MERIDIAN OIL

December 16, 1988

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

Attention: Mike Stogner

RE: Request for Unorthodox Well Location (Rule 1207)
Meridian Oil Inc.
Cannonball Federal # 1
Wildcat (Atoka)
Chaves County, N.M.

Gentlemen:

Meridian Oil Inc. respectfully requests the Secretary-Director of the New Mexico Oil Conservation Division to approve an unorthodox well location on the above captioned lease. The unorthodox location is located 1060 feet FSL and 2180 feet FWL and 260 feet from the quarter/quarter line, Sec. 7. T-14-S, R-28-E in Chaves County, New Mexico. The proposed gas well will be in the Wildcat(Atoka) field.

Meridian Oil Inc. has respectfully requested waivers of objection from the offset operators on the attached list. The present location is too close to the quarter/quarter line because of a deep gulley to the south. It would not be practical to locate the rig on the side of or at the bottom of this gulley. The location is being built at this time and drilling has been approved by the Bureau of Land Management.

I have attached a copy of the drilling approval and a topographical map. Your prompt attention to this matter is appreciated.

For information regarding this request, please call Bret Herring, Reservoir Engineer, at 915/686-5600.

Yours very truly,

Connie Monahan

Connie Monahan
Operations Tech III

cc: NMOCD
Artesia, N.M.

Attachments

OFFSET OPERATORS

MERIDIAN OIL INC.
CANNONBALL LEASE
Section 7, T-14-S, R-28-E
Wildcat (Atoka) Field
Chaves County, N.M.

Operator

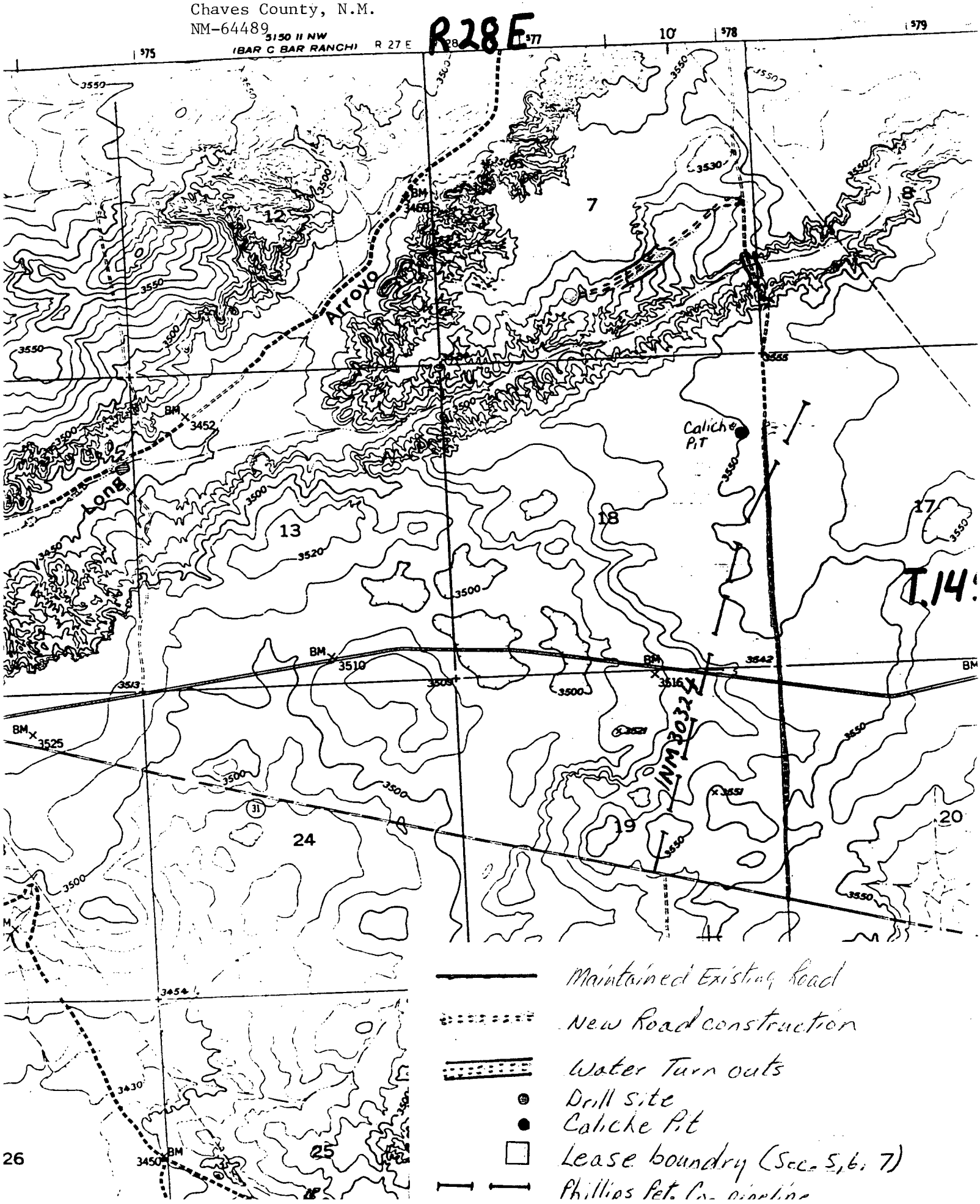
Paul Slaton
P.O. Box 2035
Roswelll, N.M. 88201

Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

Attention: David Brown, Res. Eng.

Yates Petoleum
105 South Fourth Street
Artesia, N.M. 88210

MERIDIAN OIL INC.
CANNONBALL FEDERAL # 1
1060' FSL & 2180' FWL, Sec. 7, T-14-S, R-28-E
Chaves County, N.M.
NM-64489



ROSWELL RESOURCE AREA
SPECIAL DRILLING STIPULATIONS

THE FOLLOWING DATA IS REQUIRED ON THE WELL SIGN

OPERATORS NAME Meridian Oil Inc. WELL NO. & NAME #1-Cannonball Federal
LOCATION 1060' F S L & 2180' F W L SEC. 7, T. 14S., R. 28E.
LEASE NO. NM-64489 - Chaves COUNTY New Mexico

The special stipulations check marked below are applicable to the above described well and approval of this application to drill is conditioned upon compliance with such stipulations in addition to the General Requirements. The permittee should be familiar with the General Requirements, a copy of which is available from a Bureau of Land Management office. EACH PERMITTEE HAS THE RIGHT OF ADMINISTRATIVE APPEAL TO THESE STIPULATIONS PURSUANT TO TITLE 43 CFR 3165.3 and 3165.4.

I. SPECIAL ENVIRONMENT REQUIREMENTS

[ ] Lesser Prairie Chicken (Stips attached) [ ] San Simon Swale (Stips attched)
[ ] Floodplain (Stips attached) [ ] Other _____

II. ON LEASE - SURFACE REQUIREMENTS PRIOR TO DRILLING

[XX] The BLM will monitor construction of this drill site. Notify the Roswell Resource Area Office, BLM at least 3 working days prior to commencing construction at (505) 624-1790.

[XX] Roads and the drill pad for this well must be surfaced with 6 inches of compacted caliche.

[XX] All topsoil and vegetation encountered during the construction of the drill site area will be stockpiled and made available for resurfacing of the disturbed area after completion of the drilling operation. Topsoil on the subject location is approximately 32 inches in depth.
The top five inches will be stockpiled to the SW side of the pad. Approximately 1,100 cubic yards of topsoil material will be stockpiled for reclamation.

[ ] The access road authorized by this APD will conform to the attached "STANDARD STIPULATIONS FOR PERMANENT RESOURCE ROADS IN THE ROSWELL DISTRICT, BLM."

1.)
[XX] Other - Reclamation stips will be issued when Form 3160's, "Sundry Notices and Reports on Wells" is submitted.
2.) Tank batteries and any other facilities will be painted Carlsbad Canyon. (2.54 612)

III. DRILLING OPERATIONS REQUIREMENTS

The Bureau of Land Management office is to be notified at (505) 624-1790, in sufficient time for a representative to witness:

[XX] 1. Spudding XX] 2. Cement casing 13 3/8 inch 8 5/8 inch 4 1/2 inch

[ ] 3. BOP tests [ ] Other

[X] Include the API No. assigned to this well on the subsequent report of setting the first casing string.

IV. CASING

[XX] 13 3/8 inch surface casing should be set to 300 ft. and cement circulated to the surface. If cement does not circulate to the surface this BLM office will be notified and a temperature survey or cement bond log will be run to verify the top of the cement. Remedial cementing will be done prior to drilling out of that string.

[XX Minimum required fill of cement behind the 8 5/8 inch intermediate casing is to circulate to surface.

[XX] Minimum required fill of cement behind the 4 1/2 inch production casing is to isolate all water, oil and gas.

[ ] Other

V. PRESSURE CONTROL

[XX] Before drilling below the 8 5/8 inch casing, the blowout preventer assembly will consits of a minimum of:

[XX] One Annular Preventer [XX] Two RAM-Type Preventers [XX] Other Min. 3000 psi W.P.

[X] After setting the 8 5/8 inch casing string, and before drilling into the Abo Formation, the blowout preventers and related control equipment shall be pressure-tested as described in General Requirements. Any equipment failing to test satisfactorily will be repaired or replaced.

[X] The test will be conducted by an independent service company.
[X] The results of the test will be reported to the appropriate BLM office.
[X] The Bureau of Land Management office is to be notified in sufficient time for a representative to witness the test.

[X] Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, will be installed and operating before drilling into the Abo Formation, and will be used until production casing is run and cemented. Monitoring equipment will consits of the following:

[X] 1. A recording pit level indicator to determine pit volume gains and losses.
[X] 2. A mud-volume measuring device for accurately determining mud volume necessary to fill the hole on trips.
[X] 3. A flow-sensor on the flow-line to warn of any abnormal mud returns from the well.

