OFFSHORE TECHNOLOGY INTERNATIONAL
2010 - Volume 1

Being Green: Seeing Good Returns Without Rose-Coloured Glasses

The article was written by Miguel Roca, the president of Refran Global. Refran Global is an Offshore Engineering and Services company who works directly with PETROBRAS. Mr, Roca has over two decades of experience in petroleum maintenance.

"Green" is arguably the watchword in today's global economy. Shareholders, customers, regulators, and others demand products and services that are environmentally friendly, yet as effective as their precursors. For oil and gas companies, particularly those with operations offshore, choosing the green alternative has often meant sacrificing desirable features and benefits. Moreover, integrating a greener approach frequently requires making costly and unforeseen modifications to current operations.

Enhancing the already enviable environmental record of the offshore exploration and production industry need not diminish the bottom line.

Containment for sponge blasting

GREEN YET EFFECTIVE

Many large E&P companies have found a greener approach to preserving and extending the life of structural assets-and ultimately boosting profitability. The US-based company Sponge Jet, Inc., has developed abrasive blasting products called "Sponge Media" that remove disruptive and time-intensive protective coating maintenance from the critical path of operations. The blast media's green credentials stem from its ability to greatly reduce dust, destructive rebounding, and the problematic and costly matter of waste disposal.

Unlike conventional abrasives, Sponge-Jet's composite blast media acts as both an abrasive and a sponge: it removes paint from metal surfaces as effectively as conventional grit, but its unique structure enables it to do so in a manner that nearly eliminates dusting and re-bounding. The sponge abrasive consists of grit encapsulated in porous, spongelike urethane. When specialised feed units propel the abrasive to the surface, the blast media abrades the substrate in a controlled collision, rebounds, and returns to its former shape. In effect, up to 95 percent of what would contaminate the air as dust with conventional blasting becomes trapped by the pliant sponge media. Moreover, most of the used abrasive can be sent through a classifier multiple times to be cleaned and recycled.

Something as mundane as preparing a metal surface for painting directly impacts profitability. Consider the actual cost of shutting down a production platform that extracts 40,000 barrels of oil per day when oil prices are US$75 a barrel; the daily cost of a shutdown can exceed US$3 million. Shutting down operations to conduct coating maintenance can cost well over US$100,000 per hour.

Thanks to green surface preparation with sponge blasting, Petrobras recently gained forty additional hours of production time from Platform P-37 in the Marlim field offshore Brazil. According to Petrobras closing execution co-ordinators, a scheduled multi-day maintenance closing for P-37 called for removing fibreglass coatings and oil from sensitive areas. Surface preparation with encapsulated abrasive media rather than conventional grit allowed Petrobras to open Train A 41 hours and Train B 33 hours ahead of schedule. At the time of the project, the value of two days' production was US$12 million.

DIRECT AND INDIRECT COST SAVINGS

Improving efficiency, reducing waste, and limiting required resources dictate how green a product is. Few processes expend so much to achieve so little as conventional surface preparation. A recent productivity test on another Brazilian platform revealed that surface preparation using conventional grit technology expended 5,000kg of abrasive during eight total hours of blasting. The amount of abrasive that actually struck the surface was 200kg/m^2. On an adjacent surface in the same tank, sponge blasting expended only 54.6kg of abrasive during those eight hours, and used 2.55 kg/m^2 of media. According to onsite Painting Inspector Ramacy Junior and Chief Inspector Raimundo Gomes, the volume of media used with the encapsulated abrasive media system was 1.1 percent of the total media used for grit blasting.

Petrobras also discovered that sponge-blasting can cut labour costs. On the platform mentioned in the preceding paragraph, the company found that using encapsulated abrasive media effectively decreased its labour requirement for the application by 60 percent. The labour force reduction corresponds to the night shift