

Title (en)

CLOSED LOOP FLUID-HANDLING SYSTEM FOR USE DURING DRILLING OF WELLBORES

Title (de)

SYSTEM ZUR SPÜLUNGSaufBEREITUNG IM GESCHLOSSENEN KREISLAUF ZUM EINSATZ IN BRUNNENBOHRUNGEN

Title (fr)

SYSTEME DE MANUTENTION DE FLUIDES EN BOUCLE FERMEE UTILISE AU COURS DU FORAGE DE Puits

Publication

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Application

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Priority

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Abstract (en)

[origin: WO9742395A1] This invention provides a fluid-handling system for use in underbalanced drilling operations. The system includes a first vessel which acts as a four phase separator. The first vessel includes a first stage for separating solids. Oil and gas are separated at a second stage. A pressure sensor provides signals to a pressure controller, which modulates a gas flow valve coupled to the vessel for discharging gas from the first vessel. The pressure controller maintains the pressure in the first vessel at a predetermined value. An oil level sensor placed in the first vessel provides a signal to an oil level controller. The oil level controller modulates an oil flow valve coupled to the vessel to discharge oil from the first vessel into a second vessel. Water is discharged into a third vessel. Water from the third vessel is discharged via a water flow control valve, which is modulated by a level controller as a function of the water level in the third vessel. Any gas in the third vessel is discharged by modulating a gas control valve as a function of the pressure in the third vessel. In an alternative embodiment, a central control unit or circuit is utilized to control the operations of all the flow valves. During operations, a control unit maintains the pressure and the levels of the fluids in such vessels at their respective predetermined values according to programmed instructions. The fluid-handling system also controls the wellbore pressure as a function of downhole-measured parameters and the drilling fluid mix as a function of selected operating parameters.

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