

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK

DRILL ☒DEEPEN ☐PLUG BACK ☐

b. TYPE OF WELL

OIL
WELL ☐GAS
WELL ☒OTHER ☐SINGLE
ZONE ☒MULTIPLE
ZONE ☐

2. NAME OF OPERATOR

Mesa Petroleum Co.

3. ADDRESS OF OPERATOR

1000 Vaughn Building/Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*

At surface

2080' FNL and 1650' FEL

At proposed prod. zone

Same

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

Approx 11-1/4 miles east and south of Lake Arthur, New Mexico

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST
PROPERTY OR LEASE LINE, FT.

(Also to nearest drlg. unit line, if any)

1650'

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT.

1650'

16. NO. OF ACRES IN LEASE

920

19. PROPOSED DEPTH

8800'

17. NO. OF ACRES ASSIGNED
TO THIS WELL

E/2 320

20. ROTARY OR CABLE TOOLS

Rotary

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

3642 GR

22. APPROX. DATE WORK WILL START*

October 1, 1979

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2"	13-3/8"	48# H-40 STC	350'	400 sx Class C/circ to surface
11 "	8-5/8"	24# K-55 STC	1600'	650 sx LW-tail in w/200 sx Class C/ circulate
7-7/8"	4-1/2"	11.6 - 10.5# K-55, LTC/STC	8800'	750 sx Class H or sufficient to cover pay

Mud program: See attached "Application for Drilling".

BOP program: See attached "Application for Drilling and Exhibit V".

Gas sales are dedicated to Northern Natural Gas Company.

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 R. E. Tarkenton TITLE Regulatory Coordinator DATE September 18, 1979

(This space for Federal or State office use)

PERMIT NO. _____

APPROVAL DATE 10-1-79

APPROVED BY _____

TITLE _____

DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

XC: TLS, MEC, JWH, JWJ, JBH, FILE, USGS

NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

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

Operator MESA PETROLEUM CO.		Lease Wells Fed		Well No. 2
Section G	Section 11	Township 16 South	Range 27 East	County EDDY
Actual Portage Location of Well:				
2080 feet from the NORTH line and		1650 feet from the EAST line		
Ground Level Elev. 3642.1	Producing Formation Atoka-Morrow	Pool Diamond Mound - Atoka Undesignated		Dedicated Acreage E 1/2 320

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure 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?

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OCT 2 1979

O. C. C.
ARTESIA, OFFICE

☐ Yes ☐ No If answer is "yes" type of consolidation _____

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

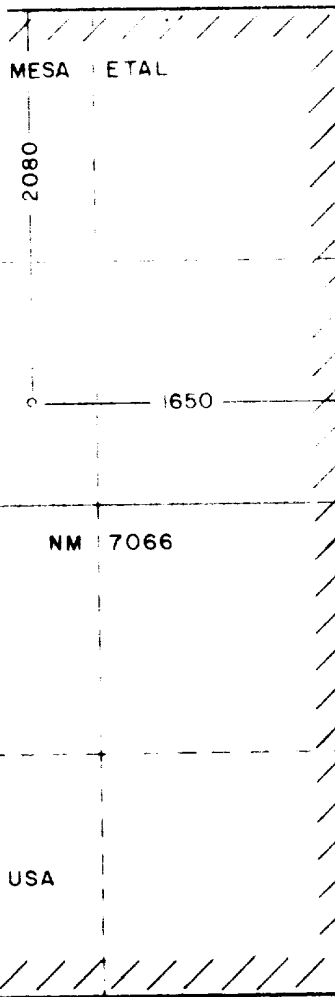
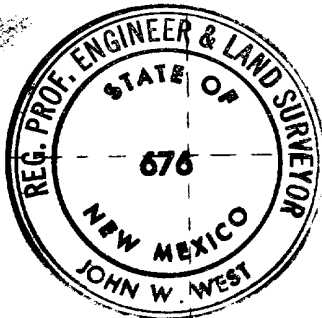
No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

ILLEGIBLE

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SEP 20 1979

U.S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO



CERTIFICATION

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

R. E. Mathis

R. E. MATHIS

Regulatory Coordinator

Mesa Petroleum Co.

