

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  
Marathon Oil Company

3. ADDRESS OF OPERATOR  
P.O. Box 2659, Casper, Wyoming 82602

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.\*)  
At surface  
1,685' FSL & 1,685' FWL, Unit K  
At proposed prod. zone

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*  
Approximately 10 miles southeast of Counselor, New Mexico

15. DISTANCE FROM PROPOSED\* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)  
1,685'

16. NO. OF ACRES IN LEASE  
2560

17. NO. OF ACRES ASSIGNED TO THIS WELL  
320

18. DISTANCE FROM PROPOSED LOCATION\* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.  
2,750'

19. PROPOSED DEPTH  
7,575'

20. ROTARY OR CABLE TOOLS  
Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
6,660' GL

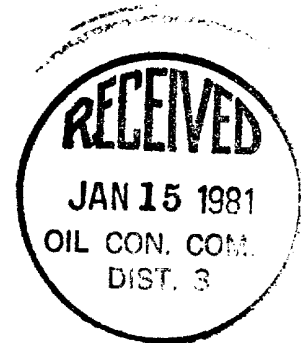
22. APPROX. DATE WORK WILL START\*  
1st Quarter, 1981

23. PROPOSED CASING AND CEMENTING PROGRAM				
SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
Please see item #4 of 10 Point Program for Complete Casing & Cementing Program				

This action is subject to administrative  
appeal pursuant to 30 CFR 290.

Please see the following attachments:

1. Surveyor's Plat
2. Ten-Point Drilling Program
3. BOP Schematic
4. Thirteen-Point Surface Plan
5. Maps & Diagrams



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 [Signature] TITLE District Engineer DATE 12/3/80

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

APPROVED [Signature] TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY  
DISTRICT ENGINEER

\*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.

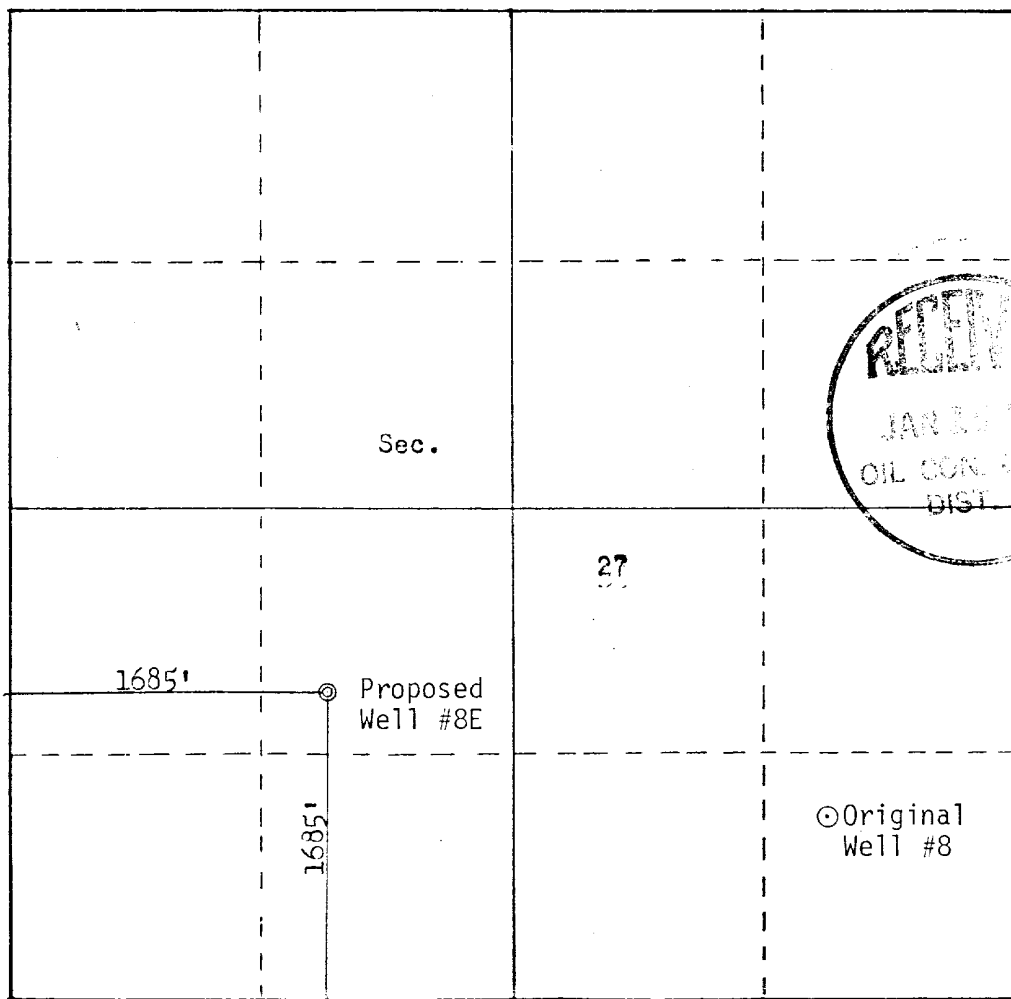
Operator MARATHON OIL COMPANY			Lease JICARILLA APACHE		Well No. 8E
Unit Letter K	Section 27	Township 26N	Range 5W	County Rio Arriba	
Actual Footage Location of Well: 1685 feet from the South line and 1685 feet from the West line					
Ground Level Elev. 6660	Producing Formation Dakota		Pool Basin Dakota	Dedicated Acreage: 320 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 N/A

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.



Scale: 1"=1000'

## CERTIFICATION

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

Name Dale T. Caddy  
Position District Operations Manager  
Company Marathon Oil Company  
Date November 21, 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 November 11, 1980  
Registered Professional Engineer and Land Surveyor  
Fred B. Kerr Jr.  
Certificate No. 3950

MARATHON OIL COMPANY  
DRILLING OPERATIONS PLAN

DATE: November 26, 1980

WELL NAME: Jicarilla Apache #8-E

LOCATION: 1,685' FSL & 1,685' FWL, Unit K, Sec. 27, T26N, R5W, Rio Arriba Co., New Mexico

1. Geologic name of the surface formation:  
Tertiary - undifferentiated.
2. Estimated tops of important geological markers:

<u>Formation</u>	<u>Depth</u>	<u>Datum</u>	<u>Formation</u>	<u>Depth</u>	<u>Datum</u>
Undifferentiated		Surface	Niobrara	6,365'	(+285')
Kirtland	2,655'	(+3,995')	Basal Niobrara	6,591'	(+ 59')
Fruitland	2,855'	(+3,795')	Sanastee	6,835'	(-185')
Pictured Cliffs	3,030'	(+3,620')	Greenhorn	7,145'	(-495')
Chacra	3,928'	(+2,722')	Graneros	7,200'	(-550')
Cliffhouse	4,735'	(+1,915')	Dakota	7,315'	(-665')
Menefee	4,880'	(+1,770')	Morrison	7,475'	(-825')
Mancos	5,430'	(+1,220')	T.D.	7,575'	(-925')

3. Estimated depths at which oil, water, gas or other mineral bearing formations are expected to be encountered:

<u>Formation</u>	<u>Depth</u>	<u>Datum</u>	<u>Content</u>
Fruitland	2,855'	(+3,795')	Gas
Pictured Cliffs	3,030'	(+3,620')	Gas
Chacra	3,928'	(+2,722')	Gas
Cliffhouse	4,735'	(+1,915')	Gas
Graneros	7,200'	(- 550')	Gas
Dakota	7,315'	(- 665')	Gas - Primary Objective

4. The Proposed Casing Program:

Casing Design

CASING STRING	HOLE SIZE	INTERVAL	SECTION LENGTH	SIZE (OD)	WEIGHT, GRADE AND JOINT	NEW OR		MUD WEIGHT	TENSION LOAD	SF	
						USED	NEW			t	c
Surface	13-3/4"	0' - 500'	500'	9-5/8"	36.0#, K55, STC	New	New	8.5-9.0	18,000#	10	7.96 10
Production	7-7/8"	500' - 6,500'	6,500'	4-1/2"	10.5#, K55, STC	New	New	8.5-9.0	81,000#	1.80	1.18 1.36
		6,500' - 7,575'	1,075'	4-1/2"	11.6#, K55, STC	New	New	8.5-9.0	13,000#	10	1.39 1.50

9 5/8" Casing

Cement Program:

Cement Volume: 500 ft. x .5259 cu. ft./ft x 2.0 excess = 525 cu.ft.