[ ] A Hydrogen Sulfide Contingency Plan will be approved by this BLM office before drilling below the _____ Formation. A copy of the plan will be posted at the drilling site.

[ ] Other

VI. WELL COMPLETION REQUIREMENTS

[ ] A Communitization Agreement covering the acreage dedicated to the well must be filed for approval with the Bureau of Land Management. The effective date of the agreement must be prior to any sales.

[ ] Surface Restoration: If the well is a producer, the reserve pit(s) will be backfilled when dry, and cut-and-fill slopes will be reduced to a slope of 3:1 or less. All areas of the pad not necessary for production must be re-contoured to resemble the original contours of the surrounding terrian, and topsoil must be re-distributed and re-seeded with a drill equipped with a depth indicator (set at a depth of 1/2 inch) with the following seed mixture, in pounds of Pure Live Side (PLS), per acre.

(Seed mixture applicable upon reclamation of su onl

[ ] A. Seed Mixture 1 (Loamy Sites)
Lehmanns Lovegrass (Eragrostis lehmanniana) 1.0
Side Oats Grama (Bouteloua curtipendula) 5.0
Sand Dropseed (Sporobolus cryptandrus) 1.0

[XX] B. Seed Mixture 2 (Sandy Sites)
Sand Dropseed (Sporobolus cryptandrus) 1.0
Sand Lovegrass (Eragrostis trichodes) 1.0
Plains Bristlegrass (Setaria Magrostachya) 2.0

[ ] C. Seed Mixture 3 (Shallow Sites)
Sideoats Grama (Boute curtipendula) 1.0
Lehmann's Lovegrass (Eragrostis lemmanniana) 1.0
or Boer Lovegrass (E. chloromelas)

[ ] D. Seed Mixture 4 ("Gyp" Sites)
Alkali Sacaton (Sporobolus airoides) 1.0
Four-Wing Saltbush (Atriplex canescens) 5.0

Seeding should be done either late in the fall (September 15 - November 15, before freeze up) or early as possible the following spring to take advantage of available ground moisture.

[XX] Other - Need approval from NMOCD for an unorthodox location.

-1 (1/83)

BLM Serial Number NM-64489
Company Reference #1-Cannonball Federal
Meridian Oil Inc.

STANDARD STIPULATIONS FOR PERMANENT RESOURCE ROADS IN THE ROSWELL DISTRICT, BLM

The holder/grantee/permittee shall hereafter be identified as the holder in these stipulations. The Authorized Officer is the person who approves the Application for Permit to Drill (APD) and/or Right-of-Way (ROW).

GENERAL REQUIREMENTS

The holder shall minimize disturbance to existing fences and other improvements on public domain surface. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will make a documented good-faith effort to contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence.

Holder agrees to comply with the following stipulations:

1. ROAD WIDTH AND GRADE

The road will have a driving surface of 12-14 feet (all roads shall have a minimum driving surface of 12 feet, unless local conditions dictate a different width). The maximum grade is 10 percent unless the box below is checked. Maximum width of surface disturbance from construction will be 25 feet.

☐ Those segments of road where grade is in excess of 10% for more than 300 feet shall be designed by a professional engineer.

2. CROWNING AND DITCHING

Crowning with materials on site and ditching on one side of the road on the uphill side will be required. The road cross-section will conform to the cross section diagrams in figure 1. If conditions dictate, ditching may be required for both sides of the road; if local conditions permit, a flat-bladed road may be considered (if these conditions exist, check the appropriate box below). The crown shall have a grade of approximately 2% (ie., 1" crown on a 12' wide road).

☐ Ditching will be required on both sides of the roadway as shown on the attached map or as staked in the field.

☒ ~~Flatblading is authorized on segment(s) delineated on the attached map.~~
(SEE ATTACHED MAP FOR MAINTENANCE OF EXISTING ROAD)

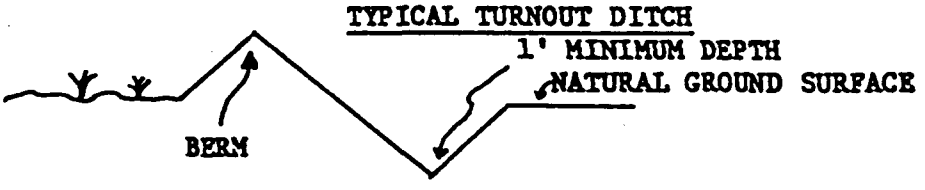
3. DRAINAGE

Drainage control shall be ensured over the entire road through the use of borrow ditches, outsloping, insloping, natural rolling topography, turn-out (lead-off) ditches, culverts, and/or drainage dips.

A. All turnout ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval for turnout ditches shall be determined according to the following table, but may be amended depending upon existing soil types and centerline road slope (in %):

SPACING INTERVAL FOR TURNOUT DITCHES

Percent slope	Spacing interval
0 - 4%	150' - 350'
4 - 6%	125' - 250'
6 - 8%	100' - 200'
8 - 10%	75' - 150'



For this road the spacing interval for turnout ditches shall be:

☐ At locations staked in the field.

☒ At locations delineated on the attached map.

B. Culvert pipes shall be used for cross drains where drainage dips or low water crossings are not feasible. The minimum culvert diameter must be 18 inches. Any culvert pipe installed shall be of sufficient diameter to pass the anticipated flow of water. Culvert location and required diameter are shown on the attached map. (Further details can be obtained from the Roswell District office or the appropriate Resource Area office.)

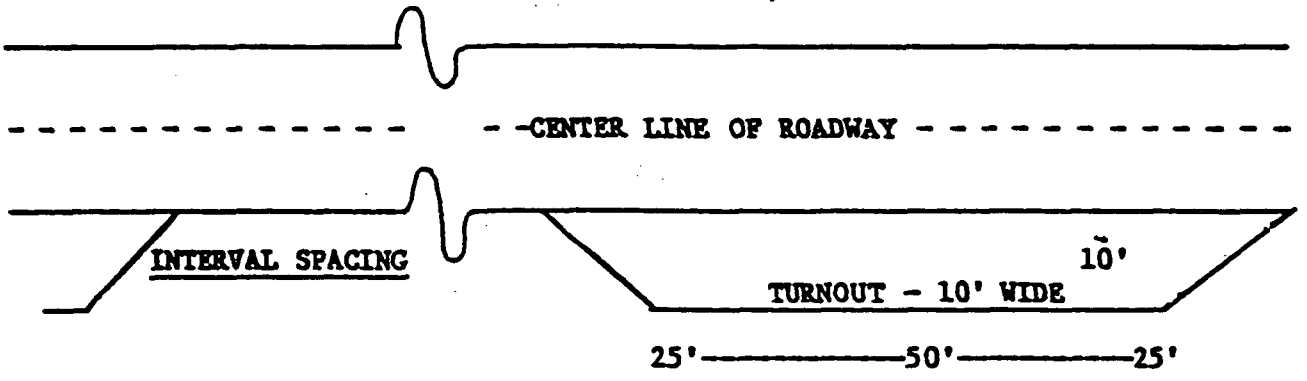
C. On road slopes exceeding 2%, drainage dips shall drain water into an adjacent turnout ditch. Drainage dip location and spacing shall be determined by the formula:

$$\text{spacing interval} = \frac{400'}{\text{road slope in \%}} + 100'$$

Ex. 4% slope: $\text{spacing interval} = \frac{400}{4} + 100 = 200$ feet

4. TURNOUTS

Unless otherwise approved by the Authorized Officer, vehicle turnouts will be required. Turnouts will be located at 2000-foot intervals, or the turnouts will be intervisible, whichever is less. Turnouts will conform to the following diagram.



5. SURFACING

Surfacing of the road or those portions identified on the attached map may, at the direction of the authorized officer, be required if necessary to maintain traffic within the right-of-way with caliche, gravel or other surfacing material which shall be approved by the authorized officer. When surfacing is required, surfacing material will be compacted to a minimum thickness of 6 inches with caliche material. The width of surfacing shall be no less than the driving surface. Prior to using any mineral materials from an existing or proposed Federal source, authorization must be obtained from the Authorized Officer.

6. CATTLEGUARDS

Where used, all cattleguard grids and foundation designs and construction shall meet the American Association of State Highway and Transportation Officials (AASHTO) Load Rating H-20, although AASHTO U-80 rated grids shall be required where heavy loads, (exceeding H-20 loading,) are anticipated. (See BLM standard drawings for cattleguards). Cattleguard grid length shall not be less than 8 feet and width of not less than 14 feet. A wire gate (16-foot minimum width) will be provided on one side of the cattleguard unless requested otherwise by the surface user.

7. MAINTENANCE

The holder shall maintain the road in a safe, usable condition. A maintenance program shall include, but not be limited to blading, ditching, culvert installation, culvert cleaning, drainage installation, cattleguard maintenance, and surfacing.

8. PUBLIC ACCESS

Public access along this road will not be restricted by the holder without specific written approval being granted by the Authorized Officer. Gates or cattleguards on public lands will not be locked or closed to public use unless closure is specifically determined to be necessary and is authorized in writing by the Authorized Officer.

9. SPECIAL STIPULATIONS:

Form 3160-3
(November 1983)
(formerly 9-331C)

OPERATOR'S COPY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-
Expires August 31, 1985

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
Nov 10 11 47 AM '88
CARLSBAD, NEW MEXICO

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: NM-64489

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Cannonball Federal

9. WELL NO.: #1

10. FIELD AND POOL, OR WILDCAT: Wildcat (Atoka)

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 7, T-14-S, R-28

12. COUNTY OR PARISH: Chaves

13. STATE: N.Mex.

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

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [X] OTHER — SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: Meridian Oil Inc.

