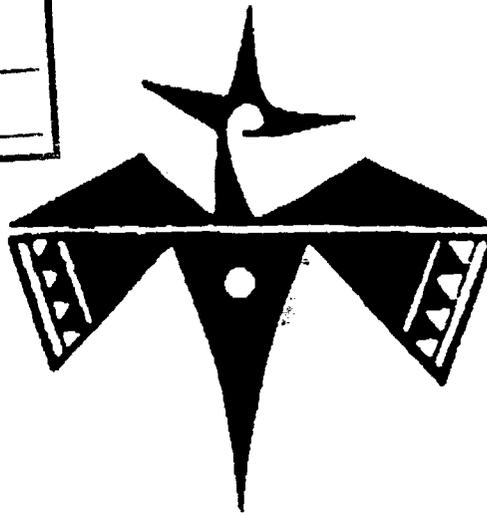


ATTN: JEFF TOKARSKY

PECOS
ARCHEOLOGICAL
CONSULTANTS
P.O. BOX 1771
CARLSBAD, NM 88221

BEFORE EXAMINER CATANACH
 OIL CONSERVATION DIVISION
 UNOCAL EXHIBIT NO. 2
 CASE NO. 9704 + 9705



Archeological Clearance Report for
 Union Oil Company of California's
 Well No. 4 Maduro Federal Unit
 and
 Well No. 2 North Maduro Federal Unit
 Situated on Public Lands in Lea County, N.M.
 Report No. 89076

Archeological Clearance Report for
Union Oil Company of California's
Well No. 4 Maduro Federal Unit
and
Well No. 2 North Maduro Federal Unit
Situated on Public Lands in Lea County, N.M.
Report No. 89076

prepared by
James E. Hunt

submitted by
Pecos Archeological Consultants
P.O. Box 1771, Carlsbad, N.M., 88221
July 24, 1989
BLM Cultural Use Permit No. 6-2920-89-I
State Blanket Survey Permit No. 89-024

ABSTRACT

On June 28, and July 22, 1989, Fecos Archeological Consultants (BLM Cultural Use Permit No. 6-2920-89-I, State Blanket Survey Permit No. 89-024) undertook an archeological inventory for two proposed drill locations and attendant access roads scheduled to be impacted by Union Oil Company of California. This project will be situated on public lands in Lea County, New Mexico. These lands occur in sections 20 and 29, T19S, R33E, NMPM, Lea County, N.M. A total of 29.41 acres of federal surface ownership were investigated during this project, which was conducted in 12 man-hours by James E. Hunt and Robert J. Martin. One archeological site (PAC Field Site No. PAC/Le-083) and four isolated manifestations (IMs) were recorded as occurring within the impact zone that will result from the planned activity. Due to the significant nature of the cultural remains within the impact zone, Fecos Archeological Consultants NOT recommending clearance for this project, unless the archeological site is avoided. Details on how this may be accomplished will be described in the "Recommendations" section of this report.

INTRODUCTION

On June 26, 1989, Pecos Archeological Consultants was requested by Mr. Arthur Brown, representing Union Oil Company of California, to perform the archeological survey for two drill locations and access roads scheduled to be constructed on public land in Lea County, New Mexico. This land is administered by the Bureau of Land Management and federal law stipulates that an intensive archeological inventory be performed to identify what cultural resources might be affected by such activity prior to granting clearance to the project. Therefore, Pecos Archeological Consultants undertook this survey on June 28 and July 22, 1989. Fieldwork for this project was performed by James E. Hunt and Robert J. Martin. The following is a report of the field activities and findings resulting from the survey.

SURVEY METHODOLOGY

Pecos Archeological Consultants conducted this survey by physically examining the entire 500 X 500 ft impact zone which will result from the planned construction. Pedestrian inspection along parallel transects was accomplished across the staked drill location. These transects were spaced 15 meters apart; however, established transects were departed from to examine nearby areas of high site probability. All prominent deflations and denuded areas were given special attention. Additionally, all attendant easements (if any)

were surveyed in two parallel transects spaced 15 meters apart. This project was conducted on two sunny days. Surface visibility in the region, which, due to floral cover, ranged between 25-40% of the ground under dry soil conditions, made this the most practical methodology for effectively sampling the impact zone which will result from this project as planned.

