

MERIDIAN OIL INC.

CASE 10325

JUNE 13, 1991

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

RECEIVED

MAY 21 1991

OIL CONSERVATION DIVISION

CASE:

APPLICATION OF MERIDIAN OIL INC.
FOR A HIGHLY DEVIATED DIRECTIONAL
DRILLING PILOT PROJECT AND SPECIAL
OPERATING RULES INCLUDING A PROJECT
ALLOWABLE, SAN JUAN COUNTY, NEW MEXICO

A P P L I C A T I O N

Comes now Meridian Oil Inc., by and through its attorneys, Kellahin, Kellahin & Aubrey, and applies to the New Mexico Oil Conservation Division for approval for a Highly Deviated Directional Drilling Pilot Project including special operating rules and a project allowable for its Huerfano Unit Well No. 300 to be drilled at a standard surface well location in the NE/4SE/4, and a 320-acre standard spacing unit in the S/2 of Section 31, T27N, R10W, in the Angels Peak Associated Oil and Gas Pool, San Juan County, New Mexico and in support thereof states:

(1) Applicant is the operator of the Huerfano Unit which includes the S/2 of Section 31, T27N, R10W, N.M.P.M., San Juan County, New Mexico and all adjoining spacing units.

(2) Applicant proposes to drill a highly deviated directional well commencing at a surface location in the NE/4SE/4 of Section 31 estimated to be 1060 feet FEL and 1450 feet FSL of said Section 31 and drilled vertically to approximately 4838 feet (+ or - 100 feet) in the Mancos Shale at which point the applicant will kickoff the well in a Northwesterly direction building an assumed 350 foot radius turn and penetrate the Niobrara Member of the Angels Peak Associated Oil and Gas Pool at an estimated depth of 5200 feet and thence drilling at a high angle in a Northwesterly direction a distance not in excess of 3453 feet. See Exhibit A.

(3) Except as otherwise requested herein, Applicant proposes that this project be subject to the Special Rules and Regulations that govern the Angels Peak Associated Oil and Gas Pool and that the S/2 of Section 31 be dedicated as the spacing unit for the project.

(4) The Niobrara interval and the Tocado Sandstone interval of the Gallup are the potential productive zones of the Angels Peak Associated Oil and Gas Pool. The

Niobrara is characterized by low intergranular permeability naturally fractured sandstone/siltstone reservoirs. The Tocito produces through intergranular permeability.

(5) Past experience in said pool has shown that unless a conventionally drilled (vertical) well intersects natural fractures, the chance of obtaining commercial production is severely curtailed.

(6) By drilling a highly deviated wellbore, the applicant is attempting to increase the probability of encountering several of these fractures, which may ultimately result in the recovery of a greater amount of gas and oil, thereby preventing waste.

(7) In as much as the exact distance and direction of the lateral portion of the wellbore is not known at this time, the Applicant seeks approval to be allowed to drill said lateral portion anywhere within an area designated a target window as follows: commencing at a distance not closer than 790 feet from the east line no closer than 790 feet from the south line or 3430 feet from the North line of Section 31, thence towards the Northwest so that once within the standard drilling window for a gas well in the Angels Peak Associated Oil and Gas Pool, no portion of the wellbore shall be closer

than 790 feet to the outer boundary of the S/2 of Section 31.

(8) Because this spacing unit is within the Huerfano Unit there are no offsetting operators and parties to whom notice is required.

(9) Applicant seeks a special project allowable with such allowable based upon the greater of the following formulas:

(a) The deliverability of the highly deviated well as determined by NMOCD regulations; or

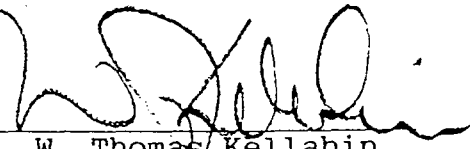
(b) Two (2) times the allowable for a gas well; or four (4) times the allowable for an oil well under the Angels Peak Associated Oil and Gas Pool.

(10) The granting of this Application will be in the best interest of conservation, the prevention of waste and the protection of correlative rights.

WHEREFORE, Applicant requests that this matter be set for hearing on June 13, 1991 before a duly appointed Examiner of the Oil Conservation Division and, after notice and hearing as required by law, the Division enter its Order granting this application.

Respectfully submitted,

KELLAHIN, KELLAHIN & AUBREY

By: 

W. Thomas Kellahin
Post Office Box 2265
Santa Fe, New Mexico 87504
(505) 982-4285

Attorneys for Applicant

Well Schematic

1" = 750'

EXHIBIT "A"

WEST

EAST

Deviation: 7.5-90°

Huerfano Unit ± 300'

SE 31.127N R10W

TVD

Surface

15090'
15090' surf. elev.