September 20, 1979

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

September 17, 1979

Registered Professional Engineer
and Land Surveyor

John W. West

Certificate No. **John W. West 676**
Ronald J. Eidson 3239

0 330 660 990 1320 1650 1980 2310 2640 2970 3300 3630 3960 4290 4620 4950 5280 5610 5940 6270 6600



United States Department of the Interior

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GEOLOGICAL SURVEY

P. O. Drawer U
Artesia, New Mexico 88210

OCT 2 1979

O. C. C.
ARTESIA, OFFICE

October 1, 1979

Mesa Petroleum Company
1000 Vaughn Building
Midland, Texas 79701

MESA PETROLEUM COMPANY
Wells Federal Well No. 2
2080 FNL 1650 FEL Sec.11 T.16S R.27E
Eddy County Lease No. NM 7066

Gentlemen:

Above Data Required on Well Sign

Your APPLICATION FOR PERMIT TO DRILL the above-described well to a depth of 8,800 feet to test the Morrow is hereby approved subject to compliance with the OIL AND GAS OPERATING REGULATIONS (30 CFR 221) and the following conditions:

1. Drilling operations authorized are subject to compliance with the attached General Requirements for Oil and Gas Operations on Federal Leases, dated July 1, 1978.
2. Prior to commencing construction of road, pad, or other associated developments, operator will provide the dirt contractor with a copy of the Surface Use Plan and these Conditions of Approval including the attached General Requirements.
3. Submit a Daily Report of Operations from spud date until the well is completed and the Well Completion Report (form 9-330) is filed. The report should not be less than 8" x 5" in size and each page should identify the well.
4. All permanent above-ground structures and equipment shall be painted in accordance with the attached Painting Guidelines. The color used should simulate Sandstone Brown (Federal Standard No. 595A, color 20318 or 30318).
5. Before drilling below the 8-5/8" casing, the blowout preventer assembly will consist of a minimum of one annular type and two ram type preventers.
6. A kelly cock will be installed and maintained in operable condition.



7. After setting the 8-5/8" casing string and before drilling into the Wolfcamp formation, the blowout preventers and related control equipment shall be pressure tested to rated working pressures by an independent service company. Any equipment failing to test satisfactorily shall be repaired or replaced. This office should be notified in sufficient time for a representative to witness the tests and shall be furnished a copy of the pressure test report.
8. Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be installed and operating before drilling into the Wolfcamp formation and used until production casing is run and cemented. Monitoring equipment shall consist of the following:
 - (1) A recording pit level indicator to determine pit volume gains and losses.
 - (2) A mud volume measuring device for accurately determining mud volume necessary to fill the hole on trips.
 - (3) A flow sensor on the flow-line to warn of any abnormal mud returns from the well.
9. Cement behind the 8-5/8" casing must be circulated.
10. Please have anyone contacting the Survey in regard to this well to identify the well with all of the information required above for the well sign.

Sincerely yours,

George H. Stewart

George H. Stewart
Acting District Engineer

APPLICATION FOR DRILLING

MESA PETROLEUM CO
WELLS FEDERAL WELL NO. 2
2080' FNL & 1650' FEL
Section 11, T16S, R27E
EDDY COUNTY, NEW MEXICO
SEPTEMBER 18, 1979

In conjunction with Form 9-331C, Application for Permit to Drill subject well, Mesa Petroleum Co submits the following items of pertinent information in accordance with USGS requirements:

1. The geologic surface formation is Permian-Guadalupean Artesia Group.
2. The estimated tops of geologic markers are as follows:

FORMATION	DEPTH	SUB-SEA
Queen	886'	+ 2769'
San Andres	1586'	+ 2069'
Glorieta	2986'	+ 669'
Tubb	4346'	- 690'
Abo	5086'	- 1430'
Wolfcamp	6296'	- 2640'
Bursum	7076'	- 3420'
Strawn	8096'	- 4440'
Atoka	8496'	- 4840'
Morrow	8616'	- 4960'
Miss. Chester Sh.	8696'	- 5040'
Miss. Chester Ls.	8835'	- 5180'
TD	8866'	- 5210'

3. The estimated depths at which anticipated water, oil or gas formations are expected to be encountered:

Water: at approx 2835', 3335', and 4345'
Gas and water: at approximately 7290' to 8030'
Gas: at approximately 8310' to 8410' and approximately 8500'

4. Casing and Blowout Preventer Program:

Surface: Drill a 17-1/2" hole to approximately 350'. Run deviation survey at 100', 200', and 350'. Limit deviation to 1°. Run 13-3/8" casing with guide shoe and insert float (one joint up) to total depth. Thread lock and tack weld bottom two joints. Run centralizer in the middle of joints 1, 3, and 5. Cement with 400 sacks Class "C" plus 2% CaCl with pipe on bottom. Cement must circulate. Pump down backside through 1" pipe if necessary. WOC 4 hours and commence cut off and nipple up. Install 13-3/8" slip-on x 12" API 3000 psi bradenhead. Nipple up 12" API 3000 psi WP double BOP with pipe rams (bottom) and blind rams. Install diverter line off of double BOP. WOC 18 hours. Test casing to 600 psi for 30 minutes.

