Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

30-039-22291

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

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

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

2. NAME OF OPERATOR: Conoco Inc.

3. ADDRESS OF OPERATOR: P.O. Box 460, Hobbs, N.M. 88240

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1100' FNL & 800' FEL
A
At proposed prod. zone: Same

5. LEASE DESIGNATION AND SERIAL NO.: C-124

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Jicarilla Apache

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: AXI Apache "M"

9. WELL NO.: 7

10. FIELD AND POOL, OR WILDCAT: Blanco Mesaverde

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 13, T-25N, R-4W

12. COUNTY OR PARISH: Rio Arriba | 13. STATE: N.M.

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

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: E 320

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

19. PROPOSED DEPTH: 6120'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 7175' GR

22. APPROX. DATE WORK WILL START*: March 1, 1980

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12 1/4"	9 5/8"	36#	250'	132 sx.
8 3/4"	7"	23#	4100'	382 sx.
6 1/4"	4 1/2"	10.5#	6120'	259 sx.

It is proposed to drill a hole to a TD of 6120' & complete it as a Blanco Mesaverde gas well.

See attachments for 10-point well plan & 13-point Surface Use Plan.

Acreage is dedicated to a purchaser.

RECEIVED
FEB 22 1980
OIL CON. COM.
DIST. 3

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 Wm A. Buttafuso TITLE Admin. Supervisor DATE 11/15/80

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED AS AMENDED
FEB 8 1980
JAMES F. SIMS
DISTRICT ENGINEER

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

USGS (Durango) - 6
FILE
BEA
MJL
Gas Co. of N.M.

*See Instructions On Reverse Side

RECEIVED
JAN 17 1980
U. S. GEOLOGICAL SURVEY
DURANGO, COLO.

OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
CONTINENTAL OIL COMPANY	AXI APACHE "M"	7

Unit Letter	Section	Township	Range	County
A	13	25N	4W	Rio Arriba

Actual Footage Location of Well:
1100 feet from the North line and 800 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
7175	Mesa Verde	Blanco Mesaverde	E 320 Acres

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

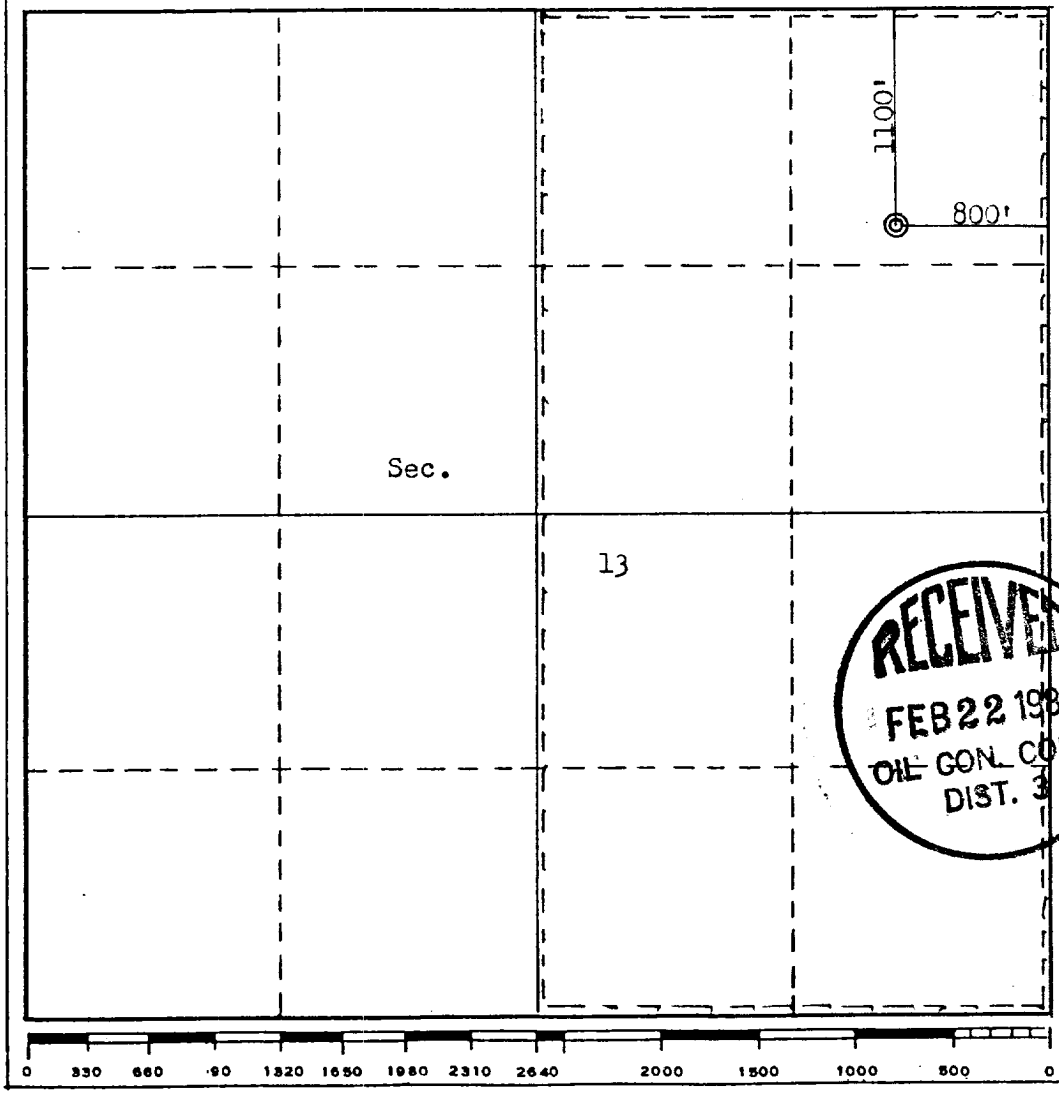
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

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.



RECEIVED
FEB 22 1980
OIL CON. COM.
DIST. 3

CERTIFICATION

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

Name: Wm A. Burkhart
Position: Admin. Supervisor
Company: Conoco Inc.
Date: 1/15/80

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 31, 1979
Registered Professional Engineer and/or Land Surveyor
Fred B. Kerr Jr.
Certificate No. 3950

REGISTERED LAND SURVEYOR
NEW MEXICO
FRED B. KERR JR.
3950

ATTACHMENT TO FORM 9-331 C
APPLICATION FOR PERMIT TO DRILL

Conoco Inc.
AXI Apache M No. 7
Section 13, T-25N, R-4W
Rio Arriba County, New Mexico

1. The geologic name of the surface formation is Quaternary Sand.

2. The estimated tops of important geologic markers are shown on the attached Proposed Well Plan.

3. The estimated depths at which anticipated water, oil, gas or other mineral-bearing formations to be encountered are shown on attached Proposed Well Plan.

