ABSTRACT

IDENTIFICATION OF SHALE PROBLEM IN THE "MER-012" WELL "MUQ" FIELD USING A MINERALOGICAL ANALYSIS APPROACH

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The "MER-012" well is an exploration well drilled on December 2, 1999 to prove hydrocarbon recovery. The "MER-012" well is a vertical well with a total depth of 3300 m (10827.3 ft). The mud used for drilling this well is KCL-polymer mud. During the drilling process, there were drilling problems, namely shale collapse, stuck pipe, kick, and partial loss.

In identifying the drilling problems, a mineralogical analysis approach was carried out with the Methylene Blue Test (MBT) and X-Ray Diffraction (XRD) laboratory tests to analyze the shale mineral content in identifying problems that occurred in the drilling of the "MER-012" Well. The initial steps taken were Literature Study, collecting Drilling Data, Geological Data, XRD Analysis Data, and MBT Test Data.

Based on the mineralogical analysis, various problems occurred in carrying out drilling in the form of swelling which could result in tight holes and end up with pinched drilling pipes. The use of KCL-Polymer mud is not suitable for well conditions dominated by shale with kaolin mineral content, so it is recommended to use the HPWBM (High Performance Water Based Mud) type of mud because it uses polyamine which can overcome swelling. From this analysis, it is expected to minimize the occurrence of problems in subsequent drilling operations in the "MUQ" Field.

Keywords: Shale Problem, Shale Type, Clay Type, Swelling, MBT, XRD.