



US Army Corps  
of Engineers  
Mississippi Valley Division



# Corps Hurricane Response

Task Force Hope Status Report Newsletter

April 2, 2010

*West Closure Complex 25% physically complete, 99% design complete*

## Teamwork: an essential part of the job

***“It’s only been seven months - it’s amazing that we are this far along on such a large and complex project.”***

***“Our teams are doing an awesome job; that’s for sure!”***

*by Susan Spaht*

Those are comments from the Project Delivery Team, designers and engineers, working on the Gulf Intracoastal Waterway-West Closure Complex (GIWW-WCC), one of the largest projects in the Hurricane and Storm Damage Risk Reduction System (HSDRRS). After breaking ground for construction in August 2009 – a mere seven months ago - the project is already 25% physically complete and 99% design complete. Cooperation and teamwork are keeping the work moving.

The West Closure Complex is a major feature of the 100-year System that the Corps of Engineers is de-



West Closure Complex – March 2010

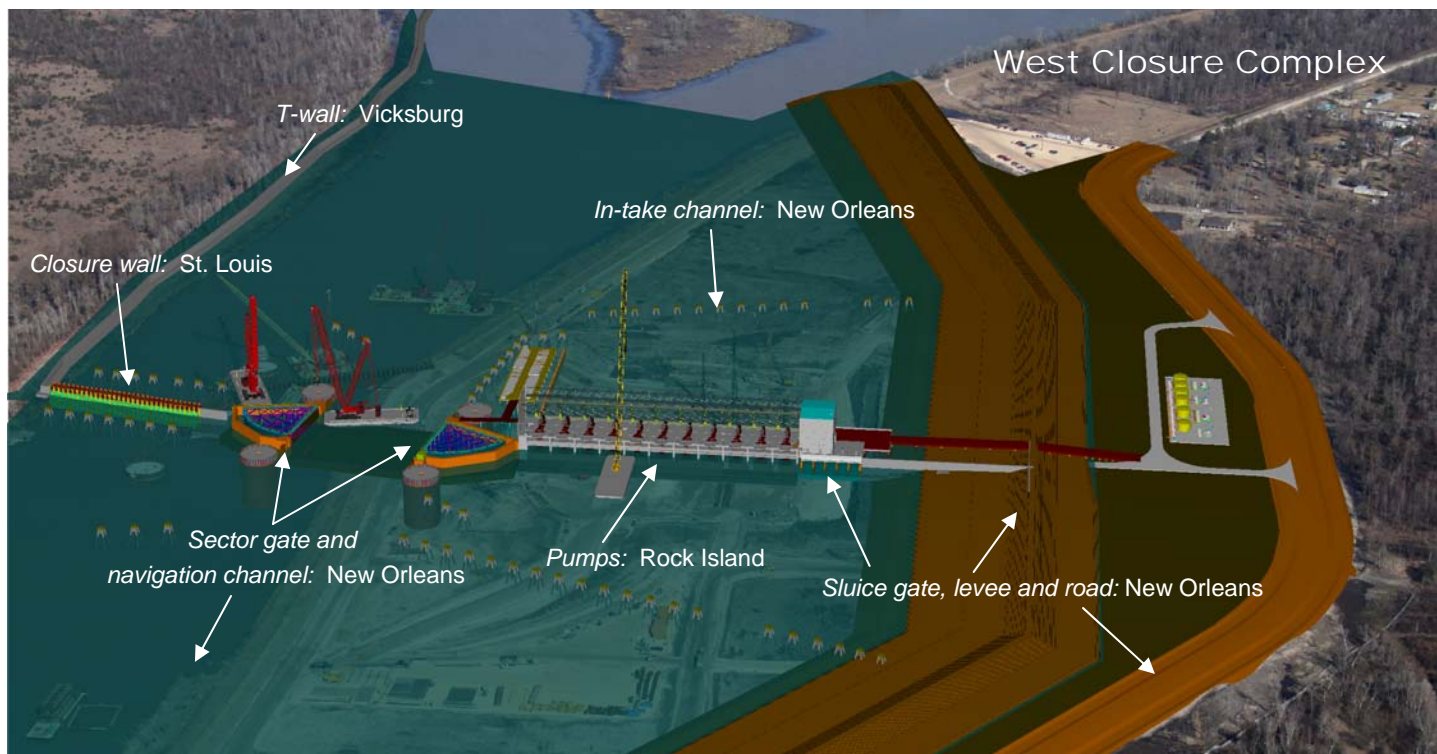
signing and building with Gulf Intra-Coastal Constructors. It will include construction of a surge barrier spanning the Gulf Intracoastal Waterway at the confluence of the Harvey and Algiers canals. It is being designed to reduce the risk of hurricane surge for west bank portions of Jefferson, Orleans and Plaquemines parishes by removing over 25 miles of levees, floodwalls, gates and pumping stations along the Harvey and Algiers canals from exposure to storm surge, and placing these features in a secondary role by serving as a detention basin.