0

Surf. ss 13 3/4" @ 300'

500'

T/ Lobo Alamo

1000'

T/ Fruitland

1500'

T/ PG SS

T/ Lewis Sh.

2000'

2500'

T/ Mesa Verde Gt.

3000'

T/ Cliff House

3500'

T/ Pt Lobo

4000'

T/ Mancos Sh.

4500'

KOPH 36
± 100'

5000'

T/ Niobrara

T/ Niobrara 'A'

T/ Niobrara 'B'

T/ Niobrara 'C'

CSG 75'

T/ Gallup SS

T/ Tootie SS

5500'

T/ Juana Lopez

T/ B/ Gallup SS

T/ Greenhorn L.S.

6000'

T/ Dakota SS

Sec. 31, T27N - R10W

1:1000

Fracture Trend
N 16° E



SEC. 31 N/2 S/2

277° TD

#300

1060'

3453'

#79

#275

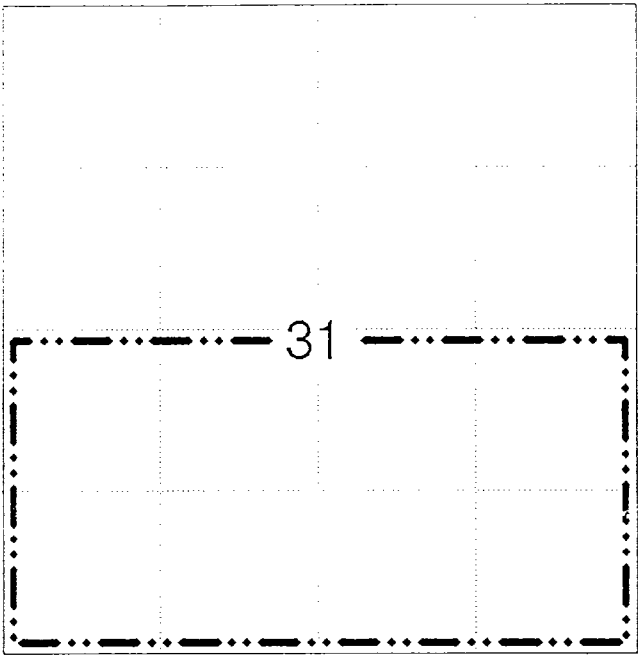
#287

Huerfano High Angle Project

OFFSET OPERATOR PLAT

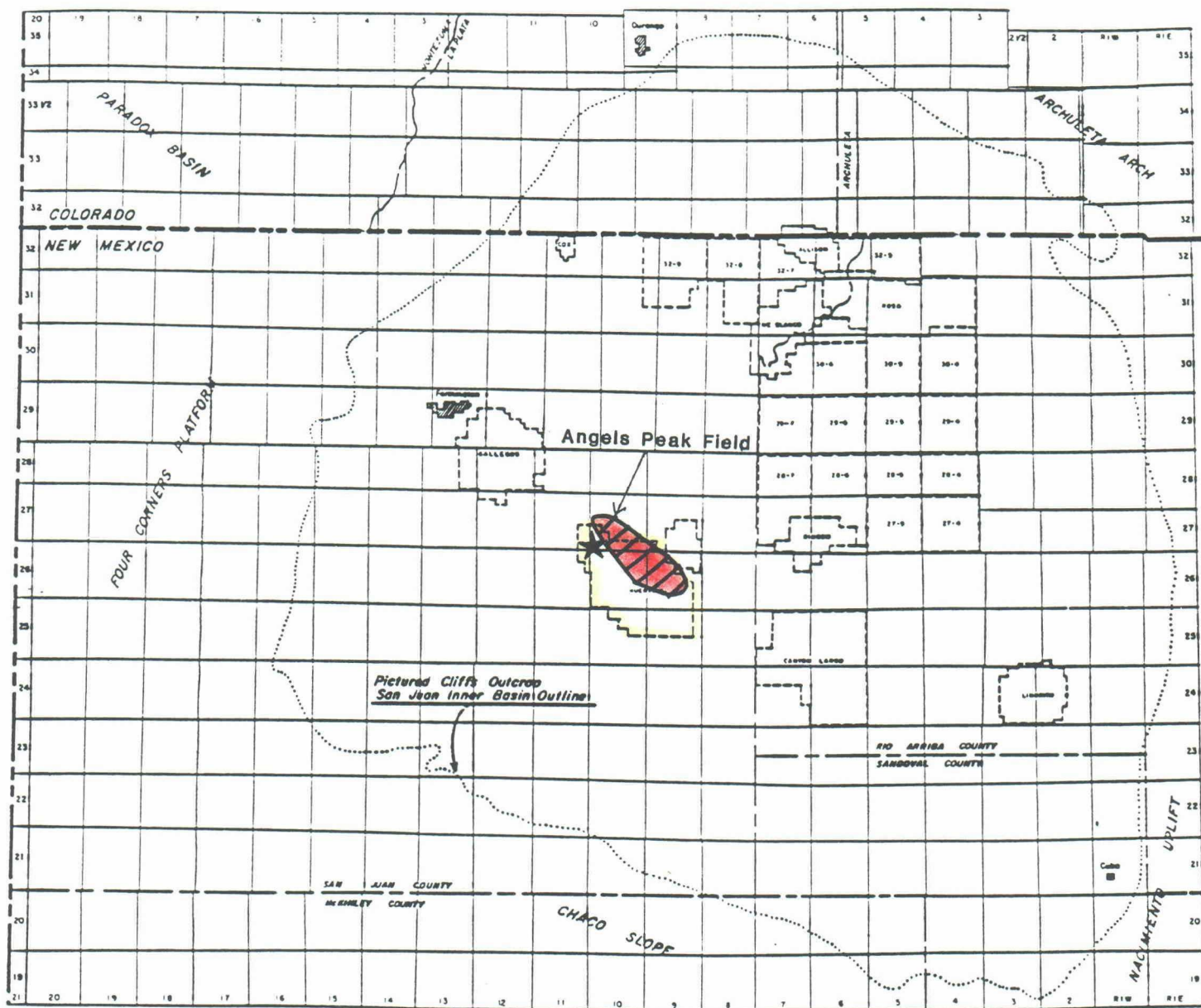
Huerfano Unit #300

Township 27 North, Range 10 West



All surrounding lands located within Unit Boundries

Meridian Oil Inc - Unit Operator



MERIDIAN OIL

LOCATOR MAP/SAN JUAN BASIN

★ HUERFANO UNIT #300

NE/SE/4 SEC 31 T27N-R10W

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OIL CONSERVATION DIVISION

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

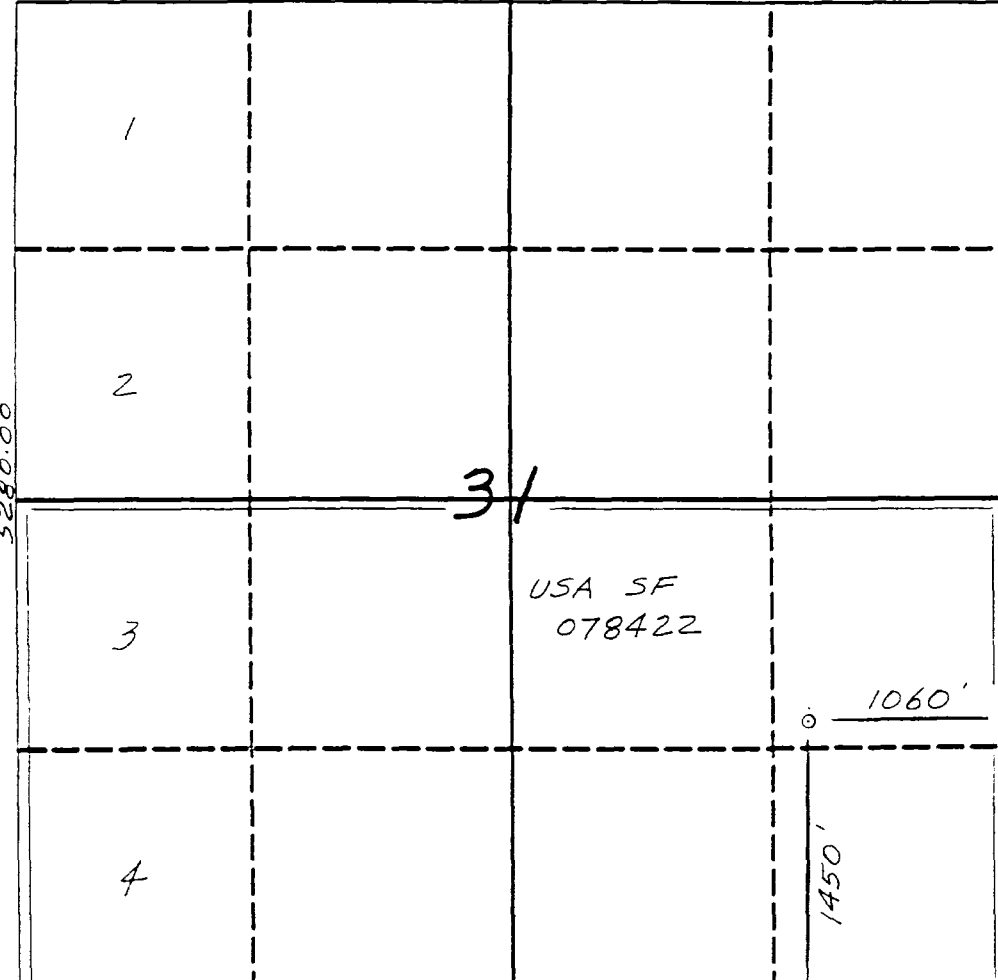
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator Meridian Oil Inc.		Lease Huerfano Unit		Well No. 300	
Unit Letter I	Section 31	Township 27 North	Range 10 West	County San Juan	
Actual Footage Location of Well:					
1450 feet from the South line and		1060 feet from the East line			
Ground level Elev. 6090'	Producing Formation Gallup	Pool Angel Peak	Dedicated Acreage: 328.18 Acres		
1. Outline the acreage dedicated to the subject well by colored pencil or hectare 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 interest of all owners been consolidated by communitization, unitization, force-pooling, etc.? ☒ Yes ☐ No If answer is "yes" type of consolidation <u>unitization</u> 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 interest, has been approved by the Division.					
5408.04  USA SF 078422 1060' 1450' 5417.28				OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Signature Peggy Bradfield Printed Name Regulatory Affairs Position Meridian Oil Inc. Company Date	
5280.00 5408.04 5280.00				SURVEYOR CERTIFICATION 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 5-2-91 Signature [Signature] Professional Surveyor NEW MEXICO 6857 REGISTERED LAND SURVEYOR Neale C. Edwards	