Intermediate: Drill an 11" hole to approximately 1600' (into top of San Andres). Run deviation surveys every 300'. Limit deviation to 1°. Run 8-5/8" casing with guide shoe and insert float (2 joints up) to total depth. Thread lock and tack weld all connections through the top of insert float. Run centralizer in the middle of joints 1, 3 and 5. Cement with 650 sacks light weight + 5# gilsonite + 1/4# 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 18 hrs. Test casing to 1000 psi for 30 minutes with a maximum of 9.0#/gal fluid in the hole.

Production: 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. 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 4-1/2" 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 will be based upon evaluating log as to uppermost zone to be completed and actual calipered hole size. Pick up BOP stack and set slips with full weight of 4-1/2" casing. Nipple up 10" API 3000 psi x 6" API 3000 psi tubing spool and tree.

Blowout
Prevention:

1. Operational opening and closing checks will be run on all BOPs each trip. Checks will be reported on IADC reports.
2. Valve on casing head will be utilized only for emergency. Kill line will not be used to fill up the hole. Inside BOP and safety valve will be readily available on rig floor. BOP drills will be conducted on a regular basis and reported on the IADC report.

5. Circulating Medium

- 0-350' Spud with fresh water gal 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 sea 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. Hydrocarbon mud logging from 6000' to TD.
 - d. Electric logging: (1) GR Neutron, surface to TD
(2) Density - approximately 1600' to TD
(3) Dual LL/RXO - approximately 1600' 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 is 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. 2
2080' FNL and 1650' FEL, Section 11, T16S, R27E
EDDY COUNTY, NEW MEXICO
(DEVELOPMENT WELL)
SEPTEMBER 18, 1979

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U.S. GEOLOGICAL SURVEY
ALBUQUERQUE, NEW MEXICO

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 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 yellow on Exhibit I, attached. As indicated, the drillsite is located at a driving distance of approximately 11-1/4 miles east and south of Lake Arthur, New Mexico, including 11.4 miles of existing roads to Wells Federal #1.
- 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 3.6 miles, then turn right (west) for about 0.3 miles to the proposed drillsite and hence due south on new caliche road towards the Wells Federal #1. Proposed location is adjacent to this road.

2. PLANNED ACCESS ROAD

There will be no new access road necessary for this proposed location.

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 activity of this lease is Wells Federal Well #1, located at

1980' FNL and 1980' FWL of Section 11, T16S, R27E. This well has been completed and is presently awaiting pipeline connection.

- B. This is the second well on this lease. If the proposed well proves to be a 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.

5. LOCATION AND TYPE OF WATER SUPPLY

- A. It is planned to drill the proposed well with a fresh water system. 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 and has been cleared for archaeological purposes.

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 application will be submitted to the U.S.G.S. 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/ None required

9. WELLSITE LAYOUT

A. Exhibit IV 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 southeast to northwest. It is estimated that a cut off 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 cleaned 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 U.S.G.S. 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 gentle east to west sloping 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.
- G. An archaeological survey has been conducted by New Mexico Archaeological Services, Inc., P. O. Box 1341, Carlsbad, New Mexico, and their Archaeological Clearance Report will be submitted to all interested government agencies.

12. OPERATOR's REPRESENTATIVES

- A. The Mesa Petroleum Co representative 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

