COPY TO O. C. C.

Form 9-331 C
(May 1963)

(Other instructions on reverse side)

Budget Bureau No. 42-R1425.

30-025-26499

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

5. LEASE DESIGNATION AND SERIAL NO.: NM 4312

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1a. TYPE OF WORK: DRILL XX DEEPEN ☐ PLUG BACK ☐

7. UNIT AGREEMENT NAME:

b. TYPE OF WELL: OIL WELL ☐ GAS WELL XX OTHER SINGLE ZONE ☐ MULTIPLE ZONE ☐

8. FARM OR LEASE NAME: Pennzoil Federal

2. NAME OF OPERATOR: General Exploration Company

9. WELL NO.: 2

3. ADDRESS OF OPERATOR: 4219 Sigma Road, Dallas, Texas 75240

10. FIELD AND POOL, OR WILDCAT: Undesignated North Quail Ridge Morrow

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1980' FNL and 660' FEL
At proposed prod. zone: 1980' FNL and 660' FEL

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: (ND) Sec. 12, T19S, R33E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 27 miles west of Hobbs, New Mexico

12. COUNTY OR PARISH: Lea 13. STATE: New Mexico

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
660' FEL	650.4	330.45
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
4160' N	13,400'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3,776' GL

22. APPROX. DATE WORK WILL START*: December 5, 1979

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	350'	375 sacks. CIRCULATE
12 1/4 - 11"	8 5/8"	24 - 32	5,200'	2500 sacks.
7 7/8"	5 1/2"	17 - 20	13,400'	1200 sacks.

Mud Program: Exhibit "A" attached.
BOP Equipment and Casing Testing: Exhibit "B" attached.

Gas is not dedicated.
No dwelling within one mile of proposed location.

RECEIVED
SEP 5 1979
U. S. GEOLOGICAL SURVEY
HOBBS, NEW MEXICO

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 James F. Brunot TITLE Consultant DATE 8-22-79

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

APPROVED AS AMENDED
OCT 3 1979
ACTING DISTRICT ENGINEER

*See Instructions On Reverse Side

EXHIBIT "A"

MUD PROGRAM

Surface Hole 0 - 350' KB

Spud with fresh water gel/lime spud mud. Maintain viscosity to insure good hole cleaning in 17 1/2" hole. Use paper if required for seepage.

Weight	8.6 - 9.2 ppg
Viscosity	35 - 40 sec./1000 cc
Fluid Loss	No Control
PH	-----

Intermediate Hole 350' - 5,200' KB

Use existing mud to drill cement and shoe; then displace hole with 10# brine; drill hole. Use lime for PH control. Circulate reserve pits and use Jet Jel for maximum solids control. Use paper to control seepage. Use salt water gel sweeps daily for hole cleaning.

Weight	9.8 - 10.1 ppg
Viscosity	28 sec./1000 cc
Fluid Loss	No Control
PH	10 - 11

Intermediate Hole 5,200' - 9,000' KB

Drill out from 8 5/8" casing with existing brine water system. Add fresh water to cut fluid weight to approximate fresh water weight. Allow hole conditions to dictate any further changes in fluid weight. Continue using lime for PH control. Continue circulating reserve pit and using Jet Jel for solids control. Use fresh water gel sweeps as necessary for hole cleaning.

Weight	8.5 - 9.0 ppg
Viscosity	28 sec./1000 cc
Fluid Loss	No Control
PH	10 - 11

EXHIBIT "A"
MUD PROGRAM
CONTINUED

Production Hole 9,000' - 12,750' KB

Switch to steel pits and add brine to bring fluid weight to 9.3+ ppg; increase to 10.0#/gallon as required. Maintain chlorides above 90,000 ppm. Use sodium chromate and lime for drill string protection. Use periodic hole sweeps if needed to clean hole. Shale shaker and desander (or mud cleaner) to be used while drilling this interval.

Weight	9.3 - 10.0 ppg
Viscosity	28+
API Filtrate	N/C
PH	10 - 11

Production Hole 12,750' - 13,400' KB

Stay in steel pits; treat water with soda ash and caustic soda. Add salt water gel to control viscosity from 32 - 33 sec. per 1000 cc. Add MonoPac and starch to lower water loss to 5 - 10 cc. Maintain chlorides above 90,000 ppm. Shale shaker and desander (or mud cleaner) to be used while drilling this interval.

Weight	10.0 ppg
Viscosity	32 - 40
API Filtrate	5 - 10 cc
PH	9.5 - 10

EXHIBIT "B"

B.O.P. EQUIPMENT AND CASING TESTING

Surface Casing: 13 3/8" O.D.

B.O.P.: One 12", 3000 psig Hydrill preventor.
TESTING: 1. Before drilling shoe, pressure casing to 1000 psig for thirty minutes with rig pump; 50 psig pressure drop acceptable.
2. After drilling shoe and five feet of new hole, pressure test to 250 psig for 30 minutes with rig pump (fresh water).

Intermediate Casing: 8 5/8" O.D.

B.O.P.: One 10", 5000 psig Type "LWS" Double Shaffer or equivalent.
One 10", 5000 psig Hydrill GK.
TESTING: 1. Before drilling float, pressure casing with rig pump to 2000 psig for 30 minutes; 50 psig pressure drop acceptable.
2. After drilling shoe and five feet of new hole, pressure test to 250 psig for 30 minutes with rig pump.