4. The proposed casing program is as follows:

   0' - 250' 9 5/8", 36#, H-40, STC
   0' - 4100' 7", 23#, K-55, STC
   4050' - 6120' 4 1/2", 10.5#, K-55, STC

5. A drawing of an API Series 900 Blowout Preventer Specification is attached. Pipe rams and blinds will be checked to 1,000 psi for 30 minutes when BOP is installed. BOP will be checked when casing string is set and operated daily for checks.

6. The proposed mud program is as follows:

   0' - 250' 8.5-9.0 ppg spud mud
   250' - 4100' 8.5-9.0 ppg fresh gel (low solids)
   4100' - 6120' Air

7. The auxiliary equipment to be used is:

   (1) kelly cocks
   (2) floats at the bit

8. It is proposed to run GR CAL CNL FDC PDC & SP-IES logs at selected intervals.

9. No abnormal pressures or temperatures are expected to be encountered in this well.

10. The anticipated starting date is May 1, 1980 with a duration of approximately 15 days.

PROPOSED WELL PLAN OUTLINE

WELL NAME: AXI APACHE "M" NO. 7 COUNTY: RIO ARRIBA

LOCATION: 1100' FNL & 800' FEL STATE: NEW MEXICO
Sec.13, T-25N, R-4W KB: 7187'
GL: 7175'

DEPTH	FORMATION TOPS & TYPE	DRILLING PROBLEMS	TYPE OF FORMATION EVALUATION	HOLE SIZE (IN)	CASING SIZE (IN)	CASING DEPTH (FT)	FRACTURE GRADIENT (PPG)	FORMATION PRESSURE GRADIENT (PPG)	MUD WEIGHT (PPG)	MUD TYP
	Quaternary			12-1/4	9-5/8 36# H-40 STC	250	12.0-13.0	8.0-9.0	8.5-9.0	Spud
1000			Geolograph Deviation 0'-6120'							
2000										
3000	Ojo Alamo SS. 3020'	Fresh water zone								
	Kirtland SH 3360'									
	Pictured Cliffs SS. 3650'	Possible severe lost circ. zone			23# K-55 STC					Fresh gel low solids
4000				8-3/4	7	4100	12-13	8.0-9.0	8.5-9.0	
	Chacra SS. 4590'		SP-IES 4100'-6120' 2" & 5" GR-FDC-Caliper 4100'-6120' (Pull GR to 3300') 2" & 5"							
5000	Cliff House SS. 5340'	Possible severe lost circ. zone								
	Point Lookout SS. 5750'				10.5# K-55 STC			Less than 8.5		
6000	Mancos SH 6070'						13-14		-	Air
	TD-6120'		PDC 5300'-6120'	6-1/4	4-1/2	6120				

NOTE: Mud and logging programs will be revised if no fluid is encountered while drilling with air.

WELL NAME AXI APACHE "M" NO. 7 FIELD AXI APACHE AREA DATE 12-27-79

AFE NO. ELEV. GRD 7175' KB 7187' PROPOSED TD 6120'

LOCATION (SURF.) 1100' FNL & 800' FEL OF SEC 13 T-25N R-4W

COUNTY Rio Arriba STATE New Mexico SPACING

LOCATION (BOTTOM HOLE) Same as surface

GEOLOGICAL ESTIMATES

ZONE	TOP	THICKNESS	CONTENT	ZONE	TOP	THICKNESS	CO:
Ojo Alamo SS.	3020'		Fresh Water				
Kirtland SH.	3360'						
Pictured Cliffs SS.	3650'		Gas				
Chacra SS.	4590'		Gas				
Cliff House SS.	5340'		O,W,G				
Point Lookout SS.	5750'		O,W,G				
Mancos SH.	6070'						

CORING NO.	TYPE	HORIZON	INTERVAL FROM-TO	FOOTAGE	REMARKS
NONE					

DRILL STEM TESTS

NUMBER	HORIZON	NUMBER	HORIZON	NUMBER	HORIZON
NONE					

WATER SHUT OFF TESTS

NUMBER	HORIZON

WELL SURVEYS (List types by code numbers as follows: Directional and/or Deviation (1) Deflection (2) Caliper (3) Temperature (4) Electrical (5) Radioactive (6) Geolograph (7) Photoclinometer (8) Mudlogging (9) Other (10) and name of that type.)

DEPTH POINTS	TYPE	HOLE SIZE	REMARKS
0'-6120'	(1) Deviation	12-1/4", 8-3/4", 6-1/4"	One every 500'
0'-6120'	(7) Geolograph	12-1/4", 8-3/4", 6-1/4"	
4100'-6120'	(5) SP-IES	6-1/4"	2" & 5" scales
4100'-6120'	(6) FDC-GR-Caliper	6-1/4"	2" & 5" scales (Pull GR to 3300'
5300'-6120'	(6) PDC (GR-Collar)	4-1/2" Liner	Depth Control
0'-4100'	(4) Temperature	7" Casing	Determine top of cement

FUEL AND WATER (SOURCE)

Conoco to furnish water
Contractor to furnish fuel.

PROPOSED WELL PLAN

WELL NAME AXI APACHE "M" NO. 7 FIELD AXI APACHE AREA

ATTACHMENT	NO.	REQUIRED	NOT REQUIRED
CASING CENTRALIZERS, SCRATCHERS		X	
CEMENTING		X	
MUD PROGRAM		X	
WELL PLAN OUTLINE		X	
PORE PRESSURE - FRAC GRADIENT			
PROJECTED PROGRESS			
CROSS SECTION OR WELL COURSE			
HYDRAULICS PROGRAM			
BIT PROGRAM			
VENDER USAGE LIST			

DRILLING AND COMPLETION PROCEDURE

1. 0'-250' - Drill a 12-1/4" hole. Set and cement 9-5/8" surface casing. WOC 18 hours. Pressure test casing to 600 psi for 30 minutes and drill out.

2. 250'-4100' - Drill an 8-3/4" hole. Set and cement 7" production casing. WOC 18 hours. Pressure test casing to 1450 psi for 30 minutes and drill out.

3. 4100'-6120' - Drill a 6-1/4" hole with air. Load hole with mud and run open-hole logs. Set and cement 4-1/2" liner. Drill out liner top and pressure test to 3000 psi.