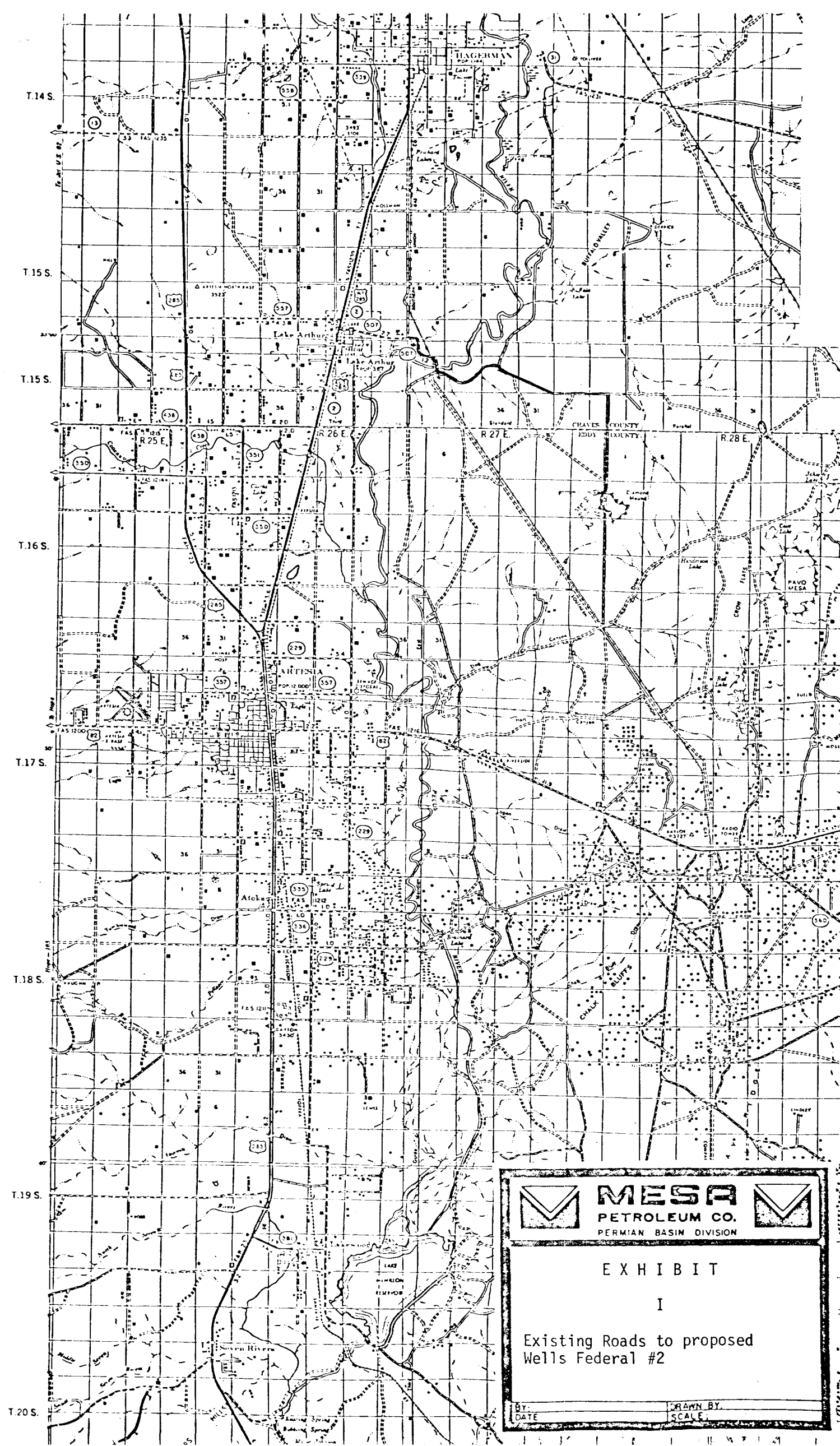
M. P. Houston (915) 694-3442 / Res.
or Steve Douglas " 682-5540 / Res.
1000 Vaughn Bldg.
Midland, Texas 79701
(915) 683-5391 / office

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.

