

Surface fluids logging-while-drilling service

Fast and true at-surface hydrocarbon composition during drilling operations

Applications

- Fast drilling
- Abrasive formations
- Mud system additives that can contaminate the gas response

Benefits

- Enhances depth resolution
- Enables continuous and automated removal of most known mud contaminants
- Ensures data clean from drillbit metamorphism (DBM) effects
- Identifies drillbit fatigue
- Provides easy deployment
- Delivers high-speed cycle time

Features

- Measurement of total gas, C_1 – C_5 , ethene, and propene
- Fast gas analysis
- Removal of alcohols and amines
- C_1 – C_2 total separation
- Remote access and control
- Small footprint



PureFlex service is a fast, modular, multipurpose gas analysis service for any drilling environment.

PureFlex™ surface fluid logging-while-drilling service improves the safety, speed, accuracy, and versatility of formation evaluation analysis. Onshore or offshore, it provides accurate light hydrocarbon detection in any drilling environment at unprecedented depth resolution.

The central component of the system is its compact, modular gas analyzer. Paired with any gas extractor, it effectively eliminates mud contaminants and hydrocarbon by-products. This ensures the detection of light hydrocarbons with utmost purity and minimal required space. PureFlex service also offers first indication of hole instability and potential hydrocarbon zones. With fast gas chromatography, it delivers quick insights into formation fluids regarding their type and any alterations present.

How it improves performance

PureFlex service delivers the true composition of reservoir fluids. It efficiently eliminates familiar mud impurities such as alcohols and amines while distinguishing between the light alkenes, which are by-products of drillbit metamorphism (DBM), and the authentic alkanes originating from the formation. It also removes artificially produced alkanes through patented techniques. By halving the traditional cycle time for analyzing hydrocarbons within the C_1 – C_5 range, PureFlex service is the ideal solution for high rate of penetration (ROP) drilling scenarios.

How it works

Extracted mud gas is transported to the mud logging unit and analyzed in the PureFlex service flame ionization detection (FID) gas analyzer. Total gas and gas chromatographs detectors are calibrated at the base and checked before drilling begins. Hybrid connectors installed within the chassis distribute the different flows from hydrogen, air, and gas samples to the total gas detector and the three chromatograph modules connected to the same chassis. In a typical configuration, two modules detect main and backup C_1 to C_5 gases, whereas the third module measures alkenes with an analysis cycle time of 20

s or 40 s. An anticontaminant filter installed ahead of the gas chromatographs neutralizes mud contaminants such as amines and alcohols before the analysis. The gas analyzer is controlled by dedicated software (PureFlex service app) through a direct link to an Ethernet network interface.

Additional information

PureFlex service can be run in different configurations with one or two constant volumetric degassers (CVDs) or heated CVD to measure gas out (at shakers) and gas in (at the active pit) to eliminate the effect of the gas recycling.

PureFlex Specifications

Specifications	PureFlex Service
Technology	FID
Measured hydrocarbons	Total gas, C1–C5, ethene, propene
Total gas range	1 ppm [100%]
Chromatograph range	1 ppm [0%–60%]
C1-C2 separation ratio and remove the ppm.	Up to 1,500 ppm
Mud contaminants removal	Yes (amines, alcohols)
Remote capabilities	Yes
Data backup	Double (gas analyzer and PureFlex™ surface fluids logging-while-drilling service)

All specifications are subject to change without notice.