The project will include the **largest sector gate in the nation** (225 feet wide), and the **largest drainage pump station in the world** – capable of removing nearly 20,000 cfs of rain-water when the gates are closed during storm events. The Corps of Engineers is pushing to have the project reach 100-year level of risk

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This illustration of the West Closure Complex indicates where the different Corps Districts are working.

USACE Illustration

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reduction by June 2011.

"This is a colossal project," said Karen Durham-Aguilera, Director of Task Force Hope. "It could not be accomplished within our timeframe by one Corps district alone. The job is getting done by regional teamwork from across the Mississippi Valley Division (MVD), the use of special expertise from other Corps districts, and the teamwork and cooperation we are getting from all our stakeholders and partners."

When he became the Chief of Engineers, Lt. Gen. Robert Van Antwerp proclaimed the Hurricane and Storm Damage Risk Reduction System to be the Corps of Engineers' number one domestic priority. As the Commander of the Mississippi Valley Division, Brig. Gen. (P) Michael Walsh, called on all six Districts under his command and the Hurricane Protection Office (HPO) to form a *regional*

*team-of-teams* to accomplish the Corps mission of completing HSDRRS 100-year level risk reduction by June 2011.

According to Kevin Wagner, Senior Project Manager for the WCC, "This teamwork started long ago and involved a myriad of scientists, engineers and outside agencies before we could even begin design." The GIWW-WCC project covers some 200 acres over land, water and a small section of the Bayou aux Carpes, a nationally-protected (Clean Water Act) 404c area.

"Our guys at ERDC (*the Corps' Engineer Research and Design Center*), the New Orleans District and the Rock Island District provided the hydraulic criteria we needed for project design," said Wagner. "Then we had to get a special modification from the Environmental Protection Agency (EPA) to erect a T-wall along the Bayou aux Carpes, an EPA-protected area. That special ap-

proval also required cooperation from the National Park Service and non-government agencies, as well as state and local governments. Everyone realized the importance of this project, so we got our approvals."

Corps teams from New Orleans and around the Mississippi Valley Division are working in two different locations in New Orleans, one at district headquarters and another in Metairie. These teams coordinate with each other and other Corps designers and engineers from MVD Districts in St. Louis, Rock Island, Vicksburg and St. Paul; as well as other Districts in Baltimore, Mobile, Louisville and Alaska.

An essential part of the WCC progress and success to date are the Corps' partners: Louisiana State's Office of Coastal Protection and Restoration, the New Orleans Sewerage & Water Board, Jefferson and

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Plaquemines parishes, and the navigation industry. "We have worked alongside these partners since we started the concept of how to do this project," said Wagner. "And we have enjoyed an excellent relationship and collaboration with them."

Since Corps engineers and designers are spread out across the country, "communication is one of our biggest hurdles," said Wagner. "We sometimes have to work 'virtually' through e-mail, video conferencing and NetMeetings. We will look at plans and photos simultaneously with out-of-town designers and engineers, then re-design or adapt plans on the spot over the computer. Working this way has its challenges, but we're getting it done through outstanding teamwork."

"We're re-thinking the way we do business," said Tim Connell, Project Manager. "We're working in pieces and parts – but it's working because the teams are doing their jobs."

The WCC project has 300 craft people on site now, and by summer that number will jump to over 1,000. These government workers and contractors are working six days a week on two 10-hour shifts per day.