Slurry: 500 ft. calculated plus 100% excess - 450 sacks of class "B" cement containing 2% CaCl<sub>2</sub>.

Slurry Yield: 1.18 cu. ft./SK

Slurry Density: 15.6 lb/gal.

Water Requirement: 5.2 gal/SK

Casing Equipment: Guide shoe, insert flapper valve, 3 centralizers. WOC time will be a minimum of 6 hours. If insert valve holds, closed-in pressure after completion of cement job is not recommended.

4 1/2" Casing

1st Stage

Cement Volume: 3475 ft. x .2278 cu.ft./ft. x 1.20 excess = 950 cu.ft.

Lead Slurry: 2900 ft. calculated plus 20% excess from logs - 430 sacks of high yield (BjLite, Halliburton Lite, etc.) containing 0.8% fluid loss additive (D-19, Halad 9, etc.)

Slurry Yield: 1.85 cu.ft./SK

Slurry Density: 12.7 lb/gal.

Water Requirement: 9.9 gal./SK

Tail Slurry: 575' calculated plus 20% excess from logs - 100 sacks of class "B" cement containing .8% fluid loss additive (D-19, Halad 9, etc.)

2nd Stage

Cement Volume: 1600 ft. x .2278 cu.ft./ft. x 1.2 excess = 440 ft<sup>3</sup>

Slurry: 1600 ft. calculated plus 20% excess from logs - 350 sacks of 50/50 pozzolan cement containing 2% bentonite, 6% KCL, 0.6% dispersant (D-31, CFR-2, etc.) and 1.0% fluid loss additive (D-19, Halad 9, etc.)

Slurry Yield: 1.26 cu.ft./SK

Slurry Density: 14.15 lb/gal.

Water Requirement: 5.75 gal/SK

Cement Program cont.:

Casing Equipment: Locate stage collar at 4,100 ft. A guide shoe, flapper type float collar, 2 cement baskets, and 8 centralizers will be used. If float holds, closed-in pressure after completion of cement job is not recommended. Set casing on slips as soon as possible following cement job.

Slurry Preflush: 1st Stage - 800 gal.  
2nd Stage - 800 gal.

5. Pressure Control Equipment:

BOP equipment will include a double-ram preventer with pipe and blind rams and a rotating head (API arrangement SRdG). All equipment will have a 3,000 psi or greater working pressure. Rams, valves, lines, choke manifold and casing will be tested to 1,000 psi for 5 minutes prior to drilling out from under 9 5/8" surface casing. After drilling casing shoe and 5 ft. of additional hole, a shoe test will be performed to 11.0 ppg equivalent mud weight or leakoff, whichever occurs first. The accumulator should be of a sufficient capacity to meet the following requirements:

1. Ability of immediate closure to all members of the stack without recharging.
2. A total of 50% of the original fluid should remain as a reserve after accumulator activation.
3. A minimum pressure of 1,200 psi is required to insure that the preventers remain closed.

Visual checks of the equipment will be made hourly. Function pipe rams daily and blind rams on trips.

6. Drilling Mud Program:

<u>From</u>	<u>To</u>	<u>Type Mud</u>	<u>Weight</u>	<u>% Oil</u>	<u>Water Loss</u>
0'	500'	Spud	8.5 - 9.0	0	No control
500'	T.D.	Gel & Soltex	8.5 - 9.0	0	12 cc

The Fruitland, Pictured Cliffs, and Chacra formations may require additional mud weight to control gas influx. Sufficient barite should be on location in order to increase mud weight to 10.5 ppg if required. The anticipated maximum bottom-hole pressure is 2800 psi.

7. Auxillary Equipment Required:

A drilling rate recorder, calibrated to record drilling time for each one foot interval will be used.

The mud system will include a desander/desilter, gas buster or degasser, and pit level monitor. Both a remote adjustable and manual choke will be used.

A kelly cock will be used and a full opening manual safety valve will be available on the rig floor. A vented flapper valve will be in use at all times while drilling under surface casing.

A single shot drift indicator will be used.

<u>From</u>	<u>To</u>	<u>Maximum Distance Between Surveys</u>	<u>Maximum Deviation From Vertical</u>	<u>Maximum Change Per 100' of Depth</u>
0'	500'	250'	1°	1°
500'	T.D.	500'	5°	1°

8. Testing, Logging, Coring and Fracing Program:

From T.D. to 500 ft. run: SP-DIL, CNL, FDC, Caliper

From T.D. to surface run: GR

Samples will be taken every 60 ft. from 550 ft. to 6,500 ft.

Samples will be taken every 30 ft. from 6,500 ft. to T.D.

No DST's or cores are anticipated.

8. Testing, Logging, Coring and Fracing Program (cont'd):

Fracing Program:

After the casing is run and cemented, the zones of interest will be perforated. If stimulation is necessary, the well will be fraced with felled water and sand. Fracing with volatile liquids is not planned.

See Diagram "E"

9. Abnormal Conditions:

A normal pressure gradient is anticipated, however, abnormal pressure requiring mud weight as high as 10.5 ppg is possible in the Fruitland, Pictured Cliffs, and Chacra formations.  
A normal temperature gradient is anticipated.

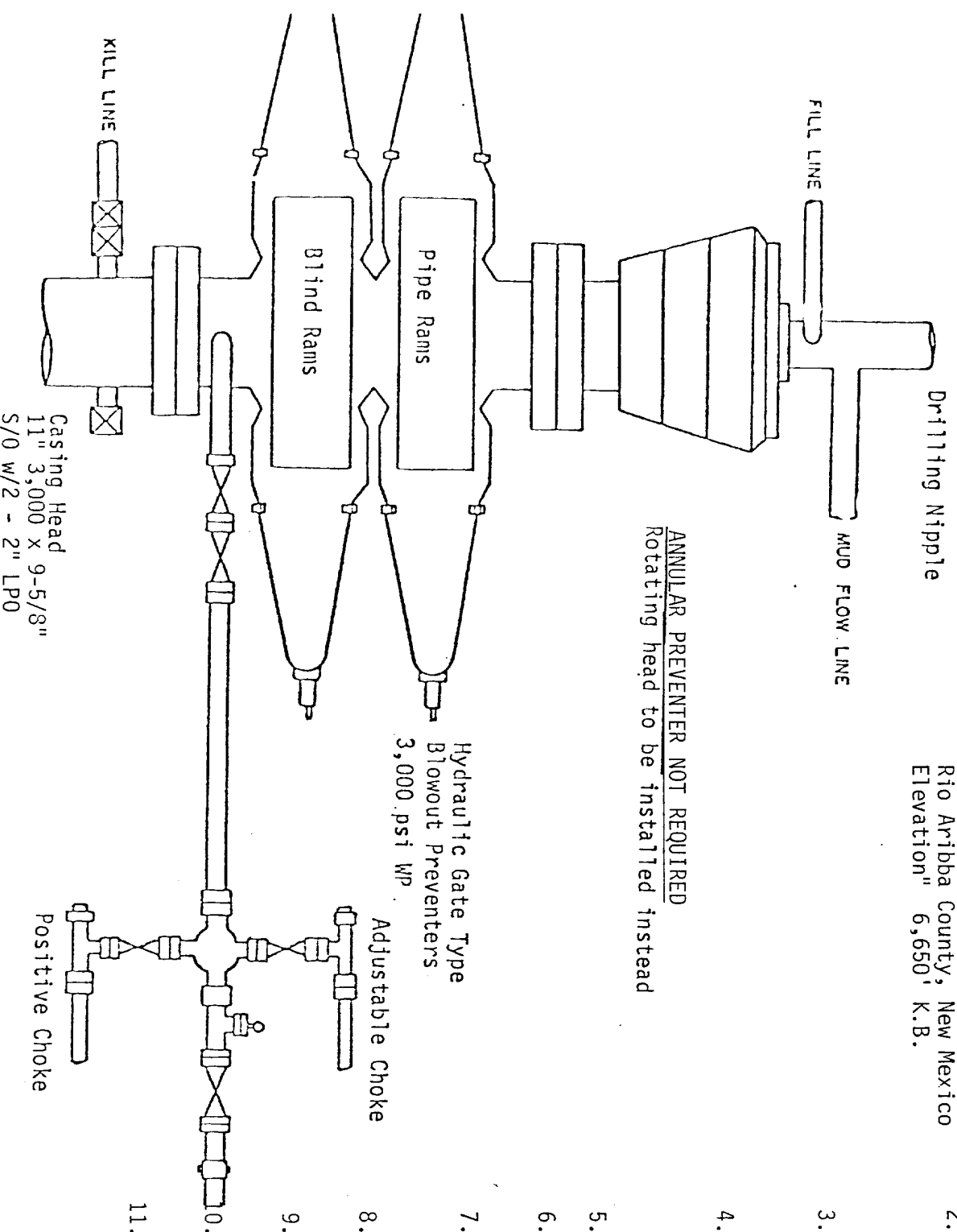
10. Anticipated starting date and duration:

Starting Date: 1st Quarter, 1981

Duration: 18 days

Name ME Kugh  
Title Drilling Supt.  
Date 12-3-80

Jicarilla Apache #8E Unit K  
 1,685' FSL, 1,685' FWL  
 Section 27, T26N, R5W  
 Rio Arriba County, New Mexico  
 Elevation" 6,650' K.B.



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 (Omsco or equivalent) must be available on rig floor at all times and with proper connections. The I.D. of safety valves should be as great as I.D. of tool joints on 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 accumulator. Controls may be either on floor or ground 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.

9-5/8", 24.0#, K55  
 Casing to 500'

MARATHON OIL COMPANY  
SURFACE USE & OPERATIONS PLAN

DATE: November 21, 1980

WELL NAME: Jicarilla Apache #8-F

LOCATION: 1,685' FSL & 1,685' FWL, Unit K, Sec. 27, T26N, R5W, Rio Arriba Co., New Mexico

#1 Existing Roads:

- A. Proposed well site as staked. (Actual staking should include two each 200-foot directional reference stakes).

See attached survey plat.

- B. Route and distance from nearest town and locatable reference point to where well access route leaves main road.

See attached map Diagram "A".

- C. Access road(s) to location color-coded or labeled.

See attached map Diagram "A" color coded green.

- D. If exploratory well, all existing roads within a 3-mile radius (including type of surface, conditions, etc.).

Not applicable.

- E. If development well, all existing roads within a 1-mile radius of well site.

See diagram "A".

- F. Plans for improvement and/or maintenance of existing roads.

Blade and gravel where needed.

#2 Planned Access Roads:

Map showing all necessary access roads to be constructed or reconstructed, showing:

- |                     |                     |
|---------------------|---------------------|
| (1) Width           | 16'                 |
| (2) Maximum grades  | 0% - 5%             |
| (3) Turnouts        | None required       |
| (4) Drainage design | Ditched and crowned |
- (5) Location and size of culverts and brief description of any major cuts and fills.

There will be no cuts, fills or culverts on access road.

- (6) Surfacing material

Gravel where needed.

- (7) Necessary gates, cattleguards, or fence cuts.

None required

- (8) (New or reconstructed roads are to be center-line flagged at time of location staking).

New access road is center-line flagged w/hot blue & orange flagging material and walked 50' on each side by an archeologist from San Juan College, Farmington, NM.

#3 Location of Existing Wells:

Two-mile radius map if exploratory, or 1-mile radius map if development well, showing and identifying existing:

- (1) Water wells           None
- (2) Abandoned wells   None
  
- (3) Temporary abandoned wells   None
  
- (4) Disposal wells       None
- (5) Drilling wells       None
- (6) Producing wells     See map Diagram "A"
- (7) Shut-in wells       See map Diagram "A"
- (8) Injection wells     None
- (9) Monitoring or observation wells for other resources.  
                             None

#4 Location of Existing and/or Proposed Facilities:

A. Within 1-mile radius of location show the following existing facilities owned or controlled by lessee/operator:

- (1) Tank Batteries           See map Diagram "A"
- (2) Production Facilities   See map Diagram "A"
- (3) Gathering Lines         None
- (4) Gas Gathering Lines     None
- (5) Injection Lines (Indicate if any of the above lines are buried).  
                             None

- (6) Disposal Lines           None

B. If new facilities are contemplated, in the event of production, show:

- (1) Proposed location and attendant lines by flagging if off of well pad.

Adjacent to the road and as close to the proposed drill site as possible without setting on any fill.  
See Diagram "B".

- (2) Dimensions of Facilities

See Diagram "B"

- (3) Construction methods and materials:

Good engineering practices will be used in the construction of these facilities and materials will be obtained through local vendors and contractors.

- B. If new facilities are contemplated, in the event of production, show:  
(cont'd)

(4) Protective measures and devices to protect livestock and wildlife.

Woven wire fences of the pit areas and flagging, if necessary.

- C. Plans for rehabilitation of disturbed areas no longer needed for operations after construction completed.

Restoration of the drill site and tank battery areas will be reshaped to conform with the topography. The top soil will be redistributed at the proper time. The sites will be reseeded as per the recommended seed mixture.

#5 Location and Type of Water Supply:

- A. Show location and type of water supply either on map or by written description.

Water supply is a water hole on the Tapicito Creek, located in the NW/4 of Sec. 28, T26N, R5W. See map Diagram "A", color coded blue.

- B. State method of transporting water, and show any roads or pipelines needed.

Water will be hauled by truck to the well site. See map Diagram "A" color coded blue for water haul route.

- C. If water well is to be drilled on lease, so state. (No APD for water well necessary, however, unless it will penetrate potential hydrocarbon horizons).

No water well will be drilled.

#6 Source of Construction Materials:

- A. Show information either on map or by written description.

Construction materials will be native soil or purchased from a Jobber and hauled to the well site by same.

- B. Identify if from Federal or Indian Land.

None.

- C. Describe where materials, such as sand, gravel, stone and soil material, are to be obtained and used.

Any needed materials will be purchased from a Jobber and hauled to the well site.

- D. Show any needed access roads crossing Federal or Indian Lands under Item 2.

None

#7 Methods of handling Waste Disposal:

Describe methods and location of proposed containment and disposal of waste material, including:

(1) Cuttings Reserve Pit

(2) Drilling fluids Reserve Pit

(3) Produced fluids (oil, water) Reserve Pit

#7 Methods of Handling Waste Disposal: (cont'd)

(4) Sewage Porta Poty

(5) Garbage and other waste material (Trash pits will be completely contained with small mesh wire to prevent wind scattering trash before being burned or buried).

There will be a 10' x 10' burn pit on the drill site, and it will be fenced.

(6) Statement regarding proper cleanup of well site area when rig moves out.

At the completion of drilling, the site and surrounding area will be cleaned up and all burnable material will be put in the burn pit and burned. All foreign material will be buried.

#8 Ancillary Facilities:

Identify all proposed camps and airstrips on a map as to their location, area required and construction methods. (Camp center and airstrip center lines to be staked on the ground).

None

#9 Wellsite Layout:

A plat (not less than 1" = 50') showing:

(1) Cross sections of drill pad with cuts and fills.

See Diagram "C":

(2) Location of mud tanks, reserve, burn and trash pits, pipe racks, living facilities and soil material stockpiles.

See Diagram "D"

(3) Rig orientation, parking areas and access roads.