Blowout preventor equipment will by hydraulically actuated with a six station, 3000 psig accumulator with remote control station on the rig floor. Accumulator is to have sufficient capacity to close all pressure operated devices at one time and maintain a 25% reserve.

After B.O.P. stack is assembled on 8 5/8" casing and prior to drilling Wolfcamp, a plug will be set in the casing head and the stack tested to rated working pressure.

All B.O.P. equipment shall be checked for proper working order on each trip. Choke manifold and lines should be flushed periodically with water. Chokes are to be checked on each tour by driller.

Blowout preventor drills are to be held not less than twice weekly by each drilling crew. All crew members are to be familiar with B.O.P. and choke manifold operations and their respective duties in the event of a kick. Drills to start upon drilling out from under 8 5/8" casing.

SUPPLEMENTAL DRILLING DATA

GENERAL EXPLORATION COMPANY

PENNZOIL FEDERAL NO. 2

1980' FNL & 660' FEL, SEC 12, T-19-S, R-33-E

LEA COUNTY, NEW MEXICO

This supplemental plan is submitted with the application to drill the above-described well in compliance with NTL-6 of the United States Department of the Interior.

1. The surface is composed of a loamy sand; quaternary in age.

2. Estimated top of primary geologic markers are:

Formation	Estimated Depth
Yates	3,250'
San Andres	5,060'
Delaware	5,770'
Bone Spring	7,550'
Wolfcamp	10,700'
Strawn	12,000'
Atoka	12,255'
Morrow Sand	12,845'
M. Morrow Sand	13,000'
L. Morrow Sand	13,100'
Total Depth	13,400'

Elevations: GL - 3,776'. KB - 3,794' (estimated).

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

5,060'	salt water	San Andres
9,600'	oil	Bone Spring
10,700'	oil/gas	Wolfcamp Lime
12,000'	gas	Strawn
12,255'	gas	Atoka
12,845'	gas	Morrow Sand

4. Proposed casing program. See Form 9-331C and attachments.

5. Pressure control equipment: See Form 9-331C, Exhibit "B". Before drilling the Wolfcamp formation, the BOP and related control equipment shall be pressure tested to rated working pressures by an independent service company. The district office shall be notified in time to witness the tests. Pipe rams and the annular-type preventor shall be actuated at least once each 24 hours and the blind rams each time the drill pipe is out of the hole. Accumulators shall maintain a pressure capacity reserve at all times to provide for repeated operation of hydraulic preventors. Blowout prevention drills shall be conducted as necessary to insure that each drilling crew is properly trained to carry out emergency duties.

6. Mud program: See Form 9-331C, Exhibit "A".

7. Auxiliary equipment to be used:

   (a) Kelly cocks (upper and lower).
   (b) Inside blowout preventor.
   (c) Pit volume totalizer system before reaching Wolfcamp.
   (d) Flow line flow sensor before reaching Wolfcamp.
   (e) Mud gas separator before reaching Wolfcamp.
   (f) Rotating head before reaching Wolfcamp.
   (g) Full-opening drill string safety valve on floor at all times before reaching Wolfcamp (valve in "open" position).

8. Testing, coring and logging program:

   (a) All significant shows of oil or gas will be drill-stem tested if possible. Testing procedure will involve use of dual packers, jars and safety joint. Duration of test, shut-in times, etc. will be determined by company engineer in charge.
   (b) No coring is anticipated.
   (c) The following logs will be run:

   5,200' - TD: Compensated neutron - density, dual laterlog, RXO.

(d) A mud logging unit will be placed on location at 8,800' KB and will remain to total depth.
(e) Ten foot samples are to be caught from 2,000' KB to total depth.
(f) Ten foot drilling time is to be kept from 2,000' KB to total depth.

9. Pressures approximately equal to a 10#/gallon mud hydrostatic pressure are anticipated between 10,700' KB and total depth. No abnormal temperatures or hydrogen sulfide are anticipated.

Pressure control shall be achieved by the use of muds having a density of 10.0 to 11.0#/gallon. Any gas kicks encountered should be recognized and controlled by the use of the mud logging unit and the following acessory equipment:

(a) Pit level moniter.
(b) Flow line moniter.
(c) One 5000 psig remote controlled choke.
(d) Mud gas separator.
(e) Other equipment as needed.

10. Anticipated spud date is December 5, 1979. Drilling operations will require approximately 60 days; completion operations will require an additional two or three weeks.