3. ADDRESS OF OPERATOR: 21 Desta Drive Midland, Texas 79705

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1060' FSL & 2180' FWL, Sec. 7, T-14-S, R-28-E
At proposed prod. zone:

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 11 miles East/Northeast of Hagerman, New Mexico

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 1060'

16. NO. OF ACRES IN LEASE: 320

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.: NA

19. PROPOSED DEPTH: 8500'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3531.5' GR

22. APPROX. DATE WORK WILL START: 12-10-88

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#	300'	Circ w/300 sx. Cl. "C"
12-1/4"	8-5/8"	24#	1800'	Circ w/700 sx. Cl. "C"
7-7/8"	4-1/2"	11.6#	8500'	700 sx. TOC @ ± 6500'

Drill 17-1/2" hole to 300'. Set 13-3/8" csg. @ 300', Cmt. w/300 sx. Cl. "C", Circ. Drill 12-1/4" hole to 1800'. Set 8-5/8" csg. @ 1800'. Lead w/500 sx. Lite "C", tail in w/200 sx. Cl. "C", circ. Drill to TD to test Atoka. If commercial, run 4-1/2" csg. to 8500'. Cmt. w/sufficient volume to bring above all prospective zones. Est. TOC @ 6500'. Perf & stimulate Atoka for production.

MUD PROGRAM: 0-300' spud mud; 300'-1800' brine; 1800' to 7,500' cut brine & sweeps (chloride 30,000+). 7500' to TD cut brine & Drispac. MW 9.0-9,2 (Solids must be less than 5% w/VIS 32-36).

BOP PROGRAM: 13-5/8"-2 annular BOP to be installed on 13-3/8" csg. 11"-3M stack to be installed on 8-5/8" & left on for remainder of drlg. Stack to consist of annular BOP, blind ram BOP & one pipe ram BOP. Test BOP's after setting 8-5/8" csg. with an independent tester.

Gas sales not dedicated

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new produ zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blo preventer program, if any.

24.

SIGNED Connie Wooldridge TITLE Operations Tech III DATE 11-09-88

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY Phil Ford TITLE Area Manager DATE Dec. 13, 1988

APPROVAL OF THIS APPLICATION DOES NOT WARRANT OR CERTIFY THAT THE APPLICANT HOLDS LEGAL OR EQUITABLE TITLE TO THOSE RIGHTS IN THE SUBJECT LEASE WHICH WOULD ENTITLE THE APPLICANT TO CONDUCT OPERATIONS THEREON.

PLEASE BE ADVISED THAT THERE WILL BE NO EXCAVATION OF FEDERALLY OWNED MINERAL MATERIAL FOR CONSTRUCTION OF THE ACCESS ROAD OR PAD WITHOUT PAYMENT IN ADVANCE.

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.
[illegible]	[illegible]	[illegible]

Unit Letter	Section	Township	Range	County
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Actual Footage Location of Well			
[illegible] feet from the [illegible] line	and [illegible] feet from the [illegible] line		

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage
[illegible]	Atoka	Wildcat	320

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

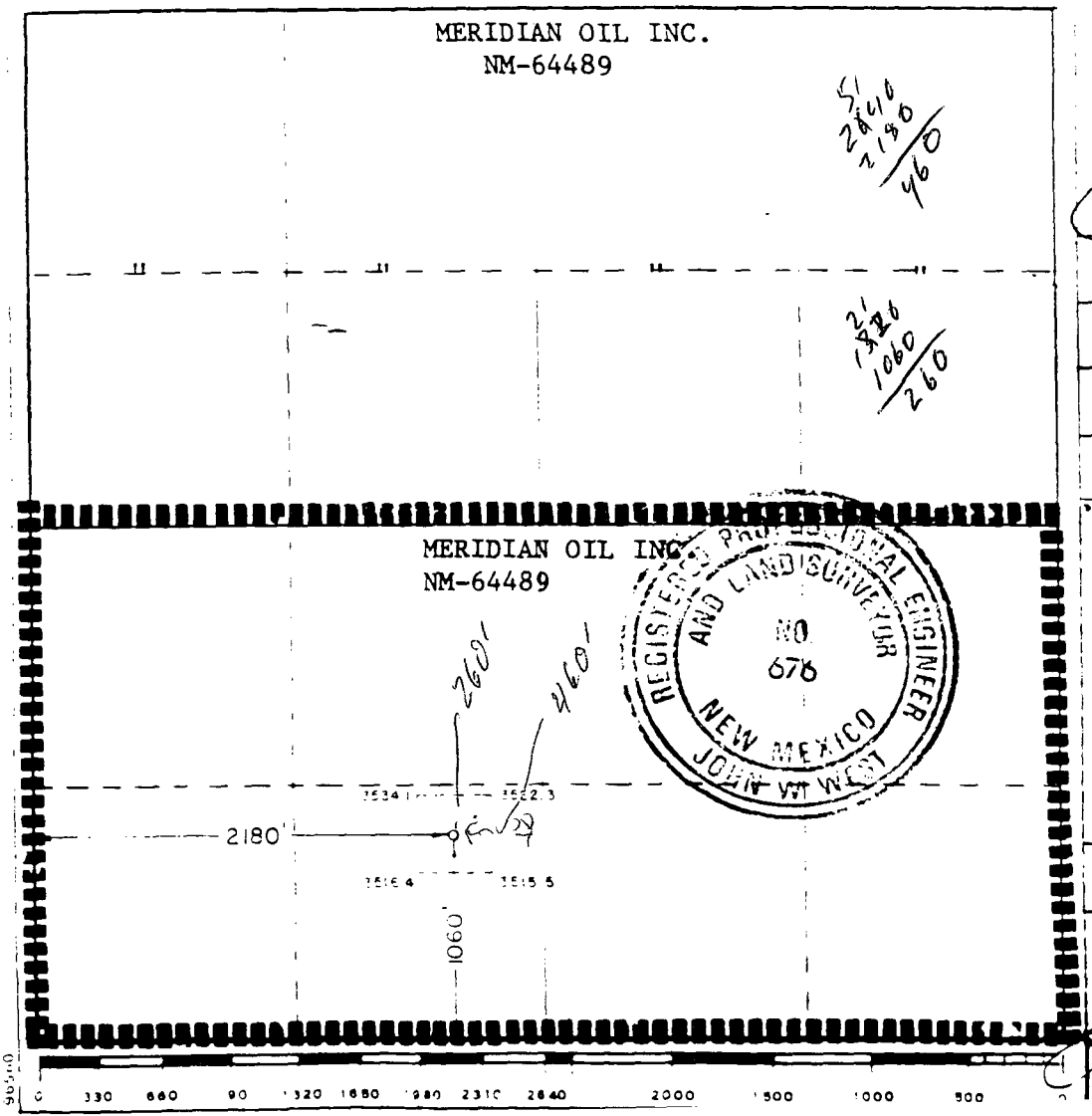
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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 _____

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: Connie Monahan

Position: Operations Tech III

Company: Meridian Oil Inc.

Date: 11-09-88

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: October [illegible] 1988

Registered Professional Engineer and/or Land Surveyor

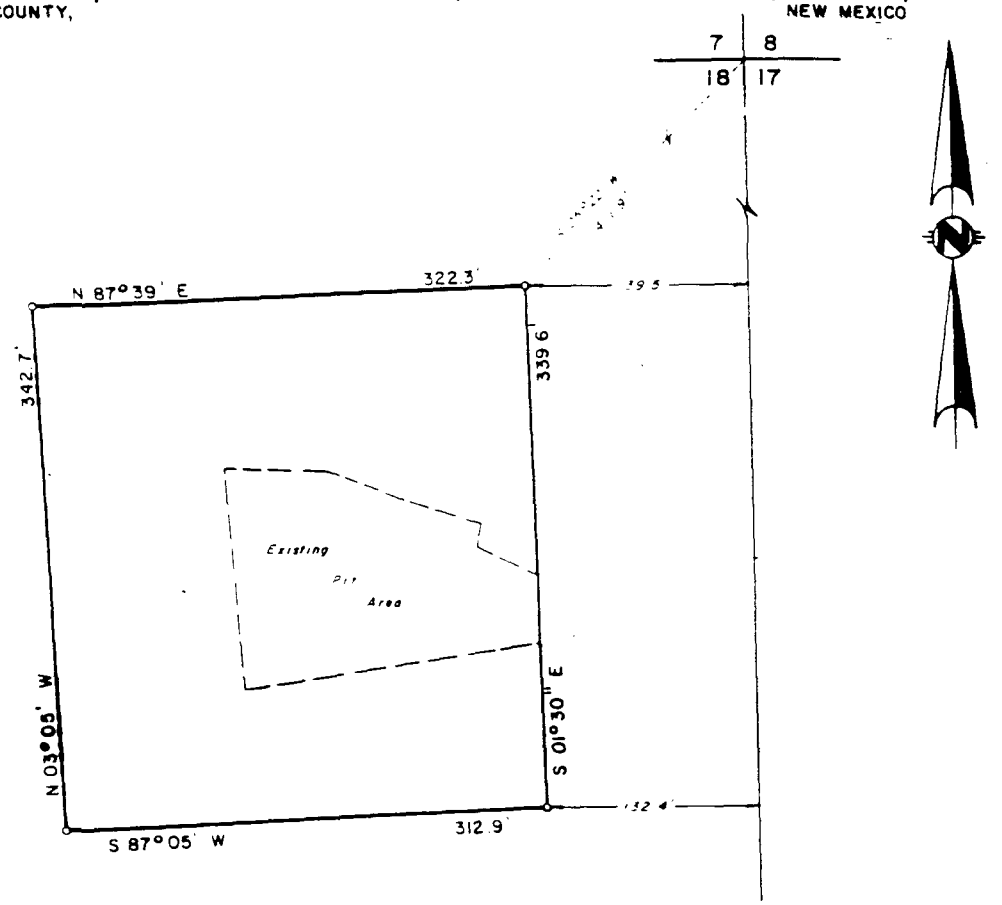
Certificate No. JOHN W. WEST 676

RONALD J. EIDSON [illegible]

118235

SECTION 18, TOWNSHIP 14 SOUTH, RANGE 28 EAST, N.M.P.M.,

CHAVES COUNTY, NEW MEXICO



LEGAL DESCRIPTION

A tract of land situate within the Northeast Quarter of Section 18, Township 14 South, Range 28 East, N.M.P.M., Chaves County, New Mexico and being more particularly described as follows:

Beginning at the northeast corner of the herein described tract of land, which point bears S 05°22' W, 1411.9 feet from the northeast corner of said Section 18;
Thence S 01°30' E, 339.6 feet;
Thence S 87°05' W, 312.9 feet;
Thence N 03°05' W, 342.7 feet;
Thence N 87°39' E, 322.3 feet to the point of beginning and containing 2.49 acres, more or less.