See Diagram "D"

(4) Statement as to whether pits are to be lined or unlined. (Approval as used in this section means field approval of location. All necessary staking of facilities may be done at time of field inspection). A registered surveyor is not mandatory for such operations.

Pits will not be lined.

#10 Plans for Restoration of Surface:

State restoration program upon completion of operations, including:

(1) Backfilling, leveling, contouring and waste disposal; segregation of spoils materials as needed.

The drill site will be cleaned and waste material will be put in the trash burn pit, which will be covered at the finish of the drilling operation. The reserve pit will be back filled as soon as it is dry.

(2) Revegetation and rehabilitation - including access roads (normally per BLM recommendations).

The top soil will be redistributed and at the proper season and a seed mixture of BLM requirements will be drilled planted.

#10 Plans for Restoration of Surface: (cont'd)

- (3) Prior to rig release, pits will be fenced and so maintained until cleanup.

The reserve pit will be fenced on 3 sides during drilling. At the completion of the drilling, all pits will be fenced on the one remaining side.

- (4) If oil on pit, remove oil or install overhead flagging. If there is oil on the reserve pit, it will be removed or flagged with overhead flagging.

- (5) Timetable for commencement and completion of rehabilitation operations.

Depending upon climatic conditions, restoration should be completed from six months to one year after spud date.

#11 Other Information:

General Description of:

- (1) Topography, soil characteristics, geologic features, flora and fauna. Topo is sagebrush and scrub pine covered hills, occasionally dissected by drainage features. Flora is pinon, juniper sage, prickly pear cacti, galleta, Indian rice grass. Fauna is deer, rabbits, fox, cattle and sheep.

- (2) Other surface use activities and surface ownership of all involved lands.

The drill site and access road are owned by the Jicarilla Apache Nation.

- (3) Proximity of water, occupied dwellings, archeological, historical or cultural sites.

There is no water or occupied dwellings in the area. Archeological services were performed by San Juan College, Farmington, NM.

#12 Lessee's or Operator's Representative: Mr. Mike E. Krugh  
Marathon Oil Company  
P.O. Box 2659  
Casper, WY 82602  
(307) 235-2511 Ext. 484

#13 Certification: The following statement is to be incorporated in the plan and must be signed by the lessee's or operator's field representative who is identified in item No. 12 of the plan:

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

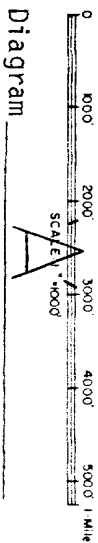
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Date

ME Krugh  
Name

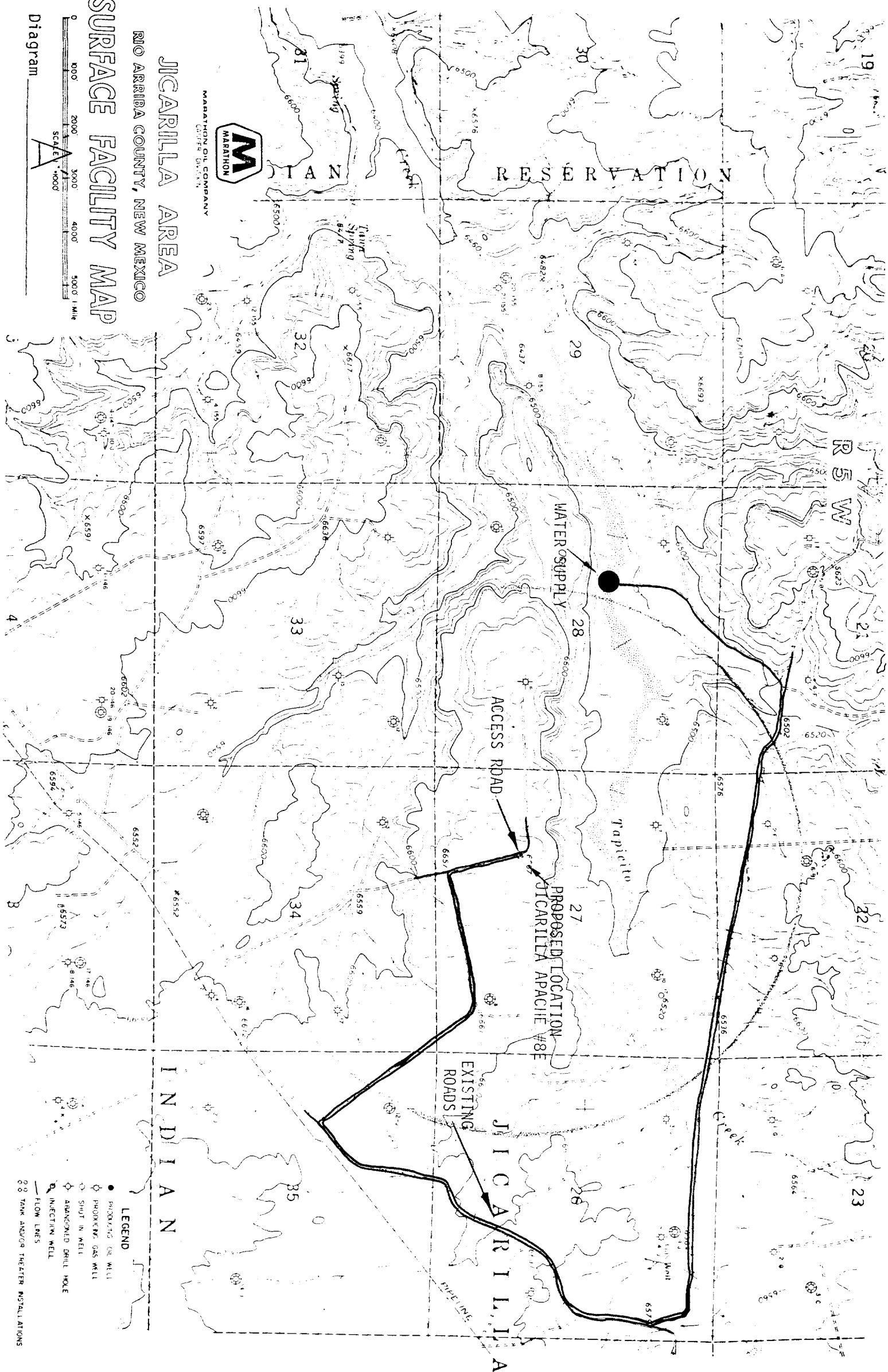
Drilling Supt  
Title

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JICARILLA AREA  
RIO ARriba COUNTY, NEW MEXICO  
SURFACE FACILITY MAP



MARATHON OIL COMPANY  
CUTTER DIVISION



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R. 9 W.

