

# RFID Finds a “Sweet Spot” in Offshore Oil and Gas Drilling

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**In 2006, while the economic sails were full, I wrote a paper for *The Economist* called *RFID Comes of Age* and delivered it at RFID World in Dallas as well at packed conferences in places like Monaco and London. One of the points that I made was that in the medium term RFID had a “sweet spot” where it was most economical and beneficial and, conversely, most applications were not economically attractive.**

Just as providers and users were both trying to sort out the profitable from the unprofitable applications, the economic slump dramatically curtailed venture funding, and along with it most of the implementations that had begun. Now we can see some growth reappearing - and, guess what - it's in those “sweet spots” that I was talking about!

Many of the business cases for RFID were built on the prevention of errors that should not have occurred if people had been paying attention and doing their jobs. Boston Strategies International studied hundreds of business cases and concluded in presentations to APICS (the Association for Operations Management) that the highest returns on investment in RFID, as used in operations management, came from managing inventory of high-value assets, providing a “chain of custody” for hazardous substances, and deploying resources in emergencies. All the more mundane tasks could be accomplished with simpler, lower-cost tracking mechanisms. Moreover, although metal

tags and barcodes are antiquated, they are simple and nearly free to implement.

One of the emerging sweet spots is asset management where the cost of error and subsequent redeployment is very high, and the tagging of drill pipe at Petrobras is a good example. Petrobras, the Brazilian oil company, is under time pressure to produce oil by a series of deadlines imposed by investors, so it can't afford mistakes. It needs to ensure that all supplies are in the right place at the right time and in the right quantity, and that capital items can be well-maintained or else replaced when they become worn. Therefore, it has required Weatherford, a drilling systems and services company, to track all items that it ships to Petrobras' offshore platforms. Weatherford has been busily tagging 7,500 segments of drill pipe, with the help of and Trac ID Systems, a Norwegian RFID tag provider. By using RFID, Weatherford can not only ensure proper stocking levels, but also track inspection histories and monitor condition in real-time as workers input information such as location and pipe condition into handheld devices in the field. In addition, Weatherford can pinpoint the location of pipe while it is en route from its stocking point to the offshore rigs. Weatherford is using one inch wide 134.5 kHz tags that comply with the ISO 18000-2 standard.

Another sweet spot is communicating with remote devices to increase production and yield. Weatherford, in conjunction with Marathon Oil and Marathon's licensees Petrowell and IiiTec, is using RFID to remotely open and close the cutter blocks on its new line of reamers while drilling for enhanced well productivity. Weatherford calls the system RipTide. The tag reader is installed on the drill stem, while the tag is positioned in the middle of the inside of the drill stem. The result is an improvement over hydraulically controlled reamers, which require a manual connection from the wellhead to the reamer, thereby increasing the risk of damage and failure. Marathon Oil, which



bought In-Depth Systems in 2001, is currently using a version of 12 7/8" drill pipe in the Bakken shale play in North Dakota and also uses RFID in coiled tubing, packer setting, wellbore cleanup tools, zonal isolation, perforation, and cementing, and MI-SWACO, another well services company, uses RFID for drilling and wellbore cleanup applications.

A third "sweet spot" application relates to safety, and this extends to the secure management of hazardous goods and controlled substances. For example, Halo LLC, a manufacturer of ropes, wires, chains, and other fastening equipment, is using RFID to signal when safety inspections are needed on safety-critical support equipment such as slings.

Die-hard RFID enthusiasts envision one day tagging and tracking everything in the world. That's a noble vision, but in the near term, practitioners who have business interests should stay focused on deploying it in sweet spots, such as managing inventory of high-value assets in remote environments, controlling remote devices (intelligent automation), and for tracking in

mission-critical and safety-critical environments. Offshore oil rigs are a good testing ground for all of these. **D**

*Source:*

1. *RFID Comes of Age*, author's white paper for the Economist Intelligence Unit, March 2006.
2. "RFID: Revolutionizing Ground Handling," author's presentation to Ground Handling International's annual conference, November 28, 2006.
3. "RFID in Libraries," author's presentation to Chartered Institute of Library and Information Professionals, November 13, 2007.
4. "Is There ROI in RFID?" author's presentation to APICS North Shore Chapter, September 12, 2006.
5. "Petrobras Opts for RFID to Track Drill Pipe," *RFID Journal*, October 14, 2010.
6. Redden, Jim. "E&P Sector Embracing RFID Technology," *World Oil*, November 2010.
7. "Halo Goes High-Tech to Optimize Safety," *Offshore*, March 1, 2009.

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