

# DELTA DRILLING COMPANY

Box 2012 TELEPHONE 214 585-1911

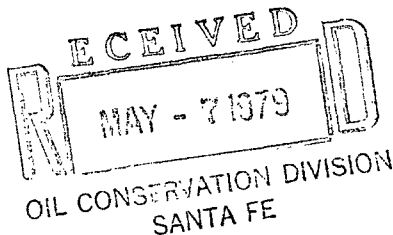
TYLER, TEXAS 75710

ADDRESS REPLY TO

May 3, 1979

R. D. Keadle  
Delta Drilling Company  
Midland, Texas 79702

Director  
New Mexico Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico 87501



Re: Application for Unorthodox Gas  
Well Location  
South Culebra Bluff Unit Well #4  
South Culebra Bluff Unit  
Eddy County, New Mexico

Dear Sir:

Delta Drilling Company, as operator of the captioned unit, hereby makes application for approval of an unorthodox gas well location and states:

- 1) Applicant plans to drill the South Culebra Bluff Unit Well #4, a projected 13,200 foot Morrow test at a location 1980' FSL and 1190' FWL of Section 13, Township 23 South, Range 28 East.
- 2) The 1980' FSL & 660' FWL orthodox location was not acceptable for topographical reasons in that the location would have been located in a river bed. A move to 1980' FSL & 990' FWL would have kept the location at an orthodox location and such location was acceptable to applicant from a topographical standpoint.
- 3) As a result of an archaeological survey and report dated March 15, 1979, the U.S.G.S./BLM required that the location be moved farther east to a point 1980' FSL and 1190' FWL of said Section 13.
- 4) Subject to approval of the State of New Mexico and the U.S.G.S., the W $\frac{1}{2}$  Section 13 will be designated as the participating area for this well.
- 5) Approval of the unorthodox location will be in the interest of conservation, prevention of waste and protection of correlative rights.

Inasmuch as the move of this location was brought about as a result of restrictions placed upon applicant by the U. S. Government, we respectfully request administrative approval of the unorthodox location outlined in (1) above.

*NSL-1036  
Rule 104 F  
June 6, 1979*

May 3, 1979  
Director  
New Mexico Oil Conservation Division  
Re: Application for Unorthodox G/W location  
South Culebra Bluff Unit  
Page Two

Enclosed in support of this application are the following:

- A) Waivers from the offsetting operators, Gulf and Amoco
- B) Information copy of our Application for Permit to Drill, Deepen, or Plug Back
- C) Well Location and Acreage Dedication Plat
- D) Plat depicting proposed access road to the proposed location
- E) Archaeological Clearance Report from New Mexico Archaeological Services, Inc. dated March 15, 1979
- F) Land plat depicting offsetting operators

Thank you for your consideration.

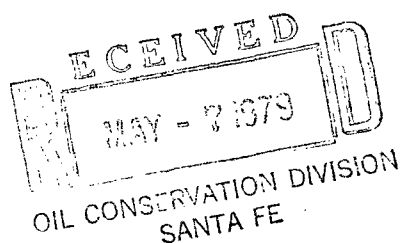
Very truly yours,



R. D. Keadle

RDk:gk

cc: Amoco





Reconnaissance  
Excavation  
Analysis  
Explanation  
Curation

*Culebra 7 West Side*

# NMAS

## New Mexico Archaeological Services, Inc.

P. O. Box 1341  
Carlsbad, New Mexico 88220  
(505) 887-7646

14 March 1979

Mr. John Coon  
Delta Drilling Company  
P.O. Box 3467  
Midland, Texas 79701

Dear Mr. Coon:

Enclosed please find NMAS' archaeological clearance report for Delta Drilling Company's proposed South Culebra Bluff Well No. 4, the Alternate Location, their access road, and the Modifications to the Existing Ranch Road. As you know, NMAS recorded one archaeological site during this project, viz., NMAS 5016. We have suggested that the location be shifted 200 ft to the east in order to avoid the site. Although there are two very light scatters of cultural material near the extreme northeastern corner and the east-central portion of the pad, these remains lack sufficient concentration to warrant site designation and hence are termed isolated manifestations. As for the Alternate Location, it is free of cultural resources. Lastly, several quartzite secondary decortication flakes were observed on the access road at a point approximately 600 ft northeast of the Alternate. No cultural resources were noted on or near the existing road bed. NMAS is suggesting clearance for all work areas provided men and material are kept out of the area embracing NMAS 5016.

If you have any questions, please call my office. Thank you for asking NMAS to do this reconnaissance.