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR NO. 676 NEW MEXICO JOHN W. WEST

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, N.M. P.E. & L.S. No. 676
TEXAS R.P.S. No. 1138
RONALD J. EIDSON, N.M. L.S. No. 3239
TEXAS R.P.S. No. 1883

MERIDIAN OIL COMPANY

A tract of land for pit extension situate within the NE¼ of Section 18, T 14 S, R 28 E, N.M.P.M., Chaves County, New Mexico.

JOHN W. WEST ENGINEERING COMPANY
CONSULTING ENGINEERS HOBBS, NEW MEXICO

Scale: 1" = 100'		Drawn By: M. Mitchell	
Date: 10/29/88	Ck. JWW	Sheet 1 of 1 Sheets	

MERIDIAN OIL INC.

Cannonball Federal # 1
1060' FSL & 2180' FWL
Sec. 7, T-14-S, R-28-E
Chaves County, New Mexico
NM-64489

To supplement USGS Form 3160-3 Application to Drill the following additiona information is submitted concerning questions on Page 5 of NTL-6:

1. See Form 3160-3.
2. See Form 3160-3.
3. The geological name of surface formation is: Ochoa
4. See Form 3160-3.
5. See Form 3160-3.
6. The estimated tops of important geological markers are:

Yates	300'	Wolfcamp	6410'
San Andres	1615'	Strawn	7675'
Tubb	4420'	Atoka Sandstone	7965'
Abo	5220'	Chester (Miss)	8265'

7. The estimated depths at which anticipated water, oil, gas and mineral bearir strata are as follows:

   Atoka Sandstone 7965' - Gas

8. See Form 3160-3. All casing will be new.
9. See Form 3160-3 for depths of strings. Cement volumes and additions a follows:

   a. 13 3/8" csg: Cement w/300 sx "C" cmt. Circ to surface.

   b. 8 5/8" csg: Cement w/700 sx Cl. "C". Circ to surface.

   c. 4 1/2" csg: Cement w/700 sx Cl "H" to bring TOC to ±/6500'.

A caliper log will be run prior to setting 8-5/8" & 4-1/2" casing to determin exact cement volumes required.

10. The pressure control diagram is attached to Form 3160-3. The followin additional information is as follows:

13 3/8" casing installation: 13 5/8"-2M annular BOP tested to 600 psi for
minutes before drilling out 13 3/8" casing shoe.

8 5/8" casing installation: 11"-3M BOP stack to be installed and tested
an independent tester to 3000 psi before drilling the 8 5/8" casing sho
The BOP stack to consist of an annular BOP, blind ram BOP and one pipe r
BOP.

11. See Form 3160-3.

12. A. DST Program: One in Atoka

B. Core: Possible Rotary Sidewall Cores

C. Mud Logging: Surface to TD, Two-man unit

D. Wire Line Logs:

The following suite of logs will be run in both of the listed intervals:

CNL/LDT	1800' to surface + 8500' to 1800'
DLL/MSFL	1800' to surface + 8500' to 1800'
BHC Sonic	1800' to surface + 8500' to 1800'
Check Shot Survey	TD to surface

13. No abnormal pressures are anticipated. Bottom hole pressures at TD expect
to be 3400 psi. Bottom hole temperature 167° F. No Hydrogen Sulfi
expected in this known drilling area. No crooked hole or abnormal deviati
problems.

14. Anticipated starting date to spud - on or before 12-10-88. Anticipat
drilling time expected to be 28 days from surface to TD.

C. Monahan
11/09/88

SURFACE USE PLAN

MERIDIAN OIL INC.

Cannonball Federal # 1
1060' FSL & 2180' FWL
Sec. 7, T-14-S, R-28-E
Chaves County, New Mexico
NM-64489

This plan is submitted with Application to Drill on above described well. T minerals are federal and the surface is leased for grazing (See below for surfa lessee). The purpose of this plan is to describe the location, propos construction activities and operations plans, magnitude of necessary surfa disturbance and procedures to be followed in rehabilitating the surface aft completion of the operation so that complete appraisal can be made of t environmental effects associated with the operations.

1. Existing Roads:

Exhibit "A" is a portion of a USGS Topograph map showing the location of t proposed well as staked.

Directions to the well are as follows: Take Hwy 249 east out of Hagerman. Betwe mile marker 11 and 12 at the top of the hill, there is a cattleguard. Turn nor and go 1.4 miles to a caliche pit. Go 1.6 miles to the location.

2. Planned Access Road:

a. Temporary access road will be 12 feet wide and 1600 feet long. The cent line of the proposed temporary road from the beginning to the well site h been staked and flagged with the stakes being visible from any one to t next.

b. Surfacing Material: 6" of caliche, watered, compacted and graded.

3. Location of Existing Wells in Area:

See Exhibit "B"

4. Location of Proposed Facilities:

Location of proposed well site and tank battery is shown on Exhibit "C". Th battery will be located on proposed well pad, no additional surface disturban will be necessary.

5. Water Supply:

a. No available surface or sub-surface fresh water exists in the vicinity of th proposed well. Drilling water will be transported or pumped to the dri site from the nearest commercial source.

6. Source of Construction Material:

Caliche for surfacing access road and pad will be obtained from existing pi located in the NE/4 of Sec.18. There has been an Archaeological Report filed on this pit dated 10/28/88 (Copy enclosed).

7. Handling Waste Disposal:

a. Drill cuttings - disposed into drilling pits.
b. Drill fluids - allowed to evaporate in drill pits until pits dry.
c. Produced water during testing - drill pits.
d. Produced oil during testing - storage tank until sold.
e. Current laws and regulations pertaining to disposal of human waste will be observed.
f. Reserve pit will be plastic lined.
g. Waste paper, garbage, junk disposed of into special trash pit at location a covered with a minimum of 24 inches of dirt upon completion of the well. A waste material will be contained to prevent scattering by wind.

8. All trash and debris will be removed from well site within 30 days aft drilling and/or completion operations are finished.

9. Ancillary Facilities:

None

10. Plans for Restoration of Surface:

a. After completion of drilling and/or completion of operations, all equipme and other material not needed for operations will be removed. Pits will filled and locations cleaned of trash and junk to leave well in aesthetically pleasing a condition as possible.

b. Any unguarded pits containing fluids will be fenced until filled.

c. After abandonment of well, surface restoration will be in accordance with t Bureau of Land Management Surface Requirements.

11. Topography and Soil:

Eastern New Mexico University, Agency for Conservation Archaeology Report by D John L. Montgomery is enclosed.

12. Land Use:

Grazing and hunting - Federal

Surface Lessee - Bogle Farms
P.O Drawer 460
Dexter, New Mexico 88230

13. Surface Ownership:

Bureau of Land Management (Federal)

14. Operators Representatives:

Field representatives (Responsible for compliance with approved surface use a operations plan):

Meridian Oil Inc.
416 E. Main
Artesia, New Mexico
Office: 505/748-1321

Mr. Ed Jackson, Drilling Foreman
Loco Hills, New Mexico
Home: 505/677-2323

Mr. Bill Dawson, Drilling Superintendent
Midland, Texas Office: 915/686-5600
Home: 915/682-9037

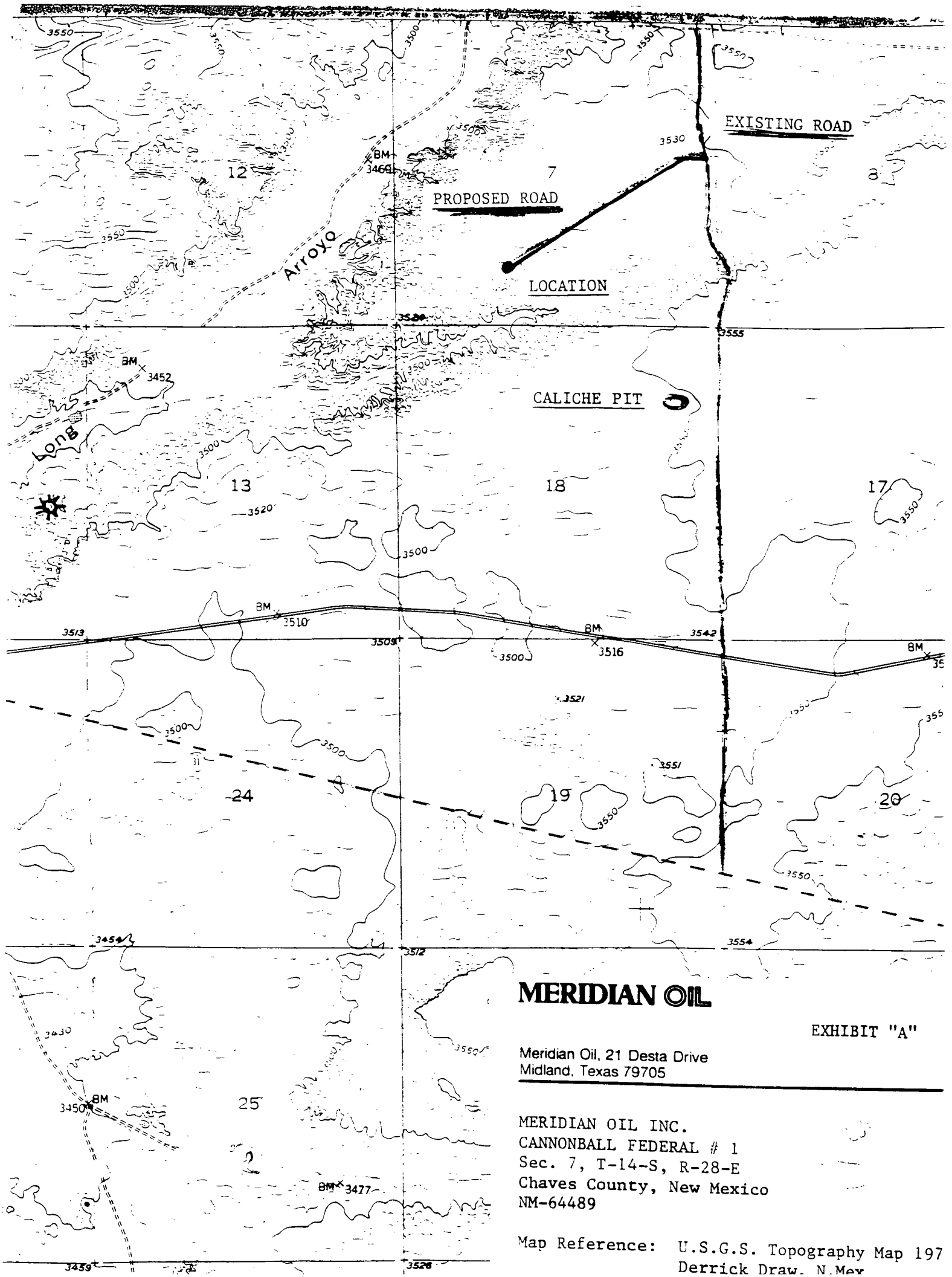
15. Certification:

