

Power Plant upgrades

Florida

Upgrading components in an active, congested power plant is always a challenge but when those components are pre-assembled and have to be hoisted high above the ground and the work accomplished within a very tight window, then the challenge increases exponentially.



The project

Before a power plant owner could install new electrostatic precipitators for air quality upgrade, a crane pad had to be installed to support the massive, 2,000-ton crane needed to make the critical high lifts. But first, an area had to be cleared so that the crane pad could be close enough to allow the crane to do its job. This meant that two of the many 500,000-gallon service water tanks had to be relocated to make the space available. This two-stage project was not only extremely delicate but the crane pad itself had to be completed to meet the very stringent work window dictated by the crane's limited availability.

The challenge

The overall project involved specific challenges:

- Cranes of the capacity required are not typically part of a contractor's fleet and must be rented from a specialist supplier. They are in short supply and demand is high, and reservations must be made many months in advance. Missing or overrunning the scheduled timeframe carries substantial liquidated damages.
- For a contractor, any type of power plant work is inherently challenging given the congested conditions and requires heightened safety awareness and practices.

The solution

Relocation of the water tanks, one at a time, was the first order of work. Moretrench Industrial opted for the safest method which was utilizing pressurized lifting bags and timber cribbing to raise each tank a few inches at a time to a height where it could be loaded onto two flatbed trailers, moved to its new location, and reconnected before the second tank was moved. Ancillary work included demolition of the tanks' concrete ring foundations and associated piping, construction of new concrete ring foundations, electrical work, and above ground piping fabrication.

With the area now clear, work began on the new crane pad foundation. The original design had called for caissons, but in view of the many underground utilities Moretrench Industrial's proposal to use more flexible micropiles was accepted by the owner. Two concentric rings of 200-ton micropiles were installed to 80 ft and socked into the underlying bedrock. The 4-ft thick concrete pad was then poured and allowed to cure.

Everything was now ready for delivery and assembly of the 2,000-ton crane, which had 260 ft of main boom and 150-ft of jib. This required more than 200 trucks. Crane assembly took several weeks. Once this was completed, the first of the 400-ton precipitator units was lifted into position in just two hours. This itself was testimony to the skill of the crane operator since there was just a half-inch of clearance for the unit and 24 inches for the boom.

From start to finish, the entire operation ran smoothly and was completed well ahead of schedule and without incident.

Project facts

Owner(s)

Confidential client

Keller business unit(s)

Moretrench Industrial

Main contractor(s)

Moretrench Industrial

Solutions

Industrial servicing

Markets

Power

Services

Concrete
Civil works

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