Form 9-331 C
(May 1963)

N.M.O.C.D. COPY

SUBMIT IN PLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

30-005-60756

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: NM-14993

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

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

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

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: SAVAGE FEDERAL

2. NAME OF OPERATOR: MESA PETROLEUM CO

9. WELL NO.: 2

3. ADDRESS OF OPERATOR: 1000 VAUGHN BUILDING/MIDLAND, TEXAS 79701

RECEIVED
JUL 29 1980
O. C. D.
ARTESIA, OFFICE

10. FIELD AND POOL, OR WILDCAT: ~~UNDESIGNATED~~ ABO

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1980' FNL & 1980' FWL
At proposed prod. zone: Same

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 4, T7S, R25E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 21 miles N/NE of Roswell

12. COUNTY OR PARISH: Chaves

13. STATE: N. Mexico

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	1980'/660'	16. NO. OF ACRES IN LEASE: 639.96	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.	2640'	19. PROPOSED DEPTH: 4400'	20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3823.9' GR

22. APPROX. DATE WORK WILL START*: August 4, 1980

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#	300'	320 "C"
12-1/4"	8-5/8"	24#	1600'	300 HLW/200 "C"
7-7/8"	4-1/2"	10.5#	4400'	460 HLW/300 POZ "C"

Propose to drill 17-1/2" hole to 300', cement 13-3/8" casing, reduce hole to 12-1/4" drill to 1600' without BOPs or wellhead. After cementing 8-5/8" casing at 1600' (circulated to surface) and installing bradenhead, will nipple up 10" API 3000 psi BOPs and drill 7-7/8" hole to total depth of 4400'. Drilling fluid will consist of fresh water gel and soda ash from surface to 1600' and fresh water with caustic soda (Ph 9.0-9.5) and chemicals for corrosion control to 3500' then mud up with starch and soda ash to total depth. After log evaluation, 4-1/2" casing may be run to total depth and cemented to surface.

Gas sales are not 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 R. E. Martin TITLE Regulatory Coordinator DATE 7/15/80

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

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	Lease	Well No.
Mesa Petroleum Co.	Savage Federal	2

Unit Letter	Section	Township	Range	County
F	4	7 South	25 East	Chaves

Actual Footage Location of Well: 1980 feet from the North line and 1980 feet from the West line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3823.9	Abo	~~Undesignated~~ wildcat	NW/4 160 Acres

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

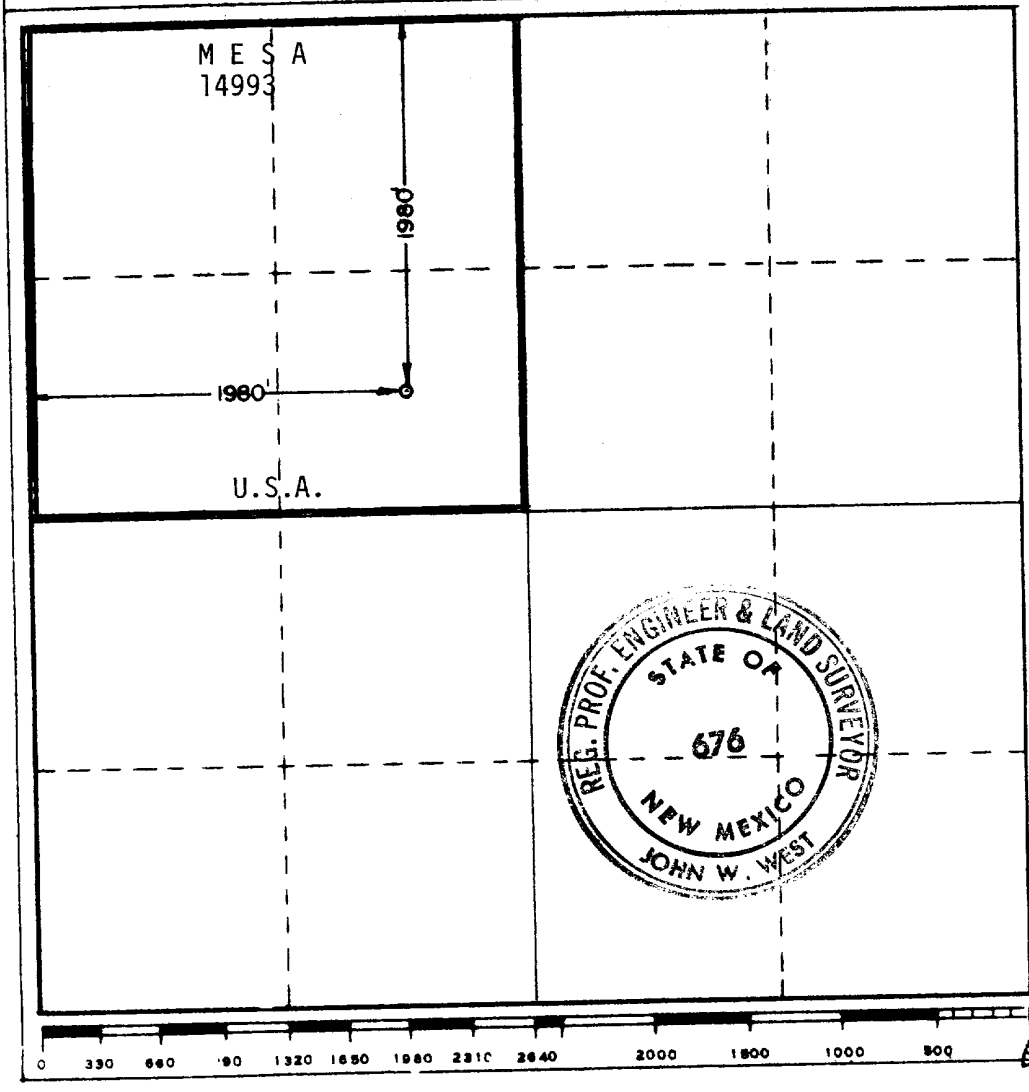
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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?

