

KING RESOURCES COMPANY

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CONFIDENTIAL

Geological Report

Proposed Gardner Draw Unit

Location:

Township 19 South, Ranges 20 and 21 East

Eddy and Chaves Counties, New Mexico

Prospective Formations:

Primary - Morrow, Atoka, Strawn

Secondary - Cisco-Canyon, Wolfcamp

BEFORE EXAMINER STAMETS OIL CONSERVATION COMMISSION King Resources EXHIBIT NO. <u>A</u> CASE NO. <u>6129</u> Submitted by <u>Lambert</u> Hearing Date <u>1.18.78</u>

Introduction:

The Gardner Draw Prospect is the result of a comprehensive geologic study performed by King Resources Company covering approximately 600 square miles in Township 16 through 23 South and Ranges 17 to 23 East to determine the hydrocarbon potential of the clastic Pennsylvanian rocks, particularly the lower Strawn, Atoka and Morrow formations.

General Geological Discussion:

This proposed Gardner Draw Unit Area (the "Unit") lies in a relatively unexplored portion of Chaves and Eddy Counties. Within this area there is only limited well control, so one must use his knowledge of other producing areas to arrive at a prospect in an undrilled area. The Unit is located approximately fifteen miles northwest of the large Indian Basin gas field. The primary prospective formations within this Unit are the Morrow, Atoka and Strawn formation with the secondary formations being Cisco-Canyon and Wolfcamp. all of Pennsylvanian age.

Subsurface structural maps have been prepared, Mississippian limestone (Exhibit 1) Morrow (Exhibit 2) and Cisco (Exhibit 3) but all required considerable interpretation due to the lack of well control. An isopach of the Morrow to Chester limestone (Exhibit 4) shows the Unit area to lie west of a paleogeomorphic high that was present at the end of Morrow time. The early Pennsylvania folding in the area of the Unit has a profound influence on the distribution of coarse clastic sediments and thus determined the eventual porosity distribution within the Pennsylvanian clastic facies. This is being illustrated by the Morrow sand porosity distribution map superimposed on the Morrow structure (Exhibit 5). Where available, porosity logs were the primary data used. In addition, paleontological reports, sample logs, neutron and electric logs were also utilized. For each well in which porosity data was available, a five percent cutoff based upon sandstone matrix was established. In addition to the structure and isopach maps, the stratigraphic cross-section Z-Z' was prepared.

The proposed initial Unit well is to be located on a postulated Mississippian and Morrow structural high and near the depositional axis of the thick Morrow sands.

The Unit area boundaries have been established by the minus 2900 foot contour value on the Morrow structure map (Exhibit 2) and includes all full sections over half of which lie within that contour.

Using an assumed surface elevation of 4390 feet, the expected formation tops are as follows:

<u>Formation Tops</u>	<u>Expected Depth</u>
San Andres	Surface
Abo	3165'
Cisco**	5465"
Canyon*	5940"
Strawn*	6315'
Atoka	6565'
Morrow*	6890'
Mississippian	7180'

Total Depth will be approximately 150 feet below the top of the Mississippian.

*Primary objectives

**Secondary objectives

Enclosures:

Exhibit 1	Mississippi limestone structure
Exhibit 2	Morrow structure
Exhibit 3	Cisco structure
Exhibit 4	Morrow to Chester limestone isopach
Exhibit 5	Morrow structure w/Morrow sand porosity distribution
Exhibit 6	Stratigraphic Cross-section Z-Z' (Datum-Top Cisco)


