

# MaxTRAC Tractor Navigates Restriction for Production Logging a Highly Deviated Well

Tractor conveys and anchors PS Platform production services platform for diagnosing gas entry points, offshore Norway

## CHALLENGE

Quantify the inflow profile and gas contribution from different entry points in a highly deviated oil producer well, offshore Norway.

## SOLUTION

Convey PS Platform\* production services platform on the MaxTRAC\* downhole wireline tractor system and use the tractor to effectively anchor the logging toolstring inside the inflow control device (ICD) straddle completion.

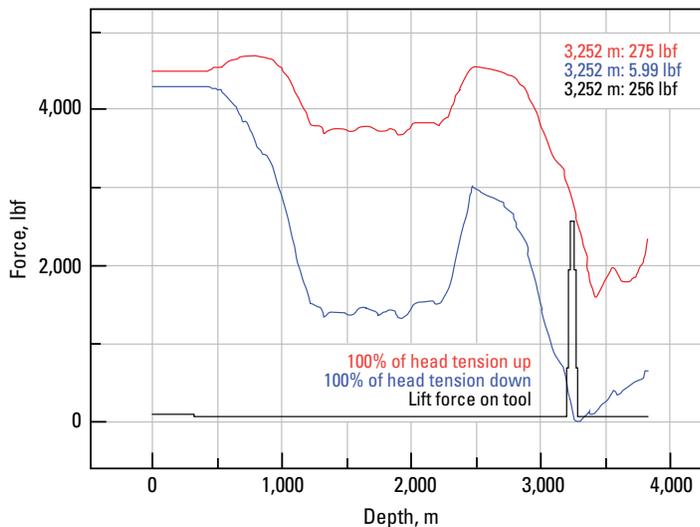
## RESULTS

Diagnosed the gas contribution from entry points using the real-time flow data while monitoring the lifting force exerted within the reduced-diameter ICD to greatly reduce operational risk.



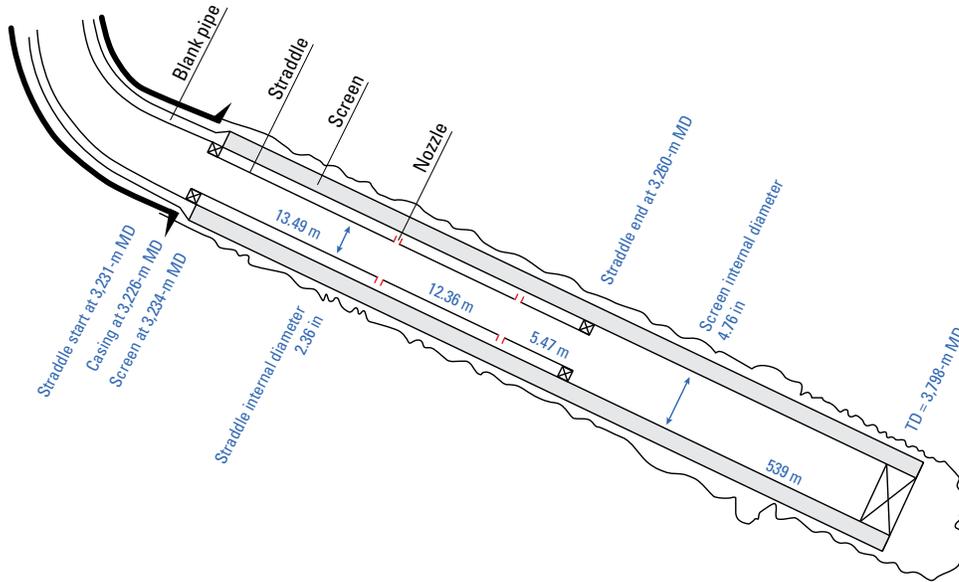
## Diagnosing flow in a restricted section of a deviated well

Statoil needed to quantify the inflow profile in a highly deviated well offshore Norway. Although the well produced oil, there were gas entry points within a 29-m-long ICD straddle and the screen section below it. However, the production logging tool would have to be anchored within the ICD because the reduced diameter of the ICD straddle significantly increased the upward forces acting on the toolstring. At the required liquid flow rate of 450 m<sup>3</sup>/d to produce a sufficiently high drawdown to flow gas for logging, a continuous pass inside the ICD was not possible and the lift forces would be close to the head tension, putting the tool at risk of being blown out of the well.



Introducing the PS Platform production services platform toolstring to the restricted diameter of the ICD had to be carefully monitored to prevent increasing the lift forces to levels that would blow the tools out of the well.

## CASE STUDY: PS Platform production logging on MaxTRAC tractor, offshore Norway



The ICD straddle in the upper part of the screened section reduced the diameter of the deviated well by more than 50% (not to scale).

### Quantifying flow at any deviation in complex completions

The PS Platform integrated production services platform can log in boreholes at any deviation to provide three-phase flow profiles and production monitoring and diagnostic information. Measurements can be made in real time or memory mode.

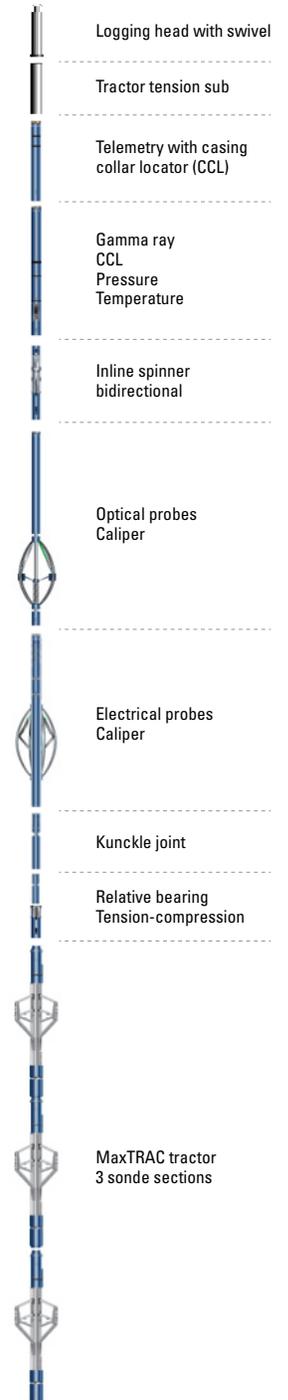
Engineered for high-angle and deviated wells, the intelligent MaxTRAC wireline tractor system acquires well data in downward and upward passes, easily negotiating changes in well diameter and complex completions. The MaxTRAC tractor is readily combinable with the PS Platform system and shares the same telemetry.

### Tractoring and anchoring to log complex flow conditions

Previous production logging indicated that the gas entry points were 13.5 and 25.9 m from the top of the ICD straddle. Because the MaxTRAC tractor shares telemetry with the PS Platform platform, Statoil took advantage of this compatibility to record data by positioning the tractor below the production logging tools. The PS Platform platform wiring was modified to pass 1,000 V for tractor operation.

The PS Platform platform toolstring was positioned inside the reduced diameter of the ICD straddle and the tractor anchoring the toolstring was positioned in the larger diameter screen section below the ICD. This configuration enabled data collection despite not being able to record a continuous pass inside the ICD.

Real-time flow data was collected for remote analysis through the InterACT\* global connectivity, collaboration, and information service. Internal and tubular changes along with compression and tension were also monitored to determine the lifting forces exerted on the tools above the anchored tractor. Data was successfully acquired at multiple flow rates above, below, and within the ICD straddle to effectively diagnose the gas entry points in the well.



The MaxTRAC tractor was positioned below the PS Platform production logging platform toolstring to convey it into the well and anchor it in place in the ICD.

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