



Corps Hurricane Response

Task Force Hope Status Report

May 31, 2007

As Promised: Corps Delivers All 40 Temporary Pumps

New Pumps At Three Outfall Canals Are Tested, Installed And Ready

By Susan Spaht

The Corps of Engineers set a self-imposed deadline of June 1 – the start of hurricane season - to have all 40 of its temporary hydraulic pumps in place at the three outfall canals. That mission has been accomplished.

The temporary pumps caused a stir last year when vibrations were detected when the pumps were tested in place. The Corps discovered the cause of the vibrations – a spring that did not fully engage within the motor. The manufacturer has since replaced those springs with more robust ones. A problem occurred last week with one pump motor during an Orleans Avenue test; that motor was replaced and the new one is working well. Now all 40 of the pumps are installed, they've been successfully tested, and all are ready for service this hurricane season if needed.

Eighteen temporary pumps are in place at 17th Street Canal giving that structure a pumping capacity of 4,000 cfs*; London Avenue has 12 pumps with 2,800 cfs; and Orleans



On May 24, the Corps of Engineers successfully demonstrated all 10 new temporary pumps at Orleans Avenue Outfall Canal. (USACE Photo by Paul Floro)

Avenue has 10 pumps for 2,200 cfs.

“For hurricane season we have increased the level of protection at the 17th Street Outfall Canal by adding 14 portable pumps,” said Col. Jeffery Bedey, Commander of the Hurricane Protection Office. “That gives 17th Street Canal a pumping capacity up to 5,200 cfs. And the Corps is committed to increasing pump capacity even further,” said Col. Bedey.

By mid-August the Corps is planning to add 11 new direct drive pumps at 17th Street Canal for an increase in pumping capacity at that canal to

7,600 cfs. Eight new direct drive pumps will be added at London Avenue Canal by mid-August for an increase at that structure to 5,000 cfs. And testing of pumps will continue throughout the hurricane season.

“Our goal is to give the people of this great city the best protection possible,” said the colonel. 

*cubic feet per second

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All 12 pumps at London Avenue Outfall Canal were successfully tested during a public demonstration on March 31.

“We said we’d be there on 1 June.

We’re there.”



Col. Jeffrey Bedey

- Col. Jeffrey Bedey, Commander, Hurricane Protection Office, on having all 40 temporary pumps operational by the start of hurricane season.



USACE Photos by Paul Floro

On March 31, the Corps successfully demonstrated all 18 new temporary pumps at the 17th Street Outfall Canal.

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The Status Report Newsletter supports the information program for Task Force Hope and its stakeholders. It also serves as the primary tool for accurately transmitting the hurricane recovery work to stakeholders.

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This issue and past issues can be found at: www.mvn.usace.army.mil/hps

Comments and questions may be sent to the

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Status Report Newsletter

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Pump Capacity Report

17th Street Canal.....approx. 5,200 cfs
London Ave. Canal...approx. 2,800 cfs
Orleans Ave. Canal....approx. 2,200 cfs

As of May 31, 2007

Note: The Status Report Newsletter will give regular reports on the pump capacity of the three temporary outfall canals under construction. For more details, please visit:

www.mvn.usace.army.mil/hps



Starting from the ground up: How the Corps is Building Better Levees

By Kimberly Powell

Levees are essential to the New Orleans hurricane protection system. Even though significant levee repairs were done prior to the start of the 2006 hurricane season, work continues to make them better and stronger for the 2007 season and beyond.

How is the Corps of Engineers building better levees?

One of the first contributing factors was to integrate lessons learned from the Interagency Performance Task Force (IPET). Since IPET was charged with scrutinizing the performance of the hurricane protection system in New Orleans and southeast Louisiana, the team of world-renowned experts made significant contributions to immediate repairs and design refinements. For instance, the IPET recommended that project designs and methods be reviewed frequently in order to ensure they represent current best practices.

The Corps applies this sound advice in all areas of design and construction for the hurricane protection system, including its work of selecting and evaluating soils to improve levees.

