

MARATHON OIL COMPANY

Drilling Operations Plan

Ohio "E" Gov't. #2
Section 8, T31N, R12W
La Plata Area
San Juan County, New Mexico

1. Geologic name of surface:

Tertiary - Nacimiento

2. Estimated tops of important geologic markers:

| <u>Formation</u> | <u>Top</u> | <u>Datum</u> |
|------------------|------------|--------------|
| Fruitland | 1,727' | +4,180' |
| Pictured Cliffs | 2,181' | +3,726' |
| Cliffhouse | 3,813' | +2,094' |
| Menefee | 4,049' | +1,858' |
| Point Lookout | 4,607' | +1,300' |
| T.D. | 5,000' | + 907' |

Estimated KB: 5,907'

Estimated GL: 5,895'

3. Estimated depths of anticipated water, oil, gas or other mineral bearing formations:

| <u>Formation</u> | <u>Estimated Depth</u> | <u>Possible Content</u> |
|------------------|------------------------|-------------------------|
| Pictured Cliffs | 2,181' | Gas |
| Point Lookout | 4,607' | Gas |

4a. The casing program including the size, grade, weight, whether new or used, and a setting depth of each string:

| <u>Min. Hole Size</u> | <u>Casing O.D.</u> | <u>Grade</u> | <u>Weight</u> | <u>Setting Depth</u> | <u>New or Used</u> |
|-----------------------|--------------------|--------------|---------------|----------------------|--------------------|
| 12-1/4" | 9-5/8" | J-55 | 36# | 200' | New |
| 8-3/4" | 7" | K-55 | 23# | 4,540' | New |
| 6-1/4" | 4-1/2" | K-55 | 10.5# | 5,000' | New |

4b. The cementing program including type, amounts, and additives:

9-5/8" Casing:

Equip with a guide shoe, insert float and three centralizers. Cement to surface with 150 sacks of Class "B" cement with 2% CaCl₂ and 1/4#/sack of Flocele.

7" Casing:

Equip with float shoe, baffle collar and 10 centralizers. Cement to +2,000' with 350 sacks of Halliburton Light cement with 2% CaCl₂ (add 12-1/2#/sack of gilsonite if any lost circulation was encountered). Tail in with 150 sacks of Class "B" cement with 2% CaCl₂ (add gilsonite as above if required).

4-1/2" Liner: Equip with float shoe, float collar, 6 centralizers. Cement liner with 200 sacks of 50-50 Poz Mix with 2% gel plus 6-1/4#/sack of gilsonite plus 0.6% Halad 9.

5. B.O.P. specification and testing: (see the attached schematic diagram for size and pressure ratings):

2,000 psi WP hydraulic double-ram preventer with blind and drill pipe rams. Operation to be checked daily.

6. Mud program and anticipated pressures:

| <u>From</u> | <u>To</u> | <u>Type Mud</u> | <u>Weight</u> | <u>% Oil</u> | <u>Water Loss</u> |
|-------------|-----------|---------------------------------|---------------|--------------|-------------------|
| 0' | 200' | Native | 8.5 - 9.0 | 0 | - |
| 200' | 4,540' | Low solids Non-dispersed gel | 9.0 | 0 | <20 cc's* |
| 4,540' | T.D. | Air | | | |

*Starch required to prevent sand bridges which have hampered logging operations in nearby wells.

7a. Type of drilling tools and auxiliary equipment:

- (1) Drilling time and drill pipe weight will be recorded on a geolograph or equivalent instrument from surface to T.D.
- (2) A single shot survey instrument is required.
- (3) Desilter or desander is required.

7b. Deviation Control:

| From | To | Maximum Deviation Between Surveys | Maximum Deviation From Vertical | Maximum Change Per 100' of Depth |
|------|------|--------------------------------------|------------------------------------|-------------------------------------|
| 0' | 200' | 100' | 1° | 1/2° |
| 200' | T.D. | 500'* | 4-1/2° | 1° |

*Required by the New Mexico Conservation Commission.

8. Sample, logging, testing, and coring program:

Catch 10' samples from 4,540' to T.D.

Open Hole Logs - (A short trip will be made prior to logging)

Run #1: At 7" casing point run a GR/Caliper/DIL from T.D. to surface.

Run #2: At T.D. run a GR/DIL from T.D. to 7" casing.
Run a GR/Caliper/CNL/FDC from T.D. to 7" casing
and continue GR/CNL through pipe to 3,000'.