I hereby certify that I, or persons under my supervision, have inspected t proposed drill site and access route; that I am familiar with conditions whi presently exist; that the statements made in this plan are, to the best of knowledge, true and correct; and the work associated with the operations propos herein will be performed by Meridian Oil Inc. and its contractors a sub-contractors in uniformity with this plan and the terms and conditions und which it is approved.

Date: 11/9/88

Darrell D. Roberts
Senior Drilling Engineer
Meridian Oil Inc.

C. Monahan/
11/09/88



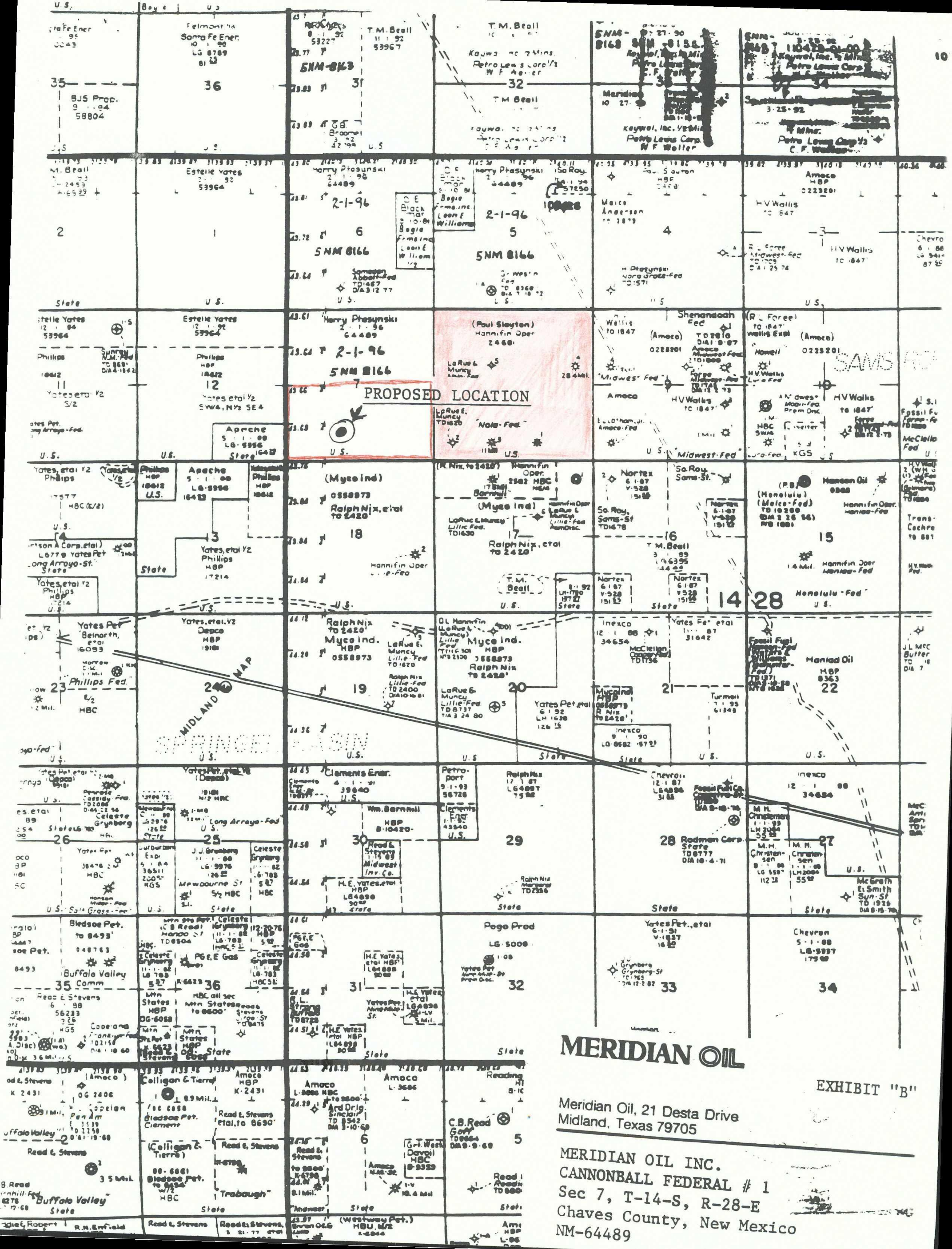
MERIDIAN OIL

EXHIBIT "A"

Meridian Oil, 21 Desta Drive
Midland, Texas 79705

MERIDIAN OIL INC.
CANNONBALL FEDERAL # 1
Sec. 7, T-14-S, R-28-E
Chaves County, New Mexico
NM-64489

Map Reference: U.S.G.S. Topography Map 197
Derrick Draw, N.Mex

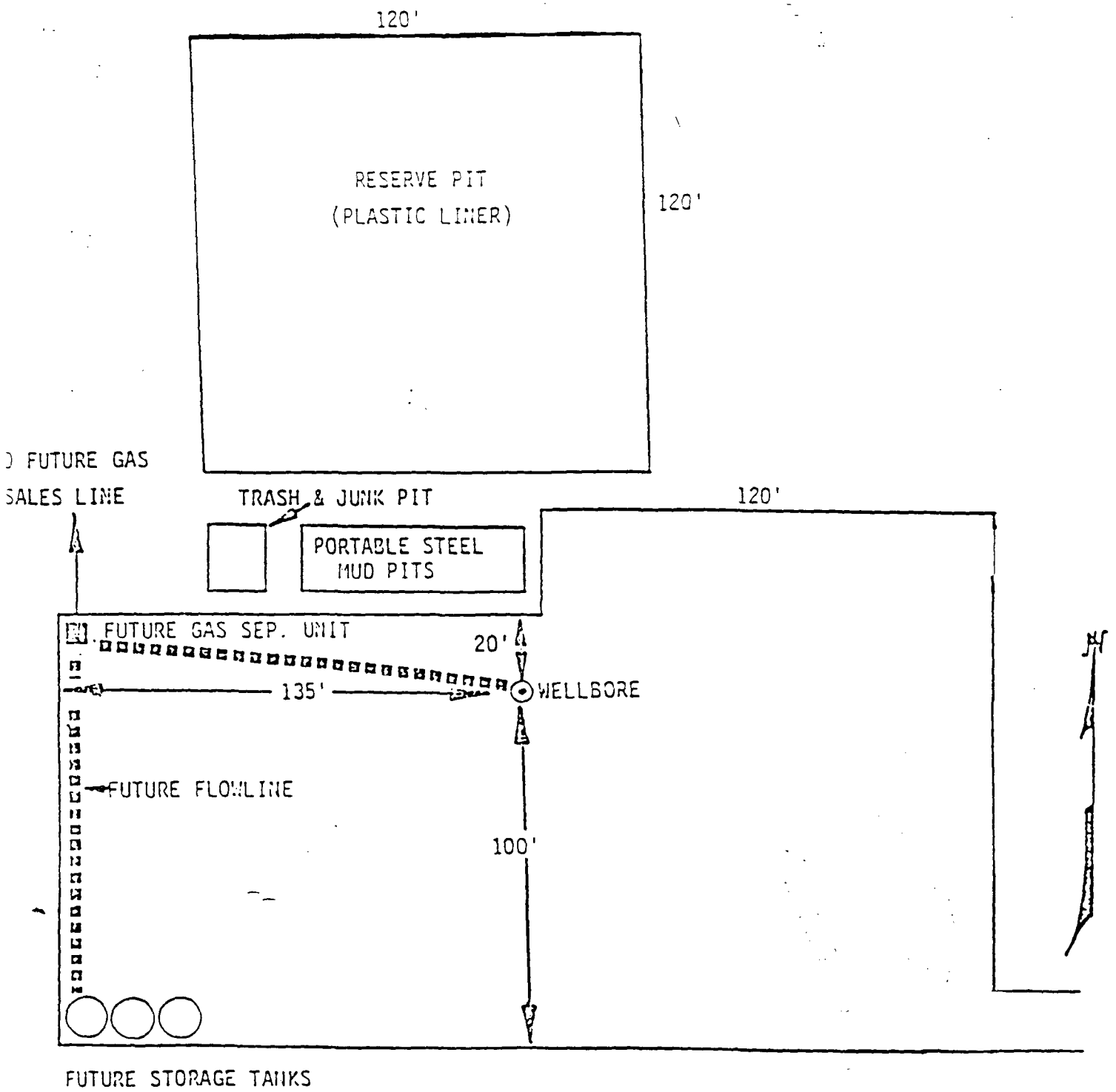


MERIDIAN OIL

EXHIBIT "B"

