

**TENNECO OIL COMPANY
DRILLING PROGNOSIS**

HOBBBS DRILLING CO. O. C. C.
SEP 29 11 12 AM '64

LEASE: USA-Hudson

WELL NO: 1

DISTRICT: Midland

FIELD:

PROJECTED TD: 11,500'

ESTIMATED ELEVATION: 3670' DF

LOCATION: 660' FWL and 1980' FNL, Section 5, T-19-S, R-32-E, Lea County, New Mexico

DRILLING, CASING AND CEMENTING:

1. Drill 17 1/2" hole to approximately 650'.
2. Cement 13 3/8", 48#/ft., H-40, ST&C casing @ 650' w/sufficient 50-50 Incor Pozmix w/2% CaCl_2 to circulate. Run bar centralizers on float shoe and bottom 2 joints. A guide shoe and insert float will be run.
3. If float valve holds, release pressure, WOC 6 hrs., install BOP, and nipple up.
4. After WOC 12 hrs., pressure test csg w/1000 psi for 30 min. and drill out.
5. Drill 11" hole to approximately 3600'.

NOTE: Loss of circulation may be encountered between 3000' and 3500'. If severe at this location, hole may be "dry drilled" to intermediate point or air equipment may be used. Do not exceed 20,000# bit weight and 60 rpm until 1st three drill collars are below casing shoe. Air equipment, if used, shall be at company expense.

6. At Intermediate Point, run 8 5/8" OD casing as follows:

0 - 3600 - 32#/ft., J-55, ST&C

A guide shoe will be used with insert float in second collar. Weld-on bar centralizers will be run on shoe and first two collars.

7. Cement with approximately 200 sx 50-50 Pozmix-Incor w/6% gel followed by 100 sx Incor containing 2% calcium chloride. Exact cement volume will be determined by caliper survey. Cement must fill to base of salt section. Condition mud ahead of cement with 1# sodium bichromate & 0.2# caustic soda per bbl.
8. If float holds, land casing as cemented, release pressure and nipple up BOP. WOC 12 hrs., pressure test casing to 1000 psi for 30 min. and drill out cement. Do not exceed 20,000# weight on bit and 60 rpm until 1st three drill collars are below casing shoe.
9. Drill 7 7/8" hole to approximately 11,500'.

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Drilling, Casing and Cementing:

10. Run 4 1/2" casing as follows:

0 - 3300' - 11.6 N-80, LT&C
3300 - 8000' - 11.6 J-55, ST&C
8000 - 11500' - 11.6 N-80, LT&C

5 1/2" casing may be run as follows:

0 - 1800' - 17#, N-80, LT&C
1800 - 2800' - 17#, J-55, LT&C
2800 - 5800' - 15.5#, J-55, LT&C
5800 - 7600' - 17#, J-55, LT&C
7600 - 11500' - 17#, N-80, LT&C

Casing will be run with float shoe, differential fill-up collar and sufficient reciprocating scratchers and centralizers to cover productive interval.

11. Cement w/sufficient 50-50 Pozmix "S" cement w/0.4% HR-4 to cover all zones of interest. 2 sx of lime in 10 bbls water ahead of cement. Add 2 sx sodium bichromate to mud system prior to running casing. Tail in with Latex to cover 150 feet above pay zones. Approximately 60 sx required.
12. If floats hold, land casing as cemented, WOC 8 hrs., run temperature survey. (Well may be completed with rig over hole.)

DRILLING FLUIDS PROGRAM:

1. Surface Hole - 0 to 650'. Spud mud. Add gel and lime as needed to clear hole. Use fiber for loss of circulation as needed.
2. Intermediate Hole - 650' to 3600'. Saturated brine water. Add water to maintain minimum viscosity necessary. Pretreat system w/fiber (6 to 8 pounds per bbl.) at 3000'. If hole gives trouble, lower water loss to 20 cc to run casing.

NOTE: If severe loss of circulation is encountered below 3000', hole will be "dry drilled" to intermediate point or air equipment may be installed. Drilling should not be stopped to combat loss of circulation.