TYPICAL VERTICAL WELL

HI-ANGLE WELL

Angels Peak Associated Pool Allowables

Possible Angel's Peak Associated Extension

Top Gas Allowable (320 acres):

D = Deliverability of well @ Pipeline pressure

$$A_g = 1776 \text{ MCFPD}$$

OR

Top Oil Allowable (80 acres):

$2xA_g$ = Double the Pool Allowable for Gas

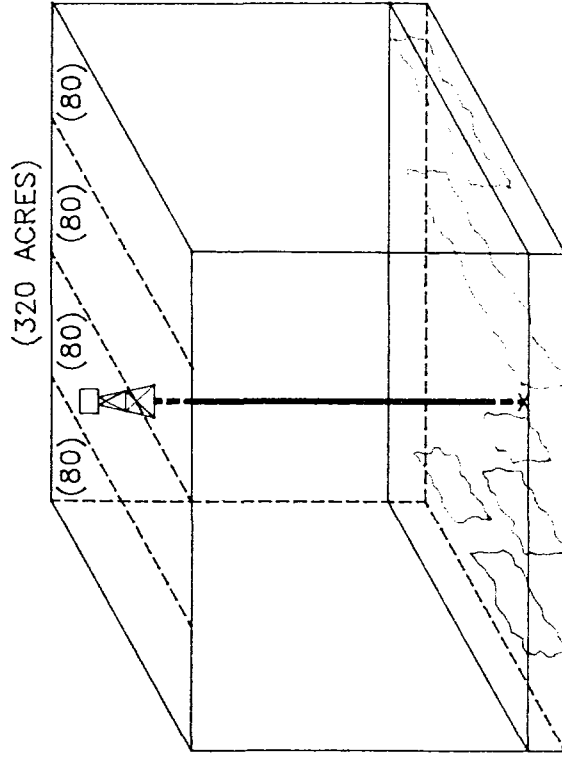
$$A_o = 222 \text{ BOPD}$$

OR

in the event of oil classification:

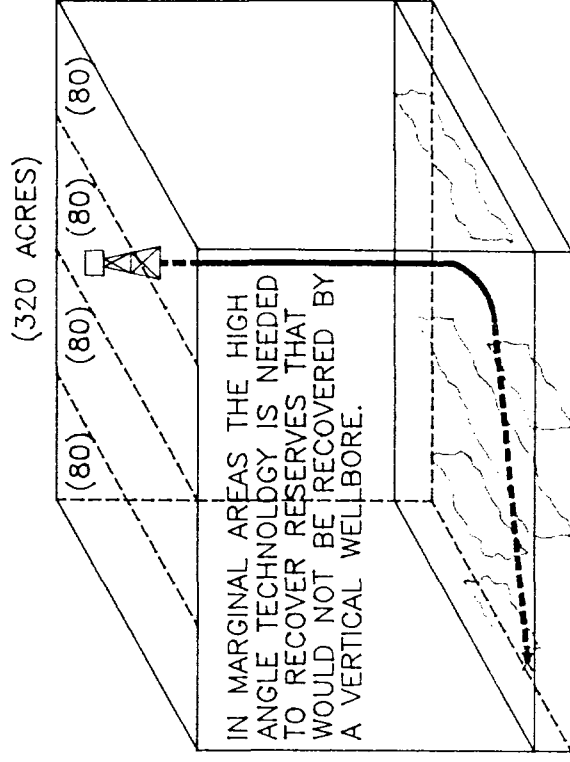
$4xA_o$ = Quadruple the Pool Allowable for Oil