☐ 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.



CERTIFICATION

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

R. E. Mathis

Name: R. E. MATHIS

Position: Regulatory Coordinator

Company: Mesa Petroleum Co

Date: July 15, 1980

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: July 7, 1980

Registered Professional Engineer and/or Land Surveyor

John W. West

Certificate No. JOHN W. WEST 676
PATRICK A. ROMERO 6668
Ronald J. Eidson 3239

N.M.O.C.D. COPY

United States Department of the Interior

GEOLOGICAL SURVEY
P. O. Drawer U
Artesia, New Mexico 88210

RECEIVED
JUL 29 1980
O. C. D.
ARTESIA, OFFICE

May 28, 1980

Mesa Petroleum Company
1000 Vaughn Building
Midland, Texas 79701

Gentlemen:

MESA PETROLEUM COMPANY Savage Federal No. 2 1980 FNL 1980 FWL Sec. 4 T.7S R.25E Chaves County Lease No. NM-14993
Above Data Required on Well Sign

Your APPLICATION FOR PERMIT TO DRILL the above-described well to a depth of 4,400 feet to test the Abo formation 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 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 this approval including the GENERAL REQUIREMENTS.

3. All access roads will be limited to a 12 foot wide driving surface, excluding turnarounds. Surface disturbance associated with road construction will be limited to 20 feet in width.

4. Submit a Daily Report of Operations from spud date until the Well Completion Report (form 9-330) is filed. The progress report should be not less than 8" x 5" in size and each page should identify the well.

5. All permanent above-ground structures and equipment shall be painted in accordance with the attached Painting Requirements. The color used should simulate Sandstone Brown (Federal Standard No. 595A, color 20318 or 30318).

6. Notify the Survey by telephone 24 hours prior to spudding well.

7. Cement behind the 13-3/8" and 8-5/8" casing must be circulated.

8. Notify Survey in sufficient time to witness the cementing of the 8-5/8" casing.

9. 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,

(Orig. Sgd.) GEORGE H. STEWART

George H. Stewart
Acting District Engineer

APPLICATION FOR DRILLING

MESA PETROLEUM CO
SAVAGE FEDERAL WELL NO. 2
1980' FNL & 1980' FWL Sec 4, T7S, R25E
CHAVES COUNTY, NEW MEXICO

LEASE: NM-14993

In conjunction with Form 9-331 C, Application for Permit to Drill subject well, the following items of pertinent information are submitted in accordance with U.S.G.S. requirements:

1. The geologic surface formation is Seven Rivers.

2. Estimated tops of geological markers are as follows:

San Andres	467'
Glorieta	1352'
Tubb	2897'
Abo	3567'
Hueco	4262'

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

   Water - San Andres at approximately 900'
   Gas - Abo at approximately 3900'

4. Casing and Blowout Preventer Program

   Conductor: 300' of 13-3/8", 48#, H40, ST&C casing cemented with 320 sx Class "C" + 2% CaCl mixed at 14.8 ppg and yielding 1.32 cuft/sx. Cement will be circulated using redimix down the annulus if necessary. Will install flowline, but no BOPs and drill out the cement inside the casing after WOC approximately 8 hours.

   Surface: 1600' of 8-5/8", 24#, K55, ST&C casing cemented with 300 sx Howco Light + 1/4# flocele + 2% CaCl mixed at 12.4 ppg and yielding 1.9 cuft/sx. Tail in with 200 sacks Class "C" + 2% CaCl mixed at 14.8 ppg and yielding 1.32 cuft/sx. Cement will be circulated to surface using 1" pipe down the annulus if

necessary. If lost circulation has been encountered while drilling the 11" hole, the cement job will be preceded with 200 sx thickset cement mixed at 14.8 ppg and yielding 1.32 cuft/sx. Will install 8-5/8" SOW x 10" API 3000 psi casinghead with 2" API 2500 psi ball valve. Nipple up 10" API 3000 psi WP double BOP with pipe rams (bottom) and blind rams to drill 7-7/8" hole to total depth.

