Title (en)

METHOD FOR THE LEAK DETECTION AND LEAK-RATE MEASUREMENT IN A WELLBORE, SALT FALL DETECTION IN A CAVERN AND SYSTEM THEREOF

Title (de)

VERFAHREN ZUR LECK-ERKENNUNG UND LECK-RATE-MESSUNG IN EINEM BOHRLOCH, SALZ FALL-ERKENNUNG IN EINER SALZKAVERNE UND SYSTEM DAVON

Title (fr)

PROCÉDÉ DE DÉTECTION DE FUITES ET DE MESURE DE DÉBIT DE FUITE DANS UN PUITS, DÉTECTION DE CHUTE DE SEL DANS UNE CAVERNE ET SYSTÈME METTANT EN OEUVRE UN TEL PROCÉDÉ

Publication

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Application

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Priority

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Abstract (en)

The invention relates to a method (200) for detecting and characterize a salt fall event in a cavern, and determining a depth of an anomaly or an impedance contrast in a wellbore, for example a fluid-fluid interface, a deviated pipe, a damaged tubing/casing etc. The method (200) of the invention includes the following steps: - measuring the brine static pressure level and converting said pressure into a numerical brine pressure data (201); - analyzing said pressure data and monitoring the apparition of an event in the cavern (202); - analyzing spectral characteristics of the numerical brine pressure data, and check whether the event corresponds to a salt fall; - triggering (206) a pressure disturbance pulse, said pressure pulse propagating from a wellhead of the wellbore through a pipe and being distorted by at least one anomaly or impedance contrast; - measuring (207) pressure variations at the wellhead and converting said pressure variations into an numerical signal data; - analyzing (208) spectral parameters of said numerical signal data and applying statistical methods. The invention also relates to a system to implement the above mentioned method. The system includes a hydraulic assembly and means to store and/or display the acquired signal data, salt fall detection and characterization results and/or the results of the spectral and statistical analysis.

IPC 8 full level

E21B 47/04 (2012.01); **E21B 43/28** (2006.01); **E21B 47/06** (2012.01)

CPC (source: EP)

E21B 43/28 (2013.01); **E21B 47/047** (2020.05); **E21B 47/06** (2013.01)

Citation (applicant)

- EP 0111353 A2 19840620 - SHELL INT RESEARCH [NL]
- US 4934186 A 19900619 - MCCOY JAMES N [US]
- GROSSWIG ET AL., OPTIC MEASUREMENT SYSTEM FOR TEMPERATURE, AUTOMATIC AND CONTINUOUS BLANKET INTERFACE MONITORING IN CAVERNS, September 2015 (2015-09-01)

Citation (search report)

- [AD] EP 0111353 A2 19840620 - SHELL INT RESEARCH [NL]
- [AD] US 4934186 A 19900619 - MCCOY JAMES N [US]
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