TYPICAL VERTICAL WELL



ESTIMATED COST - \$ 500,000 - 600,000

HI ANGLE WELL



ESTIMATED COST - \$ 1,500,000 - 2,000,000

MERIDIAN OIL INC.
HUERFANO UNIT NO. 300
HIGH ANGLE WELL

HIGH TECH - HIGH \$\$\$ - HIGH RISK

Advantages

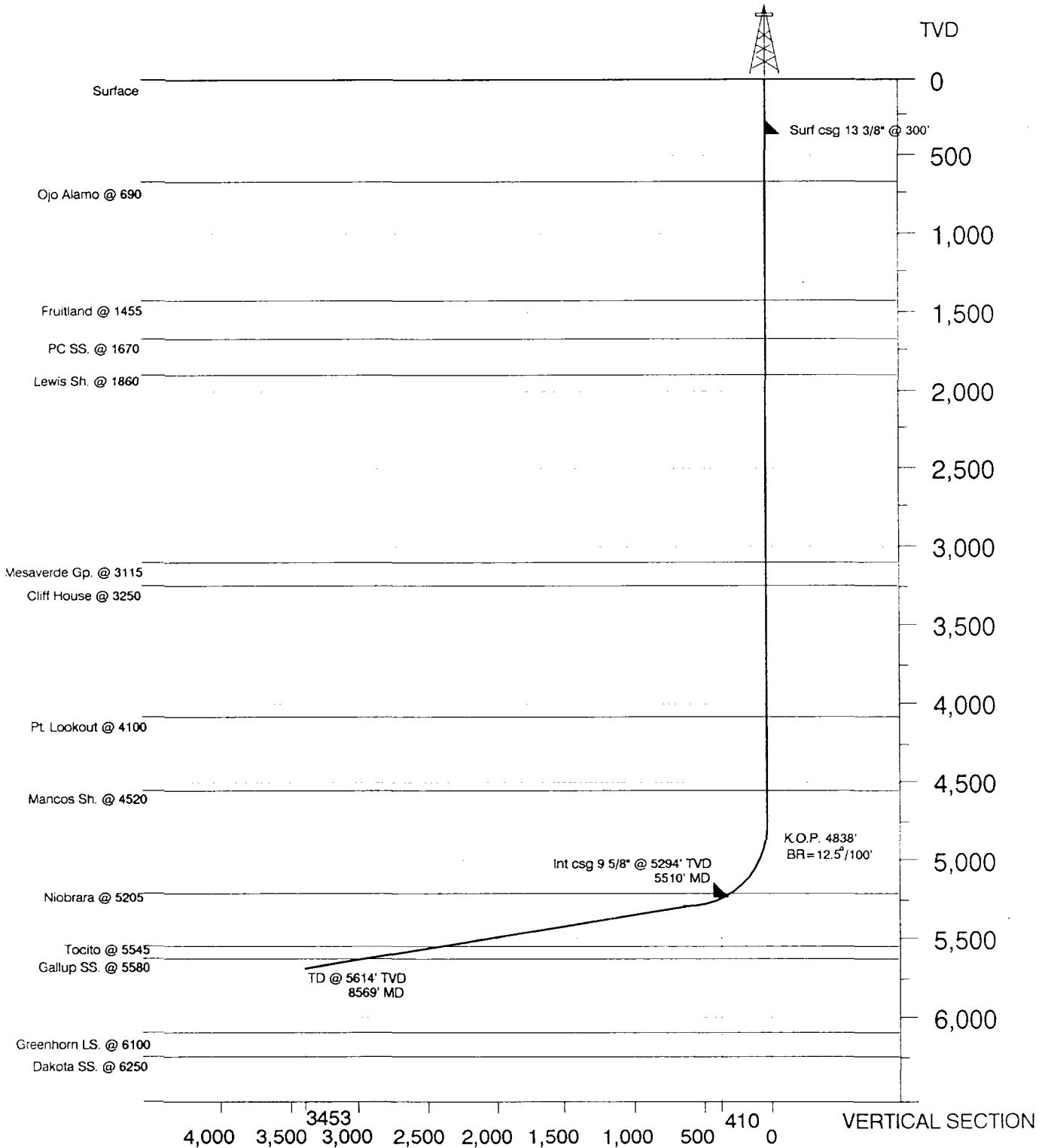
Exposure To Risk

- | | |
|----------------------------------|--|
| • Prevent Waste | • High Mechanical Risk |
| • Improve Drainage Efficiency | • New Technology Risk |
| • Develop "Marginal" Areas | • High Cost Risk |
| • Fracture Interception Enhanced | • Risk of Not Increasing/Improving Ultimate Recovery |
| | • Well Productivity Limited w/ Pool Rules |

HUERFANO UNIT #300

SE 31-T27N-R10W

SAN JUAN COUNTY, NEW MEXICO



Sec. 31, T27N - R10W
1:1000'

Inferred
Fracture
Trend

SEC. 31

N/2
S/2

Tocito Entry Point

277°TD

#300

3453'

Niobrara Entry Point #79

790'

1060'

#275

790'

1450'