Production: 4400' of 4-1/2", 10.5#, K55, ST&C casing cemented with 460 sx Howco Light + 1/4# flocele + 10# salt mixed at 12.7 ppg and yielding 1.87 cuft/sx. Tailed in with 300 sx 50/50 POZ + 2% gel + 8# salt + 3/10% CFR-2 mixed at 14.1 ppg and yielding 1.30 cuft/sx or volume sufficient to raise top of cement to surface or base of surface casing. Choke, kill, and fill lines are indicated on Exhibit I. BOPs will be tested prior to drilling below the 8-5/8" casing. A full opening safety valve, to fit the drill string in use, will be kept on the rig floor at all times. The kelly cock, safety valve, choke and kill lines will be tested at the same time that BOPs tests are run. Operational opening and closing checks on all BOPs will be run on each trip, with daily operational check of pipe rams.

5. Circulating medium and control equipment

0'-1600' Use fresh water spud mud with fresh water gel and soda ash or lime. Treat with lost circulation material as hole conditions dictate. If total loss of circulation occurs, mix 2 or 3 viscous slugs with LCM and attempt to regain circulation. If unsuccessful, consider drilling without returns to casing point and spot 150 ± bbls viscous slug treated with LCM on bottom to run pipe.

1600'-3000' Drill out 8-5/8" casing with fresh water circulating reserve pit. Add caustic soda for pH 9.0 - 9.5 and chemicals for corrosion control. Mix paper as needed to control seepage or to sweep the hole.

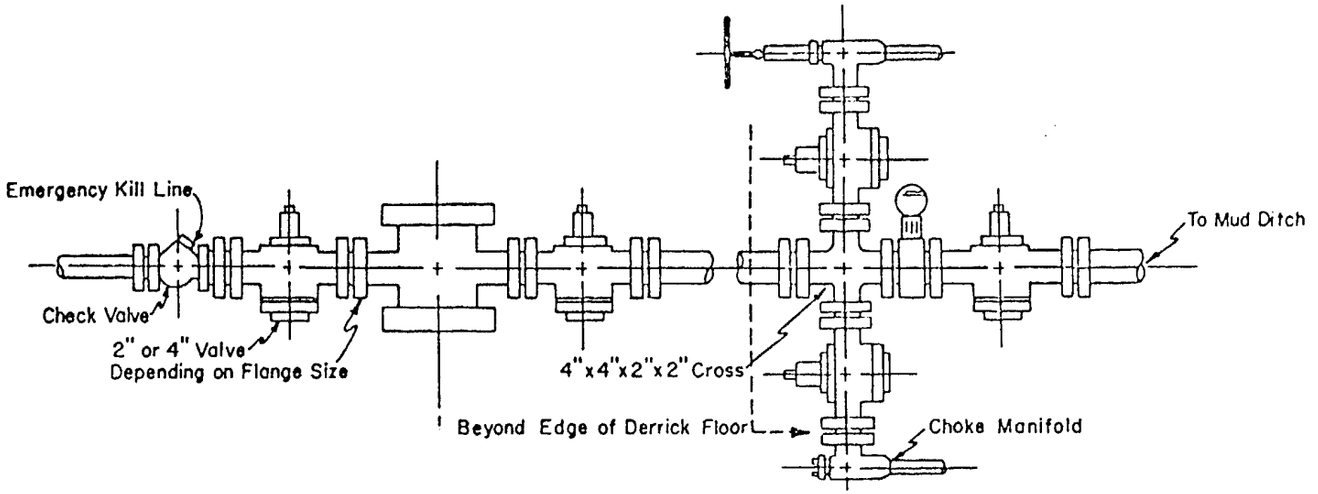
3000'-4400' Maintain mud weight less than 10 ppg with additions of fresh water while keeping chloride-ion concentration of 40,000 - 50,000 + ppm and KCL 3.0%. At 3500 mud up with starch and soda ash to control API water loss to 20 - 25 cc to TD. Sea Mud or Salt Water Gel will be added to sweep hole or to raise viscosity of system sufficiently to clean hole to run logs and casing.

6. There is no coring program or drill stem tests planned for this well. The logging program may consist of a gamma ray log from total depth to surface, compensated neutron-density-caliper log and dual laterolog-micro spherically focused log run from 1600' to total depth.