Meridian Oil, 21 Desta Drive
Midland, Texas 79705

MERIDIAN OIL INC.
CANNONBALL FEDERAL # 1
Sec 7, T-14-S, R-28-E
Chaves County, New Mexico
NM-64489



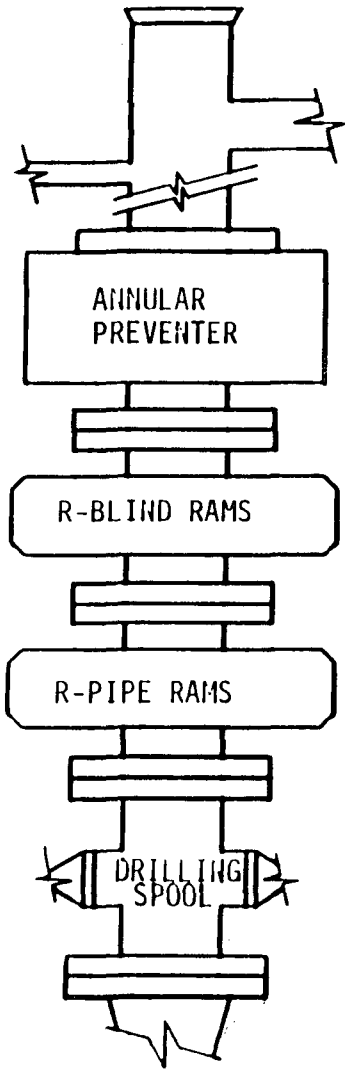
MERIDIAN OIL

EXHIBIT "C

Meridian Oil, 21 Desta Drive
Midland, Texas 79705

MERIDIAN OIL INC.
CANNONBALL FEDERAL # 1
Sec. 7, T-14-S, R-28-E
Chaves County, New Mexico
NM-64489

BLOWOUT PREVENTION EQUIPMENT
10" 900s ALL FLANGED EQUIPMENT
5,000# WORKING PRESSURE - 10,000# TEST



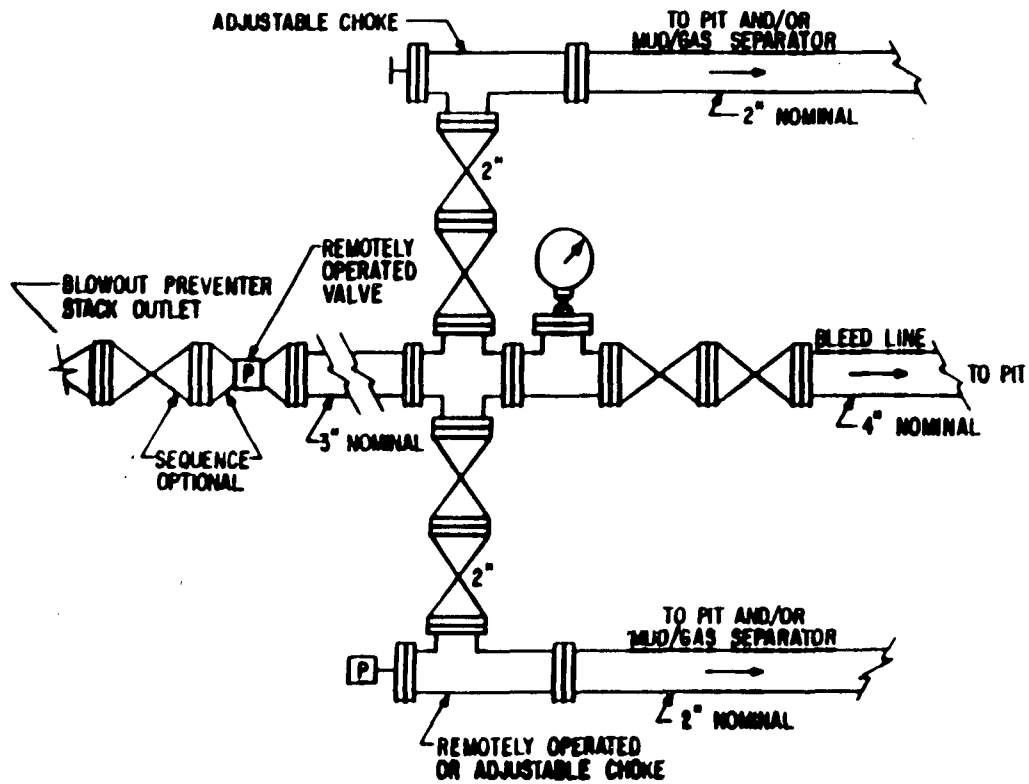


FIG. 3.A.2

TYPICAL CHOKE MANIFOLD ASSEMBLY FOR 5M RATED WORKING PRESSURE SERVICE — SURFACE INSTALLATION

EASTERN NEW MEXICO UNIVERSITY Portales 88130

Agency for Conservation Archaeology

November 4, 1988

Meridian Oil Company
ATTN: Kathy Nokes
21 Desta Drive
Midland, TX 79701

Dear Ms. Nokes:

Enclosed please find a copy of the Agency for Conservation Archaeology's cultural resources report F89-123, *Cannonball Federal No. 1 and Access Road*, for a location in Chaves County, New Mexico. No cultural resource sites were found during this survey. Eleven isolated manifestation was recorded, however, clearance is recommended.

If I may be of further help to you, please call me at (505) 562-2254.

Sincerely,

John Montgomery

John Montgomery, Ph.D.
Director, Agency for Conservation Archaeology

enclosure

Copies of report to: S. Ball, Roswell BLM (2)

Cultural Resources Report
for
Meridian Oil Company

Cannonball Federal No. 1 and Access Road

F89-123

by

Kathleen Bowman

Agency for Conservation Archaeology
Eastern New Mexico University

Principal Investigator
Dr. John L. Montgomery

November 4, 1988

ACA F89-123

MANAGEMENT SUMMARY

On November 2, 1988, the Agency for Conservation Archaeology conducted a cultural resources survey for Meridian Oil Company on land administered by the Bureau of Land Management. The area was surveyed for one proposed well pad and one access road, and encompasses a total of 11.25 acres. The proposed project area is located in Section 7, T14S, R28E, NMPM, Chaves County, New Mexico. Eleven isolated manifestation of prehistoric cultural activity were recorded during this survey. These isolates are not considered to possess the requisite integrity, significance, or data recovery potential necessary for inclusion in the NRHP. Clearance is recommended for the proposed project in this report.

ACA F89-123

Introduction

A cultural resources survey was completed recently by the Agency for Conservation Archaeology (ACA) at Eastern New Mexico University (ENMU) for Meridian Oil Company on land administered by the Bureau of Land Management (BLM) in Chaves County, New Mexico. The reconnoitered area will be disturbed by the construction of a well pad and an access road. The project was administered by Mr. Bobby Winn for Meridian Oil Company and Dr. John L. Montgomery, Director of ACA. This report was prepared by the Portales office of ACA.

The fieldwork was conducted on November 2, 1988, by Kathleen Bowman and Sandra Troyer. Good field and weather conditions prevailed throughout the course of this reconnaissance. The survey was done between 11:15 am and 1:15 pm under clear skies with temperatures in the high 70s (F). This survey was conducted under Federal Antiquities Permit number 11-2920-88-L. A search of the National Register of Historic Places (NRHP) has been made, and no properties within this area are listed. Examination of the Bureau of Land Management Roswell Resource Area's site files showed no previously recorded sites in the section of land where the proposed project is located but several in the surrounding area (Sam Ball, personal communication October 27, 1988).

Survey Techniques

Visual inspection of the proposed project area was accomplished by walking it in a series of parallel transects. Each transect was covered in a tightly spaced zigzag pattern. The distance between transects was approximately 25 ft (8 m). Dirt from insect and rodent burrows was examined for cultural materials that may have been brought up from below the surface. These methods maximized the opportunity of observing any cultural resources on the surface within or near the proposed area of disturbance.

Cannonball Federal No. 1 and Access Road

Location

The proposed well pad and access road are located in the Pecos River valley, approximately 11 mi (18 km) east-northeast of Hagerman, New Mexico. The proposed well pad covers approximately 3.67 acres and measures 400 x 400 ft (122 x 122 m). This well was designated as an alternate location. An original location was also staked by the surveyors; however, as instructed by the company representative only the alternate location was surveyed. The other location will not be used. The proposed access road covers approximately 7.58 acres and measures 3300 x 100 ft (1006 x 30 m). They are situated as follows:

Well Pad (1060 FSL 2180 FWL):
SE 1/4 SW 1/4, SEC. 07, T14S, R28E, NMPM, Chaves County, NM (BLM)

Access Road:
SE 1/4 SW 1/4, SEC. 07, T14S, R28E, NMPM, Chaves County, NM (BLM)
SW 1/4 SE 1/4, SEC. 07, T14S, R28E, NMPM, Chaves County, NM (BLM)
NW1/4 SE 1/4, SEC. 07, T14S, R28E, NMPM, Chaves County, NM (BLM)
NE1/4 SE 1/4, SEC. 07, T14S, R28E, NMPM, Chaves County, NM (BLM)

Plat (Well Pad): Figure 1

Map Reference: USGS Derrick Draw, N.Mex. Quadrangle (formerly Ninemile Well), 7.5 minute series, 1951 photorevised 1975 (Figure 2).

