Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

30-045-24040

# UNITED STATES
# DEPARTMENT OF THE INTERIOR
## GEOLOGICAL SURVEY

## APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: SF-078051

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

1a. TYPE OF WORK: DRILL ☒ DEEPEN ☐ PLUG BACK ☐

b. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ OTHER — SINGLE ZONE ☐ MULTIPLE ZONE ☐

8. FARM OR LEASE NAME: Mudge Com B

2. NAME OF OPERATOR: Tenneco Oil Company

9. WELL NO.: 2

3. ADDRESS OF OPERATOR: 720 S. Colorado Blvd., Denver, CO 80222

10. FIELD AND POOL, OR WILDCAT: Basin Dakota

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
E 1,660' from North line, 810' from West line.
At proposed prod. zone

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 14, T 31N, R 11W

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 6 miles NE of Aztec, NM

12. COUNTY OR PARISH: San Juan — 13. STATE: NM

| 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 | 17. NO. OF ACRES ASSIGNED TO THIS WELL |
|---|---|---|
| | 2,218.66 | W/320 |
| **18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.** | **19. PROPOSED DEPTH** | **20. ROTARY OR CABLE TOOLS** |
| | 7,440 | Rotary |

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 6,048' GR

22. APPROX. DATE WORK WILL START*: ASAP

23. PROPOSED CASING AND CEMENTING PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | QUANTITY OF CEMENT |
|---|---|---|---|---|
| 13 3/4" | 9 5/8" new | 36# K-55 | 300'± | Circulate to surface |
| 8 3/4" | 7" new | 23# K-55 | 3,000'± | Circulate to surface |
| 6¼" | 4½" new | 10.5#-11.6# | 7,440'± | Circulate through liner hanger |

SEE ATTACHED

RECEIVED
NOV 26 1979
U. S. GEOLOGICAL SURVEY
FARMINGTON, N. M.

The Gas Is Dedicated

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 J. D. Traywick TITLE Administration Supervisor DATE October 22, 1979

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

NMOCC

NOV 29 1979

*See Instructions On Reverse Side

# OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

| Operator | Lease | Well No. |
|---|---|---|
| TENNECO OIL COMPANY | MUDGE COM "B" | 2 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| E | 14 | 31N | 11W | San Juan |

Actual Footage Location of Well:
1660 feet from the North line and 810 feet from the West line

| Ground Level Elev. | Producing Formation | Pool | Dedicated Acreage: |
|---|---|---|---|
| 6048 | Dakota | Basin Dakota | 320.00 Acres |

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

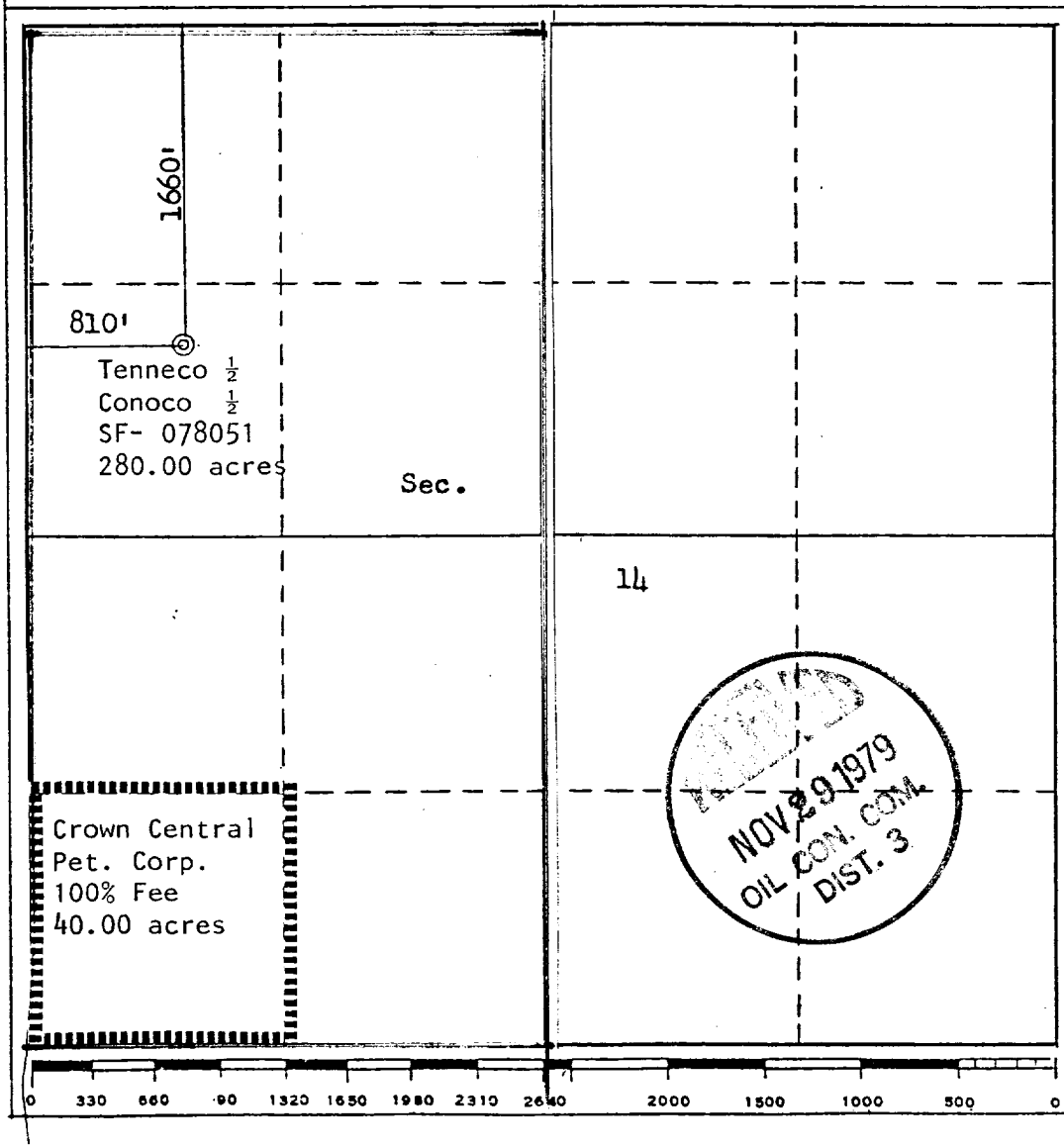
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

