presented.

Approval of Minutes: The minutes of the September 3, 2009 Special Issues Committee meeting were approved.

Public Comments: Charlie Speed, Program Chairman of NACE International—The Corrosion Society – New Orleans section, advised that he has worked 30 years as a corrosion and materials engineer for Exxon, Mobile and Shell. He extended an invitation to the August 23rd NACE meeting at the Holiday Inn Superdome during which Mr. Turner will outline this problem to The Corrosion Society. He stated that The Corrosion Society would like to get involved and assist in the corrosion issue. Mr. Speed commented that he personally thought that there would be a problem if the pilings are not coated or some other preventative method is not used. He added that a corrosion allowance on steel is not a corrosion barrier.

The Committee unanimously agreed by a roll call vote to modify the agenda to take Agenda Item VI.2 dealing with corrosion protection as the next item of business.

New Business:

A. Discussion of corrosion protection of St Bernard T-Wall pilings.

Mr. Jackson advised that he visited the T-wall construction site in St. Bernard Parish, as well as the site where the deep soil mixing is being done, last Tuesday with Rick Kendrick with the U.S. Army Corps of Engineers (USACE). He recommended that the Commissioners visit the project sites to view what is being done and to develop a one-on-one relationship with the USACE leadership.

Mr. Turner explained that in order to meet the scheduling demands of the June 1, 2011 goal to complete construction of the system, the USACE began in about October of 2009 looking at things that could be done to compress construction schedules. One of the options chosen by the USACE was to use sacrificial steel as a means of corrosion protection in lieu of coating H-piles and sheetpiles, which would eliminate 30 to 90 days from the construction schedule. A former Lake Borgne Basin Levee District (LBBLD) Executive Director had previously expressed concern and disagreement with the USACE about the use of sacrificial steel instead of coating. The white paper developed by the USACE Hurricane Protection Office (HPO) on this issue was reviewed and comment was provided to the USACE. The SLFPA-E retained Halcrow, Inc. to provide advice on the suitability of the USACE's proposed plan. The November, 2009, Halcrow report advised that neither coating nor sacrificial steel were required in some areas; however, in other areas, particularly areas immediately below the base slab at the T-wall, coating is required. The Halcrow report was forwarded to the USACE and the USACE responded that they disagreed with the report. The Office of Coastal Protection and Restoration (OCPR) commissioned another review of the issue through Jim Bushman. The OCPR report did not recommend the use of sacrificial steel in lieu of coating in certain circumstances.

Mr. Jackson stated that he found both sides of the argument deficient. He explained that he did not see in either the report for the SLFPAE or OCPR that the use sacrificial steel would not work or that it has a very limited life expectancy. However, the USACE white paper was equally deficient in terms of specifics relative to projected loss of section. He added that he would like to find out if the SLFPAE could de facto say that what the USACE is doing is not acceptable or that it has a limited life expectancy. He suggested that perhaps the coating could be painted on the piling at the site.

Mr. Estopinal pointed out that the most critical location is where the sheet pile enters the concrete, which cannot be coated once it is installed. Mr. Jackson explained how the USACE modified its plan at the base slab in order to provide some protection from air and other corrosive materials. Mr. Estopinal added that concrete against steel is a corrosion invitation; therefore, the invitation for corrosion is increased in this area.

Colonel Robert Sinkler, USACE HPO Commander, explained that the USACE is delivering about \$5 billion worth of construction in the SLFPA-E area in less than five years. The USACE is under some pressure to maintain the schedule; therefore, decisions are being made rapidly. Col. Sinkler stated that the USACE has made some modifications to the base slab design based on input from Mr. Turner and that the USACE is prepared to make additional changes as the EAC works through this issue. He offered to look at any significant concerns about further reducing the potential for corrosion, in addition to the actions already taken, and stated that minor modifications could potentially be made based upon recommendations from the EAC. He noted that there were four recommendations offered in the reports; however, not everyone who read the reports agreed with the recommendations.

