



*Voluntary Unit  
for exploration  
purpose to be  
the State  
approval*

Warren Unit  
Boundary



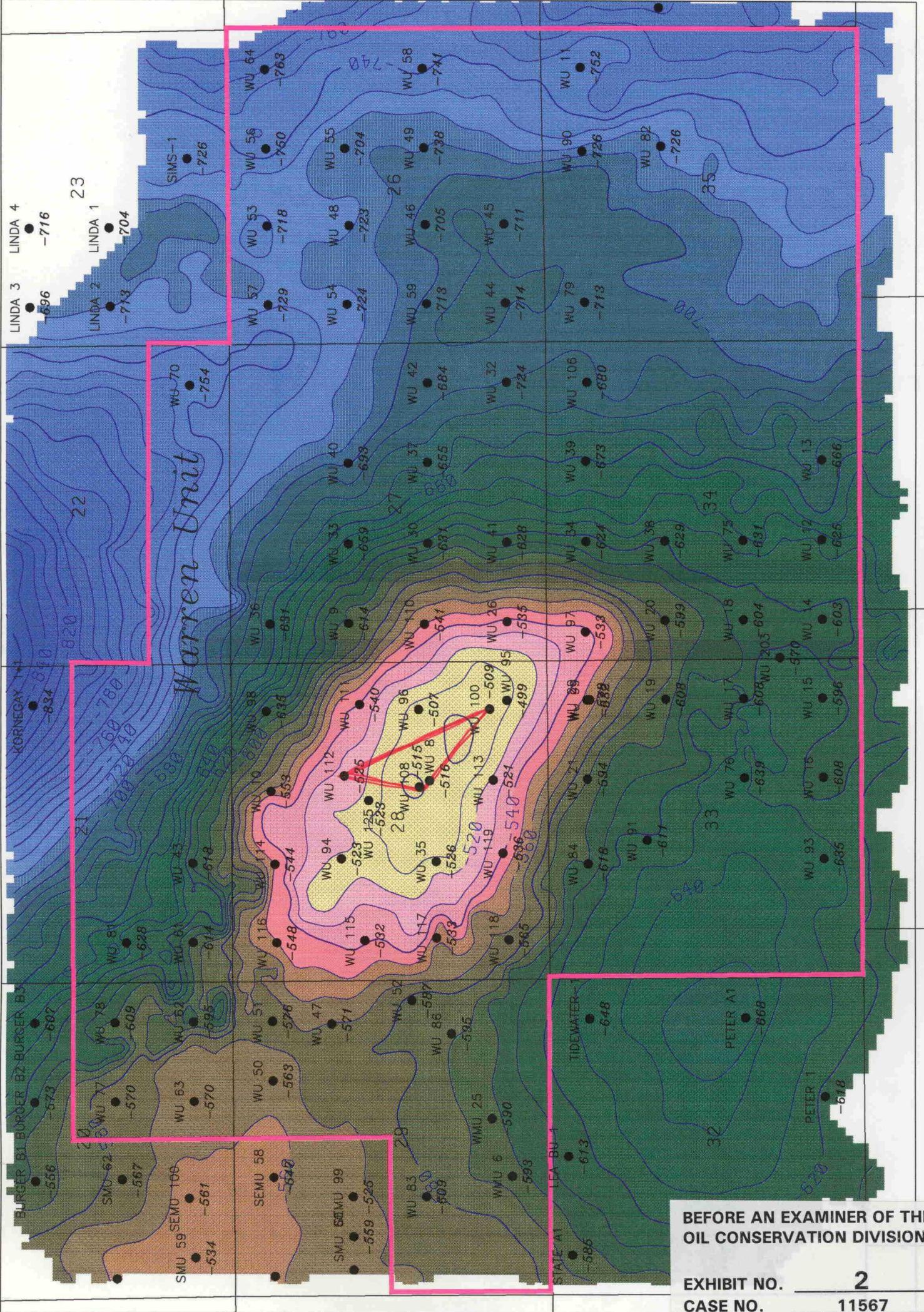
*down  
4 way  
Blumberg Field  
Competition*



1:24000  
2000 FEET  
FEET 0

Conoco Inc.  
Midland, TX  
San Andres Structure Map  
Warren Unit  
Lea County, NM  
T20S, R38E  
Contour Interval = 10 Feet

