HAT MESA UNIT
Lea County, New Mexico

INTRODUCTION

The following geological report is submitted in conjunction with an application for approval of Unit Agreement for the development and operation of the proposed Hat Mesa Unit. The unit area covers a prominent northwest-southeast trending closed anticline as mapped by seismograph at the Siluro-Devonian level. The best possibilities for production are believed to be from Siluro-Devonian, Pennsylvanian and Leonard sediments. However, all formations are to be unitized.

LOCATION

The proposed unit is approximately 30 miles southwest of the town of Hobbs, New Mexico, and the approximate geographic center of the unit is near the southwest corner of Section 7, T-21S, R-33E. Hat Mesa is a prominent topographic feature located within the proposed unit, approximately one mile south of the drill site. The following described acreage will be included within the geographic confines of the proposed Hat Mesa Unit:

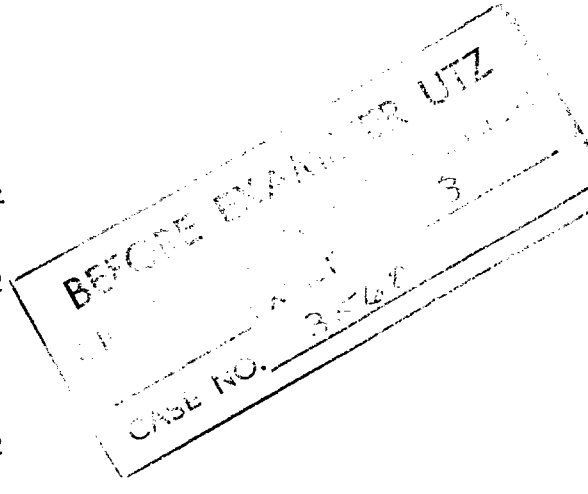
Township 21 South, Range 32 East

Section 1:	Lots 11, 12, 13, 14 and S/2
Section 2:	Lots 9, 10, 11, 12, 13, 14, 15, 16 and S/2
Section 3:	SE/4
Section 10:	E/2
Section 11:	All
Section 12:	All
Section 13:	All
Section 14:	N/2 and SE/4
Section 24:	N/2

Township 21 South, Range 33 East

Section 6:	Lot 18 and SE/4 SW/4
Section 7:	Lots 1, 2, 3, 4, E/2 W/2, E/2
Section 8:	All
Section 9:	W/2
Section 16:	W/2
Section 17:	All
Section 18:	Lots 1, 2, 3, 4, E/2 W/2, E/2
Section 19:	Lots 1, 2, E/2 NW/4, NE/4,

and containing 7,874.03 acres, more or less.



The above described land consists of 4,631.69 acres of federal lands and 3,242.34 acres of state lands.

STRATIGRAPHY

The general subsurface stratigraphy of the unit area can be described from the section logged by the Phillips Petroleum Company Etz Federal #1 well in Section 1, T-21S, R-32E, just outside the north boundary of the proposed unit. From surface at 3,734.5 feet above sea level to total depth at 16,396 feet, this well encountered the following section:

Triassic System: From surface to 1,220', predominantly redbed lithology of the Dockum Group.

Permian System: 11,495' of sediments of the Ochoa, Guadalupe, Leonard and Wolfcamp series.

The Ochoa consists of 1,890' of redbeds and evaporites in the Dewey Lake, Rustler and Salado formations.

The Guadalupe aggregates 5,620' of sediments including 2,540' of interbedded sandstones and dolomites and massive dolomites of the Tansill, Yates and Capitan Reef formations and 3,080' of sandstone, shale and interbedded carbonates of the Delaware Mountain Group.

The Leonard (Bone Spring formation) includes 2,508' of predominantly thick-bedded limestones with interbedded sandstones and shales (several carbonates and sandstones within the Bone Spring are considered important objectives in the proposed well).

The Wolfcamp consists of 1,477' of interbedded shale and limestone with a massive sandstone unit at the top of the series.

