

Drill Cutting, Mud and Slurry Handling Oil & Gas Industry



Natural gas production platform Åsgard B
(Photo Øyvind Hagen, © Statoil Petroleum ASA)

Drill Cuttings Handling

Storage and Pumping on Rigs

Application

Since there is very little space available on the platform, the Putzmeister system provides a storage and pumping solution for drill cuttings on a minimum footprint. Furthermore, with such ideal pumping system, stiff slurries, originating from the shale shaker, can be easily conveyed.

System Advantages

- Less foot print, compared to other conveying systems
- Flexible high pressure and wear resistant pipeline
- World-wide proven silo discharge technology
- Supply boat loading with high tech manipulator MX 36
- Extremely short loading time compared to current systems
- Complied drill cuttings handling system made by Putzmeister Solid Pumps

References

West Vanguard

Smedvig Offshore A.S.
KOS 1470; HA 55 E

West Epsilon

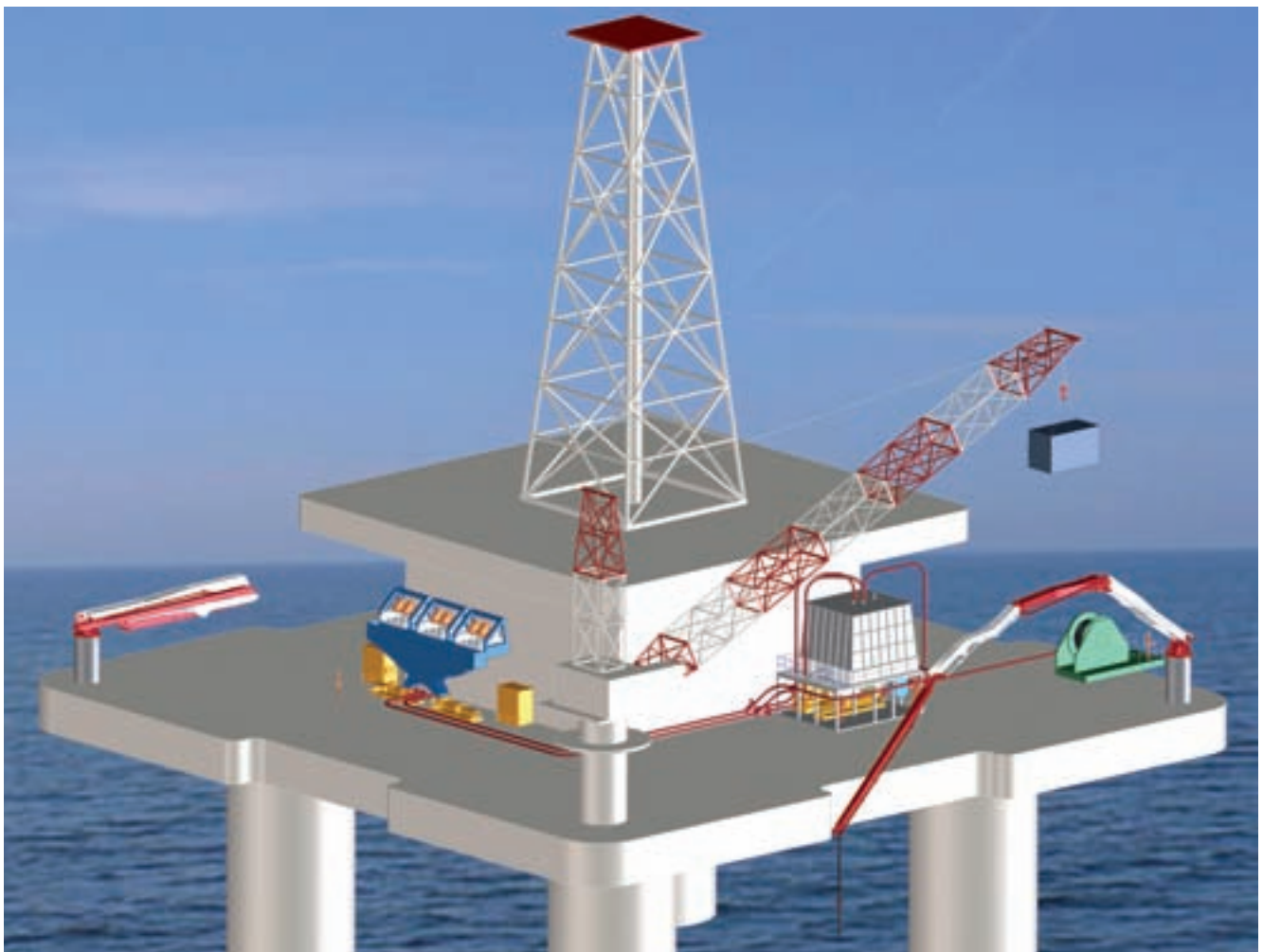
Smedvig Offshore A.S.
BSA 2100 HE

Polar Pioneer

Polar Frontier Drilling A.S.
KOR 1050, THS 232, HA 30 E

Snorre

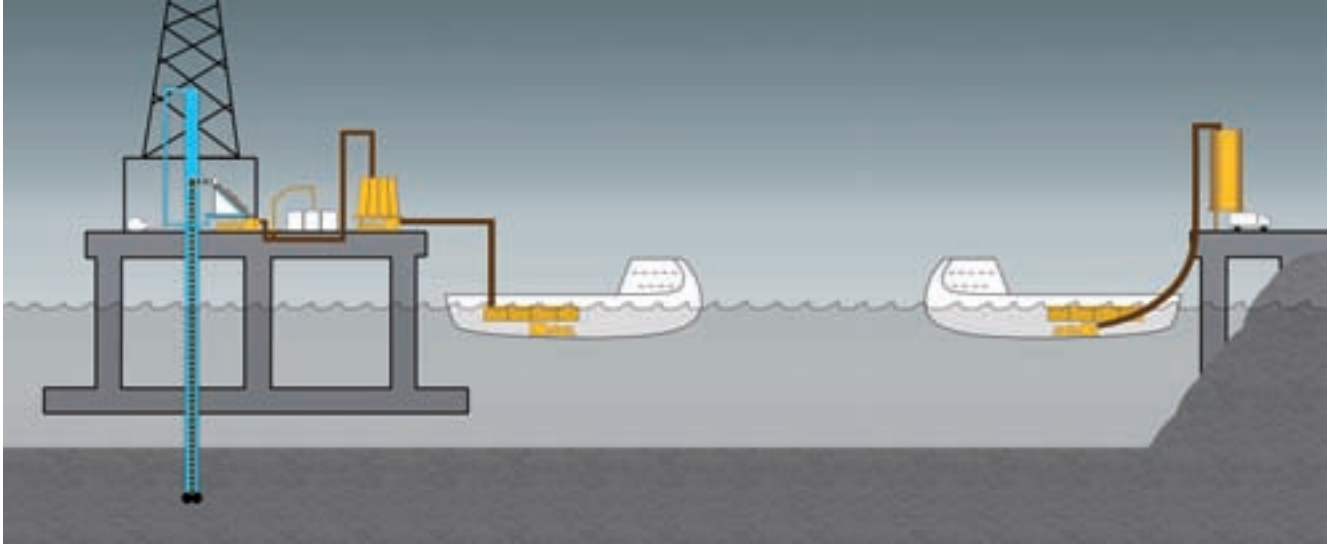
Norsk Hydro A.S.
BSA 1003, HA 30 E



Putzmeister applications on the rig

Drill Cuttings Handling Pumping System

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Application

Clean and efficient handling of drill cuttings from the platform to the supply vessels and from the vessels to shore side. Putzmeister supplies storage silos, silo discharge, piston pumps and delivery pipe systems.

System Advantages

- Improve the loading and unloading tasks on supply vessels

- Service-friendly installation