Charles E. Williams
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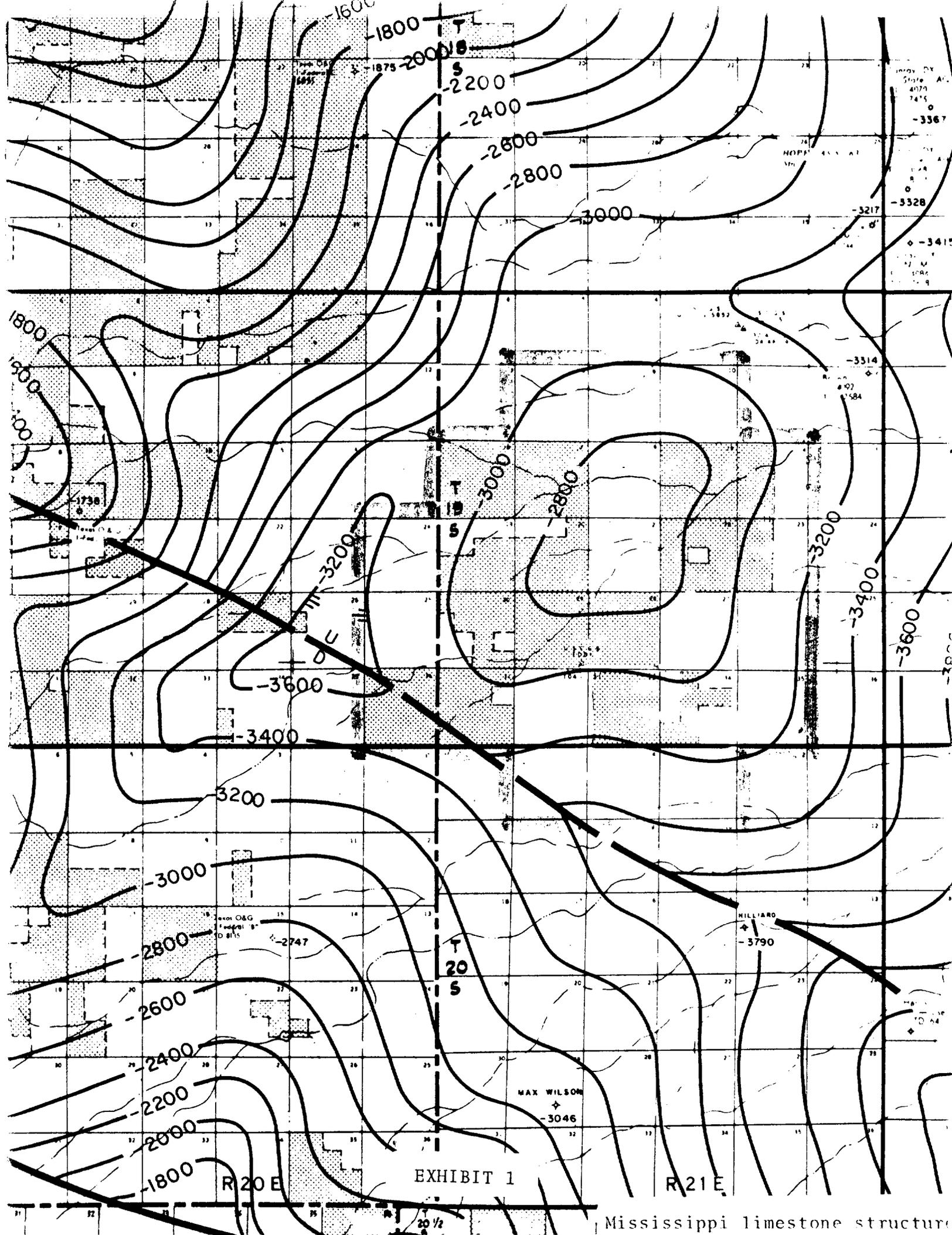
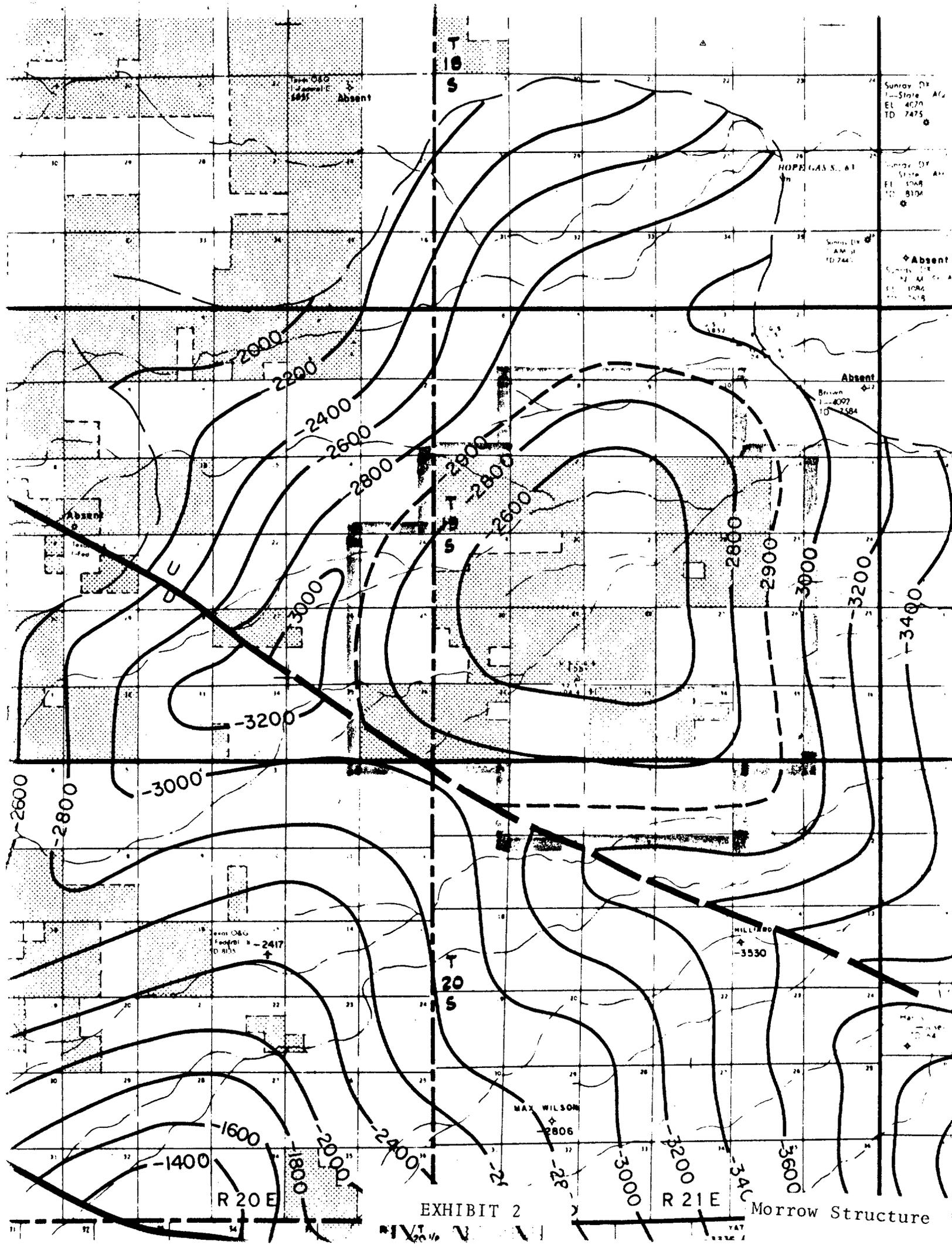


