INNOVATION IN ACTION

The latest innovative practices from Niles Industrial Coatings

Robotic Automated Blasting at LAX

In early 2018, Niles Industrial Coatings (NIC) obtained its contractors license for California when the Los Angeles International Airport (LAX) was expanding operations/flights and added four additional fuel storage tanks. Those new tanks needed to be media blasted and coated/lined on the interior and the exterior. NIC bid this project using conventional blasting methods and it was projected to start in December 2018.

The Challenge

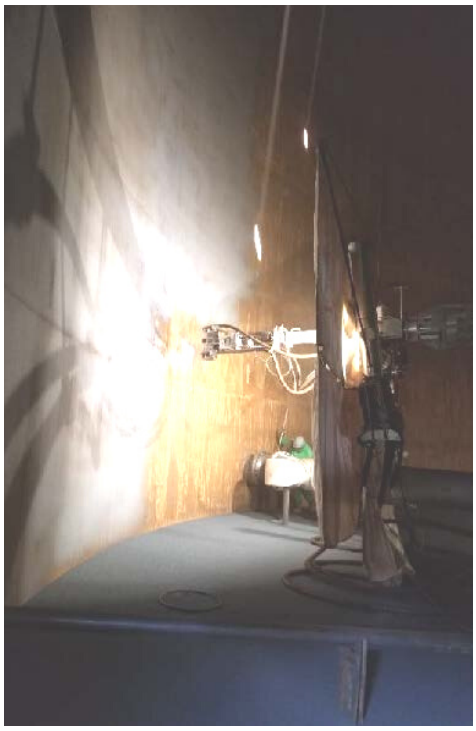
Several challenges on site resulted in the project being pushed out until April 2019. Due to prior site slowdowns, NIC was asked to quote speeding up the schedule on the tank interiors. The customer was hoping to make up for some of the lost time.

Innovation In Action

During the Fall of 2018, Niles identified a new piece of equipment that was being brought to market. 'The Blaster' was designed for use in elevated spheroid water tanks. It was designed to be suspended in the center of the sphere via a cable system and rotate inside on a robotic arm with up to four media blasting nozzles. It can be controlled from a video control system inside a trailer outside of the sphere. This machine could replace up to 4 workers and could potentially be used for a single painter to access the same area to paint. This was a new concept and design and was a 5th generation prototype.

NIC decided to use The Blaster in ground storage tanks (cylinder tanks with straight walls). The automated machine could prove to be much safer than conventional blasting and wouldn't have the production loss related to working side tanks, resulting in better production rates.

One major reason for NIC to pursue this new technology was that it allowed them to explore recycling spent blast media. In the new economic and green world, construction (and coatings) are slower than the general industry to adopt the best practices. NIC embraces the long-term environmental and economic benefits that recycling blast media offers.



NIC designed special prototype end pieces for the vacuum to suck up spent media and developed barriers and blockades to use inside the tanks to direct its flow.

In addition to the automated blasting machine, NIC provided and identified both company owned and third-party rental equipment that would be needed.

Results

NIC used The Blaster in the first tank and in a portion of the second tank. They determined the piece of equipment functioned properly while it was actually running and being used, but the additional time required to move, maintain and support the machine had a significant impact on the amount of time the machine could be used for production.

In a straight walled tank, there was not enough area that could be reached from the machine to maintain production long enough to offset the time required to move the machine. In addition, the exposed cable and lift motor system required a large amount of time to keep clean and free of blast media. It was determined that while the system could work very well in a spheroid water tank, a large diameter straight walled ground storage tank was not a good project for The Blaster. The remaining tanks were completed using conventional blasting of swing stages.

With in depth trial and experimentation of the new technology in various scenarios, NIC was able to learn what was and was not time efficient in this project and in future projects using The Blaster. They were also able to develop a technology or equipment testing process they could use for future work unrelated to this project with LAX.