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MERIDIAN OIL

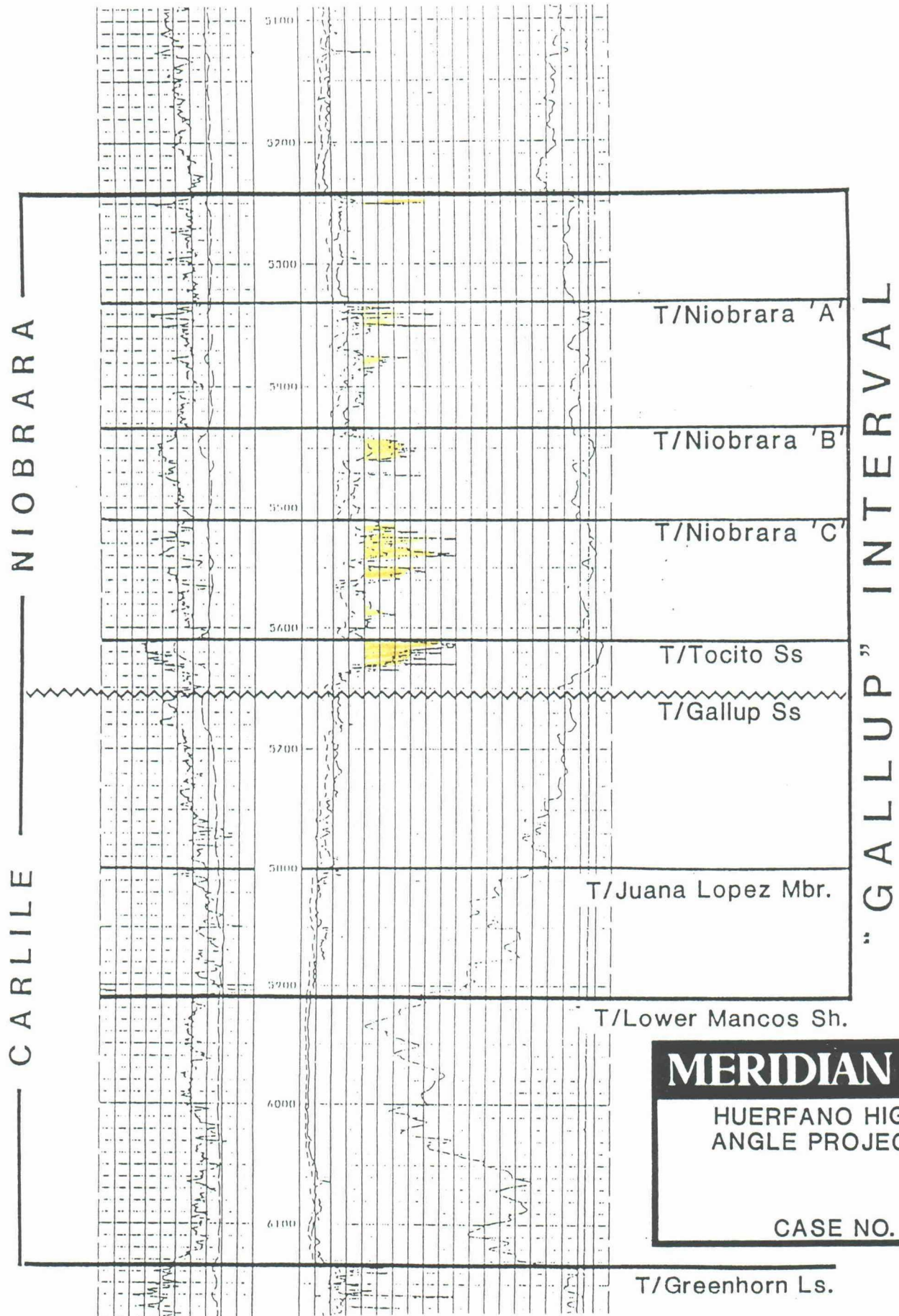
PLAN VIEW
HUERFANO NO. 300