9. Anticipated abnormal pressures or temperatures:

Pressure in Point Lookout expected to be only 700 to 800 psi.

10. The anticipated starting date and duration of operation:

Starting Date: 5/22/78

Duration: 3 Weeks

DISTRICT APPROVALS

Approved

Date

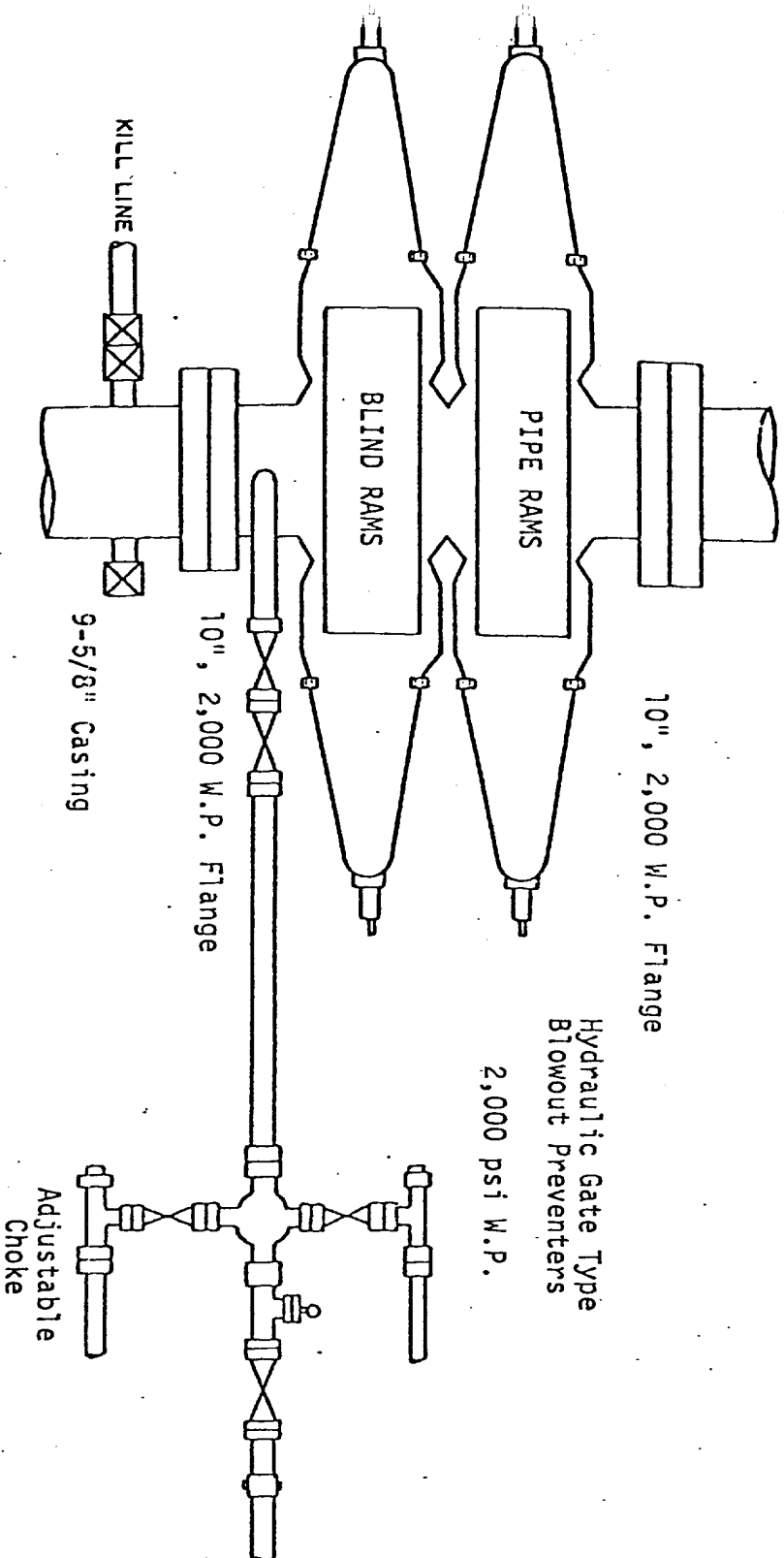
[Signature] 3-22-78
B. E. Hester 3/22/78
J. Smith 4/7/78

