

CLEANCUT System Ensures Containment of OBM Drill Cuttings without Restricting ROP

“A senior well engineer with a major global operator commented ‘The equipment performance throughout a wide variety of operations both here at Shearwater and previously in the Dutch sector has been impeccable. We have had no non-productive time (NPT) directly attributed to the system and have never once had to restrict rates of penetration (ROP) to allow the system to keep up.’”

Alan Mitchell, M-I SWACO Operations Engineer, Aberdeen

The Situation

Zero discharge of oil-base mud (OBM) cuttings has long been a fact of life in the North Sea. If it is not possible to re-inject the cuttings onsite, then they have to be contained and transported from the installation for processing and disposal.

One of the key components of this process is the timely and efficient containment/transfer of the drill cuttings to supply vessels when drilling larger diameter sections.

Traditional methods of cuttings containment like “Skip & Ship” when drilling with OBM can be a bottle neck in the system and may result in lower ROPs that increase the overall cost of the well.

The Solution

M-I SWACO* has extensive experience in the bulk transfer of drilled cuttings using CLEAN CUT* technology where dense-phase conveyance is regularly used to move drill cuttings to and from supply vessels.

The CLEAN CUT system is comprised of three main components: the CLEAN CUT Blower (CCB*), the ISO-PUMP* bulk storage units and the “R-VALVE*” flow diverter, which are used to direct the flow of cuttings to various locations of the containment system.

The CCB unit is installed under the shakers where it collects the cuttings to pneumatically convey them to either ISO-PUMP bulk storage units or cuttings boxes (skips) at a purpose-built skip filling station according to the customer’s logistical requirements.

CLEAN CUT ISO-PUMP units offer bulk containment and storage along with the ability to convey cuttings. ISO-PUMP units can be used for either primary cuttings containment or as buffer storage in the event of weather restrictions on skip handling/crane operations. Then they can be used to move cuttings back to the disposal skips, from the rig directly down to the supply vessel, from the vessel up to the rig, and from the vessel to a disposal site onshore.



Customer-focused, solutions-driven

Performance Report



The Problem

The disposal of OBM drill cuttings is very restricted in the North Sea and cuttings have to be re-injected or contained for transport and disposal.

The Situation

Concerns that OBM cuttings containment might restrict ROP when drilling 16-in. sections.

The Solution

The CLEAN CUT system contained all cuttings generated during the OBM drilling phases without having to restrict ROP to allow the system to keep up.

The Results

- 2772 metric tonnes of cuttings contained in 556 skips
- No restrictions on ROP to ensure cuttings containment
- Zero spills or discharges to the sea
- Zero equipment-related NPT

The Results

The OBM part of the well comprised a 16-in. section, a 12¼-in. section, a 12¼-in. sidetrack, and an 8½-in. section, all of which were drilled using VERSACLEAN* oil-base mud.

The CLEANCUT system contained all cuttings generated during the OBM drilling phases with all cuttings being collected in skips and shipped to shore for processing.

During peak drilling operations the CLEANCUT system contained up to 388 m of 16-in. hole per day at ROPs of up to 40 m/hr. During subsequent sections the system contained up to 491 m of 12¼-in. hole per day. This increased to 606 m/day during the 12¼-in. sidetrack and decreased to 418 m/day while drilling the 8½-in. section.

No spills or discharges to the sea were recorded during the transfer and containment operations. The CLEANCUT system contained all cuttings generated during the OBM drilling phases without having to restrict ROP to allow the system to keep up. There were no equipment-related NPT incidents.

Summary

This example of cuttings containment again demonstrates the ability of the CLEANCUT system to successfully contain OBM drill cuttings from larger diameter sections at rates of penetration of up to 40 m/hr.

The customer did not have to restrict ROP to allow the system to keep up and the system worked flawlessly, giving the operator one less rate-limiting step to worry about while complying with the North Sea zero discharge regulations.

Questions? We'll be glad to answer them.

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

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DPR.0313b.0706.R1 (E)



Figure 1. CLEANCUT Blower (CCB)



Figure 2. CLEANCUT ISO-PUMPS and skip filling station

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