Air moves weighty industrial load

Georgia Power's coal-fired Plant Branch feeds water into its boilers from Lake Sinclair to create the steam for turbines that drive the plant's generators. Feedwater heaters, large, heavy tanks that house heat exchangers, are used to pre-heat water for boilers and to recapture water from steam driven turbines. The system improves thermodynamic efficiency, reduces cost, and helps avoid thermal shock to boiler metal.

On the downside, these behemoth feedwater tanks are subject to the effects of corrosion and the stresses of continual heating and cooling on metal. They don't last forever and getting them in or out for maintenance or replacement can take days.

On a recent feedwater tank move, Gary Barfield, Georgia Power system engineer, and his colleagues specified that air casters be used because of the plant's structural configuration. AeroGo's air caster equipment allows users to literally float heavy loads on a virtually frictionless film of air. Unlike rollers or wheeled equipment they're omni-directional and take remarkably little effort to move and maneuver—a capability of great value in tight spaces.

"We used the AeroGo air casters to drift the vessel into the mezzanine floor. We had columns, other pieces of equipment and valves in the way. It's like threading through the eye of a needle. The new heat exchanger had to be set back in the exact place we pulled the other one out of. We had a 30- foot long vessel, six feet in diameter, and weighing 60,000 pounds. We needed to get it set within about a quarter inch of where the other one was set. Once we got it in there, the air casters are made it easy to move the vessel around—you could just bump it just a little bit."

Randy Manus, who has provided Georgia Power with on-site technical information on the AeroGo air caster system in three earlier feedwater tank moves with AeroGo equipment, explained that the rigging team's options in this latest project were limited in part by factors inherent in the power plant structure itself. "These plants were designed back in the 1960s and built in the 60s and 70s," he noted. "The issue is that the ceiling height between the floors may be only about 14 feet, whereas the height of the boilers and feedwater heaters themselves might be 12 feet. It's just impossible to crane it out of there. If you slide it or roll it on rollers, you can run the risk of damaging the floor, tearing the plant up, or actually having one fall through the floor. AeroGo air casters solve the floor loading issue. The load is spread out over a huge area— it's virtually the same as you'd put on the floor by walking across it."

The other advantage was the maneuverability that made that "accurate to a quarter of an inch" placement possible. Manus points out that AeroGo equipment can easily traverse corners and make u-turns or spin a load around and back it out or in. "There are no limits on its maneuverability," he said. "With wheels you're limited in what you can do when snaking something out of a really tight area. It's like trying to back a boat into a narrow garage. If you could just slide that boat side to side or rotate it and move it wherever it had to go, you easily fit it right in."

Air caster maneuverability and ease of movement pay off in more than just mobility. Some staggeringly heavy loads can be moved by a single person. According to Barfield, the team required to move one of Georgia Power's feedwater heaters consisted only of a crew of six and they probably didn't even need that many.

The air caster system can completely eliminate or sharply reduce the need, potential liability and cost of other heavier equipment such as large cranes that require an operator, who also may have to be certified for the job. Stressing the importance of minimizing plant downtime, Barfield noted that the AeroGo equipment did the job in only half a day instead of a day or more, plus avoided several times higher manpower costs that would have been incurred by employing other techniques. "We are regulated," Barfield noted, "But we're still competitive. We still have to keep our costs down if we want to keep customers."

Barfield reinforced another point that's important in today's liability and safety conscious industrial environment: "It's a *safer* way to do it too. With rollers that thing could fall off—one tank we moved at the other plant weighed 200,000 pounds. Each air caster we use is rated, I believe, for 40,000 pounds. If you lost one, the others are of such high capacity that they'd be able to take it up easily. However, I've used them three times and, in my experience, none has ever failed. There are hundreds of these feedwater heaters in other plants across our system and they're starting to pick up on this as well. It's been established as the best practice across our company."

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