DATE September 20, 1979


R. E. Mathis - Regulatory Coordinator





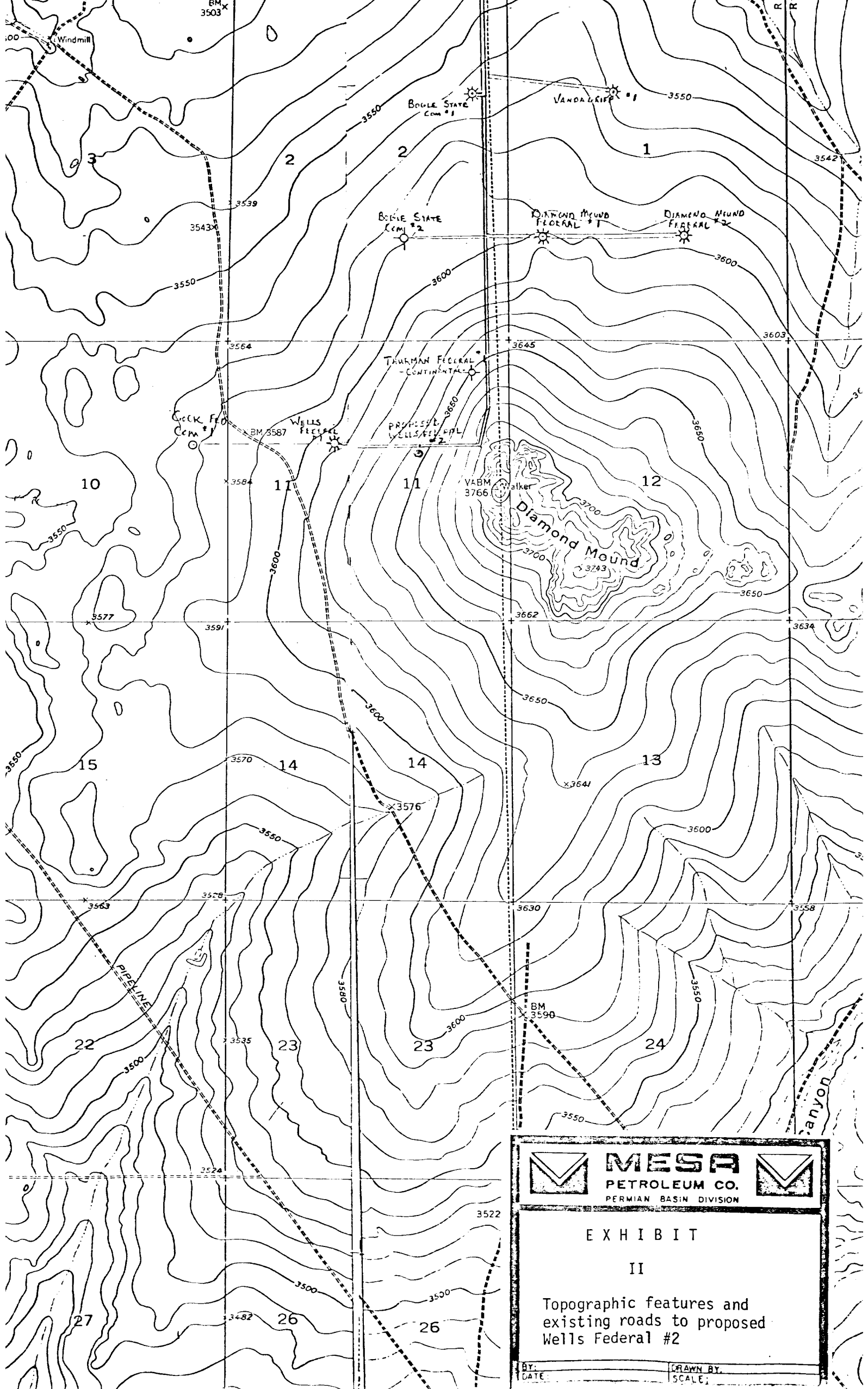
**MESA**
PETROLEUM CO.
PERMIAN BASIN DIVISION