Mr. Jackson stated that there was an indication that the USACE obtained a waiver of the design manual for the thickened steel section and asked was the waiver peer reviewed. Col. Sinkler explained that everything in the design guidelines for the Hurricane and Storm Damage Risk Reduction System (HSDRRS) is peer reviewed. Several changes have been made to the design guidelines. He stated that he recommended that there be a separate section on "bending moment" and "corrosion" in the future HSDRRS guidelines and that everything is on track to make that happen. Col. Sinkler asked that all of the components of the T-wall and of the entire system be taken into consideration in order to make more informed decisions on the system and to give everyone a better appreciation of the real risks. There is a 3-1/2-ft. base slab over the top of the H-piles and drop panels have been constructed based upon dialog with Mr. Turner and other individuals. The USACE is placing midnight slurry mix about seven feet or more into the holes and around the driven H-piles to provide an additional coating.

Ricky Brouillette noted that there are many committed people in the USACE, including HPO St. Paul and its consultants. He stated that in some respects the consultants on this set of projects (LPV 144-149) are doing an exceptional job in terms of quality of work, with the exception of some of their decision making processes that have lead to this point. He stated that he still has major concerns about this issue. There are three basic on-going factors that are interrelated: 1) a corrosion and void issue, 2) a down drag and bending and shear issue on the piles, and 3) an issue of settlement. Mr. Brouillette stated that increasing steel thickness in lieu of coating should not be done. He noted that Jim Bushman when asked about coating the top several feet of the piling replied, if that is done, then you may as well go down to the water table. Mr. Brouillette added that five corrosion experts agreed with all or most of the OCPR/SLFPA-E's position, and that as far as he knew, no corrosion experts agreed with the USACE's position.

Mr. Jackson asked what official actions had the CPRA taken on this issue. Mr. Brouillette responded that e-mails had been sent stating the position that coating and embedding of the T-walls is the preferred approach. The CPRA indicated in meetings with the USACE that other options could be considered, but the corrosion specialists should meet with the USACE before a decision is made.

Mr. Jackson asked Mr. Speed whether the steel could be coated on-site. Mr. Speed responded that there are coatings that could be easily applied, but not after the steel is in the ground. A single coat inorganic zinc product developed by NASA that can be sprayed on steel was suggested as an option. He indicated that he did not think that cathodic protection would work in this situation. Mr. Brouillette noted that Mr. Bushman considered the after-the-fact cathodic protection of 23 miles of uncoated steel in his evaluation and estimated the initial and maintenance costs at \$180 million. The estimated cost of cathodic protection for coated steel is \$10 million. Mr. Brouillette explained that cathodic protection does not address the area beneath the T-wall base when a void occurs. He pointed out that LPV 145 has some major issues and that a void could develop. Mr. Brouillette added that all the corrosion engineers state that the corrosion phenomenon is not predictable—it is random.

Rick Kendrick with the USACE commented that coating was not used prior to Hurricane Katrina and there were no structural failures contributed to corrosion. He explained that the structural area needed for the steel in the I-beams is about half the size of the beam itself. The beams are sized for the lower part which receives the most stress and are oversized above because steel cannot be tapered. Levees located in the subject area were built back up to an elevation of about 20-ft. after Hurricane Katrina and the levees settled about a foot in the last four years. Most of the settlement occurs within the first year. He asked that the individuals involved in this issue visit the site and look at the process and pointed out that no one who has provided an analysis has done so.

Mr. Estopinal pointed out that there will never be a point when differential movement ceases. Mr. Jackson commented that he understood that there would be stresses and potential loads on the pilings; however, he presumed that the USACE looked at these types of issues in their designs. He stated that it must be accepted that the USACE and its design staff have done proper work on the calculations. He added that he was looking for assurance that the option being used by USACE will serve the intended purpose or that it will not serve that purpose and, therefore, drastic action is needed.

Col. Sinkler commented that no one at this point in time has been able to quantify risks associated with the use of sacrificial steel. He suggested that a joint committee be formed to work through the issues and to develop a shared vision.

Mr. Doody offered a motion that Thomas Jackson, Stephen Estopinal and Ricky Brouillette meet with Colonel Sinkler and no more than three representatives from the USACE on this issue and determine a path forward. The motion was seconded by Mr. Wittie and unanimously adopted.

