MINUTES OF
SOUTHEAST LOUISIANA FLOOD PROTECTION AUTHORITY-EAST
OPERATIONS COMMITTEE MEETING
HELD ON DECEMBER 12, 2013

PRESENT: Louis Wittie, Chair
Stephen Estopinal, Committee Member
Paul Tilly, Committee Member
Joe Hassinger, Non-Committee Member

The Operations Committee of the Southeast Louisiana Flood Protection Authority-East (SLFPA-E or Authority) met on December 12, 2013, in Meeting Room 221, Orleans Levee District Franklin Administrative Complex, 6920 Franklin Avenue, New Orleans, Louisiana. Mr. Wittie called the meeting to order at 9:30 a.m.

Opening Comments: None.

Adoption of Agenda: The agenda was approved as presented.

Approval of Minutes: The minutes of the November 7, 2013 Operations Committee meeting were approved.

Public Comments: None.

New Business:

A. Presentation concerning fault lines. (Mike Merritt, SLFPA-W)

Mike Merritt, a founding Commissioner on the Southeast Louisiana Flood Protection Authority-West (SLFPA-W), stated that the SLFPA-E and SLFPA-W have partnered on technical matters for a number of years. He advised that he would be discussing how earth science issues impact the work of the Authorities. These issues include climate, the transgression of the sea, and the foundation soils beneath the levees, which are frequently weaker than the materials that are used to build the levees. He commented on notable hurricanes during the 20th century and on the increased number of notable hurricanes in the back half of the 20th century. He pointed out that the 100-year storm may not be what the Authorities should be preparing for and that in reality the Authorities may have only prepared for the 1900 to 1930 series of hurricanes. He referred to a Times Picayune editorial by former SLFPA-E Commissioner George Losonsky, PhD, published on March 25, 2008, which commented on the need for additional geological research.

Mr. Merritt addressed landform issues. The geology beneath a levee is the factor that determines whether a levee will succeed or fail. He cited an example of a West Bank levee where in one location the ground had fallen more than five-inches in comparison to the sheetwall in less than two years and in another area a 80-yard long crack had

developed in the levee crown due to the underlying geological formations. He discussed the three different types of foundation soils in the region; i.e., the natural meander belt of the Mississippi River, distributary channels and overbank deposits between the distributary channels. He commented on the LSU Seismic Shear Analysis work performed by Dr. Juan Lorenzo in which the SLFPA-E took part. Mr. Merritt pointed out that in Hurricane Katrina 32 percent of the city flooded because levees were overtopped; however, 48 percent of the city flooded because the levees or floodwalls could not perform to capacity. The Authorities' challenge is to find out exactly what is under the levees and to strengthen the weak spots. He commented on the historic collapse of the St. Francis Dam due to a fault line underneath the structure.

Mr. Merritt discussed the levee that was in a slow motion collapse on the West Bank just downstream of the Huey P. Long Bridge. The cracks on the protected side of the levee were flagged and mapped. The largest crack was 10-feet long, 38-inches deep and 5-inches wide. Two bank collapses were experienced on the floodside of the levee between 2005 and 2011. He pointed out that although the region had experienced a dry season, the problems were due entirely to the geology underneath the levee. A global stability project is underway near this section of levee. The SLFPA-W is considering hiring the Louisiana Geological Survey to research and examine the foundation soils.

Mr. Merritt discussed the debris filled levee located on the West Bank. He noted that there is a chronically seeping area in the levee, which indicates that the hydraulic characteristics beneath the levee were unknown. The levee sank about one-inch per month for about a year during construction. He stated that the more that is known about the foundation soils from geological research, the more successful the Authority will be in adapting designs to fit the circumstances.

Mr. Estopinal noted that Mr. Merritt addressed near surface geology. He expressed concern about deep set geology since large movements in deep set faults will ultimately impact the surface. Mr. Merritt pointed out that Dr. Lorenzo's method can be used to detect conditions 100-ft. below the surface. He commented on his membership on the USACE's Tiger Team and that as part of the final report he recommended that levees should be built to withstand a Richter six seismic event.