4. Detailed completion procedure to be prepared after open-hole logs are analyzed.

NOTE: Use pre-mixed mud for logging, running casing, and cementing with weight as low as possible. (See mud program)

LIST TYPE OF STRING BY CODE LETTERS, i.e. CONDUCTOR (C); SURFACE (S); INTERMEDIATE (I); PRODUCTION (P); LINER (L); PERFORATIONS (PP)

TYPE OF STRINGS & INTERVAL (FT) FROM-TO	OD	DRIFT ID	WT PER FT	GRADE	THREAD	AMT	WT. IN AIR, 1000 LBS	WT. IN MUD 1000 LBS	REMARKS
(S) 0'-250'	9-5/8"	8.765"	36#	H-40	STC	250'	9		
(P) 0'-4100'	7"	6.241"	23#	K-55	STC	4100'	94.3		
(L) 4050'-6120'	4-1/2"	3.927"	10.5#	K-55	STC	2070'	21.7		Sandblast bottom 800'

TYPE OF STRING	CENTRALIZERS INTERVAL NO. FROM-TO	SCRATCHER NO. INTERVAL NO. FROM-TO	OTHER ACCESSORY EQUIPMENT (SUCH AS DEGASSERS, MUD. CENTRIFUGE FLOAT COLLARS, ETC. - SPECIFY)	REMARKS
Surface	(6) 0'-250' one every joint	NONE	Guide shoe and float collar	
Production	(2) 200'-250' just above 9-5/8" shoe (12) 3620'-4100' one every joint	(10) every 15' from shoe to 150' above shoe	Float shoe and float collar	
Liner	(2) 4050'-4100' just above 7" shoe (20) 5300'-6120' one every joint	NONE	Float shoe, float collar, liner hanger and liner top pack-off	

NOTE: Liner top pack-off to be used only if necessary (Example: Excessive gas and/or liquids in Chacra)

MUD PROGRAM

DEPTH INTERVAL FROM-TO	WEIGHT LBS/GAL	TYPE	OIL %	pH	WATER LOSS (cc)	VIS. (sec.)	MAXIMUM % SOLIDS	% LCM	WATER LOSS AGENTS
0'-250'	8.5-9.0	Spud	-	-	NC	NC	-	-	-
250'-4100'	8.5-9.0	Fresh gel (low solids)	-	as req'd.	6-10	35-40	1-3	3-5% thru Pictured Cliffs	Cypan or equivalent
4100'-6120'	-	Air	-	-	-	-	-	-	-
Logging	8.5-9.0	Fresh gel (low solids)		as req'd.	6	35-40	3	3-5%	Cypan or equivalent
Cementing	8.5-9.0	Fresh gel (low solids)		as req'd.	8-10	35	-	-	Cypan or equivalent

REMARKS

1. Pressure surges should be kept to a minimum below 5300'.
2. Pressure drop across bit should be kept at 65% of pump output pressure to obtain optimum bit hydralics when drilling with mud.
3. Load hole with mud prior to logging, running casing, and cementing.
4. Maintian hardness at approximately 150-180 PPM when utilizing Cypan. DO NOT treat out total hardness. (Cypan is calcium sensitive)
5. Control PH as required to obtain water loss control.

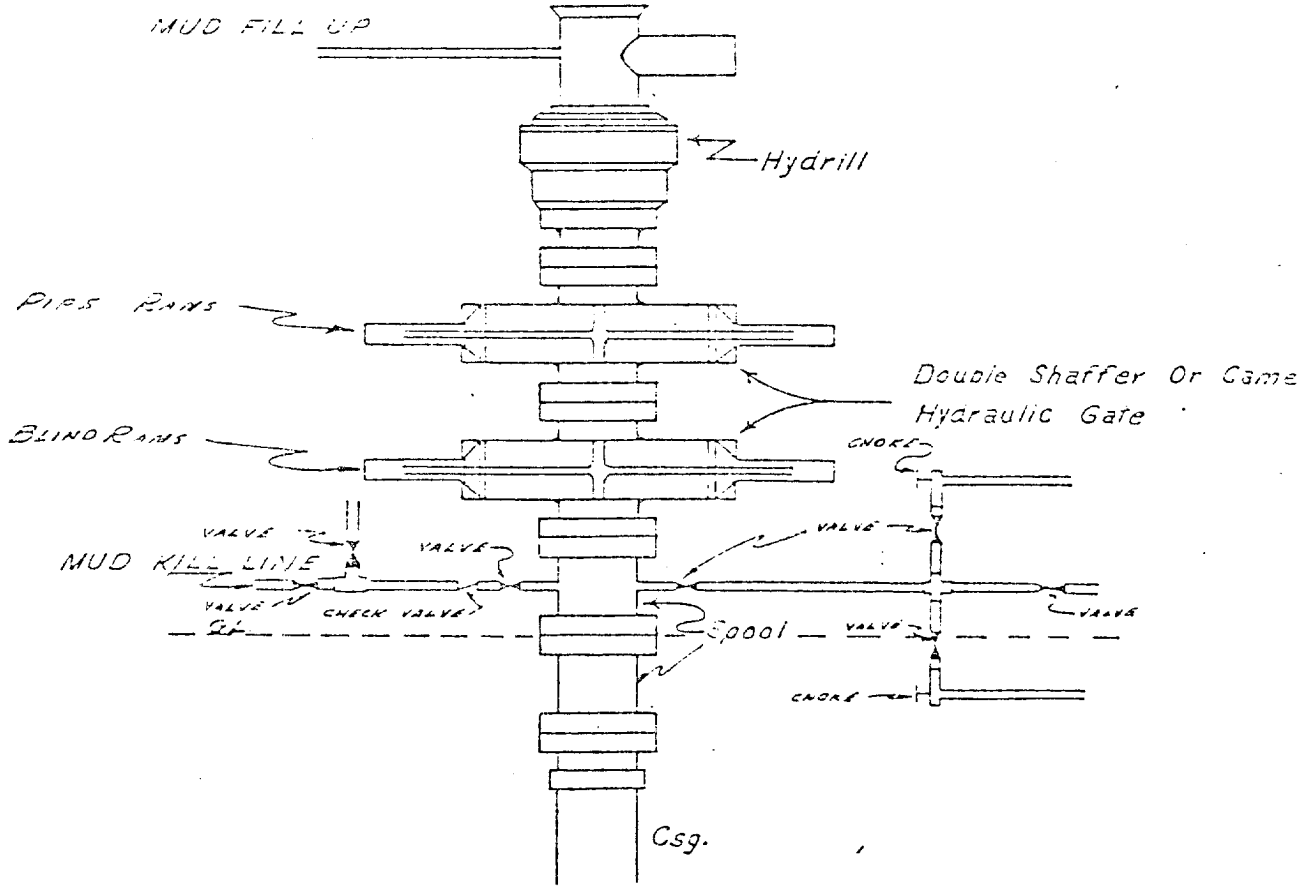
CEMENT

TYPE OF STRING INTERVAL (FT) FROM-TO TYPE MIX	GEL%	SALT%	CaCl2	SLURRY WEIGHT LB./GAL	SLURRY YIELD CF/SKX	TOTAL AMT. REQUIRED SKX/CF	FILL UP	BHT	SIZE	REMARKS
(S) 0'-250'										
Class 'B'	-	-	-	15.60	1.18	132/157	Circulate	65°	12-1/4"	100% excess-add 1/4#/sx Flocele if lost circ. occurs
(P) 0'-4100'										
Class 'B'	2%	(Pozmix 50-50)		14.15	1.26	282/355	2000'	120°	8-3/4"	50% excess-add 1/4#/sx Flocele if lost circ. occurs
Class 'B'	-	-	-	15.60	1.18	100/118				
(L) 4050'-6120'										
Class 'B'	2%	(Pozmix 50-50)		14.15	1.26	159/201	4050'	146°	6-1/4"	50% excess-add 1/4#/sx Flocele if lost circ. occurs
Class 'B'	-	-	-	15.60	1.18	100/118				