[X] Yes [ ] No If answer is "yes," type of consolidation Communitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.




## CERTIFICATION

*I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.*

Name: M. A. Sherman

Position: Staff Production Analyst

Company: Tenneco Oil Company

Date: 11/21/79

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.*

Date Surveyed: August 16, 1979

Registered Professional Engineer and/or Land Surveyor

Fred B. Kerr Jr.

Certificate No. 3950

TENNECO OIL COMPANY

# PROGNOSIS TO DRILL AND COMPLETE

DIVISION: Rocky Mountain

DATE: August 28, 1979

LEASE: Mudge Com

WELL NO.: B-2

LOCATION: 1,660' FNL, 810' FWL
Sec. 14, T 31N, R11W
San Juan County, New Mexico

FIELD: Basin Dakota

ESTIMATED ELEVATION: 6,000' (Est. G.L.)

ESTIMATED TOTAL DEPTH: 7,440'

PROJECTED HORIZON: Dakota

## DRILLING, CASING AND CEMENT PROGRAM:

(1) MIRURT.

(2) Drill a 13 3/4" hole to 300±. Run 9 5/8", 36#, K-55, ST&C casing to T.D. and cement to surface. Use 2% $CaCl_2$ in cement.

(3) Cut off casing and weld on casing head. Pressure test weld to 1000 psi. NUBOP's and manifold. Pressure test casing, BOP's and manifold to 1000 psi for 30 minutes.

(4) Drill out shoe and reduce hole to 8 3/4". Drill 8 3/4" hole to 3000±. Run 7", 23#, K-55, ST&C casing to T.D. and cement to surface. (Set 7" 200-300' into Lewis shale.)

(5) Land casing in slips and cut off. Install drilling spool on casing head. Install rotating head, manifold and flare line. Pressure test blind rams, manifold and casing to 1000 psi for 15 minutes. Pick up drilling assembly and 3 1/2" drill pipe. Pressure test pipe rams to 1000 psi for 15 minutes.

(6) Drill out of 7" with 6 1/4" bit using gas as circulating fluid. Drill a few feet of formation and then blow hole with gas until it is dusting. Drill to T.D.

(7) Log the hole dry as directed by the wellsite geological engineer and gauge the natural flow from the Dakota.

(8) If productive, run 4 1/2", 10.5#-11.6#, casing to T.D. as per casing design. Cement in one stage. Bring cement through liner hanger.

(9) If nonproductive, plug and abandon as per U.S.G.S. requirements.

