

CLEANCUT System Enables First Interfield Pneumatic Bulk Transfer of Drill Cuttings from Boat to Rig

Performance Report

"The drilling waste advisor with a major North Sea operator commented: 'The successful transfer of drill cuttings from the supply vessel Maersk Fighter up to the semi-submersible drilling rig Paul B. Loyd Jr. demonstrates that safe and efficient interfield transfer of drill cuttings is now possible and increases our offshore disposal options.'"

Andrew Marner, M-I SWACO Account Manager, Aberdeen

The Situation

As the oil industry continues its move toward zero discharge in the North Sea and the availability of onshore disposal facilities becomes more restricted, many operators are looking to develop interfield waste transfer and disposal systems. One of the key components of this disposal solution is the efficient containment and transfer (by supply boat) of drill cuttings between the drilling location and the treatment/disposal site.

M-I SWACO has extensive experience in the bulk transfer of drilled cuttings using CLEAN CUT* technology. The CLEAN CUT bulk transfer system is regularly used to move drill cuttings to and from supply vessels and routinely transfers cuttings over horizontal distances of 500 ft (150 m) at high rates and 30-50 m down to the supply vessel, but this is the first demonstration of its suitability for interfield transfer and ability to convey drill cuttings from a supply boat up and onto a platform for disposal.

The Solution

CLEANCUT ISO-PUMP* units offer bulk containment and storage along with the ability to convey cuttings. The pumps can move cuttings from the rig to the supply vessel, from the vessel up to the rig offshore, and from the vessel to a disposal site onshore.

A yard test demonstrated the system's ability to convey drill cuttings back to the rig with the successful transfer of oil-base mud (OBM) drill cuttings over heights of 164 ft (50 m), using only ISO-PUMP units (**Figure 1**).

In a joint field test, M-I SWACO and the operator used an ISO-PUMP unit onboard the *Maersk Fighter* supply vessel to move cuttings up and into ISO-PUMP units onboard the *Paul B. Loyd Jr.* semi-submersible rig (**Figure 2**).



The Problem

The disposal of drill cuttings is very restricted in the North Sea and legislation regarding onshore disposal is becoming increasingly more stringent.

The Situation

Operators in the North Sea prefer to use cuttings re-injection to dispose of OBM drill cuttings, but not all offshore rigs are able to re-inject drill cuttings.

The Solution

CLEANCUT ISO-PUMP units are unique in that they offer bulk containment and storage of the cuttings together with an inbuilt capability for the transfer of cuttings from the rig to the supply vessel for subsequent disposal or back up onto a drilling rig for processing and disposal in interfield transfer projects.



Customer-focused, solutions-driven

The Results

Four tests were carried out onshore at heights of 131 and 164 ft (40 and 50 m). Horizontal transfer rates were 30 tonnes/hr over 459 ft (140 m) total conveying distance and vertical transfer rates were 20 tonnes/hr over 164 ft (50 m) of vertical height and the same conveying distance.

The horizontal transfer rate compares well with the company's previous experience with bulk transfer of cuttings and indicates that the raised test assembly was a good method of demonstrating the ability of the CLEAN CUT ISO-PUMP units to transfer cuttings from a supply vessel up and onto a platform at heights of over 164 ft (50 m).

During a subsequent offshore test, 10 tonnes of cuttings were transferred over a vertical height of 52½ ft (16 m) and back up onto the rig in 22 min, which equates to a transfer rate of 27 tonnes/hr.

Summary

These tests conclusively demonstrate the ability of the CLEAN CUT system to contain and transfer cuttings back up onto a drilling rig (for subsequent processing or disposal) using the ISO-PUMP component of the CLEAN CUT system.

The overall transfer rate of 27 tonnes/hr from the boat back up onto the rig compares well with the average mass flow rates observed during the onshore trial of 30 tonnes/hr horizontally and 20 tonnes/hr over a 164-ft (50-m) vertical height and reflects the reduced vertical height of 52.5 ft (16 m) over which the cuttings were conveyed.

Questions? We'll be glad to answer them.

If you'd like to know more about interfield transfer with the CLEAN CUT system and how the system's performing for our other customers, please call the M-I SWACO office nearest you.

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The Results

Vertical discharge and transfer rates from the CLEAN CUT ISO-PUMP unit compared favorably with typical horizontal transfer rates of 30 tonnes/hr.

Onshore tests demonstrated the ISO-PUMP unit's ability to transfer cuttings to heights exceeding 50 m at rates of 20 tonnes/hr.

Offshore testing demonstrated the ISO-PUMP unit's ability to discharge cuttings at 27 tonnes/hr over a vertical height of 16 m.



Figure 1. Onshore Vertical Test

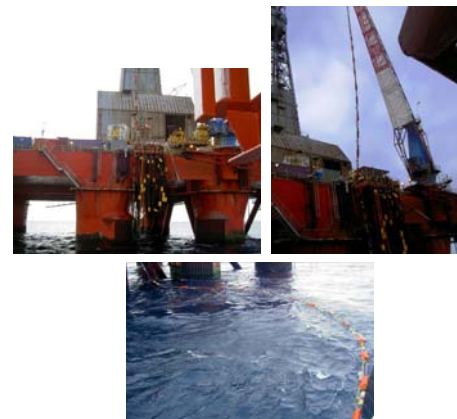


Figure 2. Offshore Interfield Test

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