B. Review and submittal of review of GNO HSDRRS WRDA 2007, Section 2035, Peer Review Plan Revised DRAFT.

Mr. Jackson advised that this basically deals with policy to establish the process following the passage of WRDA 2007 relative to external peer review. He explained his concern for the development of a national policy. A copy of the Peer Review Plan was provided to the SLFPA-E; however, a response was not returned timely. An ad hoc

committee met, the policy was reviewed and a number of comments were developed. The SLFPA-E requested a time extension to provide comments and the USACE approved an extension to August 8th. Mr. Jackson stated that there is a concern that the policy tends to deal with projects as opposed to the entire system. Another concern is the secrecy in which the peer review system takes place and the way that it is defined in the policy. The peer review group reports and provides comments to the USACE, which are not shared with the SLFPA-E. Therefore, the SLFPA-E does not have knowledge of the issues (e.g., structural integrity, operations and maintenance, and longevity) addressed in the comments. The peer review report is not available until it is released by the Chief of Engineers, which is generally well after construction is completed. Mr. Jackson stated that the peer review process should be open and available to the owners and operators of the system.

Mr. Jackson explained that the American Society of Civil Engineers (ASCE) is the organization that initially proposed and developed the wording for the WRDA bill. The ASCE expressed its surprise that the process is so closed and indicated that it would send a resolution of its conclusions to the Chief of Engineers. The ASCE will address the defects in the local policy as they relate to the development of a national policy on peer review. He pointed out that because of the criteria included in the WRDA bill changes to the bill may be required in order to determine whether peer review is on a project basis or system basis.

Mr. Turner reviewed the action items and draft comments on the proposed revision to the USACE Peer Review Plan (copy appended to minutes). Several observations were noted under item 5 of the draft comments. Mr. Doody pointed out that the projects were changed from the initial list of projects to undergo IEPR. Col. Sinkler commented that he brought in military people to assist with providing information timely. Mr. Turner explained that the difficulty in obtaining information is related to the processes being used to construct the projects, particularly the ECI (early contractor involvement) process. Mr. Doody requested that the comment relative to receiving information in a timely manner be softened or eliminated.

Mr. Jackson advised that the changes noted would be made and that Mr. Turner would draft a letter under the President's signature to transmit the comments.

Mr. Jackson asked Mr. Brouillette whether the CPRA responded on the Peer Review Plan. Mr. Brouillette advised that the CPRA had made an earlier response. He was requested to provide a copy of the response to the SLFPA-E. Mr. Jackson suggested that in the future the SLFPA-E and CPRA share their comments.

C. Discussion of surveys along 17th Street Canal (Orleans side).

Mr. Jackson explained that an e-mail has been in distribution concerning surveys taking place along the 17th Street Canal. He asked the reason for these surveys. Staff indicated that they had not been advised of any such surveys. Col. Sinkler advised that the USACE was not at this time doing any surveys with respect to the permanent pump stations or canal levee remediation.

D. Discussion of status of internal canals upon completion of lake barriers.

Mr. Estopinal explained that the SLFPA-E should begin discussions on the disposition of the levees along the London and Orleans Avenue and 17th Street Canals after the permanent pump stations are completed at the lakefront. At that point in time the levees would be an integral part of the internal pumping system and no longer a part of storm surge protection. Therefore, the SLFPA-E should begin to explore the procedures to divorce itself from the responsibility of these internal structures when they are no longer a part of the hurricane protection system and to turn over their operation to the Sewerage & Water Board (S&WB). The S&WB will have the responsibility of operating the pumps and will be involved in the conversion from Option 1 to Option 2 should that occur. It was noted that Joseph Becker, General Superintendent of the S&WB, was unable to attend today's meeting due to another commitment.

Mr. Jackson recommended that the SLFPA-E obtain a legal definition of its responsibility. He also requested that the SLFPA-E's legal counsel and the assistant attorney general address this issue on a legal basis. In addition to the issue of maintenance of the levees paralleling the canals, there is the issue of the operation of the gravity structure (gate) in the permanent pump stations. A determination must be made as to who is responsible for the gate, which is a part of hurricane protection. The gate must be operated in concert with the internal and external pump stations.

Col. Sinkler commented that his understanding was that the USACE does not have the ability to de-authorize projects. The de-authorization must be done by Congress. However, based on the Congressional authorization, the primary purpose of the outfall canals levees will no longer be to provide protection from storm surge.

Mr. Gillen pointed out the problem of bank erosion on the interior of the canals. Mr. Jackson commented that the USACE has an engineering team looking at the stability of the canals and suggested that this erosion problem could be coordinated with this work.