Yours sincerely,

*J. Loring Haskell*  
Dr. J. Loring Haskell  
Principal Investigator

Enclosure

cc: Ms. Ann Barage, BLM, Roswell

Page 2  
Mr. John Coon

Mr. James Knauf, USGS, Artesia  
Mr. Stewart L. Beckham, Laboratory of Anthropology,  
Santa Fe  
Mr. Thomas W. Merlan, SHPO, Santa Fe

as

Archaeological Clearance Report

for

Delta Drilling Company

South Culebra Bluff Well No.4  
Alternate South Culebra Bluff Well No.4  
Modifications to Existing Ranch Road

Prepared

By

Dr. J. Loring Haskell

Submitted

By

Dr. J. Loring Haskell  
Principal Investigator  
New Mexico Archaeological Services, Inc.  
Carlsbad, New Mexico

15 March 1979

Permit No. 78-NM-120

## Introduction

On 14 March 1979, New Mexico Archaeological Services, Inc., (NMAS), Carlsbad, undertook for Delta Drilling Company, Midland, an archaeological reconnaissance of lands administered by the Bureau of Land Management in Eddy County, New Mexico. Reconnoitered areas will be impacted by the construction of a drill location, an associated access road, and modifications to an existing ranch road. This project was advanced by Mr. Ron Brown, Delta Drilling Company, and Dr. J. Loring Haskell, NMAS. Delta Drilling Company was represented in the field by Mr. Coon, Division Production Foreman. Dr. Haskell conducted the reconnaissance under generally excellent field conditions.

## Survey Technique

For this project, the staked and alternate locations were examined for evidence of man's past activities by reconnoitering them in a series of east-west, west-east, 20 ft wide, close interval ( $15^{\circ}$  or less), zigzag transects. In addition, an added zone embracing 20 ft on each side of the staked and unstaked locations, and hence lying outside the proposed 400 X 400 ft work areas, was investigated by a similar means. The proposed access road was walked in a 40 ft wide, close interval, pattern. As for the existing ranch road, it was scrutinized by a comparable technique in order to permit the construction of turnoffs where needed. Combined these procedures served to maximize the visual examination of areas to be impacted by construction-related activities.

South Culebra Bluff Well No. 4

### Location

Delta Drilling Company's proposed location, as staked, will measure 400 X 400 ft on federal lands and will be situated 1980 ft from the south line and 990 ft from the west line of:

Section 13, T23S, R28E, NMPM, Eddy County, NM

Thus it will be situated in the:

NW1/4SW1/4, Section 13, T23S, R28E, NMPM, Eddy County, NM

Its associated access road will measure 12 X 1800 ft and will be situated in the:

NW1/4SW1/4, Section 13, T23S, R28E, NMPM, Eddy County, NM

SW1/4NW1/4, Section 13, T23S, R28E, NMPM, Eddy County, NM

SE1/4NW1/4, Section 13, T23S, R28E, NMPM, Eddy County, NM

Map Reference: USGS Carlsbad Quadrangle, 15 Minute Series, 1939.

### Terrain

The investigated location is situated on a terrace of the Pecos River southeast of Culebra Bluff. In general, the immediate area is overlain by Quaternary-aged eolian and alluvial deposits of which the former material is more apparent. This phenomenon is due undoubtedly to relatively recent activity albeit hummocks of considerable age occur in the general vicinity. Soil individuals away from the river include recent Typic Torriosements and much older Typic Calcicrithids which have been encroached upon since the Pecos was channelized locally. The floodplain itself and the contributing tributary to the north are distinguished by an interplay of Vertic Torrifluvents and Pachic Haplustolls. Water-worn river cobbles occur sporadically along the terrace and frequently in association

with archaeological sites.

### Floristics

Prosopis juliflora dominates the local floral assemblage and is closely associated with grasses such as Setaria macrostachya and Stipa sp. Presently, Rumex sp. is the most visually prominent forb in the immediate vicinity. This is particularly true on the flood plain. Elsewhere, there is a close bond between Prosopis and Atriplex canescens and hence points out the extreme adaptability of the former. Associated plants in this niche include Yucca glauca, Gutierrezia sarothrae, Croton sp., Lepidium sp., Salsola kali, Proboscidea sp., Euphorbia sp., Rumex sp., and Setaria sp., Aristida sp., Bouteloua sp., and Munroa squarrosa. Several specimen of Koeberlinia spinosa (variant) and Artemisia filifolia occur in the general vicinity.

### Cultural Resources

During the reconnaissance, one archaeological site, NMAS 5016, and several isolated manifestations were recorded.

NMAS 5016

Location: NMAS 5016, Section 13, T23S, R28E, NMPM, Eddy County, NM

UTM: Zone 13, N3,575,350 E589,700

Map Reference: USGS Carlsbad Quadrangle, 15 Minute Series, 1930.

Ownership: Bureau of Land Management Administration

Size of Site: 30 X 200 m

Type of Site: Special Activity Zone



Temporality: Jornada Mogollon (A.D. 900-1350) and more probably A.D. 1050-1350.