ESTIMATED FORMATION TOPS: Surface Nacimiento

| | | | |
|---|---|---|---|
| OJO Alamo | 1,600' | Point Look Out | 5,190' |
| Pictured Cliffs | 2,670' | Mancos | 5,550' |
| Lewis | 2,820' | Gallup | 6,450' |
| Cliffhouse | 4,545' | Greenhorn | 7,100' |
| Menefee | 4,640' | Dakota "A" | 7,210' |
| | | T.D. | 7,440' |

DRILLING MUD PROGRAM:

0 - 300' Spud Mud

300' - T.D. 7" casing. Low solids fresh water mud. No. W. L. Control.

3,000'± - T.D. Gas

CORING AND TESTING PROGRAM:

No cores or tests. Guage natural flow from the Dakota.

DEVIATION SURVEYS:

1. Survey surface hole at 100' intervals. Maximum allowable deviation at
2. FROM SURFACE TO TOTAL DEPTH DEVIATION SURVEYS MUST BE TAKEN EVERY 500' OR EACH TRIP WHICHEVER IS FIRST. This may entail running the TOTCO on wireline. Record each survey on the AAODC Drilling Report Sheet. Maximum allowable change in deviation is $1^{o}$ per 100'.

SAMPLES:

As directed by wellsite geological engineer.

WELL SURVEYS:

GR/FDC/CNL caliper from T.D. to base of Mesaverde.

GR/SP/SN induction from T.D. to surface casing.

BOP: From 300' to T.D. as per U.S.G.S. requirements.

PREVENTORS MUST BE CHECKED FOR OPERATION EVERY 24 HOURS, AND THE CHECK MUST BE RECORDED ON THE AAODC 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, daily and cumulative mud costs, plus any other pertinent information; will be called into Tenneco Oil Company, Denver, Colorado between 7:30 A.M. and 8:00 A.M.

1. 303-758-7130 (office) - Don Barnes
   303-758-7287 - Don Barnes private line - Monday-Friday (before 7:45 A.M.)

2. 303-936-0704 (home) - Don Barnes - weekends and holidays

3. 303-795-0221 (home) - John Owen - if Don Barnes not available

The yellow sheet of the IADC Report to be filled out completely, the original copy of the drilling time recorder, and copies of any invoices from this well signed and received for Tenneco Oil Company will be mailed daily to:

TENNECO OIL COMPANY
PENTHOUSE
720 SOUTH COLORADO BOULEVARD
DENVER, COLORADO 80222

ATTENTION: DRILLING DEPARTMENT

In case of an emergency, notify the following:

1. Mr. Don Barnes, Division Drilling Engineer - 303-936-0704.

2. Mr. John Owen, Project Drilling Engineer - 303-795-0221

3. Mr. Mike Lacey, Division Production Manager - 303-979-0509.

MUDGE COM B '2'

1. Existing Roads

A. Proposed Well Site Location: Was surveyed & staked by a registered land surveyor & is located at 1,660' from North line, 810' from West line. Sec. 14, T 31N, R 11W, San Juan County, NM. (See Exhibit I, Form C-102.)

B. Planned Access Route: Begins at intersection of Deer Canyon & Aztec Ruins Road, Proceed NW up Deer Canyon for approximately 1 mile, turn SW for 1 mile to flagged access off exhisting road. (See Exhibit II.)

C. Access Road Labelled:

Color Code: Red - Improved Surface
Blue - New Access Road

D. Not applicable - the proposed well is a development well.

E. The proposed well is a development well. See Exhibit II for existing roads within a one mile radius.

F. Existing Road Maintenance or Improvement Plan:
The existing roads will require minimal maintenance.

2. Planned Access Roads

(All roads are existing roads.)

A. Width:
The average width of the road is twenty feet.

B. Maximum Grades: Less than 5%

C. Turnouts:
There are no turnouts planned as sight distance is sufficient.

D. Drainage Design:
The road is center crowned to allow drainage. The road is flat primarily.

E. Culverts Use Major Cuts and Fills: None required.

F. Surfacing Material:
Native soil has been wetted, bladed and compacted to make the road surface, which is existing.

2. Planned Access Roads (Cont'd)

G. Gates, Cattleguards, Fence Cuts:
No gates, cattleguards or fences will be needed.

H. New Roads Centerlined Flagged:
Existing Roads.

3. Location of Existing Wells

The proposed well is a development well. Exhibit IIIshows existing wells within a one mile radius.

| | | |
|---|---|---|
| A. | Water Wells: | None |
| B. | Abandoned Wells: | None |
| C. | Temporarily Abandoned Wells: | None |
| D. | Disposal Wells: | None |
| E. | Drilling Wells: | None |
| F. | Producing Wells: See Exhibit | III |
| G. | Shut-In Wells: | None |
| H. | Injection Wells: | None |
| I. | Monitoring or Observation Wells: | None. |

4. Location of Existing and/or Proposed Facilities

A. Existing facilities within one mile owned or controlled by Lessee/Operator:

| | | |
|---|---|---|
| (1) | Tank batteries - | None |
| (2) | Production facilities - | See Exhibit III |
| (3) | Oil Gathering Lines - | None |
| (4) | Gas Gathering Lines - | None |
| (5) | Injection Lines - | None |
| (6) | Disposal Lines - | None |

B. New facilities in the event of production:
(1) Within the dimensions of drill pad, (as shown on Ex. IV).
(2)

(3) Construction Materials/Methods:
Construction materials will be native to the site.
Facilities will consist of a well pad.