DIVISION APPROVALS

Approved

Date

Marathon Oil Company
Ohio "E" Government #2
Sec. 18, T31N, R12W
San Juan County, New Mexico
5889' GL



1. Blowout preventers, master valve, plug valve and all fittings must be in good condition. Use new API Seal Rings.
2. All fittings (gates, valves, etc.) to be of equivalent pressure rating as preventers. Valves to be flanged and at least 2" unless otherwise specified. Valves next to BOP to be plug type and nominal 3".
3. Equipment through which bit must pass shall be as large as the inside diameter of the casing that is being drilled through.
4. Safety valve must be available on rig floor at all times and with proper connections. The I.D. of safety valve should be as great as I.D. of tool joints of drill pipe.
5. Kelly safety valve installed, same working pressure as BOP's.
6. All lines and controls to preventers must be connected and tested before drilling out of surface pipe.
7. BOP's must be fluid operated, complete with accumulators controls may be either on floor or around near steps from rig floor.
8. Fillup line tied to drilling nipple, the connection must be below and approximately 90° to the flow line.
9. Gauge will be installed for testing but removed while drilling.
10. Spool not required, but when side outlet on BOP's is used, it must be below bottom ram.
11. Casinghead and casinghead fittings to be furnished by Marathon Oil Company.
12. Chokes will be adjustable.
13. One side of casinghead may be built plugged.

MARATHON OIL COMPANY

Surface Use and Operations Plan

Ohio "E" Government #2
1800' FSL & 990' FEL
Sec. 18, T31N, R12W Unit I
San Juan County, New Mexico
5889' GL

1. Existing Roads:

Light duty road from La Plata, New Mexico, east $4\frac{1}{2}$ miles, turn and go south $2\frac{1}{4}$ miles on unimproved dirt road on east side of Section 8 and 17, turn and go west $\frac{3}{4}$ mile, turn and go north to the Newberry Tank Battery.

2. Access Road:

The attached map shows the new access road, which will be approximately $\frac{1}{2}$ mile long and 14' wide. Maximum grade will not exceed 5%. There will be no culverts, gates, turnouts, cattle guards, or fence cuts. The road will be staked. Rehabilitation will consist of requirements by BLM.

3. Location of Existing Wells:

See attached sheet.

4. Location of Production Facilities and Service Lines:

Marathon Oil Company does not own or operate any oil or gas gathering lines, injection lines, or disposal lines within a 1 mile radius of the well.

The proposed well will have one tank, one three stage separator, and a 10' square by 6' deep water disposal pit. The water disposal pit will be fenced. The gathering line will be laid by the purchaser to their line.

The reserve pit will be fenced on three sides while drilling and the 4th side will be fenced after the rig moves off. The reserve pit and unused parts of the location will be graded back to contour and seeded as recommended by BLM.

All above ground equipment will be painted a color that closely matches the Federal Standard #595 30318 (Brown).

5. Location and Type of Water Supply:

The water supply will come from the Animas River near Aztec, New Mexico, and hauled to the wellsite by a Jobber.

6. Source of Construction Materials:

All construction materials for this location and access road are to be materials accumulated during construction of the location and access road. No additional construction materials from other sources are anticipated.

7. Waste Disposal Handling:

Drill cuttings will be covered after the reserve pit is dried up. All liquid drilling waste will be stored in the reserve pit. All burnable trash will be burned in a suitable burn pit with a steel screen across the pit. Any produced fluids will be caught in a test tank. All non-burnable refuse will be buried to a depth of 5' upon completion of drilling and completion of operations. A sanitation facility will be provided. There are no plans to line the reserve pit. Immediately upon completion of the well, the location will be policed and all waste materials will be picked up.

8. Ancillary Facilities:

There will be no proposed camps or airstrips at the location. There will be one small house trailer to be used by drilling supervisors. These are shown on the attached map.

9. Well Site Layout:

A cross section of the drill pad is shown on the attached schematic. Location of mud tanks, reserve pit, trash burn pit, pipe racks, living facilities, soil materials and stockpiles are shown on the attached schematic. The rig will face the west with the reserve pit to the south. Parking area will be on the north side. The access road will be from the northeast. The location will require a maximum cut of 6" at the wellbore.