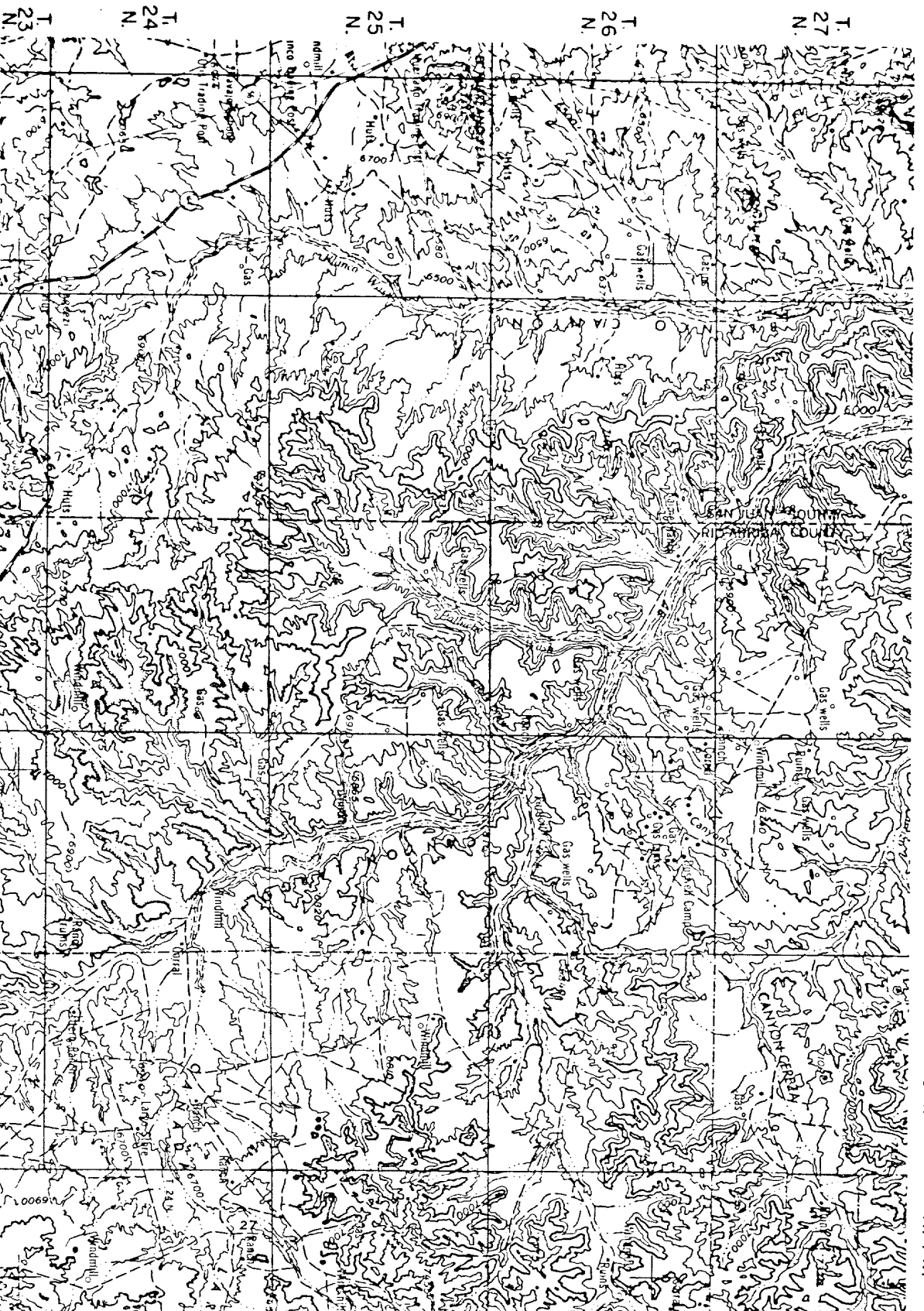
R. 8 W.

R. 7 W.

R. 6 W.

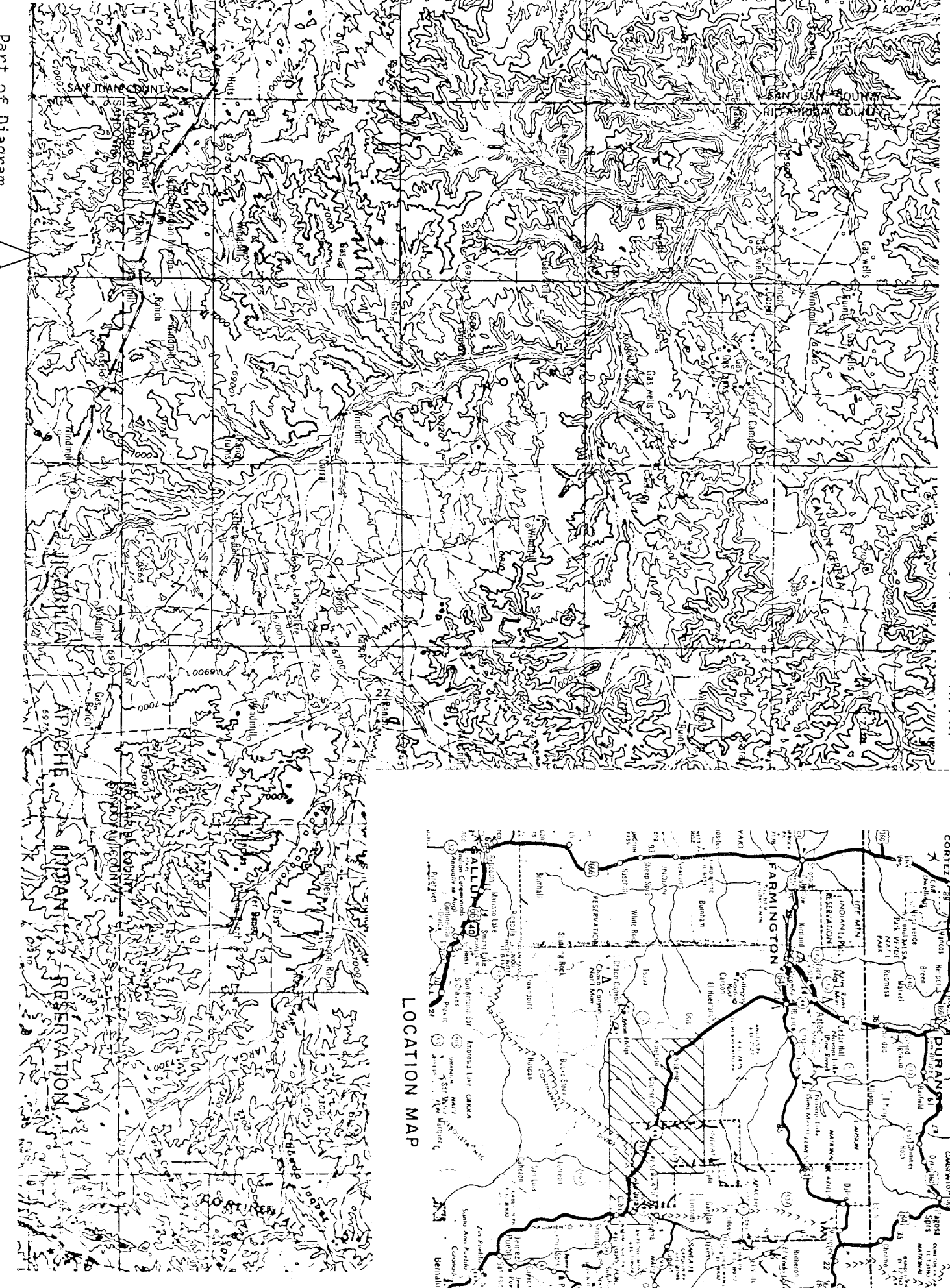
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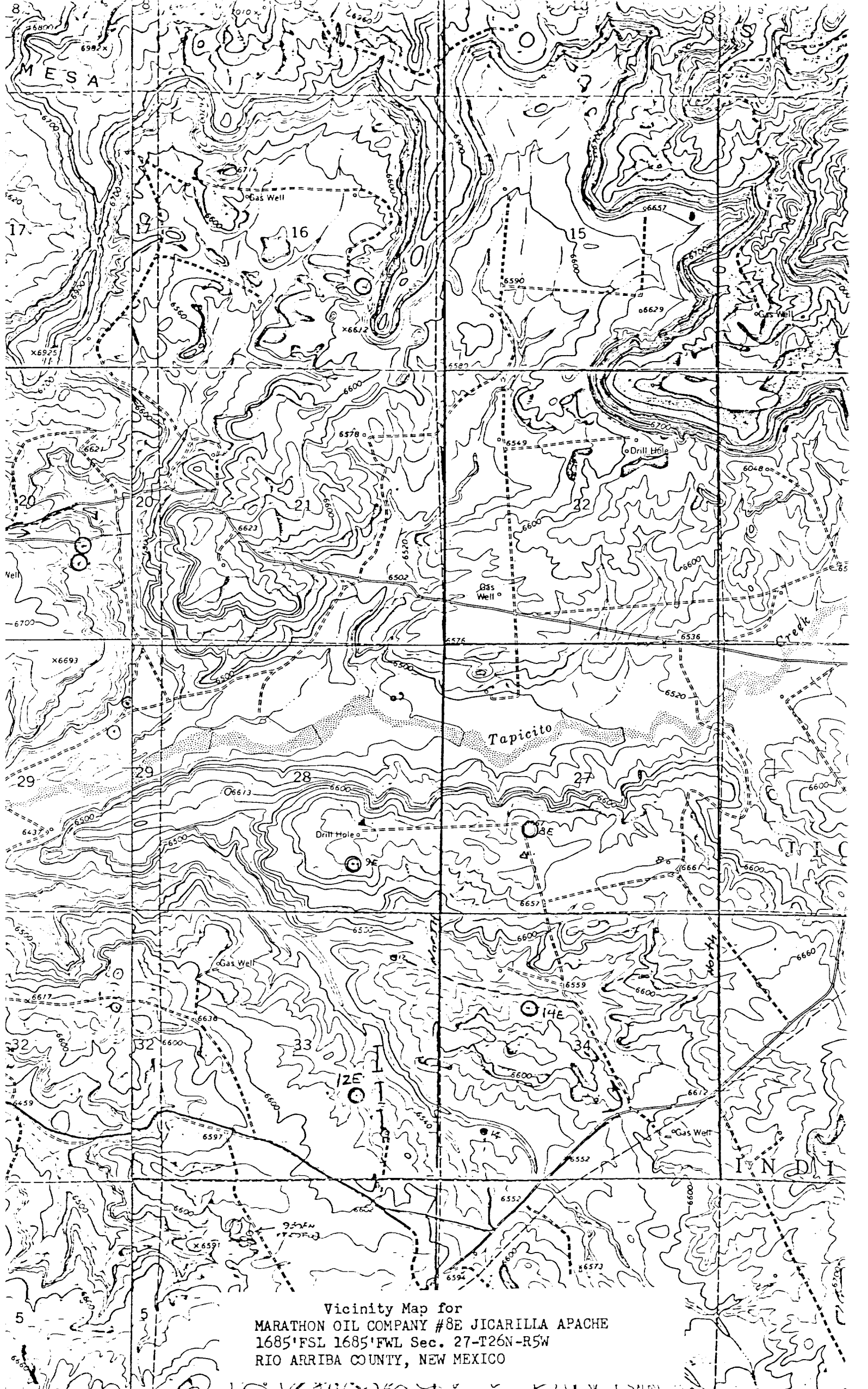
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ROAD MAP  
TO ACCOMPANY  
DRILLING PERMIT APPLICATION  
IN  
JICARILLA AREA  
RIO ARRIBA COUNTY, NEW MEXICO  
APPLICANT,  
MARATHON OIL CO.  
CASPER, WYO. 82601