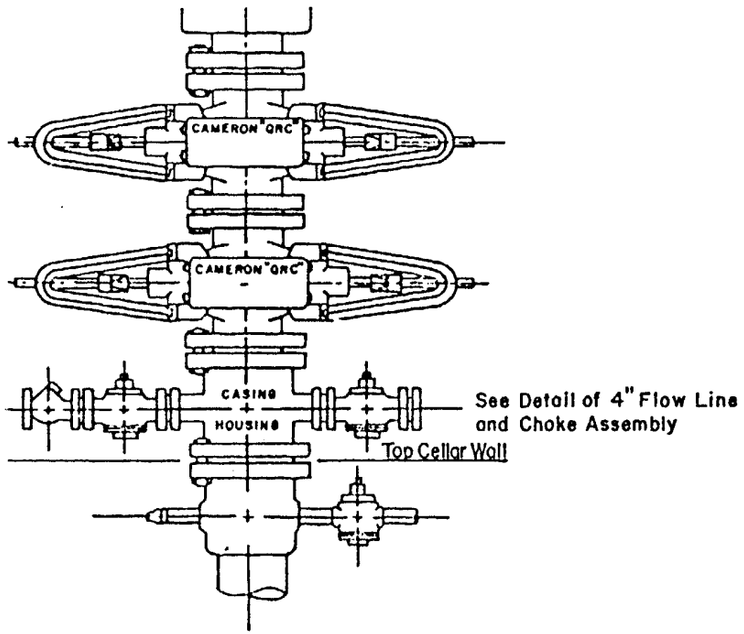
7. Maximum anticipated bottom hole pressure is 1500 psi at 4400' based upon bottom hole pressure on other area wells. Mud weight required to offset this pressure is 9.0 ppg. It is probable that leaching of expected salt stringers could increase the mud weight to 10.0 - 10.2 ppg. Bottom hole temperature should not exceed 120°F. No sour gas is expected.

8. Anticipated spud date is August 4, 1980 , with completion of drilling operations expected by August 12, 1980. Completion operations (perforations and stimulation) will follow successful drilling operations as soon as a completion unit is available.

... Preventers hydril and choke manifold are all 900 Series



3,000 PSI WORKING PRESSURE
KILL, CHOKE, AND FILL CONNECTIONS



3,000 PSI WORKING PRESSURE
BLOW-OUT PREVENTER HOOK-UP

DETAIL OF 4" FLOW LINE CHOKE ASSEMBLY

Minimum assembly for 3,000 PSI working pressure will consist of three preventers. The bottom and middle preventers may be Cameron.

MESA PETROLEUM CO.
PERMIAN BASIN DIVISION

EXHIBIT I

BLOWOUT PREVENTER SCHEMATIC
FOR PROPOSED SAVAGE FEDERAL #2

MULT-POINT SURFACE USE AND OPERATION PLAN

MESA PETROLEUM CO
SAVAGE FEDERAL WELL NO. 2
1980' FNL & 1980' FWL Sec 4, T7S, R25E

CHAVES COUNTY, NEW MEXICO

LEASE: NM-14993

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operational plan in both the actual and post drilling-completion operations.

1. Existing Roads

   A. Exhibit II is a portion of a highway map showing the location of the proposed well as staked. The proposed well is approximately 21 miles north/northeast of Roswell, New Mexico.

   B. Directions: Travel north of Roswell on Highway 285 for 7.5 miles (from intersection of U.S. Highway 70) then turn east/northeast on the "Red Bluff Ranch" road for 13 miles before turning west for approximately 3 miles. At this point turn north for 1.5 miles then due west for 1/2 mile to the location.

2. Planned Access Road

   A. Length and width: The new access road will be 12' wide (16' ROW) and approximately 1/2 mile long.

   (See Exhibit III for details)

   B. Construction: The new road will be constructed by grading and topping with compacted caliche. The surface will be crowned, with drainage on both sides. (See Exhibit IV)

   C. Culverts, Gates, and Cattleguards: none.

   D. Cut and Fill: In order for the location to be level, approximately 3' of cut from the west side will be moved to the east side for fill.

3. Location of Existing Wells

Existing wells within a one-mile radius are depicted by Exhibit V.

4. Location of Existing and/or Proposed Facilities

If the well proves to be commercial, the necessary production facilities, gas separation-process equipment and tank battery, will be installed on the drilling pad.

5. Location and Type of Water Supply

It is planned to drill the proposed well with fresh water. The water will be obtained from commercial sources and will be trucked to the well site over the existing roads and the proposed access road shown on Exhibits II and III.

6. Source of Construction Materials

Caliche for surfacing the road and the wellsite pad will be obtained by the dirt contractor from the Federal Government or private sources. 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.

7. Methods of Handling Waste Disposal

A. Drill cuttings will be disposed of in the reserve pits.

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

F. 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.

G. All trash and debris will be buried or removed from the wellsite within 30 days after finishing and/or completion operations.

8. Ancillary Facilities: None required.

9. Wellsite Layout:

   A. Exhibit VI shows the relative location and dimensions of the well pad. reserve pits, and major rig components. The pad and pit area has been staked and flagged.

   B. Some leveling of the wellsite will be required. See Exhibit IV for additional details.

   C. The reserve pit will be plastic lined.

10. Plans for Restoration of the Surface:

   A. After completion of drilling and/or completion operations all equipment and other material not needed for operations will be removed. Pits will be filled and location cleaned of all trash and junk to leave the well-site in an aesthetically pleasing a condition as possible.