10. Plan for Restoration to Surface:

Upon completion of this well those areas not needed for any possible production equipment will be backfilled, leveled, contoured and the topsoil replaced. The area will be reseeded according to BLM's recommendations. At the time of rig release the reserve pit will remain fenced until proper cleanup can be made. Any oil on the reserve pit will be removed. Rehabilitation will be completed by the fall of 1979.

11. Other Information:

The attached archaeological report covers all aspects of the surface characteristics and grants clearance to construct the location and access road, which will not disturb any cultural resources.

In the immediate area there are no known occupied dwellings, archaeological, historical, cultural sites, shallow water wells, or creeks.

12. Representatives:

Marathon Oil Company's representative who is responsible for compliance with the approved surface and operation plan is:

James F. Wirth
Drilling Superintendent
Marathon Oil Company
P. O. Box 2659
Casper, Wyoming 82602
1-(307)-265-7693

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 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 Marathon Oil Company and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

April 7, 1978
DATE

James F. Wirth
NAME
Drilling Superintendent
TITLE

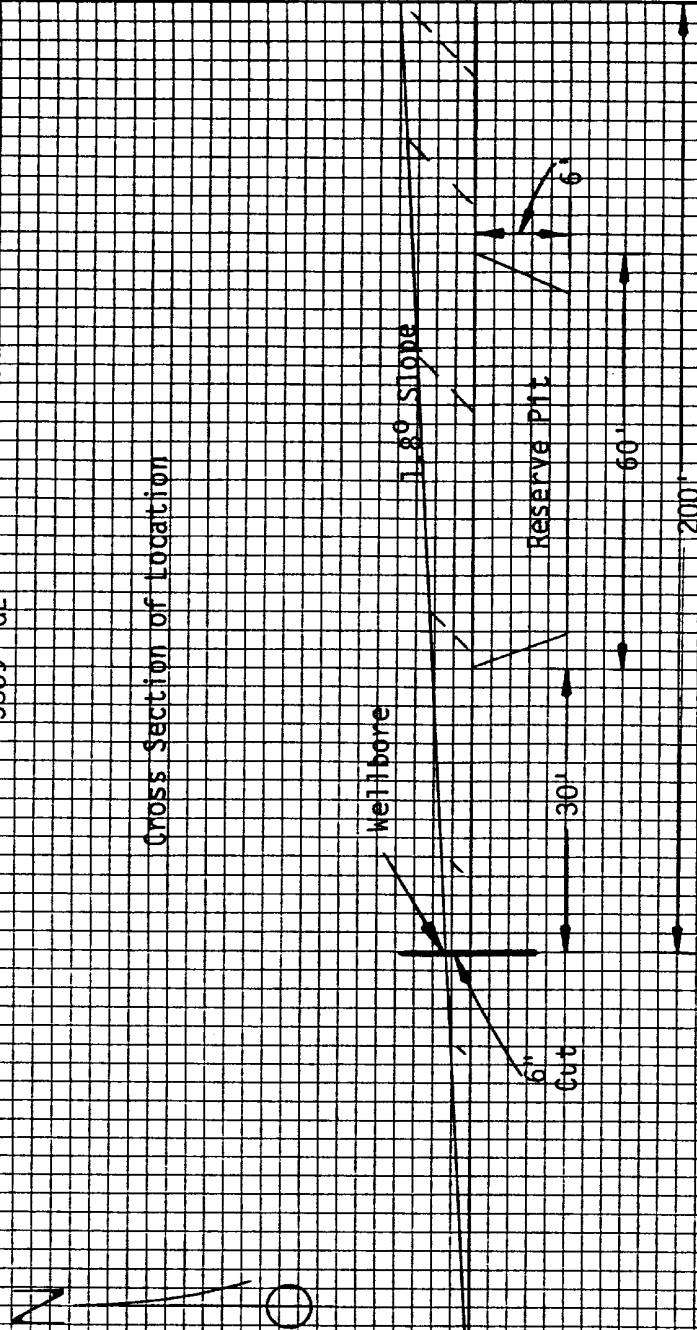
WELLS WITHIN 1 MILE RADIUS:

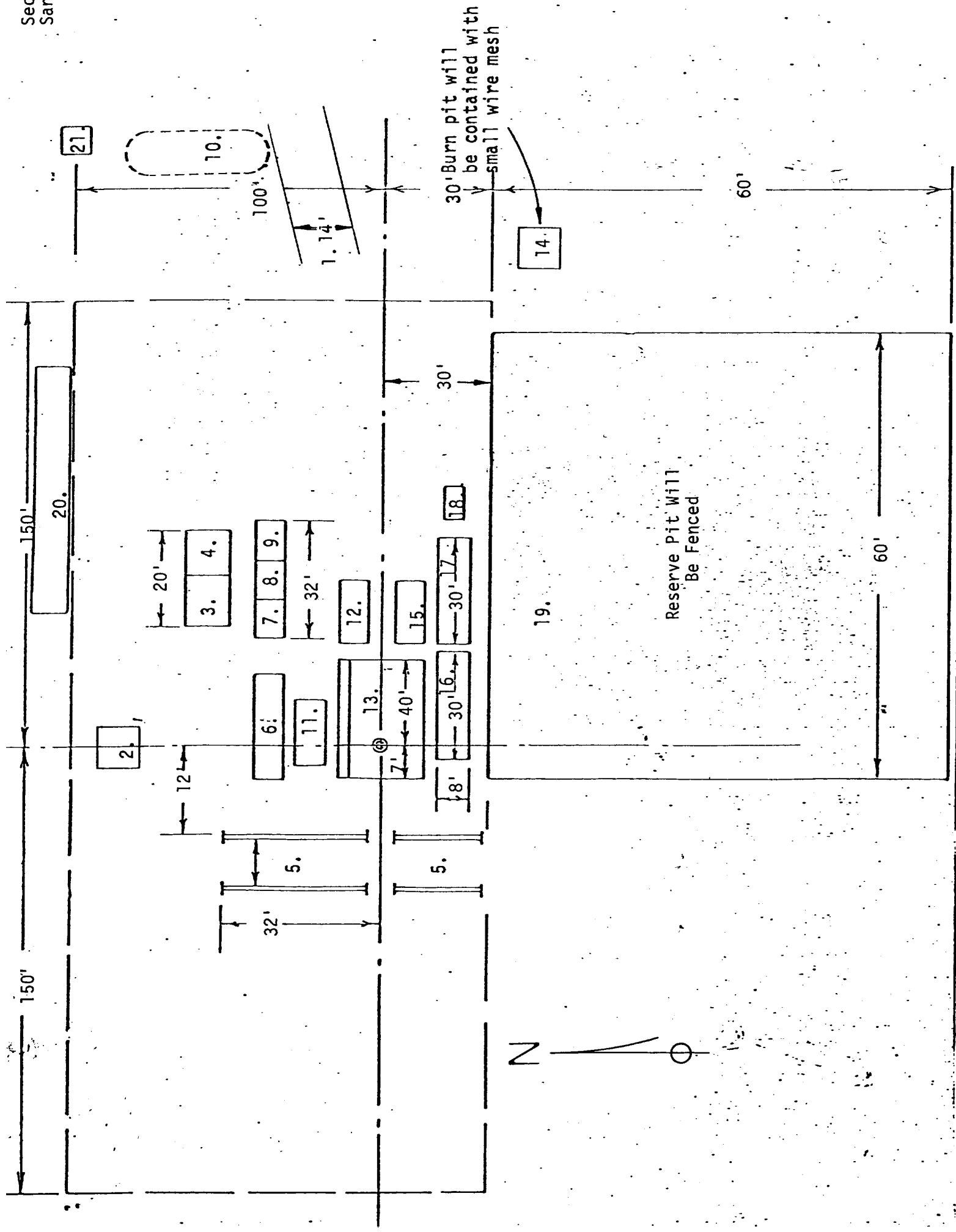
Ohio "E" Gov't. #2

- | | |
|--|---------------|
| 1. Southern Union - Owen 2G (Sec. 19) | Point Lookout |
| 2. Consolidated Oil & Gas - Southern Union 2A (Sec. 19) | Dakota |
| 3. Consolidated Oil & Gas - Newman 1B (Sec. 20) | Dakota |
| 4. Southwest Production Co. - Newberry Fed. 1M (Sec. 17) | Dakota |
| 5. El Paso - Newberry 13K (Sec. 17) | Point Lookout |
| 6. Marathon - Ohio "D" Gov't. #1 (Sec. 8) | Point Lookout |
| 7. Marathon - Ohio "E" Gov't. #1 (Sec. 18) | Point Lookout |
| 8. Consolidated Oil & Gas - Jacson 2G (Sec. 18) | Dakota |
| 9. Consolidated Oil & Gas - Gross 1N (Sec. 7) | Dakota |
| 10. Consolidated Oil & Gas - Arnstein 1K (Sec. 18) | Dakota |
| 11. Consolidated Oil & Gas - Reid 1M (Sec. 18) | Point Lookout |