Scale 1:24000  
Date 5-JUN-96  
Author David Nelson  
Title July 1988 Hearing



BEFORE AN EXAMINER OF THE OIL CONSERVATION DIVISION

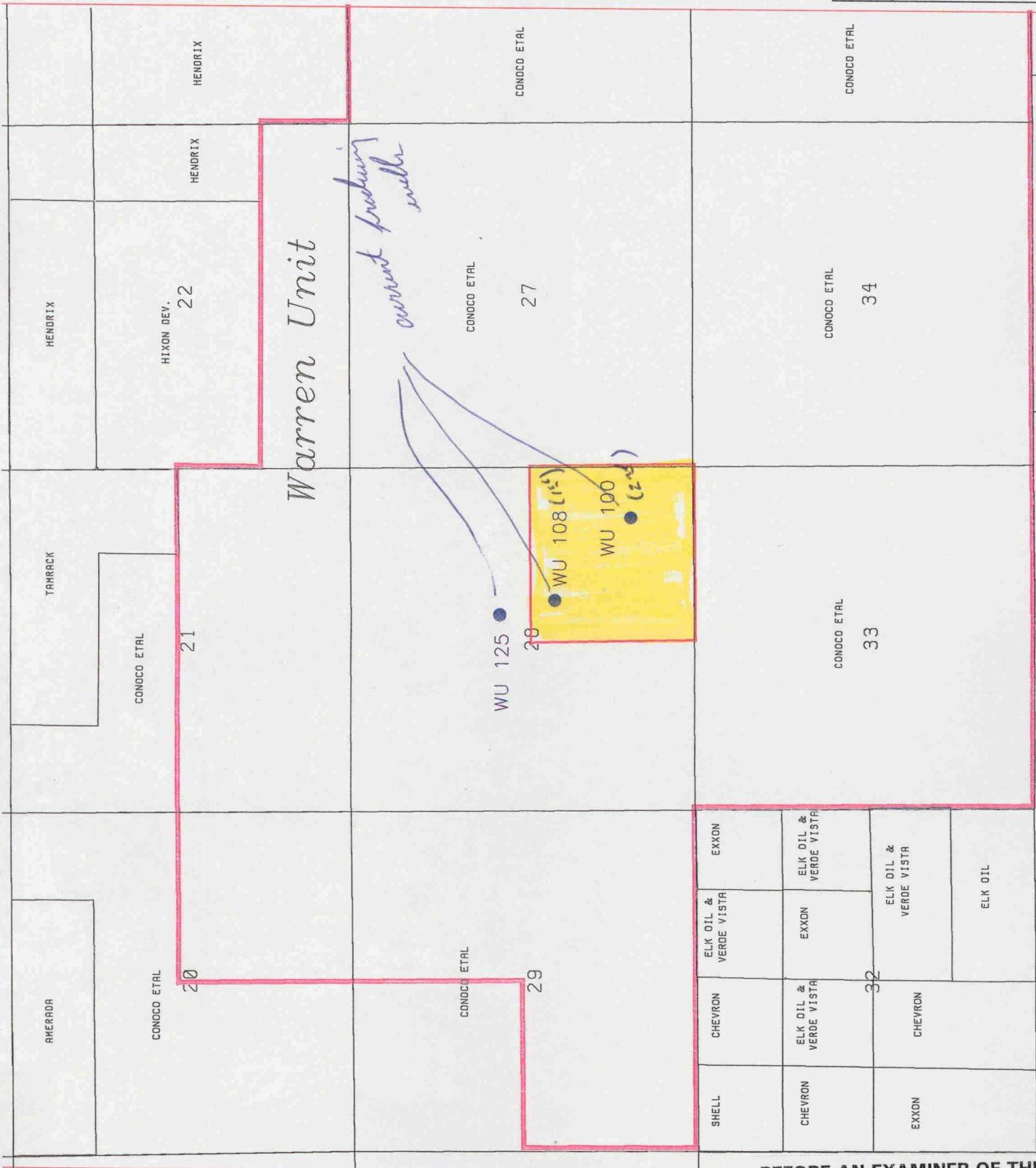
EXHIBIT NO. 2  
CASE NO. 11567  
Submitted by: Conoco Inc.  
Hearing Date: July 11, 1996

4  
LEGEND

- CURRENT POOL LIMITS OF WARREN SAN ANDRES POOL
- CURRENT PRODUCER FROM GRAYBURG/SAN ANDRES



FEET 0 1:24000 2000 FEET



<p><b>Conoco Inc.</b> Midland, TX</p>
<p>Offset Operators &amp; Current Pool Limits of Warren San Andres Pool Warren Unit Lea County, NM T20S, R38E</p>
<p>SCALE 1:24000      DRAWN David Nelson      DATE 10-JUN-96</p>

BEFORE AN EXAMINER OF THE OIL CONSERVATION DIVISION

EXHIBIT NO. 3  
CASE NO. 11567  
Submitted by: Conoco Inc.  
Hearing Date: July 11, 1996