EXHIBIT
I

Existing Roads to proposed
Wells Federal #2

BY: _____ DATE: _____

DRAWN BY: _____ SCALE: _____





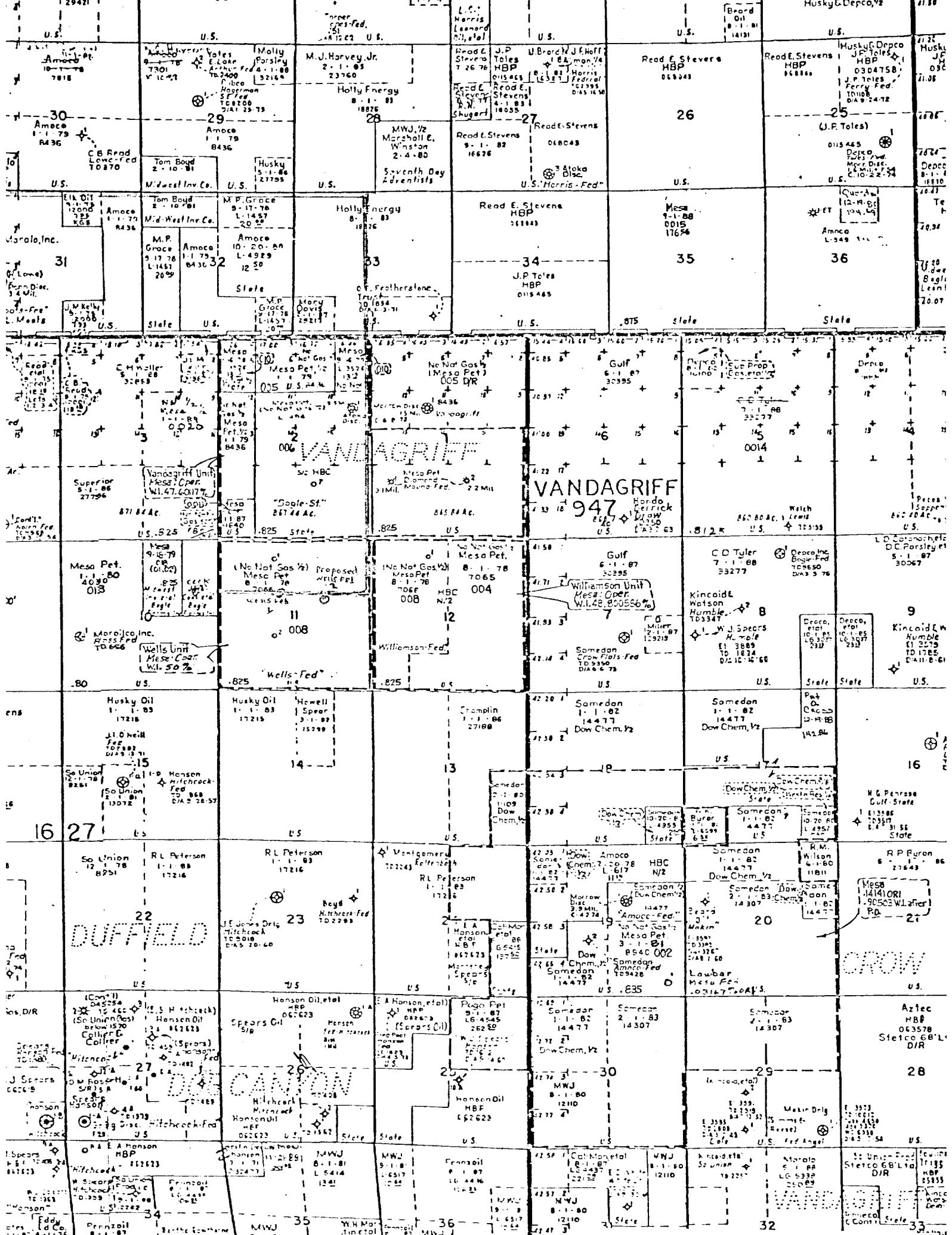

**MESA**
PETROLEUM CO.
PERMIAN BASIN DIVISION

EXHIBIT
II
Topographic features and
existing roads to proposed
