3, and 5. Cement with 650 sacks light weight + 5# gilsonite + ¼# flocele + 2% CaCl. Tail in with 200 sacks Class "C" + 2% CaCl. Cement must circulate. Pump down backside through 1" pipe with Class "C" + 2% CaCl if necessary. WOC 6-8 hours, nipple down, and set slips with full weight of 8-5/8" casing. Cut off casing and install 12" API 3000 psi x 10" API 3000 psi casing spool. Nipple up 12" API 3000 psi WP double BOP & 10" API 3000 psi WP Hydril, same as previous. Hook up 3000 psi choke manifold. Test BOP stack and choke manifold to 1500 psi, Hydril to 1000 psi. WOC time should be determined by cementing company as the time required for the bottom 320' of cement to reach a compressive strength of 500 psi. Test casing to 1000 psi for 30 minutes with a maximum of 9.0#/gal fluid in the hole. Install pit level indicator, pit volume totalizer, and flow show prior to drilling into the Wolfcamp at approximately 6000'. Also, test BOP stack and choke manifold to working pressure by an independent testing company prior to drilling into the Wolfcamp.

Production: Drill 7-7/8" hole to total depth of approximately 8800'. Run deviation surveys every 500' or on dull bit less than 500'. Limit deviation to 5°. After evaluating logs, run 4½" production casing with downjet float shoe and float collar (2 joints up) to total depth. Thread lock all connections through float collar. Run centralizer in the middle of joints 1, 3, 5, 7, and 9. Also one centralizer per joint across any prospective pay zones. Pump 20 barrels KCL water and cement with 750 sacks Class "H" + 5/10% Halad 22 + 2/10% CFR-2 + 5# KCL. Displace top plug with 3% KCL water. Top of cement calculated at 6000' based on gauge hole plus 35% excess. Actual cement volume should be based upon evaluating log as to uppermost zone to be completed and actual calipered hole size. Reciprocate casing during cement job if hole conditions and mechanical condition of drilling rig allow this to be done safely. Pick up BOP stack and set slips with full weight of 4½" casing. Nipple up 10" API 3000 psi x 6" API 3000 psi tubing spool.

Blowout Prevention:
1. Run operational opening and closing check on all BOP's each trip. On alternate trips, tighten bolts on the BOP stack. Record checks on IADC reports.
2. Use valve on casing head only for emergency. Do not use the kill line to fill up the hole.
3. Maintain inside BOP and safety valve readily available on rig floor. (Threaded for drill pipe being used)
4. BOP drills should be conducted on a regular basis and reported on the IADC (International Assoc. of Drilling Contractors) report.

5. Circulating medium.

0-350' Spud with fresh water gel mud flocculated with lime. Pretreat with 8# per bbl hulls, 3# per bbl fiber, 1# per bbl paper for possible loss zone from 100' to 200'. If necessary to blind drill to 350' TD, mix 150 bbls viscous mud with 12 to 15# per bbl LCM and spot on bottom before running casing.

350-1600' Drill out with fresh water, through controlled section of reserve pit. Add paper and fiber for seepage as needed. When hole is completed, flush hole with 150 bbls viscous fluid with 4 to 6# LCM per bbl before running casing.

1600-7000' Drill with fresh water. Use paper and gel mud as needed for seepage and hole sweep. Maintain 10+ pH. Good possibility of encountering lost returns beginning at 2700'.

7000-8400' Return to steel pits and mud up with 35 to 40 sec/1000 cc viscosity. Lower WL to 10 cc or less and add 3% KCL.

8400-TD Maintain viscosity 35 to 40 sec/1000 cc, WL 6 cc or less, 3% KCL and 10 pH with caustic.

6. Testing, coring and logging programs:

   a. One set of washed samples with logged depth will be caught each 10' from bottom of 8-5/8" casing, tied in 100' bundles and stored in a clean, dry location at the rig.

   b. Possible drill stem test - Strawn 8000'-8400'.

   c. Mud logging from 6000' to TD.

   d. Logging: (1) GR Neutron, surface to TD
   (2) Density - approximately 1500' to TD
   (3) Dual LL/MXC - approximately 1500' to TD

7. Maximum anticipated bottom hole pressure is 3300 psi at approximately 8500' based on offset well data. Mud weight required to offset this pressure is 7.5 ppg. Bottom hole temperature approximately 130° F. No sour gas expected.

8. Anticipated starting date: As soon as possible after approval, with completion of drilling operations approximately 30 days thereafter. Completion operations (perforating and stimulating) will immediately follow the drilling operations.