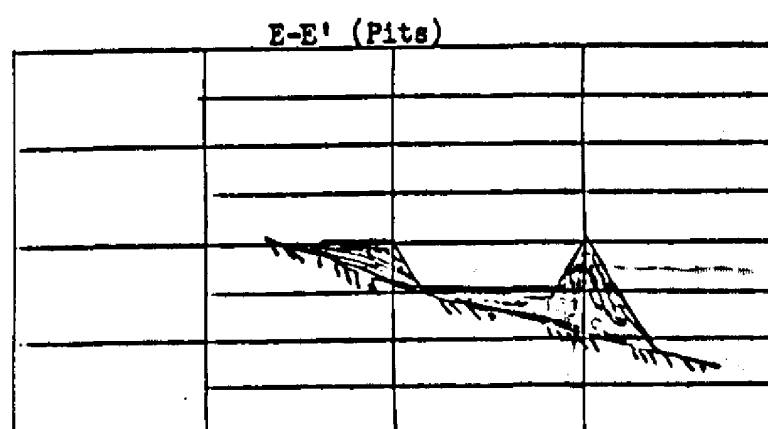
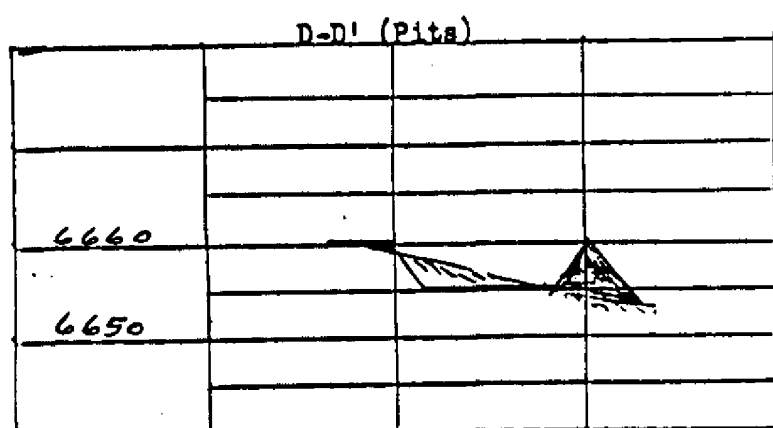
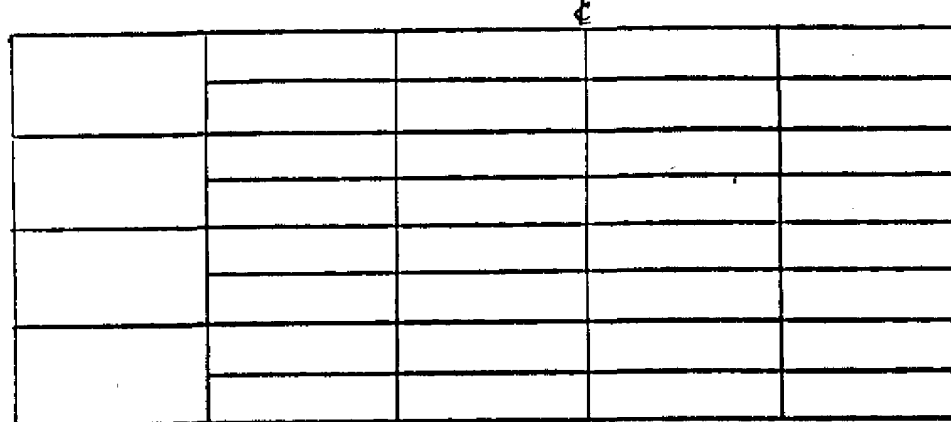
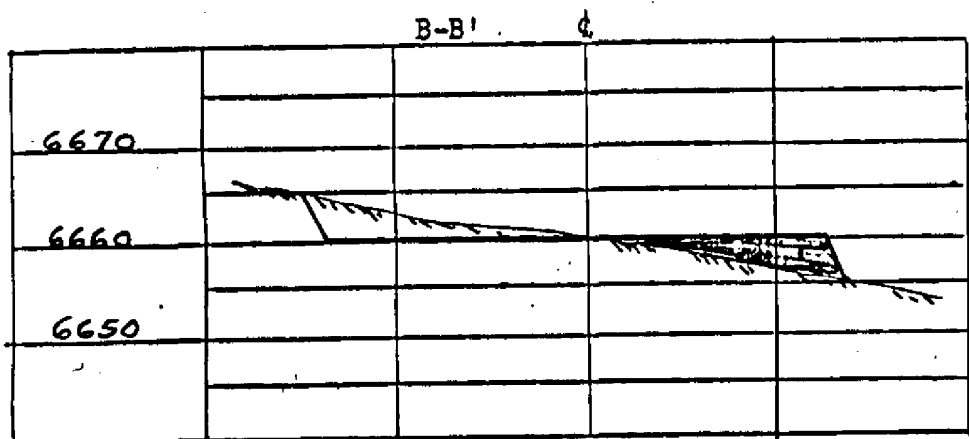
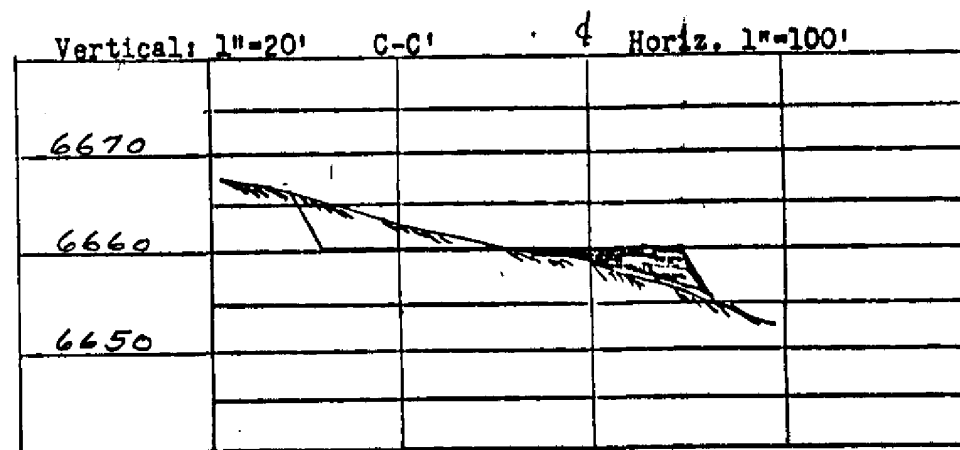
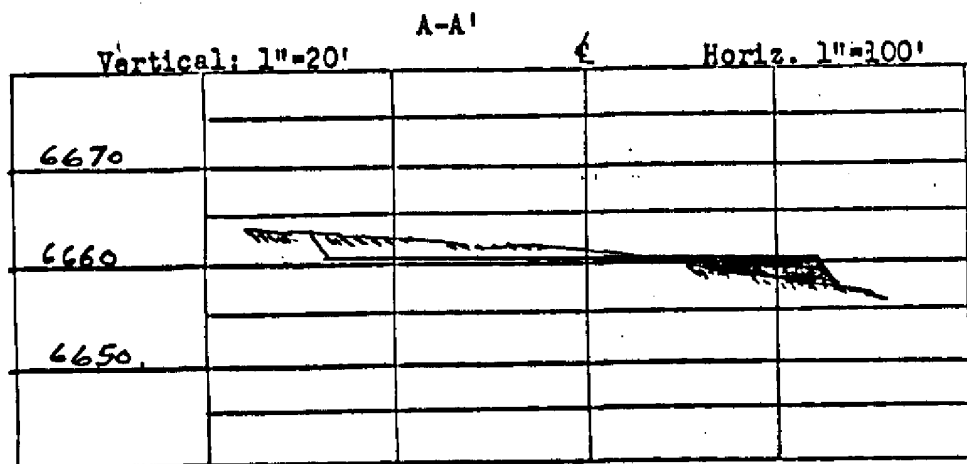
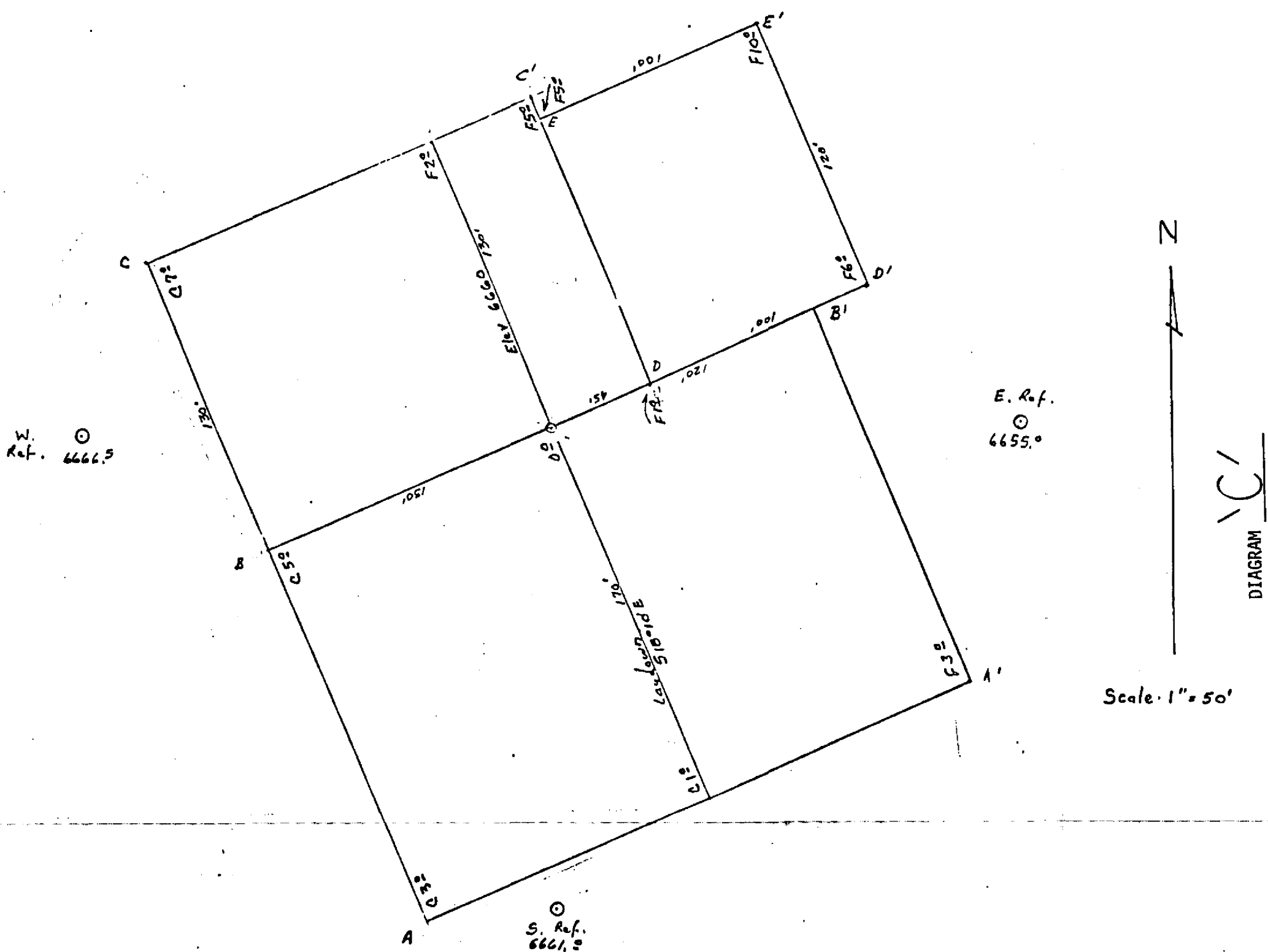
Part of Diagram

