

3M™ Next Generation Ceramic Sand Screens deployed in Open Hole wells

Simple and cost-effective alternative to gravel pack

Customer challenge

Operator Wintershall DEA anticipated sand control issues over the wells' lifetime during development of Dvalin field offshore Norway. Due to reservoir pressure, high temperature and gas production rates, conventional sand control methods appeared challenging to apply.

Extremely high flow rates were expected from the short reservoir section leading to high impingement velocities and potential hot spotting.

Solution offered

CSS PRO design of 3M™ Ceramic Sand Screens was developed and qualified to address reservoir challenges and target production rates.

A robust sand control design principle was critical to address handling, deployment and application challenges to ensure best case of long-lasting downhole sand control.

The CSS Pro system offered the required robustness with additional feature of application specific shroud design implemented and tested prior to deployment.

The customized screen of 7.88" OD configured on an R3 joint.

Where

North Sea, Norway
Dvalin gas field

When

Four wells campaign completed
July 2020

Brief summary

Operator deployed CSS PRO in Dvalin gas field development with 4 wells campaign. Having extremely harsh reservoir conditions and limitations in sand control method selection 3M Ceramic Sand Screen design for Open Hole application suited to address existing challenges.

Four wells deployed with no NPT and tested to the designed production rates

Customer Value

- ▶ Simplified Open Hole sand control completions design.
- ▶ Elimination of technical challenges and risks of compliant sand control.
- ▶ Reduced operational risk and cost avoiding pumping services – less equipment footprint and personnel required offshore for deployment.
- ▶ Deployment of 3M screens completed within one day for each well.
- ▶ Erosion and corrosion resistant robust screen solution to meet field life.



Application Highlights

Drilling rig Transocean Artic
258km offshore
381m water depth
Pressure= 690 bar
T= 160°C

3 wells near vertical, 1 well
horizontal (630m OH length)

Production rates expected per well:
105 MMSCFD

Why ceramics?

Metal sand screens tend to fail rapidly in highly erosive environments. Changing filter media material to ceramics (non-oxide silicon carbide) provides extreme resistance to erosion leading to increased production rates and period.

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