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Deep soil mixing was used to create a long row of buttresses to strengthen the LPV111 levee surrounding New Orleans. The project was hailed as the largest deep soil mixing project in the U.S., and possibly the world.

Drill Rig Provides **Global Versatility**

By Vincent Jue and Federico Pagliacci

At a glance, levee reinforcement projects on the Gulf Coast of the U.S. and a hospital in Monselice, Italy have little in common – unless you look below the surface.

In both cases, contractors took advantage of Soilmec's versatile SR-80 hydraulic drilling rig, part of Soilmec's SR series, for large diameter and deep piles in various configurations to complete these two vastly different projects.

Along Louisiana's coast in the Gulf of Mexico, contractors used the SR-80 as part of the U.S. Army Corps of Engineers' (USACE) Task Force Hope Program to upgrade levees, floodwalls, floodgates, surge barriers, and pump stations that make up the Greater New Orleans Hurricane and Storm Damage Risk Reduction System. A critical component of the Lake Pontchartrain and Vicinity (LPV) area is the reinforcement and raising of the 8.5 km long LPV111 from elevation +5 m to +8.5 m, while limiting its width to the pre-Hurricane Katrina levee right of way.

As a specialty subcontractor to the joint venture team of Archer Western and Alberici, TREVIICOS used the SR-80 rotary rig, which combined the necessary power and reliability to meet the required quality and tight timeline, to install deep underground buttresses.

The SR-80 took on a slightly different role for the new hospital in Monselice. Crews used the SR-80 to install a geothermal loop into the foundation. The area has substantial geothermic activity of hot springs and hot mud below the surface to provide a renewable source of geothermal energy for the hospital.

PHOTO COURTESY OF SOILMEC

Hospital architects tapped into Monselice's substantial geothermal activity to help power the new hospital. Geothermal loops were installed inside the reinforcing cages in the building foundations.

PHOTO COURTESY OF SOILMEC

Crews used the SR-80 rig to dig 40 km of 600-mm diameter displacement piles to a depth ranging from 17 m to 24 m. After concreting the displacement piles in the foundation, crews pushed in a geothermal loop inside the reinforced cage.

Now the SR-80 is also a great solution for projects in tight spaces. Soilmec has introduced conversion kits for the SR-80 and other drill rigs. Specifically, the new SR-80 Low Headroom Rig (LHR) includes a modular mast, a more powerful crowd system and a high torque/high speed rotary group.

The modular mast ranges from 5.80 m to 9.80 m maximum length, allowing operators to adapt rig clearance even in difficult and risky situations such as under power lines. The crowd system includes a strong chain that can transmit 230 kN pull up and pull down force. The rotary group reaches 250 kNm max torque and a maximum speed of 100 rpm. The SR-80 LHR is suitable to drill very large bored piles up to a diameter of 2,500 mm and 60.9 m max depth.

The SR-80 base machine is powered by a compact V6-turbo Diesel engine, type Deutz TCD 2015 V06. It is in compliance with the emission standard (Tier III stage A and B) and reaches a maximum rated power of 330 kW at 1,900 rpm. It can be easily converted from Kelly version to CFA, displacement piles or a cased-auger pile (CAP) configuration. PC

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