ENVIRONMENT

The project area will be located in a region known as the Querecho Plains. This is an undulating landform which is characterized by stabilized and unstabilized sand dunes which range from a few meters to 10-15 meters in height. These dunes are interspersed with deflation basins which have been formed by aeolian action. Local soils in the region consist of loamy sands which belong to the Kermit-Berino association. These soils are drained internally, and they possess inclusions of chert and quartzite gravels, some of which are suitable for chipped stone tool manufacture. Elevation in the project area is between 3600 ft and 3630 ft above sea level.

The Querecho Plains is part of an environmental zone called the Lower Sonoran Life Zone. The most common plant variety in the region is shin oak (*Quercus havardii*), but other species, such as mesquite (*Prosopis juliflora*) plains yucca (*Yucca glauca*), broom snakeweed (*Gutierrezia sarothrae*) and various grasses. Some of the common faunal types in area are mule deer (*Odocoileus hemionus*), pronghorn antelope (*Antilocapra americana*), jackrabbit (*Lepus* sp.), cottontail rabbit (*Sylvilagus* sp.), coyote (*Canis latrans*), as well as other small mammals, birds and reptiles. Bison (*Bison bison*) also ranged in the region prior to their near-extinction in the nineteenth century.

LOCATIONAL DATA

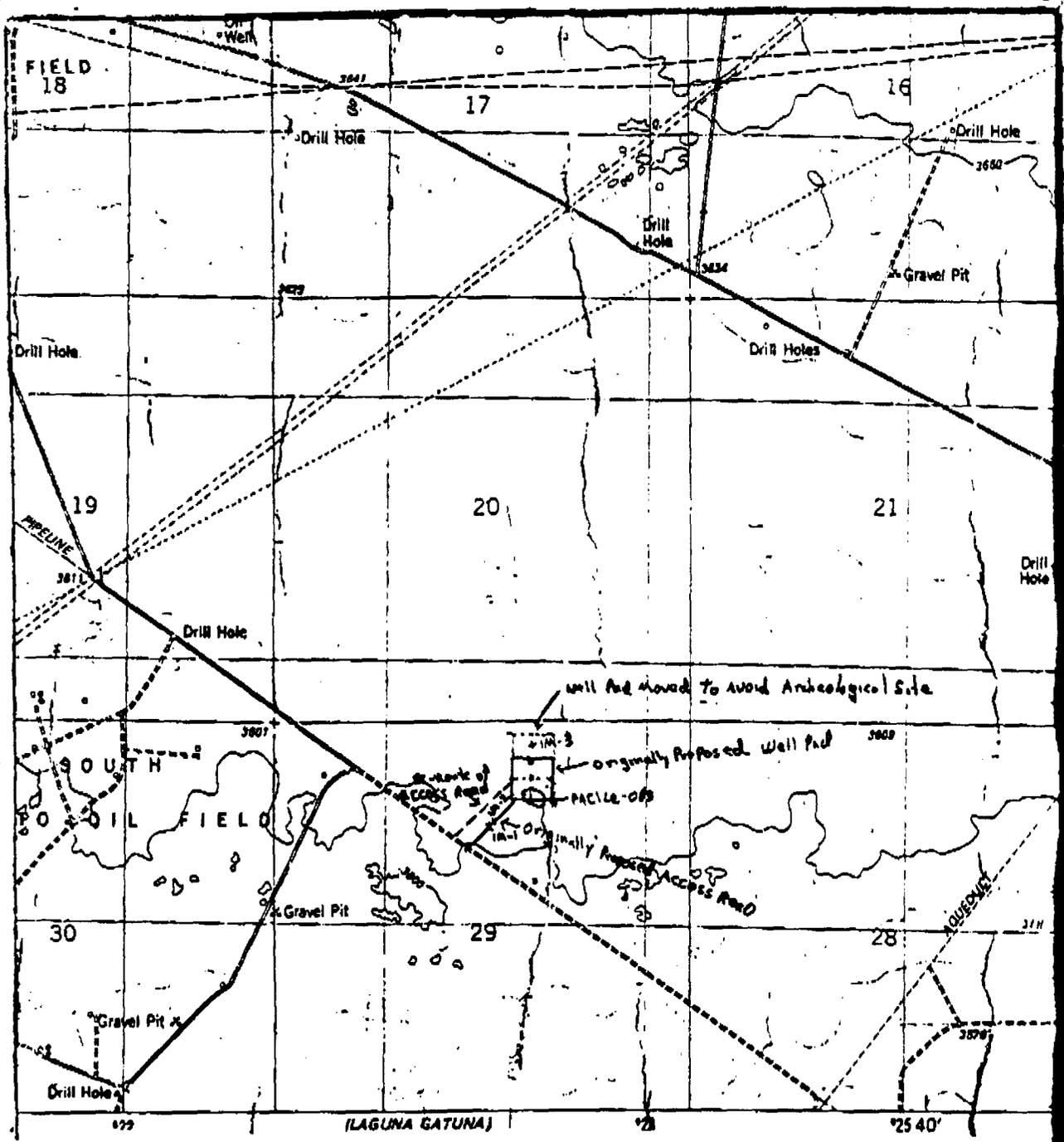
Union Oil Company of California's drill location, designated the Well No. 4 Maduro Federal Unit, will measure 500 ft X 500 ft, or 5.73 acres. It will be situated 660 ft from the north line and 1980 ft from the east line, in the:

NW1/4 NE1/4, section 29, T19S, R33E, NMPM, Lea County, N.M.

The access road which will be constructed to the wellpad will measure 100 ft X 900 ft, or 2.06 acres. It will be situated in the:

NW1/4 NE1/4, section 29, T19S, R33E, NMPM, Lea Co., N.M.
SW1/4 NE1/4, section 29, T19S, R33E, NMPM, Lea Co., N.M.
SE1/4 NW1/4, section 29, T19S, R33E, NMPM, Lea Co., N.M.

Map Reference: USGS Laguna Gatuna NW Quadrangle, 7.5 Minute Series, 1984.



Union Oil Company of California's
 Well No. 4 Maduro Federal Unit
 Township 19 South, Range 33 East
 USGS Laguna Gatuna NW Quadrangle, 7.5 Minute Series,
 1984.
 1:24,000 ft

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ARCHEOLOGICAL RESOURCES

On June 27, 1989, Pecos Archeological Consultants performed a literature search to determine if any archeological sites had already been recorded in the vicinity of the project area. Current BLM files and the National Register of Historic Places were consulted in this endeavor. Two previously-recorded sites were found to occur in the project area. These are is LA site No.s: LA 19997, a habitation site of unknown cultural affiliation, located 100 m from the project area. LA 20362--an Jornda Mogollon Period habitation site located 450 m from the project area. Neither of these sites were encountered during this survey.

Observed Archeological Resources:

One archeological site (PAC/Le-083) and three isolated manifestations (IMs) were found to occur in the impact zone.

ISOLATED MANIFESTATIONS

Isolated Manifestation No. 1 (IM-1) consists of a tan chert secondary decortication flake measuring 0.3 X 1.65 X 1.9 cm. It is located in a deflation on the access road at an elevation of 3610 ft above sea level. This is in the:

SW1/4 NW1/4 NE1/4, section 29, T19S, R33E, NMPM, Lea County, N.M.

UTM Coordinates: Zone 13, N 3,610,370 ; E 623,390

Map Reference: USGS Laguna Gatuna NW Quadrangle, 7.5 Minute Series, 1984.

Isolated Manifestation No. 2 (IM-2) is a maroon quartzite tertiary decortication flake, measuring 2.0 X 2.1 X 3.3 cm. It is located on the access road in a deflation at an elevation of 3610 ft above sea level. This is in the: SW1/4 NW1/4 NE1/4, section 29, T19S, R33E, NMPM, Lea County, N.M.

UTM Coordinates: Zone 13, N 3,610,400 ; E 623,410

Map Reference: USGS Laguna Gatuna NW Quadrangle, 7.5 Minute Series, 1984.

Isolated Manifestation No. 3 (IM-3) is a gray chert projectile point, measuring 0.6 X 2.6 X 4.89 cm. It is a triangular-shaped, corner-notched, stemmed point. The blade edges are convex and serrated, while the base is slightly expanding and convex. The barbs and notches are quite pronounced. This piece, which is of Archaic Period affiliation, was located 350 ft north of the centerhole, at an elevation of 3600 ft above sea level. This is in the:

NW1/4 NW1/4 NE1/4, section 29, T19S, R33E, NMPM, Lea County, N.M.

UTM Coordinates: Zone 13, N 3,610,680 ; E 623,550

Map Reference: USGS Laguna Gatuna NW Quadrangle, 7.5 Minute Series, 1984.

