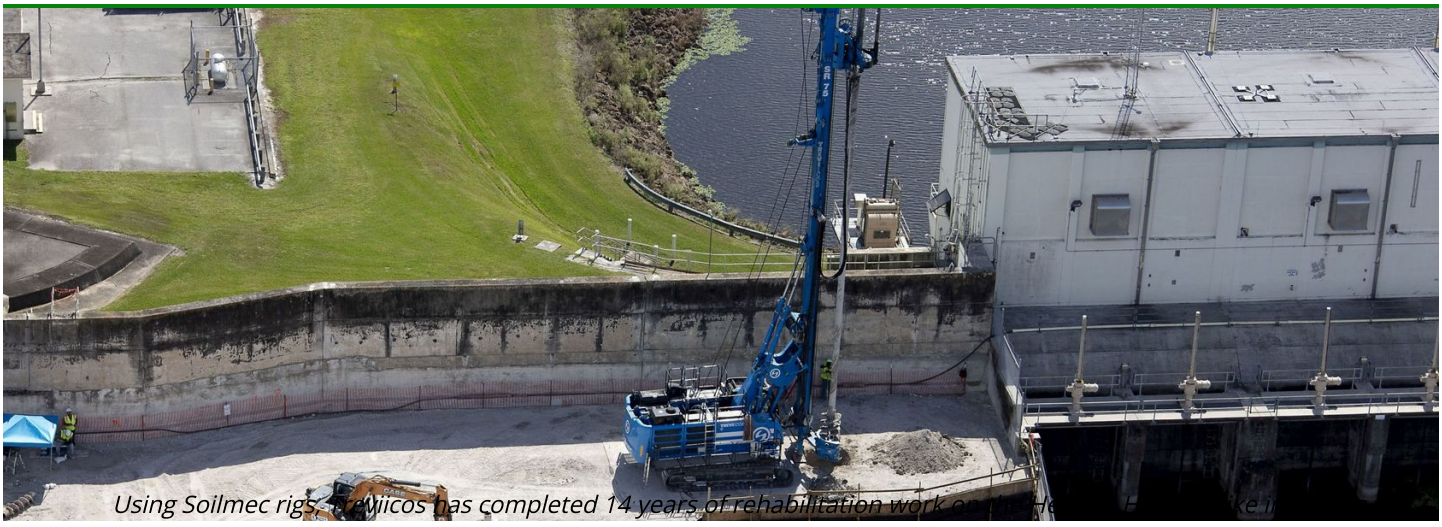
GeoDrilling International

Treviicos' rehabilitation work on the Herbert Hoover Dike

Since 2008 Treviicos, the North American subsidiary of the Italian Trevi Group, has been involved in the Herbert Hoover Dike (HHD) rehabilitation programme headed by the US Army Corps of Engineer (USACE).



Using Soilmec rigs, Treviicos has completed 14 years of rehabilitation work on the He[illegible]ke i[illegible]

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Located in south central Florida, the HHD is a 143-mile earthen dam that surrounds Lake Okeechobee, the second largest freshwater lake in the US. The HHD was constructed in multiple phases, starting in 1910, for the purpose of

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flood risk management, navigation, agricultural and municipal water supply, prevention of saltwater intrusion, recreation and the enhancement of environment resources.

In 2007, USACE classified HHD an unsafe water control system, with the risk of catastrophic failure, such as to possibly cause uncontrolled water release. In the same year, the Corps released a Multiple Award Task Order Contracts solicitation for the dyke rehabilitation.

The rehabilitation was designed to improve the dike's stability by minimising the water seepage through its foundation soils through the installation of a cut-off wall (COW) acting as an impermeable barrier along the levee's crest alignment.

Treviicos has completed seven Task Orders installing approximately 7.2 million sq ft of COW to a maximum depth exceeding 25.9m (85ft) substantially rehabilitating well over 42km (25 miles) of the HHD and operating as speciality general contractor in all the projects it was involved.

To meet the project requirements and ensure the stability of the dyke during the excavation, Treviicos pioneered the COW installation using self-hardening slurry by hydromill method. In this method, the slurry, an engineered mix of Portland cement, slag cement, bentonite, additives and water, act both as support of excavation and permanent backfill.

ıe excavation was generally erformed by a combination of echanical clamshell and a hydromill. ıe former would excavate the softer il layers, while the latter, typically ounted on a Soilmec SC120 heavy-uty crane, would excavate the more mpetent ones and limestone layers, gether with ensuring the verticality d continuity requisites for the COW ere complied with.

The rehabilitation also required the installation of cut-off wall by jet grouting, to close the areas adjacent to existing concrete structures (gates, locks, etc.). Treviicos used a combination of pre-drilling and jet grouting techniques. The pre-drilling, typically done using a Soilmec SR75 equipped with a continuous auger, was used to fragment the hard limestone layers along the alignment of the cut-off wall, while the jet grouting was performed to create the required cut-off using a Soilmec SR30 rig set-up mainly in mono-fluid jet grouting system.

All the projects also included additional scopes, such as: QC/QA programme to verify the compliance with strict technical requirements; continuous environmental monitoring; slope protection during production; full site restoration upon completion of site activities; electronic data management; installation of an automatic data acquisition system for the future real-time monitoring of groundwater levels underneath the dike.

All seven task orders were successfully completed ahead of schedule and in full compliance with stringent safety and quality requirements while working in full partnership with the USACE.

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