NOTE:

1. Reciprocate production casing while cementing.
2. Add 0.75% CFR-2 or equivalent friction reducer to all cement.
3. Pump plug down with treated fresh water.
4. Lab test cement slurries prior to cementing liner.
5. Re-calculate cement volumes for liner from open-hole caliper.

[redacted] COMPANY
Blow-out Preventer Specifications.



NOTE: API SERIES 900

Manual and Hydraulic controls with closing unit no less than 75' from well head.
Remote controls on rig floor.

DUE TO SUBSTRUCTURE CLEARANCE,

HYDRILL [redacted] NOT [redacted] USED.

SURFACE USE PLAN
Conoco Inc.
AXI Apache M Nos. 7, 8
AXI Apache N Nos. 11A, 12A, 13A, 14A
T-25N, R-4W
Rio Arriba County, New Mexico

This plan is to accompany "Application for Permit to Drill" the subject well. The following is a discussion of pertinent information concerning possible effect which the proposed drilling of the well may have on the environment of the well and road sites and surrounding acreage. A copy will be posted on the derrick floor so that all contractors and sub-contractors will be aware of all items of this plan.

1. Existing Roads

A. The proposed well sites are as follows:

AXI Apache M No. 7 1100' FNL & 800' FEL, Section 13, T-25N, R-4W
AXI Apache M No. 8 790' FNL & 1050' FEL, Section 14, T-25N, R-4W
AXI Apache N No. 11A 1120' FNL & 1520' FEL, Section 12, T-25N, R-4W
AXI Apache N No. 12A 1695' FSL & 825' FWL, Section 11, T-25N, R-4W
AXI Apache N No. 13A 1520' FSL & 1050' FEL, Section 2, T-25N, R-4W
AXI Apache N No. 14A 1550' FSL & 1520' FWL, Section 1, T-25N, R-4W

B. Exhibit "A" is a portion of an AXI Apache M or AXI Apache N lease map showing existing roads and proposed new roads and locations.

C. The access roads are shown on Exhibits "A" and "B".

2. Planned Access Roads

Refer to the attached archaeological report.

3. Location of Existing Wells

See Exhibit "A".

4. Location of Existing and/or Proposed Facilities

A. Tank Batteries: One 400 Bbl. tank and a production unit will be located on each well site.

B. Rehabilitation: Pits will be backfilled and leveled as soon as practical to original condition. Commencement of rehabilitation operations will immediately follow removal of drilling and completion equipment from location and rehabilitation of the surface is planned to be completed within 45 days from commencement.

5. Water Supply

The supply of water will be hauled from Largo Wash in the NE/4 of the SE/4 of Section 10, T-24N, R-4W, Rio Arriba County, New Mexico. See Exhibit "C".

6. Source of Construction Materials

Not applicable. Drilling pad to be compacted.

7. Methods for Handling Waste Disposal

Waste Disposal: Well cutting will be disposed in reserve pit. Barrel trash containers to be in accessible locations within drill site area during drilling and completion procedures. All detrimental waste will be hauled away, burned or buried with a minimum cover of 24" of dirt. See Exhibit "D" for location of pits. If well is productive, maintenance waste will be placed in special trash cans and hauled away periodically. Any produced water will be collected in tanks until hauled to an approved disposal system, or separate disposal applications will be submitted to the survey for appropriate approval.

8. Ancillary Facilities

None.

9. Well Site Layout

Exhibit "D" shows the relative location and dimensions of the well pad, mud pit, reserve pit, etc. The reserve pit will be lined with plastic. The pad and pits are staked.

10. Plans for Restoration of Surface

Pits will be backfilled and leveled as soon as practical to original condition. Commencement of rehabilitation operations will immediately follow removal of drilling and completion equipment from location and rehabilitation of the surface is planned to be completed with 45 days from commencement.

11. Other Information

A. Terrain: "A" through "C" refer to the attached archaeological report.
B. Soil:
C. Vegetation:
D. Surface Use: Suitable for grazing.
E. Ponds and Streams: None within one mile
F. Water Wells: See Exhibit "C".
G. Residences & Buildings: None within one mile.
H. Arroyos, Canyons, Etc.: See attached topographic map, Exhibit "B".
I. Well Sign: Sign identifying and locating well will be maintained.
J. Open Pits: All pits containing mud or other liquids will be fenced.
K. Archaeological Resources: See attached report.

12. Operator's Representative

Field personnel who can be contacted concerning compliance of this Surface Use Plan are as follows:

B. E. Anderson
Petroleum Center Building
Room 215
501 Airport Drive
Farmington, New Mexico
Phone: (505) 327-9557

L. P. Thompson or J. R. Kemp
1001 North Turner
Hobbs, New Mexico 88240
Phone: (505) 393-4141

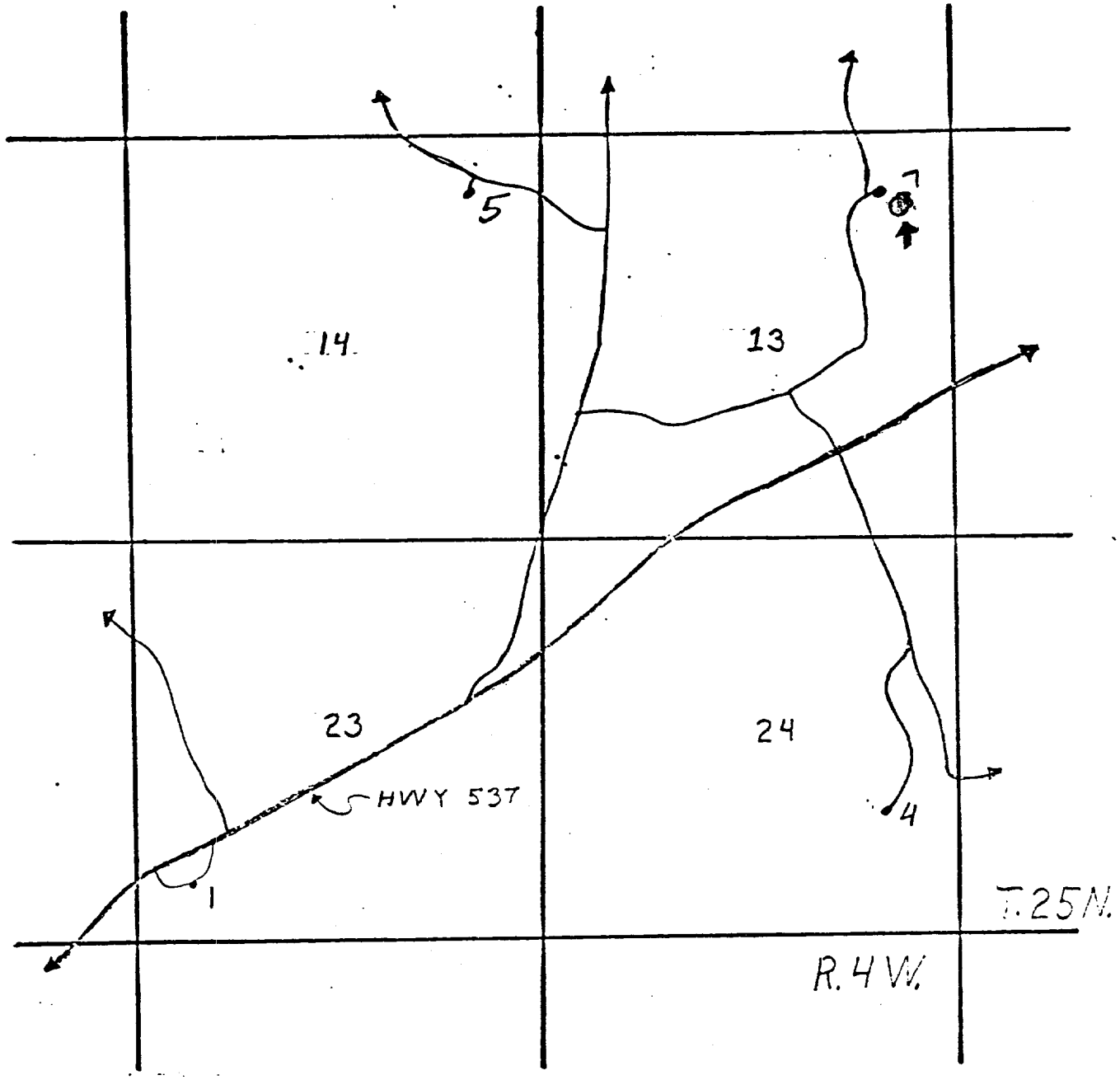
13. Certification

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 Conoco Inc. and its contractors and sub-contractors in conformity with this plan and the terms and conditions under which it is approved.

12/13/79
Date

John R Kemp

KJH:bep



conoco

PRODUCTION DEPT. HOBBS DIV.

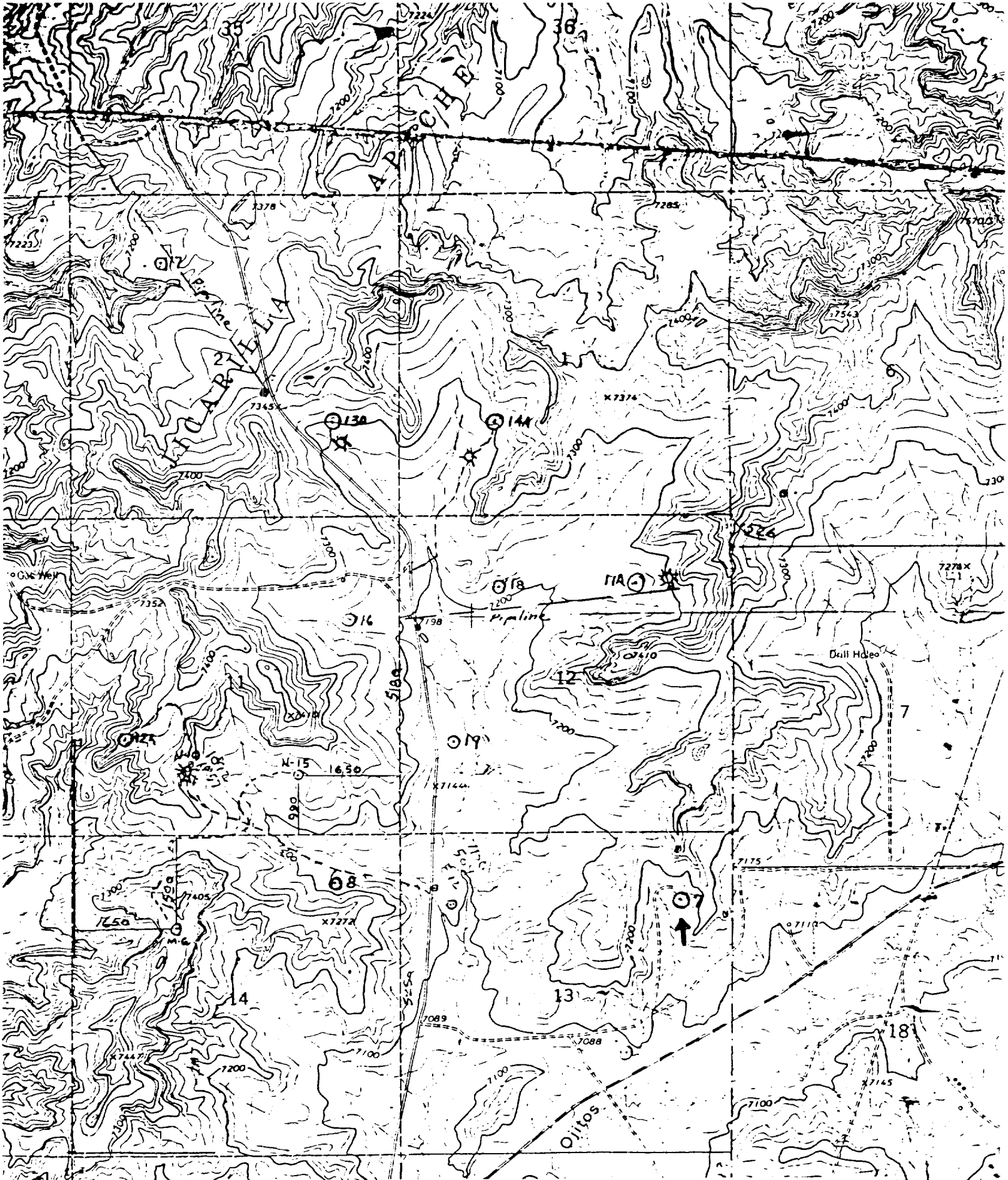
AXI APACHE "M" LEASE 7

LEGEND

- CONOCO WELL
- TANK BATTERY
- LEASE ROAD
- HWY.

