

Design and Performance of the Water-Based Drilling Mud in the Second Phase, the Oil Fields of Hassi Messaoud

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Abstract

The purpose of this study and propose the use of a water-based mud instead of oil-based mud, usually used in phase 16 " in the oil fields of Hassi Messaoud. This is motivated because of the poor biodegradability of sludge oil and its bad impact on the environment. Historically, the drilling mud have evolved from a simple mixture of water and clay to more and more complex systems in which the continuous phase may be water or oil with a multitude of additives that meet the required characteristics and the problems encountered. Drilling muds are of complex fluids, consisting of a liquid phase, a colloidal phase and a solid phase. They are classified according to the nature of their basic constituents. This complex system, the liquid phase can be water, oil, or gas (air or natural gas) contains in suspension of other inorganic and organic additives (clays, polymers, surfactants, cuttings). The knowledge and control of the rheological properties of the drilling fluids have a major impact on the success of a drilling operation and the success or failure of an oil drilling. These drilling fluids exhibit a non-Newtonian shear thinning behavior and are usually, thixotropic, and this at different levels depending on the type of sludge and conditions of use.

Keywords:

Oil drilling, drilling mud, complex system, rheological behavior.

Biography

MELLAK Abderrahmane is the Director of the Laboratory of Engineering Physics of Hydrocarbons and Professor and Researcher Lecturer at the Faculty of Hydrocarbons and Chemistry of the University of Boumerdes, Algeria. He is an engineer in Oil Drilling (graduated in Algeria) and also holds a DEA (Diploma of Advanced Studies), a DESS (Diploma of Specialized Higher Studies) and a PhD, obtained in French Universities. It is Responsible for a team of researchers, Head of Bachelor and Master Drilling Wells, frames of United Engineers, Master, the Magister and Doctorates. The Prof. Dr. Abderrahmane MELLAK is a Member of the National Commission of University Habilitation Programs (CNH) and the National Commission for the Evaluation of Algerian Universities (CNE), the Ministry of Higher Education and Scientific Research. He has to his credit several participations in world congresses and national and international conferences with papers and has several publications in recognized national and international journals. He participated in several television round tables (Canal Algeria, UFC) on the Quality of Higher Education, the University-Business Relationship ...). The Prof. Doc. MELLAK Abderrahmane organizes and manages her time between Higher Education, Scientific Research, the Supervision of Students and PhD students, the Consulting and Associative Life.

Pr Abderrahmane MELLAK actively participated in the IEOM in 2016 in Kuala Lumpur. He appraised (reviewer) proposals for papers, presented an oral presentation and a poster, chaired the session and got the 3rd prize of the Undergraduate Research Presentation Competition. Prof. MELLAK Abderrahmane is a member of the Technical Committee of the IEOM 2017.