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.
GENERAL EXPLORATION COMPANY	PENNZOIL FED.	2

Unit Letter	Section	Township	Range	County
H	12	19 SOUTH	33 EAST	LEA

Actual Footage Location of Well:
1980 feet from the NORTH line and 660 feet from the EAST line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3752.3	MORROW	UNDESIGNATED NORTH QUAIL RIDGE	330.45 Acres

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

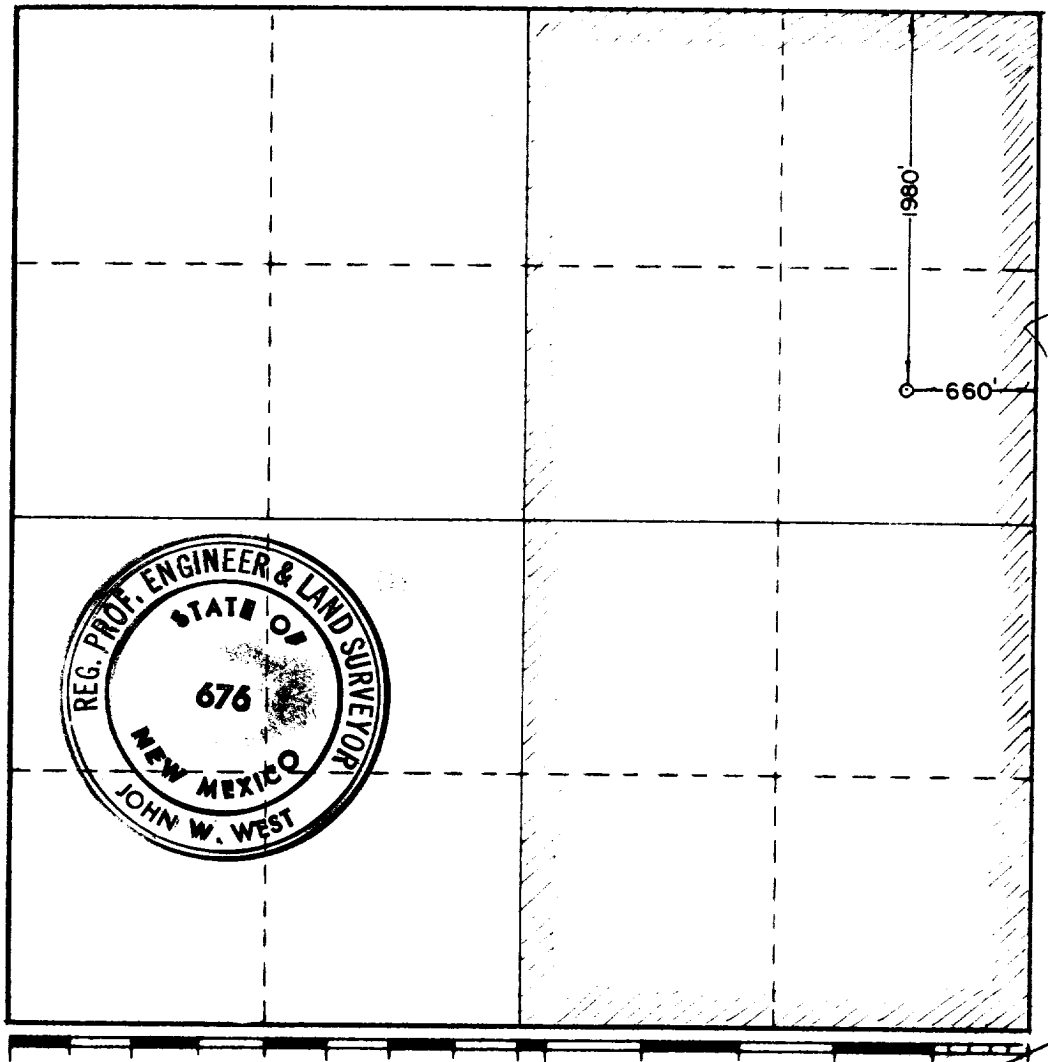
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). ON LEASE

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 James F. Brunt

Position CONSULTANT

Company GENERAL EXPLORATION CO.

Date AUGUST 29TH, 1979

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 21ST, 1979

Registered Professional Engineer and/or Land Surveyor

John W West

Certificate No. John W. West 676
Ronald J. Eidson 3239

MULTI-POINT SURFACE USE AND OPERATIONS PLAN

FOR

GENERAL EXPLORATION COMPANY
WELL NO. 2 PENNZOIL FEDERAL
1980'FNL & 660'FEL SEC.12,T.19 S.,R.33 E.
LEA COUNTY, NEW MEXICO

LOCATED: 27 air miles west of Hobbs, New Mexico.

FEDERAL LEASE NUMBER: NM 4312

LEASE ISSUED: February 1, 1968, for a period of ten years. Drilling operations over the end of the primary term extended the lease to January 31, 1980. Lease will expire January 31, 1980, absent production.

RECORD LESSEE: Pennzoil Company.

ACRES IN LEASE: 650.45

SURFACE OWNERSHIP: Federal

GRAZING PERMITTEE: Scharbauer Cattle Company
P.O. Box 550
Midland, Texas 79701

POOL RULES: Undesignated North Quail Ridge Morrow Gas pool.
Statewide Rules.

EXHIBITS: General road map.
Plat showing existing wells and existing and proposed roads in the area.
Drilling rig layout.

MULTI-POINT SURFACE USE AND OPERATIONS PLAN

GENERAL EXPLORATION COMPANY
WELL NO. 2 PENNZOIL FEDERAL
1980'FNL & 660'FEL SEC.12,T.19 S.,R.33 E.
LEA COUNTY, NM LEASE NM 4312

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of necessary surface disturbance involved, and the procedures to be followed in rehabilitating the surface after completion of the operation so that a complete appraisal can be made of the environmental effects associated with the operation.