Isolated Manifestation No. 3
Gray Chert Archaic Period Projectile Point



2CM

FIELD SITE NO. PAC/LE-083

Location: SE1/4 NW1/4 NE1/4, SW1/4 NW1/4 NE1/4, section 29, T19S, R33E, NMPM, Lea County, N.M.
UTM Coordinates: Zone 13, N 3,610,480 ; E 623,560
Dimensions: 40 X 40 m
Temporality: Jornada Mogollon Period, Querecho or Maljamar Phase, A.D. 650-1300
Elevation: 3610 ft above sea level
BLM Category: 2
Map Reference: USGS Laguna Gatuna NW Quadrangle, 7.5 Minute Series, 1984.

Observations:

PAC/Le-083 is situated north of Laguna Tono in an area known as the Querecho Plains. This region is characterized by stabilized sand dunes up to 2 m in height, which are interspersed with deep deflation basins. The dunes have been formed by aeolian processes and are anchored by mesquite (*Prosopis juliflora*), shin oak (*Quercus havardii*) and grasses. Drainage of PAC/Le-083 is accomplished internally in the local soils. These soils consist of loamy sands possessing inclusions of chert and quartzite gravels. Some of these gravels are suitable for chipped stone tool manufacture. The nearest named drainage is Laguna Tonto, 1.5 miles south of the site. In aspect, the site seems to be oriented to 360 degrees.

This site consists of a surface artifact scatter exposed in the deflation basins occurring at the site. The artifact assemblage includes chert and quartzite primary,

secondary, tertiary decortication flakes, angular debris, thermally-altered caliche, ground sandstone mano and metate fragments and Jornada Brownware potsherds. In addition, there is very evident charcoal staining on the surface in the deflations. Density of the surface remains ranges between 1 piece per 25 square meters to 2-3 pieces per square meter in the more concentrated areas of the site. The organic staining is an indication that there is an excellent probability of subsurface remains at the site.

On the basis of surface indications, PAC/Le-083 probably represents a short-term habitation dating to the Querecho or Maljamar Phase of the Jornada Mogollon Period. However surface density of the remains does not indicate more than one or two occupations of the site. The lack of any nearby potable water supply supports this view. In all likelihood, this habitation was seasonally-oriented to take advantage of floral and faunal resources associated with the local duned environment. It is also located near enough to Laguna Tonto for the inhabitants of PAC/Le-083 to have interacted with the physical and cultural environment of the lake.

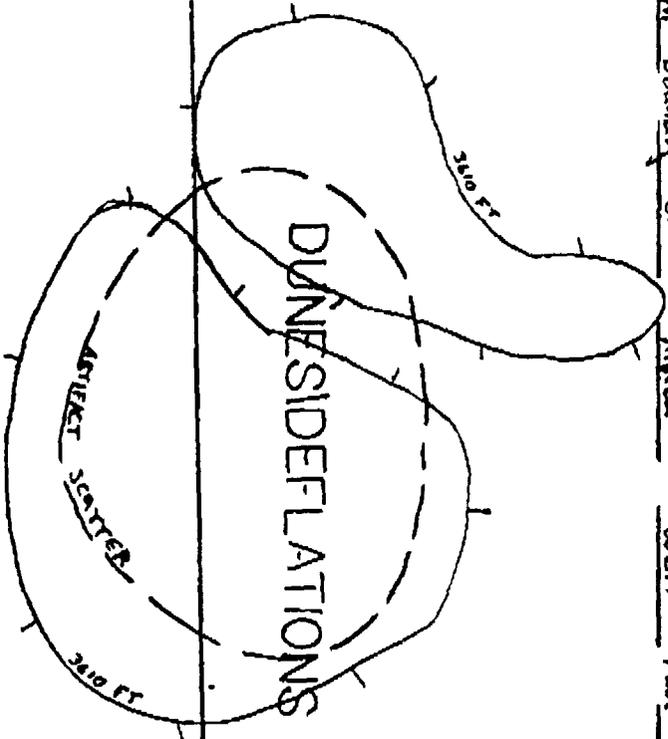
According to the prehistoric site typology utilized by the Roswell BLM District, PAC/LE-083 would be termed a "Temporary Camp Locale," or a Type 2-A Site. There is high potential for subsurface remains here, due to the sandy soils. If subsurface deposition is present, it is possible that a strategy of subsurface testing could provide data needed to develop a more refined picture of the occupation of PAC/LE-083. Such testing might yield organic remains which would allow accurate carbon 14 dating of the site and/or other organic samples for analysis. As a result, the site possesses significant potential for additional research concerning the social organization, economic activities and seasonal orientation of the region's prehistoric inhabitants. Consequently, PAC/LE-083 should be considered eligible for nomination to the National Register of Historic Places.

