

KELLAHIN AND FOX

ATTORNEYS AT LAW

JASON W. KELLAHIN
ROBERT E. FOX

84 1/2 EAST SAN FRANCISCO
POST OFFICE BOX 115
SANTA FE, NEW MEXICO

MAIN OFFICE OCC

YUCCA 3-2200
YUCCA 2-2201

1962 FEB 7 AM 8:11

February 5, 1962

New Mexico State Engineer
State of New Mexico
Santa Fe, New Mexico

Re: Application of Amerada Petroleum Corporation
for approval of a water-flood project, Lea
County, New Mexico

Dear Sir:

Enclosed for your information is a copy of an application
filed with the Oil Conservation Commission on behalf of
Amerada Petroleum Corporation, for approval of a pilot
water flood project in the Langlie-Martin Pool, Lea County,
New Mexico.

It is anticipated that this application will be heard at
the last examiner hearing of the Commission in February,
or the first examiner hearing in March.

Very truly yours,

JASON W. KELLAHIN

jwk:mas
enclosure

cc: Oil Conservation Commission
Mr. H. D. Bushnell

C
O
P
Y

STANDARD OIL COMPANY OF TEXAS

A DIVISION OF CALIFORNIA OIL COMPANY

P. O. BOX 1249 • HOUSTON 1, TEXAS

February 21, 1962

Oil Conservation Commission
State Land Office Building
College Avenue
Santa Fe, New Mexico

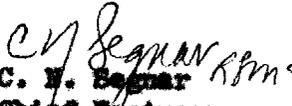
Gentlemen:

The application of Amerada Petroleum Corporation for a waterflood project in the Langlie-Mattix Pool, Lea County, New Mexico, Case 2497, has been scheduled for the February 27, 1962, Examiner Hearing.

The Applicant seeks permission to institute a waterflood project in the Langlie-Mattix Pool in Sections 27, 28, 33, and 34, Township 24 South, Range 37 East, Lea County, New Mexico.

Standard Oil Company of Texas, a Division of California Oil Company, a working interest owner in the area of the proposed project, concurs in the application and recommendations of Amerada Petroleum Corporation in the aforementioned case.

Yours very truly,


C. W. Segnar
Chief Engineer

RLMc:ja

cc: Mr. Jason W. Kellahin
Kellahin and Fox ✓
P. O. Box 1713
Santa Fe, New Mexico



PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

PRODUCTION DEPARTMENT

February 21, 1962

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Attention Mr. A. L. Porter, Jr., Secretary and Director

Application of Amerada Petroleum Corpo-
ration for Approval of the Langlie
Mattix Woolworth Unit, Lea County, New
Mexico - ~~New Mexico Oil Conservation~~
Commission - Case No. 2497

Gentlemen:

A hearing is scheduled for February 27, 1962, before the New Mexico Oil Conservation Commission (Case No. 2497) on Amerada Petroleum Corporation's application for approval of the Langlie Mattix Woolworth Unit water flood project.

This proposed operation is located in Sections 27, 28, 33, and 34, Township 24 South, Range 37 East, Lea County, New Mexico, and said project is to be governed by the provisions of Rule 701.

We wish to advise that Phillips Petroleum Company, a working interest owner in this water flood project, concurs in the testimony to be presented by the applicant at this hearing and we strongly urge the Commission's approval of this application.

Yours very truly,

L. E. Fitzjarrald
Vice President

LEF:JRB:hd

cc: Amerada Petroleum Corporation
P. O. Box 2040
Tulsa 2, Oklahoma



SINCLAIR OIL & GAS COMPANY
P.O. BOX 1470

MAIN OFFICE OGC
FEB 23 AM 11 22
DALLAS, TEXAS

MUtual 3-2761

February 21, 1962

R. L. ELSTON
VICE PRES. & DIVISION MANAGER

Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

Please refer to Amerada Petroleum Corporation's application to waterflood the Langlie-Mattix Woolworth Unit, in the Langlie-Mattix Pool, Lea County, New Mexico, Case No. 2497, scheduled for hearing on February 27, 1962.

