

Where are the fiber optic sensors on Indonesian drilling rigs



Overview

The hybrid fiber optic cable is embedded inside the wireline cable, and hence VSP survey can now be acquired with any wireline run, making it transparent to rig hours. The new technology for acquiring Vertical Seismic Profiling (VSP) survey using a distributed acoustic sensing (DAS) measurement is very beneficial in reducing the time and cost of operations and increasing the value of VSP surveys. The hybrid fiber optic cable is embedded inside the wireline cable. This paper presents a comprehensive technical evaluation of Mubadala Energy's deepwater exploration campaign in the Offshore Andaman Basin, Indonesia, where an integrated suite of Logging While Drilling (LWD), Seismic While Drilling (SWD), and fiber-optic Distributed Acoustic Sensing (DAS). Distributed fiber optic sensing (DFOS) leverages the scattering of light within an optical fiber to monitor physical changes along its length. It relies primarily on three types of backscattering phenomena: Rayleigh scattering (used in DAS) – sensitive to micro-vibrations and pressure-induced. In short, fiber optics provide a safer, faster, and more reliable backbone for modern oil and gas infrastructure.

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In the artificial lift area, particularly with the ESP system, the optical fiber surveillance will identify the dynamic fluid level which is critical for the pump optimum performance.



This chapter provides a description of many of the specialized sensing needs and requirements of the petroleum industry and, particularly, downhole permanent sensors.



Explore how fiber optic sensing is transforming downhole monitoring for safer, more efficient oil and gas operations.



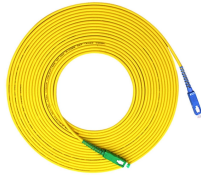
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Machine learning, automation, and emerging sensor technologies have become as indispensable as drilling rigs, risers, and pipe wrenches in today's offshore field. Perhaps the greatest example...



In drilling and production, fiber-optic sensors are deployed in wells to measure temperature, pressure, and strain along the borehole. This real-time data helps operators understand ...



The results establish a new benchmark for deepwater exploration drilling in Indonesia and provide a transferable framework for other frontier basins globally.



The first implementation of this new technology in Indonesia aims to see significant values in operational effectiveness and an impact on data quality. Walkabove VSP was acquired in the East Kalimantan ...



Mubadala Energy drilled three vertical wells in the offshore Andaman field, deepwater Indonesia, using a unique integration of logging while drilling (LWD) and wireline fiber-optic seismic technology.



This chapter examines the various types of fiber optic sensor technologies that are used today and explains some of the applications that are benefiting from fiber optic sensing.

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