

**CLEAN CUT™
Cuttings
Collection and
Transport System**



The CLEANCUT system is the new answer to offshore drilling's growing environmental challenge

In addition to deeper water depths, complex logistics and hostile environments, offshore operators face another challenge — zero, or near-zero, discharge of drill solids. With increasing environmental regulation, operators have had to re-think the way in which cuttings contaminated with oil- and synthetic-base drilling fluids are handled.

NEW THINKING SOLVES AN OLD PROBLEM

It's not that other companies haven't tried to remediate the cuttings disposal situation; they have. Skip-and-ship, slurrification and re-injection are just some of the methods devised for coping with this situation.

In contrast, the CLEANCUT process is the comprehensive, economical solution that is borne of three decades of proven SWACO® materials handling and worldwide waste-management expertise. The result is a complete field-proven method for containing, handling and transporting drill cuttings. By looking at the problem of cuttings disposal from

How it works

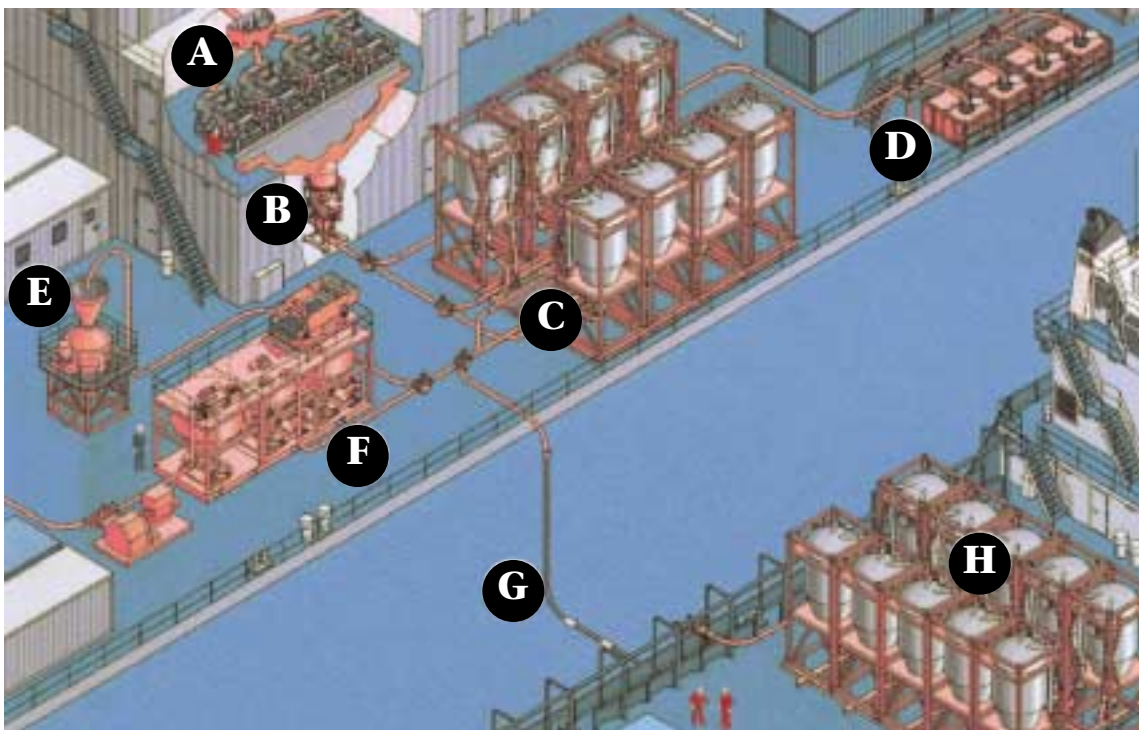
The CLEANCUT system

- The CLEANCUT Cuttings Blower (CCB) discharges cuttings into the shakers into the CCB.
- The ISO-PUMP™ unit is a conveying device built to standard dimensions. Because of its size, a multiple-unit installation is required.
- The ISO-PUMP components are loaded with cuttings

The CLEANCUT blower discharges cuttings into the ISO-PUMP units or directly to the shore or other destinations. On a batch basis, controlled by time, the ISO-PUMP unit is filled, sealed and transported. The cycle is repeated as cuttings production continues.

When introduced into the supply vessel, the units provide buffering with controlled processing. This addresses issues related to cutting disposal, such as discharge its contents back to the shore or receives the cuttings.

Bulk transfer is the most efficient and reliably from shakers. The ISO-PUMP units on the deck of the supply vessel through the supply vessel through the cuttings are discharged to the reception, which may be a recycling facility, or to



A Shakers

Drill cuttings mixed with drilling fluid are discharged from the shakers into the CCB.

B CCB

The CCB unit loads and discharges cuttings on a batch basis.

C ISO-PUMP units

Drill cuttings are pumped from the CCB unit to the ISO-PUMP storage tanks, each with a capacity of 95 bbl/ 530 ft³ (15 m³). Each ISO-PUMP unit stands on a weighframe to indicate load status. Special diverter valves are used to select the destination of the cuttings.

D Skip-Loading Station

Cuttings boxes can be filled directly by the cuttings blower or by cuttings discharged from the ISO-PUMP units.

E Cuttings Dryer

A cuttings dryer can be located remotely from the ditch and fed by CCB or ISO-PUMP units.

