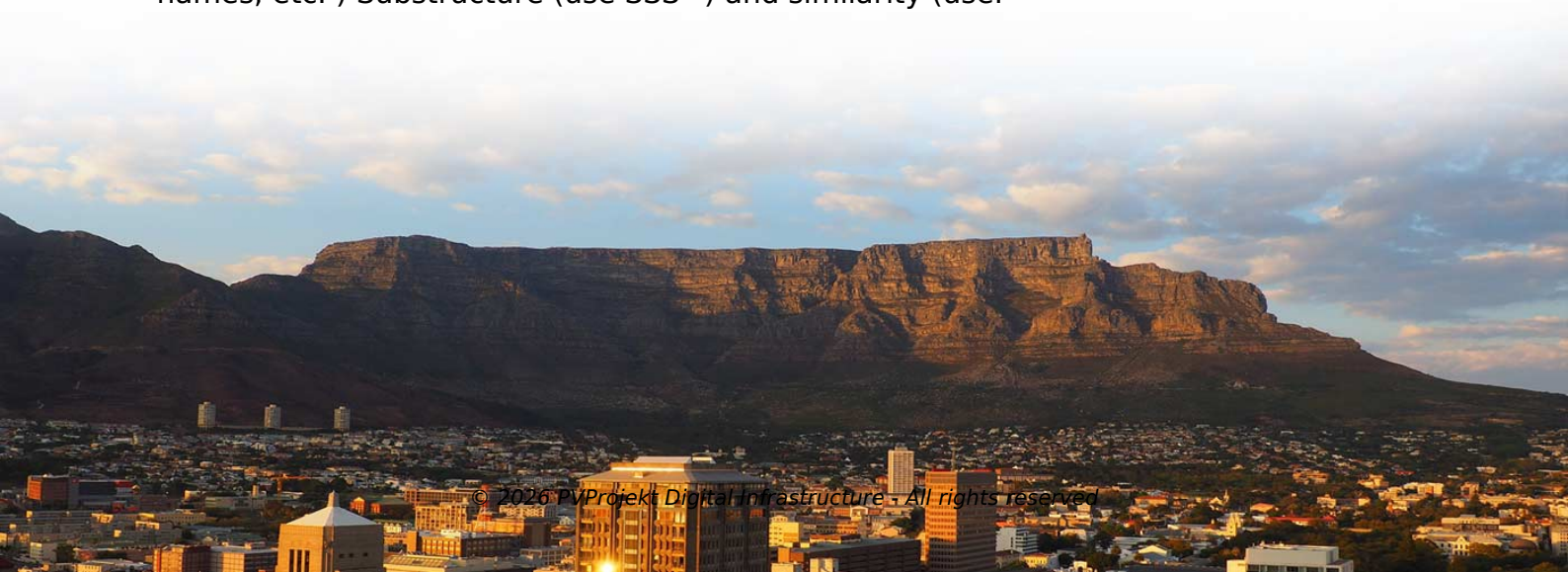
Well Logging Optical Cable System Design

Overview

This paper proposes a reflective fiber-optic sensor network for multiparameter state monitoring in oil and gas wells. The network is composed of a ground-based sensing signal demodulation system, a fault detection module, and an underground optical fiber sensing topology. Permanent downhole fiber-optic cables are critical infrastructure in wellbore monitoring systems, ensuring reliable transmission of data for applications such as distributed temperature, acoustic, and strain sensing (DTS, DAS, and DSS)—all with one 1/4-in control line. Unlike traditional single-point measurements that rely on discrete sensors measuring the data at. Paper presented at the SPE/ICoTA Well Intervention Conference and Exhibition, The Woodlands, Texas, USA, March 2020. The technology addressed in this course originated for oil and gas operations but are applicable for subsurface CCUS, geothermal. Suitable for oil wells, gas wells, coal mines or under high temperature conditions. The cables marked with Dry; They are a series of cables in which the typical water blocking the intermediate tubes (gelatin, water swelling tape or powder) is replaced with a solid foamed thermoplastic elastomer. Chemistry searches match terms (trade names, IUPAC names, etc.) Substructure (use SSS=) and similarity (use.



Article Content

Reflective optical fiber sensing network for monitoring in well logging

This paper proposes a reflective fiber-optic sensor network for multiparameter state monitoring in oil and gas wells. The network is composed of a ground-based sensing signal

High-speed logging cable telemetry system transceiver circuit design ...

This study introduces sparse code multiple access (SCMA) and wavelet packet division multiplexing (WPDM) to logging cable telemetry systems (LCTSs). The authors study the feasibility of SCMA for

Design of Downhole Circuit for Well Logging System of Video Imaging ...

