

How RFID Provides Real-Time Location for Parts Tracking

By Claire Swedberg

Great Lakes Rubber is among the companies employing an RTLS solution with passive RFID from Accu-traq, using RF Controls' steerable-array antennas to capture the locations of UHF RFID-tagged supplies in manufacturing projects.

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Jun 12, 2022 Industrial parts and solutions firm [Great Lakes Rubber](#) is offering its customers an RFID-based solution to track the supplies they acquire from the company at their own manufacturing sites. The solution will allow these businesses to use components, such as rubber seals, without having to count inventory or scan barcodes in order to keep track of what is being used. Provided by [Accu-traq](#), the system will enable Great Lakes Rubber to better manage supplies at customer sites, the company explains, and to share inventory data and analytics with those customers.

The Accu-traq solution includes overhead UHF RFID readers, as well as tags on the parts supplied by Great Lakes Rubber, leveraging antenna arrays from [RF Controls](#) that can identify the locations of passive UHF RFID tags in a room or other defined area within inches. It also includes Accu-traq's proprietary cloud-based software and hardware, along with RF Controls' Steerable Phased Array Bi-Directional Passive RFID antennas.

Great Lakes Rubber has been a sealing products distributor since 1954. Its equipment manufacturer and repair operator customers assemble or produce products used in a wide variety of machinery across 15 different industries. The company has a base of 300 suppliers that make the products Great Lakes Rubber provides to its customers. The job of Great Lakes Rubber's sales team is to go out and find products that would benefit from the company's industrial goods.

"At our core," says George Baumann, Great Lakes Rubber's president and CEO, "we're a stocking distributor.

And so, from a bin-stocking or a managed-inventory standpoint, we're either relying on our own system to tell us when to order product, or we're relying on the customers to give us forecast blanket orders or discrete orders, and are using that as a way to manage our inventory."



The system will enable Great Lakes Rubber to better manage supplies at customer sites.

Gaining a Real-Time View into Stock Levels

However, the company recognized the potential to provide greater value to its customers, and to ease the workload of its sales staff by leveraging technology to gain an automated, real-time view into stock levels at customer sites, and to then respond with reorders before supplies run out. Among the traditional scanning systems were lockers and checkout cabinets that captured the identities of goods via HF RFID or barcodes.

That meant companies would need to train personnel to download apps and scan out goods retrieved from storage. Once they were taken from the enclosed area, the tags could no longer be tracked. Thus, Baumann says, Great Lakes Rubber chose Accu-traq's technology, which is "always on" so its customers' employees would not need to change their behavior as they collected supplies or components for their work. They could simply locate and take the seal or other equipment they need, and the RFID solution would capture that action.

How the System Works



George Baumann

Great Lakes Rubber applies tags to the products it sells to participating customers, then delivers to their facilities. The firm installed one or more overhead reader and antenna arrays at critical locations where goods are stored prior to their use in manufacturing. The Accu-traq software, operated by Great Lakes Rubber, captures the tag reads with location data coordinates, and it translates that data to usable content for the customer via a dashboard. Accu-traq also provides APIs that can be integrated into the user's software to eliminate duplicate entry into multiple database systems. The technology provides real-time visibility into where products are located and when they are removed.

For those using the technology at their facilities, Baumann says, "There's zero user adoption, literally." The software tracks the presence and location of goods without employees having to scan barcodes, enter locked cabinets with a badge or place each item on a checkout counter for someone to scan. The captured data can be transmitted to Great Lakes Rubber's cloud-based server via a Wi-Fi or cellular connection. The company is building its own internal dashboards that will manage relevant data regarding inventory status and consumption, then share that information with participating customers, along with usage analytics.

The real-time location data is captured via RF Controls' Power-over-Ethernet RFID steerable phased-array antennas, which identify the locations of goods as they move around a space. Accu-traq additionally has completed proofs-of-concept and pilots in the nuclear power generating industry for managing real-time mission-critical assets, as well as tracking employees in high-radiation areas of the plants.

Critical Asset-Management Program for Utilities



Mary Christine Dillon

Accu-traq was founded in 1985 to provide solutions to industrial and power-generation facilities, and it has been a value-added reseller for [Crib Master](#). Throughout the past few years, the fire has provided a critical asset-management program for real-time location, designed to locate tools and other critical assets even in hazardous areas.