MULTI-POINT SURFACE USE AND OPERATIONS PLAN

Mesa Petroleum Co.
Wells Federal Well No. 1
660' FNL and 1980' FWL, Section 11-T16S-R27E
Eddy County, New Mexico
(Development Well)

This plan is submitted with Form 9-331C, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of necessary surface disturbance involved, and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effects associated with the operations.

1. EXISTING ROADS.

   A. Existing roads in the vicinity of the proposed location are shown in green on Exhibit I, attached. As indicated, the drillsite is located at a driving distance of approximately 11¼ miles east and south of Lake Arthur, New Mexico, including 10.7 miles of existing roads to Bogle State Com. Well No. 2 and approximately 0.55 miles of proposed new road to the location.

   B. Travel east from Lake Arthur on highway 507, located at the northern edge of Lake Arthur. This road originates from alternate route 285 at a point recognizable by a former gasoline station, now a residence, painted white with green trim, on the west side of alternate route 285. The black top surface of the road changes to gravel after about 1.7 miles and, approximately 0.55 miles beyond this point, passes over a bridge across the Pecos River. Turn left after crossing the bridge and continue in a generally eastbound direction for about 2.05 miles. Take a right (southeast) turn at this point and continue for approximately 3.2 miles. Turn right (south) on a road adjacent to a double-wire high line and continue for approximately 2.9 miles, then turn right (west) for about 0.3 miles to the drilling pad of Bogle State Com. Well No. 2, located at 1980' FSL and 1980' FEL, Section 2-T16S-R27E. The proposed new access road to the location of Wells Federal Well No. 1 will originate from the southwestern edge of this pad.

2. PLANNED ACCESS ROAD.

   A. The new access road is indicated in red on Exhibits I and II. This road will originate from the well pad at Bogle State Com. Well No. 2, as indicated above, and the route of the new road is clearly marked with surveyor ribbons. The total length of the new road will be about 0.55 miles, including approximately 0.4 miles on State-owned surface in Section 2 and approximately 0.15 miles on federally owned surface in Section 11. An application has been submitted to the New Mexico State Land Office in Santa Fe, New Mexico, for a right-of-way easement across the State-owned surface in Section 2.

   B. The route of the new road will be in a generally northeast-to-southwest direction, and will meet the drillsite pad at the southeast corner of

the pad. The road will be constructed by grading and topping with compacted caliche. The driving surface of the road will be 12 feet in width (20' right-of-way width, as shown in Exhibit IV), with drainage on both sides of the road. One turnout will be constructed at the midpoint in the length of the road. No fences are involved, and no cattleguards or culverts will be necessary.

C. The center line of the proposed new road has been staked and flagged, and is clearly visible. A portion of the route, about 400 feet in length, was moved slightly to the west of the originally planned route, in order to avoid an area which would have involved archeological disturbance, and is indicated by yellow ribbons instead of the red ribbons used for the rest of the route. This change was made prior to inspection of the site by the BLM and USGS.

3. LOCATION OF EXISTING WELLS.

A. All wells within a one-mile radius of the proposed well are indicated in Exhibit III.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES.

A. The nearest drilling activity on this lease is Williamson Federal Com. Well No. 1, located at 660' FNL and 1980' FWL of Section 12-T16S-R27E. Application for Permit to Drill (Form 9-331C) this well was approved by the USGS, Artesia, New Mexico on June 29, 1978, and the well is currently classified as being in a "drilling" status.

B. No other drilling activities have taken place on this lease. If the proposed well proves to be commercial, the necessary production facilities and battery will be installed on the drilling pad. Gas sales, if the well is productive, are dedicated to Northern Natural Gas Company, which would construct the necessary pipelines leading from the location.

C. Concurrently with this Application for Permit to Drill Wells Federal Well No. 1, a similar Application is being submitted for Wells Federal Well No. 2, to be located at 1980' FSL and 1980' FWL within the same section as Well No. 1 (Section 11-T16S-R27E).

5. LOCATION AND TYPE OF WATER SUPPLY.

A. It is planned to drill the proposed well with a fresh water syatem. The water will be obtained from privately owned or commercial sources and will be hauled to the location by truck over the existing and proposed new access roads shown in Exhibits I and II.

6. SOURCE OF CONSTRUCTION MATERIALS.

A. Top soil from the location will be stockpiled near the location for future rehabilitation use. No surface materials will be disturbed except for those necessary for the actual grading and leveling of the drillsite and access road. With the exception of the 6" compacted caliche top coat, all construction materials will be of local

origin. Caliche required for construction will be obtained from an existing pit located on federally owned surface at Diamond Mound in Section 12-T16S-R27E.