Sinclair Oil & Gas Company, as a working interest owner in this Unit, concurs with Amerada's application and respectfully requests favorable consideration by the Commission.

Yours very truly,

Joe Mefford

JM:RMA:lw

cc: Amerada Petroleum Corporation
P. O. Box 2040
Tulsa 2, Oklahoma

ARM

TRAIN OFFICE OCC



1962 FEB 23 AM 8:26

THE PURE OIL COMPANY

SOUTHERN PRODUCING DIVISION • Midland Area Operations
P. O. BOX 671 • MIDLAND, TEXAS • Mutual 2-3725

February 23, 1962

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Subject: Langlie-Mattix
Woolworth Unit Application,
Case #2497, February 27, 1962

Attention: Executive Secretary

Gentlemen:

The Pure Oil Company as a working interest owner in the Langlie-Mattix Field, Lea County, New Mexico, is in agreement with and wishes to support the application of Amerada Petroleum Corporation as operator for conducting pilot waterflood operations in the proposed Langlie-Mattix Woolworth Unit. The Pure Oil Company will be a participant in the Unit.

Yours very truly,

THE PURE OIL COMPANY

Harold Simpson
Area Superintendent

HS:jcv

File

Gulf Oil Corporation

ROSWELL PRODUCTION DISTRICT

W. A. Shellshear
DISTRICT MANAGER
F. O. Mortlock
DISTRICT EXPLORATION
MANAGER
M. I. Taylor
DISTRICT PRODUCTION
MANAGER
H. C. Vivian
DISTRICT SERVICES MANAGER

1962 FEB 25 AM 11:25

February 22, 1962

P. O. Drawer 1938
Roswell, New Mexico

Oil Conservation Commission
State of New Mexico
Post Office Box 871
Santa Fe, New Mexico

Attention: Mr. A. L. Porter, Jr.

Re: Case No. 2497 Scheduled
for Examiner Hearing on
February 27, 1962

Gentlemen:

Reference is made to the application of Amerada Petroleum Corporation in the above Case, for approval of the Langlie Mattix Woolworth Unit and for conducting pilot waterflood operations within the Unit.

Gulf Oil Corporation has a working interest in this proposed Unit, and concurs with Amerada in their application.

Yours very truly,



W. A. Shellshear

JHH:dd

cc: Amerada Petroleum Corporation
Post Office Box 2040
Tulsa 2, Oklahoma

Attention: Mr. J. C. Blackwood





[Handwritten signature]

CONTINENTAL OIL COMPANY

1962 FEB 26 AM 8 124

P. O. BOX 1377

ROSWELL, NEW MEXICO

February 22, 1962

WM. A. MEAD
DIVISION SUPERINTENDENT
OF PRODUCTION
NEW MEXICO DIVISION

825 PETROLEUM BUILDING
TELEPHONE: MAIN 2-4202

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

Re: APPLICATION OF AMERADA PETROLEUM
CORPORATION CASE NUMBER 2497

We understand that Amerada Petroleum Corporation, as Unit Operator for the Langlie-Mattix Woolworth Unit, will, on February 27, 1962, appear before the Commission to request approval of the Unit Agreement and of a pilot waterflood within the Unit Area.

Continental Oil Company, individually, and as a working interest owner and participant in the Unit, believes that the Unit Agreement is, in principal, a proper conservation measure and will tend to promote the conservation of oil and gas. Waterflood operations within the Unit area will recover oil and gas that would not otherwise be recovered.

Continental Oil Company, therefore, concurs with Amerada Petroleum Corporation, and respectfully requests that the Commission approve the Unit Agreement and pilot waterflood operations.

Very truly yours,

W. B. Slaybaugh

CRA-sm

Carbon copy to: Amerada Petroleum Corporation - Tulsa, Okla.



