



Technical Memorandum Field Application

Subject: Oil Base Mud

Location: Phillips

On a well in Cameron County, Texas a 13 3/8" surface casing was set at 2,450'. Loss of circulation occurred while drilling with a 9.2 lb/gal mud at 3,700' resulting in stuck pipe. A back-off and wash-over was necessary during which a walnut hull and mica addition built the weight tolerance to 9.6 lb/gal. Drilling was continued to 7,200' where a fault was cut several hundred feet below a transition zone and a kick occurred which eventually required a 13.8 lb/gal mud balance. Numerous attempts were made to kill the well using walnut hulls and fine mica to block the thief zone. Kill weight muds were circulated several times over a period of four days, but each time the formation broke down before the mud could be degassed and salt water transferred zone to zone during periods of shut-in. It was then decided to try Liquid Casing® as a last chance basis since the pipe could not be tripped.

A 13.8 lb/gal mud was mixed with an addition of 8 lbs per barrel of Liquid Casing and pumped ahead of the kill mud while holding sufficient back pressure to ensure continuous loss of mud. When the slug reached the 3,700' level, pump pressure began to climb and full returns were received from that point onward. A single circulation brought the background gas level from over 1,200 units back to a near normal of 8 units. Another 50' of the hole was drilled, the mud weight was increased to 14.6 lb/gal, and the well was logged and cased at that point with no further problems. The well was then drilled T.D. past 11,000' using a concentration of 5 lbs per barrel of Liquid Casing with no further losses in evidence.