F Cuttings Injection Unit

A CRI installation can be fed directly by the CCB unit. ISO-PUMP units serve as buffer storage for cuttings production above the injection rate and enable CRI maintenance timeouts.

G Transfer Hose

A flexible hose is used for bulk transfer of drill cuttings from the rig ISO-PUMP units to identical ISO-PUMP units mounted on the supply vessel.

H ISO-PUMP units on the Supply Vessel

ISO-PUMP units are mounted on the deck of the supply vessel using a frame. On return to harbor, the cuttings are discharged in bulk through a hose to the shore reception facility.

the operator's perspective, we have developed a *totally enclosed system* for pumping cuttings from shaker to storage, storage to boat and then from boat to a receiving station onshore prior to processing.

The increase in safety and reduction of environmental exposure is obvious to even the casual observer.

KS

uses two main pieces of equipment:

ings Blower (CCB™) conveys cuttings from e system.

is a combination storage vessel and uilt within standard, 20-ft ISO container se each pump is an independent igh degree of backup is integral to any lation.

onent can also be transported fully by road or rail to a discharge location.

is the prime mover of cuttings, whether to tly to cuttings boxes, dryers, CRI installations Cuttings feed into the CCB unit on a batch er or hopper-level probe. In operation, the d pressurized. Then the outlet is opened, re conveys the material to its destination. s frequently as required to match the rate .

to the cuttings-handling system, ISO-PUMP g for skip loading, CRI, drilling operations s rates, equipment downtimes or logistics g disposal. Each ISO-PUMP unit can dis- k into any of the processes from which it

ptimal solution for taking cuttings safely er ditch to shore for recycling or disposal. rig discharge directly to ISO-PUMP units on hough a flexible hose. On return to harbor, rged from the boat ISO-PUMP units to shore be a thermal desorption plant or other land transport.

FEATURES AND BENEFITS

Safety

- Crane lifts are minimized, improving offshore safety
- Conveying is fully enclosed and automated, with minimum involvement of personnel

Ease of Use

- Flexible installation to suit rig layout with small equipment footprints
- The system can transfer raw cuttings at high rates
- Cuttings are pumped to the supply boat through a quick-connect flexible hose
- Material quantities are minimized, energy consumption is reduced
- The ISO-PUMP unit is certified by DNV for shipping worldwide as a standard container

Reliability

- Dense phase conveying technology, now proven in oilfield service, has been proven in three decades of tough service in a range of industries
- All equipment is built and certified to DNV standards

Environmental Protection

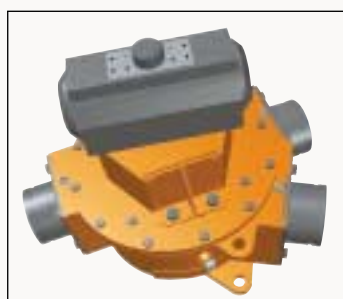
- Totally enclosed system
- Can encompass the entire cuttings supply chain
- Offers the first total solution from shaker to process plant
- Low system energy use minimizes CO₂ emissions



The CCB unit is the prime mover of cuttings, whether to ISO-PUMP units or directly to cuttings boxes, dryers, CRI installations or other destinations.



Drill cuttings are pumped from the CCB unit to ISO-PUMP storage tanks. Each ISO-PUMP unit stands on a weighframe to indicate load status.



Once an ISO-PUMP tank is full, the R-Valve is used to divert the cuttings to the next available ISO-PUMP unit.



ISO-PUMP units on the rig discharge directly to ISO-PUMP units on the deck of the supply vessel through a flexible hose.

Technical Specifications



The CLEANCUT Cuttings Blower

Dimensions

- Weight 1.65 tons
(1.5 tonnes) empty
2.5 tons
(2.3 tonnes) full
- Length 55.1 in. (1,400 mm)
- Width 52 in. (1,320 mm)
- Height 100.2 in. (2,545 mm),
including feed
hopper

Working Volume

1.4 bbl/8 ft³ (0.227 m³)

Power

3-phase, 440V, 60 Hz,
10A supply

Air Supply

116 psi 750 cfm
(8 bar 21 m³/min)

*Electrical panels meet or
exceed Zone I requirements*



The R-Valve

Dimensions

- Length 27.5 in. (699 mm)
- Width 27.8 in. (705 mm)
- Height 20.5 in. (520 mm)

Weight

- 440 lbs (200 kg)

Control Air Pressure

- 6.0 bar



The CLEANCUT ISO-PUMP

Dimensions

- Weight 6.6 tons
(6 tonnes) empty
Up to 35.8 tons
(32.5 tonnes) full
- Length 96 in. (2,438 mm)
- Width 102 in. (2,591 mm)
- Height 238.5 in. (6,059 mm)

Working Volume

Approximately 95 bbl/530 ft³
(15 m³)

Air Supply

116 psi 750 cfm
(8 bar 21 m³/min)

Worldwide patents applied for

If you would like to know more about the CLEANCUT system, please call your local representative or visit us online at www.midf.com.

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A Division of M-I L.L.C.
A Smith/Schlumberger Company

Aberdeen, Scotland
Holburn House
475-485 Union Street
Aberdeen, Scotland AB11 6DB
Contact: Gordon Logan
Tel: +44 (0)1224-336336
Fax: +44 (0)1224-336350

Houston
P.O. Box 42842
Houston, Texas 77242-2842
Tel: 281-988-1866
800-654-0660
Fax: 281-988-1888
www.midf.com