"Requirements for soils used for levee construction are far more stringent now than they were prior to Hurricane Katrina," said Rich Varuso, deputy chief, Geotechnical Branch of the New Orleans District's Engineering Division. "Specifically, clay soils – the only type of soil allowed for levees – must have a low percentage of organic content (partially decayed plant and animal matter) and a high level of plasticity to ensure needed strength. Any material not meeting those specifications is discarded."

The Corps relies upon the unified soil classification system in accordance with the American Society for Testing and



Millions of cubic yards of soil will be needed to restore and build the levee system in the greater New Orleans area; and all soil used is stringently tested. (USACE Photo)

Materials (ASTM) criteria to determine soil type and properties. The ASTM soil classification system is the most widely referenced and accepted system in the world.

To further ensure the best material is used for earthen levee material, Varuso explained that the Corps follows a four-phase soil testing program: borrow pit investigation, quality control during excavation, in-place embankment testing, and post construction borings. Testing during these phases consists of soil classification; moisture content analysis; organic content analysis; in-place density, and sand content measurements. "Throughout the levee construction process, we and our contractor partners repeatedly test the soils used. We evaluate soils at every construction phase to ensure quality soils are used."

Borrow Pits

The thorough evaluation process begins at borrow pit sites. Before a site is used as a soil source, an aggressive sampling and testing program is implemented to ensure that the soil meets specifications

for levee construction. Only when soils meet strict criteria at a borrow site is an excavation plan developed to establish portions of the pit where the soil is suitable for levee construction.

Soils are sampled by taking borings. A series of borings are spaced every 500 feet in the pit to accurately represent all soil in that particular pit. Boring samples are tested at inspected laboratories that meet high standards for testing and storage. Labs test the soil for type, moisture and organic content, as well as amount of sand.

Quality Control During Excavation

Contractor partners who are responsible for borrow projects perform visual inspections and sample testing to ensure that materials from designated pit locations conform to the strict specifications that are detailed in their contracts.

In-Place Testing

Once soil is placed and compacted within a levee section, samples are taken by the contractor and the Corps, each set sent to different labs for another round of testing, including an analysis of in-place density.

Post-Construction Borings

Once a levee or section of one is completed, additional borings are taken to verify adherence to established standards for proper soil type, proper compaction and soil shear strength. Borings are also used in the design of any subsequent levee lifts.

Public Safety

Levees, floodwalls and other structural and non-structural components of the hurricane protection system have one purpose - to increase public safety. Through the use of sound engineering practices from the ground up, the Corps is working diligently to make the greater New Orleans area safer. 

HURRICANE SEASON BEGINS JUNE 1

Corps and Partners Demonstrate Readiness with Hurricane Exercise

Hypothetical hurricane gives Corps and local partners opportunity to practice for real thing

By Susan Spaht

It has been almost two years since Katrina dealt its treacherous blow to New Orleans and the Gulf Coast.

Immediately following that hurricane, the Corps of Engineers began working non-stop at an urgent pace to repair, restore, rebuild and improve the hurricane protection system in the New Orleans area.

Additionally, the Corps has been partnering with local, state and other federal agencies responsible for preparedness, evacuation and protection to improve communication and coordination in the event of a future



At the Corps' Emergency Operations Center on May 15, members of the emergency operations team and their local and state partners wait for "Hurricane Mildred's" latest coordinates. From left are Mike Lowe, Emergency Operations Manager for the Corps; Ed Watford, Deputy District Engineer for Project Management; Joe Sullivan, seated, Superintendent of Drainage for the New Orleans Sewerage & Water Board; Jose Gonzales, background, Director of Public Works for Jefferson Parish; Kazen Alikhani, Director of Drainage for Jefferson Parish; Bruce Ellis, right rear, Governor's Office of Homeland Security and Emergency Preparedness; and Kerwin Julien, front right, a member of the Southeast Louisiana Flood Protection Authority — West. (USACE Photo)

tropical storm. The ultimate goal of the Corps, as well as the other agencies, is to reduce risk for the citizens of this area.

