

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMITTING DATE
8/16/98
APPROVED BY
ARTESIA, NM 88210-2834

FORM APPROVED
OMB NO. 1004-0136
Expires: February 28, 1995

APPLICATION FOR PERMIT TO DRILL OR DEEPEN			5. LEASE DESIGNATION AND SERIAL NO. NM 22080
1a. TYPE OF WORK DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/>			6. IF INDIAN, ALLOTTEE OR TRIBE NAME
1b. TYPE OF WELL OIL <input checked="" type="checkbox"/> GAS <input type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/>			7. UNIT AGREEMENT NAME 20860
2. NAME OF OPERATOR ARCO Permian 990			8. FARM OR LEASE NAME, WELL NO. BARCLAY FEDERAL 4
3. ADDRESS AND TELEPHONE NO. P.O. BOX 1610, MIDLAND, TX 79702 915 688-5570			9. API WELL NO. 30-015-29684
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. *) At surface 1980' FSL, 660' FEL At proposed prod. zone SAME Unit I			10. FIELD AND POOL, OR WILDCAT LIVINGSTON RIDGE (DEL) S.
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE 21 MILES EAST FROM LOVING, NM			11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA 12-T23S-R31E
15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlgs. unit line, if any) 660	16. NO. OF ACRES IN LEASE 1280.81	17. NO. OF ACRES ASSIGNED TO THIS WELL 40	
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. 1320	19. PROPOSED DEPTH 8600	20. ROTARY OR CABLE TOOLS ROTARY	
21. ELEVATIONS (Show whether DF, RT, GR, etc.) 3504 GR			22. APPROX. DATE WORK WILL START* SPUD 6/97

23. PROPOSED CASING AND CEMENTING PROGRAM				
SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2	13 3/8 H-40	48	860	775 CIRCULATE
11	8 5/8 K-55	32	4600	1800 CIRCULATE
7 7/8	5 1/2 J-55	15.5, 17 LT & C	8600	480

Subject well is planned as a **8600'** straight hole.
3,000 psi BOPE will be used from 860' to TD.

Attachments are as follows:

1. Certified Location Plat
2. Drilling Plan with attachments
3. Surface Use Plan with attachments

RECEIVED
JUN 18 1997
OIL CORP. DIV.
DIST. 2
BUREAU OF LAND MGMT.
ROSWELL OFFICE
1997 MAY - 9 P 4 59
RECEIVED

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, 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 <u><i>C. W. Huggins</i></u>	TITLE REGULATORY COMPLIANCE	DATE 05-08-97
(This space for Federal or State office use)		

PERMIT NO. _____ APPROVAL DATE _____

Application approval 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.
CONDITIONS OF APPROVAL, IF ANY

APPROVED BY *Michael J. L...* TITLE *Assistant Dir. of...* DATE *6/18/97*

*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

57002-210-02

21

21

21002-210-02
21002-210-02
21002-210-02

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980

State of New Mexico
Energy, Minerals and Natural Resources Dept.

Form C-102
Revised February 10, 1994
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

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

DISTRICT IV
P.O. BOX 2088, SANTA FE, N.M. 87504-2088

OIL CONSERVATION DIVISION

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
		Livingston Ridge South (Delaware)
Property Code	Property Name	Well Number
	BARCLAY FEDERAL	4
OGRID No.	Operator Name	Elevation
000990	ARCO PERMIAN	3504

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	12	23 S	31 E		1980	SOUTH	660	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						
40									