Nature of Site: NMAS 5016, a large site, parallels the edge of the old Pecos River flood plain for a distance of at least 200 m. The site, however, may be more extensive to the northwest and southeast. Lack of time precluded the establishment of its exact parameters outside the project area. It is situated for the most part within a series of deflation basins of which some are of considerable age. More recent dune sand has encroached upon these features; consequently, cultural resources are presently being covered and uncovered on a regular basis by aeolian processes. Associated cultural resources include several fire hearths, a scatter of burned- and fire-cracked caliche, chert and quartzite primary and secondary decortication flakes, utilized flakes, hammerstone, ground stone fragments, mano and metate fragments, and potsherds. Although sherds are scarce, their lack in number is undoubtedly due to the activities of vandals and local collectors. Chumadero Black-on-White (A.D. 1050-1600) was observed. Owing to the demise of the Jornada Mogollon cultures about A.D. 1350, it seems likely that actual occupation of this site occurred between A.D. 1050 and 1350. River cobbles, often used as hammer stones, occur with considerable frequency in cultural bearing contexts. Owing to the diverse array of associated cultural resources, NMAS 5016 has been termed a special activity zone. Re-

presented tasks include plant processing, tool manufacturing, hunting- and hunting-related activities. Owing to its close proximity to the Pecos River, this site satisfied man's daily needs for water as well as lithic materials for flaked-tool manufacture. Sandstone is available nearby as the Santa Rosa Formation outcrops on a sporadic basis locally. Occupation of this open site undoubtedly occurred on several occasions but was restricted, in all probability, to the period from mid-summer to early fall, i.e., timed to coincide with the ripening of locally available, wild vegetal resources. Extended family units occupied the site and thence split into social units of a task specific nature. As might be imagined, composition of social units was by no means rigid, e.g., men might assist women in some of the more arduous tasks associated with milling operations.

To the east and northeast, two isolated manifestations were noted. This material consists of debitage associated with burned- and fire-cracked caliche. In addition, several quartzite secondary decortication flakes, as well as burned caliche occurred on the route of the proposed access road at a point about 800 ft from the edge of the location.

#### Recommendations

NMAS recommends that Delta Drilling Company's proposed location be shifted 200 ft to the east in order to avoid primary and secondary impact to NMAS 5016. Delta is amenable to the shift in the site of their location. NMAS thus suggests

that work-related activities proceed in accordance with revised plans provided men and materiel are restricted to the now-proposed boundaries of the work area in order to ensure the continued integrity of NMAS 5016. (A 220 ft area to the east of the originally staked location was reconnoitered and found to be largely free of cultural resources excepting isolated manifestations in the extreme northeast and east-central portions of the now-proposed work area.)

#### Alternate Culebra Bluff Well No. 4

##### Location

As proposed in the field, the unstaked alternate will measure 400 X 400 ft on federal land and will be situated 2380 ft from the south line and 1100 ft from the west line of:

Section 13, T23S, R28E, NMPM, Eddy County, NM

It will be situated in the:

NW1/4SW1/4, Section 13, T23S, R28E, NMPM, Eddy County, NM

Its associated access will measure approximately 12 X 1600 ft and will be situated in the:

NW1/4SW1/4, Section 13, T23S, R28E, NMPM, Eddy County, NM

SW1/4NW1/4, Section 13, T23S, R28E, NMPM, Eddy County, NM

SE1/4NW1/4, Section 13, T23S, R28E, NMPM, Eddy County, NM

Map Reference: USGS Garlsbad Quadrangle, 15 Minute Series, 1939.

##### Terrain

Areal terrain is marked by a well developed system of coppice-type dunes. To the north and northeast, there is a well-defined draw which is oriented toward the Texas. Drainage is into this system. Local soil individuals are character-

ized by deep, coarse-grained, sandy loams and loamy sands often mantled by a scree of caliche gravels and chert and quartzite cobbles.

#### Floristics

The associated floral community is marked by an overstory consisting exclusively by Prosopis juliflora and Artemisia filifolia. Attendant representatives of the Gramineae include Sporobolus flexuosus, Sporobolus cryptandrus, Muhlenbergia porteri, Setaria macrostachya, Munroa squarrosa, and Tridens pulchellus. Gutierrezia sarothrae tends to be restricted to interdunal areas. Forbs are represented by an abundance of an unidentified Compositae, probably Helianthus sp., as well as Euphorbia sp., Salsola kali, and Rumex sp.

#### Cultural Resources

No archaeological resources were recorded during this reconnaissance. Locally, archaeological sites tend to occur along the Pecos River and in particular on its bluffs. At localities such as these, resources such as those encountered at NMAS 5016 occur in addition to the usual bedrock notars. Sites of this type span not only the duration of the Jornada Mogollon but the late Archaic as well and possibly earlier.

#### Recommendations

NMAS recommends clearance for this tract of land in the event Delta Drilling Company decides to use it rather than the re-oriented location to the south. It should be stressed, however, that suggestions advanced for it are applicable to this location as well, i.e., men and materiel must be confined

strictly to the agreed-upon work area.