7. METHODS OF HANDLING WASTE DISPOSAL.

A. Drill cuttings will be disposed of in the reserve pits, which will be plastic-lined.

B. Drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry.

C. All pits will be fenced with normal fencing material to prevent livestock from entering the area.

D. Water produced during operations will be collected in tanks until hauled to an approved disposal system, or separate disposal application will be submitted to the USGS for approval.

E. Oil produced during operations will be stored in tanks until sold.

F. Current laws and regulations pertaining to the disposal of human waste will be complied with.

G. Trash, waste paper, garbage and junk will be buried in a separate trash pit and covered with a minimum of 24 inches of dirt. All waste material will be contained to prevent scattering by the wind.

H. All trash and debris will be buried or removed from the wellsite within 30 days after drilling and/or completion operations have been finished.

8. ANCILLARY FACILITIES.

A. None required.

9. WELLSITE LAYOUT.

A. Exhibit V shows the relative location and dimensions of the well pad, reserve pits, and major rig components.

B. Only minor leveling will be required to construct the location. The ground surface at the wellsite is relatively level, with only minor undulations and a gradual downward slope from south to north. It is estimated that a cut of approximately 2' will be necessary in the south portion of the drilling pad area. The access road route is also comparatively level, with only minor undulations in the surface. The road and pad surface will be covered with 6 inches of compacted caliche.

C. The reserve pits will be plastic-lined.

D. The pad and pit area has been staked and flagged.

10. PLANS FOR RESTORATION OF THE SURFACE.

A. After drilling and/or completion operations have been finished, all equipment and other materials not needed for further operations will be removed. Pits will be filled and the location cleared of all trash and junk, so as to leave the wellsite in as aesthetically pleasing a condition as possible.

B. Any unguarded pits containing fluids will be fenced until they have been filled.

C. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the BLM and the USGS will be complied with and will be accomplished as expeditiously as possible. All pits will be filled and leveled within 90 days after abandonment.

11. OTHER INFORMATION.

A. Topography: The proposed wellsite is located in a relatively level area, with only minor surface undulations.

B. The topsoil at the wellsite is moderately soft sandy loam.

C. Flora and fauna: The vegetation cover at the wellsite is moderately heavy for semi-arid desert land, and consists of mesquite, broomweed, and miscellaneous prairie flowers and weeds. No wildlife was observed, but the area is inhabited by antelope, deer, rabbits, badgers, lizards, and other wildlife typical of semi-arid desert areas. The area is used for cattle grazing.

D. There are no ponds, lakes, or flowing streams or rivers in the immediate vicinity of the wellsite.

E. The nearest dwelling and windmill are located approximately two miles north of the proposed wellsite.

F. The wellsite is located on federally owned surface with federally owned minerals. A portion of the proposed new access road will cross State owned surface in Section 2 and, as indicated above in paragraph 2A, an application has been submitted to the New Mexico State Land Office for a right-of-way easement across the State owned surface.

G. The only evidence of any archeological, historical or cultural sites in the area was the archeological site mentioned in paragraph 2C, above, which resulted in a minor change in the anticipated route of the new access road, on a portion of the State owned surface. An archeological survey has been conducted by New Mexico Archaeological Services, Inc., P. O. Box 1341, Carlsbad, New Mexico, and their Archaeological Clearance Report dated September 22, 1978 has been submitted to all interested government agencies.

12. OPERATOR'S REPRESENTATIVES.

A. The Mesa Petroleum Co. representatives responsible for assuring compliance with the approved surface use and operations plan are:

J. W. Hart
P. O. Box 1756
Hobbs, New Mexico 88240
(505) 393-4425 (office)
(505) 393-4317 (residence)

M. P. Houston or
Steve Douglas
1000 Vaughn Building
Midland, Texas 79701
(915) 683-5391 (office)

13. CERTIFICATION.

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Mesa Petroleum Co. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

10/9/78

Edward N. Lucking
Agent for Mesa Petroleum Co.

