



## **Laser Scanner and Laser Tracker: High-Tech Instruments to Simulate Installations**

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Laser scanner and laser tracker proved to be very useful instruments in various engineering and scientific applications. In this paper, the installation of a pickle tank before the outage was simulated so that when the time came to actually install it, the workers would have already known which pipes, columns, cables... etc. would have to be removed. Initially, the original structural plans were used. However, a laser scan of the whole surrounding environment was carried out later on using Cyrax® laser scanner to verify the as-built status in case anything missing from the maps is actually there. These scans were combined with the data obtained by the laser tracker to tie them, which came out to be as precise as 0.005 ft (~ 1.5 mm). To process the point clouds obtained by the laser scanner, both software packages Cyclone® and Cloudworx® were used. The end result of this project was an animation (i.e. a video clip) that showed the workers exactly what they need to do to install the pickle tank smoothly and easily. The same procedure can be implemented for various archeological, geophysical or engineering applications.