The question on the minds of most citizens at this juncture is: *What is going to happen if we get a major storm or hurricane this season?*

The question on the minds of Corps leadership is: *How effective will our hurricane protection efforts of the past two years prove to be?*

On May 15, the Corps of Engineers put itself and its partners to the test. It conducted a day-long hurricane

exercise centered on a hypothetical storm named **Mildred**.

The purpose of the exercise was three-fold:

- Test the well-planned command and control procedures and technical steps at hand for responding to a hurricane event striking the Louisiana Coast.
- Test the procedures for closing and re-opening three outfall canal structures.

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The canal team at the Orleans Avenue Outfall Canal checks their equipment just prior to the hurricane exercise on May 15. The Sewerage & Water Board pumped water to the canal to make it possible for the outfall canal pump testing to take place. (USACE Photo by Paul Floro)



Col. Richard Wagenaar, Commander of the New Orleans District, points to a polder map in the Corps' Emergency Operations Center. The map is used to determine the areas drained by the various S&WB pump stations. (USACE Photo)

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- Test the partnership and concerted efforts among federal, state and local agencies for a tropical event.

For the exercise, the Corps invited to its Emergency Operations Center (EOC) representatives of the New Orleans Sewerage & Water Board, the Jefferson Parish Drainage Department, the Governor's Office of Homeland Security and Emergency Preparedness, and the new Southeast Louisiana Levee Boards – East and West. The media was invited to observe and document the exercise

at the Orleans Avenue Canal.

"Hurricane Mildred" was "tracked" according to a pre-designed, secret plan that was known only to a few Corps exercise planners. The purpose was to make "Hurricane Mildred" as real as possible to the responding teams at the District, at the three outfall canals and at the Sewerage & Water Board's pump stations.

When the exercise began, make-believe "Mildred" was a tropical storm off the Yucatan peninsula in the Gulf of Mexico, then strengthened into a Category 3 over Gulf

waters, and began making a direct path for New Orleans. The storm eventually "made landfall" as a Category 1 hurricane.

The Corps' exercise planners periodically relayed the path and speed of "Mildred" to the District Command Center which notified the outfall canals and the S&WB pump stations. Exactly as would happen in a real life situation, Col. Richard Wagenaar, the Corps Commander, called local parish officials to notify them of the "impending gate closures" at the outfall canals. *(He prefaced his notifica-*

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Capt. Steve Ogden, one of the Corps' hurricane exercise planners, points to a chart showing increased water levels at 17th Street Canal caused by hypothetical Hurricane Mildred. This was part of the joint hurricane exercise on May 15 at the Corps' Emergency Operations Center on Leake Ave. (USACE Photo)



The Corps of Engineers' canal team at Orleans Avenue Outfall Canal inspects the gates and pumps during a hurricane exercise on May 15. (USACE Photo by Paul Floro)

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tions to the officials with the disclaimer, "This is an exercise.") On the Commander's call list were: the Mayor of New Orleans, the Jefferson Parish President, and the Secretary of the Louisiana Department of Transportation and Development.

When "Mildred's surge" was forecasted to reach critical elevation levels for each canal, the District Commander gave the orders for the temporary closure gates to be lowered at each respective canal. The gates at Orleans Avenue and London Avenue cranked down in pre-assigned se-

quences and locked into position to block "Mildred's" oncoming surge. (The canal team at 17th Street simulated the gate closure exercise to avoid interfering with on-going construction at their canal structure.)