EXHIBIT 1

Mississippi limestone structure



Survey of State of Ark.
EL 4070
TD 7475

Survey of State of Ark.
EL 1048
TD 8104

Survey of State of Ark.
EL 7441
TD 7441

Absent
Survey of State of Ark.
EL 1048
TD 7475

Absent
Brown
EL 4097
TD 7584

Survey of State of Ark.
Federal # -2417
TD 8115

MILLER
EL 3530

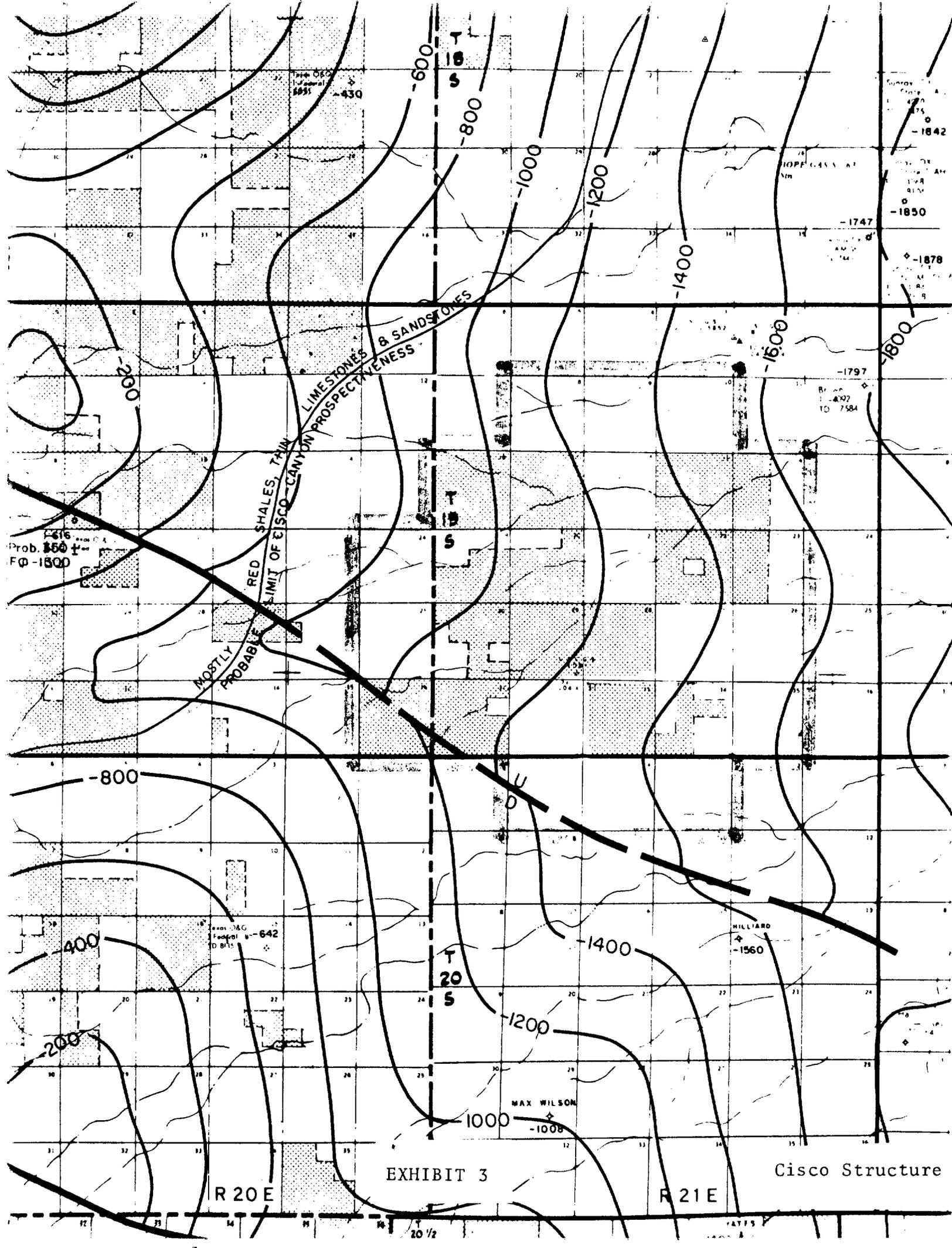
MAX WILSON
EL 2806

EXHIBIT 2

R 20 E

R 21 E

Morrow Structure



MOSTLY PROBABLE RED SHALES, TRIM
LIMIT OF CISCO CANYON PROSPECTIVENESS
LIMESTONES & SANDSTONES

EXHIBIT 3

