Form 9-331 C
(May 1963)

N. M. O. C. C. COPY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

copy to S. F.

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK
DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL
OIL WELL [X] GAS WELL [ ] OTHER SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR
Southwestern Natural Gas, Inc.

3. ADDRESS OF OPERATOR
412 First State Bank Building, Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
660' FSL and 660' FEL Sec. 28, T-19-S, R-31-E, NMPM
At proposed prod. zone

5. LEASE DESIGNATION AND SERIAL NO.
NM 032240

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
Tenneco Federal

9. WELL NO.
1

10. FIELD AND POOL, OR WILDCAT
2nd. Lusk - Strawn

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 28, T-19-S, R-31-E, NMPM

12. COUNTY OR PARISH
Eddy

13. STATE
New Mexico

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)

16. NO. OF ACRES IN LEASE
160

17. NO. OF ACRES ASSIGNED TO THIS WELL
160

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.
none

19. PROPOSED DEPTH
11,500±

20. ROTARY OR CABLE TOOLS
Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)
3469.2 ground level

22. APPROX. DATE WORK WILL START*
Immediately upon approval

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT

SEE PROGNOSIS AND PLATS ATTACHED

RECEIVED
JUL 1 1966
O. C. C.
ARTESIA, OFFICE

RECEIVED
JUN 30 1966
U. S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.
SIGNED M. D. Ricker TITLE Office Manager DATE 6-27-66

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

APPROVED
JUN 30 1966
RUDOLPH C. BAIER, JR.
ACTING DISTRICT ENGINEER

*See Instructions On Reverse Side

Instructions

General: This form is designed for submitting proposals to perform certain well operations, as indicated, on all types of lands and leases for appropriate action by either a Federal or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office.

Item 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable State or Federal regulations concerning subsequent work proposals or reports on the well.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on this reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal or State agency offices.

Items 15 and 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective production zone.

Item 22: Consult applicable Federal or State regulations, or appropriate officials, concerning approval of the proposal before operations are started.

U.S. GOVERNMENT PRINTING OFFICE : 1963—O-711-396

SOUTHWESTERN NATURAL GAS, INC.

Drilling Prognosis

RE: Tenneco Federal #1
NM 032240
660' FS & EL Sec. 28,
T-19-S, R-31-E
Lusk (Strawn) Field
Eddy County, New Mexico

Drilling, Casing and Cementing Program

1. Drill 17-1/2" hole to 700' (into anhydrite). Cement 13-3/8", 48# casing to surface (circulate.)

2. Test casing to 1000 psi for 30 minutes.

3. Drill 12" hole to 4200'. Run 8-5/8", 32# casing to 4200' with DV packer above possible lost circulation zone at 2600-2700'; two stage cement with sufficient cement on second stage to fill above DV packer to base of salt section at 2100'.

4. Run temperature survey. Pressure test DV tool to 1000 psi for 30 minutes, drill out and test 8-5/8" casing to 1000 psi for 30 minutes.

5. Drill 7-7/8" hole to TD approximately 11,500'. Run and cement 4-1/2, 11.6# casing with sufficient cement to fill annulus 1000' above Strawn.

Mud Program

1. Surface 0 - 700': Spud mud with lost circulation material if needed.

2. Intermediate 700' - 4200': Fresh water with possibility of dry-drilling below 2600'.

3. Long 4200' - 11,500': fresh water with surfactant and lost circulation material if needed. Mud-up at approximately 11,100', low solids, weight 8.6 - 9.0, viscosity 38 - 42 seconds, water loss 10-15 cc.

Miscellaneous

1. Proper blow-out preventers will be used of sufficient capacity to meet all normal down-hole conditions to be expected.

2. Deviation surveys will be made on every trip or 500', whichever is first. Maximum deviation allowed 6°.

3. Record 1' drilling time from surface to total depth.

4. Two sets of 10' samples will be taken from 4200' to total depth.

Southwestern Natural Gas, Inc.
Tenneco Federal #1
Drilling Prognosis

Logging

1. Gamma Ray Sonic and possibly Induction-Laterolog through sections selected by geologist.

Drill Stem Tests

1. One drill stem test to test Strawn zone.

Formation Tops(±)

Top Anhydrite	700'	Bone Springs	6950'
Top Salt	800'	Wolfcamp Lime	10,400'
Base Salt	2200'	Cisco Shale	10,650'
Top Yates	2350'	Strawn Lime	11,140'
Top Seven Rivers	2600'	Total Depth	11,500'
Delaware	4500'		

Notification

L. N. Dunnavant	Res. - Odessa EM 2-1541	Office - Midland MU 2-7161
J. M. Reaves	Res. - Midland MU 4-6611	Office - Midland MU 2-7161

M. S. Ricker, Office Manager