

ATC Unit Credited with Reducing Volume of Slops and Pit Cleaning Time on North Sea Rig

“An area of focus is to minimize environmental impact by reducing the amount of slops backloaded during well and pit cleaning operations. The AUTOMATIC TANK CLEANING* (ATC) unit proved very effective in reducing the volume of slops generated and improved safety by reducing pit entry time.”

Scott Cameron, M-I SWACO Account Manager



THE PROBLEM

Because of confined space entry conditions health issues, injuries, and in the worst case, fatalities have been associated with tank/pit cleaning operations.

THE SITUATION

Using only a vacuum system to clean pits aboard this offshore rig was time consuming, produced unnecessary amounts of waste, and was made difficult because of the rig's multi-low-level pipe work layout.

THE SOLUTION

The M-I SWACO fully automated ATC unit virtually eliminates the need to enter the interior of the pit/tank, recycles the wash water and separates the settled solids for disposal.

The Situation

Pit cleaning onboard the Ocean Nomad has been a labor intensive task that has been carried out using the M-I SWACO 100-HP vacuum. This system is time consuming, produces unnecessary amounts of waste and raises many quality, health, safety and environmental (QHSE) concerns due to the time exposed to confined spaces. The job is made more difficult by the multi-low-level pipe work layout of the pits, creating obstructions for pit cleaning.

The Solution

The M-I SWACO ATC unit was provided as the solution for improving the older pit cleaning processes on the Ocean Nomad. The unit was installed on the starboard mid-ship deck and hoses were run under the skip station, through the pump room and into the pit room.

As this was a trial project, no deck penetrations were cut. To install the tank cleaning machines (TCMs) in their optimum positions, a temporary solution was found using pre-fabricated brackets to ensure optimal placement. Each pit was cleaned using one SC30 TCM and one Cloud 180 TCM. This setup gave between 80 to 90% coverage in each pit.

The Results

The ATC unit cleaned 5 of the 7 pits onboard; each pit was cleaned to between 80 and 90% brine spec with the remaining mud/barite being removed using the vacuum and squeegees. No manual digging of barite or heavy solids was required. This was necessary due to the tank design on the rig.

Pit entry was reduced to no more than 2 hr per pit with the total setup and cleaning time being no more than 5 hr per pit.

Waste from the total cleanup was reduced to 12 skips containing 45 tons; however, this included 3 skips that were full of mud from the sand traps and also water that was generated during the manual cleaning of the slops pit and sand traps.

THE RESULTS

- 45% reduction in slop waste generated
- No QHSE incidents
- 60% reduction in pit cleaning time
- Each pit cleaned to 85% brine spec in 1½ days
- No manual digging of settled sediment in the tanks
- No harm to personnel or environment
- Improved pit cleaning, +/-2 days savings
- Reduction in chemicals used—less waste to treat, reduced impact on environment
- Minimal work required to make ATC unit a semi-permanent fitting, further reducing rig-up times

Automatic vs. Manual Tank Cleaning Comparison

Automatic Tank Cleaning	
Per pit set-up time	1.5 hr
Per pit cleaning time	2 hr
Total manual cleaning time	1.5 hr
Generated waste	290 bbl
Total cleanup	1.5 days
Manual Tank Cleaning	
Per pit cleaning time	12 hr
Total cleanup	3.5 days
Generated waste	525 bbl

Summary

Use of the ATC unit achieved a 45% reduction in slop waste generated, and cleaning time was reduced by 60%. Due to the success of the pit cleaning operation using the ATC unit, approval was given for semi-permanent deck penetrations for the tank cleaning machines. This allows for an even quicker setup time.

Having penetrations cut for the slop pump in strategic places allows for greater flexibility in recovering slops especially in poor weather conditions where fluid can agglomerate in certain areas of the pit system due to rig movement.

The ATC deployment to the Ocean Nomad proved successful in reducing pit cleaning time and reducing confined space entry. Significant savings were also made by reducing the volume of slops generated and their disposal.

Questions? We'll be glad to answer them.

If you'd like to know more about the AUTOMATIC TANK CLEANING Unit and how it's performing for our other customers, please call the M-I SWACO office nearest you.



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