# LEGEND

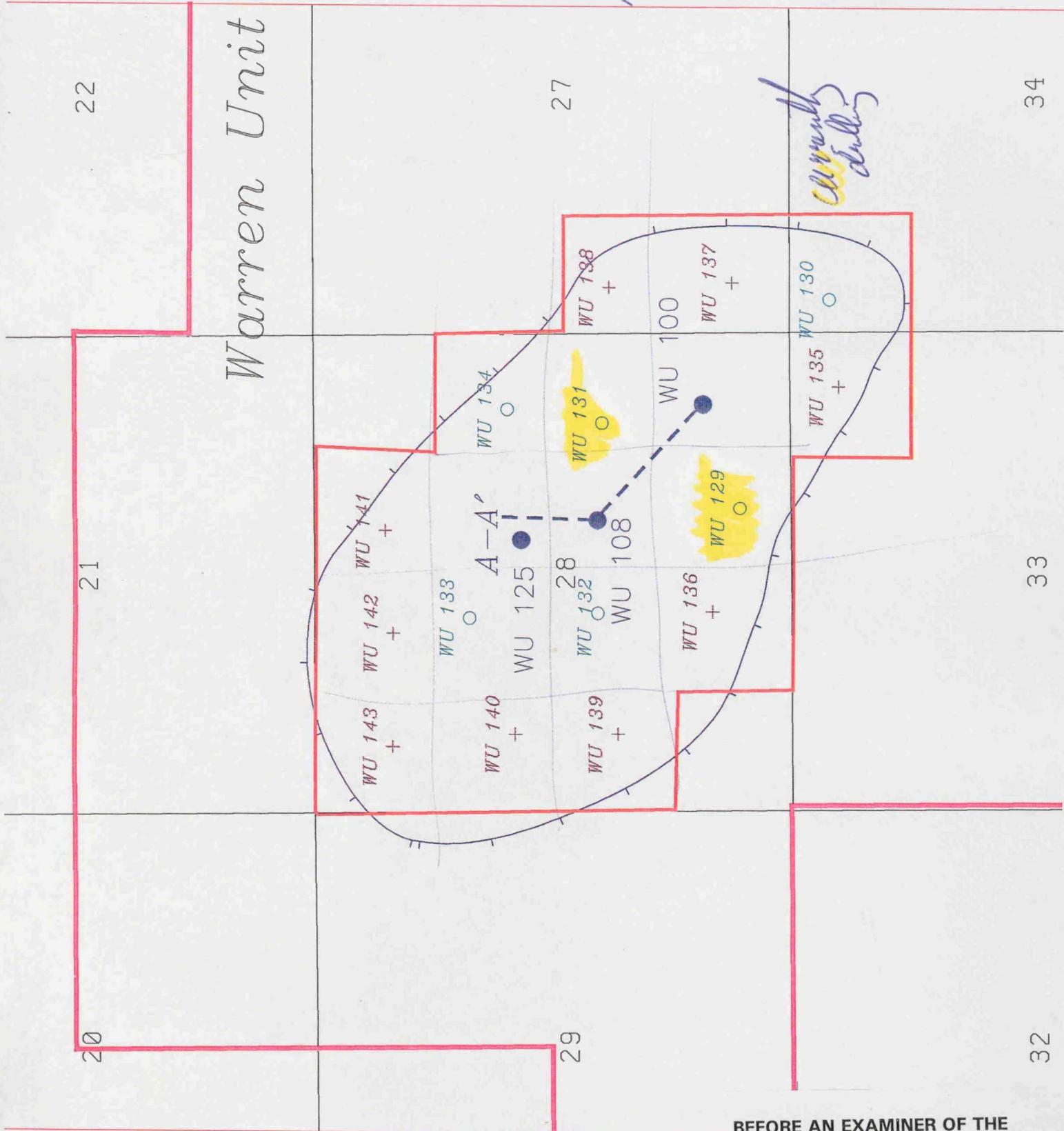
- PROJECTED LIMITS OF WARREN GRAYBURG - SAN ANDRES POOL
- 1996 DRILLING PROGRAM
- + 1997 DRILLING PROGRAM
- CURRENT PRODUCER
- PROJECTED ULTIMATE POOL LIMIT



*prepared by  
David Nelson*

FEET 0 1000 2000 FEET  
1:16920

CONOCO INC. MIDLAND, TX	
PROPOSED DEVELOPMENT OF WARREN GRAYBURG SAN ANDRES POOL WARREN UNIT LEA COUNTY, NM T20S, R38E	
DATE	DATE 24-JUN-96
BY	DAVID NELSON
REVISED	



BEFORE AN EXAMINER OF THE OIL CONSERVATION DIVISION

EXHIBIT NO. 4  
CASE NO. 11567  
Submitted by: Conoco Inc.  
Hearing Date: July 11, 1996

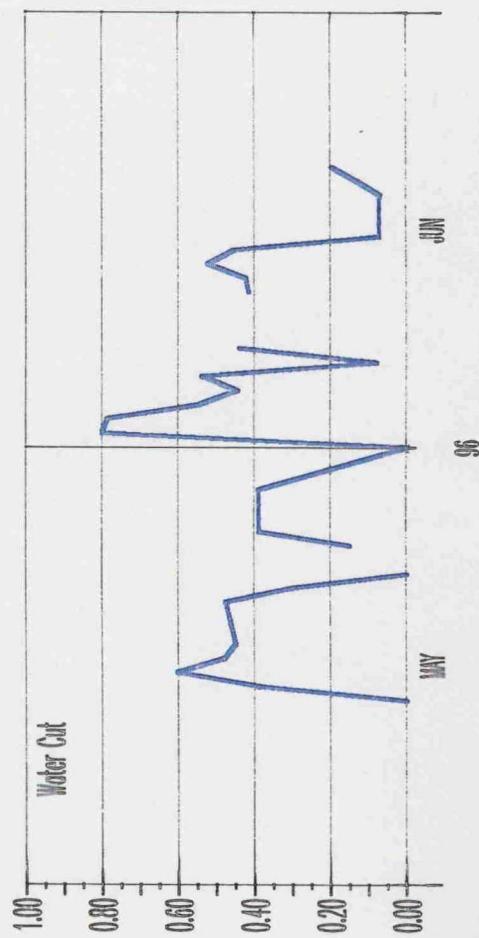
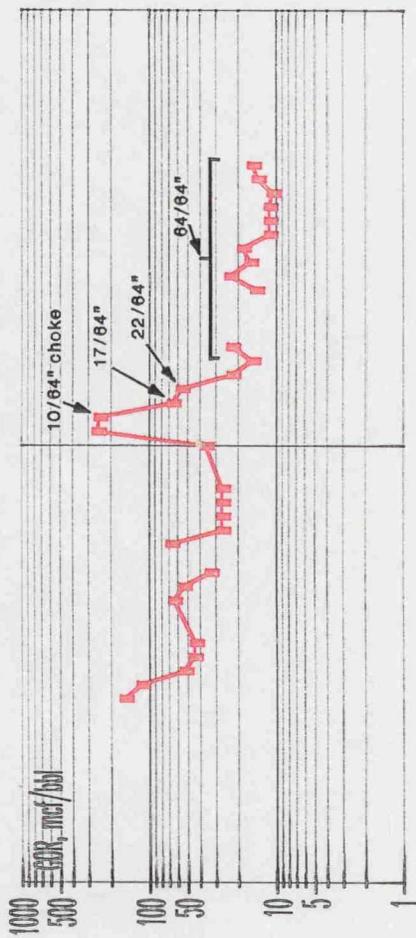
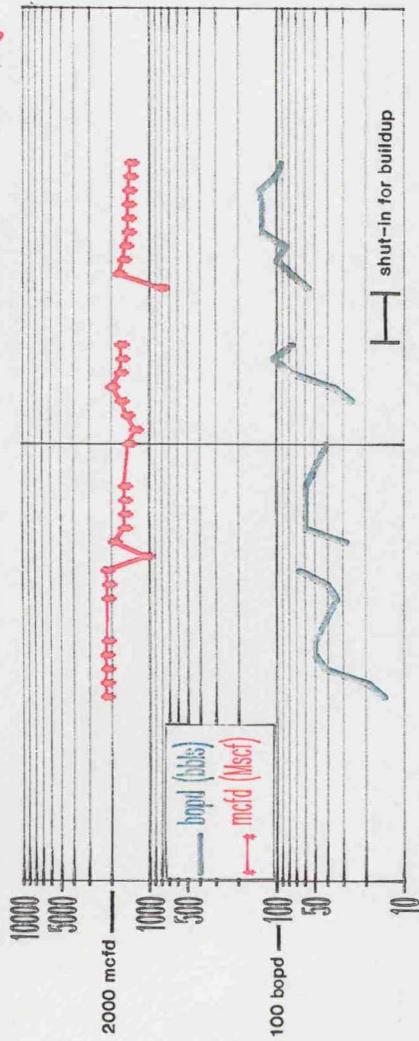
LARGE FORMAT  
EXHIBIT HAS  
BEEN REMOVED  
AND IS LOCATED  
IN THE NEXT FILE