Topographic Situation

The proposed well pad and access road are located in the Pecos River Valley approximately 0.5 mi (0.8 km) southeast of Long Arroyo. They are situated on a gently rolling plain overlain by 3-6 ft (1-2 m) high coppice dunes. Elevation varies from approximately 3520 to 3540 ft (1072 to 1079 m) above mean sea level (amsl).

Water Resources

Several sources of permanent and/or seasonal water exist in this area of New Mexico. Seasonal water may have been obtained at Long Arroyo, approximately 0.5 mi (0.8 km) northwest of the project area, or at any number of smaller drainages surrounding the project area. The closest source of permanent water would be the Pecos River, approximately 7.0 mi (11.3 km) to the west.

Land Resources

The proposed well pad and access road are in an area where sediments are predominantly tan sand and sandy loam. Taxonomically they are classified as part of the Paleorthids-Haplargids association, which comprise some of the light colored soils of the Warm Desertic Region. This soil association is characterized by shallow soils overlying fractured or indurated caliche. Lithic inclusions observed in the project area include common pebbles and fragments of caliche, and few to common tabular pieces of chert and chalcedony.

Biotic Resources

The ACA archaeologists observed a dense floral assemblage at this location. The estimated coverage of vegetation in the area is approximately 75% to 90%, consisting primarily of shrubs and grasses. The dominant species is scrub oak (*Quercus havardii*). Other species present include include mesquite (*Prosopis juliflora*), broom snakeweed (*Gutierezia sarothrae*), poverty threeawn (*Aristida scoparis*), sandbur (*Cenchrus insertus*), various grama grasses (*Bouteloua* sp.), yucca (*Yucca glauca*), javelina bush (*Condalia ericoides*),

Figure 1.

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes
Effective 1-1

All distances must be from the outer boundaries of the Section

Operator	Lease	Well No.
Meridian Oil Company	Cannonball Federal	1

Unit Letter	Section	Township	Range	County
B		11 South	East	Chaves

Actual Footage Location of Well:
1980 feet from the South line and 2180 feet from the West line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3911.5			Acres

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

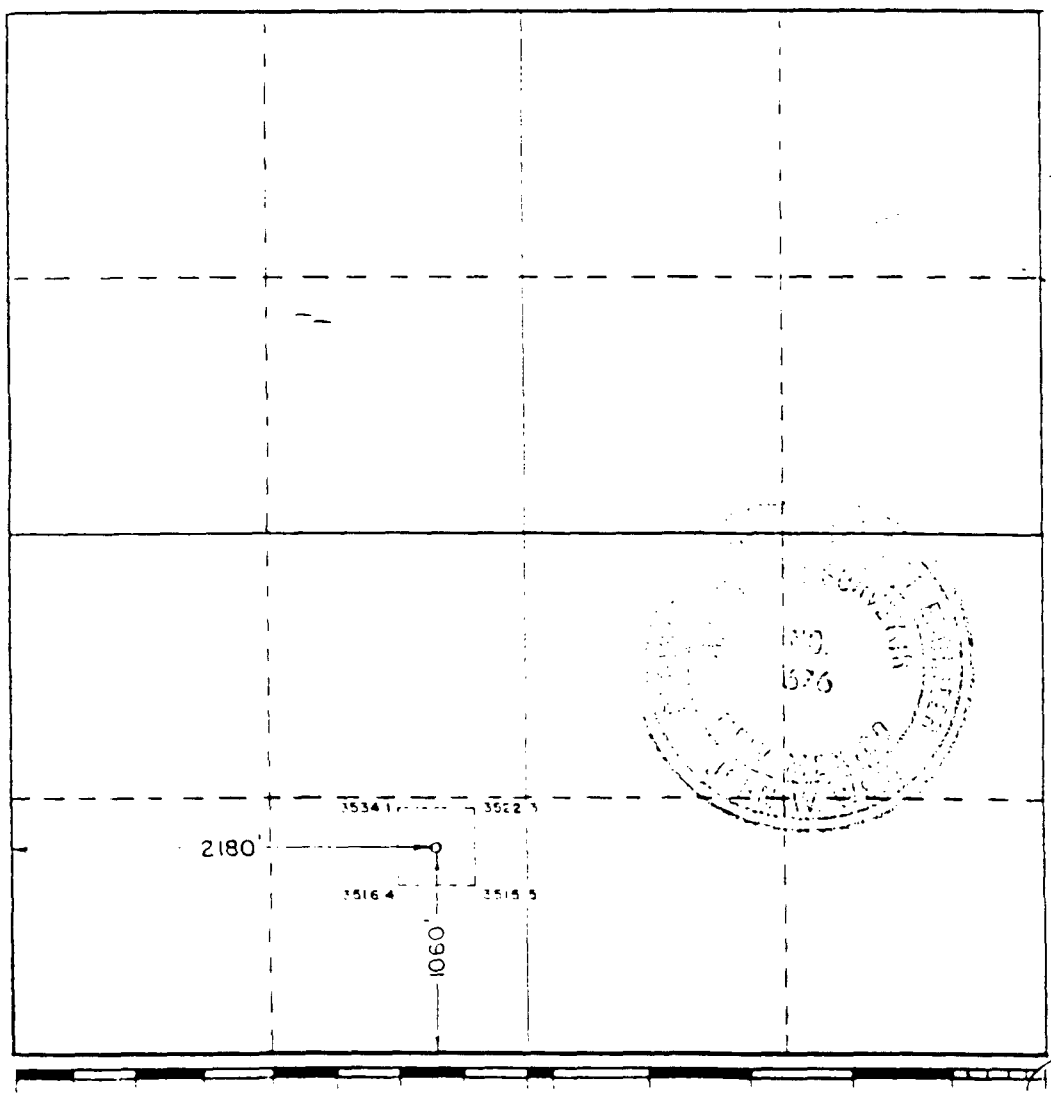
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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 _____

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 Surveyed
October 24, 1988

Registered Professional Engineer and/or Land Surveyor

Certificate No. JOHN W. WEST, 6

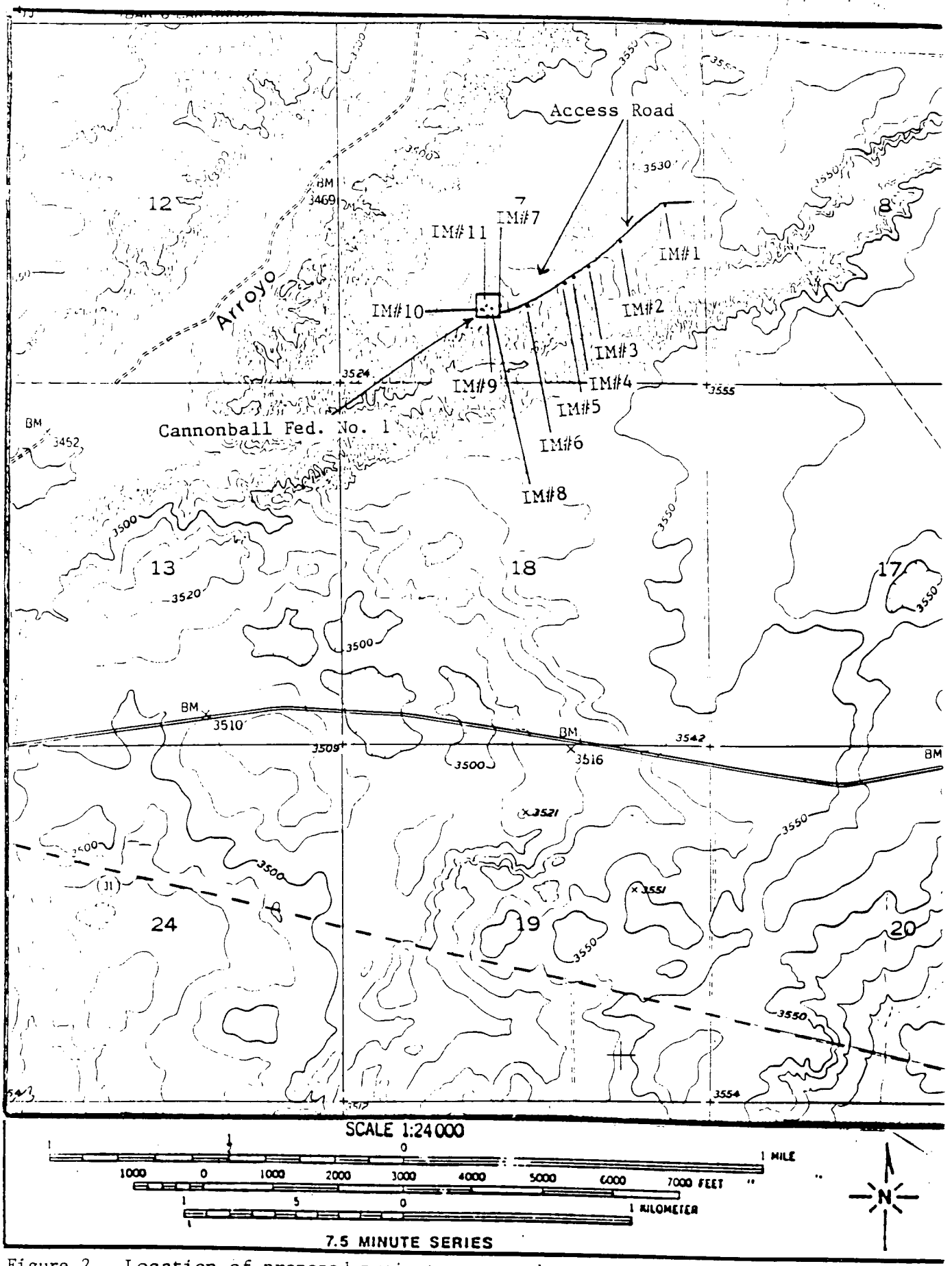


Figure 2. Location of proposed project area and associated cultural resources in Section 7, T14S, R28E, NMPM, Chaves County, New Mexico.