- Despite the space restrictions, the whole unit could be installed into the cargo department inside of the supply vessel
- The Putzmeister pump system is able to store and pump ORO material (Oil Recovery Operation)
- Operation on supply vessels and onshore for conveying treated drill cuttings to storage area and processing plant

References

Ulstein 288 Norway

2 x PDL 6845, 2 x SHS 4552 SH
KOS 1480 HPS, HA 200 E-SP
SEP 200, BLI 250/600

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2 x PDL 6845, 2 x SHS 4552 SH
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SEP 200, BLI 250/600

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The „Rem Hrist“ – one of the two supply vessels

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Drill cuttings after shale shaker and after pumping

Drip Water Handling

Ball Valve Pumps the Perfect Fit

Application

Putzmeister supplies the right pump type for drip water handling. Drip water is a mixture of any kind of liquid residues, also known as "Cocktail", which comes from the production process on the production platform. A safe and leakage-free transportation of this material is mandatory.

KOV

Oil-hydraulically driven double piston pump with ball valves for drip water and drain liquids.

The Putzmeister delivery program for industrial applications includes also:

- Auger feeder units
- Power packs
- Delivery pipelines
- Silos and tanks
- Silo discharge systems

System Advantages

- due to low piston speeds inside the delivery cylinders, the wear is reduced to a minimum
- due to low wear, the maintenance costs, effort & down times are reduced
- due to low down times, maintenance staff can be protected from being exposed to hazardous media

