



VORTEX MARINE CONSTRUCTION, INC.

Livingston Street Pier
Oakland, CA 94606-5215

Phone: (510) 261-2400

Fax: (510) 261-2444

www.vortex-sfb.com

Walter F George Lock, Powerhouse & Spillway



**OWNER: U.S. Army
Corps of Engineers**

**LOCATION: Ft. Gaines
Georgia**

**CONTRACT VALUE:
\$9,420,000**

**VORTEX ROLE: Sub
Contractor to Treviicos-
Rodio JV**

**PROJECT SCHEDULE:
January 2002 to April
2004**

**AWARDS: COE 2003
“Celebrate Safety”
Subcontractor of the Year**

Project Description

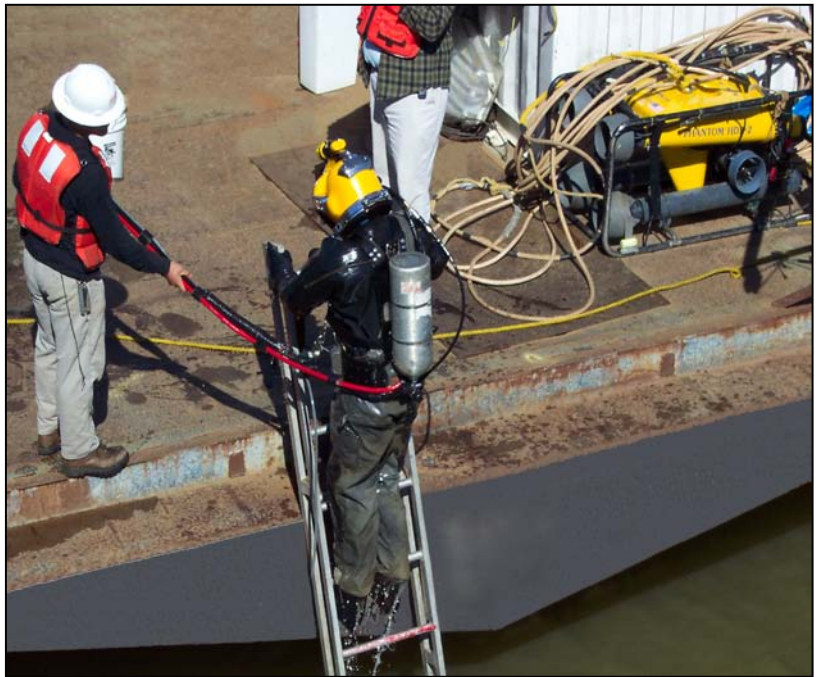
This challenging design-build project entailed installation of a concrete secant pile cut-off wall immediately upstream of the existing dam and spillway structure, to prevent the flow of water under the dam, eliminating the potential for structural failure. This repair methodology was the first of its kind. Vortex provided design, marine construction and general marine support to the prime contractor Treviicos-Rodio JV. Vortex's scope of work included dredging, removal of submarine obstructions, underwater placement of concrete, installation of sheet piles, reconstruction of the lock walls and underwater retaining walls, and removal of dredge spoils. All work was performed in water depths of up to 100'.

Highlights of Vortex's scope include:

- Provided marine support, diving, and tug boat service to the JV and in house operations.
- Utilized Remote Operated Vehicle technology for all underwater surveys, including work with an underwater camera and on ROV.
- Excavated 1,200lf of 6' x 10' trench along the spillway and powerhouse structure, then backfilled the trench by tremie with 2,700 cy of lean concrete.
- Set up and maintained drilling spoils disposal system consisting of 2 – 12" diameter x 600' HDPE pipes and a spoils barge anchored 450' from the spillway.

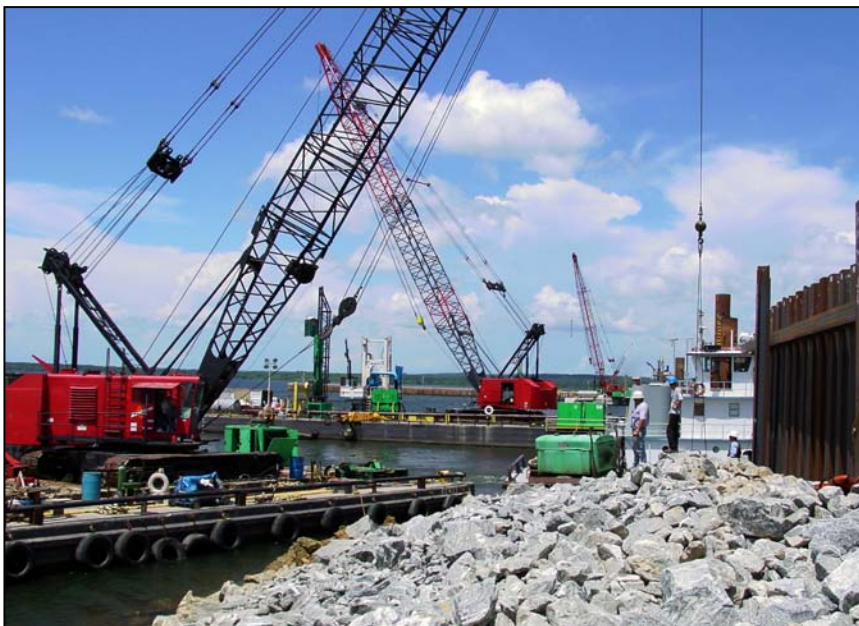


- Utilized gang forms to place concrete in 5' wide by 90' high lock wall cut. 98% of the formwork was installed by divers in up to 100' water depths.
- Following installation of the secant wall by the JV, Vortex excavated the lean concrete to form a trench along the dam face. The trench was filled by tremie with 1,100 cy of 3,000 psi concrete to create a cap that sealed the area between the secant wall and dam face and tied the two structures together.
- Installed 240 wall feet of sheet pile in up to 60' of water to form a bulkhead and platform for Hydromill cuts to be made by the JV. Following sheet installation and bracing, the bulkhead was filled by tremie with 4,900 cy of lean concrete. The Corps opted to leave the structure as a permanent feature of the dam



The secant pile casings were drilled into the lakebed approximately 100' of water immediately upstream of the 1200' long spillway structure. To provide a stable seal platform in which to seat the casings, Vortex dredged a 10' wide x 6' deep trench and backfilled it with lean concrete. After the 54" diameter secant pile were installed and the casings removed, Vortex re-excavated the lean concrete to create a new trench with dimensions of 6' x 6' and placed 3000psi concrete to create a pile cap along the entire secant pile wall, tying the wall into the spillway structure. This cap prevented the flow of water over the wall.

Where the secant pile wall extended through the lock, the entire structure was cut with a Hydro Mill. Vortex then reformed the 97' high x 5' wide cut with gang forms on both sides and tremie placed concrete in 13' lifts. All formwork was installed underwater by divers.



On the west end of the project, Vortex installed a 240' by 30' concrete platform for the hydro mill. The deep end was 60' deep, tapering to 0' on the embankment of the earthen dam. The purpose of the platform was to create a solid base from which the hydro mill could operate square to the ground. Sheet piles were installed to form the perimeter of the structure on the north and east sides, while the south and west sides were contained by the dam and embankment. 4900 CY of concrete was finally tremie placed into the cell.

The project was completed ahead of schedule, and Vortex earned the prestigious "Celebrate Safety" Subcontractor of the Year award for 2003 from the Corps of Engineers.