Mary Christine Dillon, Accu-traq's president and CEO, developed the RTLS solution to solve problems she witnessed related to tracking assets wherever they may travel throughout a facility, such as at a nuclear power plant. There are always gaps between what an actual end user needed and what vending machine-style solutions offered, she recalls, adding, "I actually ended up coming up with my own software."

The solution is aimed at managing inventory or mission-critical assets like gauges or tools used for power generation, often in areas in which workers could be exposed to radiation. By deploying overhead RFID readers at key locations, Dillon says, users can view the locations of tagged items or individuals in real time. While conducting research into the nuclear and other power-generation industries, she found numerous applications for a system that could track personnel and assets in real time via passive RFID.

One solution, for instance, consists of an RF Controls reader antenna in a room where radiation levels could be elevated. The system would thus be able to monitor those wearing RFID-enabled badges, as well as tools with RFID tags attached to them. In the case of personnel tracking, workers' data could be linked to radiation

measurements. The company embarked on two pilots at a nuclear plant in Missouri, and the solution is now used at multiple locations, including [Ameren](#).

Keeping Workers Safe from Radiation

In the radiation protection use case, employees typically wear an RFID badge linked to their identity, along with a dosimeter that monitors the level of radiation to which they are exposed. As workers go about their tasks, the Accu-traq solution monitors where they are located and links that data with dosimeter readings in order to identify any potential health risks. Accu-traq's system can be integrated with other industrial radiation protection software solutions, such as the Radiation Protection Monitoring Software, and the company has also integrated [OSI Soft](#)'s informational intelligence system, enabling the utility to gather analytical data critical to its operation.

In addition, the firm has integrated a digital twin product known as SNAP DPL, which incorporates camera views of tagged assets (in this case, people) moving in a virtual room. If workers remain at risk for unsafe radiation exposure at a specific location, supervisors will receive an automatic alert after a specified length of time. The system also tracks assets, such as tools that might have been left behind in a critical area, and alerts users if they erroneously leave an area without all their tools.

The Accu-traq solution conducts analytics that can support an energy company in negotiations with contractors. For example, Dillon says, if contractors are bidding on a job, "They might say 'We don't know how much radiation exposure our employees will get,'" and will increase their rate based on potential risk. The company could provide transparency regarding radiation levels over time, for workers in specific areas, so there would be no uncertainties for contractors.

Accu-traq offers its technology as a cloud-based solution, or with its software residing locally at a customer's site. With the phased-array antennas, the technology can typically cover one room with a single overhead reader (see [RTLS Reader from RF Congrols Features Steerable Array Antenna](#)). The higher the antennas can be mounted, the company reports, the larger the coverage area.

Great Lakes Rubber and Accu-traq modified the rubber parts management solution to ensure that RFID tag reads could be captured even in the presence of metal, which tends to obstruct RF transmissions. "There are a lot of metals in our products, especially on the fastener and fitting side," Baumann says. Working with Accu-traq, he adds, the company has determined how to bag goods properly and apply a tag to each bag so that it will not be affected by metal. "You create the bag in a way or shape so that the tag is as far as possible from the metal pieces."

Great Lakes Rubber is now offering the solution to its customers and is in conversations with those poised to gain value from the service. "I think, with the pandemic, the theory of just-in-time inventory management is really getting challenged," Baumann states, "especially when you have product that requires a 50- to 70-week lead time." As such, he maintains, data about product supplies is more relevant than ever. With the technology, Baumann says, "You still can have some semblance of confidence that the parts are going to be here."

In the long term, Great Lakes Rubber could provide the solution for other assets or inventory that its customers wish to track throughout their facility. By offering the real-time location functionality to its customers, Baumann says, "We're more valuable to the customer, and we can reduce [the number] of vendors that they have to deal with. We can reduce the amount of stock that they have to keep for certain parts, and we can take on all those tasks for them."

Key Takeaways:

- Real-time data with UHF RFID technology helps Great Lakes Rubber manage the onsite availability of goods at its customer sites, ensuring products are reordered on time.
- Accu-traq's technology provides utility companies with mission-critical information about the safety and locations of personnel and tools at nuclear or other energy facilities.