Marathon Oil Company
Ohio "F" Government #2
1800' FSL & 990' FEL
Sec. 18, T31N, R12W Unit 1
San Juan County, New Mexico
5880' GL

Cross Section of Location

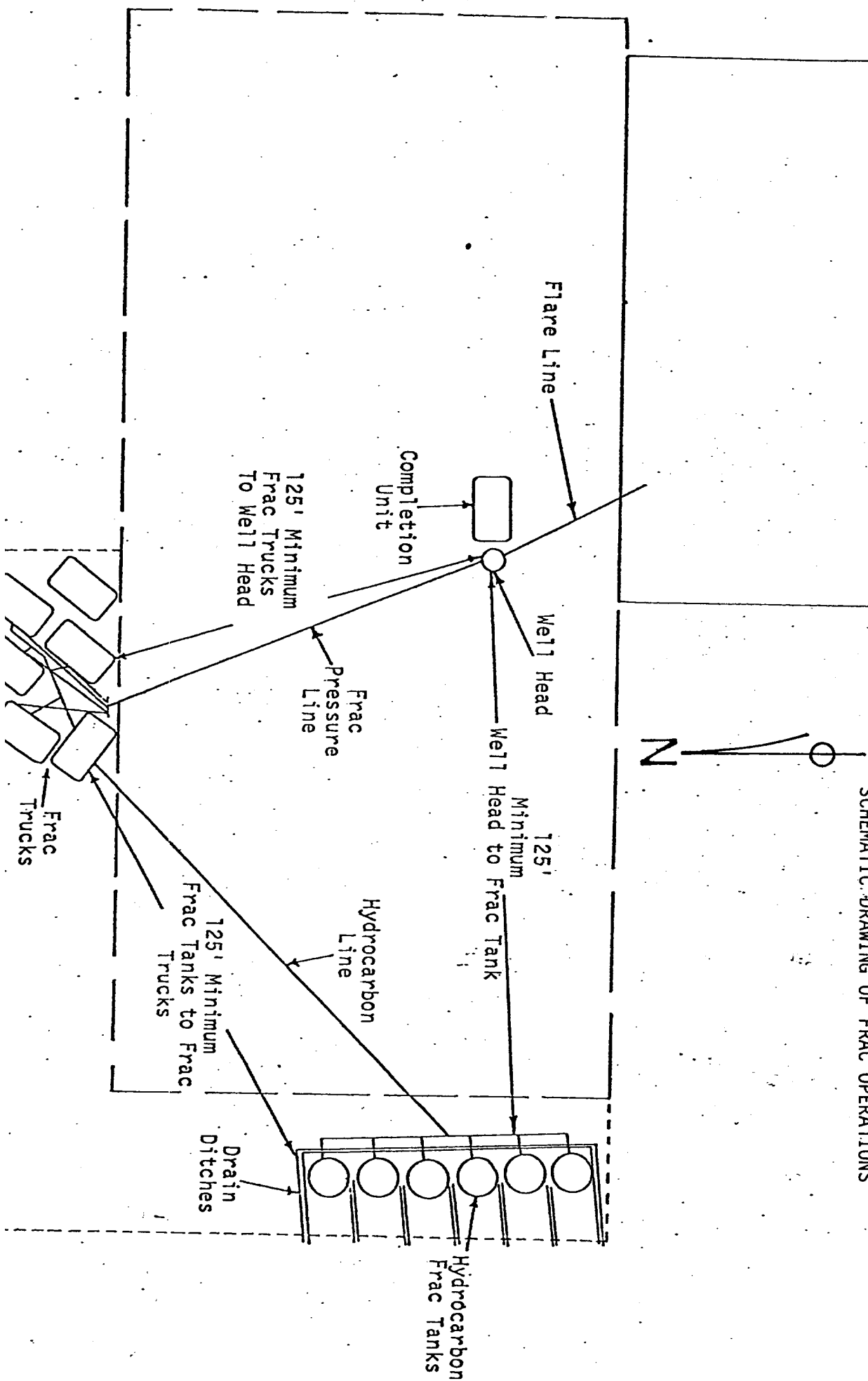




Marathon Oil Company
Ohio "E" Government #2
Sec. 18, T31N, R12W Unit I
San Juan County, New Mexico
5889' GL

