

Impala Mud

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April 17, 1973

Underwood & Williamson
Midland, Texas 79701

Re: Shell Federal #1

Mud Program

Surface hole, 0-300: Fresh water gel and lime for 36-38 viscosity.

Intermediate hole, 300-3000: Drill with fresh water. Control seepage with paper and fiber. Before running pipe, mix flosal and salt gel to clean hole.

3000-4200: Have steel pits clean and circulate through same. Displace hole with fresh water. Mix fresh water gel to raise viscosity to 33-34 sec/1000cc for good samples. If a DST is taken in Delaware sand, raise viscosity to 36-38 and lower water loss to 10-12 cc.

4200-8300: Circulate through reserve pits. Drill with fresh water.

8300-total depth: Circulate through reserve pits. Add brine water to raise weight to 9.0-9.1# gallon. Mix salt gel to raise viscosity to 34-36 sec/1000cc for good samples. Add starch to lower water loss to 20-25cc to control filter cake. Maintain these mud properties through Atoka section. For DST, lower water loss to 10-12cc.

Before drilling into Morrow, raise weight to 10.0# gallon and lower water loss to 4-6cc. Maintain viscosity only as needed for good samples. (31-32, if possible)

Thank you

Impala Mud, Inc.

Vernon Burfiend
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