Mr. Estopinal offered a motion to bring before the Board a recommendation that it begin discussions on defining the legal responsibilities of the SLFPA-E and its member levee districts and the Sewerage & Water Board of New Orleans relative to the outfall canal levees and the floodgate that will be contained in the new lakefront pumping stations. The motion was seconded by Mr. Witte and unanimously adopted.

There was no further business; therefore, the meeting was adjourned at 12:30 p.m.

SLFPAE DRAFT Comments on the proposed revision to the USACE Peer Review Plan

July 20, 2010

Tim Doody
Tom Jackson
Louis Wittie
Ricardo Pineda
Stephen Estopinal
Bob Turner

Action Items:

1. Request additional time for review and comment on the proposed PRP. SLFPAE and CPRA should request the Corps to set aside time to “discuss and resolve key comments”.
2. Obtain a copy of the State’s comments on previous revisions to the PRP.
3. Request ASCE to review and comment on proposed PRP.

Comments:

1. WRDA 2997 (Sec 2035) States:
 - “Projects Subject to Safety Assurance Review.--The Chief of Engineers shall ensure that the design and construction activities for hurricane and storm damage reduction and flood damage reduction projects are reviewed by independent experts under this section if the Chief of engineers determines that a review by independent experts is necessary to assure public health, safety, and welfare.”
 - a. Project should be defined as the LPV Project, not individual construction contracts which make up only segments of the System.
2. WRDA 2007 (Section 7009) states:
 - “The Secretary shall establish a council, to be known as the “Louisiana Water Resources Council”, which shall serve as the exclusive peer review panel for activities conducted by the Corps of Engineers in the areas in the State of Louisiana declared as major disaster areas in accordance with section 401 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170) in response to Hurricane Katrina or Rita of 2005, in accordance with the requirements of section 2034.”
 - a. When was the “Louisiana Water Resources Council” established and how have they participated in IEPR?

- b. If it hasn't been established yet, why is all the IEPR work going on without LWRC oversight? Is the LWRC going to review IEPR work already completed? Shouldn't the LWRC review and comment on this proposed revision to the PRP?
3. The following is found on Page 3 of the proposed PRP:
 - "In accordance with Section 2035, efforts shall include the review and design of construction activities prior to the initiation of physical construction and periodically thereafter. Peer review during construction will include observation and comment on the critical construction elements of the project."
 - a. We would like a copy of all IEPR done on all projects originally included in the "Plan" since they should have been started before the Plan was revised.
 - "This PRP focuses primarily on a programmatic IEPR plan for the HSDRRS, providing for a system-wide approach rather than piecemeal."
 - a. Note "focus" on SYSTEM.
 - "If requested by the State within the comment period, the Corps will set aside time to discuss and resolve key comments."
 - a. SLFPAE and CPRA should request the Corps to set aside time to "discuss and resolve key comments".
4. WRDA 2007 (Section 2035) states:
 - "Projects Subject to Safety Assurance Review.--The Chief of Engineers shall ensure that the design and construction activities for hurricane and storm damage reduction and flood damage reduction **projects** are reviewed by independent experts under this section if the Chief of Engineers determines that a review by independent experts is necessary to assure public health, safety, and welfare."
 - a. There are multiple construction contracts used to construct various segments, but there is only one "Project" (ie the LPV Project).
 - b. The "trigger" for initiating IEPT is "public health, safety, and welfare".
5. The following is found on Page 7 of the proposed PRP
 - "An external peer review of the overall system was completed in May 2007."
 - a. We need a copy of the completed external peer review of the overall system.
 - "This PRP does not include another system-wide review; rather the review will primarily focus on IEPR of the HSDRRS Design Guidelines and major changes to the guidelines;

and project features that are unique or one-of-a-kind (never been built before), not captured under the Design Guidelines, or use innovative or non-conventional design or construction techniques/methods.”