3. Below intermediate:

3600 to 11,000': Clear water treated with surfactant, some treatment w/paper may be required to reduce losses. Add lime to keep pH above 10.

11,000' to TD: Use low solids, CMC system with the following properties:

Weight	9.5 to 9.8
Viscosity	38-42
Water Loss	20-25

Add chemicals and barite as required to maintain good hole conditions to total depth.

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DRILLING TIME:

1. A recorder with torque, hook load, pump pressure, and rate of penetration will be required.
2. Record 10' drilling time from Kelly measurements from surface to TD on company forms.

DRILL PIPE MEASUREMENTS:

1. Strain strap drill pipe at all casing points, coring points and TD.

DRILLING SAMPLES:

1. Two sets of 10' samples will be caught, washed, sacked and labeled in bundles of 100' from surface to TD.
2. Circulating and additional samples will be obtained as directed.
3. Quart samples will be obtained of all fluids recovered on DST.

DEVIATION:

1. Deviation surveys shall be taken on every trip or every 500', whichever is first.
2. Maximum deviation shall be allowed as follows:

0 - 2000' : 2°	8000 - 10,000' : 6°
2000 - 4000' : 3°	10,000 - TD : 7°
4000 - 6000' : 4°	
6000 - 8000' : 5°	

Deviation in the surface hole shall not exceed 1°.

3. Deviation should not change more than 1 1/2° in any 100' interval. If deviation change exceeds 1 1/2° per 100', string reamer shall be run to wipe out dogleg. If deviation change exceeds 2° per 100', hole shall be plugged back and straightened.

BLOW OUT PREVENTORS:

1. Series 900 or better, double ram, manual and remote control preventors shall be used from base of surface casing to TD.
2. BOP shall be checked daily and reported on drilling report.
3. A rotating drilling head shall be used during any air or gas drilling.

DAILY DRILLING REPORT:

1. The AAODC drilling form shall be used.
2. This report shall be completely filled out except for crew hours.
3. Morning reports shall be made to the Midland District office each weekday morning between 8:00 a.m. and 8:30 a.m. CST.

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DRILL STEM TESTING:

One DST may be taken in the following intervals:

Strawn - 11,150 to 11,350'

Added tests may be taken at discretion of wellsite geologists.

LOGGING:

1. GR-Sonic from TD to base Intermediate
2. Induction ES through detailed sections as specified by wellsite engineer.

FORMATION TOPS (APPROXIMATE):

T/Anhydrite	970'
T/Salt	1050'
B/Salt	2667'
T/Yates	2767'
T/Seven Rivers	3083'
T/Delaware	5240'
T/Bone Springs	6860'
T/1st Sand	8175'
T/2nd Sand	8993'
T/3rd Sand	9770'
T/Wolfcamp	10,198'
T/Cisco Shale	10,583'
T/Strawn	11,108'
T/Strawn Reef	11,270'

APPROVED:

A. R. Gibson
A. R. Gibson

APPROVED:

A. W. Lang
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INSTRUCTIONS FOR DRILLING OF WELL

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1. Keep hole full at all times.
2. If sticking conditions occur, do not pull over half the weight of the drill string past its total weight before contacting company man.
3. Check recorder daily and make sure it is recording all pens accurately.
4. Be sure all fires and lights are out while drill stem testing.
5. Fill out AAQDC report completely, enter all mud used, see that break down of hours is complete and accurate.
6. Do not waste water or mud, both items are very expensive. See that mud is stacked orderly at all times; if a sack is broken, use it the first opportunity.
7. If unusual conditions are noticed with the hole, be sure the company man, tool pusher and all drillers are notified.
8. Use blackboard or tablet to leave any information or orders on.
9. Check blow out equipment daily; do not let water accumulate in closing unit or lines.
10. Drilling from 2800' to intermediate point - don't use float in drill pipe.
11. From 2800' to intermediate point - reduce lowering drill pipe into hole rate to one minute stand.