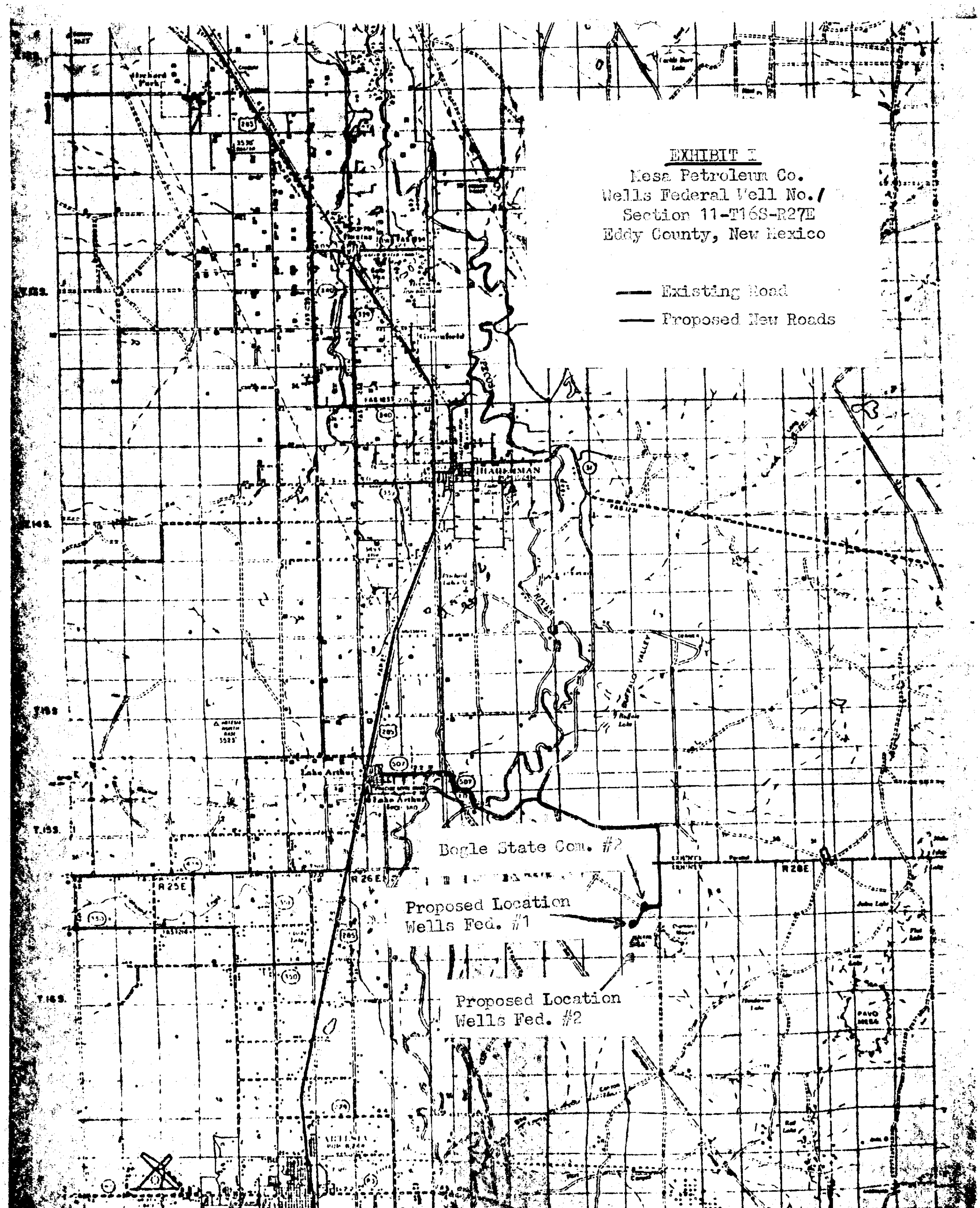


EXHIBIT I
Mesa Petroleum Co.
Wells Federal Well No. 1
Section 11-T16S-R27E
Eddy County, New Mexico
Existing Road
Proposed New Roads
HAGERMAN
Lake Arthur
R 25 E
R 26 E
R 28 E
Bogle State Com. #2
Proposed Location
Wells Fed. #1
Proposed Location
Wells Fed. #2