Staked Access Road

Boundaries of Proposed Well Pad

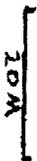
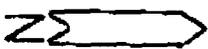
Southern Boundary of Aired Well Pad

Center State



Boundaries of Proposed Well Pad

FIELD SITE NO. PACILE-083



RECOMMENDATIONS

Due to the significant nature of the cultural remains within the impact zone of the Well No. 4 Maduro Federal Unit, Fecos Archeological Consultants is recommending clearance for this project ONLY if the archeological site is avoided. This can be accomplished in the following manner: for PAC/Le-083, the well pad should be moved 200 ft north, or to 460 ft from the north line of section 29. Union Oil Company of California is further cautioned that it may be held responsible for illicit collection or damage caused to archeological resources by their employees or contractors. Of course, final clearance for the project must be granted by the appropriate government agency.

LOCATIONAL DATA

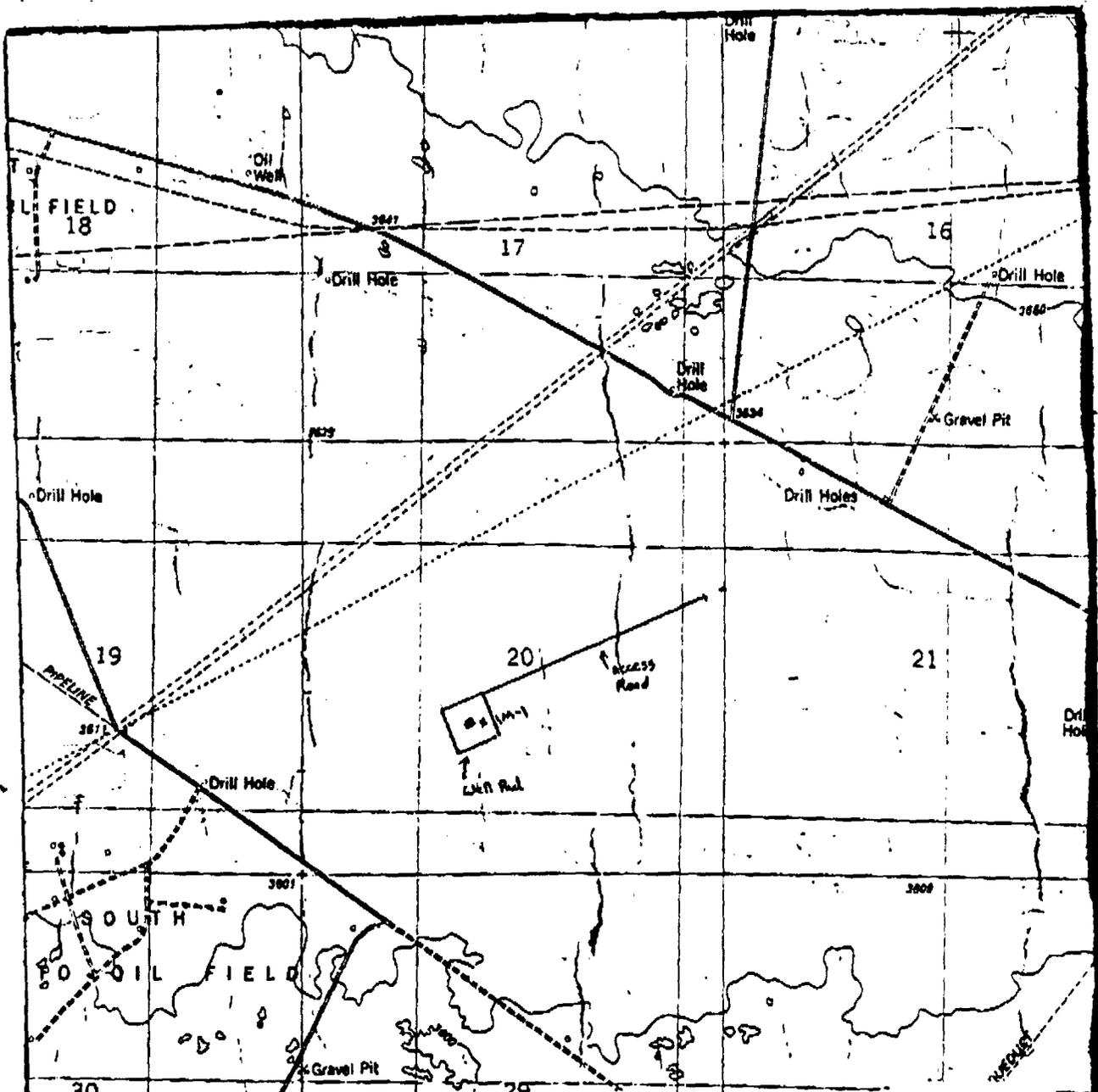
Union Oil Company of California's drill location, designated the Well No. 2 North Maduro Federal Unit, will measure 500 ft X 500 ft, or 5.73 acres. It will be situated 1800 ft from the south line and 2060 ft from the west line, in the:

NE1/4 SW1/4, section 20, T19S, R33E, NMPM, Lea County, N.M.

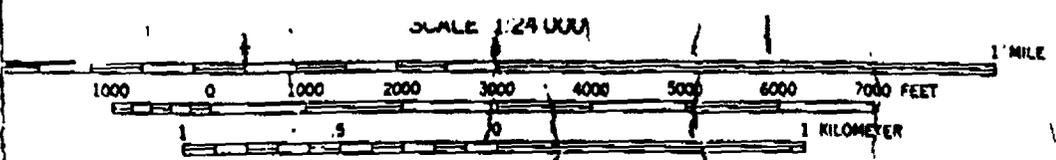
The access road which will be constructed to the wellpad will measure 100 ft X 3000 ft, or 6.88 acres. It will be situated in the:

NE1/4 SW1/4, section 20, T19S, R33E, NMPM, Lea Co., N.M.
NW1/4 SE1/4, section 20, T19S, R33E, NMPM, Lea Co., N.M.
SW1/4 NE1/4, section 20, T19S, R33E, NMPM, Lea Co., N.M.
SE1/4 NE1/4, section 20, T19S, R33E, NMPM, Lea Co., N.M.

Map Reference: USGS Laguna Gatuna NW Quadrangle, 7.5 Minute Series, 1984.



Union Oil Company of California's
 Well No. 2 North Maduro Federal Unit
 Township 19 South, Range 33 East
 USGS Laquna Gatuna NW Quadrangle, 7.5 Minute Series,
 1984.
 1:24,000 ft



CONTOUR INTERVAL 10 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

ARCHEOLOGICAL RESOURCES

On June 27, 1989, Pecos Archeological Consultants performed a literature search to determine if any archeological sites had already been recorded in the vicinity of the project area. Current BLM files and the National Register of Historic Places were consulted in this endeavor. One previously-recorded site was found to occur in the project area. This is LA site No. LA 43363, a habitation site of unknown cultural affiliation, located 650 m from the project area.

Observed Archeological Resources:

One isolated manifestation (IM) was found to occur in the impact zone.

ISOLATED MANIFESTATIONS

Isolated Manifestation No. 1 (IM-1) consists of a yellow chert steep-angled unifacial scraper on a primary decortication flake. This measures 2.6 X 2.95 X 3.8 cm and it is located in a deflation east of the center stake at an elevation of 3610 ft above sea level. This is in the:

SE1/4 NE1/4 SW1/4, section 20, T19S, R33E, NMPM, Lea County, N.M.