LARGE FORMAT  
EXHIBIT HAS  
BEEN REMOVED  
AND IS LOCATED  
IN THE NEXT FILE

WELL: WARREN UNIT 100-SA

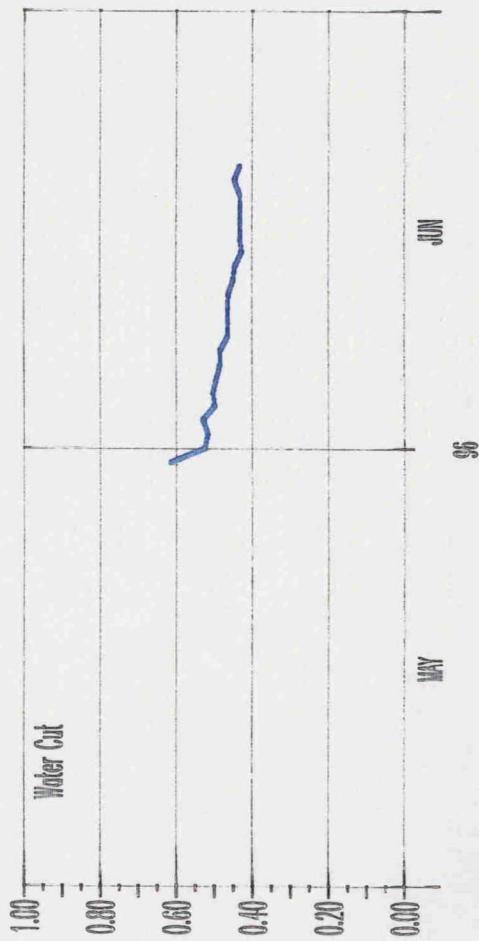
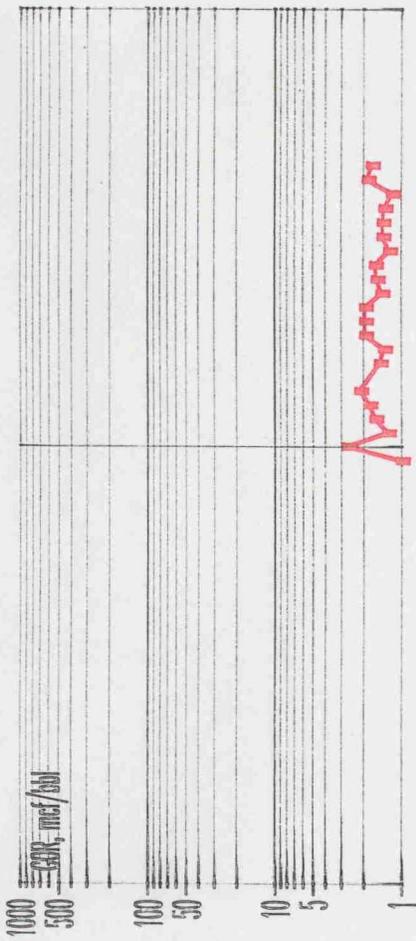
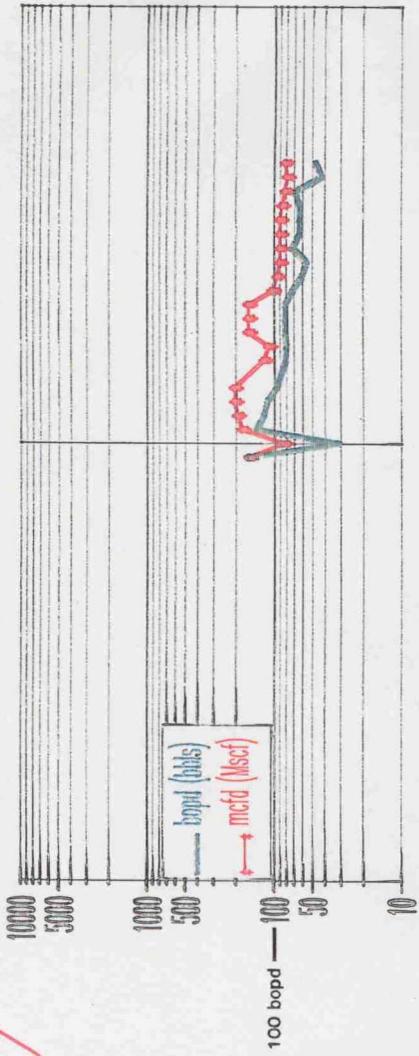
GRAYBURG SAN ANDRES ZONE 1