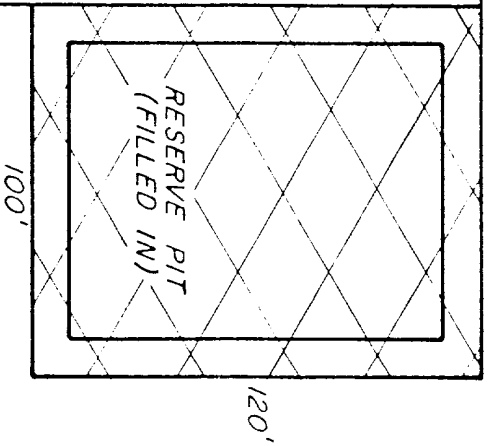
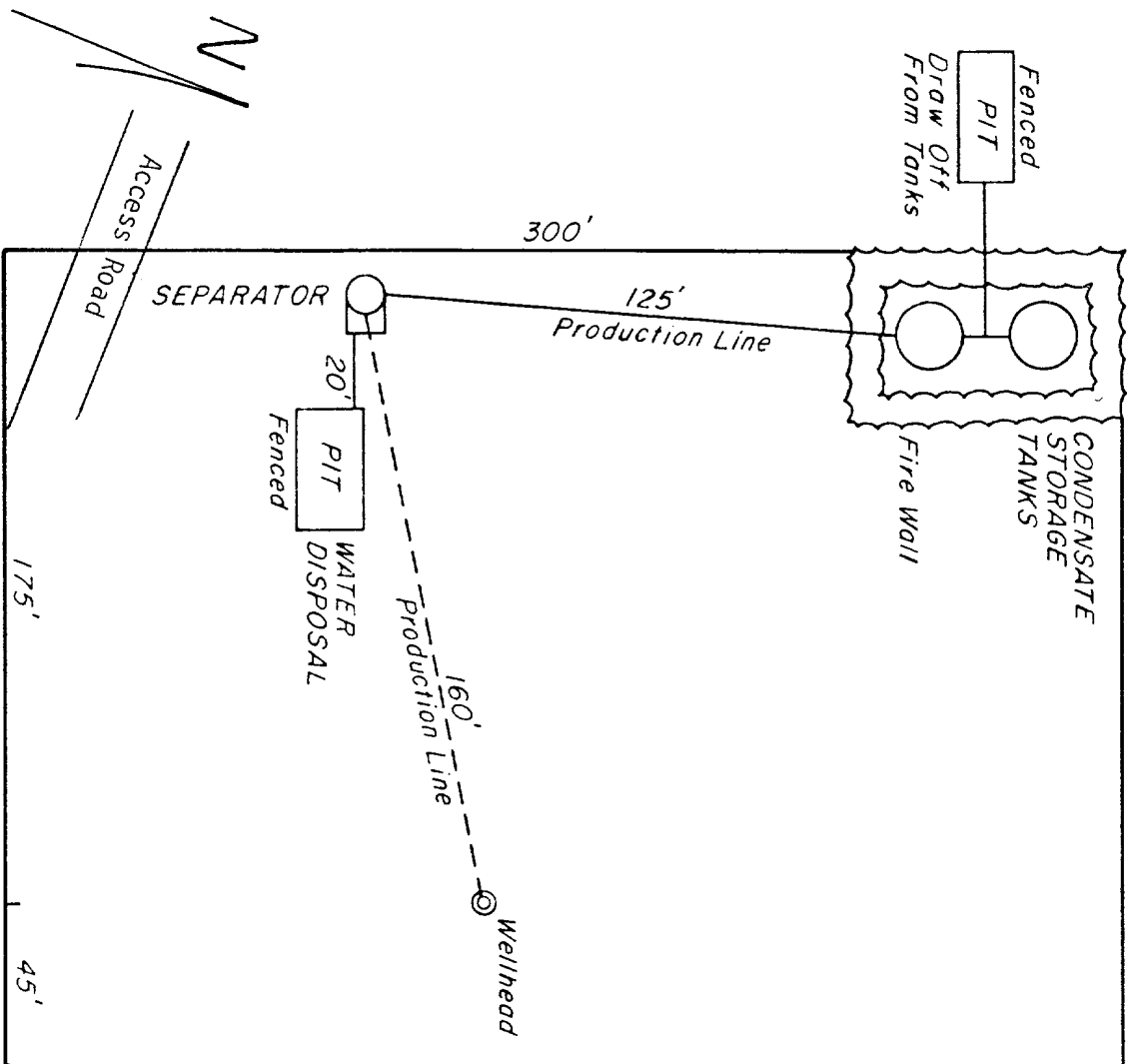