(4) Protection of Wildlife/Livestock: Facilities will be fenced as needed to protect wildlife and/or livestock.

4. Location of Existing and/or Proposed Facilities (Cont'd)

B. New facilities in the event of production: (cont'd)

(5) Will consist of a well head, tank & production unit.

C. Rehabilitation of Disturbed Areas:
Following the completion of construction, those areas required for continued production will be graded to provide drainage and minimize erosion. Those areas unnecessary for use will be graded to blend with surrounding topography per BLM recommendations.

5. Location and Type of Water Supply

A. Location and type of water supply:
Water will be hauled from private source.

B. Water Transportation System:
Water trucks will be used.

C. Water wells:
N/A.

6. Source of Construction Materials

A. Materials:
Construction materials will consist of soil native to the site. Any topsoil, if present, will be stripped and stockpiled as needed.

B. Land Ownership;
The planned site and access road is on federal land administered by the Bureau of Land Management.

C. Materials Foreign to the Site:
N/A.

D. Access Roads:
No additional roads will be required.

7. Methods for Handling Waste Disposal

A. Cuttings:
Cuttings will be contained in the reserve pit.

B. Drilling Fluids:
Drilling fluids will be retained in the reserve pit.

C. Produced Fluids:
Produced fluids, including produced water will be collected in the reserve pit. Any small amount of hydrocarbon that may be produced during testing will be retained in the reserve pit. Prior to clean up operations, the hydrocarbon material will be skimmed.

7. Methods for Handling Waste Disposal (Cont'd)

D. Sewage:
Sanitary facilities for sewage disposal will consist of at least one pit toilet, during the driller operations. The pit will be backfilled immediately following completion of the drilling operation.

E. Garbage:
There probably will not be much putriscible garbage to dispose of. However, it will be disposed of along with the refuse in a constructed burn pit, which will be fenced. The small amount of refuse will be burned and the pit will be covered with a minimum 36 inch cover upon completion.

F. Clean-Up of Well Site:
Upon the release of the drilling rig, the surface of the drilling pad will be prepared to accommodate a completion rig, if testing indicates potential productive zones. In either case, the "mouse hole" and "rat hole" will be covered to eliminate a potential hazard to livestock. The reserve pit will be fenced to prevent entry of livestock until the pit is backfilled. Reasonable clean up will be performed prior to final restoration of the site.

8. Ancillary Facilities

None required.

9. Well Site Layout

A. See Exhibit IV.

B. Location of pits, etc. See Exhibit IV.

C. Rig orientation etc. See Exhibit IV.

D. Lining of pits:
Pits will not be lined. They will be covered with a fine mesh netting, if necessary, for the protection of wildlife if fluids are found to be toxic.

10. Plans for Restoration of Surface

A. Reserve pit clean up:
The pit will be fenced prior to rig release and shall be maintained until clean up. Prior to backfilling any hydrocarbon material on the pit surface will be removed. The fluids and solids contained in the pit shall be backfilled with soil excavated from the site and with soil adjacent to the reserve pit. The restored surface of the reserve pit will be contoured as needed to minimize erosion. The reserve pit area will be seeded per BLM recommendations during the appropriate season following final restoration of the site.

10. Plans for Restoration of Surface (Cont'd)

B. Restoration Plans - Production Developed:
The reserve pit will be backfilled and restored as described under Item A. In addition, those disturbed areas not required for production will be graded to blend with the surrounding topography, and seeded, per BLM recommendations. The portion of the drill pad required for production and turning areas will be graded to minimize erosion and provide access to production facilities under inclement conditions. Following depletion and abandonment of the site, restoration procedures will be those under Item C. below.

C. Restoration Plan - No Production Developed:
The reserve pit will be restored as described above. With no production developed, the entire surface disturbed by construction of the drilling pad will be restored. The site will be contoured to blend with the surrounding topography. The site will be seeded according to BLM recommendations. If the new access road is not required for other development plans, it will be obliterated and restored and seeded per BLM recommendations.