- a. There are significant issues raised regarding the design of some components that either are not addressed in the HSDRRS Design Guidelines or involve waivers to the provisions included in the Guidelines granted by MVD or HQ.
- “All project work through development of product specific guidance, engineering, construction, and the operations and maintenance (O&M) program will undergo an Agency Technical Review (ATR), depending upon if it is in study or implementation phase, to “ensure the quality and credibility of the government’s scientific information” in accordance with the quality assurance and quantity control procedures of each major subordinate command.”
 - a. We need a copy of the ATR’s for the various segments.
- “Local stakeholders, to include the Louisiana Coastal Protection and Restoration Authority (CPRA) and the Southeast Louisiana Flood Protection Authority – East (SLFPA-E) and Southeast Louisiana Flood Protection Authority – West (SLFPA-W) and levee districts under their supervision, reviewed the initial list of projects to undergo IEPR and offered their concurrence. The State is fully engaged during individual project reviews and participates in the process alongside Corps project managers.”
 - a. SLFPAE did review and offer comment on the initial list of projects. Although SLFPAE was sent an email requesting comment on the last revision to the PRP, no comments were submitted. (Request from USACE was made by email and was missed by staff.)
 - b. Although SLFPAE has been engaged on some segments, it cannot be “fully engaged” because of resource limitations. There have been occurrences, however, when SLFPAE and State staff tried to get more fully engaged in certain aspects of the design process but were unable to obtain important design documentation in a timely manner.

6. The following is found on Page 8 of the proposed PRP

- “Task Force Hope used the following factors to initially determine the need for IEPR on particular features of the HSDRRS. Project managers were asked to submit information on their project(s) related to the below factors:
 - Significant threat to human life
 - Cases where information is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices
 - Project has a reduced or overlapping design-construction schedule
 - Project has unique construction sequencing
 - Project involves use of innovative materials or techniques

- Project lacks redundancy”
- a. WRDA 2007 (Section 2035) states:
 - In determining whether a review of design and construction of a project is necessary under this section, the Chief of Engineers shall consider whether—
 - the failure of the project would pose a significant threat to human life;
 - the project involves the use of innovative materials or techniques;
 - the project design lacks redundancy; or
 - the project has a unique construction sequencing or a reduced or overlapping design construction schedule.
- 7. The following is found on Page 9 of the proposed PRP
 - “The U. S. Army Research Office (ARO) serves as the contracting arm and contracts with Battelle to perform the peer review. This ensures a third-party relationship is maintained between the project’s execution office and Battelle. A diagram showing the TFH/PCX organization/process is shown in Figure 1.”
 - a. Battelle’s name should not be specified.
- 8. The following is found on Page 10 of the proposed PRP
 - “However, if review comments indicate an inherent weakness in a project, TFH needs to assess impacts and consult with Mississippi Valley Division, Regional Integration Team (MVD-RIT) for resolution. TFH, working with the appropriate execution office, will elevate comments on policy to HQUSACE for consideration under a non-project specific policy review.”
 - a. To ensure transparency, peer review comments and USACE responses should be provided to the State and SLFPAE in a timely fashion (preferably prior to construction).
- 9. On Page 11 of the proposed PRP
 - a. General Charge Guidance must include consideration of the four factors listed in Section 2035 of WRDA 2007.
- 10. The following is found on Page 11 of the proposed PRP
 - “It was agreed that the IEPR efforts should be refocused on a higher-level review of design assumptions and changes to those assumptions through all project phases (design, construction, O&M, and monitoring).”
 - a. This decision is based on a generality that may not always be true. There may be some instances when a more in depth look at a particular issue is appropriate. Such determinations should be made in consultation with the State and SLFPAE
- 11. On Page 12 of the proposed PRP

- a. Define “Type II-IEPR”
- b. Section 5.4.2 is confusing and needs clarification.

12. The following is found on Page 15 of the proposed PRP:

- “Independent reviews, no matter how useful, are not expected to resolve fundamental disagreements and controversies. Reviews will focus on assumptions, data, methods, and models.”
 - a. NFS will continue to provide input and hope that this input is considered.
- “Reviewers could assist the Corps in making decisions, but they will not be asked to make decisions themselves. Indeed, reviewers engaged in the independent review processes should be identified for their professional expertise, deemed independent, and should not be “stakeholders” at all. Frequent communication will help the review panel understand the technical and practical implications of its recommendations.”
 - a. The State and SLFPAE must be allowed to participate with the USACE in all communications with the review panel.

13. On Page 21 of the proposed PRP, the LPV 111.01 Project is shown as a segment that will undergo IEPR. This segment does not show up as such on the Page 19, Table 3.

14. On Page 19, Table 3, IEPR of the Armoring Manual is shown as being limited to back slope (protected side) armoring. This should be expanded to include all armoring (including flood side armoring).