1. EXISTING ROADS:

   A. Exhibit "A" is a portion of a road map showing the location of the proposed well as staked. Point "A" on the map is approximately 27 miles west of Hobbs and 43 miles east of Carlsbad on US 62-180 between Mileposts 78 and 79. To reach the proposed well site from this point, go north on the caliche road (there is a cattle guard and a Pennzoil sign just off the highway) for 3.0 miles, then southwest for 1.8 miles and north again for 3 miles. At this point turn west and go 0.4 mile to intersect an old ranch road running northeast-southwest. Turn left onto the old ranch road and go southwesterly approximately one-half mile. The proposed well site is about 250 feet south of this point.

   B. Exhibit "B" is a plat showing existing roads in the area and the planned access road. Existing roads and the planned new road are color coded.

   C. Any repairs to existing caliche roads do not appear necessary at this time. Repairs to that part of the ranch road to be used for access to the well site will be made as necessary.

2. PLANNED ACCESS ROAD:

   A. Length and width: New road required will be 12 feet wide and approximately 250 feet long. This new road is labled and color coded red on Exhibit "B". That part of the old ranch road, approximately 2500 feet, that will be used for access to the well site is color coded with a dashed red line. The center line of the proposed new road, from the beginning to the well

site, has been staked and flagged with the stakes being visible from any one to the next.

B. Surfacing Material: Six inches of caliche, watered, compacted and graded.

C. Maximum Grade: One percent.

D. Turnouts: One or two may be required.

E. Drainage Design: New road will have a drop of six inches from the center line on each side.

F. Culverts: None required.

G. Cuts and Fills: None necessary. Only clearing and minor levelling will be required.

H. Gates and Cattle Guards: None required. No fences involved.

3. LOCATION OF EXISTING WELLS:

A. Existing wells in the immediate area are shown on Exhibit "B".

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

A. This lease is undeveloped at present and there are no existing production facilities on the lease.

B. If the proposed well is productive, the tank battery and flow line will be located on the well pad and no additional surface disturbance will be necessary.

5. LOCATION AND TYPE OF WATER SUPPLY:

A. It is not contemplated that a water well will be drilled. Water necessary for drilling will be purchased and hauled to the site over existing and proposed roads shown on Exhibit "B".

6. SOURCE OF CONSTRUCTION MATERIALS:

A. There is a caliche pit on Federal land in the SE¼SW¼ sec. 6, T. 19 S., R. 34 E. as shown on Exhibit "B". Caliche for surfacing the well pad, new road, and repairs to the ranch road will be trucked over existing roads.

7. METHODS OF HANDLING WASTE DISPOSAL:

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

B. Drilling fluids will be allowed to evaporate in the drilling pits until the pits are dry.

C. Water produced during tests will be disposed of in the drilling pits. Oil produced during tests will be stored in test tanks until sold.

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

E. 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. Location of the trash pit is shown on Exhibit "C".

F. All trash and debris will be buried or removed from the well site within 30 days after finishing drilling and/or completion operations.

8. ANCILLARY FACILITIES:

A. None required.

9. WELL SITE LAYOUT:

A. Exhibit "C" shows the relative location and dimensions of the well pad, mud pits, reserve pit, trash pit and the location of major rig components.

B. Levelling of sand dunes in the area of the well site will be required. No significant cut and fill will be required.

C. The pad and pit area has been staked and flagged.

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 the location cleaned of all trash and junk to leave the well site in an as aesthetically pleasing condition as possible.

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

C. After abandonment, all equipment, trash and junk will be removed and the location cleaned. Any special rehabilitation and/or special revegetation requirements of the surface management agency will be complied with and accomplished as expeditiously as possible.

11. OTHER INFORMATION:

A. Topography: The land surface is relatively level. There are sand dunes in the south part of the well site area.

B. Soil: The top soil is a loamy sand.

C. Flora and Fauna: The vegetative cover is sparse and consists of mesquite, shinnery, weeds and range grasses. Wildlife in the area is that typical of semi-arid desert land and includes coyotes, rabbits, rodents, reptiles,dove and quail.

D. Ponds and Streams: There are no fresh water rivers, streams, lakes or ponds in the area.

E. Residences and Other Structures: There are no occupied dwellings within two miles of the proposed well site.

F. Archaeological, Historical, and Other Cultural Sites: None observed in the area.

G. Land Use: Grazing and hunting in season.

H. Surface Ownership: Federal.

12. OPERATOR'S REPRESENTATIVE:

Representatives responsible for assuring compliance with the approved Surface Use Plan are:

James F. O'Briant
316 Building of the Southwest
Midland, Texas 79701
Office Phone: 915-683-5511
Home Phone : 915-694-8907

Jack Jordan
Office Phone: 915-683-6307
Home Phone : 915-684-4048

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 General Exploration Company and its contractors and sub-contractors in conformity with this plan and the terms and conditions under which it is approved.