Cisco Structure

R 20 E

R 21 E

T 20 S

T 21 S

MAX WILSON
-1008

DATE

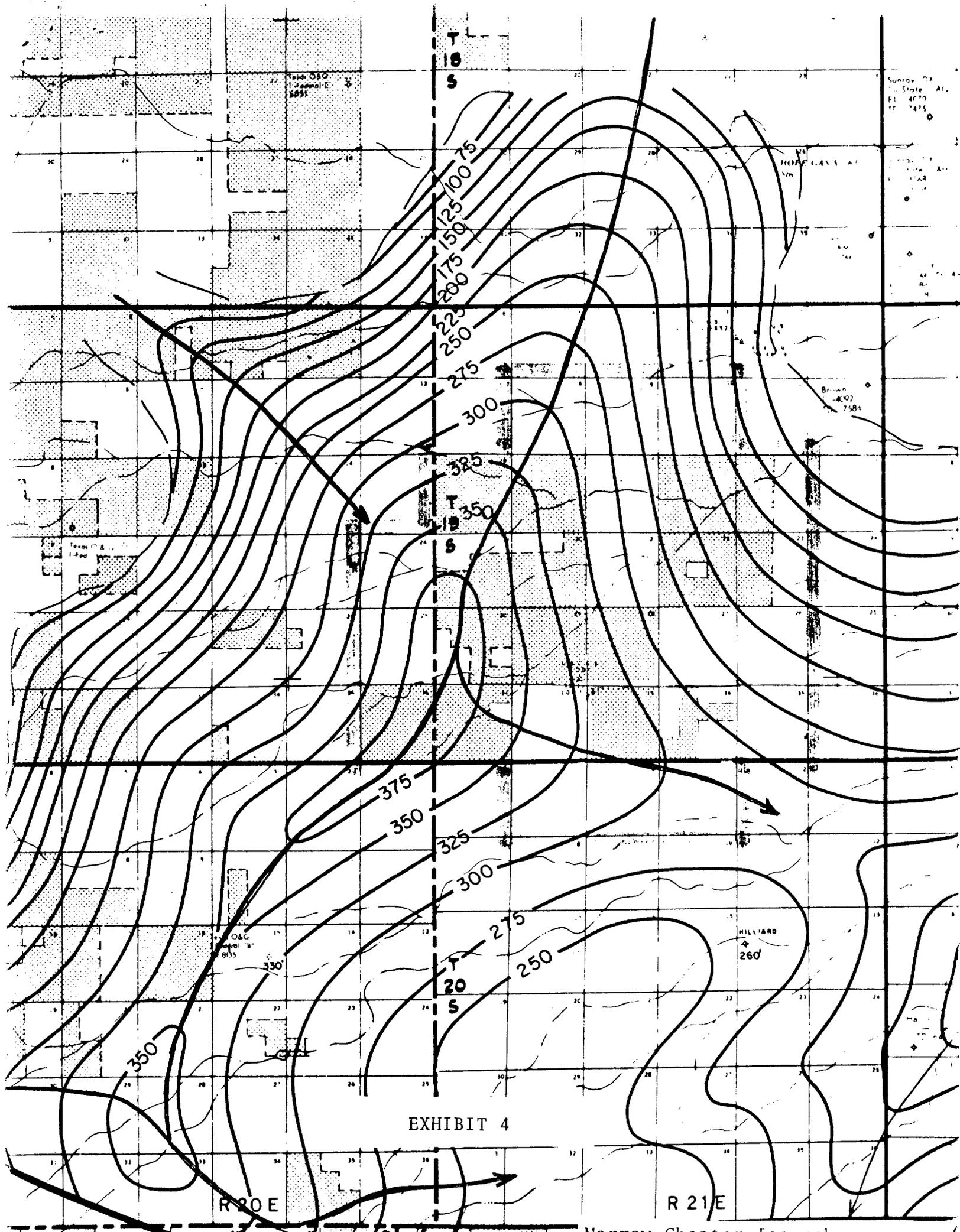


EXHIBIT 4

Morrow Chester Isopach

R 20 E

R 21 E

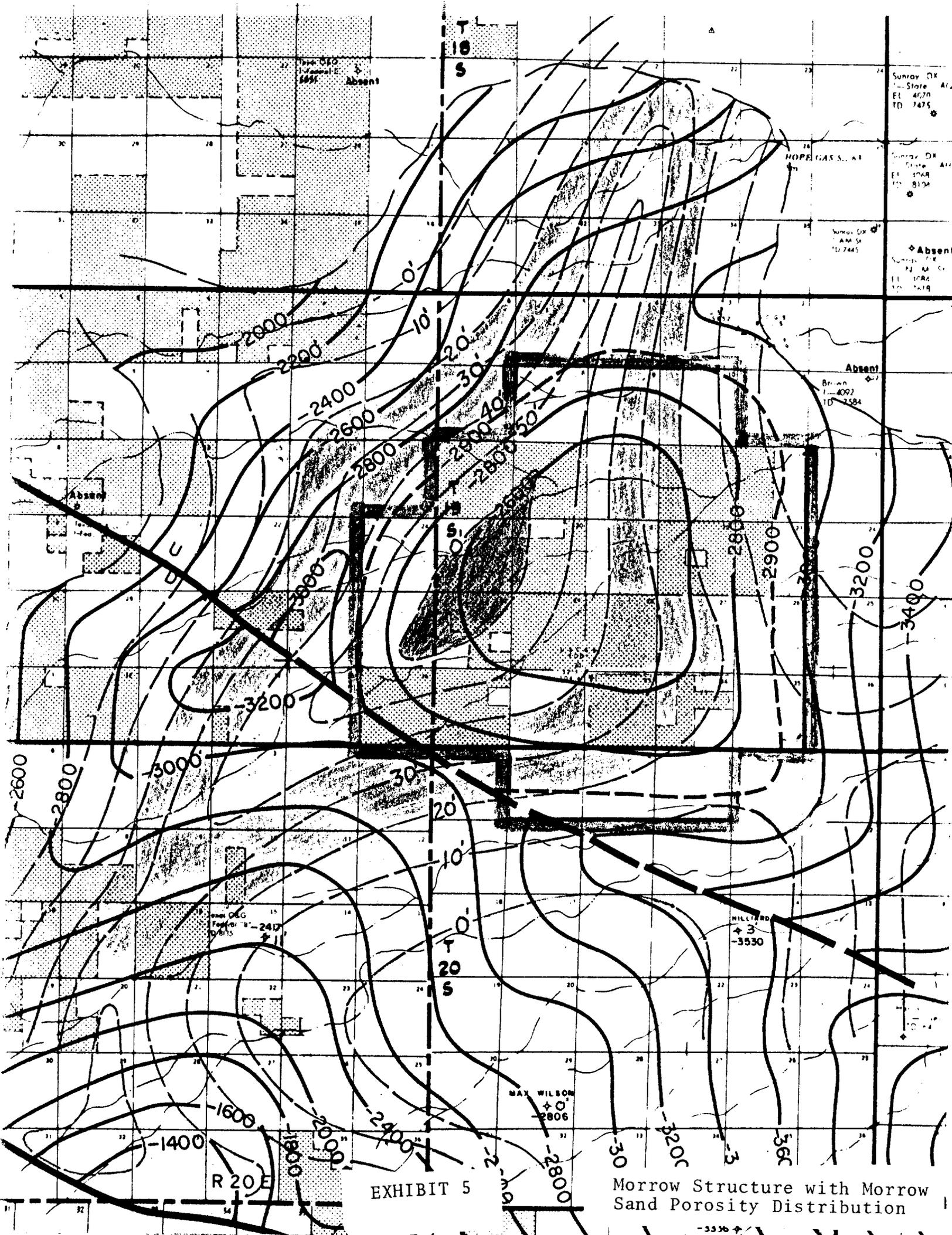


EXHIBIT 5

Morrow Structure with Morrow Sand Porosity Distribution