*MFR Test completed per Brown*



WELL: WARREN UNIT 125-SA

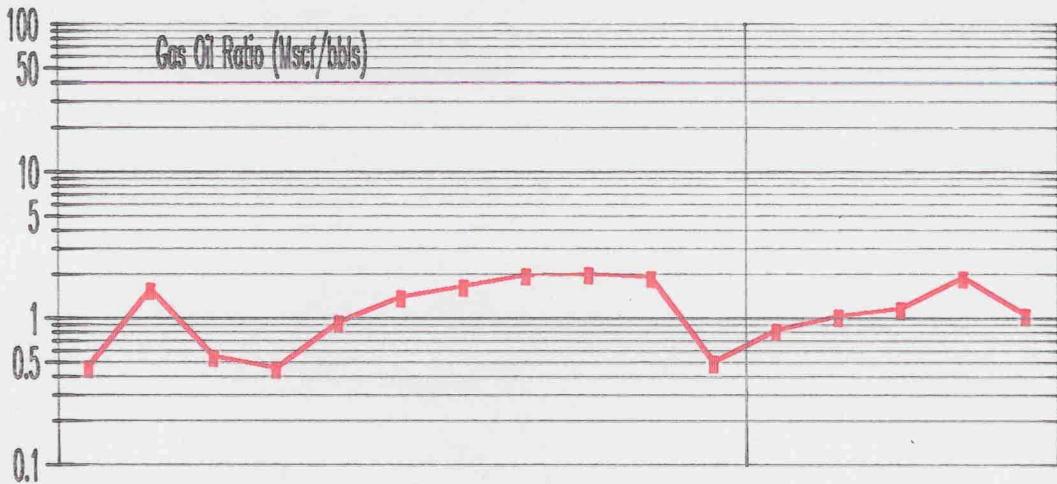
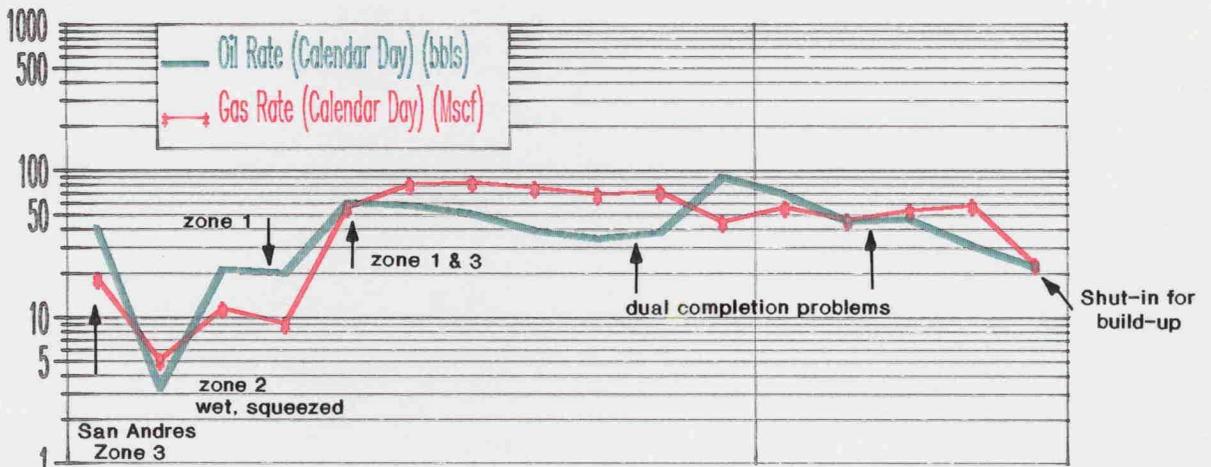
GRAYBURG SAN ANDRES ZONE 2



BEFORE AN EXAMINER OF THE OIL CONSERVATION DIVISION

EXHIBIT NO. 7  
CASE NO. 11567  
Submitted by: Conoco Inc.  
Hearing Date: July 11, 1996

WELL: WARREN UNIT 108:SA  
SAN ANDRES ZONES 1 & 3



SAN ANDRES CUMULATIVE PRODUCTION: 19 MBO, 60 MBW, 23 MMCF

BEFORE AN EXAMINER OF THE  
OIL CONSERVATION DIVISION

EXHIBIT NO. 8  
CASE NO. 11567  
Submitted by: Conoco Inc.  
Hearing Date: July 11, 1996

## Development Plan Under Allowables of Current Rules

Oil Depth Allowable:                      80 BOPD  
2000 Limiting GOR:                        160 MCFD

### DEVELOPMENT PLAN UNDER CURRENT ALLOWABLES:

- 1996        ● Drill 6 Grayburg San Andres wells.  
                    Complete in San Andres Zone 3 *only*.
- Shut-in Warren Unit No. 100 to make up overproduced gas.
- 1997        ● Drill 9 Grayburg San Andres wells.  
                    Complete in San Andres Zone 3 *only*.
- Squeeze off Warren Unit No. 100.  
                    Complete in San Andres Zone 3 *only*.
- 1998        ● As wells decline, plug out of Zone 3 and  
                    Complete into Grayburg and San Andres Zone 1.
- As wells further decline, re-open San Andres Zone 3 and  
                    Combine with Grayburg and San Andres Zone 1.