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

   C. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management and the United States Geological Survey will be complied with and will be accomplished as expeditiously as possible. All pits will be filled and leveled within 90 days after abandonment, if drying conditions permit.

11. Other Information:

   A. Topography: The land surface in the vicinity of the wellsite is gently slopling to the

   B. Soil: The topsoil at the wellsite is sandy loam.

   C. Flora and Fauna: The vegetative cover consists of Tabosa and other prairie grasses, creosote bush, yucca, cactus, prairie flowers and other miscellaneous desert growth. Wildlife in the area probably includes those typical of semi-arid desert land. The area is used for sheep and cattle grazing.

   D. Ponds and Streams: There are no rivers, streams, lakes, or ponds in the area but runoff trends toward the northeast towards the Pecos River.

E. Residences and Other Structures: There are no residences or other structures in the vicinity of the proposed well.

F. Land Use: Sheep and cattle grazing.

G. Surface Ownership: The wellsite is on Federal surface.

H. There is no evidence of any major archeaological, historical, or cultural sites in the area. NMAS, Inc. has conducted an archeaological study of this site and provides this report to interested parties.

12. Operator's Representatives:

A. The field representatives responsible for assuring compliance with the approved surface use and operations plan are as follows:

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

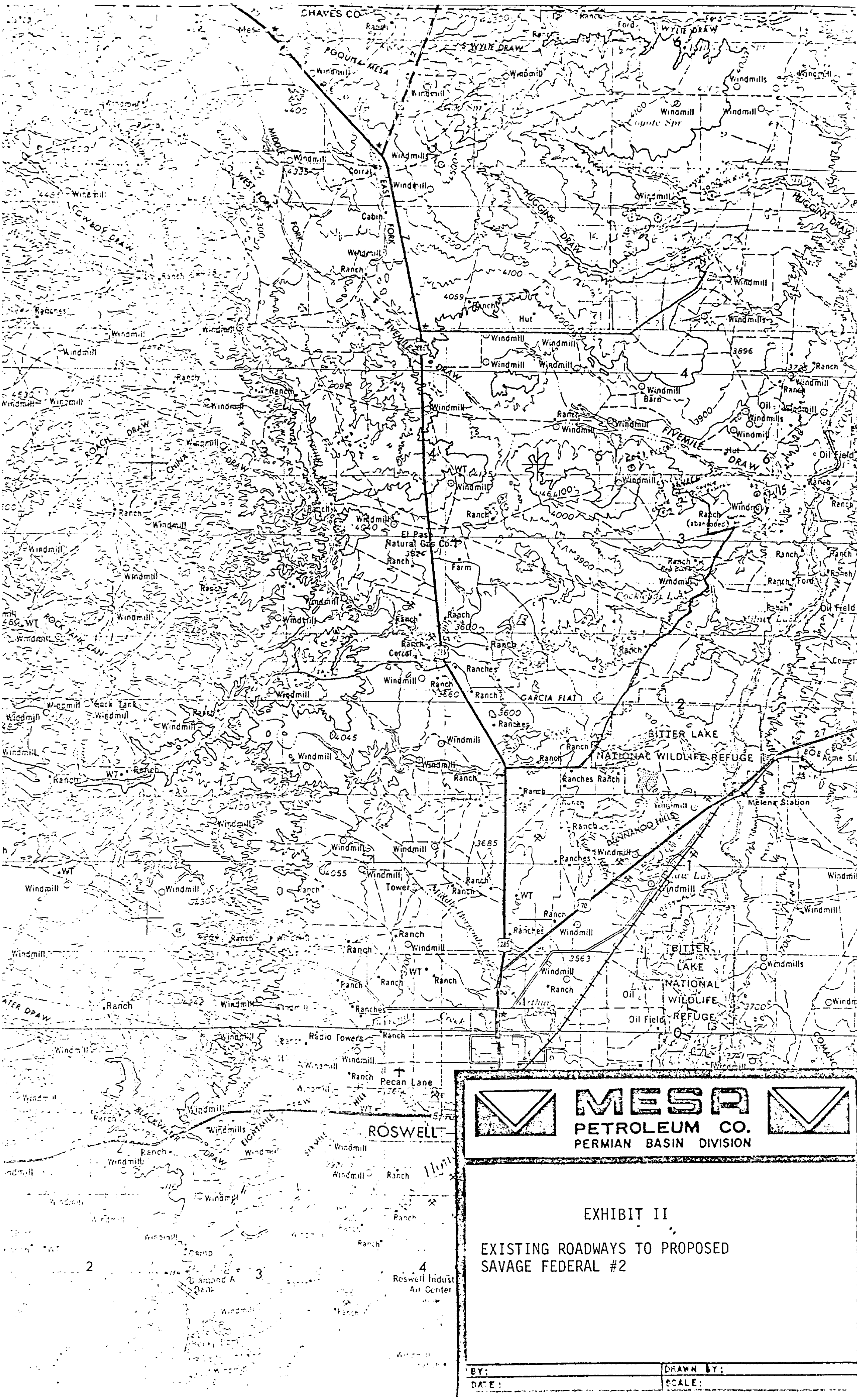
C. C. Wheeler
1000 Vaughn Building
Midland, Texas 79701
(915-683-5391) - Office
(915-683-6123) - Home

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.

