

Title (en)

SYSTEM AND METHOD FOR FLUID FLOW OPTIMIZATION IN A GAS-LIFT OIL WELL

Title (de)

SYSTEM UND VERFAHREN ZUR FLÜSSIGKEITSSTRÖMUNGSOPTIMIERUNG IN EINER GASLIFTÖLBOHRUNG

Title (fr)

SYSTEME ET PROCEDE D'OPTIMISATION D'ECOULEMENT DE FLUIDE DANS UN Puits DE PETROLE A EXTRACTION AU GAZ

Publication

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Application

EP 01909683 A 20010122

Priority

- EP 0100740 W 20010122
- US 17799700 P 20000124

Abstract (en)

[origin: WO015553A1] A controllable gas-lift well having controllable gas-lift valves and sensors for detecting flow regime is provided. The well uses the tubing and casing to communicate with and power the controllable valve from the surface. Ferromagnetic chokes at the surface and downhole electrically isolate the tubing from the casing. A high band-width, adaptable spread spectrum communication system is used to communicate between the controllable valve and the surface. Sensors, such as pressure, temperature, and acoustic sensors, may be provided downhole to more accurately assess downhole conditions and in particular, flow regime. Operating conditions, such as gas injection rate, back pressure on tubing and position of downhole controllable valves are varied depending on flow regime, downhole conditions, oil production, gas usage and availability, to optimize production. An Artificial Neural Network (ANN) is trained to detect Taylor flow regime using downhole acoustic sensors, plus other sensors as desired. The detection and control system and method thereof is useful in many applications involving multi-phase flow in a conduit.

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CN106163682A; CN103334739A; GB2625492A; WO2023086129A1; WO2024072454A1

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