

### **A new mobile trailer uses radio frequency identification to enable companies to track tools used on industrial sites.**

By Claire Swedberg

Aug. 18, 2009—When contractors at power-generation facilities and other industrial sites borrow tools in what is often a fast-paced environment, the tools often go missing or are not returned in a timely way, and are thus unavailable for others who need them. This can cause production delays and additional expenses.

Typically, on a job site with multiple sub-contracting companies and dozens or hundreds of workers entering and exiting a trailer leased by the owner of a power-generation facility, a supervisor is tasked with manually tracking the coming and going of tools, using pen and paper. But this system is inefficient, and can be complicated by jobs that continue around the clock. Rarely is a tool manager in place to track the movement of tools 24 hours every day, so some tools leave the trailers without being properly accounted for.



*An employee selects the tools required for a specific job, then walks out of the trailer, passing through a portal so that his badge ID and the tool tag IDs can be read by an RFID interrogator.*

Two companies specializing in RFID solutions—[WinWare Inc.](#) and [Jobsite Resources](#), the latter a spin-off of tool-trailer leasing firm [Leasco Equipment Services](#)—have teamed up to develop a solution known as CribMaster RFID Mobile Tool Facility (MTF). The solution consists of a 53-foot trailer loaded with tools and fitted with RFID portals in the doorway through which contractors pass as they enter to pick up and then leave with the tools. The RFID tags on the employee's badges, as well as those on the tools, link each item with a particular employee in the software, thereby allowing job-site managers to track which tools have left the site, as well as who has them at any given time, and which tools or consumables need to be replaced or replenished.

When Jobsite Resources was established in 2008, the company began working with WinWare, which

offers CribMaster, an RFID-based hardware and software solution for tracking tools within a fixed setting. Jobsite Resources and WinWare worked together on a portal that could be attached to a trailer, making the solution portable.

Leasco began employing RFID-enabled trailers fitted with CribMaster portals early this year, says Mike Green, Jobsite Resources' president, and the solution is slated to be made commercially available by the end of 2009. Leasco has trialed the trailers at several of its Ohio Valley customer sites, enabling the company to know who has its tools, as well as if and when they were taken and returned.

With the solution, says Robert Holmes, WinWare's marketing director, each employee on a job site who will be using tools is provided with a badge containing an ultrahigh-frequency (UHF) Gen 2 RFID tag embedded inside. When a worker approaches the locked tool trailer, a [Motorola](#) interrogator, with three antennas at the portal, captures the unique ID number on his or her card. The ID is then sent via a wired connection to a PC located in the trailer, linked to that employee's name and authorization information. If that individual is, in fact, permitted to access the trailer, the door lock disengages and he can then enter.

Hammers, grinders and other tools are all tagged with CribMaster tags of multiple sizes and shapes, depending on the tool to which they are attached. An employee simply selects the tools required and walks back out of the trailer. On his second pass through the portal, his badge ID and the tool tag IDs are read by the interrogator. Those items, linked to the ID numbers on their tags, are then recorded as being removed by that particular worker.

The software translates the data, connects staff members with tools, and provides that information for others seeking a specific tool. The software can also transmit alerts to a company's management if a tool is not returned, as well as send automated purchase orders when a predetermined threshold of consumables has been taken, thus necessitating replenishment. In addition, the software allows management to analyze tool use at a specific job site, and to have better information regarding tools and consumables that will be required—and in what quantity—for a similar future project.

"In the past, the cost of tool replacement has been a necessary evil," Green says. "Now, as people are starting to realize their margins are tighter, I think you will see a change in that attitude."

According to Green, the portals can be retrofitted on existing trailers, or his company can sell 53-foot trailers fitted with the RFID portal. He expects users to be both tool-leasing companies, such as Leasco, and job-site owners, such as power-generation, petro-chemical and construction firms, as well as other industrial sites. "It expedites the process," he reports, "while increasing accountability."

WinWare and JobSite Resources also intend to offer the technology on 40-foot steel shipping containers that can be moved to a job site where a trailer's mobility would not be necessary, Green says, though they have not yet utilized the system on containers.

Developing the system took more than a year of design work, Green says, with WinWare providing RFID hardware and software, and JobSite Resources supplying the trailer and installing the hardware to work in an environment containing a high level of metal, which reflects RF energy. The greatest challenge, he notes, involved ensuring that the portal interrogator did not pick up stray reads from tagged tools within the trailer.

The companies accomplished this by creating the portal with a door separating the shelves stored within the trailer from the interrogator and antennas. RFID consulting company [Atlas RFID](#) also provided integration support, adding trigger controls for the doorway, and warning buzzers in case an unauthorized person attempted to enter the trailer. "Power-generation companies have a lot of interest in this technology," Holmes states.