July 15, 1980
Date

Michael P. Houston
Michael P. Houston
Operations Manager



MESA PETROLEUM CO.

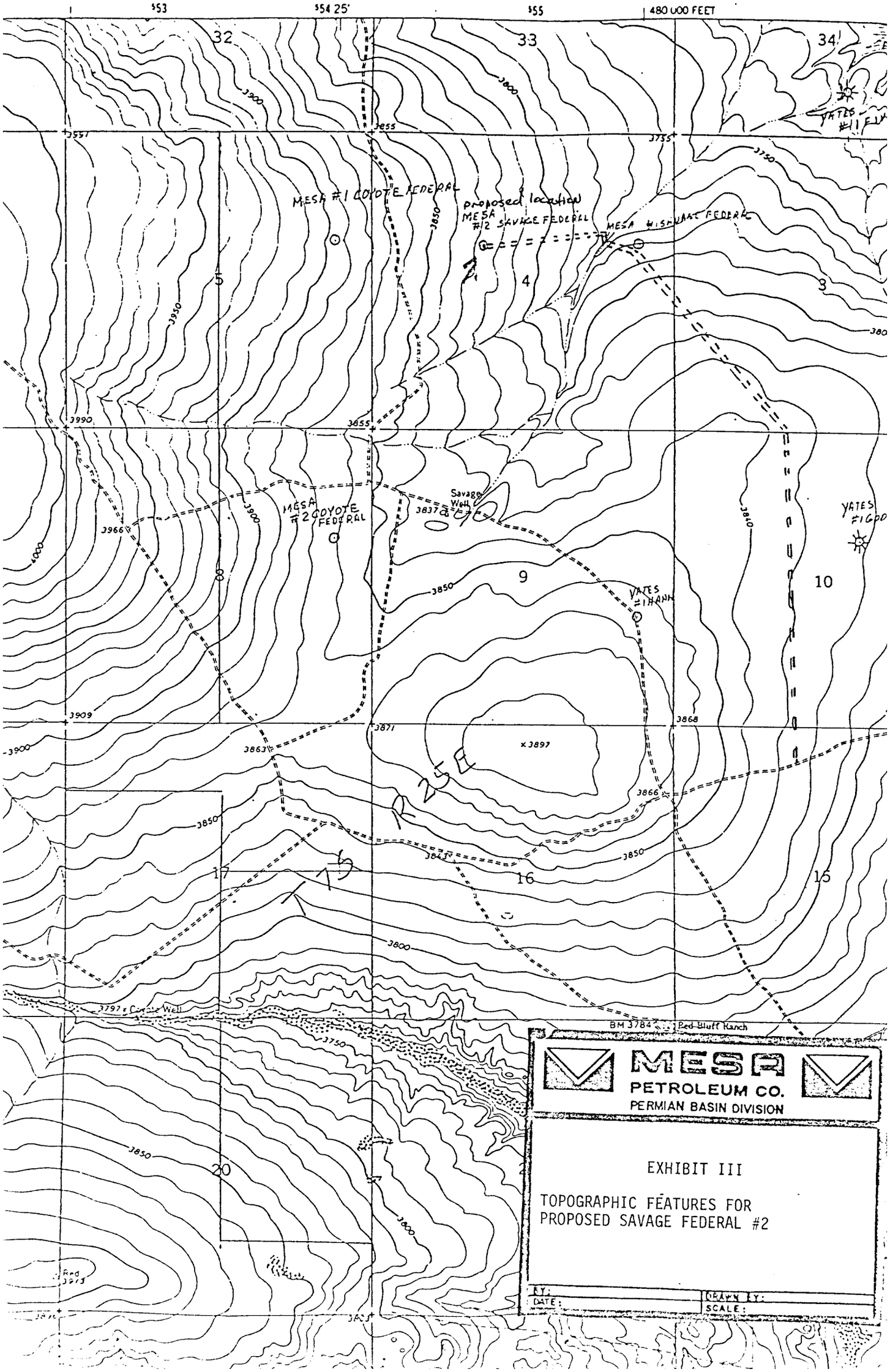
PERMIAN BASIN DIVISION

EXHIBIT II

EXISTING ROADWAYS TO PROPOSED SAVAGE FEDERAL #2

BY:	DRAWN BY:
DATE:	SCALE:

COYOTE DI
NEW ME
7.5 MINUTE S



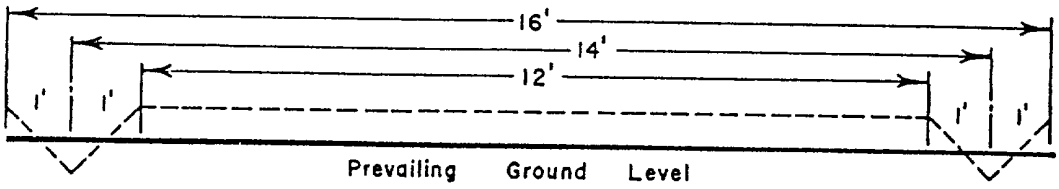
MESA
PETROLEUM CO.
PERMIAN BASIN DIVISION