B. Discussion of investigation of subsidence and the installation of hardened weather gages.

Mr. Estopinal explained that he would like the Committee to consider a recommendation for the issuance of a Request for Proposals (RFP) for a gravitational vertical study of the SLFPA-E's entire network. The study would involve the use of gravity meters and would establish a good base line for tracking movement. There is early indication that there has been movement within the Michoud fault area. The Michoud fault is one of the most active faults in south Louisiana and runs through the SLFPA-E's flood protection system. He commented on the potential for differential movement and the

resulting impacts to the flood protection system. He stated that there is an indication that the initial cost of such a study may be in the range of $300,000 to $500,000.

Mr. Estopinal commented on the rapidly changing environment, the changing bathymetry and the need to update the parameters that are fed into the hydraulic models and rerun the models. He recommended that the SLFPA-E investigate the potential of issuing a task order to a SLFPA-E Indefinite Delivery-Indefinite Quantity (ID-IQ) contractor for the development of recommendations on the frequency of data collection, hydraulic model maintenance and methods of funding the continuing effort. He also recommended that the SLFPA-E develop a program in conjunction with NOAA and other appropriate entities for the installation of hardened weather and water level gages.

The Committee voted unanimously in favor of forwarding Mr. Estopinal's recommendations to the Board for consideration.

C. Discussion of adoption of Emergency Operations Procedures Manuals in order to meet FEMA requirements.

Robert Turner, SLFPA-E Regional Director, explained that there are three different levee systems [Mississippi River Levees (MRL), Hurricane and Storm Damage Risk Reduction System (HSDRRS) and the non-federal levees] that must be certified so that the systems can be included in the FEMA preliminary Digital Flood Insurance Rate Maps (DFIRMs). The SLFPA-E is the owner of the non-federal levees and responsible for their accreditation. Documentation must be provided to FEMA to demonstrate that the levee system can defend against a one percent chance event. A levee system must be accredited and mapped on the DFIRM in order for FEMA to calculate flood insurance rates based upon the system being in place. If the documentation is not provided and the system is not accredited, based upon current guidance, FEMA maps the area as though no levee is in place and flood insurance rates are calculated accordingly.

Mr. Turner explained the SLFPA-E's part in the certification of the federal levee system. The U.S. Army Corps of Engineers (USACE) is performing most of the technical work required for the certification of the federal levee system (MRL and HSDRRS). The USACE will provide the technical documentation, geotechnical data, analyses, and plans and specifications to FEMA to demonstrate that the systems can withstand the loading associated with a 100-year event and that the levees are of sufficient height. FEMA also requires an operation and maintenance (O&M) plan that is adopted by the local governing authority that includes how the system will be maintained over time (including maintenance intervals) and who will perform the maintenance (down to the position of crew supervisor). The SLFPA-E must develop the O&M plan. The SLFPA-E does not have a formal O&M plan at this time; however, it does have Emergency Operations Procedures (EOP) manuals. The USACE will provide O&M manuals that will list the maintenance that must be done and the frequency. The SLFPA-E must marry the requirements in the USACE's O&M manuals with the individuals who will be doing the maintenance. The SLFPA-E is developing an overarching O&M plan that will

refer to the USACE's O&M manuals and discuss the day-to-day O&M responsibilities. In order to demonstrate progress to FEMA, the levee districts are working to update their EOP manuals to include the recently turned over new infrastructure for adoption by the Board at its December 19th meeting. An additional resolution may be required relative to CPRA requirements. The overarching plan is anticipated to be ready in January.

Mr. Turner discussed future levee lifts for the federal levees. Floodwalls and hardened structures in the HSDRRS were designed for a fifty year project life (2057) that included subsidence and sea level rise. However, the levees in the HSDRRS were constructed for the current required elevation with a small amount of overbuild. The levees were constructed with the clear intent that as time proceeded additional lifts would be constructed and cost shared. The Project Partnering Agreement between the federal government (USACE) and non-federal sponsor (CPRA) for the HSDRRS excludes the construction of levee lifts to account for subsidence and sea level rise and places responsibility for levee lifts under the O&M requirements. The agreement does not state who is responsible for the levee lifts. Legislation is needed, probably through the Water Resources Development Act (WRDA), to allow the USACE to participate in future levee lifts on a cost share basis. If legislation is not passed, the levee districts will be required to raise the levees in the future in order to continue meeting FEMA requirements.

D. Discussion of Port of New Orleans Servitudes: Servitude Agreement for IHNC France Road to Almonaster and Servitude Adjustment for Citrus Back Levee from Jourdan Road to Elaine Street. (Orleans Levee District)

Item was deferred.

