

# Closed Loop System Proves Cost Effective for IOC

### Challenges

- Change IOC dump and dilution mindset with optimized solids control efficiency
- Harsh desert drilling environment with ROP up to 250 ft/hr
- Compliance with local zero discharge legislation
- Small footprint, closed loop system needed to treat cuttings, recycle recovered oil
- Required system capable of nonstop processing of high cuttings volume

### Well Information

- Location: North Africa
- Operator: International Oil Company (IOC)
- Drilling fluid type: Non-aqueous-based mud
- Project scope: Rig site cuttings handling, drilling waste treatment and oil recycling
- FluidControl package: Thermal Desorption Unit (HTDU), VSM 300™ shaker with screens, HS-3400 centrifuges, low-profile cutting skips and ship turning station, Portable Power generators and Engineering support

### Solution & Results

- Closed loop HTDU, solids control system built in-house under tight timeframe.
- Turnkey solution processed cumulative 7,975 mt cuttings; recovered 4,987 bbl of base fluid for reuse.
- Cut costs through reduced personnel requirements, elimination of cuttings dryers and some centrifuges.
- HSE incident-free processing and transport of high cuttings volume.
- Full compliance with zero discharge requirements, elimination of future liabilities and enhanced environmental profile.



The FluidControl closed loop solids control and high thermal desorption system on location in North Africa.



In engineering and operating the first system of its kind in the region, FluidControl provided a cost-effective solution that met stringent local zero discharge requirements. The efficiency delivered by the successful project completely altered the operator's waste management strategy.

In order to manage the waste generated by its fast-paced drilling program in the North African desert, the operator retained a service provider to conduct bioremediation, augmented with cuttings dryers and multiple centrifuges. The sampling after two wells revealed that the existing service providers approach was clearly ineffective. The operator reached out to FluidControl and we offered an alternative solution of our closed loop solids control and thermal waste management system that complied with the strict zero discharge restrictions, but also was capable of handling a high volume of cuttings with no downtime. The recommended alternative solution would provide a total containment system, and only require augers, skips and a dual-centrifuge installation, while reducing on-site personnel by a third. The system would be designed to continuously process drill solids generated from high penetration rates that could top 250 ft/hr in the 17 ½-in. top hole and recover base fluid for reuse in new drilling fluid systems.

After providing this successful solution FluidControl was awarded a three-year, plus (2) one-year option contracts to provide solids control and drilling waste management services. The contract called for the cuttings to be collected at the rig site and transferred 93 miles (150Km) to a thermal desorption unit (HTDU) for further treatment and recovery of the base fluid, which would be returned to liquid mud plant for formulating new non-aqueous-based drilling fluids. To eliminate the requirement for waste pits and to prevent spillage during transport, NOV FluidControl recommended a low-profile offshore-type cutting skips as part of the contract.

This specific closed loop solids control and drilling waste management system, was a first of its kind to be installed in the region, and comprised:

- The HTDU package, including the feed hopper, feed auger, HTDU processor, cooling tower and discharge system
- Solids control equipment consisting of VSM 300 shakers and screens, and HS-3400 centrifuges
- The waste handling component, comprising an auger transfer systems, 110 NOV low-profile cutting skips and skip turning station
- Portable Power generators to power the TDU and treatment facility

Nearly all of the components, including the HTDU system and solids control equipment, were engineered and manufactured in house. FluidControl was able to provide value-added delivery of the complete package and do so within an extremely tight 12-week timeline, in order to avoid storage requirements and increased operator costs. The system simplicity reduced on-site personnel requirements from 12 to four operators split over two shifts, which decreased the opportunity for safety related incidents and unnecessary manpower cost.

More importantly, FluidControl on-site personnel continually maintained exceptional safety standards, resulting in a 100% HSE incident-free operation. Unlike bioremediation, the cost-effective closed loop system allowed the operator to employ the advanced thermal treatment method, effectively eliminating long-term liability. The effectiveness and simplicity of the zero discharge solution has since prompted the IOC to consider similar HTDU packages for its future operations in other regions.

To learn more about how our total solids control and HTDU waste management solutions can improve efficiencies, reduce your environmental footprint and reduce costs, contact your nearest FluidControl representative.

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