Pennsylvanian System: 1,815' of sediments representing the Strawn, Bend and Morrow series.

The Strawn lithology here is interbedded organic cherty limestone and shales.

The Bend series is predominantly interbedded limestones and shales with some sandstones, especially near the top.

The Morrow consists of approximately 900' of interbedded sandstones, shale and limestone with the sandstones constituting one of the major objectives of the proposed well.

Mississippian System: 1,000' of massive shale and cherty limestone of the Chester, Meramec-Osage, and Kinderhook series and organic shales of the Woodford formation.

Devonian & Silurian Systems: In the Etz well, 861' of thick-bedded dolomite and limestone assigned to these systems had been penetrated at total depth of 16,396'. Porous dolomite intervals of this section are considered to be very prospective and are the primary objective of the proposed test.

Stratigraphic studies of the area indicate a similarity to conditions at the Lea Pool, 8 miles northeast, and it is anticipated that similar productive possibilities will be present at the proposed unit.

Anticipated formation tops at the proposed well site with estimated well site surface elevation of 3,810' above sea level are:

Rustler	1,510' (+ 2,300')
Salado	1,640' (+ 2,170')
Tansill	3,170' (+ 640')
Yates	3,300' (+ 510')
Capitan	3,600' (+ 210')
Delaware Mountain Group	5,600' (- 1,790')
Cherry Canyon	5,780' (- 1,970')
Brushy Canyon	7,060' (- 3,250')
Bone Spring	8,590' (- 4,780')
Wolfcamp	11,075' (- 7,265')
Strawn	12,555' (- 8,745')
Atoka	12,775' (- 8,965')
Morrow	13,326' (- 9,516')
Barnett	14,170' (-10,360')
Mississippian Ls.	14,390' (-10,580')
Woodford	14,940' (-11,130')
Devonian	15,110' (-11,300').

STRUCTURE

The proposed unit outline has been designed to cover a prominent northwest-southeast trending, deep seated anticlinal structure as shown on the accompanying geologic structure map. This map shows structure at the Devonian level as defined by reflection seismograph methods. Shallower mapping by seismograph and subsurface methods indicates the structure persists upwards.

At the Devonian level structural and fault closure is in excess of 500 feet and structural advantage to the Phillips Petroleum Company Etz Federal #1 dry hole is over 450 feet. Seismic data indicates a synclinal depression separates this well from the Hat Mesa structure. The seismic record quality is good and the deep-seated structure should be adequately covered by the unit outline. The proposed outline has been drawn slightly outside the lowest closing Devonian contour and the down-to-the-west fault trace which strikes northwest-southeast.

PRODUCTIVE POSSIBILITIES

Although a number of possibilities for commercial oil and gas accumulation are present within the proposed unit area, those considered to have the best possibilities are as follows:

(1) Siluro-Devonian carbonates which are productive nearby at the Lea and Bell Lake Fields. Estimated depth 15,110'.

(2) Pennsylvanian Morrow sandstones which are productive nearby at several fields in addition to those mentioned above. Estimated depth 13,326-14,170'.

(3) Bone Spring carbonates and sandstones which are productive at the Lea and other fields, and which have had excellent shows in a number of nearby wells. Estimated depth 9,575-11,075'.

PROPOSED DEVELOPMENT

If the Hat Mesa Unit is approved, Phillips Petroleum Company, as unit operator, will drill a wildcat well to thoroughly test for oil and gas all formations down to and including the Siluro-Devonian to a depth not to exceed 15,500 feet. The presently recommended location for the test well is 1,980 feet from the north line and 1,980 feet from the east line of Section 11, T-21S, R-32E.

It is believed that the State and Federal unitized unit plan of development would be in the best interest of conservation, orderly development, production and secondary recovery of the oil and gas that may be present in the area.

Respectfully submitted

PHILLIPS PETROLEUM COMPANY

Enclosure: Geophysical Structure Map