D. Rehabilitation Time Table:
Upon completion of operations the intial clean up of the well site will be performed. Final restoration of the site will be performed as soon as possible according to procedural guidelines published by the USGS and BLM. Seeding of the disturbed areas which are no longer required will be performed during the appropriate season, following final restoration.

11. Other Information

A. Surface Description: The proposed well site located approximately .4 mile SW of Deer Canyon atop Wide Mesa & slightly rolling broken topography. Principle vegetation consists of pinion, juniper, bitter brush, mountain mahogany, snake weed, various grasses, the soil is sandy loam.

B. Surface Use Activities:
The surface is federally owned and managed by the BLM. The predominant surface use is mineral exploration and production.

C. Proximity of Water, Dwellings and Historical Sites:

1. Water:
There are no reservoirs or streams in the immediate area.
2. Occupied Dwellings:
There are no occupied dwellings or buildings in the area.
3. Sites:
An archeological reconnissance has been performed for this location and clearance has been granted.

12. Operator's Field Representative

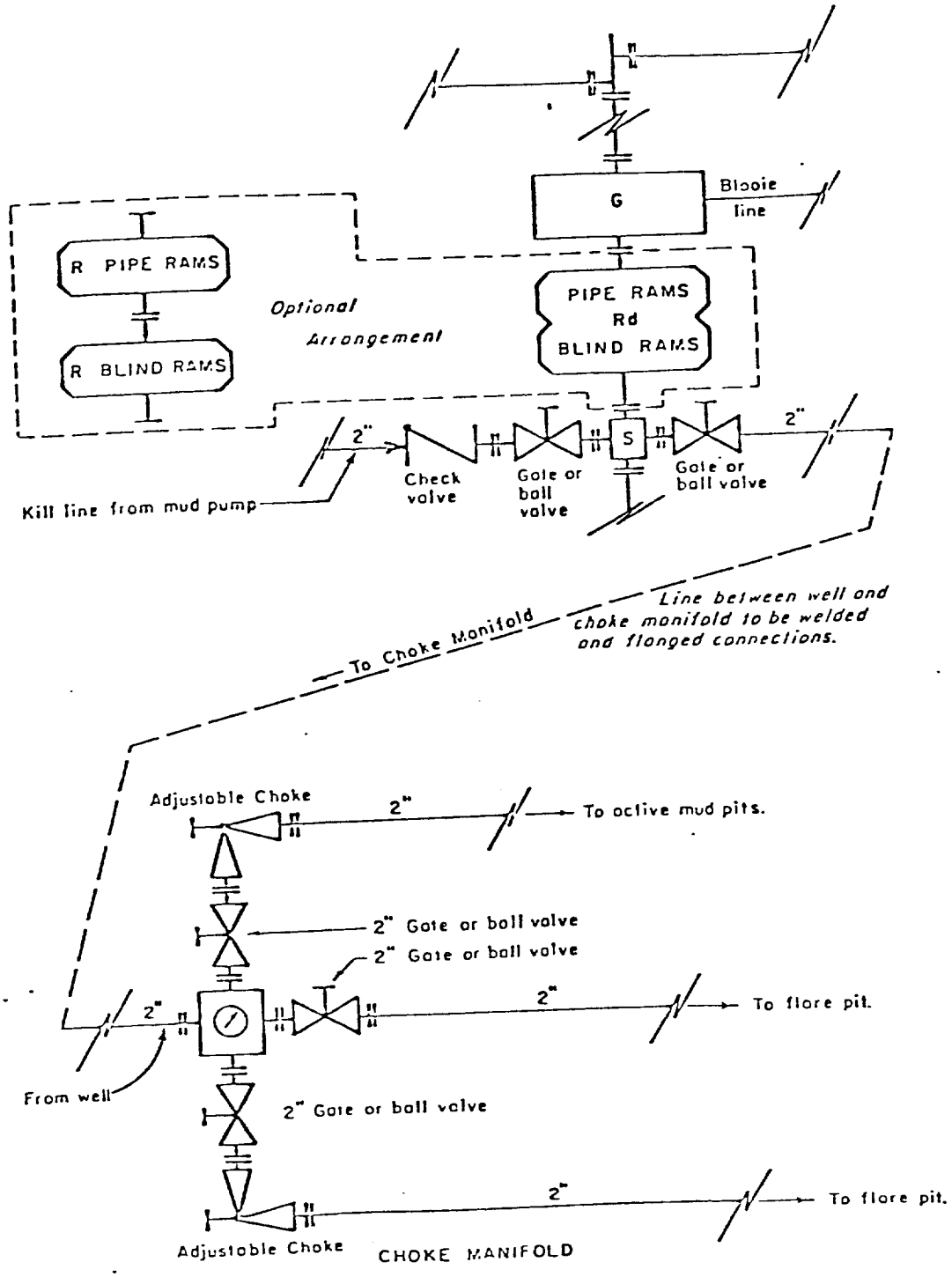
Donald S. Barnes
Division Drilling Engineer
Tenneco Oil Company
720 South Colorado Blvd.
Penthouse
Denver, CO 80222
(303) 758-7130 Ext. 212