## Modifications to Existing Ranch Road

### Location

Delta Drilling Company proposes to upgrade approximately 750 ft of the existing road which will measure 12 ft in breadth. This road bed is situated in the:

SE1/4, Section 13, T23S, R28E, NMPM, Eddy County, NM (BLM)

Map Reference: USGS Carlsbad Quadrangle, 15 Minute Series, 1939.

### Terrain

Topographically, the reconnoitered right-of-way consists of an extensive zone of hummocks, or cornice dunes, averaging 1 m in height. Soils are uniformly dominated by the sand separate. Surficial deposits are largely of Holocene age and are stable. Caliche, chert, and quartzite gravels, as well as some cobbles, occur as inclusions in beds.

### Floristics

As elsewhere in this portion of the Pecos Valley, Brosopis juliflora and Atriplex canescens predominate. This association often includes Aristida sp., Bouteloua sp., Stipa neorexicana, Munroa squarrosa, and Setaria macrostachya. Gutierrezia sarothrae is particularly common in disturbed areas.

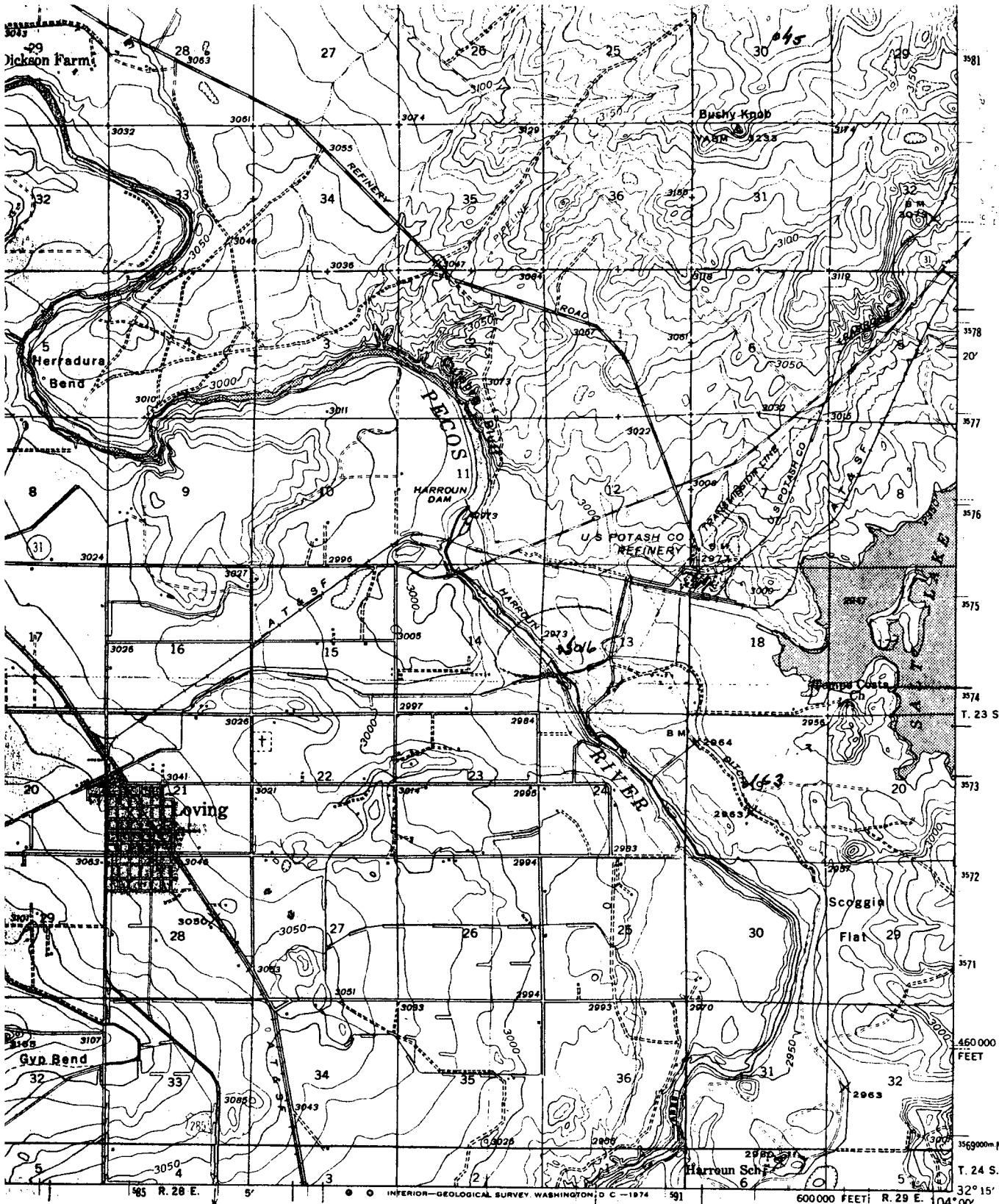
### Cultural Resources

Excepting the usual array of contemporary detritus, beverage containers of type or another, no cultural resources were recorded during this reconnaissance. The lack of prehistoric cultural remains can be explained by the fact that the local

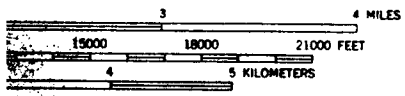
landform is relatively flat, lacks significant amounts of lithic material suited for tool manufacture, and more importantly is situated away from the river which is still within easy reach. Prehistoric usage undoubtedly was ephemeral and consisted of en passant activities focusing on hunting- and collectin-type activities.