8/30/79
Date

James F. O'Briant
James F. O'Briant

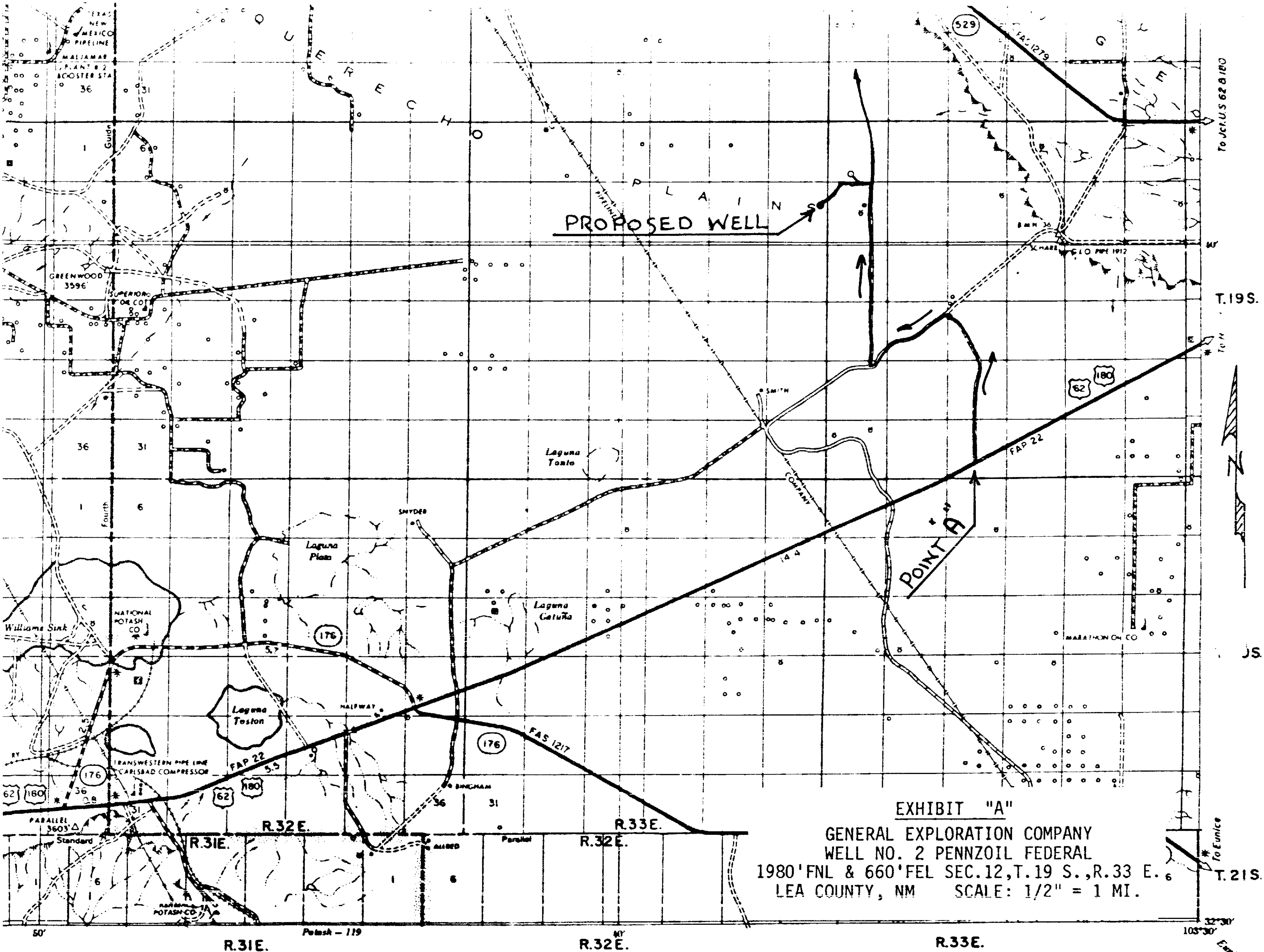
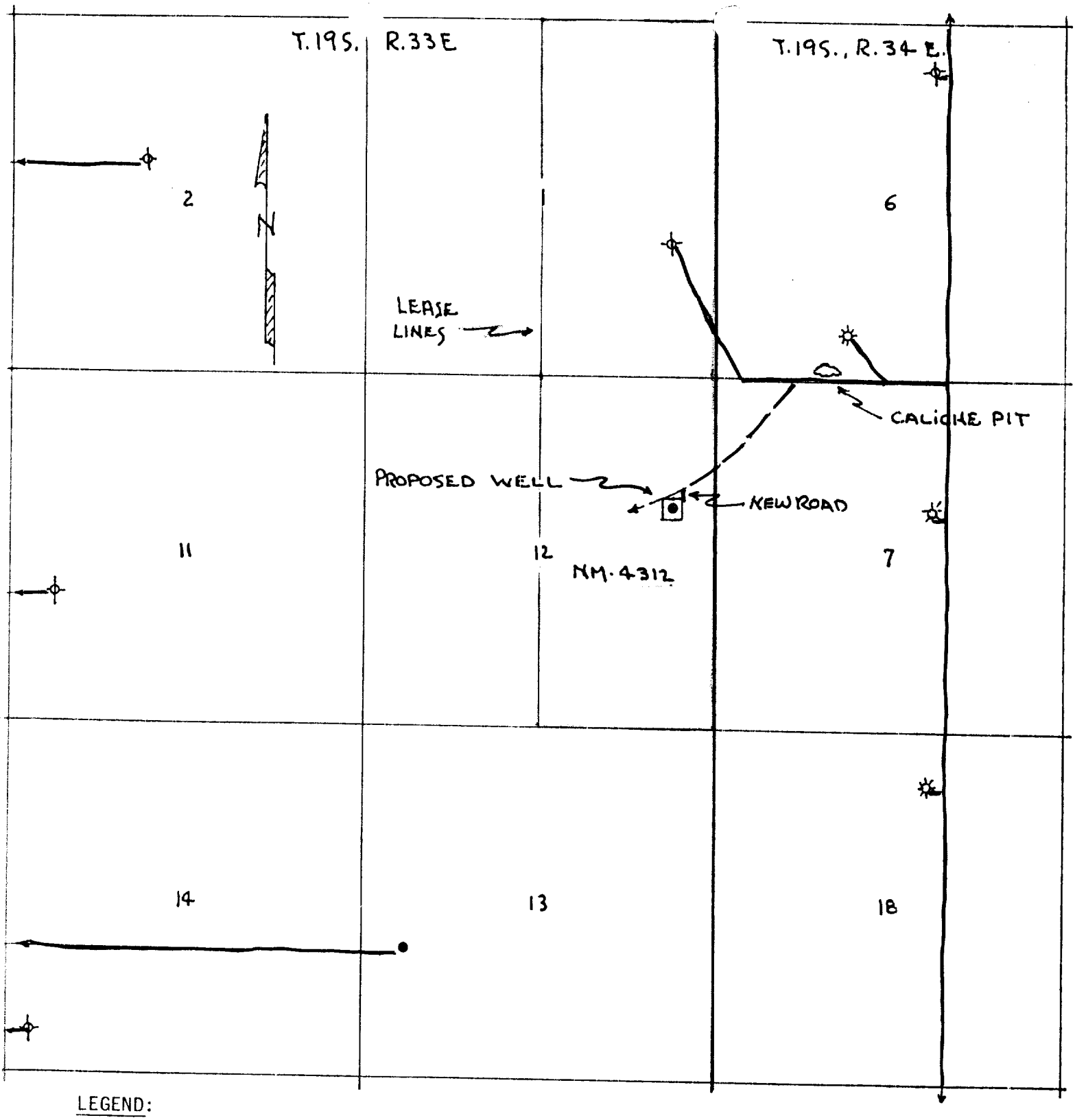