### IMPACT OF CURRENT ALLOWABLES UPON DEVELOPMENT PLAN:

- ⊗ Three-plus years to complete field development.
- ⊗ Delays recovery of primary and secondary reserves.
- ⊗ Requires Warren Unit No. 100 to be shut-in for 11 months to make up overproduced gas
- ⊗ Wastes reservoir energy in Warren Unit No. 100.
- ⊗ Staggered completions increases mechanical risk.  
Requires a minimum of 2 additional workovers per well to deplete all productive intervals.
- ⊗ Increases health, safety and environmental risk from exposure to sour crude.
- ⊗ Adds \$900,000 to total development cost.

BEFORE AN EXAMINER OF THE  
OIL CONSERVATION DIVISION

EXHIBIT NO.        9      
CASE NO.           11567     
Submitted by:   Conoco Inc.    
Hearing Date:   July 11, 1996

## Development Plan Under Allowables of Proposed Rules

Proposed Oil Depth Allowable:           200 BOPD  
Proposed 10,000 Limiting GOR:         2000 MCFD

### DEVELOPMENT PLAN UNDER PROPOSED ALLOWABLES:

- 1996
- Drill 6 Grayburg San Andres wells.  
Complete in all productive zones.
  - Return San Andres Zone 3 to production in  
Warren Unit No. 100.
  - Complete San Andres Zone 3 in Warren Unit No. 125.
- 1997
- Drill 9 Grayburg San Andres wells.  
Complete in all productive zones.

### IMPACT OF PROPOSED ALLOWABLES UPON DEVELOPMENT PLAN:

- ☺ Two years to complete field development.
- ☺ Accelerates recovery of primary and secondary reserves.
- ☺ Avoids the shut-in of Warren Unit No. 100 for 11 months.
- ☺ Results in most efficient use of reservoir energy in No. 100.
- ☺ Single completions decreases mechanical risk.  
No workovers needed to add additional zones.
- ☺ Decreases exposure to health, safety and environmental risks.
- ☺ Cuts \$900,000 from total development cost.

BEFORE AN EXAMINER OF THE  
OIL CONSERVATION DIVISION

EXHIBIT NO. 10  
CASE NO. 11567  
Submitted by: Conoco Inc.  
Hearing Date: July 11, 1996

LARGE FORMAT  
EXHIBIT HAS  
BEEN REMOVED  
AND IS LOCATED  
IN THE NEXT FILE

# Warren Grayburg San Andres

## Fluid Data

WU 125      WU 108      WU 100  
 GB/SA 1      SA 1/SA 3      GB/SA 1

**Oil**

Gravity	34	35	33
Sulfur %	1.52	1.43	1.88
Sweet/Sour	Sour	Sour	Sour
Methane %	66.1	63.4	72.6
BTU/cu.ft.	1253	1269	1170
GPM	6.85	7.34	5.08
Sp Gr	.855	.867	.780
H2S, ppm	28082	31728	16356
TDS, ppm	30872	51575	14114