#### Recommendations

NMAS recommends clearance for Delta Drilling Company's proposed road improvements and suggests that work-related activities proceed in accordance with existing plans.



MALAGA 2 MI.  
PECOS (JUNC. U.S. 80) 70 MI



QUADRANGLE LOCATION

Polyconic projection. 1927 North American datum  
5000 yard grid based on U. S. zone system, E  
10000 foot grid based on New Mexico (East)  
rectangular coordinate system  
1000-meter Universal Transverse Mercator grid ticks,  
zone 13, shown in blue

# CARLSBAD, N. MEX.

N3215-W10400/15

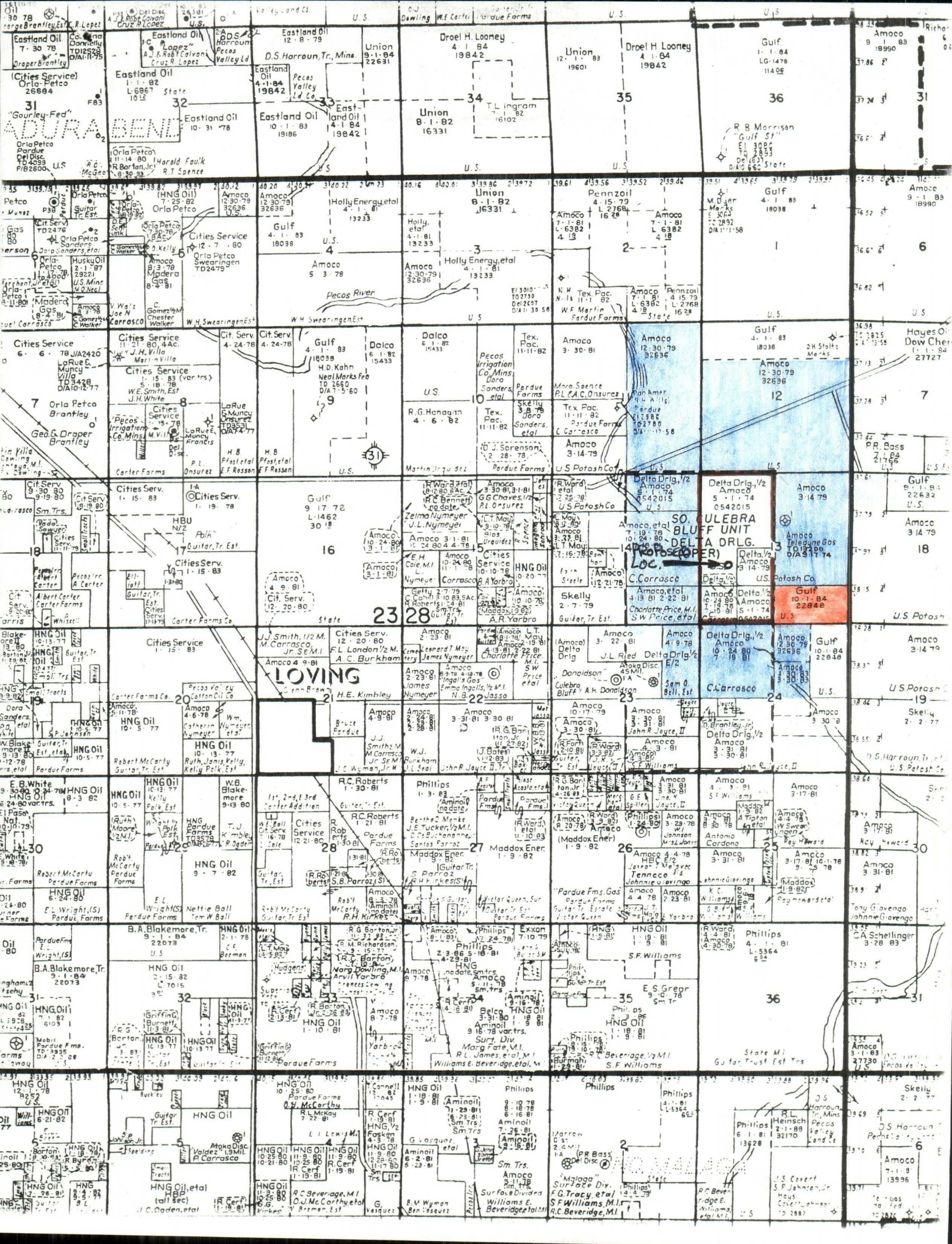
1939

PHOTOREVISED 1971  
AMS 5148 I-SERIES V781

3225 OR RESTON, VIRGINIA 22092  
3 AVAILABLE ON REQUEST

1:25,000  
PIERCE CANYON  
5:45 III NW







*Kaltayer*

APR 16 1979

# DELTA DRILLING COMPANY

Box 2012 TELEPHONE 214 595-1911

TYLER, TEXAS 75710

March 23, 1979

RECEIVED

MAR 23 1979

LAND SECTION  
MIDLAND, TEXAS

RECEIVED

MAR 26 1979

MIDLAND  
PRODUCTION GEOLOGY

ADDRESS REPLY TO

R. D. Keadle  
P. O. Box 3467  
Midland, Texas 79702

GULF ENERGY & MINERALS CO., U.S.  
P. O. Box 1150  
Midland, Texas 79702

Re: Request for Waiver of Objection  
to Unorthodox Location  
#4 South Culebra Bluff Unit  
NW $\frac{1}{4}$ SW $\frac{1}{4}$  Section 13-23S-28E  
Eddy County, New Mexico

Gentlemen:

Delta Drilling Company as operator of the South Culebra Bluff Federal Unit plans to drill the #4 South Culebra Bluff Unit well in the W $\frac{1}{2}$  Section 13-23S-28E, a projected 13,200 foot Morrow test.

Our preferred location for the well was 1980' FSL and 660' FWL of Section 13. However, due to topographical reasons and archeological restrictions placed upon us by the Federal government we are being required to move the location 530 feet east of our preferred location to 1980' FSL and 1190' FWL. This location does not crowd a lease line but does spot the location outside of the 330' tolerance allowed by the NMOCd to constitute an orthodox location. Therefore, it is necessary that we file an application for approval of an unorthodox gas well location.

Our records indicate that Gulf Oil Corporation is the owner of the leasehold interest in the S $\frac{1}{2}$ SE $\frac{1}{4}$  Section 13 and as such is considered an offset operator. Consequently, to allow us to obtain administrative approval on our application, we request that you waive any objections to the unorthodox location outlined in the preceeding paragraph. You may signify your waiver of objection by signing in the space below and returning this letter to our Midland office at 200 Wall Towers South. The attached copy of this letter is for your retention.

March 23, 1979

Gulf Energy & Minerals Co., U.S.