Map Reference: USGS Derrick Draw, N.Mex. Quadrangle (formerly Ninemile Well), 1951 photorevised 1975.

leatherweed croton (*Croton potsii*), bush muhly (*Muhlenbergia porteri*), sand dropseed (*Sporobolus cryptandrus*), and other unidentified grasses and forbs.

Previous Disturbances

The proposed project area has been disturbed previously by aeolian erosion, slopewash, and ranching activities.

Cultural Resources

Eleven isolated manifestations of prehistoric cultural activity were recorded and are described below. Each of these isolates was found on a dune-covered plain in sandy and eroded contexts. They are associated with the vegetation types listed on the preceding page. A total of 4.0 person-hours were spent examining this location for cultural resources.

IM-1. This designation is for a core fragment of white chalcedonic-chert that measures 6.0 x 4.0 x 2.0 cm. The artifact was badly weathered and had no identifiable platform preparation. Approximately 25% cortex and two flake scars were observed on the fragment. It was found on a sandy eroded surface approximately 400 ft (122 m) from the beginning of the access road and 25 ft (8 m) south of the centerline in the NE 1/4 NE 1/4 SE 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3664460, E 577980.

IM-2. This designation is for three items found scattered in a large (50 x 25 ft [15 x 8 m]) deflation basin: 1) a core fragment of red and gold mottled chert that measures 4.1 x 3.2 x 2.3 cm. It has 75% cortex remaining on it and three flake scars; 2) a secondary flake of milky white chalcedony that measures 2.0 x 1.8 x 0.6 cm. It had no platform preparation and a step termination; 3) a piece of white chert non-diagnostic shatter with cortex that measures 3.3 x 2.0 x 1.7 cm. These items were found ca. 1200 ft (366 m) from the beginning of the access road and 50 ft (15 m) south of the centerline in the NW 1/4 NE 1/4 SE 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3664300, E 577760.

IM-3. This designation is for a primary flake of red-brown-gold banded chert that measures 3.0 x 2.0 x 1.5 cm. It has a multifaceted platform remnant and a feather termination. It was found on a sandy eroded surface approximately 1800 ft (550 m) from the beginning of the access road and 50 ft (15 m) south of the centerline in the SE 1/4 NW 1/4 SE 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3664140, E 577640.

IM-4. This designation is for a primary flake of chalcedony that measures 2.5 x 1.7 x 0.5 cm. It had no evidence of platform preparation and ends in a feather termination. This item was found on a sandy eroded surface ca. 2000 ft (610 m) from the beginning of the access road and 30 ft (9 m) south of the centerline in the SE 1/4 NW 1/4 SE 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3664130, E 577580.

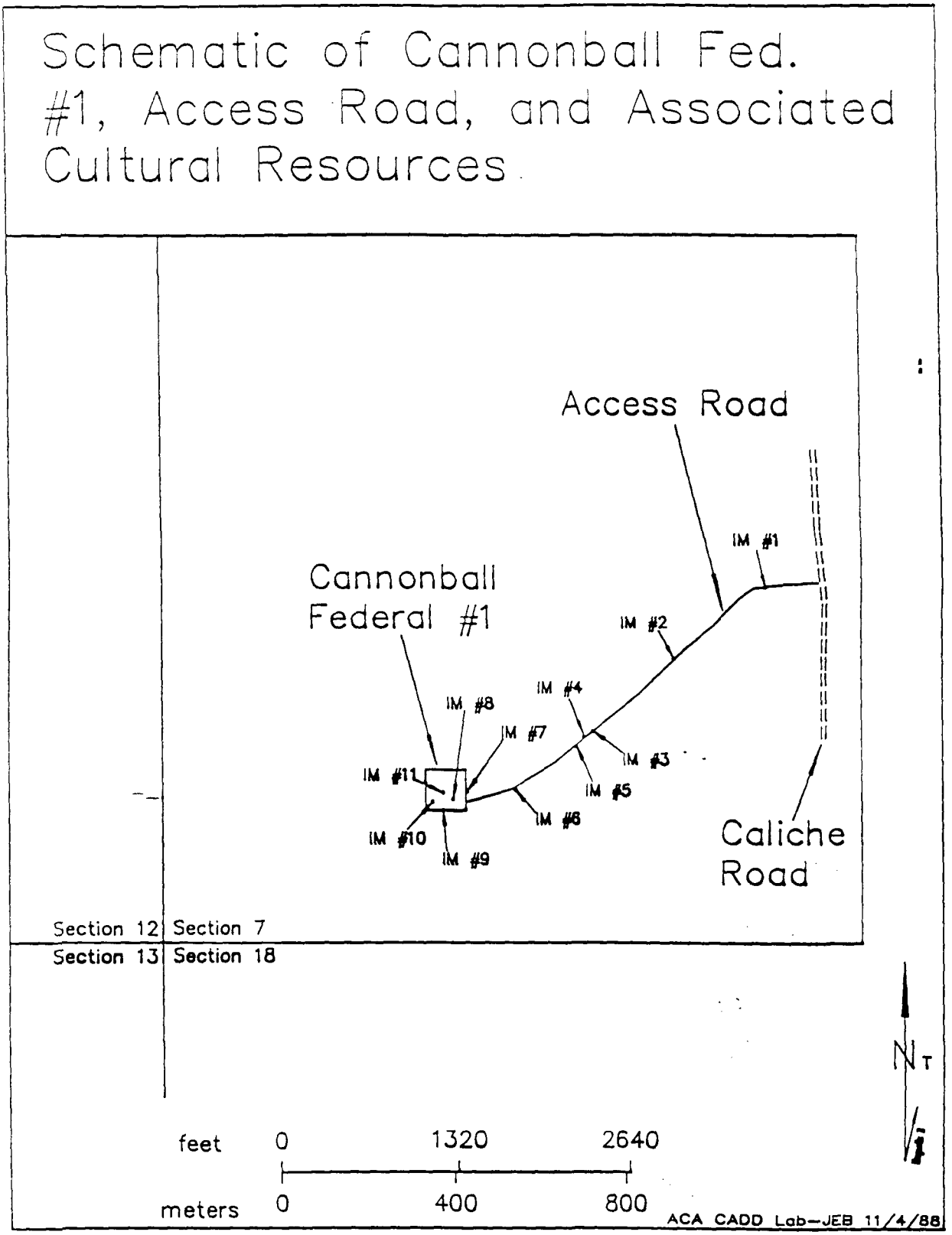


Figure 3. Schematic representation of proposed project and associated cultural resources.

IM-5. This designation represents two pieces of non-diagnostic shatter with cortex. Both are of white chalcedony and measure 2.6 x 1.0 x 0.5 cm and 1.6 x 1.4 x 1.0 cm, respectively. They were found together on a sandy eroded surface approximately 2100 ft (640 m) from the beginning of the access road on the centerline in the SW 1/4 NW 1/4 SE 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3664100, E 577540.

IM-6. This designation is for a primary flake of white chalcedonic-chert that measures 3.7 x 2.1 x 1.0 cm. The flake had no evidence of platform preparation and ends in a feather termination. This item was found on a sandy eroded surface approximately 2700 ft (823 m) from the beginning of the access road on the centerline in the NW 1/4 SW 1/4 SE 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3664000, E 577380.

IM-7. This designation represents two items found together on a sandy eroded surface: 1) a primary flake of chalcedony that measures 2.2 x 1.9 x 0.6 cm. It has no platform preparation and ends in a feather termination; 2) a core fragment of white chert that measures 2.8 x 2.6 x 2.0 cm. It is badly weathered and no evidence of platform preparation could be discerned. It has 75% cortex remaining on it and three flake scars. These items were found 200 ft (61 m) east and 200 ft (61 m) north of the center of the well pad in the NE 1/4 SE 1/4 SW 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3664000, E 577230.

IM-8. This designation is for a primary flake of brown chert that measures 3.6 x 3.0 x 2.0 cm. It has no evidence of platform preparation and ends in a feather termination. The flake was found on a sandy eroded surface 25 ft (8 m) south and 150 ft (46 m) east of the center of the well pad in the NE 1/4 SE 1/4 SW 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3663990, E 577220.

IM-9. This designation represents a secondary flake of gray and white chert that measures 4.1 x 3.5 x 1.3 cm. It has a feather termination and no evidence of platform preparation. It was found on a sandy eroded surface 200 ft south of the center of the well pad in the NE 1/4 SE 1/4 SW 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3663960, E 577210.

IM-10. This designation is for a tertiary flake of heavily patinated white chert that measures 5.0 x 4.6 x 1.5 cm. It has no platform preparation and ends in a feather termination. This item was found on a sandy eroded surface 100 ft (30 m) west and 100 ft (30 m) south of the center of the well pad in the NE 1/4 SE 1/4 SW 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3663990, E 577180.

IM-11. This designation is for a tertiary flake of tan chert that measures 1.9 x 1.2 x 0.3 cm. It has a hinge termination and no evidence of platform preparation. It was found at the center of the well on a sandy eroded surface in the NE 1/4 SE 1/4 SW 1/4, Section 7, T14S, R28E, NMPM (Figures 2 and 3). UTM: Zone 13; N 3664000, E 577190.

Recommendations

The eleven isolated manifestations of prehistoric cultural activity are not culturally or technologically unique. None of them were found in sufficient density to warrant designation as a site. There are several sites in the vicinity of the project (Sam Ball, personal communication October 27, 1988) and these may be related to one or all of them. However, in their present contexts these isolates are not considered to possess the significance, integrity, or data recovery potential necessary for inclusion in the NRHP. Due to the absence of significant cultural resources in the project area, clearance is recommended. Construction should be allowed to proceed as currently planned.

General Recommendations

In the unlikely event that substantial cultural materials are uncovered during construction, the BLM Archaeologist for the Roswell Resource Area should be consulted immediately. This report contains professional opinions about cultural resources in the project area. It should not be considered permission to proceed with construction, but should be submitted to the proper review agencies for comments prior to the initiation of land-altering activities.