#287

Huerfano High Angle Project

TYPE LOG

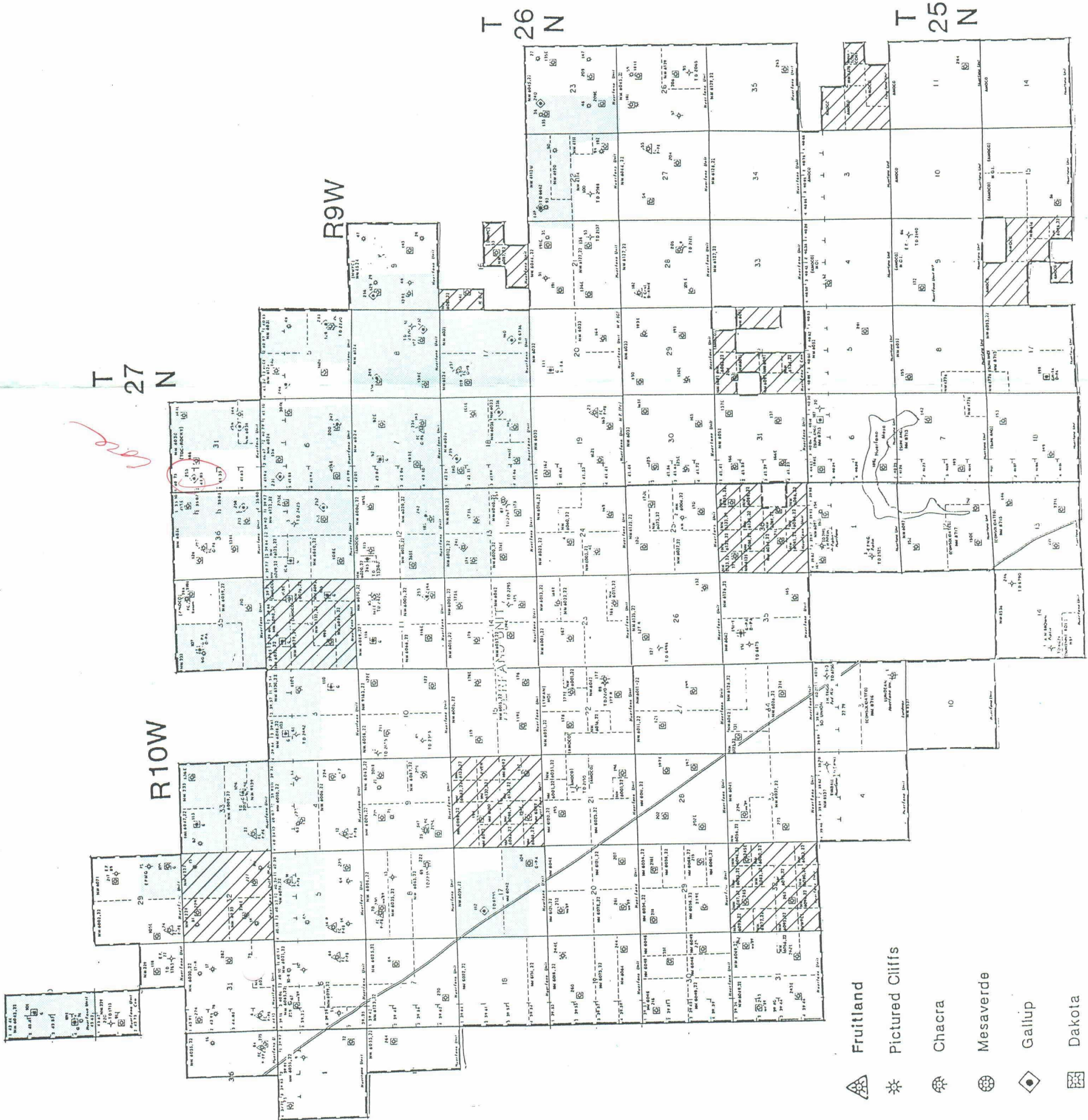
Huerfano Unit #287
NW/4 Sec.5 T26N - R10W