Re: Request for Waiver of Objection

to Unorthodox location

#4 South Culebra Bluff Unit

Page Two

Inasmuch as we wish to move on this location as soon as possible, we request your cooperation in signing and returning as promptly as possible.

Thank you for your cooperation.

Very truly yours,



R. D. Keadle

RDK:gk

We hereby waive any objections  
to the unorthodox location  
specified herein.

GULF OIL CORPORATION

By: 

B. J. PANKRATZ

Manager - Engineering



S. J. Okerson  
Division Operations  
Superintendent

**Amoco Production Company**

Houston Region  
500 Jefferson Building  
Post Office Box 3092  
Houston, Texas 77001  
West Texas-Eastern  
New Mexico Division

MAR 28 1979  
REC. W. TEX. EXPLOR.

March 22, 1979

File: HHR-236-WF

Re: Location Change  
South Culebra Bluff  
Federal Unit Well No. 4  
Teledyne Area  
Eddy County, New Mexico

Delta Drilling Company  
Box 2113  
Midland, Texas 79702

Attn: Mr. R. D. Keadle

Gentlemen:

Amoco Production Company as a working interest owner in the referenced well, hereby acknowledges that the location has been moved to an unorthodox location being 1190' FWL and 1980' FSL of Section 13, T-23-S, R-28-E, Eddy County, New Mexico. Additionally, as an offset operator, we have no objections to drilling the well at the new location.

S. J. Okerson

HK:as  
304/R

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

(Other Information on  
Form 1000-1)

Budget Bureau No. 42 R1427  
*Let's Statistic*  
Well Statistic

**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

Delta Drilling Company

## 3. ADDRESS OF OPERATOR

P. O. Box 3467

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

At surface

1980 FSL &amp; 1190 FWL

At proposed prod. zone

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

3-1/4 miles northeast of Loving, New Mexico

## 10. DISTANCE FROM PROPOSED\*

LOCATION TO NEAREST  
PROPERTY OR LEASE LINE, FT.  
(Also to nearest drilg. unit line, if any)

1190

## 16. NO. OF ACRES IN LEASE

320

17. NO. OF ACRES ASSIGNED  
TO THIS WELL

320

## 18. DISTANCE FROM PROPOSED\*

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

NA

## 19. PROPOSED DEPTH

13,200

## 20. ROTARY OR CABLE TOOLS

Rotary

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

2976.3 GR

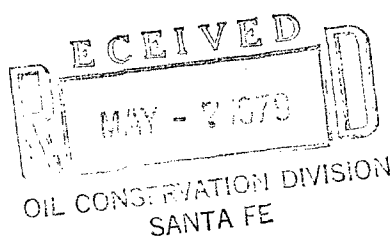
## 22. APPROX. DATE WORK WILL START\*

5/15/79

## 23.

## PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20"	94	450'	1575 sxs (to surface)
17-1/2"	13-3/8"	68 and 72	6300'	5647 sxs (to surface)
12-1/4"	9-5/8"	53.5, 47, 43.5	11260'	4945 sxs (to 2000')
8-1/2"	7" liner	28.7	10600-12100'	225 sxs
6-1/8"	4-1/2" liner	13.50	11900-13200'	150 sxs