E. Discussion of erosion along outfall canals. (O.L.D.)

Felton Suthon, Orleans Levee District (O.L.D) Engineer, discussed the erosion occurring along the outfall canals:

- 17th Street Canal East Bank - approximately 190,000 sq. ft. from the north end of the retaining wall from PS #6 to about 400-ft north of Veterans Hwy.
- Orleans Avenue Canal East Bank approximately 190,000 sq. ft.
- London Avenue Canal East and West Banks approximately 280,000 sq. ft.

Mr. Suthon advised that erosion is also taking place around the bridges. The USACE is addressing current slope stability issues. The O.L.D. is attempting to take a pro-active approach on the problem. Most of the erosion is occurring 2-ft. on either side of normal flow. He reviewed potential repair plans. The O.L.D. proposes to use an ID-IQ contracted engineering consultant to perform a study and develop plans and specifications for repair. Mr. Gillen added that this issue will be discussed with the New Orleans Sewerage and Water Board.

F. Discussion of proposed EJLD safehouse/consolidated facility.

Mr. Turner advised that a meeting was held with the architect for the East Jefferson Levee District (EJLD) safehouse/consolidated facility. The architect was requested to provide estimated savings that would result from changes to the design. An official budget (including land, A&E and construction costs) must be established for the project. He recommended that a work group meet with the architect and develop the appropriate guidance. The goal is to have the facility operational before the 2015 hurricane season. Waggonner and Ball Architects was requested to provide on up-date on the project.

Sara Weinkauf with Waggonner and Ball Architects advised that the firm started working with the EJLD in 2009 on a study for safehousing. The existing facilities were evaluated and meetings were held with staff to program their needs. A real estate consultant identified property to fit the program needs and locations were analyzed. The airport property was subsequently identified. A full schematic design was developed and presented to staff.

The EJLD Levee Maintenance Superintendent and Shop Foreman discussed the needs for the mechanic shop.

Mr. Tilly advised that a working group consisting of himself, Tim Doody, Bob Turner and Fran Campbell would meet to discuss the scope of the project.

Levee District Reports:

Hurricane and Storm Damage Risk Reduction System (HSDRRS) Status Report:
Mr. Turner reviewed the highlights of the HSDRRS Status Report. He reminded everyone that the IHNC Surge Barrier and Seabrook Complex will be turned over to the SLFPA-E shortly. Staff has received training on the structures and an on-going training program is being developed. The USACE has indicated its willingness to assist with coordination and training over the next twelve months. The O.L.D. EOP manual will be updated to include the O&M responsibilities for these structures. Maintenance testing is continuing on the armoring pilot projects. The Orleans Parish portion of the MRL raising project is nearing completion and the Jefferson Parish portion of the project will begin soon. The USACE will delay turning over the remaining two reaches of the East Jefferson Foreshore Protection Project until after a decision is reached on the method for repairs. The USACE has not reached a final decision concerning the O&M requirements for the rock dike along the access channels alongside the IHNC Surge Barrier. The access canal on the floodside of the structure will need to be dredged to an elevation of about -15-ft.

Lake Borgne Basin Levee District (LBBLD): Nick Cali, Lake Borgne Basin Levee District (LBLLD) Executive Director, reviewed the highlights of the LBBLD Status Report. Mobilization is taking place to commence the soil borings for the non-federal levee certification. Additional testing of the sheetpile will take place to determine the extent of corrosion and degradation of the design section. The LBBLD will perform any

small repairs required in-house and will contract repairs that cannot be handled in-house. FEMA has approved the 95 percent drawings for the safe rooms (including telemetry) that will be constructed through a Hazard Mitigation Program Grant. The bid package for the project is anticipated to be ready in February.

Orleans Levee District (O.L.D.): Gerry Gillen, O.L.D. Executive Director, reviewed highlights of the O.L.D. Status Report. The O.L.D. is conducting interviews for the new positions for the O&M of the complex structures. The training program being developed by GEC will be available in January. The MRL Tree Removal Project is being bid and will be brought to the Board in December for contract award.

East Jefferson Levee District (EJLD): Fran Campbell, EJLD Executive Director, reviewed the highlights of the EJLD Status Report. The tree removal for the first 10,000 feet of the East Jefferson MRL raising project will begin shortly.

There was no further discussion; therefore, the meeting was adjourned at 12:35 p.m.