Putzmeister KOV 1075 – specially equipped for the operation on rough sea

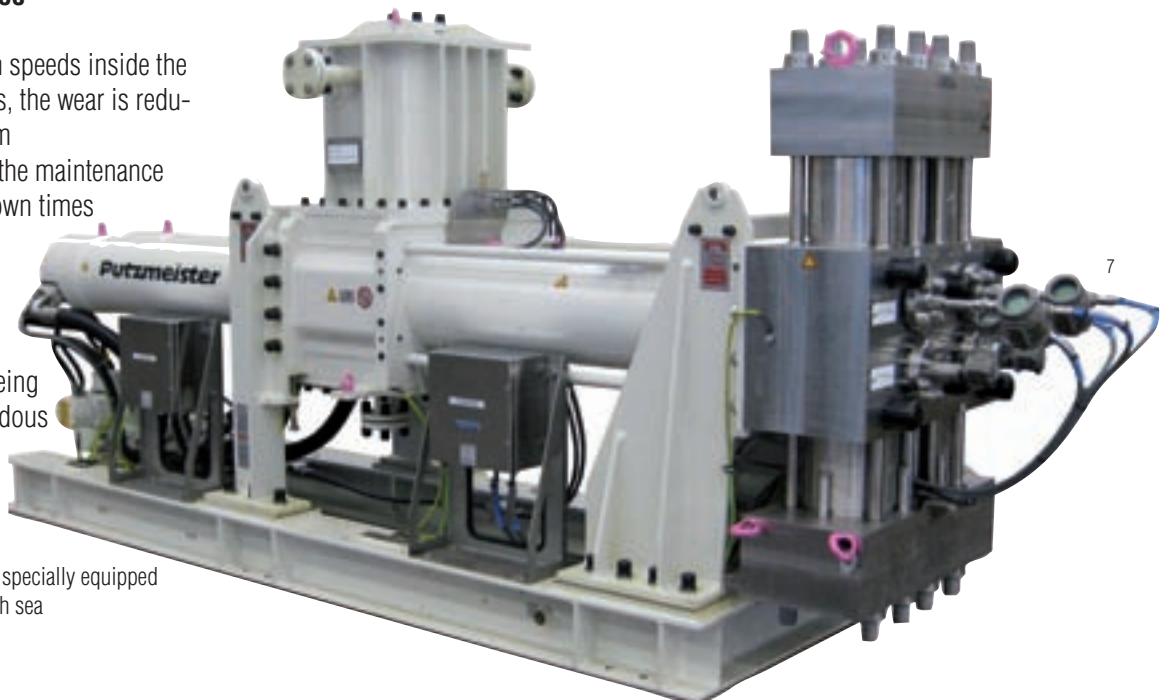
- the Putzmeister pump is a well designed solution, based on Putzmeister's long experience for different applications, mainly in pumping abrasive media
- the module design allows Putzmeister to find a suitable solution for almost every pumping task, for every output rate and highest pressure levels

References

Statoil Norway
Asgard B; Statoil ASA
(Aker Reinertsen)
KOV 1075



Hydraulic power pack
HA 90 S with **PCF**
(Pressure Constant Flow) for
pulsation free transportation



Subsea Technology

Drill Cuttings Re-Injection



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Application / System advantages

Not only can Putzmeister Piston Pumps handle drill cuttings and dripwater but also offers the possibility to re-inject such material into the drilled well.

Benefits of using Putzmeister Piston Pumps are high pressures and a robust design for less maintenance need.

Possible pump types

- KOS S-tube pump intended for drill cuttings and high viscous materials with coarse particles
- KOV ball valve pump for drip water and low viscous materials with finer particles

Deep Sea Mining

Harvesting of Manganese Nodules out of 600 Meter

Application

Putzmeister supplies a system for “harvesting” manganese nodules. A collecting element is conveying the manganese nodules to grinder, from there the treated manganese which is consistent as concrete will be pumped with a KOS type pump to the surface in a vessel.



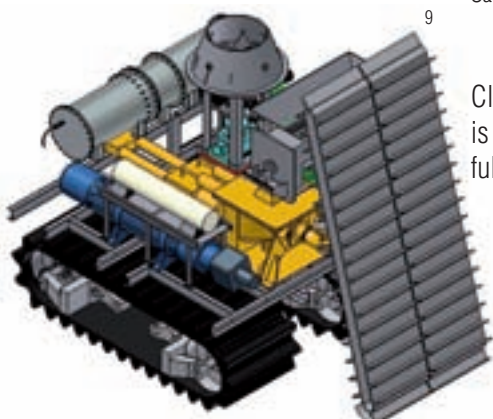
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Salt water-Proof



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Valuable manganese nodules



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Cleansing the sea bed from drill cuttings is another task that this special pump can fulfill.

References

NIOT National Institute of Ocean Technology
Chen Nai

IKS Deep Sea Mining Team
University of Siegen
Putzmeister pump KOS 570

Approved safety

Designed according the international standards and special oil, gas, ship and off-shore standards as:

- CE
- CEN
- Atex proofed
- ISO
- EN
- NORSOK
- DNV
- NOFO
- IMO
- API
- ASME
- ANSI
- CSA
- UL
- GOST
- Quality assurance ISO 9001
- Registered at Achilles® www.achilles.no
- Registered company member at German Project Management Association GPM and World Wide Experienced Project Manager
- Trained service staff with basic safety an emergency training – OLF / NSOC-D / OPITO / NOGEPA



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