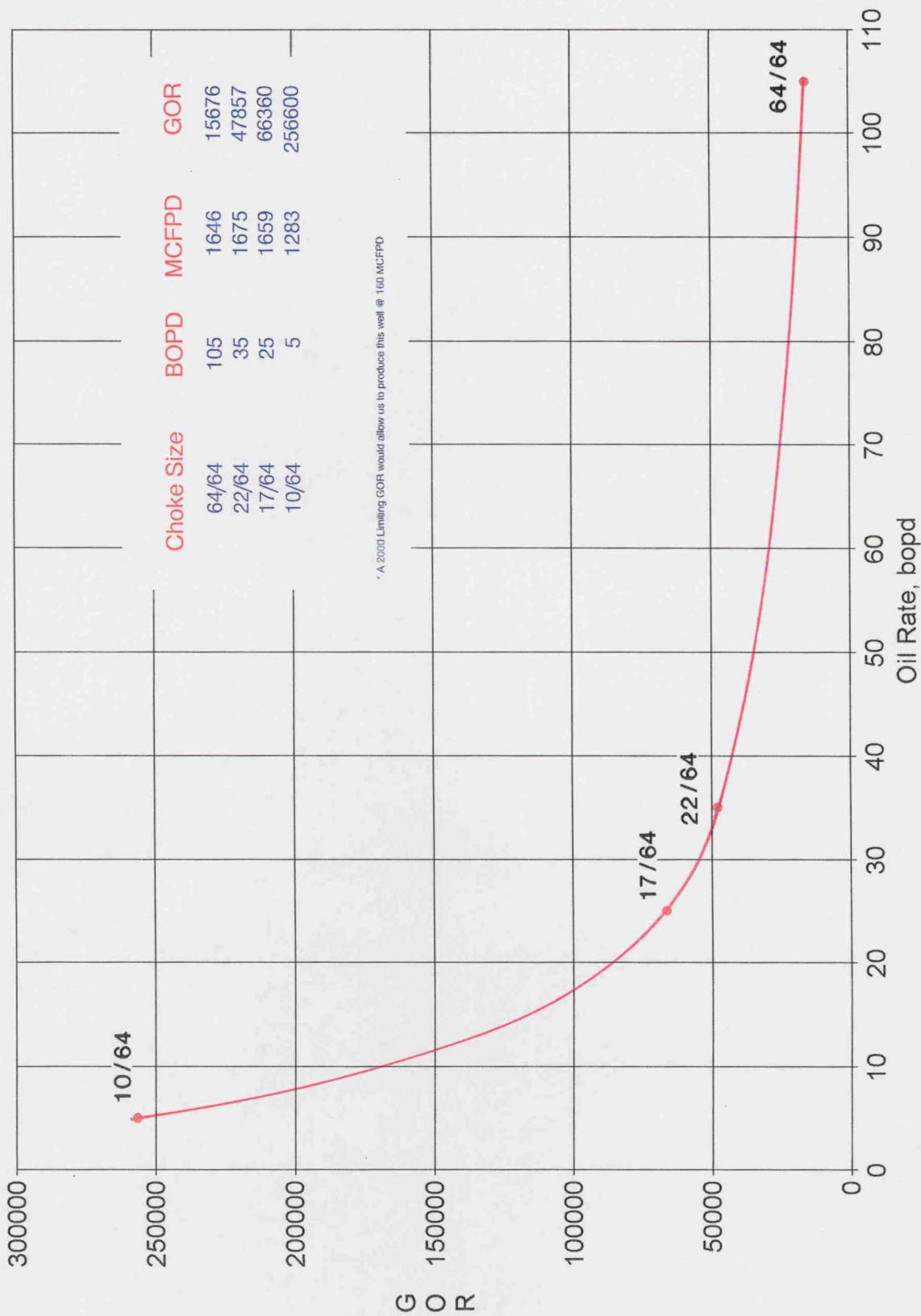
**Gas**

**Water**

BEFORE AN EXAMINER OF THE  
 OIL CONSERVATION DIVISION

EXHIBIT NO. 12  
 CASE NO. 11567  
 Submitted by: Conoco Inc.  
 Hearing Date: July 11, 1996

**Warren Unit No. 100 GOR Testing**  
 Grayburg San Andres, May 1996



BEFORE AN EXAMINER OF THE  
 OIL CONSERVATION DIVISION

EXHIBIT NO. 13  
 CASE NO. 11567  
 Submitted by: Conoco Inc.  
 Hearing Date: July 11, 1996



# OFFSET OPERATORS

Within 1 mile of the

## WARREN SAN ANDRES POOL BOUNDRY

Chevron USA, Inc.  
P.O. Box 1150  
Midland, TX 79701

Elk Oil Co.  
P.O. Box 310  
Roswell, NM 88202

Exxon Corporation  
P.O. Box 1600  
Midland, TX 79702

Hixon Development Co.  
% Giant Explor. & Prod.  
P.O. Box 2810  
Farmington, NM 87499

### Copies of Certified Mail Receipts

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**  
 ■ Complete items 1 and/or 2 for additional services.  
 ■ Complete items 3, 4a, and 4b.  
 ■ Print your name and address on the reverse of this form so that we can return this card to you.  
 ■ Attach this form to the front of the mailpiece, or on the back if space does not permit.  
 ■ Write "Return Receipt Requested" on the mailpiece below the article number.  
 ■ The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):  
 1.  Addressee's Address  
 2.  Restricted Delivery  
 Consult postmaster for fee.

3. Article Addressed to:  
Chevron USA, Inc.  
P.O. Box 1150  
Midland, TX 79701

4a. Article Number  
2-111-000-228

4b. Service Type  
 Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
JUN 20 1996

5. Received By: (Print Name)  
[Signature]

6. Signature: (Addressee or Agent)  
[Signature]

PS Form 3811, December 1994 Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

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I also wish to receive the following services (for an extra fee):  
 1.  Addressee's Address  
 2.  Restricted Delivery  
 Consult postmaster for fee.

3. Article Addressed to:  
Elk Oil Co.  
P.O. Box 310  
Roswell, NM 88202

4a. Article Number  
2-111-000-227

4b. Service Type  
 Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
JUN 20 1996

5. Received By: (Print Name)  
[Signature]

6. Signature: (Addressee or Agent)  
[Signature]

PS Form 3811, December 1994 Domestic Return Receipt

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I also wish to receive the following services (for an extra fee):  
 1.  Addressee's Address  
 2.  Restricted Delivery  
 Consult postmaster for fee.

3. Article Addressed to:  
Exxon Corporation  
P.O. Box 1600  
Midland, TX 79702

4a. Article Number  
2-111-000-230

4b. Service Type  
 Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
JUN 20 1996

5. Received By: (Print Name)  
[Signature]

6. Signature: (Addressee or Agent)  
[Signature]

PS Form 3811, December 1994 Domestic Return Receipt

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I also wish to receive the following services (for an extra fee):  
 1.  Addressee's Address  
 2.  Restricted Delivery  
 Consult postmaster for fee.

3. Article Addressed to:  
Hixon Development Co.  
% Giant Explor. & Prod.  
P.O. Box 2810  
Farmington, NM 87499

4a. Article Number  
2-111-000-229

4b. Service Type  
 Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
JUN 21 1996

5. Received By: (Print Name)  
[Signature]

6. Signature: (Addressee or Agent)  
[Signature]

PS Form 3811, December 1994 Domestic Return Receipt

BEFORE AN EXAMINER OF THE OIL CONSERVATION DIVISION

EXHIBIT NO. 14  
 CASE NO. 11567  
 Submitted by: Conoco Inc.  
 Hearing Date: July 11, 1996



Edinburgh Petroleum Services Ltd.

