

# Spiral Welded Pipe Piles

*Readily available, higher holding capacity, more cost efficient*

by Susan Spaht

In its on-going effort to find innovative products, advanced technologies and cost efficient methods for building the Hurricane and Storm Damage Risk Reduction System (HSDRRS), the Corps of Engineers formed a special **Innovation Team** earlier this year to do all of those things.

One of the products the Innovation Team was assigned to evaluate was **Spiral Welded Pipe Piles** for use as struc-

tural supports. Spiral welded, or helical welded, pipe piles are structural pipes used to support flood control structures such as floodwalls, pumping stations, and fronting protection for other structures.

Spiral welded pipes are unique in that they are welded helically forming one continuous weld along the entire length of the pipe. *(Think of a can of*

*ready-made biscuits – those come in helical-formed paper packaging.)*

Led by Dr. John Jaeger, Chief of Engineering Division, Kansas City District, the team spent eight months testing and evaluating the ability of these piles to withstand large hydraulic forces. The welding process for these pipes was studied in detail to insure compliance with standard practices. Eight different tests were performed by the Civil Engineering Department of North Carolina State

University.

North Carolina State University's Construction Facilities Laboratory was selected to independently perform the Four Point Flexural Load Tests because of its proven expertise in evaluating concrete-filled piles for seismic loads. All of the tests have been completed now and the preliminary results are proving the

Spiral Welded Pipe Piles performed as well – or better – than traditional H-piles or straight seam pipe piles.

“We expected the spiral piles would perform well,” said Robert Fuqua, the Innovation Team Project Manager, “but the results were even better than we expected.”



Robert Fuqua

Spiral Welded Pipe Piles showed these advantages over traditional piles:

- Less expensive per square foot
- More readily available
- Higher holding capacity, from a geotechnical standpoint, than H-piles
- Can be produced in lengths up to 150 feet

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Photo: Trinity Products, Inc.



Photo: North Carolina State University

Spiral Welded Pipe Piles undergo a Four Point Flexural Load Test at North Carolina State University's Construction Facilities Laboratory.

## Spiral Welded Pipe Piles

*an innovation that is paying off*

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The final report on Spiral Welded Pipe Piles will be completed in early December, at that time the product will be accepted and specified for use in Hurricane and Storm Damage Risk Reduction System construction projects. Brig. Gen. Michael Walsh, Commander of the Mississippi River Division, has already granted a waiver for the spiral piles to be used on the West Closure Complex project on the West Bank.

"The first order placed for Spiral Welded Pipe Piles shows an initial savings of approximately \$3 million," said Fuqua, "and we fully expect to experience additional savings on the West Closure Complex and other HSDRRS projects."



### *Where do the savings go?*

"Any savings realized from HSDRRS projects will be available for contingencies that might arise in the HSDRRS program," said Mike Park, Deputy Director of Task Force Hope. "The savings realized on the West Closure Complex project, for example, will help the Corps complete that project as well as other projects in the West Bank & Vicinity."



Mike Park

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