EXHIBIT "A"

GENERAL EXPLORATION COMPANY
WELL NO. 2 PENNZOIL FEDERAL
1980'FNL & 660'FEL SEC.12,T.19 S.,R.33 E.
LEA COUNTY, NM   SCALE: 1/2" = 1 MI.



LEGEND:

- Proposed Well Location
- Oil Well
- Gas Well
- Plugged Well
- Existing Roads
- Ranch Road to be Improved
- New Road

EXHIBIT "B"

GENERAL EXPLORATION COMPANY
WELL NO. 2 PENNZOIL FEDERAL
1980'FNL & 660'FEL SEC.12,T.19 S.,R.33 E.
LEA COUNTY, NM SCALE: 1" = 2000'

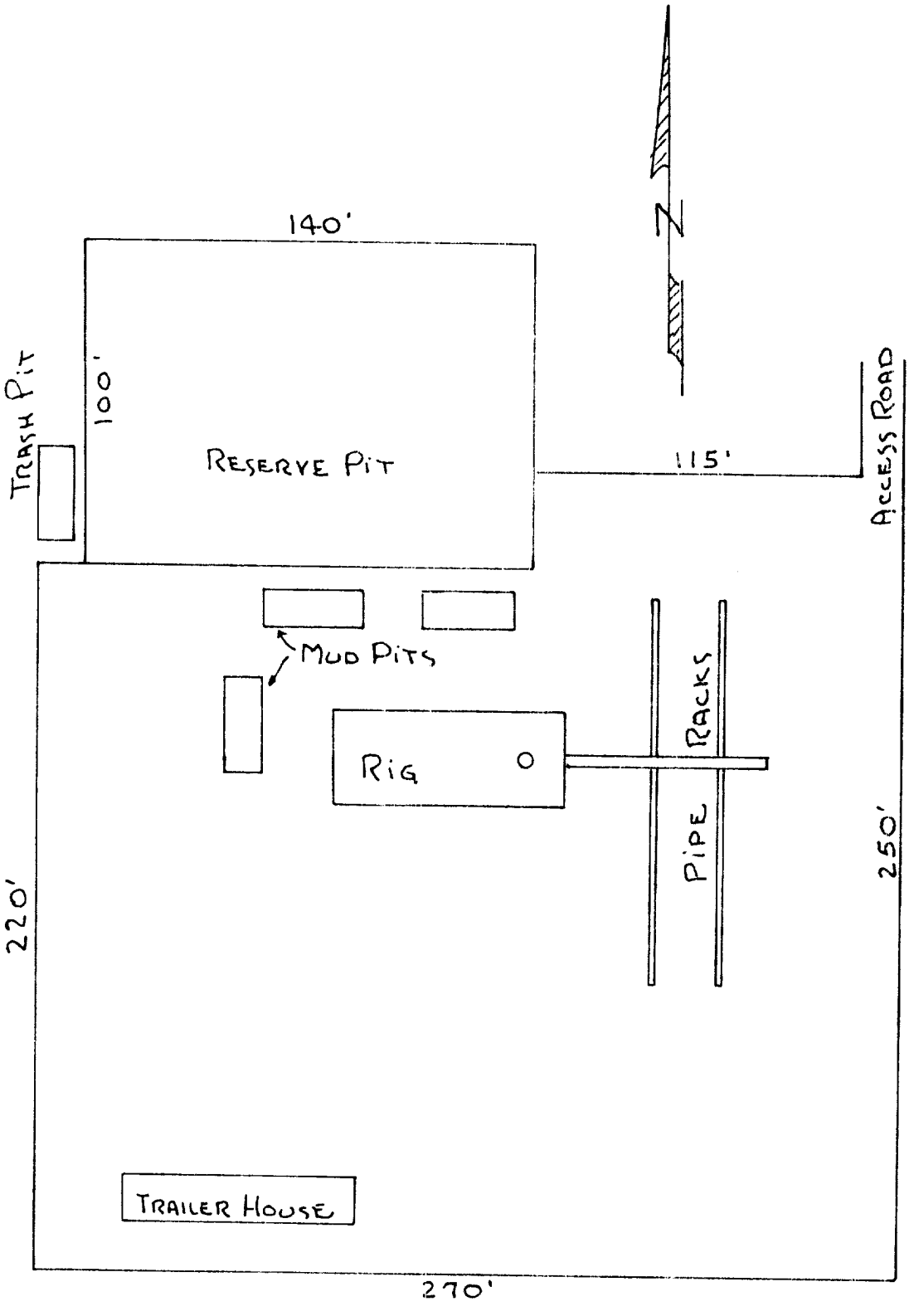


EXHIBIT "C"

RIG LAYOUT
GENERAL EXPLORATION COMPANY
WELL NO. 2 PENNZOIL FEDERAL
SCALE: 1" = 50'

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

Reconnaissance
Excavation
Analysis
Explanation
Curation

28 August 1979

Mr. James F. O'Briant
O'Briant Engineering
316 Building of The Southwest
Midland, Texas 79701

Dear Mr. James O'Briant:

Enclosed please find NMAS' Archaeological Clearance Report for General Exploration Company's proposed Pennzoil Federal Well No. 1, Pennzoil Well No. 2,and modifications to the existing ranch road in Lea County, New Mexico. No cultural resources were recorded during this reconnaissance, and hence NMAS is suggesting clearance for this project.

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

Yours sincerely,

Grita Slate
for Dr. J. Loring Haskell
Principal Investigator

cc: Mr. Thomas Zale, BLM, Carlsbad
Ms. Ann Ramage, BLM, Roswell
Mr. Curtis Schaafsma, Laboratory of Anthropology, Santa Fe
Mr. Thomas W. Merlan, SHPO, Santa Fe

as

RECEIVED
AUG 30 1979

Archaeological Clearance Report

for

General Exploration Company

Pennzoil Federal Well No. 1
Pennzoil Federal Well No. 2
Modifications to Existing Ranch Road

Prepared

By

Dr. J. Loring Haskell

and

Charles A. Aylward

Submitted

By

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

28 August 1979

Permit No. 79-NM-166

Introduction

On 27 August 1979, New Mexico Archaeological Services, Inc., (NMAS), Carlsbad, undertook for General Exploration Company, Dallas, Texas, an archaeological reconnaissance of federal lands administered by the Bureau of Land Management in Lea County, New Mexico. Reconnoitered areas will be impacted by the construction of a drill location and modifications to existing ranch road. This project was advanced by Mr. James F. O'Briant, Engineer, Midland, Texas, and expedited by Dr. J. Loring Haskell, Principal Investigator, NMAS, Inc. Dr. Haskell was assisted in the field by Mr. Charles A. Aylward, Staff Archaeologist, NMAS.