Ultrasonic imaging logging and video imaging logging were two kinds of typical imaging logging technologies, of which video imaging logging was used for casings logging because its characters of

Vertical seismic optical profiling on wireline logging cable

ABSTRACT Vertical seismic profiles are usually acquired by deploying downhole seismic sensors below a wireline logging cable. A seismic source is triggered at surface while recording the downhole

Intelligent Coiled Tubing Systems: Overview, Research Trends, and ...

Based on the different telemetry systems, the Intelligent Coiled Tubing technology can be categorized into three systems: Tube-Wire System, Fiber-Optic System, and Hybrid Electric-Optical

Transceiver circuit design based on OFDM technology for well-logging ...

By designing the software and hardware modules of the system, the throughout capacity of the single-core cable logging system can be significantly increased, and the data transmission rate ...

Permanent fiber-optic cable

These monitoring systems help improve well productivity by identifying trends throughout the producing life of the well, and they rely on the robust design and long-term survivability of optical cables under

Well log Operations; program, design, acquisition and interpretation

Understand the composition of the electrical sond and electrical cables used for well logging Become familiar with the design and programs of the different electrical logging system Identify reservoirs

Cable Logging? Optical Fiber Logging?--JASON is

Difference between Optic-Fiber logging and traditional cable logging The electrical-based sensors used in cable logging can not work continuously in harsh

The High-Temperature Resistant Well Logging Optical Cable

The range of cables for direct buried installation includes all our four basic designs: concentric core, grooved core tape, DryTech and tape in loose tubes.The cables are reinforced with corrugated steel

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Well logging

Well logging, also known as borehole logging is the practice of making a detailed record (a well log) of the geologic formations penetrated by a borehole. The log may be based either on visual inspection

Design of an up hole circuit for well logging system of video imaging ...

In this paper,an up-hole circuit based on FPGA in Video imaging well logging system was described.This circuit which been based on fiber-optic cable transmission mechanism,employed optical transceiver

Applications of Distributed Fiber Optic Strain Sensing for Real-Time ...

ABSTRACT The integrity of casing and cement is of utmost importance in order to increase the lifecycle and to improve safe operations of geothermal wells. This contribution focuses on the potential of real

Bazaid et al No 1

Common well integrity problems where fiber optics can be effectively deployed include identifying sources of sustained annulus pressure, confirming packer integrity, pinpointing leak locations, and

Design and Experimental Research of a Fiber-Optic Communication

We design a fiber-optic communication system under high temperatures for well logging applications.

Production Logging Horizontal Wells Using Hybrid Optical/Electrical ...

Request PDF | Production Logging Horizontal Wells Using Hybrid Optical/Electrical Platform for Real-Time Coiled Tubing Operations | This paper discusses an innovative reservoir

A High Data Rate Fiber Optic Well Logging Cable

This development has led to a new logging cable with superior mechanical properties, containing eight electrical wires and three optical fibers with a data rate of at least 10 Mbitsl second each. This fiber

Application of Coiled Tubing Distributed Optical Fiber Temperature ...

2 Distributed Optical Fiber Temperature Sensing (DTS) System 2.1 Principle of the Leakage Detection in DTS System It is well known that the temperature profile of an oil and gas well changes as a result of

Production logging via coiled tubing fiber optic ...

This study presents the evolution of downhole fiber optics to a new hybrid electro-optical cable for coiled tubing (CT) applications. The optical fibers enable optical communication and

CASE STUDY

Enhanced production logging was performed using fiber-optic cable cemented behind the casing to assess well and field performance.

Production logging via coiled tubing fiber optic

Production logging via coiled tubing fiber optic infrastructures (FSI) and its application in shale gas wells December 2019 Arabian Journal of Geosciences

Distributed fiber optic temperature and strain sensing in cementing

In this study, we installed two fiber optic cables with different designs into a new well, a soft-flat cable and a stainless-steel cable, for distributed fiber optic sensing in cementing and water

Real-time fiber-optic interpretation and analysis

Real-time visibility without the wait Interpret and analyze fiber-optic data as it''s captured, using edge automation that eliminates delays and manual interpretation

Design and Deployment of In-Well Fiber-Optic Sensing Systems

The second course segment provides the knowledge and tools to design and manage the execution of fiber-optic-instrumented well completions and well interventions, which will provide key data and

Fiber optic well logging means and method

A well logging cable connected to the logging instrument includes a light conductor. The logging instrument further includes a circuit for applying the light pulses to one end of the...

Hybrid Electro-Optical Cable for Coiled Tubing Logging

Download Citation | Hybrid Electro-Optical Cable for Coiled Tubing Logging and Interventions | This study presents the evolution of downhole fiber optics to a new hybrid electro

The Defining Series: Introduction to Wireline Logging

Well logging requires robust technology because of harsh well conditions and cutting-edge technology because of complex reservoir properties.

Optical fiber logging cable Special cable

Optical fiber logging cable enables the transmission of detailed data over long distances, making it an essential component in oilfield service

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