AS

STANDARD OIL COMPANY OF TEXAS

Historical File 636

A DIVISION OF CALIFORNIA OIL COMPANY
P. O. BOX 1249 • HOUSTON 1, TEXAS

1962 FEB 22 PM 1:23

February 21, 1962

Case 2497

Oil Conservation Commission
State Land Office Building
College Avenue
Santa Fe, New Mexico

Gentlemen:

The application of Amerada Petroleum Corporation for a waterflood project in the Langlie-Mattix Pool, Lea County, New Mexico, Case 2497, has been scheduled for the February 27, 1962, Examiner Hearing.

The Applicant seeks permission to institute a waterflood project in the Langlie-Mattix Pool in Sections 27, 28, 33, and 34, Township 24 South, Range 37 East, Lea County, New Mexico.

Standard Oil Company of Texas, a Division of California Oil Company, a working interest owner in the area of the proposed project, concurs in the application and recommendations of Amerada Petroleum Corporation in the aforementioned case.

Yours very truly,

C. N. Segnar
C. N. Segnar
Chief Engineer

RIMc:ja

cc: Mr. Jason W. Kellahin
Kellahin and Fox
P. O. Box 1713
Santa Fe, New Mexico

mm

HUMBLE OIL & REFINING COMPANY

MIDLAND, TEXAS

HEAD OFFICE DCC

MIDLAND AREA

February 20, 1962

1962 FEB 24 11:44 AM POST OFFICE BOX 1600

PRODUCTION DEPARTMENT

R. R. McCARTY
MANAGER

H. L. HENSLEY
J. M. SHEPHERD
OPERATIONS SUPERINTENDENTS

H. E. MEADOWS
ENGINEERING COORDINATOR

10-2

Langlie-Mattix Pool
Waterflood Project
Lea County, New Mexico

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

In regard to Case 2497 scheduled for hearing on February 27, 1962, Humble wishes to express its support of Amerada Petroleum Corporation's application for a Langlie-Mattix Pool waterflood project in Lea County, New Mexico. The Commission is urged to approve the project and the Unit Agreement which will also be presented at the hearing.

Very truly yours,

HUMBLE OIL & REFINING COMPANY

R. R. McCARTY


BY: H. E. Meadows

HPB/jn

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION

TELEGRAM

W. P. MARSHALL, PRESIDENT

- SYMBOLS

DL = Day Letter

NL = Night Letter

LT = International Letter Telegram

1962 FEB 26 AM 10:51

1201 (4-60)

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

LA041 KB047

K TUA217 PD=TULSA OK 1962 FEB 26 AM 10:51 CST=

A L PORTER JR=

SECRETARY DIRECTOR NEWMEXICO OIL CONSERVATION

COMMITTEE CONFERENCE ROOM LAND OFFICE BLDG SANTAFE NMEX=

SCHERMERHORN OIL CORP AND KENWOOD OIL CO STRONGLY

SUPPORT AMERADA PETROLEUM APPLICATION FOR LANGLIE

MATTIX WOOLWORTH UNIT CASE NUMBER 2497=

F M HAMNER SCHERMEHORN OIL CORP

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

1201 (4-60)

SYMBOLS

DL=Day Letter

NL=Night Letter

LT=International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

LA124 DA306

1962 FEB 26 PM 2 19

D LLG195 PD=FAX DALLAS TEX 26 305P CST=

NEW MEX CO OIL CONSERVATION COMMISSION,

MAIN OFFICE OCC
2
1962 FEB 26 PM 2:34

STATE LAND OFFICE BLDG= COLLEGE AVE

SANTA FE NMEX=

REFERENCE TO CASE NO. 2497 TO BE HEARD FEBRUARY

2 PLEASE BE ADVISED THAT DELHI TAYLOR OIL CORPORATION AS A WORKING INTEREST PARTICIPANT SUPPORTS THE APPLICATION OF AMERADA PETROLEUM CORPORATION FOR APPROVAL OF THE LANCLIE MATTIX WOOLWORTH UNIT AND FOR CONDUCTING PILOT WATERFLOOD OPERATIONS WITHIN SUBJECT UNIT=

pm

J H DOUGHMAN MANAGER PRODUCTION DEPT.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