EXHIBIT III

TOPOGRAPHIC FEATURES FOR
PROPOSED SAVAGE FEDERAL #2

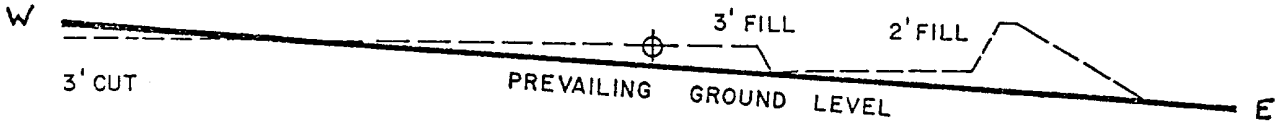
BY:
DATE:
DRAWN BY:
SCALE:

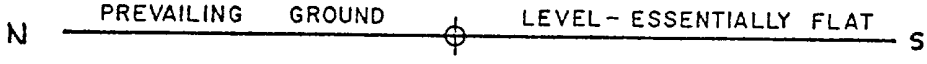
R - O - W 16'



ROADWAY CROSS SECTION

Horizontal Scale 1" = 3'





LOCATION CROSS SECTION

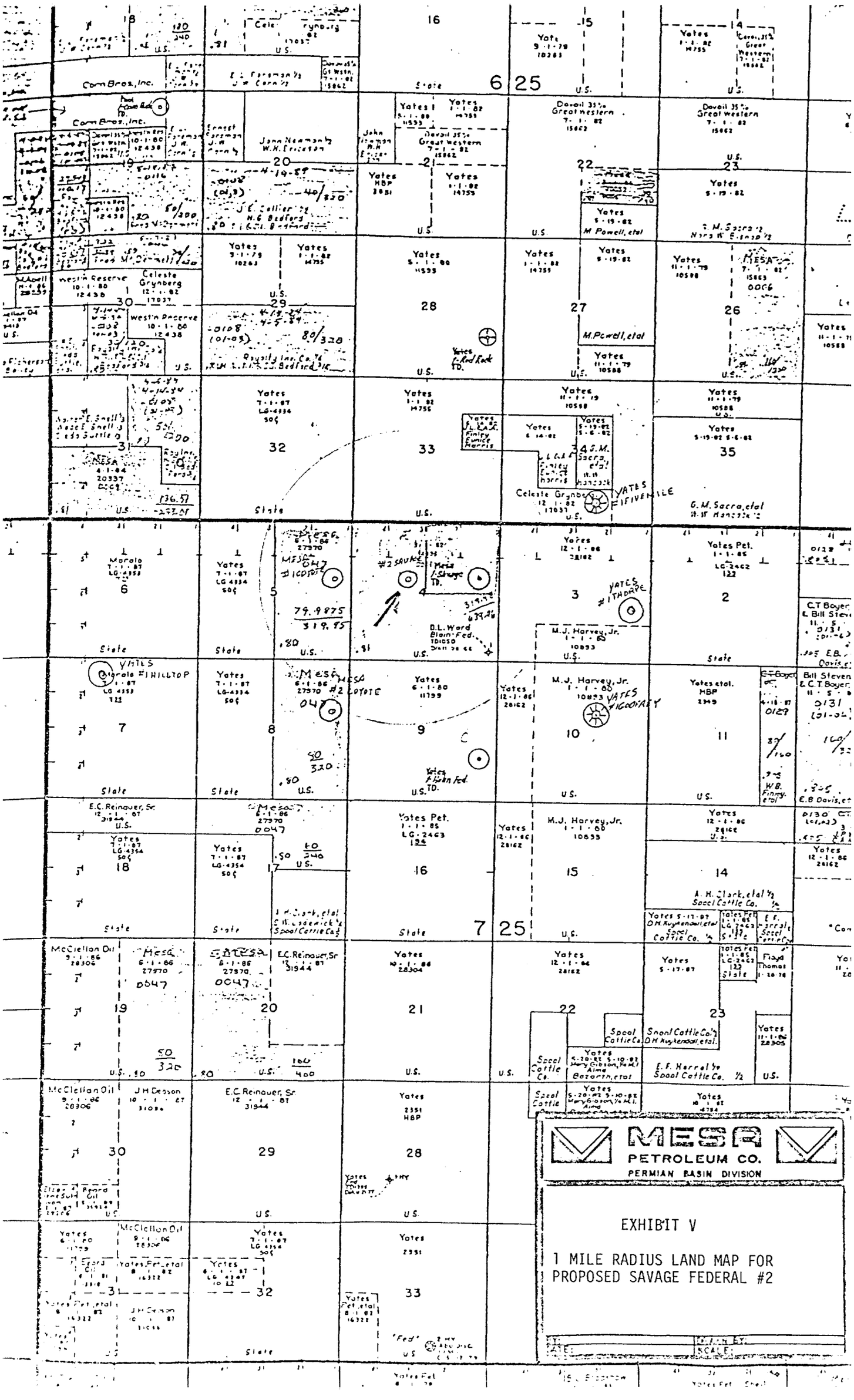
Horizontal Scale 1" = 50'