MERIDIAN

HUERFANO HIGH
ANGLE PROJECT

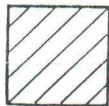
CASE NO. 10325



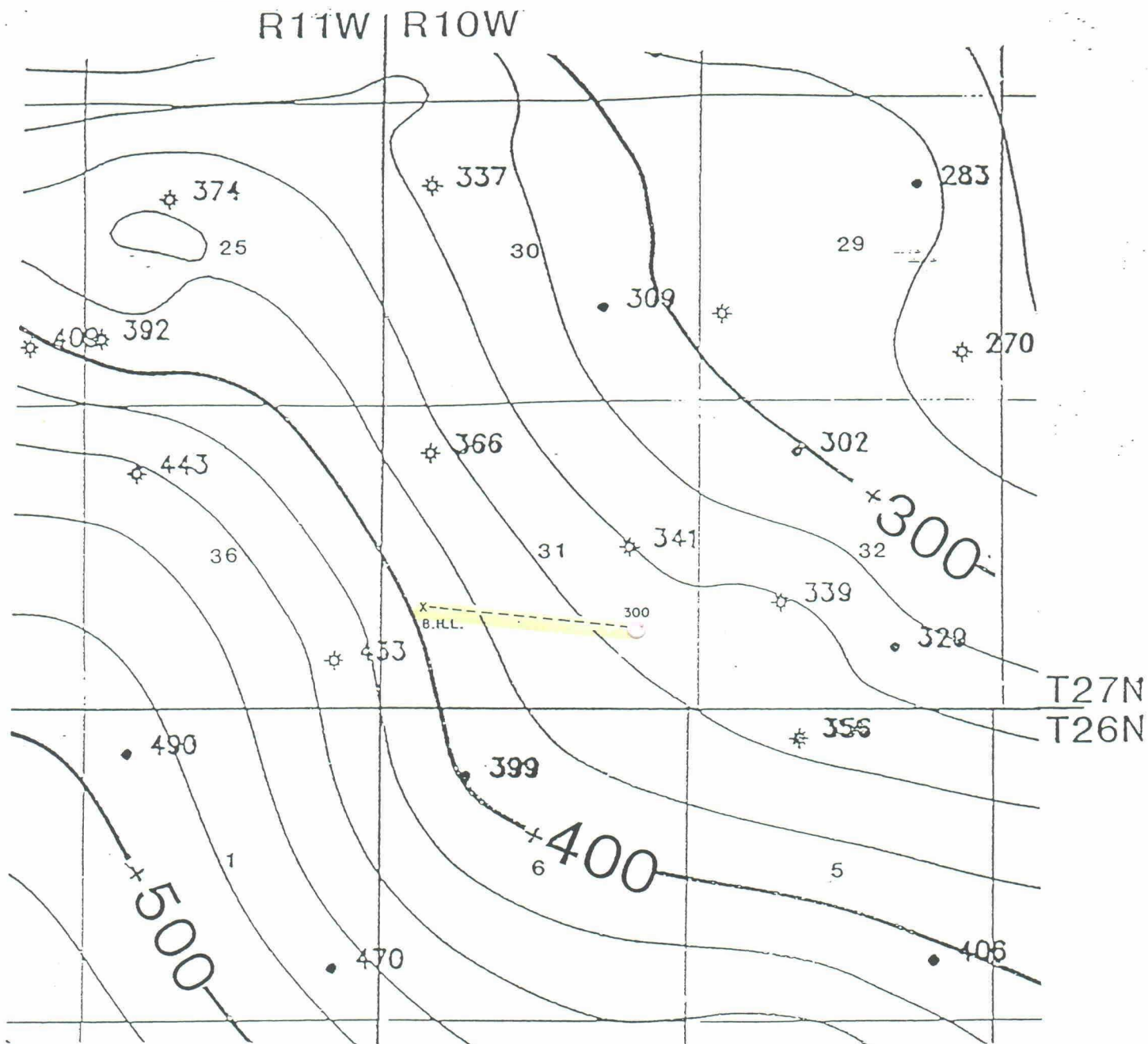
HUERFANO UNIT

GALLUP PARTICIPATING AREA
20th Expansion Effective 3/1/88

OIL & GAS OWNED BY
STATE OF NEW MEXICO



- Fruitland
- Pictured Cliffs
- Chacara
- Mesaverde
- Gallup
- Dakota



MERIDIAN OIL

Structure On Top Of
Juana Lopez Member

Datum: Sea Level

C.I.: 20 Ft.

computer contoured

CASE NO. 10325

M K Dawson

C F Head

6-4-91