13. Certification

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions as they actually exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the proposed work performed by Tenneco Oil Company and its contractors and subcontractos will conform to this plan.

Date: October 22, 1979

J. D. Traywick
Administration Supervisor




All equipment to be 3,000 psi working pressure except as noted.

Rd Double ram type preventer with two sets of rams.

R Single ram type preventer with one set of rams.

S Drilling spool with side outlet connections for choke and kill lines.

G Rotating head 150 psi working pressure minimum

ARRANGEMENT C

TENNECO OIL COMPANY
ROCKY MOUNTAIN DIVISION

REQUIRED MINIMUM
BLOWOUT PREVENTER AN
CHOKE MANIFOLD

J. MAGILL 10-26-70 EVI

TOC 841 - 7/61

# TENNECO OIL COMPANY

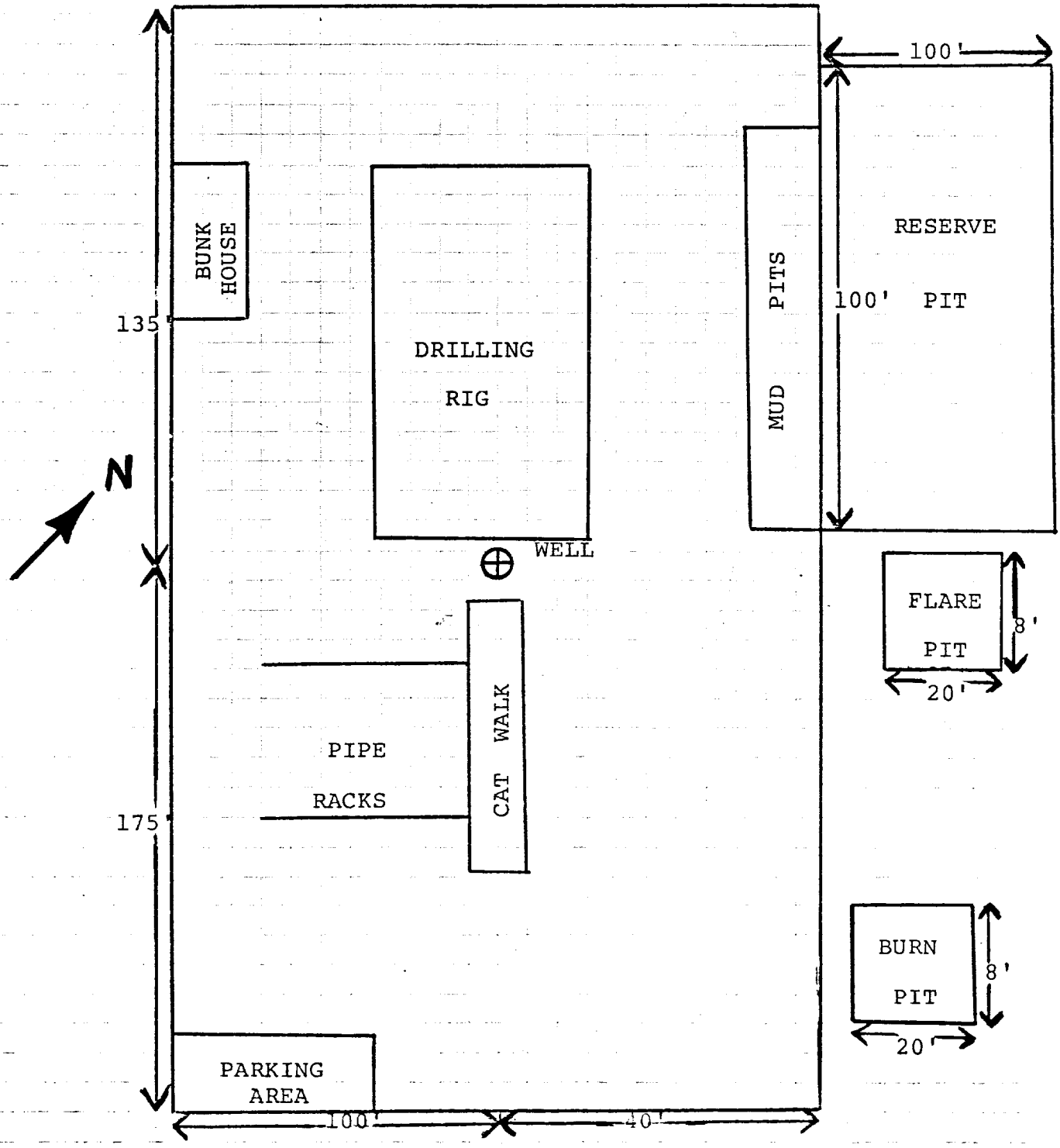
## CALCULATION SHEET

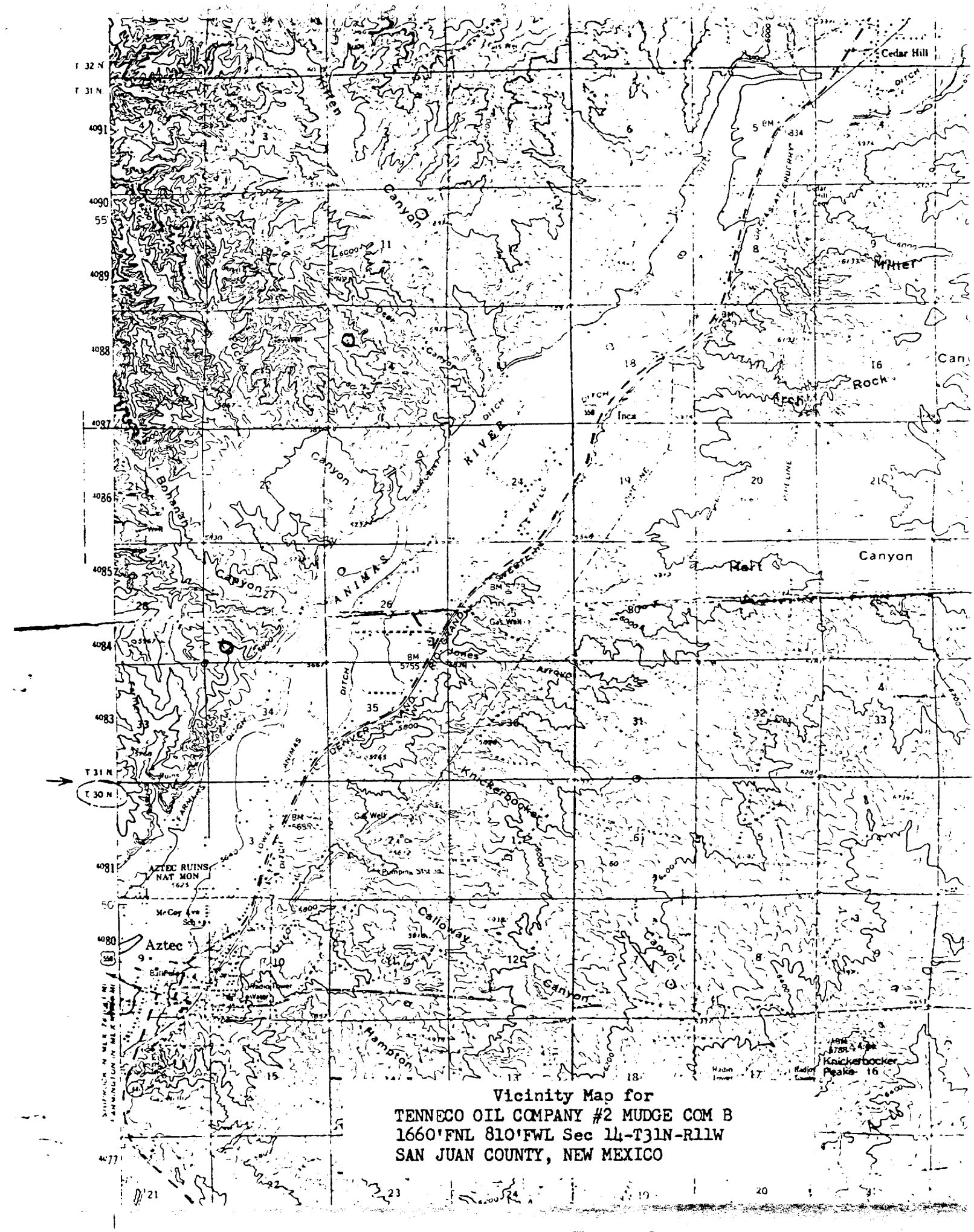