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

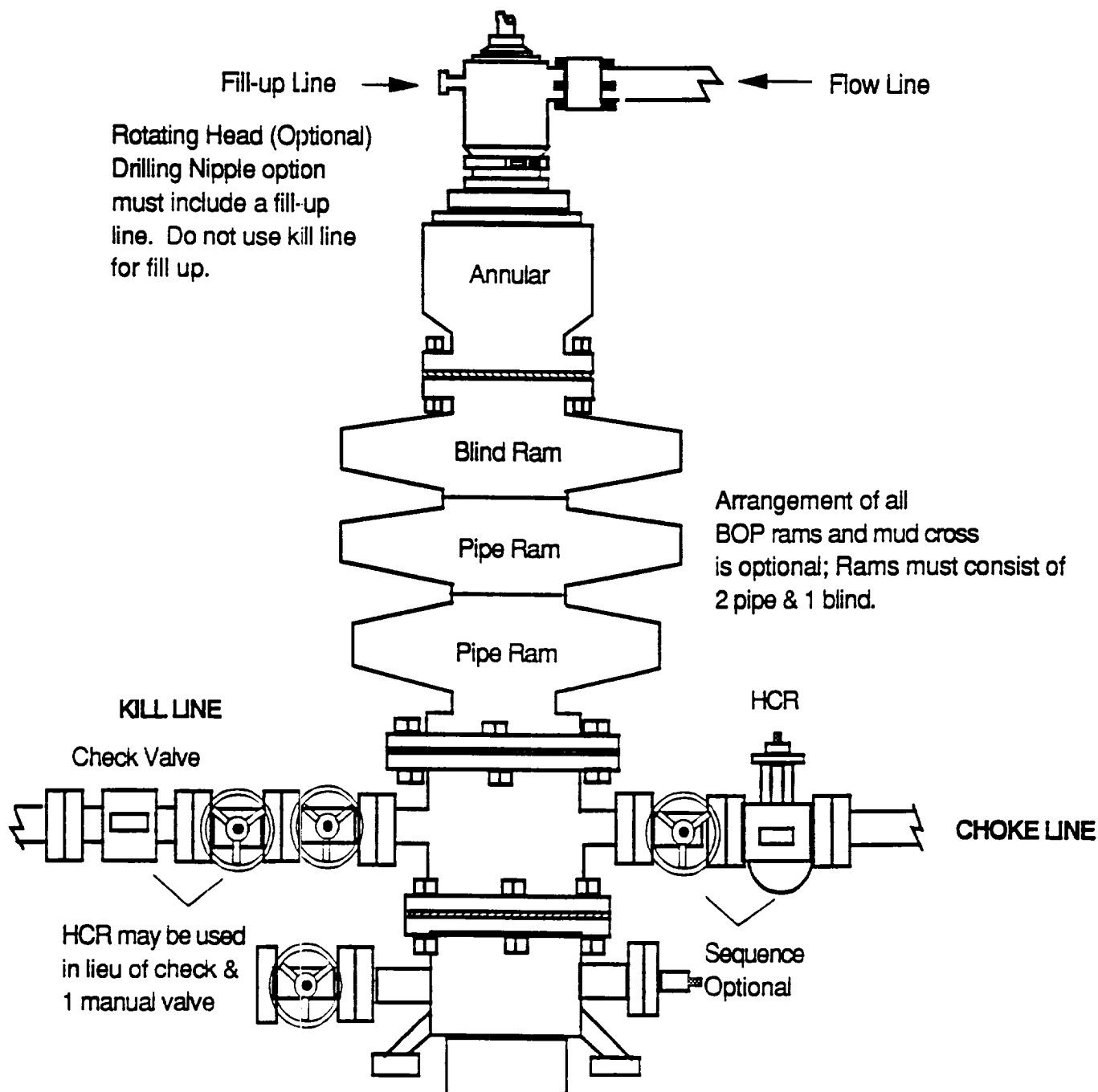
	OPERATOR CERTIFICATION I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief. Signature Charles W. Knight, Jr. Printed Name Regulatory Compliance Title April 16, 1997 Date
	SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. MARCH 24, 1997 Date Surveyed Signature & Seal of Professional Surveyor Certificate No. RONALD J. EIDSON 676 3239 12641

