



Case Study

DURAFLO composite screen processes 570% more mud compared with conventional screen

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Location

New York, United States, North America, Onshore

Summary

Challenge: Improve fluid capacity and mud recovery in a pipeline project

Solution: Compare performance of original equipment manufacturer (OEM) screen with the DURAFLO composite screen for Derrick FLC 500 Series shakers

Results: Verified superior performance of the DURAFLO D500-C replacement screen, which

- processed 570% more mud and at maximum flow capacity while screening finer material
- enabled opening both valves on the flowlines to 100% while handling the entire volume transferred by the pit pump to the shakers

- allowed maintaining ROP of 120 ft/h [37 m/h]
 - eliminated time lost to limited shaker handling capacity
 - replaced the conventional corrugated screens on the pipeline job
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Objective

Decrease production time lost because of poor screen performance

An operator was boring 5,300 ft [1,615 m] for a pipeline project in New York City and used conventional screens on its Derrick FLC 500 Series shakers to divert fluid to the tank during a 32-in [81.3-cm] ream pass. However, efficiency was compromised by the OEM screens' inadequate solids conveyance and poor fluid-handling capacity at the flowline shaker. The screens' wire cloth restricted fluid conductance, causing a thick bed of cuttings to accumulate in the valleys of the corrugated screens.

At 500-ft [152-m] MD, the operator found it necessary to slow reaming to allow the screen to catch up to the pump rate. Over 2 days, the repeated process of slowing reaming to compensate for the mud system resulted 20 minutes' lost production per 32-ft [9.8-m] pipe joint.

Results

Test DURAFLO D500-C replacement screen against conventional setup

SLB recommended conducting a side-by-side test to compare the fluid-handling capacity of the DURAFLO D500-C replacement screen with the performance of the OEM screen. The rig was equipped with two simultaneously operating Derrick FLC 500 Series shakers for comparison under equivalent conditions.

Testing began at approximately 2,000-ft [610-m] MD on the 32- and 42-in [106.7-cm] ream passes. The same shaker deck angles and flow rates of 550 galUS/min [1.89 m³/s] were maintained for the duration of the comparison to ensure equivalent operating conditions.



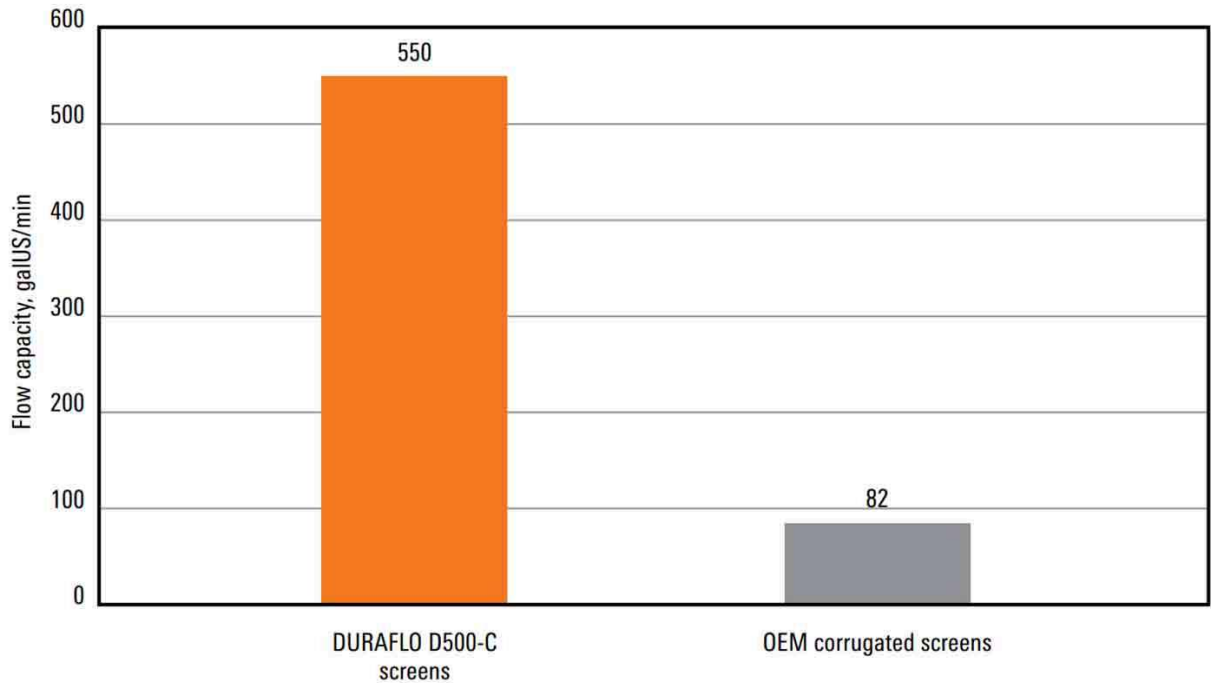
The DURAFL0 D500-C replacement screen maintained even flow distribution across the entire screen (left). In contrast, the OEM corrugated-hook-strip panel generated solids-induced valleys and inefficient use of screen area (right).

Replace all OEM screens with DURAFL0 D500-C screens

During testing, the corrugated screens could not accommodate the pump output, so their flowline valves were adjusted to 20% open. The DURAFL0 D500-C screen valves were adjusted to 50% open. Because the screens were choked back, the mud flow was pushing more volume and pressure to the DURAFL0 D500-C screen. The solids conveyance capabilities of the DURAFL0 D500-C screens enabled processing at maximum flow capacity. The screens also managed smaller particles compared with the conventional screens.

When the project superintendent saw that the DURAFL0 D500-C screen surpassed the fluid-handling capacity of the corrugated screen, it was decided to replace all of the corrugated screens with DURAFL0 D500-C screens. Once the screens were replaced, the operator opened both valves to 100%. The DURAFL0 D500-C screens handled the

entire volume that the pit pump transferred to the shakers while maintaining an ROP of 120 ft/h. There was no additional time lost due to limited shaker handling capacity.



When compared during the pipeline project, the DURAFLO D500-C processed 570% more mud than the OEM corrugated screens while managing smaller particles that could not be screened by the conventional screens.

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