"You can't believe how fast it's going," said Bob Hoffman, overall Project Engineer from the Rock Island District, "and we give a lot of credit to our contractors – they are doing an awesome job; that's for sure."

"I think it is amazing that we have come so far in such a brief amount of time," said William Bradley of the Vicksburg District. "When you take into perspective the unique design

"We will stand and deliver by focusing all of the Mississippi Valley Division's resources - people, money, equipment - on the Hurricane and Storm Damage Risk Reduction System. In fact, our business model effectively focuses the resources of the entire Corps on the delivery of our nation's highest priority domestic civil works project." - *Brig. Gen. (P) Michael Walsh*



The WCC Sluice Gate team, located at the New Orleans District, consists of (from left standing), Jeff Jefferies, Mark Gayheart (team leader), Renato Vargas and (seated, from left) Dustin Smith, Tim Bordelon and Ryan Kent.

USACE Photos



Members of the WCC Project Delivery Team working out of the Metairie office are (from left, standing) Bob Hoffman (overall Project Engineer), Kevin Wagner (Senior Project Manager), Tim Connell (Project Manager) and (seated, from left) Dave Lovett and Pat Grey.

conditions, and combine that with the sheer magnitude of this project, I think it shows the kind of impact the Corps can make when we work as a regional team."

"This team is serious and dedicated," said Wagner. "Our goal is to get this job done on schedule, and get it done right. And we've definitely got the right team to do it."





New Orleans East levee work

**LARGEST**

**Deep Soil Mixing**

**PROJECT IN THE WORLD**



by Nick Silbert

**The** stretch of levee in New Orleans East along the Gulf Intracoastal Waterway (GIWW) between the CSX Railroad and Michoud Canal is the largest area of land ever treated with the **deep-soil mixing** method.

The goal of this project, known as Lake Pontchartrain & Vicinity (LPV) 111, is to raise the 5.3-mile stretch of levee from 17 feet to 28 feet while simultaneously limiting its width. The levee is bordered on the north and west by the federally-protected Bayou Sauvage National Wildlife Refuge.

“We have to make these slopes steeper than the typical levee,” said David Druss, Project Engineer. “We would normally build wider berms for the height we need for these levees, but because of the adjacent wet-

lands area and limited right-of-way, we cannot do that,” he explained. “Additionally, we have soft ground conditions here, so the levee needs to be stabilized to meet the Corps’ new and more stringent design criteria. The extra height and stability we need will be achieved with deep-soil mixing.”

Deep-soil mixing involves injecting a finely-tuned mixture of cement and water, called “grout,” into soft soil. Two mixing shafts, guided by a drilling rig, pump the grout into the soil, while mixing blades simultaneously blend the soil with the grout. Once the mixing shafts are removed, two stabilized soil columns are formed. Each column measures about 5.25 feet in diameter.

These columns of stabilized soil on

LPV 111 go approximately 67 feet deep, and a row of columns (or a panel) is 54 to 98 feet long, depending on the properties of the different soil layers. The horizontal distance between panels along the levee is roughly 15.5 feet.

These strengthened levees will serve as an important line of defense against storm surge in eastern New Orleans, and will provide 100-year level risk reduction.



A joint venture of Archer Western and Alberici was awarded a \$3.1 million pre-construction contract last summer as part of an Early

Contractor Involvement (ECI) procurement. Specialty subcontractors

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Treviicos and Fudo are performing the deep-soil mixing work.

The entire scope of the project, which includes floodwall construction, is estimated to cost approximately \$295 million. Work is scheduled for completion in 2011.

Although other methods of risk reduction along this stretch of levee were examined, the Corps determined that deep-soil mixing was the best option for this project because of the soil conditions and limited space. This method has been used in several other HSDRRS projects throughout the area, and has other valuable construction applications as well.



**Dave Druss**

**World record**

When complete, 1.7 million cubic yards of land will be treated, making it the largest deep-soil mixing project in the world. The next largest - part of Boston's Central Artery/Tunnel Project, completed in the late 1990's (also known as "The Big Dig") - is a distant second, with about 650,000 cubic yards of ground treated via deep-soil mixing.

"I worked on 'The Big Dig' project in Boston," said Druss, "and even that huge project had a much smaller treated land area compared to the deep-soil mixing work going on out here."



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