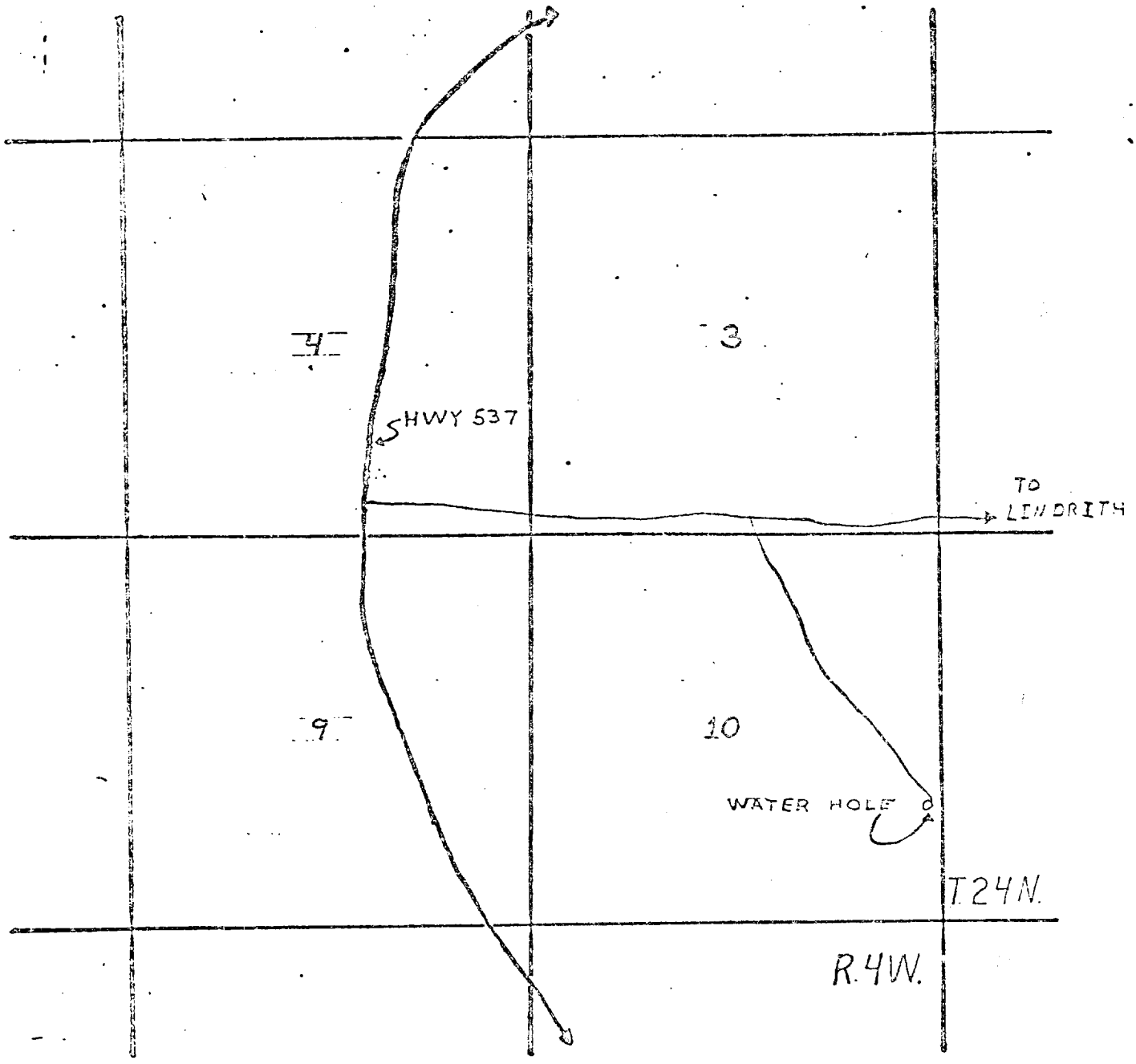
Exhibit A

NTS
CHAVEZ



Vicinity Map for
CONTINENTAL OIL CO. #7 AXI APACHE "M"
1100'FNL 800'FEL Sec 13-T25N-R4W
RIO ARRIBA COUNTY, NEW MEXICO

Exhibit B



CONOCO

PRODUCTION DEPT. HOBBS DIV.