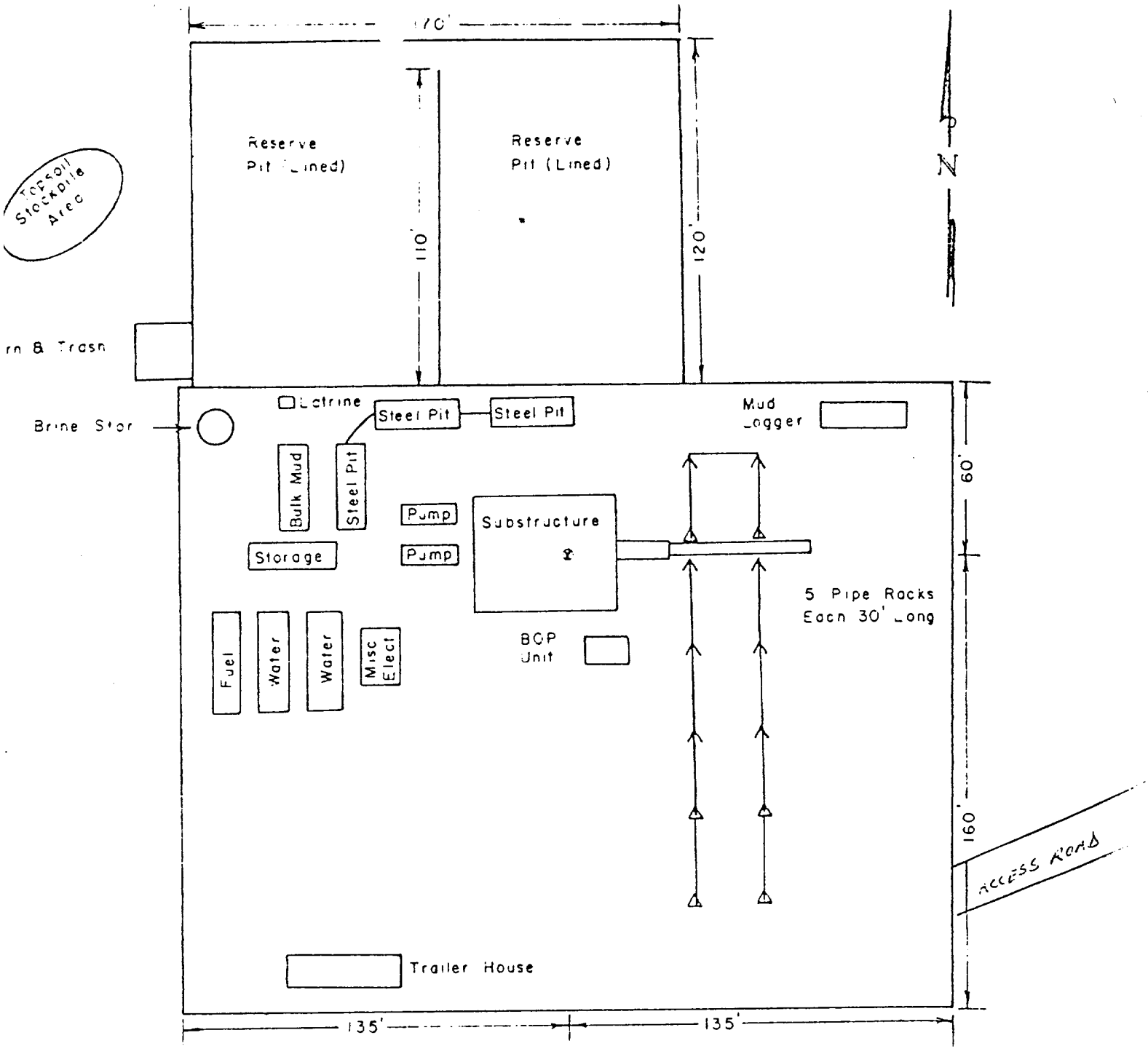
MESA PETROLEUM CO.
PERMIAN BASIN DIVISION

EXHIBIT IV

LOCATION CONSTRUCTION

REM 3-5-80 | MLP AS NOTED


MESA
PETROLEUM CO.
PERMIAN BASIN DIVISION
EXHIBIT V
1 MILE RADIUS LAND MAP FOR
PROPOSED SAVAGE FEDERAL #2
DRAWN BY:
SCALE:
DATE:



MESA
PETROLEUM CO.
PERMIAN BASIN DIVISION

EXHIBIT VI