EXHIBIT 1

DRILLING OPERATIONS

CLASS -1: NORMAL PRESSURE < 10PPG

OPTION - 2: MMS STANDARD; SINGLE SIZE DRILL STRING



DRILLING OPERATIONS
CHOKE MANIFOLD
2M AND 3M SERVICE

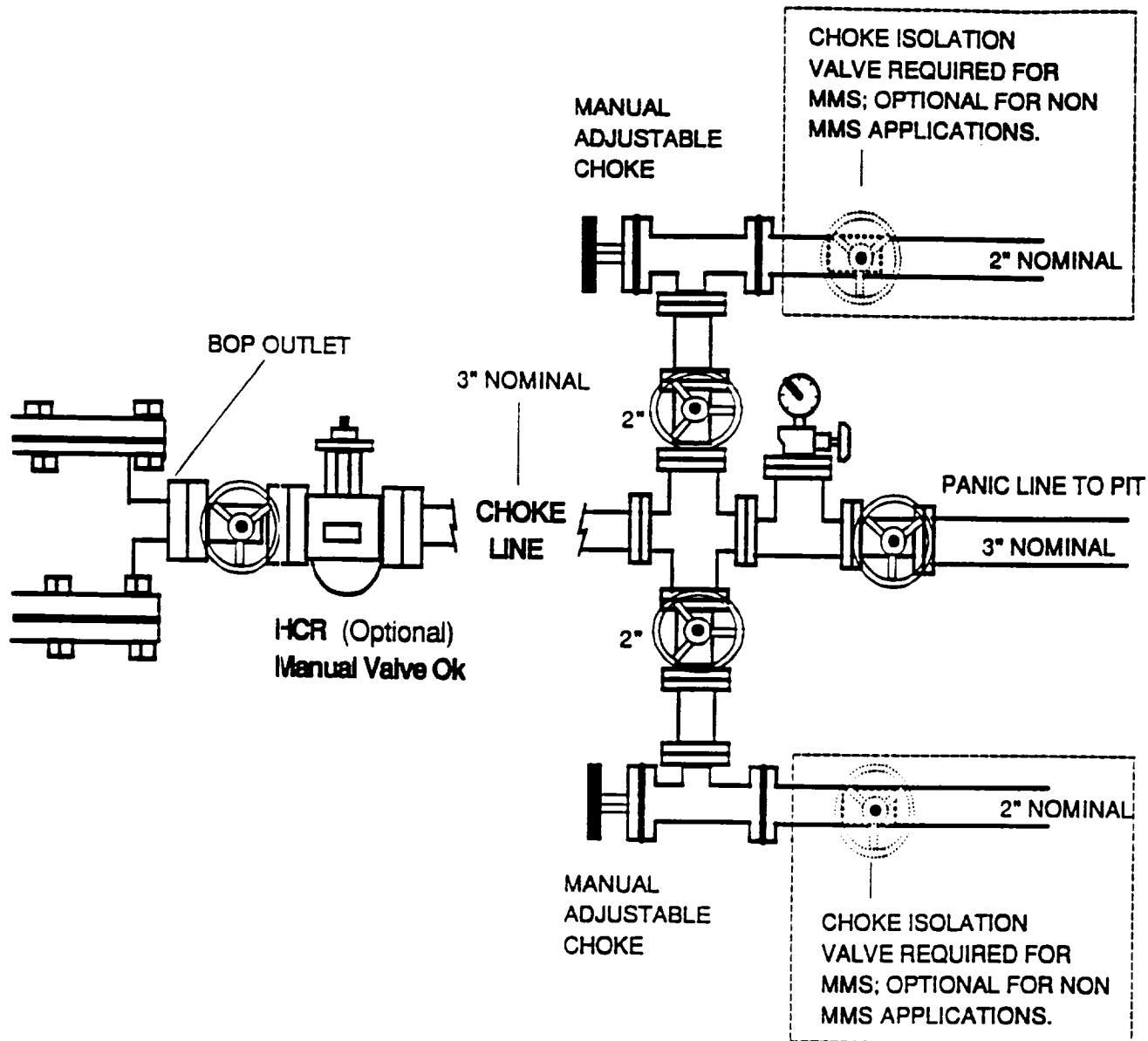


EXHIBIT 3

Blowout Prevention Equipment Specifications

1. All BOP equipment shall be fluid and/or mechanically operated.
2. BOP's and all fittings will be in good working condition.
3. Equipment through which the bit must pass shall be at least as large as the casing size being drilled
4. The nipple above the BOP shall be at least the same size as the last casing set.
5. The upper kelly cock with handle and lower kelly cock shall be rated at the BOP working pressure.
6. A floor safety valve (full opening) or drill string BOP with appropriate pressure ratings shall be available on the rig floor with connections or subs to fit any tool joint in the string.
7. The minimum size choke line shall be 3 inches nominal diameter, with a minimum size for vent lines downstream of chokes of 2 inches nominal, and vent lines which by-pass shall be a minimum of 3 inches nominal and as straight as possible.
8. All valves, fittings and lines between the closing unit and the blowout preventer stack should be of steel construction with rated working pressure at least equal to working pressure rating of the stack. Lines shall be bundled and protected from damage.
9. Minimum size for kill line is 2 inches nominal.
10. Ram type preventers shall be equipped with extension hand wheels or hydraulic locks.