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

TITLE Division Production Manager DATE 4/18/79

(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-10,  
Supersedes C-128  
Effective 1-1-65

All distances must be from the outer boundaries of the Section

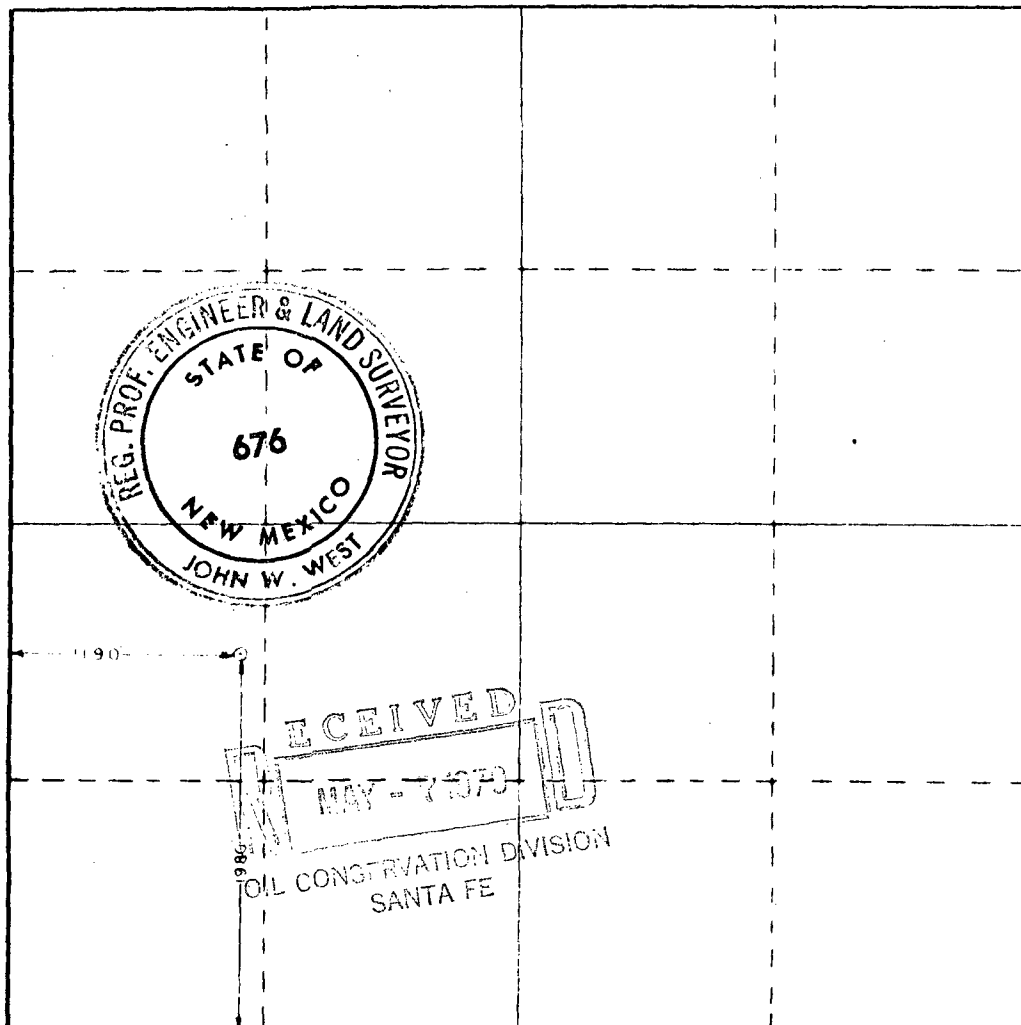
Operator <b>Delta Drilling Co.</b>			Section <b>13</b>		Township <b>23 South</b>		Range <b>28 East</b>		County <b>Eddy</b>	
North Quarter <b>L</b>			Section <b>13</b>		Township <b>23 South</b>		Range <b>28 East</b>		County <b>Eddy</b>	
Actual Wellbore Location of Well: <b>1980</b> feet from the <b>South</b> line of <b>1190</b> feet from the <b>West</b> line.										
Ground Level Elev <b>2976.3</b>			Producing Formation			Estimated Acreage			Acreage	

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?

☐ 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

Name \_\_\_\_\_

Position \_\_\_\_\_

Company \_\_\_\_\_

Date \_\_\_\_\_

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.