10-1-61

Ex. No. 4

ENGINEERING SUMMARY
AND
INITIAL PLAN OF OPERATION
LANGLIE MATTIX WOOLWORTH UNIT
LEA COUNTY, NEW MEXICO

October 1, 1961

INTRODUCTION

The proposed Langlie Mattix Woolworth Unit consists of Sections 27, 28, 33 and 34 of Township 24 South, Range 3⁷ East, Lea County, New Mexico. Efforts to form the Unit were instigated after it became apparent that a cooperative flood was impractical and, since very little reservoir data was available, a pilot flood was needed to insure the success of the project. A base map of the Unit is attached as Figure I and the participation by tracts is shown in Table I.

The Unit lies on the west flank of a northwest-trending anticlinal feature with production being obtained from the Seven Rivers and Queen formations. The productive sands wedge out up dip forming stratigraphic traps. Production is also controlled by porosity and permeability development, as well as gas-oil and water-oil contacts.

Wells in the Unit are approaching the economic limit with the average well now having a productivity of about six barrels per day. Cumulative production is about 83,000 barrels per well, and the gas-oil ratio has declined to about 2,800 to 1. Water production has always been quite small.

Initial plans call for the pilot flood to consist of two 80-acre five spots and for the program to be conducted immediately after unitization. As soon as the pilot indicates that waterflooding will be a success, the flood will be expanded to full scale development.

DISCUSSION

Geology

The Woolworth Unit lies on the west flank of a northwest-trending anticlinal feature. Along the feature, at least three zones, the Yates, Seven Rivers and Queen, are productive in the Langlie Mattix field. Within the Unit area, only the Lower Seven Rivers and Queen are oil productive. The Yates zone lies above the gas-oil contact and is included in the Jalmat Gas Pool. Only the Langlie Mattix interval, which is defined by the New Mexico Conservation Commission as the lower 100 feet of the Seven Rivers formation and all of the Queen formation, is to be unitized. The Queen formation contains two productive sands which have been termed the Upper Queen and the Penrose.

None of the reservoir sandstones are continuous across the structure but wedge out up-dip forming stratigraphic traps. Production is also controlled by porosity and permeability development, as well as a gas-oil contact estimated at -150 feet and a water-oil contact estimated at -350 feet.

The dip of the Langlie Mattix formations within the Unit area is shown by the structure map attached as Figure II. The effects of the dip are shown by Figures III and IV. Figure III is an idealized west-east cross section across the Unit revealing that all three sand sections are not productive throughout the Unit area but are limited by the gas-oil and water-oil contacts. The productive limits of the three zones is shown on Figure IV. It may be noted that only about

one-fourth of the Unit area is productive from all three zones and that cumulative production from this area indicates it to be of better quality.

Only one well was cored through the Langlie Mattix formations. This well, Phillips Petroleum Company's M. C. Woolworth No. 8, was completed July 7, 1939 and was cored from 3,416 feet to 3,565 feet. Only 132 feet of the 149 feet cored were recovered. Almost all of the core lost is believed to be sand which could be productive. Analysis of the core obtained revealed 14.8 feet of net pay with a porosity of 12.1 per cent and a permeability of 8.7 md.

Well Completion and Performance

Most of the wells in the Woolworth Unit were drilled between 1934 and 1940. The Unit was fully developed on 40-acre spacing, however several wells have been plugged and abandoned and others have been plugged back to the Jalmat Gas Zone. On completion, the wells were bottomed near the water-oil contact estimated at -350 feet and completed in open hole. The wells were shot with nitroglycerin and received very little other treatment until 1955 when a concentrated frac program was initiated. Success of the frac treatments is shown on the production curve attached as Figure V.