Wells Federal #2

BY: _____
DATE: _____

DRAWN BY: _____
SCALE: _____





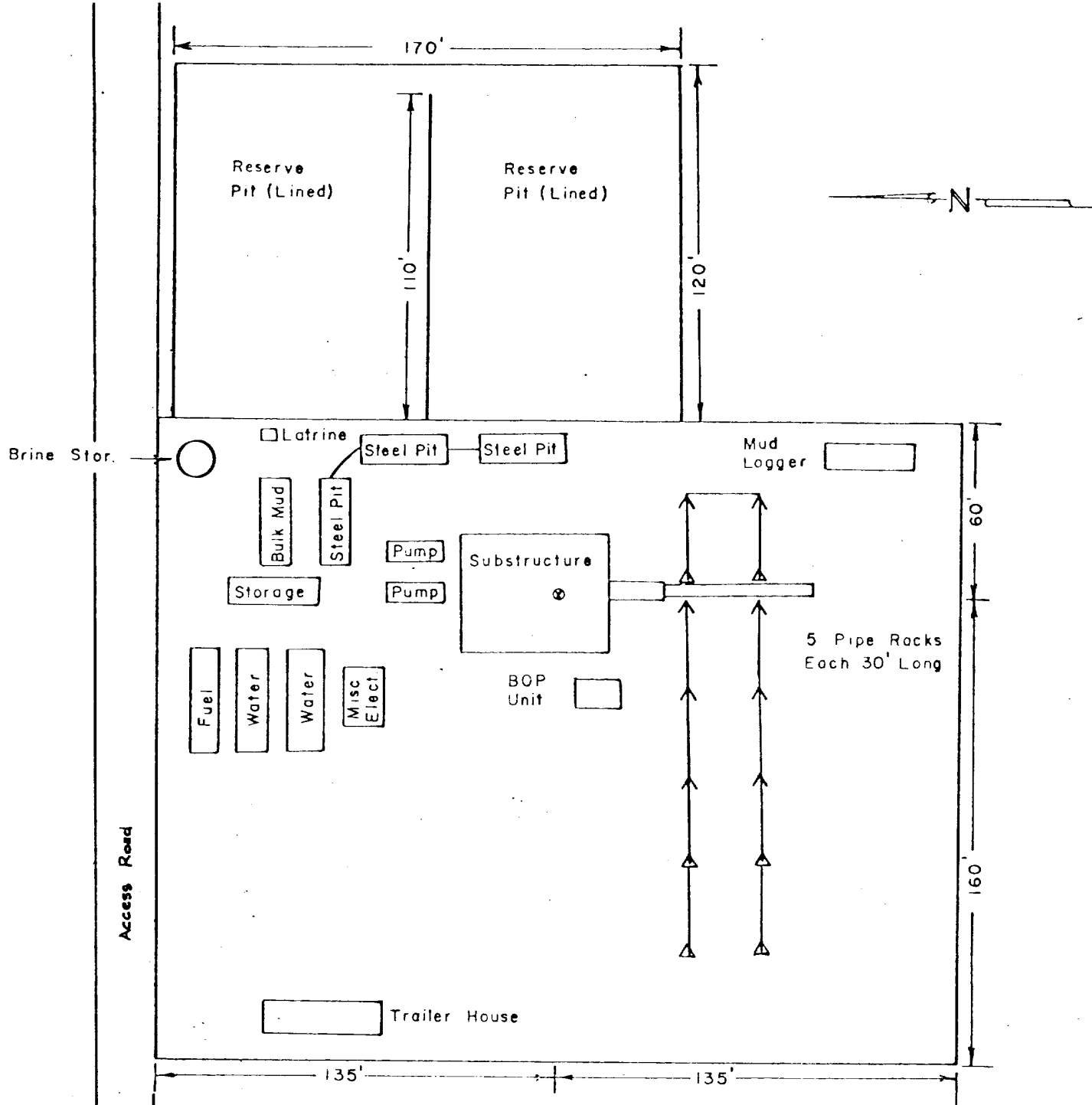
MESA
PETROLEUM CO.
PERMIAN BASIN DIVISION


EXHIBIT
III

Existing Roads within 1 mile of
proposed Wells Federal #2

1" = 4000'