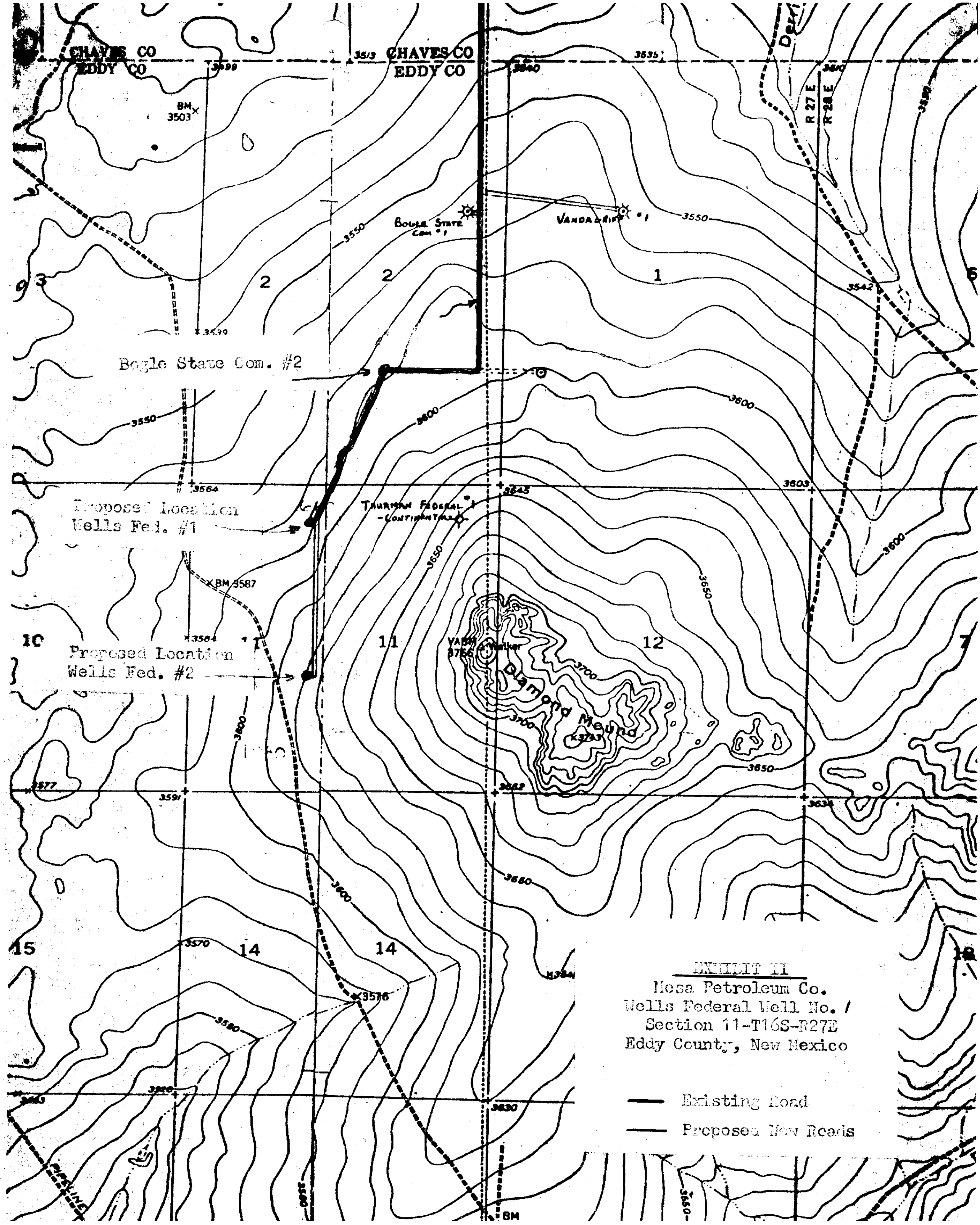


EXHIBIT II
Mesa Petroleum Co.
Wells Federal Well No. 1
Section 11-T16S-R27E
Eddy County, New Mexico