Cumulative production from the Unit area to January 1, 1961 amounts to 5,329,731 barrels, or about 83,000 barrels per well. During the first quarter of 1961, well test of forty-four wells in the Unit (Table II) indicated a producing capacity of 282 barrels per day or

about 6.4 barrels per well. Actual production during December, 1960, however, was only 207 barrels per day. Very little water has been produced from wells within the Unit, and no well produced a significant amount of water before being fraced. Currently, there are twelve wells producing a total of about 62 barrels of water per day. Gas production, though in the past was quite large, has declined until only two wells have gas-oil ratios in excess of the 10,000 to 1 penalty. The weighted average gas-oil ratio is now about 2,875 to 1.

Future Recovery

As is typical with most old fields, very little data is available on the Langlie Mattix field from which to make an estimate of oil recovery by waterflooding. The success of projects in fields of similar history, however, has led to the belief that the Langlie Mattix formations may be successfully flooded. Experience has indicated that waterflood projects similar to the Woolworth Unit may recover additional oil equal to 50 to 100 per cent of the primary recovery. A minimum of 2,750,000 barrels of secondary oil could thus be expected from the Unit.

Initial Plan of Operation

Since sufficient reservoir data is not available to adequately evaluate waterflood susceptibility in the Woolworth area, it is planned to conduct a pilot flood. The pilot will consist of two 80-acre five spots as shown in Figure VI and will be located where all

three pay sands may be evaluated. The injection wells for the pilot will be Amerada's Johnson 1 and ⁴/₇, Humble's Williams 4, Schermerhorn's Woolworth 2 and 7 and a new well to be drilled near Schermerhorn's Woolworth 3. Cores through the Langlie Mattix interval will be obtained from the injection well to be drilled in order to evaluate reservoir data such as porosity, permeability, saturations and susceptibility to flooding. The core data will also aid in determining the quantities of water to be injected.

The pilot program will be expanded to full scale flooding as soon as the pilot indicates the project will be a success. As shown on Figure VI, four injection wells and four producing wells will be drilled. Eighteen closed five-spots will be developed on the Unit, and it is anticipated that line agreements with offset operators will complete additional five-spots.

Water Supply

Three sources of water supply, Permian reef water from west of the Unit, San Andres water from approximately 4,000 feet and Santa Rosa water from approximately 500 feet were considered for injection. The cost of transporting reef water to the Unit area plus the uncertainty of future supply makes that course undesirable. The cost of developing San Andres and Santa Rosa water are about the same. The comparative freshness of Santa Rosa water, however, makes it less desirable than San Andres water. The need for core data through the Langlie Mattix horizon also makes the San Andres supply more desirable. Tentative plans call for the drilling of a San Andres water supply well near the pilot and located so that all three of the Langlie Mattix sands may be cored.