DATE: _____
DRAWN BY: _____





MESA
 PETROLEUM CO.
 PERMIAN BASIN DIVISION


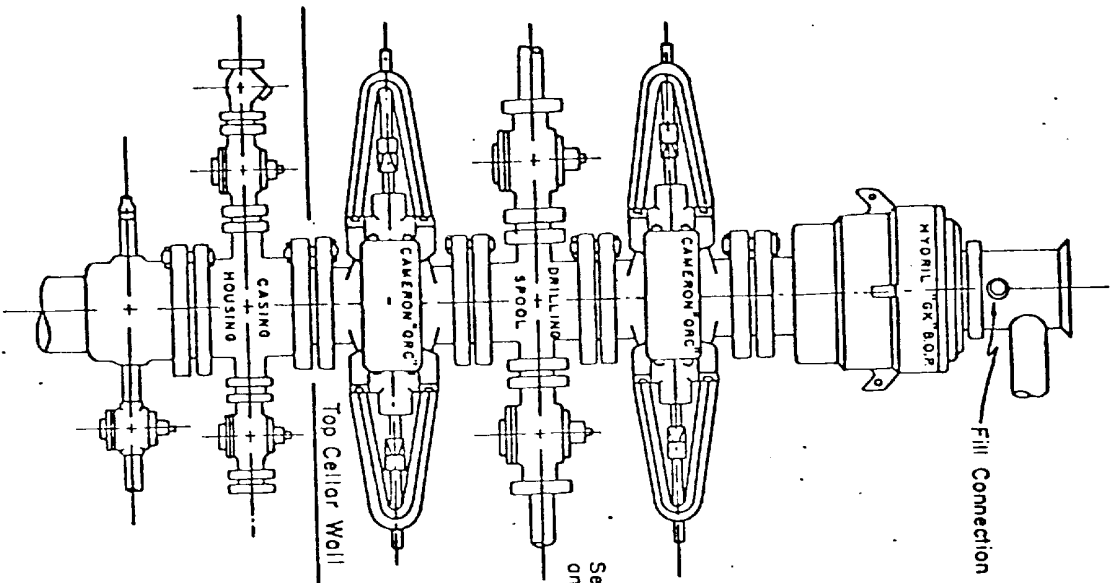


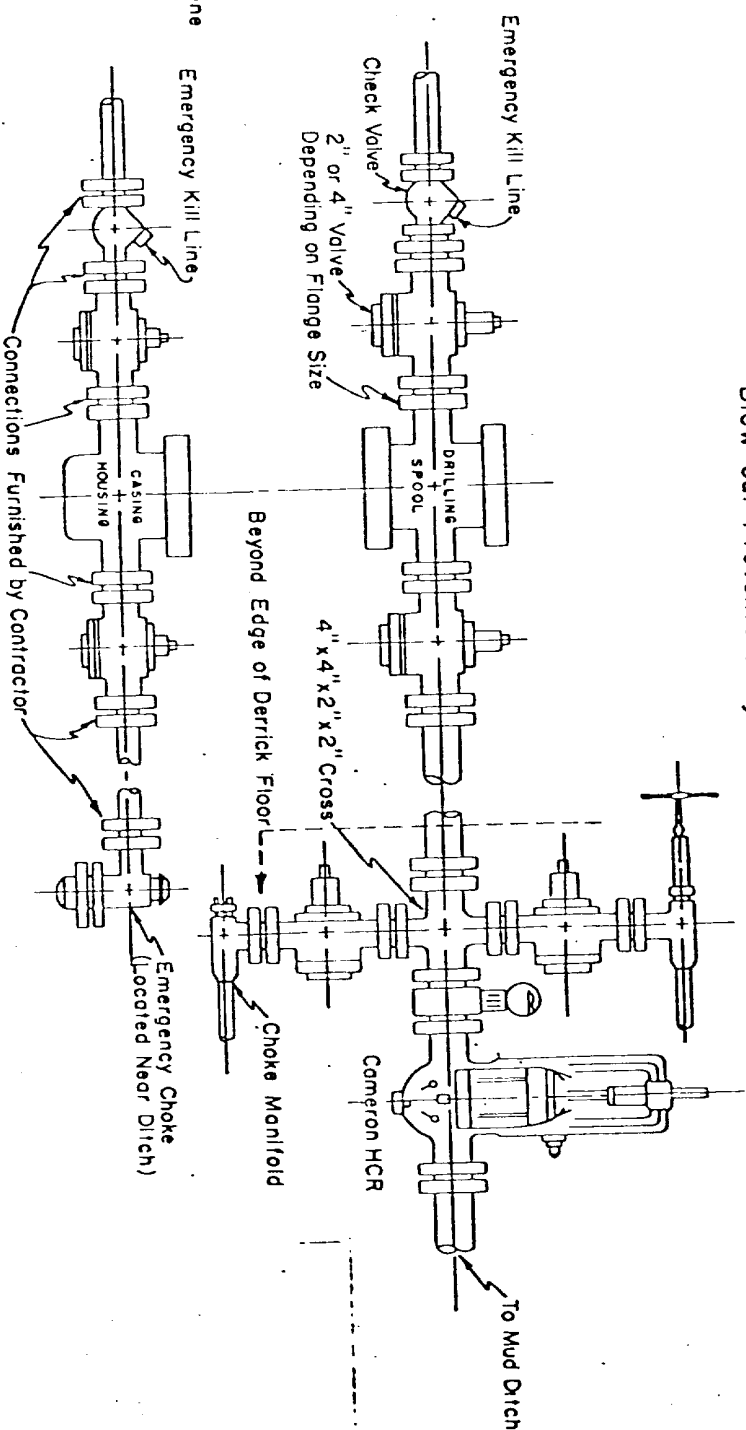
EXHIBIT IV

BY: _____
DRAWN BY: CCK

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



See Detail of 4" Flow Line and Choke Assembly




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.

3000 PSI WORKING PRESSURE
BLOW-OUT PREVENTER HOOK-UP



MESA
PETROLEUM CO.
PERMIAN BASIN DIVISION

EXHIBIT V

BY: _____

DATE: _____

SCALE: _____

BY: _____