5. **Proposed Casing and Cementing Program**

	<u>Hole Size</u>	<u>Interval, M.D.</u>	<u>Casing Size</u>	<u>Weight & Grade</u>
Surface	17 1/2"	0-860'	13-3/8"	48.0# H-40
Intermediate	11"	860' -4600'	9-5/8" 8 5/8"	32.0# J-55
Production	7 7/8"	4600'-8600'	5-1/2"	15.5# & 17.0# J- LT & C
55				7000' 15.5 ppf 1600' 17 ppf

Cement Program: (Actual volumes will be based on caliper log when available)

Surface - Cement to surface with total of ± 1360 cu ft as follows:

Lead Slurry - 575 sks 35:65 Poz: C + 2% CaCl₂ + 6% Gel + 1/4 pps Cello-Seal + 10 pps Gilsonite

Tail Slurry - 200 sks Class "C" + 2% CaCl₂ + 1/4 pps Cello-Seal

Intermediate - Cement to surface with total of ± 3572 cu ft as follows:

Lead Slurry - 1600 sks 35:65 Poz: C + 2% CaCl₂ + 6% Gel + 1/4 pps Cello-Seal

Tail Slurry - 200 sks Class "C" + 2% CaCl₂ + 1/4 pps Cello-Seal

Production - Cement to 6500' with a total of ± 875 cu ft as follows:

Lead Slurry - 155 sks 35:65 Class "H" Poz + 6% Gel + 5% salt + .25 pps Cello-Seal

Tail Slurry - 325 sks Class "H" + 12 pps BA-90 + 0.4% FL52 + 3% salt + .2% CD-32 + 1/4 pps Cello-Seal

6. **Mud Program**

<u>Depth</u>	<u>Mud Type</u>	<u>Weight ppg</u>	<u>Funnel Viscosity</u>	<u>Water Loss</u>
0-860'	Spud Mud	8.4-8.9	29-34	NC
860'-4600'	Brine	10.0-10.2	28-30	NC
4600'-8400'	FW	8.4-8.8	28-30	NC
8400"-8600'	FW LSND	8.6-9.0	32-34	<10

7. **Auxiliary Equipment**

Upper Kelly Cock, Lower Kelly Cock, and Full Opening Stabbing Valve

8. **Testing, Coring and Logging Program**

- A. Drill Stem Tests - None Planned.
- B. Coring - None planned.
- C. Logging - Mud logging planned from 4000' to TD.

D. Electric Logs

Open Hole:	DLL/MLL, CNL/LDT, GR:	Shoe of 8 5/8" csg to TD
Cased Hole:	GR/CNL	Surface to shoe of 8 5/8" csg
	GR/CCL	TD to top cement in prod csg

9. **Anticipated Abnormal Temperature, Pressure, or Hazards**

Possible water flow from $\pm 3500'$ to $4200'$. Seepage is expected starting in the Cherry Canyon Formation and continuing to TD ($5650'$ - $8600'$).

10. **Anticipated Starting Date and Duration of Operations**

Pending favorable weather and permit approval, construction work on this location is planned to begin in June 1997. Construction work will require 4 days, move-in and rig up rotary tools, 1 day, drill and complete, 21 days. It is planned to spud the well in June, 1997.

BLM/ RDO 1/95

**TITLE PAGE/ABSTRACT/
NEGATIVE SITE REPORT
ROSWELL DISTRICT**

1. BLM Report No.	2. (ACCEPTED) (REJECTED)	3. NMCRIS No. 56548
4. Title of Report (Project Title): Archaeological Block Survey of ARCO-PERMIANS proposed 1,280 acre tract of land; entirely encompassing Sections 1 and 12, T23S, R31E, NMPM, Eddy County, NM		5. Project Date(s) April 2-4, 7, 1997
7. Consultant Name & Address: Direct Charge: David Wilcox Name: Desert West Archaeological Services Address: 102 N. Main, Carlsbad, NM 88220 Authors Name: David Wilcox field personnel names - James Hollen, Staff Archaeologist, Chris Owens, Steve Cunningham, Butch McMains, and Richard Cook, Field Technicians. Phone (505 887-7646)		6. Report Date - April 16, 1997
10. Sponsor Name and Address: Indiv. Responsible: Arco-Permian Name: Bob Lange Address: P.O. Box 50203, Midland, TX, Phone: (915) 688-5762		8. Permit No. 123-2920-97-K
		9. Consultant Report No. DWAS 97-27A
		11. For BLM Use only.
		12 ACREAGE: Total No. of acres surveyed - 1,280 acres Per Surface Ownership: Federal