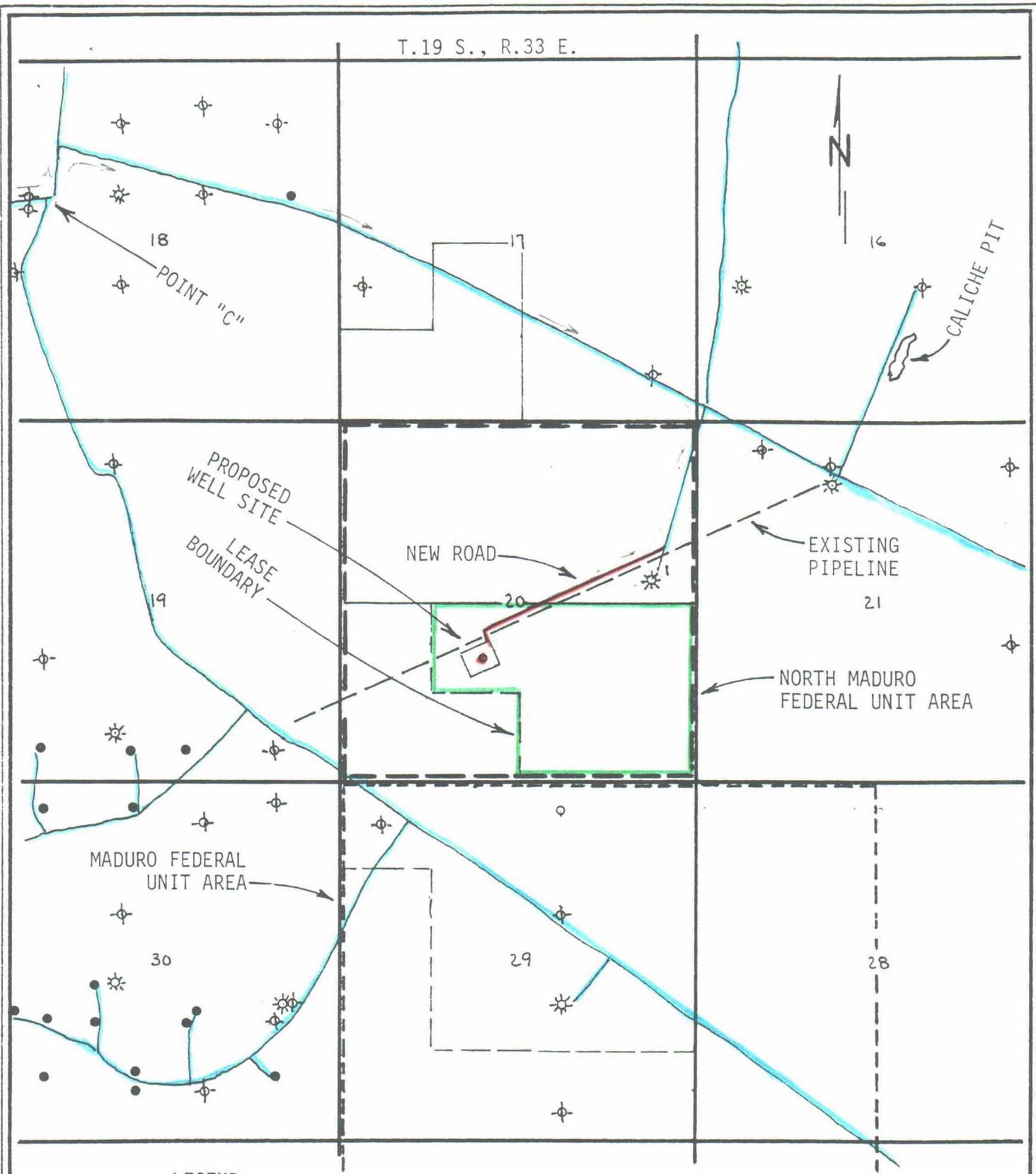
UTM Coordinates: Zone 13, N 3,612,340 ; E 623,240

Map Reference: USGS Laguna Gatuna NW Quadrangle, 7.5 Minute Series, 1984.

RECOMMENDATIONS

Due to the limited nature of the cultural resources on the Well No. 2 North Maduro Federal Unit, Pecos Archeological Consultants is recommending clearance for Union Oil Company of California's project, as planned. This recommendation is made on the basis of an intensive surface inspection of the project area. Should additional, purely subsurface remains occur in the impact zone, they would not be detected without extensive subsurface test excavation. Of course, approval for our recommendations and final clearance for the project must be granted by the appropriate government agency.

T.19 S., R.33 E.



LEGEND:

- Oil Well
- ☼ Gas Well
- ⊕ Plugged Well
- Proposed Well
- Existing Road
- Proposed New Road

EXHIBIT "B"

UNION OIL COMPANY OF CALIFORNIA
WELL NO.2 NORTH MADURO FEDERAL UNIT
1800'FSL & 2060'FWL SEC.20, T.19 S., R.33 E.
LEA COUNTY, N.M. SCALE: 1" = 2000'

BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION

UNOeAL EXHIBIT NO. 3

CASE NO. 9704 + 9705

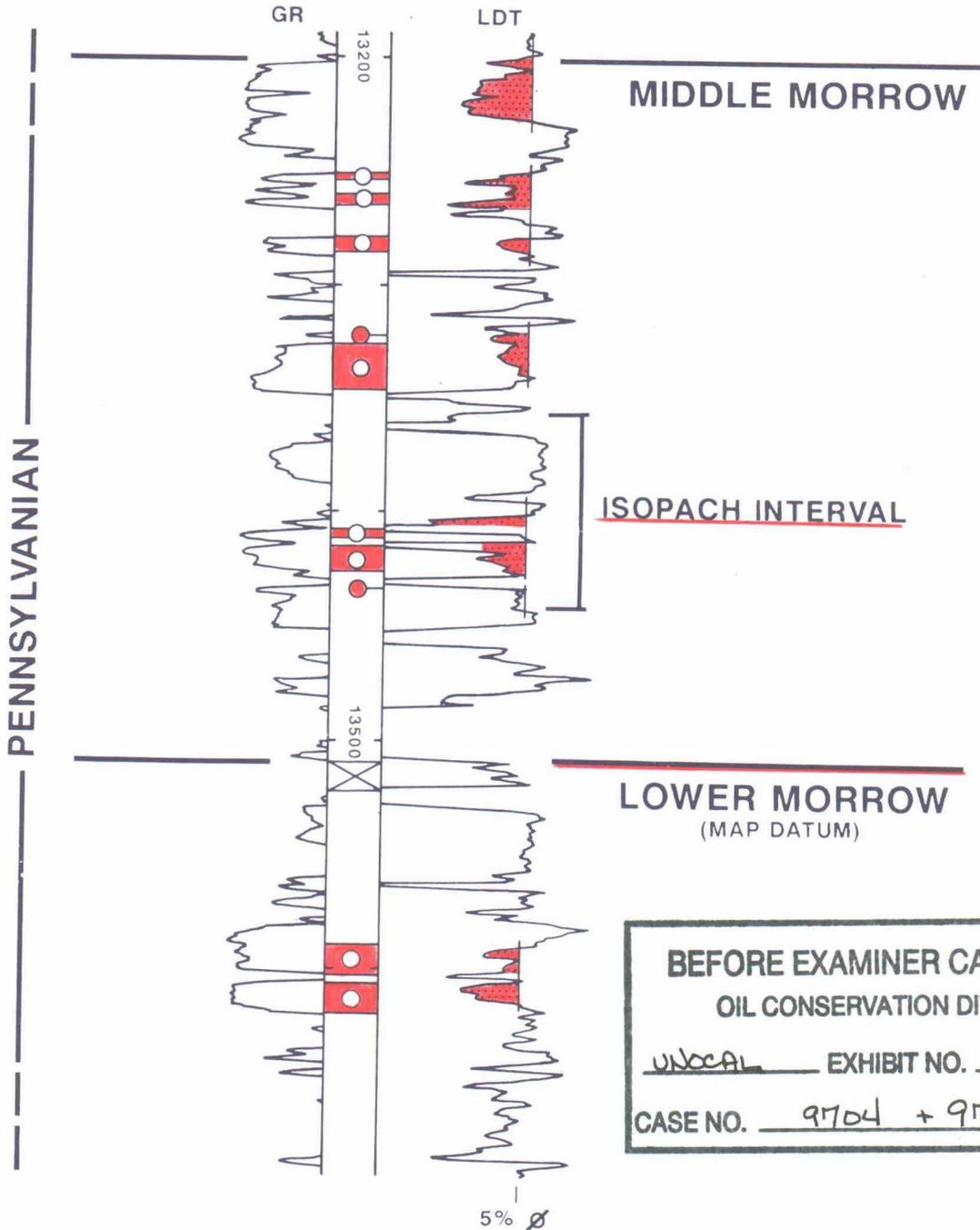
GEM

TYPE LOG



UNOCAL

N MADURO - FEDERAL NO 1



MIDDLE MORROW

ISOPACH INTERVAL

LOWER MORROW
(MAP DATUM)

PENNSYLVANIAN

BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
UNOCAL EXHIBIT NO. 4
CASE NO. 9704 + 9705

TD 13,725 (CHESTER)
PERF: 13,589-617
CAOF: 15.5 MMCFGPD + 64 BC/MMCF
COMP: 6-88; CUM: 35,428 MCFG
BP 13,510
PERF: 13,252-435 OVERALL;
F 1.5 MMCFGPD
COMP: 2-89 CUM: 188,999 MCFG

UNOCAL