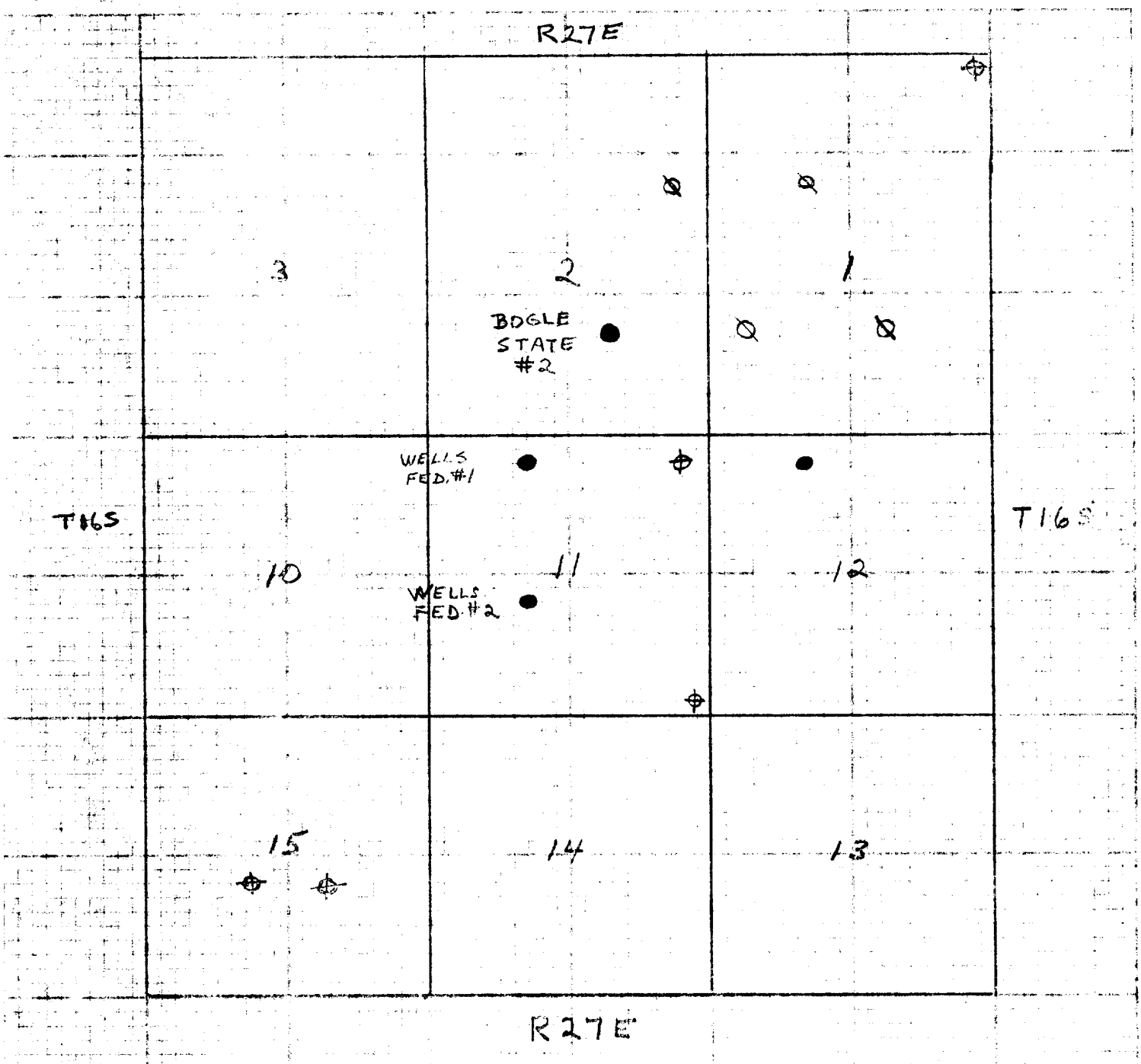
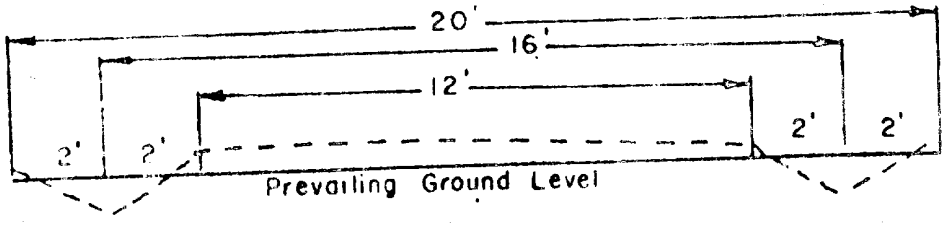


EXHIBIT III
Mesa Petroleum Co.
Wells Federal Well No. 1
Section 11-T16S-R27E
Eddy County, New Mexico

- Proposed locations
- Drilling status
- Gas Shut-In
- Plugged and abandoned

R - O - W 20'