EXHIBIT IV

SUBJECT DRILLING WELL SITE LAYOUT MUDGE COM B-2

LOCATION 1660' FNL, 810' FWL, SEC. 14, T 31N, R 11W DATE: 10-79

SAN JUAN COUNTY, NEW MEXICO






Vicinity Map for
TENNECO OIL COMPANY #2 MUDGE COM B
1660'FNL 810'FWL Sec 14-T31N-R11W
SAN JUAN COUNTY, NEW MEXICO

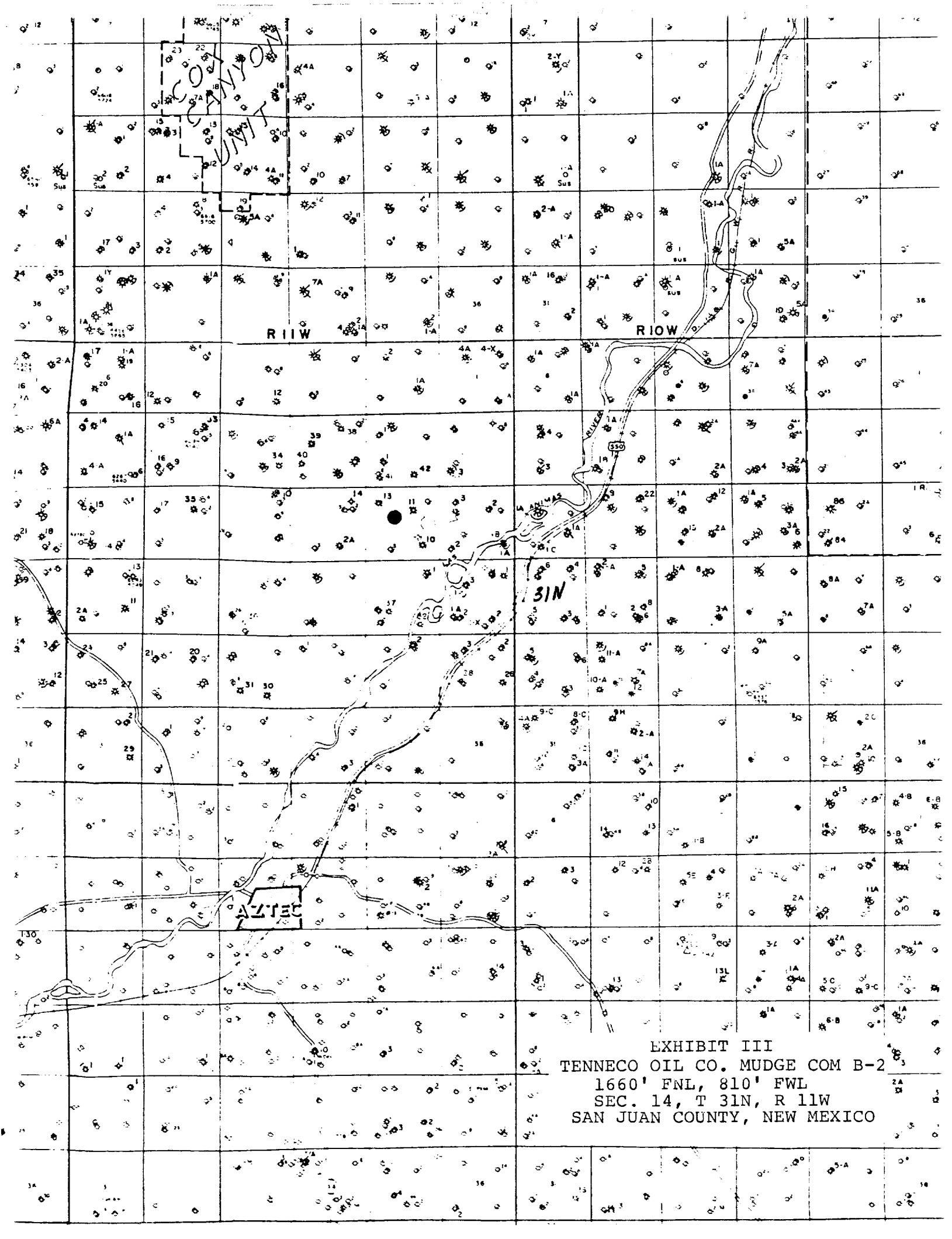



EXHIBIT III
TENNECO OIL CO. MUDGE COM B-2
1660' FNL, 810' FWL
SEC. 14, T 31N, R 11W
SAN JUAN COUNTY, NEW MEXICO