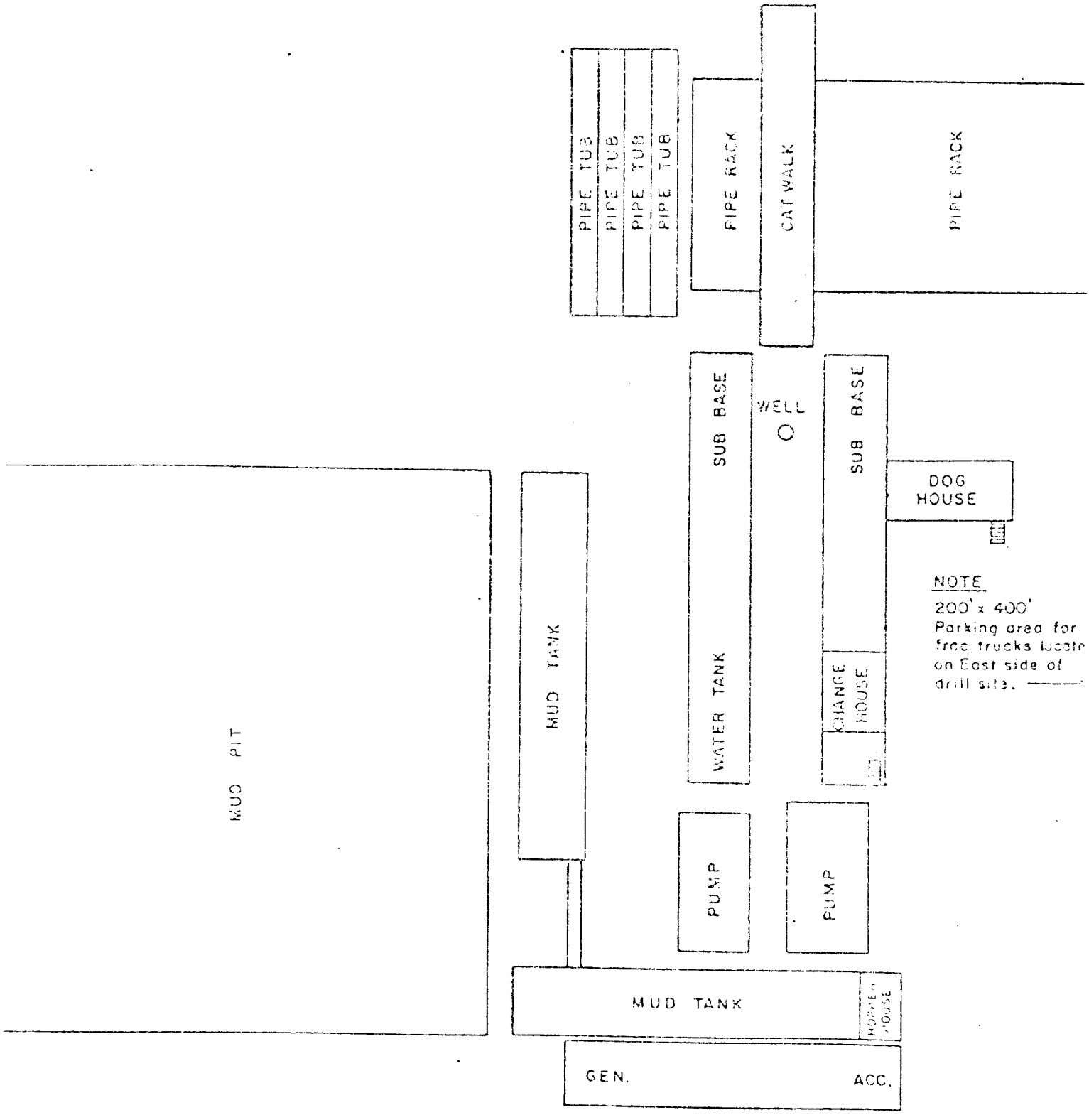
LARGO WATER HOLE

LEGEND

- CONOCO WELL
- TANK BATTERY
- LEASE ROAD
- HWY.

Exhibit C

NTS
CHAVEZ



APPROX. RIG SITE DIMENSIONS

160' x 200'

CONTINENTAL OIL COMPANY
PRODUCTION DEPARTMENT

RIG LAYOUT

Exhibit D

Engineer: [redacted] Draftsman: B.S. Date: 1-4-72

Project No. 88-79-MK

Permit No. Federal Antiquities
Permit #79-NM-178

Archaeological Examinations of Nine Proposed Wells on the Jicarilla Apache Reservation

for

Conoco, Inc.

Locations

Northeast Haynes #1E
Northeast Haynes #2E
Northeast Haynes #3E
Conoco AXI Apache M #7 ←
Conoco AXI Apache M #8
Conoco AXI Apache N #11A
Conoco AXI Apache N #12A
Conoco AXI Apache N #13A
Conoco AXI Apache N #14A

by

Margaret A. Powers
Supervisory Archaeologist

Submitted by
Meade F. Kemrer, Ph.D.
Principal Investigator

DIVISION OF CONSERVATION ARCHAEOLOGY

Contributions to Anthropology Series, No. 213
San Juan County Archaeological Research Center and Library

October 24, 1979

Abstract

At the request of Conoco, Inc., the Division of Conservation Archaeology of the San Juan County Archaeological Research Center and Library at Salmon Ruins conducted archaeological inspections of 9 proposed Conoco gas wells on the Jicarilla Apache Reservation on October 4, 1979. Isolated artifacts were found on 2 pads and two archaeological sites, DCA-79-137 and 139 were found, the first along the access road to Conoco AXI Apache N #12A, the second at Conoco AXI Apache M #8. The isolated finds were documented in the field. The access road was rerouted to avoid DCA-79-137. DCA-79-139 has been flagged for avoidance. Archaeological clearance is recommended for all locations with stipulations for Conoco AXI Apache M #8 and Conoco AXI Apache N #14A.

Introduction

On October 4, 1979, Ms. Margaret A. Powers of the Division of Conservation Archaeology of the San Juan County Archaeological Research Center and Library at Salmon Ruins conducted archaeological surveys of 9 proposed wells and access roads on the Jicarilla Apache Reservation. The survey was arranged by Mr. Joe McKinney of Achison Construction Company, for Conoco, Inc., Dr. Meade F. Kemrer, Principal Investigator, administered the project for the Division of Conservation Archaeology.

In recognition of the limited, non-renewable nature of archaeological remains, federal and state governments have enacted legislation that is designed to conserve and protect these resources. The principal federal legislation includes the Antiquities Act of 1906 (PL 52-209), the Historic Preservation Act of 1966 (PL 89-665), the National Environmental Policy Act of 1969 (PL 91-852), the 1971 Executive Order No. 11593, and the Archaeological and Historical Conservation Act of 1974 (PL 93-291).

In addition, the states of Arizona, New Mexico, Colorado, and Utah have enacted laws to ensure compliance with federal laws and to protect archaeological resources within their jurisdiction. Work undertaken in the course of this project is for purposes of compliance with these statutes

Mr. Andy Anderson of Conoco, Inc. and Mr. Joe McKinney were present during the inspections. Work was conducted under provisions of Federal Antiquities Permit 79-NM-178. Each proposed well was surveyed in a series of 15m interval parallel transects and each access road was covered with a single linear transect. All examinations were foot surveys.. On October 8, 1979 the survey archaeologist returned to two pads that required additionsl site documentation not feasible during the time available in the initial survey.

Survey

The nine wells are all located within the Canyon Largo drainage. Details of each survey area are given below. Proposed wells and access roads are shown in Figures 1 and 2.

Recommendation: Archaeological clearance is recommended.

Location: Northeast Haynes #3E

Legal Description: 1660' F/SL, 990' F/WL, Section 16, T25N, R5W, N.M.P.M., Rio Arriba County, New Mexico (Figure 1).

Map Source: USGS 7.5 Otero Store, New Mexico Quadrangle (1963).

Land Jurisdiction: Jicarilla Apache.

Area Surveyed: 250' X 300' (pad); 20' X 50' (road).

Description: The proposed construction is located on a low mesa south of Canada Larga. There are sandstone outcrops underlain by shale and the soil is largely derived from these beds. The principal plant species include sage, snakeweed (Gutierrezia sp.), narrowleaf yucca (Yucca angustissima), Indian ricegrass (Oryzopsis hymenoides), cheat grass and galleta grass. A few small juniper (Juniperus sp.) lie on the slopes to the east. The only faunal species evident is deer.

Cultural Resources: The only cultural remains on the pad are a rusted 5 lb. coffee can and a rusted soda can, evidence of small scale recent historic usage. They do not constitute significant cultural remains.

Recommendation: Archaeological clearance is recommended.

Location: Conoco AXI Apache M #7

Legal Description: 1100' F/NL, 800' F/EL, Section 13, T25N, R4W, N.M.P.M., Rio Arriba County, New Mexico (Figure 2).