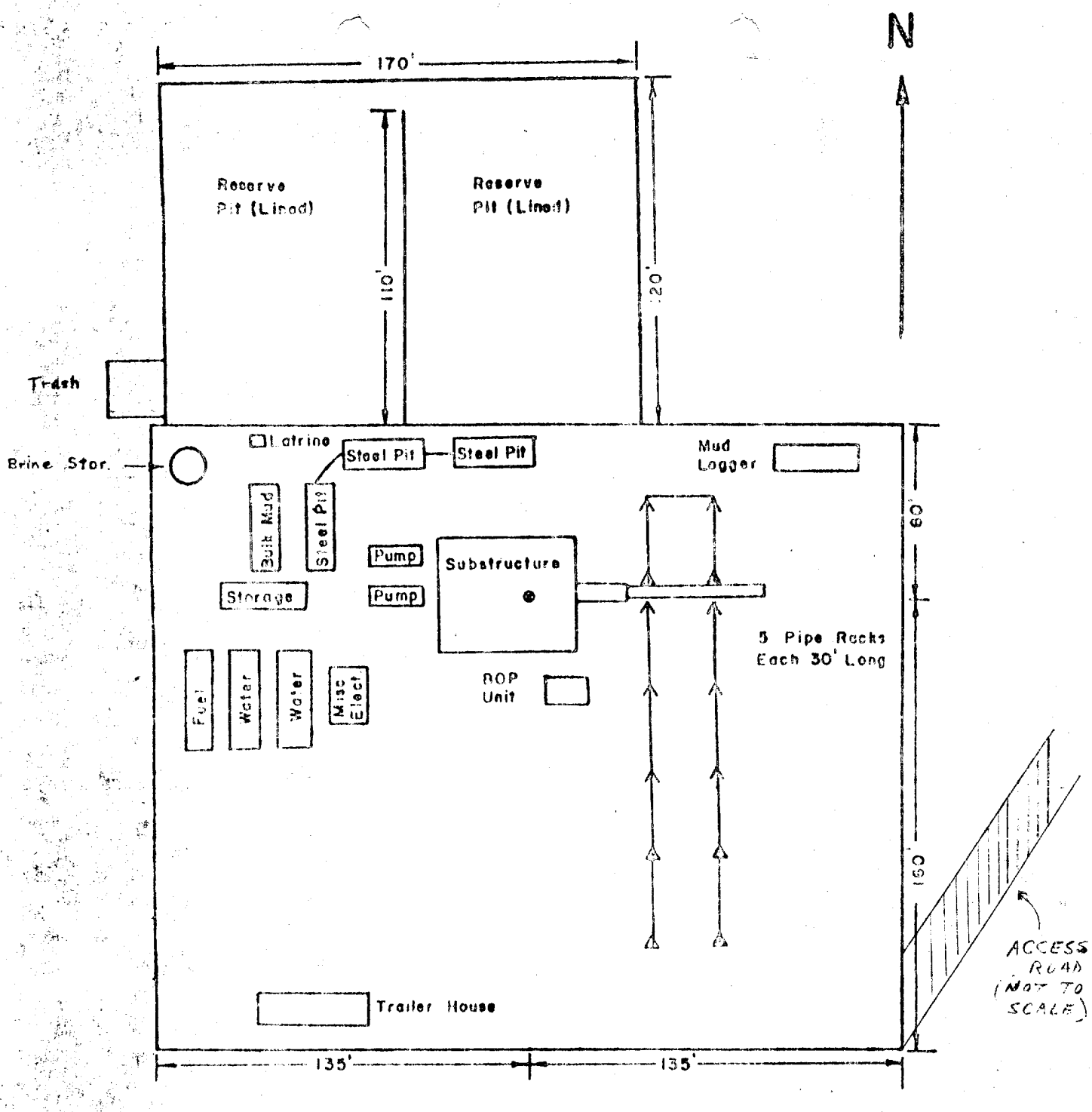


ROADWAY CROSS SECTION

Horizontal Scale 1" = 4'

MESA
PETROLEUM CO.
PERMIAN BASIN DIVISION

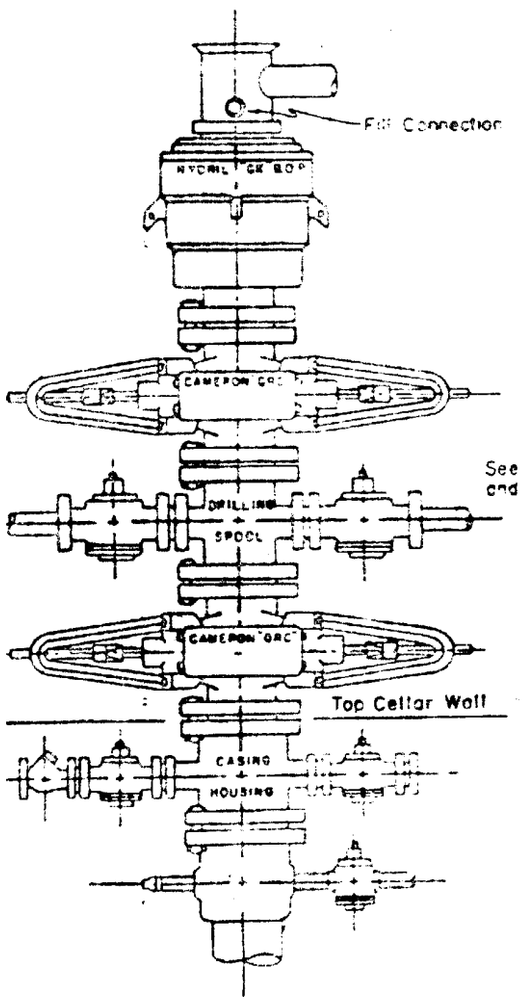
EXHIBIT IV
Mesa Petroleum Co.
Wells Federal Well No. 1
Section 11-T16S-R27E
Eddy County, New Mexico