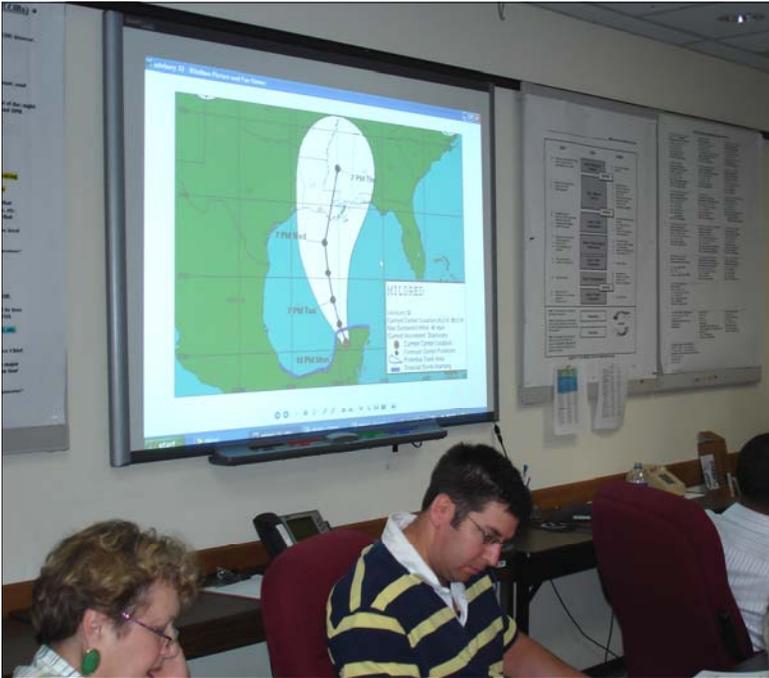
At the appropriate times, the Commander then notified the canal captains to activate their pumps. In unison, the huge hydraulic pumps at Orleans Avenue canal began spewing water through the discharge pipes into Lake Pontchartrain. The pump engines at 17th Street were started successfully, but water was not pumped – again, because of on-going construction.

At London Avenue the canal team started their pump engines successfully but did not actually pump water because of the low water level in the canal. However, both 17th Street and London Avenue canal teams simulated the pumping exercise as if they were actually pumping water.

The Corps and its local partners all agreed that the hurricane exercise was a resounding success.

The Corps was able to test its redundant communication systems, its new high tech Supervisory Control and Data Acquisition (SCADA)

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“Hurricane Mildred’s” predicted tract can be seen on the Corps’ EOC screen as the Corps’ hurricane exercise unfolds on May 15. Every effort was made by the Corps to simulate a real hurricane situation. (USACE Photo)



Immediately following the May 15 hurricane exercise, a press conference was held to answer questions from the media. From left are, Marcia St. Martin, Director, Sewerage & Water Board; Col. Richard Wagenaar, Commander of the New Orleans District Corps of Engineers; and Michael Lowe, Emergency Operations Manager for the Corps. (USACE Photo)

“On June 1, the number one priority of the New Orleans District Corps of Engineers is hurricane response.”

**Col. Richard Wagenaar, Commander
New Orleans District, Corps of Engineers**

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system, its command and control effectiveness at the outfall canal structures, and its coordination with local and state partners.

Pumping of hypothetical “storm water” from the Orleans Avenue Outfall Canal into Lake Pontchartrain could not have been possible without the cooperation and coordination of the Sewerage & Water Board which pumped water to the gates for the exercise.

“We were pleased to be working with the Corps on these emergency exer-

cises,” said Marcia St. Martin, Director of the Sewerage & Water Board. “And very pleased with the outcome today,” she told the media at a press conference following the exercise.

“We were able to fine-tune our emergency operations with the parishes today,” said Mike Lowe, Emergency Operations Director for the Corps. “It was a very successful exercise.”

The Corps continues to add pumping capacity at the outfall canals, and plans to periodically test its pumps and gates throughout the hurricane season to ensure that all are in working order and ready for any possible

tropical event.

“On June 1, the number one priority of the New Orleans District Corps of Engineers is **hurricane response**,” said Col. Wagenaar.



May 15, ‘Old Glory’ flies over the Orleans Ave. Outfall Canal as Corps observers watch the hurricane exercise.
(USACE Photo)