Map Source: USGS 7.5' Schmitz Ranch, New Mexico Quadrangle (1963).

Land Jurisdiction: Jicarilla Apache.

Area Surveyed: 250' X 300' (pad); no road.

Description: The proposed well partially overlaps with an existing pad. The area has been disturbed by chaining and well pad construction. Sage and Russian thistle (Salsola kali) are the sole vegetative species. The location is on colluvial soils near the head of an unnamed tributary to Canon de los Ojitos.

Cultural Resources: No cultural remains are located in the area of construction.

Recommendation: Archaeological clearance is recommended.

Location: Conoco AXI Apache M #8

Legal Description: 790' F/NL, 1050' F/EL, Section 14, T25N, R4W, N.M.P.M., Rio Arriba County, New Mexico (Figure 2).

Map Source: USGS 7.5 Schmitz Ranch, New Mexico Quadrangle (1963).

Land Jurisdiction: Jicarilla Apache.

Area Surveyed: 250' X 300' (pad); 20' X 400' (road).

Description: The proposed pad is located in a transition area between the pinyon-juniper woodland and the sage dominated valley floor. A shallow wash drains to the southeast, and eventually empties into the Canon de los Ojitos. The plant community is dominated by sage and nature pinyon (Pinus edulis). In addition there is oak (Quercus gambelii), Rocky Mountain juniper (Juniperus scopulorum), snakeweed, and galleta grass. Rabbit and deer are both present in the area.

Cultural Resources: An area of eroded artifactual remains (DCA-79-139) is located approximately 30m (100 feet) south-southeast of the well stake. The artifacts consist of approximately 6-10 sherds derived from an area 20m (60 feet) farther upslope (Figure 3). The sherds consist of fragments of 2 vessels: one "Black-on-Brown" bowl (possibly misfired or weathered Mesa Verde Whiteware), and one plain gray vessel. Upslope the remains consist of a partially eroded scatter of sherd's including another "Black-on-Brown" bowl, brownware sherds, and gray ware sherds (including one corrugated sherd). Approximately 25m (80-85 feet) east of this scatter is a third concentration that include fire-cracked rock, ashy soil, quartizite flakes, and brownware sherds. The principal loci of prehistoric activity are beyond the area of impact. Those artifacts downslope are located on the margin of the pad and are not likely to receive any direct impacts. In any event, the fact that they are derived limits the information that may be extracted. One other loci, 12m (35 feet) east of this secondary deposit, may also be cultural. It contains an area of ashy soil and some small fragments of burned animal bone. Both are associated with a lightning struck tree and therefore

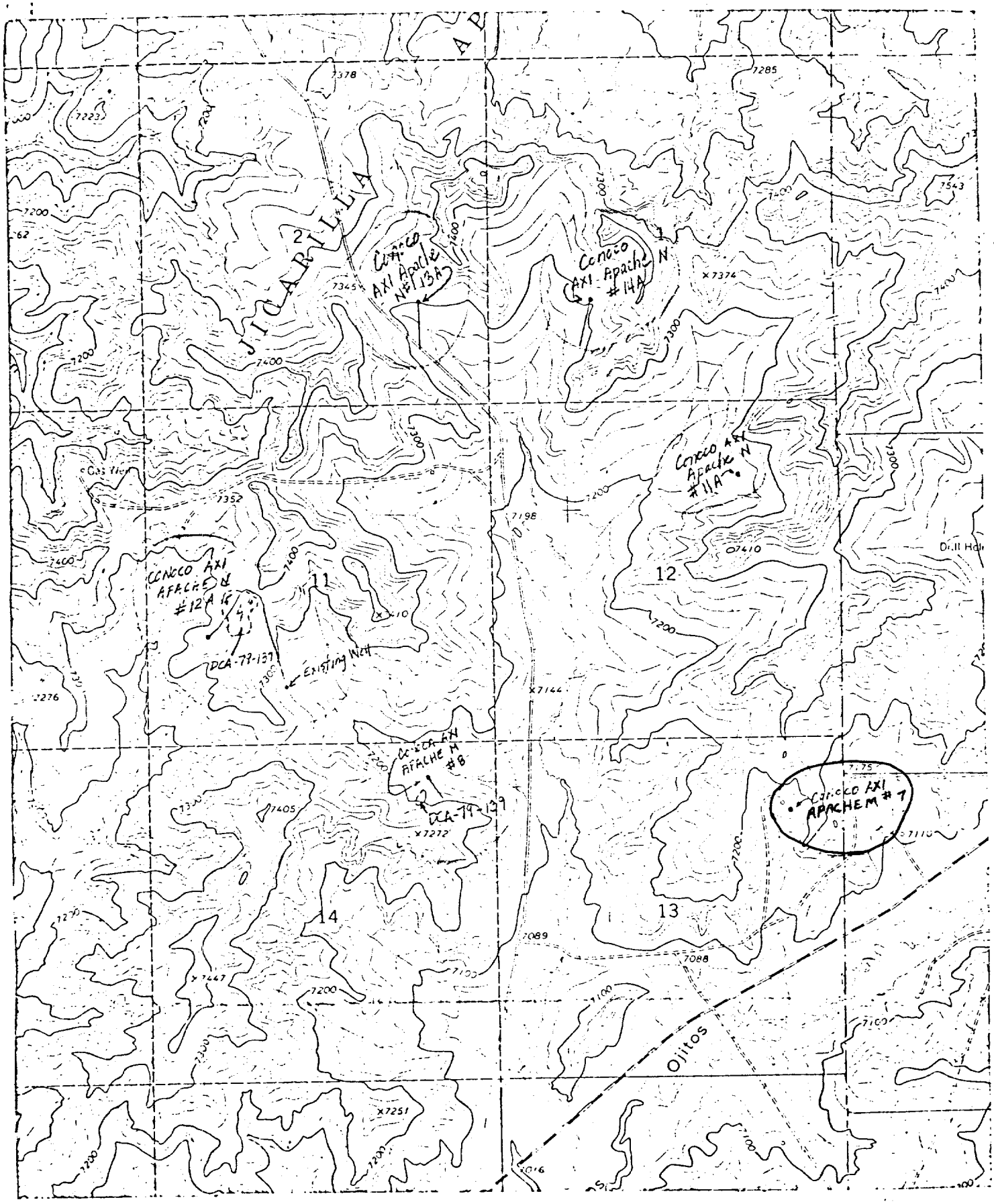


Figure 2. Locations of Conoco AXI Apache M #7 and #8; Conoco AXI Apache N #11A, 12A, 13A, and 14A; and locations of DCA-79-137 and DCA-79-139.

USGS 7½' Schmitz Ranch, NM