

ABSTRACT**DESIGN PARAMETERS
FOR
DRILLING THE HERRERA FORMATION****KHEMRAM JOKHOO**

Drilling of the Herrera wells began well over forty years ago although not continuous. Several operators were engaged in drilling on different leases and they all encountered severe problems to drill and complete the Herrera wells. This thesis outlines the methods adopted to minimise the problems previously encountered and make recommendations to improve drilling.

A comprehensive review of wells was done and the recurring problems documented. The structure and stratigraphy of the various formations were drawn up and correlated with the mode of deposition. Various samples of the most troublesome formations were collected and prepared for clay mineralogic analysis by X-ray diffraction and scanning electron microscopy techniques. The results indicated high percentages of active or water sensitive clays and hence the need for mud systems compatible with the active clays present.

The pore pressure profiles of many wells were extracted from electric logs, shale densities and "d" exponents. This information was used to select casing points. The bits and bottom hole assemblies were researched in an effort to maximise footage achieved and minimise the possibility of directional drilling.

The above research and tests were incorporated into the wells programmed and drilled in recent times with increasing success. These wells are now completed in half the time as it took forty years ago.