Survey Technique

For this investigation, General Exploration Company's proposed locations were reconnoitered for evidence of man's past activities by walking it in a series of 20 ft wide, close interval (15° or less), zigzag transects. In addition, an added zone embracing 20 ft on each side of the staked 400 X 400 ft location, and hence lying outside the bounds of the proposed work area, was reconnoitered by a similar means as was the ranch road. Methodologically, this procedure served to promote optimal conditions for the visual examination of areas to be impacted by construction-related activities.

Pennzoil Federal Well No. 1

Location

The proposed location will measure 400 X 400 ft on federal lands and will be situated 2180 ft from the south

line and 660 ft from the east line of:

Section 1, T19S, R33E, NMPM, Lea County, NM

Thus it will be situated in the:

NE¼SE¼, Section 1, T19S, R33E, NMPM, Lea County, NM

This location will be associated with an existing ranch road.

Map Reference: USGS LAGUNA GATUNA QUADRANGLE, 15 Minute Series, 1963.

Terrain

This proposed location rests in an area coextensive with the Querecho Plains which is characterized by gently undulating topographical features. The entire area is overlain by deep aeolian deposits with stabalized dunes to 5 m in height in the immediate vicinity. Associated deflation basins are circular and closed and average 10 m in diameter. Soils are loose and non-compacted sandy loams which generally lack lithic inclusions. Peds are intergrades of the Typic Torripsamment subgroup.

Floristics

The floral overstory is relieved by an occasional specimen of Sapindus drummondii but is dominated by Quercus havardii and Prosopis juliflora. Artemisia filifolia and Yucca glauca also occur on a random basis. The understory includes the forbs Helianthus sp., Dalea lachnostachys, Euphorbia sp., Shrankia occidentalis, Dithyrea sp., Eriogonum annuum, and Epherdra. Grasses found in this area include: Andropogon glomeratus, Andropogon sp., Aristida glauca, Paspalum distichum, and Stipa neomexicana.

