

EPCIS Technology Improves Visibility for North Sea Oil Service and Supply Companies

An EPCIS-compliant system from Spartan Solutions Services is enabling Swire Oilfield Services and Aker Solutions to share data regarding the whereabouts of their equipment and containers.

By Claire Swedberg

Sept. 5, 2008—Two offshore oil-drilling service and supply companies have launched a data-sharing system for their Norwegian North Sea operations, using software that complies with the Electronic Product Code Information Service (EPCIS) standard created by [EPCglobal](#) for sharing EPC-related information among trading partners. The system enables the companies to track the movements of their equipment and containers to and from offshore drilling sites, and to share that data with each other. The aim is to utilize the information to make operations smoother, more efficient and less costly.

The EPCIS system is provided by [Spartan Solutions](#), a Glasgow, Scotland, firm specializing in implementing radio frequency identification and bar-code solutions for oil and gas companies. [GS1 UK](#) provided Spartan Solutions with advice regarding how EPC and GS1 standards could be implemented to help its customers track their assets. This included how to employ GS1 identification keys such as the Global Individual Asset Identifier (GIAI) and the Global Location Number (GLN), which can be used to identify physical locations. The long-term goal, says David Weatherby, a senior consultant with GS1 UK, is for drilling operators and freight companies to use EPCIS-based software to join the system, thereby gaining visibility of containers on their way to and from drilling sites.

[Swire Oilfield Services](#) provides chemical tanks, pipe-carrying baskets and other types of containers used to transport supplies and equipment for the offshore oil-drilling industry in the North Sea and other regions around the world. The containers are shipped to oil-drilling sites, then back to cargo bases before being transported to another location, or back to a Swire Oilfield Services depot.

An ocean vessel often picks up containers from offshore drilling sites, however, and brings them to a cargo base, where multiple vendors' equipment is stored for use on the drill site. The containers are then trucked to a Swire Oilfield Services depot without prior notification, or with delayed notification, making it difficult for the equipment rental company to anticipate their arrival.

Without proper visibility into this process, says Tor Helgeland, Swire Oilfield Services' CEO, the company has a slower response time for renting a particular container to a specific operator. In addition, Helgeland says, Swire Oilfield Services moves containers around its depots and base by forklift a total of 3 million times each year, much of which could be reduced with an improved tracking system allowing operators to know which containers will be arriving, and when.

[Aker Solutions](#) supplies offshore oil-drilling operators with maintenance and operation services, using its own equipment and labor. In some cases, Aker rents Swire containers to transport its equipment. The containers and equipment can weigh as much as 15 tons.

Like Swire, Aker Solutions often has trouble anticipating equipment's arrival at its Norwegian well service depot; the equipment is typically delivered by a third-party freight company. Aker's staff members rely on field service personnel to notify them by phone when equipment is departing the offshore drilling site, but that process is not entirely reliable, as field workers may not always make the calls. "We have a big black hole as an asset leaves the site," says Håkon Falnes, Aker's equipment and maintenance manager. "We were looking for something more predictable."

Spartan's Phalanx Mobile Logistics and Service software allows Aker and Swire to track the movements of their equipment and containers. Phalanx enables reader data to be interpreted in the companies' ERP systems, where shipment orders and movements are tracked. What's more, Spartan's EPCIS-based Horizon software enables both firms to share that data via the Internet.

The two companies, which began installing the system this summer, intend to use it not only to track when their assets leave and arrive at their depots, but also to share that data with other firms handling those assets. Eventually, Weatherby says, with the participation of other companies, there will be data records for all of the equipment's movement from offshore drilling sites, as well as from the cargo base and Swire's or Aker's depots.

Yard management personnel at both firms are currently using Motorola handheld computers, which contain built-in RFID interrogators, to enter data regarding the shipment or arrival of containers and equipment. Swire is utilizing the Phalanx system at five yards in Norway, with workers reading RFID tags, scanning bar codes or manually inputting serial numbers printed on the containers before they are shipped. That data is then transmitted wirelessly to Swire's ERP system, which employs Spartan's software to interpret it and make it available to Aker, and to any future participants, using a password to log onto the Horizon application via the Internet.

In addition, Aker is using the Motorola handheld device at one operations depot in Norway, with plans to expand the system to its other yards throughout the country. Like Swire, Aker utilizes Phalanx software, which integrates the RFID data with its ERP system, and uses the Horizon application to share that data with Swire.

According to John Glen, Spartan Solutions' technology director, Spartan, Swire and Aker have tested high-frequency (HF) and ultrahigh-frequency (UHF) passive RFID tags, as well as active RFID tags, and plan to continue testing various RFID technologies. But in the meantime, he says, the container information will be tracked using the depot personnel's choice of scanning tags or bar codes (if they are present), or by inputting data by hand.

Not all containers have RFID tags or bar codes, and Spartan is still testing a variety of RFID tags for their read range. It is therefore up to the yard staff's discretion as to the best method for inputting information about each container. "Essentially," Glen says, "they are identifying the most convenient way to communicate data about that container."

"Data sharing should not be dependent on RFID," Weatherby says. In the past, he notes, the oil-drilling industry has been focused on RFID technology, testing hardware to measure read rates and the effectiveness of a variety of tags in a rugged and highly metallic environment. In the case of the Spartan system being used by Swire and Aker, the focus is on data sharing, regardless of whether personnel employ RFID tags, bar codes or printed serial numbers.

"RFID is the final enabler," Helgeland says, but while "the industry is waiting for the perfect RFID tag," the Phalanx system provides participants with the ability to share data.

RELATED_ARTICLES Now that the system is in place, Weatherby indicates, "It should be relatively straightforward for other companies to join them. EPCIS provides the common standard."

Although there are hundreds of organizations that could use the system as part of the North Sea oil-drilling services and supply industry, Weatherby states, "it would take a relatively small number of large companies—six or seven—to create a critical mass" that would make the system beneficial to the majority of the industry. And as RFID technology continues to be evaluated, he adds, the EPCIS system can provide valuable data to operators, freight companies and equipment suppliers.

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