CASE STUDY

Use of ATC Unit Enables Cleaning to Brine Spec within Short Weather Window in North Sea

"The ATC unit has proven improved cleaning times and a reduction in confined space entry exposure. Any benefit from the use of a pressure washing system is eroded by the oily slops handling and chemical costs."

Rig Drilling Engineer

THE PROBLEM

Not only do pits need to be cleaned to brine spec in order to minimize the chance of contamination, such a process often needs to take place in short time frames.

THE SITUATION

Ten tanks on a rig in the North Sea needed to be cleaned during a short weather window. Cleaning needed to be to brine spec as to make ready for new build water-based mud.

THE SOLUTION

A fully automated ATC unit complete with a skid-mounted wash water recycling unit and tank cleaning machines was recommended.

The Situation

M-I SWACO was presented with a challenge to clean all pits onboard a rig located in the UK Sector of the North Sea in a short period of time. Due to weather conditions, it was anticipated that there would only be a short weather window to allow new build mud to be transferred to the rig. The pit system was required to be cleaned to brine specification to allow for the introduction of new water-based mud. M-I SWACO was also tasked with preventing any possible downtime associated with fluid transfer.

The Solution

An Automatic Tank Cleaning* (ATC) Unit, comprised of a skid-mounted wash water recycling unit and tank cleaning machines (TCMs), was installed on board. This fully automated unit is designed to reduce cleaning time, reduce pit entry and reduce the amount of slop waste generated from manual pit cleaning operations that typically use pressure washers with no wash water recycling facility.

The Results

The ATC unit was installed on the starboard aft deck with hoses secured to the CCB conveyance lines. The hoses then entered the pit room through existing penetrations and connected to the TCMs. The TCMs were secured using previously installed penetrations and brackets. Each pit was cleaned using 2 to 3 SC30 TCMs. The overall cleaning coverage achieved using this setup was 80-95% per tank.

The ATC unit operated on the rig for a total of 5 days, cleaning 6 out of the 10 pits onboard before the weather window closed. Each tank was cleaned to between 85-90% brine spec with the remaining blind spots being polished annually. There was little digging of barite or solids as the TCMs were programmed to direct residue towards the sumps.

THE RESULTS

- Tanks cleaned to 85-90% brine spec
- Up to 60% reduction in confined space entry
- All tanks cleaned within weather window
- No QHSE incidents or accidents
- Total clean-up times reduced by 50%

The Results (continued)

Because of the short weather window and pit logistics, 3 of the 10 pits had to be cleaned manually using the vacuum unit and Whizzy Head* configuration. This exercise proved to be time consuming and generated considerable waste volumes needing to be sent for disposal. The ATC performed the same task on the other six pits in less time and generated considerably less volume. The six pits were cleaned in one day. To clean the six pits using the Whizzy Head configuration would take an estimated 1.5-2 days. Had the ATC unit not been present on the rig, the weather window would have been missed and would have resulted in 3 days downtime at an equivalent of £900,000 to the operator.

ATC Performance (Actual)						
Tank	1	2	3	4	5	8
Cleaning	1.5	1.5	1	1	1.5	1.25
Entry	2.5	3	0.75	2	2.5	1
Total	3	4.5	1.75	3	4	2.25
Whizzy Head Performance (Estimated)						
Tank	1	2	3	4	5	8
Cleaning	2	2	2	2	2	2
Entry	4	4	4	4	4	4
Total	6	6	6	6	6	6

HSE Performance		
	ATC Unit (Actual)	Whizzy Head (Estimated)
Confined Space entry	0.75-3hrs – 1 engineer minimum	4-6hrs – 2 engineers minimum
Oily Slops	35bbls	600bbls
Manual Handling	All components <20kg	All components <20kg
Trip Hazards	Hose work in pit room	Hose work in pit room

Performance Metrics: ATC vs Whizzy Head

Summary

M-I SWACO was presented with a challenge to clean all pits onboard a rig located in the UK Sector of the North Sea in a short period of time. The ATC unit operated on the rig for a total of 5 days, cleaning 6 out of the 10 pits onboard before the weather window closed. Each tank was cleaned to between 85-90% brine spec with the remaining blind spots being polished manually.

Questions? We'll be glad to answer them.

If you'd like to know more about the Automatic Tank Cleaning (ATC) Unit and how it's performing for our other customers, please call the M-I SWACO office nearest you.

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