Cultural Resources

No archaeological resources were observed during this reconnaissance. The deflation basins in this area could have provided desirable shelter from the elements for aboriginal peoples transisting the locale. However, the dearth of lithic material suitable for tool manufacture and, more specifically, the lack of potable water precluded occupation by past populations.

Recommendations

NMAS recommends clearance for General Exploration Company's proposed Pennzoil Federal Well No. 1 and suggests that work-related activities proceed in accordance with company plans.

Pennzoil Federal Well No. 2

Location

The proposed location will measure 400 X 400 ft on federal lands and will be situated 1980 ft from the north line and 660 ft from the east line of:

Section 12, T19S, R33E, NMPM, Lea County, NM

Thus it will be situated in the:

SE¼NE¼, Section 12, T19S, R33E, NMPM, Lea County, NM

This location will be associated with an existing ranch road to which modifications will be made.

Map Reference: USGS LAGUNA GATUNA QUADRANGLE, 15 Minute Series, 1963.

Terrain

Located on an undulating plain, the area of this location is characterized by thick Pleistocene and Holocene-aged aeolain

deposits. Areal sand dunes are stabalized and measure to 3 m in height. Deflation basins are shallow and elongated and contain lag deposits of small chert cobbles which may indicate a former lake shoreline. Local soils are loose, sandy loams. Soil individuals represent intergrades of the Typic Torripsamment subgroup.

Floristics

The floral assemblage is dominated by Quercus havardii with Artemisia filifolia, Yucca glauca, Sapindus drummondii and Prosopis juliflora also sharing the overstory. Forbs include: Helianthus sp., Eriogonum annuum, Suaeda sp., Solanum sp., Phyllanthus abnormis, and Euphorbia sp. The grasses are represented by Stipa neomexicana, Aristida sp., Andropogon glomeratus, Paspalum distichum, Sprobolus sp., Setaria macrostachya and Boutelcua hirsuta.

Cultural Resources

No archaeological resources were observed during this reconnaissance. Though not found in the area of this proposed location, evidence of man's past activities generally represents the ephemeral camp sites of small social units of hunting and gathering peoples. Commonly such camps were established only long enough to exploit specific floral and faunal resources of the immediated vicinity and their abandoned in a day or two.

Recommendations

NMAS recommends clearance for General Exploration Company's

proposed Pennzoil Federal Well No. 2 and its existing ranch road and suggests that work-related activities proceed in accordance with company plans.

Modifications to Existing Road

Location

The proposed modifications to the existing ranch road will involve approximately 2600 ft of roadbed. It will measure 12 ft in breadth and will be situated in the:

SE¼NE¼, Section 12, T19S, R33E, NMPM, Lea County, NM
SW¼NW¼, Section 7, T19S, R33E, NMPM, Lea County, NM
NW¼NW¼, Section 7, T19S, R33E, NMPM, Lea County, NM

Map Reference: USGS LAGUNA GATUNA QUADRANGIE, 15 Minute Series, 1963.

Terrain

Areally speaking, this landform is situated wholly within the bounds of the Querecho Plains. This protion of the Querecho Plains is notable for its thick deposit of lacustrine sediments which underlie the coeval surface. Presently, several stabilized dune fields distinguish the contemporary landform. Hummocks, ranging up to 5 m or more, mark the immediate area. In general, these features tend to be stable and are associated with closed, circular, and sometimes, elliptically-shaped deflation basins. Soils uniformly belong to the Typic Torripsamment subgroup and lack lithic inclusions. Chert gravels do occur in deeper deflations on the south owing to a diminution of lacustrine sediments there. This latter area appears to have been close to the shoreline of the Pleistocene-aged lake as lithic inclusions are absent from localities farther north.

Floristics

Typic Torripsamment soils support an overstory largely dominated by Quercus havardii and Andropogon-Stipa. The Quercus-Andropogon-Stipa association also is closely linked to a diverse array of forbs other grasses as well as additional members of the overstory. These latter plants include occasional specimens of Prosopotis juliflora, Artemisia filifolia, Yucca glauca, and Chrysothamnus pulchellus. Forbs are represented by Monarda sp., Dalea lachnostachys, Phyllanthus abnormis, Helianthus sp., Shrankia occidentalis, Euphorbia sp., Suaeda sp., Erigeron sp., Eriogonum sp., Oenothera rhombipetala, Machaeranthera sp., and Senecio sp. In addition, to Andropogon spp. and Stipa neomexicana observed grasses include: Muhlenbergia arenicola, Sporobolus spp., Cenchrus incertus, Setaria macrostachys, Aristida spp., and Boutleoua hirsuta.

Cultural Resources

No archaeological resources were recorded during this reconnaissance. Prehistoric land usage of this district during Archaic and Jornada Mogollon times appears to have been restricted to occasional short term, occupancies aimed at tapping local faunal resources. Quarrying, food processing, and other maintenance-type activities were conducted elsewhere, e.g., in the large dune fields situated below the Llano Estacado and hence lying to the northeast.

Recommendations

NMAS recommends clearance for the proposed road project and suggests that work-related activities proceed in accordance with General Exploration Company's proposed plans.