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Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

# TENNECO OIL COMPANY WESTERN ROCKY MOUNTAIN DIVISION 6162 SOUTH WILLOW DRIVE ENGLEWOOD, COLORADO 80155

## DRILLING PROCEDURE

DATE:

October 12, 1984

LEASE:

Vandewart

WELL NO: #1E

LOCATION:

1070' FSL, 1150' FEL Section 11, T29N, R8W

FIELD: Basin Dakota

San Juan County, NM

**ELEVATION** 

64571

TOTAL DEPTH:

7660'

PROJECTED HORIZON: Dakota

APPROVED BY: W.C.Gm

CC: Administration

CRJ Well File Field File

# ESTIMATED FORMATION TOPS

Ojo	2210'	Water
Kirtland	2310'	
Fruitland	2760'	Coal Gas
Pictured Cliffs	3160'	Gas
Lewis	3290'	
Chacra	3880'	
Cliff House	4790'	Gas (800 psi)
Menefee	4960'	Gas (800 psi)
Point Lookout	5360'	Gas (800 psi)
Mancos	5570'	
Gallup	6610'	
Greenhorn	7334'	
Dakota	7425'	Gas (2350 psi)
TD	7660'	

#### DRILLING, CASING AND CEMENT PROGRAM

- 1. MIRURT. Notify MMS of spud.
- 2. Drill a 12-1/4 hole to  $\pm 300$  ft. with a gel water mud.
- 3. Rig up and run 9-5/8" 36# K-55 ST&C casing to bottom. Cement with Class B + 2% CaCl $_2$  in sufficient quantity (200-250sx) to circulate cement to surface. If conditions warrant the use of loss circulation agents, 1/4 #/sx celloflake may be added. Wait on cement a minimum of 12 hours prior to drilling out.
- 4. While waiting on cement, screw on a 9-5/8" -8rd X 11-3M casinghead. NU BOP's. Pressure test casing, blinds, manifold and lines to 1000 psi for 30 minutes. GIH with drill pipe and test the pipe rams in the same manner. Record all tests on the IADC report sheet.
- 5. Drill out with an 8-3/4" bit and clear water. Drill to  $\pm$  3790' or 500' into the Lewis shale. Mud up prior to reaching intermediate T.D. Circulate at casing point a sufficient time to clean the hole to run casing. Log Intermediate hole.
- 6. Install casing rams, run 7" 23# K-55 casing equipped with a guide shoe on bottom and a float collar one joint up. Bakerlock from the shoe to the top of the float collar and run casing to bottom. Centralize casing with one centralizer in the middle of shoe joint and then on every other collar for total of 6 centralizers. Cementing baskets may be used if lost circulation has been encountered.

## INTERMEDIATE FOAM CEMENTING PROGRAM

Lead: 210 sacks of Class B with a <u>foamed</u> slurry weight of 8.0 ppg (prefoamed of 15.7 ppg).

Tail: 120 sacks of Class B with slurry weight of 15.7 ppg.

Cap: 40 sacks of 10-2 RFC with slurry weight of 14.5 ppg will be pumped down braden head at end of regular cement job to provide a "cap" of cement at the surface.

Density control is accomplished win nuclear densimeters. Foam quality is constantly checked with two liquid flow meters. Dispersion of nitrogen in the cement is done with a "foaming tee". To provide for a controlled rate of rise of the cement on the backside, a 2" choke and 2" flow meter is used.

If cement is not circulated to surface run a temperature survey after 8 hours to determine actual TOC as MMS requires. Wait on cement a total of 24 hours before drilling is resumed.

- 7. Set slips with casing in full tension and cut-off. NU BOE and test as in procedure 4 above. Record tests on IADC report.
- 8. Drill out, dry up hole and drill a 6-1/4" hole to T.D. (see Mud Program) surveying as required. Lay down square drill collar before cutting the Dakota.
- 9. Log open hole as directed by GE department.
- 10. If productive, run 4-1/2" 11.6# and 10.5# K-55 casing as a liner. Equip the casing with a float shoe, float collar and latch down collar on the top of the first joint. No threadlock or centralizers are to be used on this arrangement. Hang liner with a 150' lap in the intermediate casing and 3' off bottom.
- 11. Cement with a 65/35/6 Poz mix lead slurry. Start with a 20 barrel mud flush, followed by the lead slurry with a fluid loss control additive and tail with 100 sx Cl B plus .6% fluid loss additive. Use sufficient quantity (70-75% excess) to circulate cement to the liner top.
- 12. Circulate out the excess cement, LDDP and MORT.
- 13. In non-productive, P & A as required by USGS.
- 14. Install tree and fence remainder of reserve pit.

#### CASING PROGRAM

<u>INTERVAL</u>	<u>LENGTH</u>	SIZE	WEIGHT	<u>GRADE</u>	OPTIMUM MAKE-UP Torque
0-300	300	9-5/8	36. #	K-55	STC 4230
0-3790	3790	7	23. #	K-55	STC 3090 LTC 3410
3640-7000	3360	4-1/2	10.5#	K-55	STC 1460
7000-7660	660'	4-1/2	11.6#	K-55	STC 1700 LTC 1800

#### MUD PROGRAM

0-300'	Spud mud.
300-3790'	Low solid, fresh water mud. (Water and Rapid Mud.) Mud up prior to running casing.
3790'-T D	Gas - If mud up is required, 3% KCL must be added to the system.

#### **EVALUATION**

#### Cores and DST's:

NONE.

## **Deviation Surveys**

- 1. Survey surface hole at 100' intervals. Maximum allowable deviation at 500' is  $1-1/2^{\circ}$
- 2. From surface to the Mancos formation, deviation surveys must be taken every 500'. In the Mancos/Gallup zones, surveys to be each 250'. Record all surveys in IADC Report book. Maximum allowable change in deviation is 1° per 100'. Maximum deviation allowable is 5°.

## Samples:

As requested by Wellsite Geological Engineer

Logs:

1. GR/INDUCTION

T D to Intermediate

2. CDL/GR/CALIPER

T.D. 2000' Minimum

# BLOWOUT EQUIPMENT

11" - 3000 BOP with rotating head to comply with TOC requirements as shown in BOE arrangement, Figure C. Preventers must be checked for operation every 24 hours with each check recorded on the IADC Drilling Report Sheet.

## REPORTS

Drilling Reports for the past 24 hours will include depth, footage, time distribution, activity breakdown, mud properties, bit record, bottom hole assembly, types of logs and depths ran, daily and cumulative mud cost, deviation surveys, and other pertinent information to be called into Division Office by 7:30 AM Monday thru Friday.

TENNECO OIL COMPANY
P.O. Box 3249
ENGLEWOOD, COLORADO 80155
PHONE: 303-740-4800

#### OFFICE DIRECTORY

Charles R. Jenkins	740-2575
Ted McAdam	740-2576
Tom Dunning	740-4813
Mark Kangas	740-4810

In case of emergency or after hours call the following in the preferred order.

(1)	Mark Kangas	740-4810	Office
	Project Drilling Engineer	973-8846	Home
(2)	Ted McAdam Drilling Engineering Supervisor	740-2576 978-0724	Office Home
(3)	Charles R. Jenkins	740-2575	Office
	Division Drilling Engineer	987-2290	Home
(4)	Harry Hufft Division Production Manager	771-5257	Home