Vicinity Map for  
MARATHON OIL COMPANY #8E JICARILLA APACHE  
1685'FSL 1685'FWL Sec. 27-T26N-R5W  
RIO ARriba COUNTY, NEW MEXICO

N Reference  
①  
6653.1

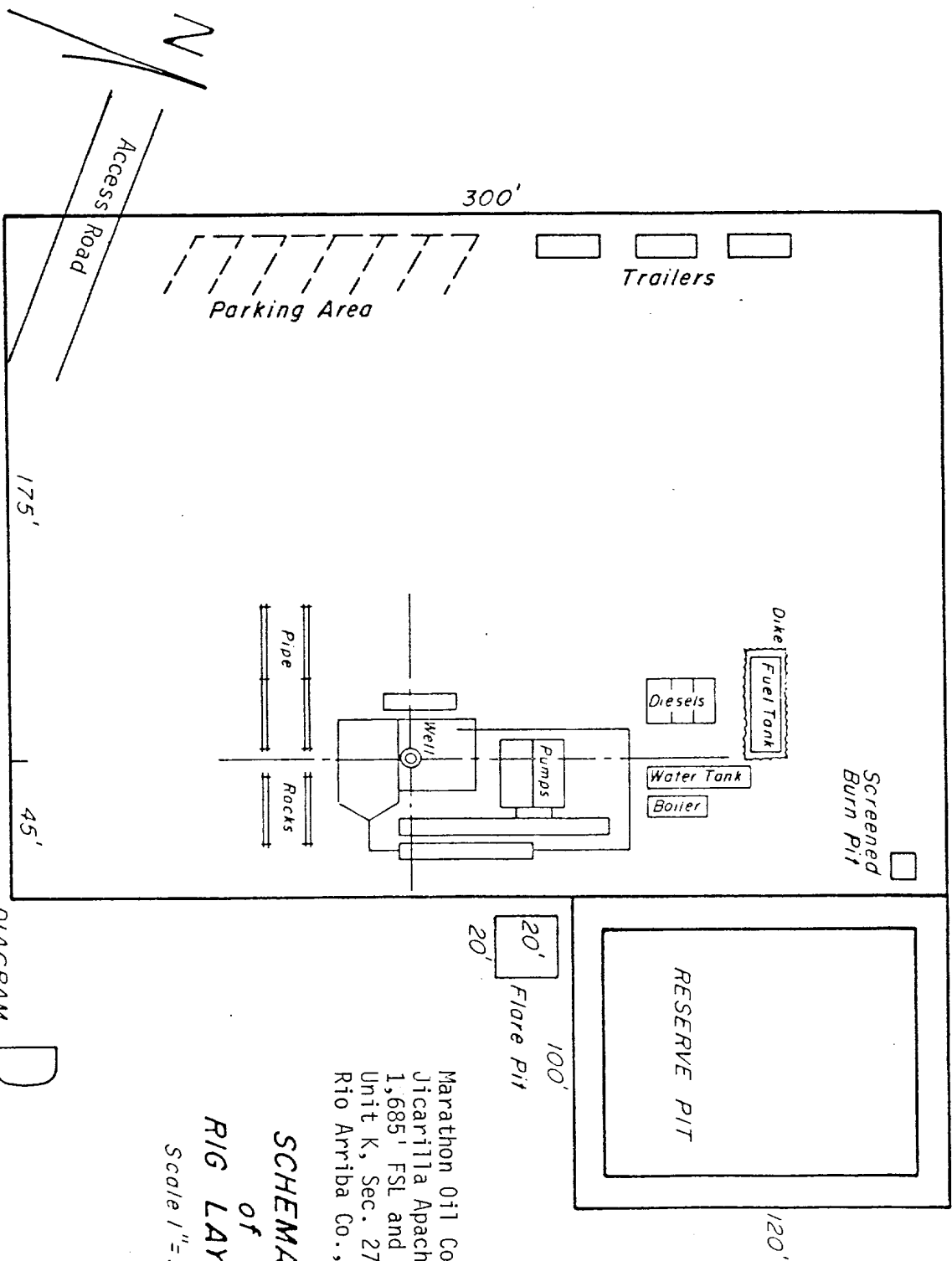




Marathon Oil Company  
 Jicarilla Apache #8E  
 1,685' FSL and 1,685' FWL  
 Unit K, Sec. 27, T26N, R5W  
 Rio Arriba Co., New Mexico

**SCHEMATIC  
 OF  
 PRODUCTION FACILITIES**  
 Scale 1"=50'

DIAGRAM **B**



Marathon Oil Company  
 Jicarilla Apache #8E  
 1,685' FSL and 1,685' FWL  
 Unit K, Sec. 27, T26N, R5W  
 Rio Arriba Co., New Mexico

# **SCHEMATIC**

of

## **RIG LAYOUT**

Scale 1" = 50'

DIAGRAM

**D**

