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Subject : RFID Tags system (reference)

In 2008 Saipem Corporation decided to have more stringent control of all their equipment around the world. First of all, the control of equipment that requires mandatory certification for insurance purposes or the equipment to be used in critical operations where health and safety of the workers is paramount. So all equipment involved in lifting or in sophisticated installations like pipe-laying in shallow or extra-deep waters or diving activities, has been entered into a dedicated database program to store all of this information.

The Off-shore Oil activities, like on shore Oil activities, has one main component that we can describe in one word: "Steel".

Vessels, Cranes, line-up, Fire-lines, Helicopter-decks, Supply vessels, Drilling Rigs, Drill pipes, etc is a long list of equipment that has a negative influence on any RFID system. Moreover if we consider that another large component is the salt water, to take the decision to use RFID system was difficult, but also a big challenge and a great opportunity.

Off-shore operation means that new technology and new solutions require constant innovation and experimentation as the way to remain as market leader in day to day competition with Oil Industry competitors.

First of all it was necessary to find a suitable Passive UHF RFID tag that was capable of being used in situations where water and steel were pre-eminent and evident, but also to be compatible with resin or plastic floaters and marker buoys.

During our investigation in the RFID market we found that Omni -ID is producing Tags compatible with our requirements. No interference with metal environmental, a read range of no less than 2m, using hand palm PC readers, (enough for offshore application). The Omni-ID Max tag finally gave us the opportunity to use just one tag for several applications, like Shackles, Slings, Spreader Bars, Floaters, Buoys,

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Hammers and Pulling Heads etc. The economic factor is important and using only one tag means that we can save money and time.

Omni-ID tags also pass the tests for different environmental applications e.g. the Sakhalin operations base can be at -60° C., the Bos-Congo or Sharjah bases are at $+50^{\circ}$ C.

Omni-ID tags were also tested to verify compatibility with large Pipe Stacks. North Stream, South Stream and future projects requiring control of large pipes. Omni-ID tags also pass this verification, so we can now monitor pipes using RFID system from production until completion of the pipe-Laying operations.

The old identification system, which was made up by using a steel plate with dedicated asset numbers stamped or engraved on the plate had several limits like:

- Constant global requirement for on-site welding equipment and welder
- Compatibility between the steel tag material and the new steel or plastic material now present in offshore equipment
- Impossibility to re-tag the material if the object loses its tag
 - Also waiting for the head office to issue a new steel asset tag for that particular object.

With the Omni-ID RFID system, the operator, upon finding equipment without a tag, can easily bring a new Tag, find the object in the database and programme the required asset number to the tag.

Good monitoring of all equipment means saving money and time, increasing the control of certificates for better insurance reporting purposes. The workplace, already a dangerous place, now has a much more safety conscious element in the control of these assets.

Also, using an RFID computer device and system allows access for all workers, including those with perhaps limited education or for those from different nations and cultures that do not use Occidental script and numbering for example, this improves sustainability programs and cuts discrimination that in several cases the new technology may create around the world.

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