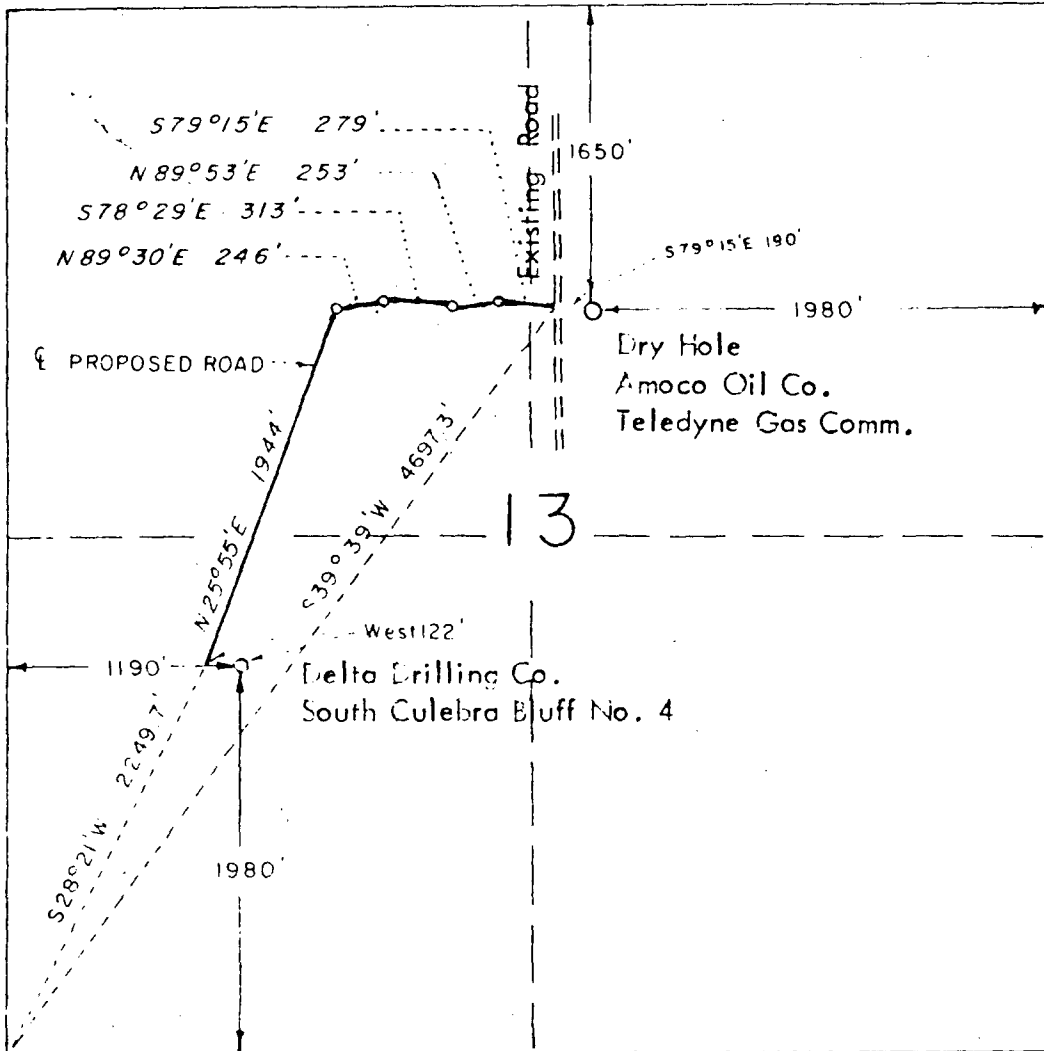
Date received:  
**March 29, 1979**

Registered Professional Engineer  
and Land Surveyor

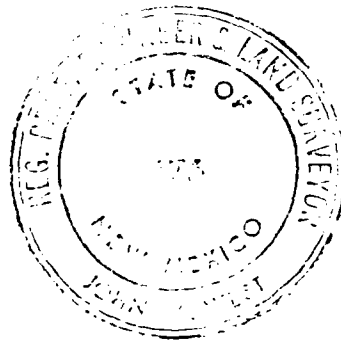
*John W. West*

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

R-28-E



T-23-S



I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM NOTES TAKEN IN THE FIELD IN A BONA FIDE SURVEY MADE UNDER MY SUPERVISION, AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

*John W. West*  
 JOHN W. WEST, NM PE & LS NO 676  
 TEXAS RPS NO. 1138  
 RONALD J. EIDSON, NM LS NO 3239  
 TEXAS RPS NO 1883

DELTA DRILLING COMPANY	
Proposed Access Road to the South Culebra Bluff No. 4 location, located 1190 feet from the West line and 1980 feet from the South line of Section 13, Township 23 South, R-28-E, N14MPM, Eddy Co., N.M.	
JOHN W. WEST ENGINEERING COMPANY CONSULTING ENGINEERS HOBBBS, NEW MEXICO	
Scale: 1" = 100'	Drawn by: Romero
Date: April 2, 1979	Sheet of Sheets