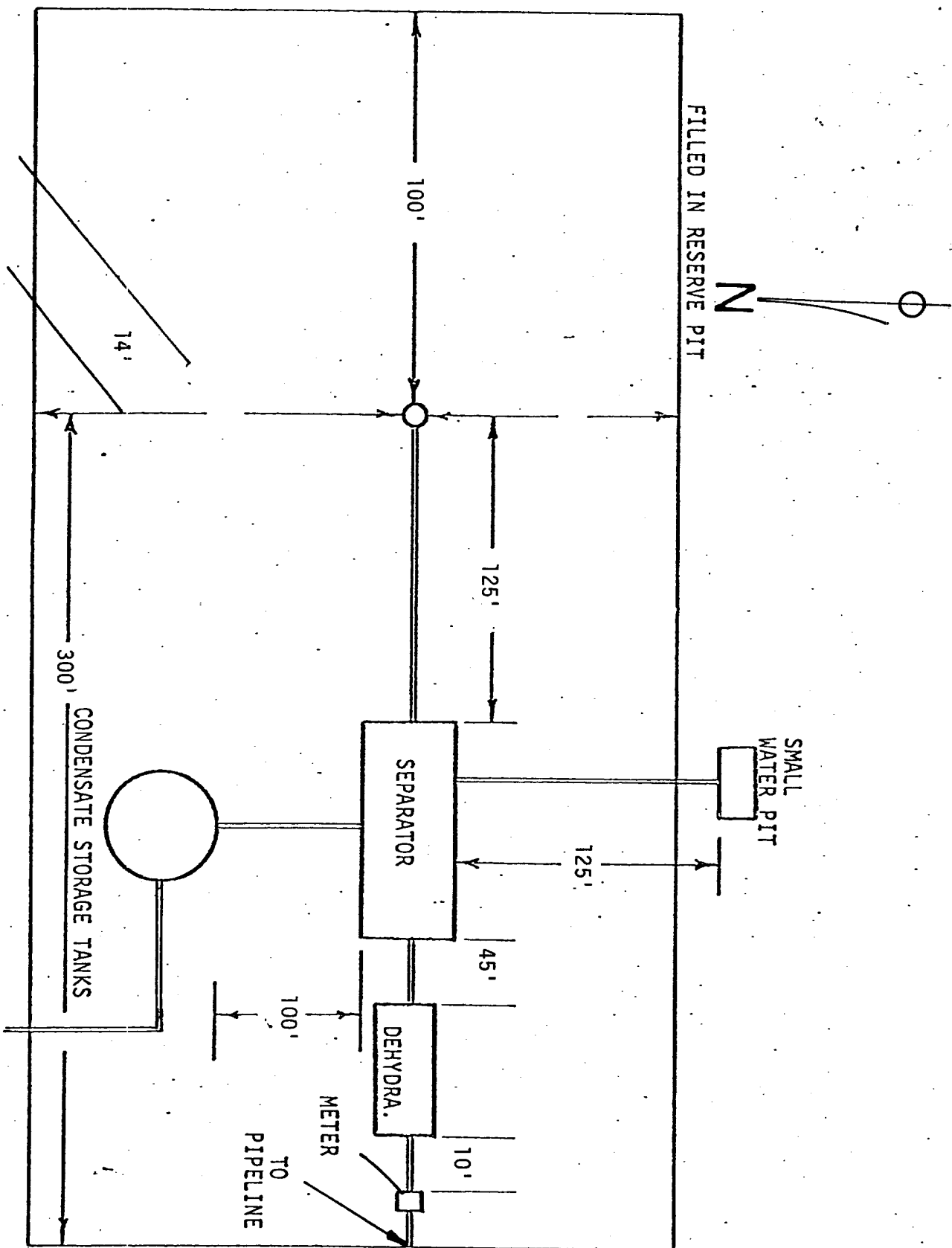
Reserve Pit

SCHEMATIC DRAWING OF FRAC OPERATIONS



PROPOSED PRODUCTION FACILITIES

Marathon Oil Company
 Ohio "E" Government #2
 Sec. 18, T31N, R12W Unit 1
 San Juan County, New Mexico
 5889' GL



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31
N