MESA
PETROLEUM CO.
PERMIAN BASIN DIVISION

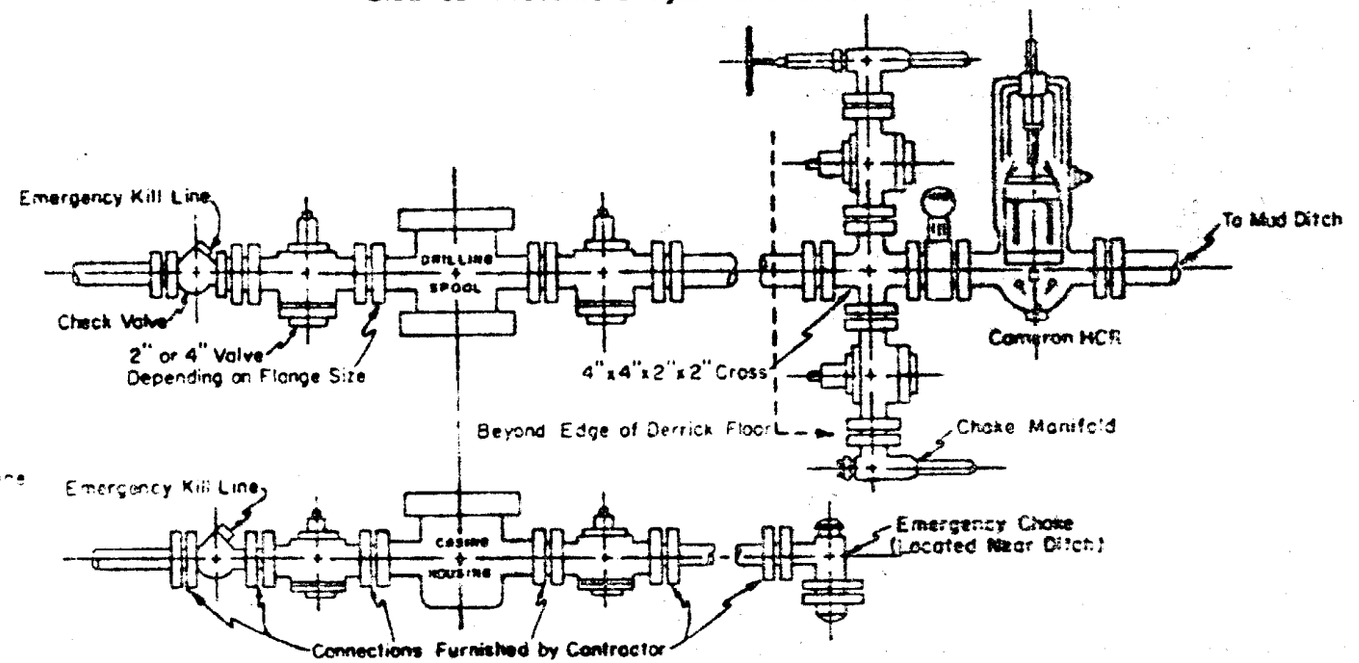
EXHIBIT V
Mesa Petroleum Co.
Wells Federal Well No. 1
Section 11-T16S-R27E
Eddy County, New Mexico

Blow-out Preventers hydril and choke manifold are all 900 Series



See Detail of 4" Flow Line and Choke Assembly

3000 PSI WORKING PRESSURE
BLOW-OUT PREVENTER HOOK-UP



3000 PSI WORKING PRESSURE
KILL, CHOKE, AND FILL CONNECTIONS

DETAIL OF 4" FLOW LINE CHOKE ASSEMBLY

Minimum assembly for 3000 PSI working pressure will consist of three preventers.

MESA PETROLEUM CO.
PERMIAN BASIN DIVISION

EXHIBIT VI
Mesa Petroleum Co.
Wells Federal Well No. /
Section 11-T16S-R27E
Eddy County, New Mexico