Report File:

WU100R.PAN

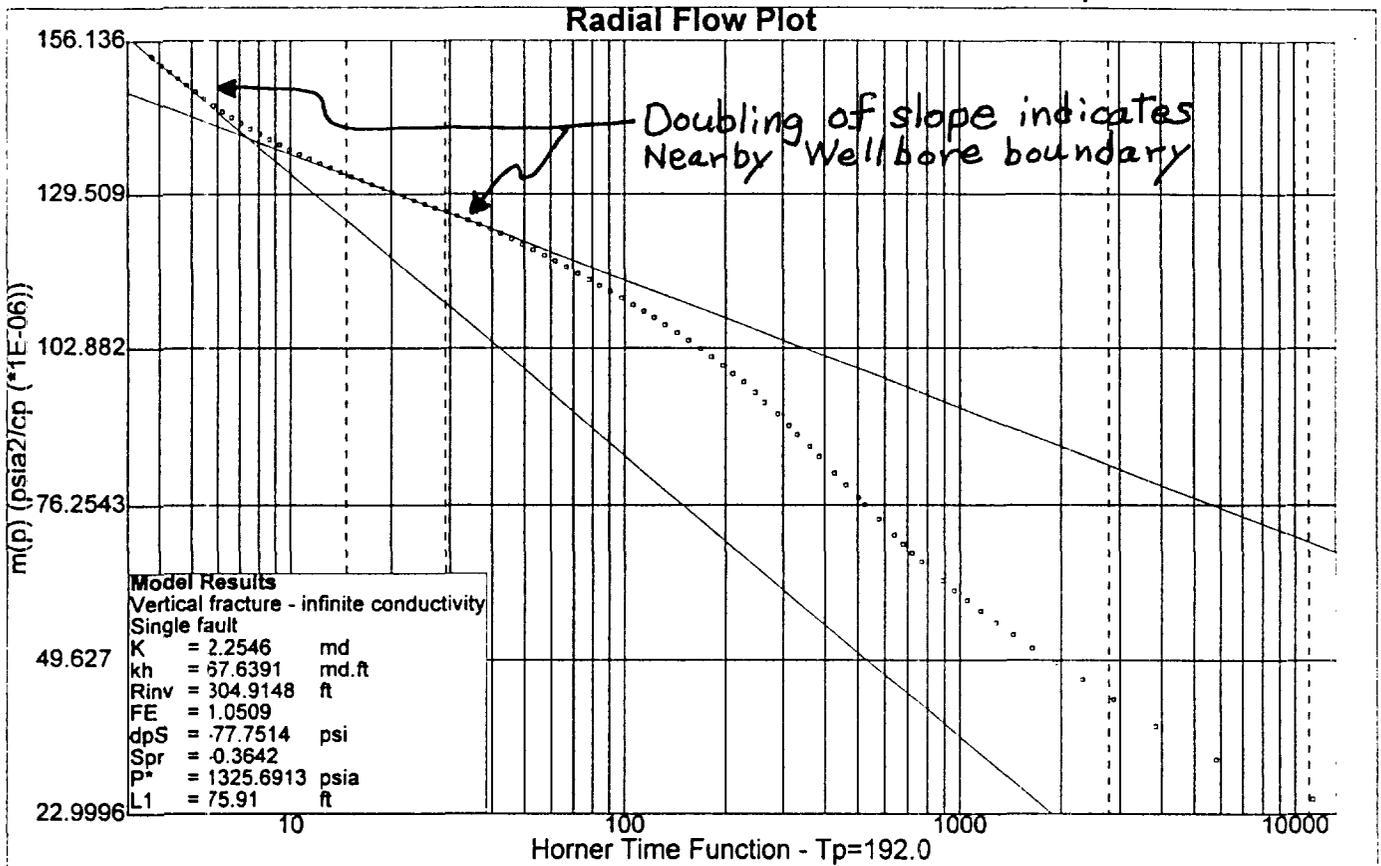
PanSystem Version 2.2

Analysis Date:

6/25/96

Well Test Analysis Report

Warren Unit 100  
Pressure Build-Up Test



**Radial Flow Plot Model Results**

Vertical fracture - infinite conductivity  
Single fault

	Value
Permeability	2.2546 md
Permeability-thickness	67.6391 md.ft
Radius of investigation	304.9148 ft
Flow efficiency	1.0509
dP skin (constant rate)	-77.7514 psi
Pseudo-radial skin factor	-0.3642
Extrapolated pressure	1325.6913 psia
Distance to nearest fault	75.91 ft

**Radial Flow Plot Line Details**

Line type : Late pseudo-radial flow

Slope : -21.8456

Intercept : 158.307

Coefficient of Determination : 0.999868

	Late pseudo-radial flow
Extrapolated m(p)	158.3069 psia2/cp (*1E-06)
Extrapolated pressure	1235.2157 psia
m(p) at dt = 1 hr	108.3775 psia2/cp (*1E-06)
Pressure at dt = 1 hour	1019.3677 psia

BEFORE AN EXAMINER OF THE  
OIL CONSERVATION DIVISION

EXHIBIT NO. 15  
CASE NO. 11567  
Submitted by: Conoco Inc.  
Hearing Date: July 11, 1996