13. Location & Area: (Maps Attached if negative survey)

- a. State - New Mexico
- b. County - Eddy
- c. BLM District: Roswell
Resource Area: Carlsbad
- d. Nearest City or town: Carlsbad, NM
- e. Location: T23S, R31E. Sections 1 and 12, NMPM, Eddy County, NM

The proposed 1,280 acre archaeological block survey entirely encompasses two standard 640 acre Sections of land.

- f. 7.5' Map Name(s) and Code Numbers(s): Bootleg Ridge, NM (1984)[32103-C6]
- g. Area Block Impact: unknown, within two standard 640 acre sections
Surveyed: 1,280 acres
Linear Impact: N/A
Surveyed: N/A

14. a. Records Search: BLM and ARMS prefield literature searches conducted by Chris Owens on March 15, 1997. These record searches revealed the locations of two (2), previously recorded archaeological sites within a .25 mile radius of the project area (Sections 1 and 12), including LA 5464, and LA 49289. Both of these sites, LA 5464 and LA 49289 lie within 500' of the proposed project area, however, neither of these sites lie within the project area, therefore will not be impacted by oil and gas development; see Figure 2[FOR BLM USE ONLY].

Location: BLM and ARMS

Date: 3-15-1997

List by LA# All sites within .25 miles of the project: These record searches revealed the locations of two (2), previously recorded archaeological sites within a .25 mile radius of the project area. Both of these sites, LA 5464 and LA 49289 lie within 500' of the proposed project area, however, neither of these sites lie within the project area, therefore will not be impacted by oil and gas development.

(Those sites within 500' are to be shown on the project map) LA 5464; LA 49289

b. Description of undertaking:

Class III pedestrian block survey

c. Environmental Setting (NRCS soil designation; vegetative community; etc.)

Vegetation -shin oak, mesquite, yucca, sage, creosote, chinchweed, snakeweed, prickly pear, Mormon tea, sand burr, little-leaf horsebrush, devil claw, walking stick and pencil cholla, Russian thistle, abundant assorted grasses, wildflowers, forbs, and edaphic plants.

Topography -The proposed project area consists of low, moderate and high relief, stabilized to slightly active dunal plains, complexes, coalesced dunal basins and subsided dunal basins or catchments with mesquite stabilized dunal hummocks rising 1-1.5 meters above deflated surfaces and exposed Paleosol Horizons. Deflated surfaces contain abundant caliche gravel deposits as well as siliceous gravels of the Dockum Group.

Soils -range from mostly: Kermit-Berino Association: Sandy, deep soils from wind-worked mixed sand deposits, to Pyote-Maljamar Association: gently undulating and rolling, deep, sandy soils, to some occurrence of Simona-Tonuco Association: nearly level and gently undulating, loamy and sandy soils that are shallow to indurated caliche.

d. Field Methods:

Transect Intervals: straight and zig-zag transects, spaced not greater than 15 meters apart.

Crew Size: 4

Time in Field: approximately 40 hours.

Collections: n/a

15. Cultural Resource Findings:

a. Identification and description: Seven (7), Isolated Occurrences (IO), were encountered and recorded during the archaeological investigation of ARCO-PERMIAN'S proposed 1,280 acre tract of land. The information potential exhibited by these isolated occurrences was considered to be exhausted at the level of field recording.

16. Management Summary (Recommendations): Archaeological clearance for ARCO-PERMIAN'S proposed 1,280 acre tract of land is recommended. If cultural resources are encountered during future construction and development activities within this 1,280 acre tract of land, the BLM and DWAS should be notified immediately. Final Archaeological clearance is granted by the BLM.

I confirm that the information provided above is correct and accurate and meets all appreciable BLM standards.

Responsible Archaeologist

James R. Hallen

Signature

Date

4/18/1997