IDEALIZED WEST-EAST CROSS SECTION PROPOSED LANGLEIE MATTIX UNIT LEA COUNTY, NEW MEXICO

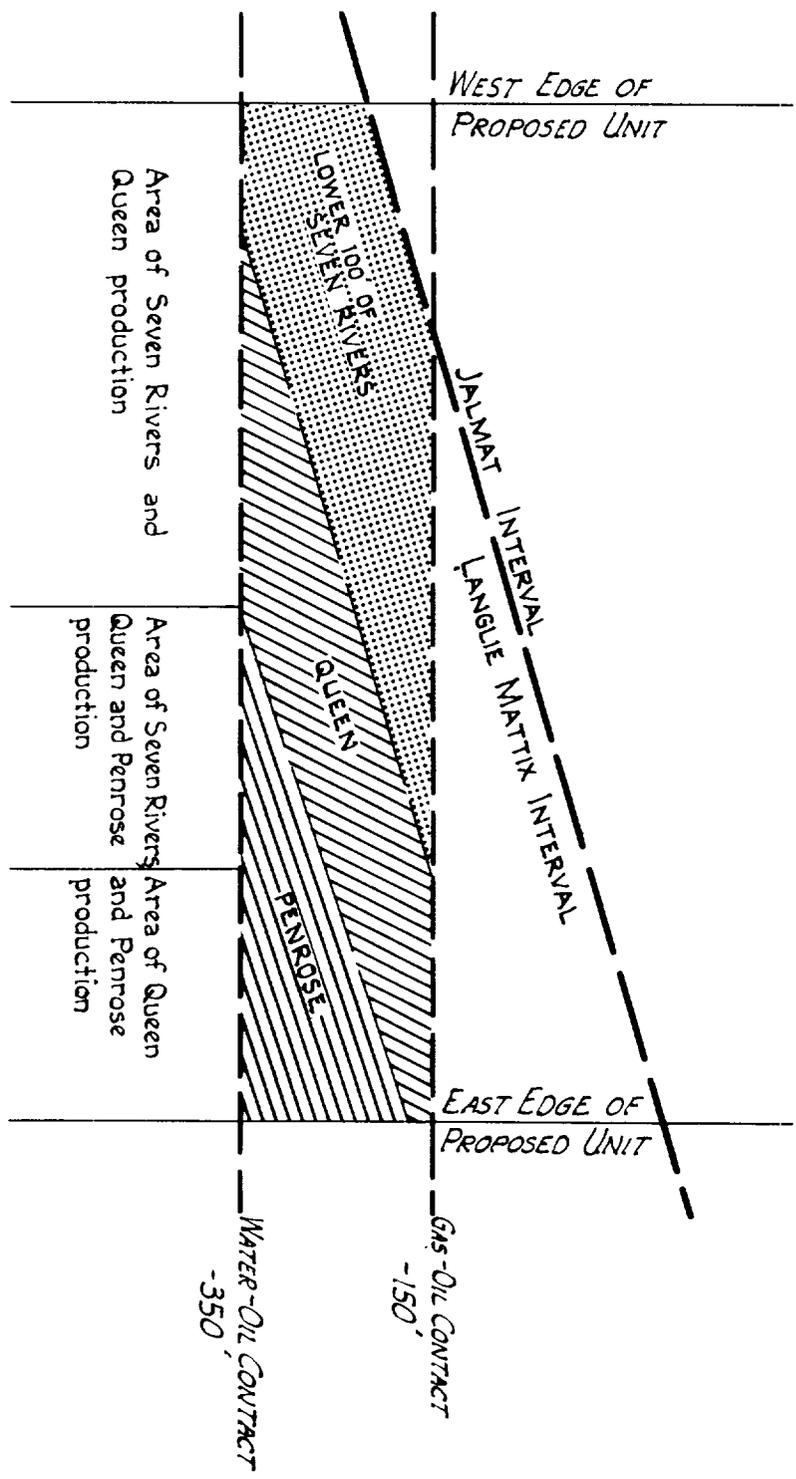
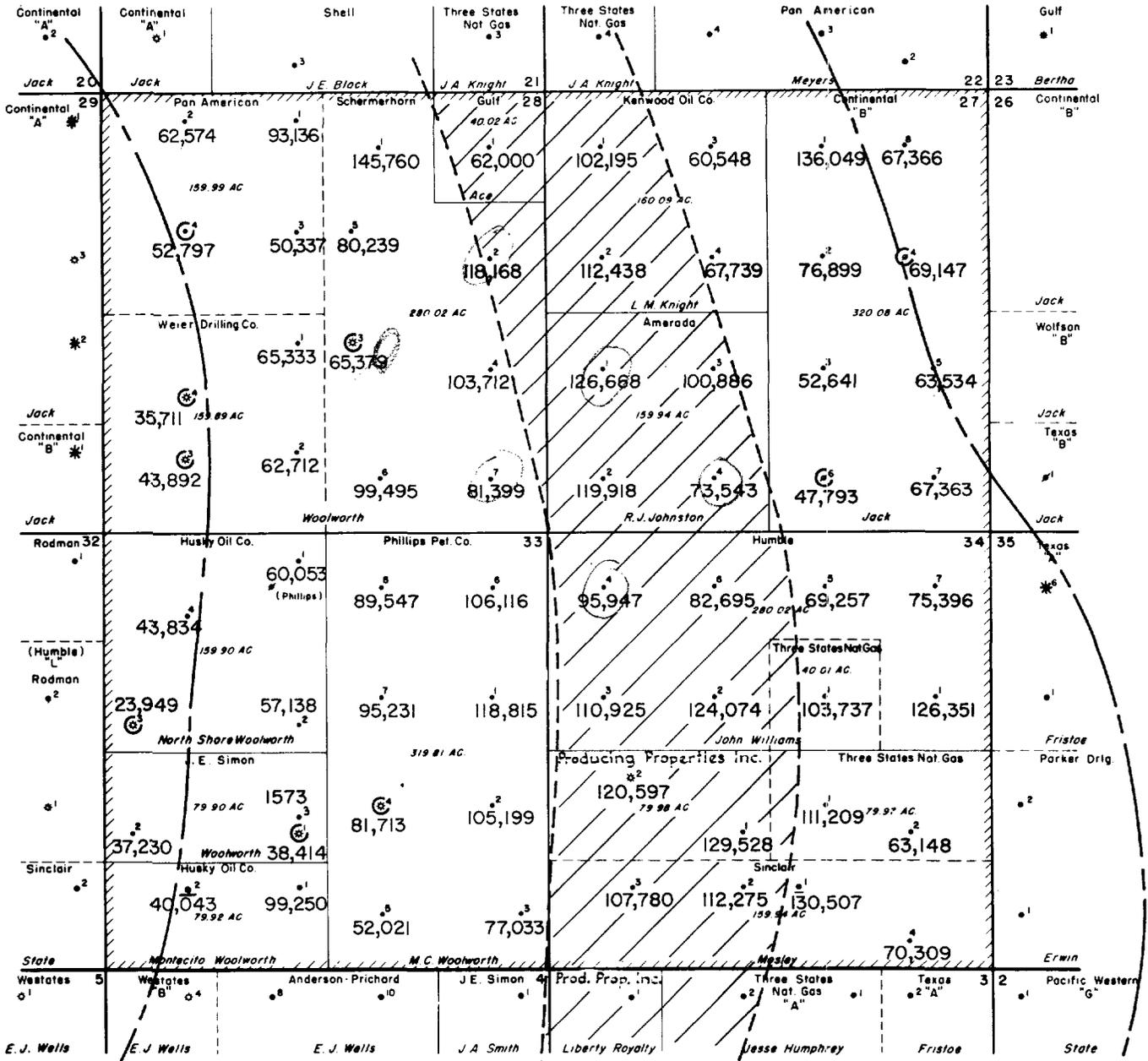


FIGURE III

R - 37 - E

T
24
S

T
24
S



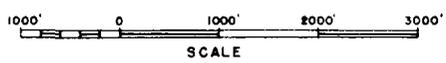
QUEEN
LOWER LIMIT

PENROSE
LOWER LIMIT

SEVEN RIVERS
UPPER LIMIT

QUEEN
UPPER LIMIT

LANGLIE MATTIX FIELD



LEGEND

- ☆ JALMAT GAS WELL
- ★ GAS WELL IN LANGLIE MATTIX POOL
- OIL WELL
- ⊙ DUAL COMPLETION
- UNIT BOUNDARY
- ⊙ WELL NOT USABLE IN FLOODING
- 68,266 CUMULATIVE PRODUCTION TO 1-1-61
- ▨ AREA OF SEVEN RIVERS, QUEEN, AND PENROSE PRODUCTION

LANGLIE MATTIX WATER
FLOOD UNIT
FIGURE IV

AVERAGE MONTHLY OIL PRODUCTION, BBLs.

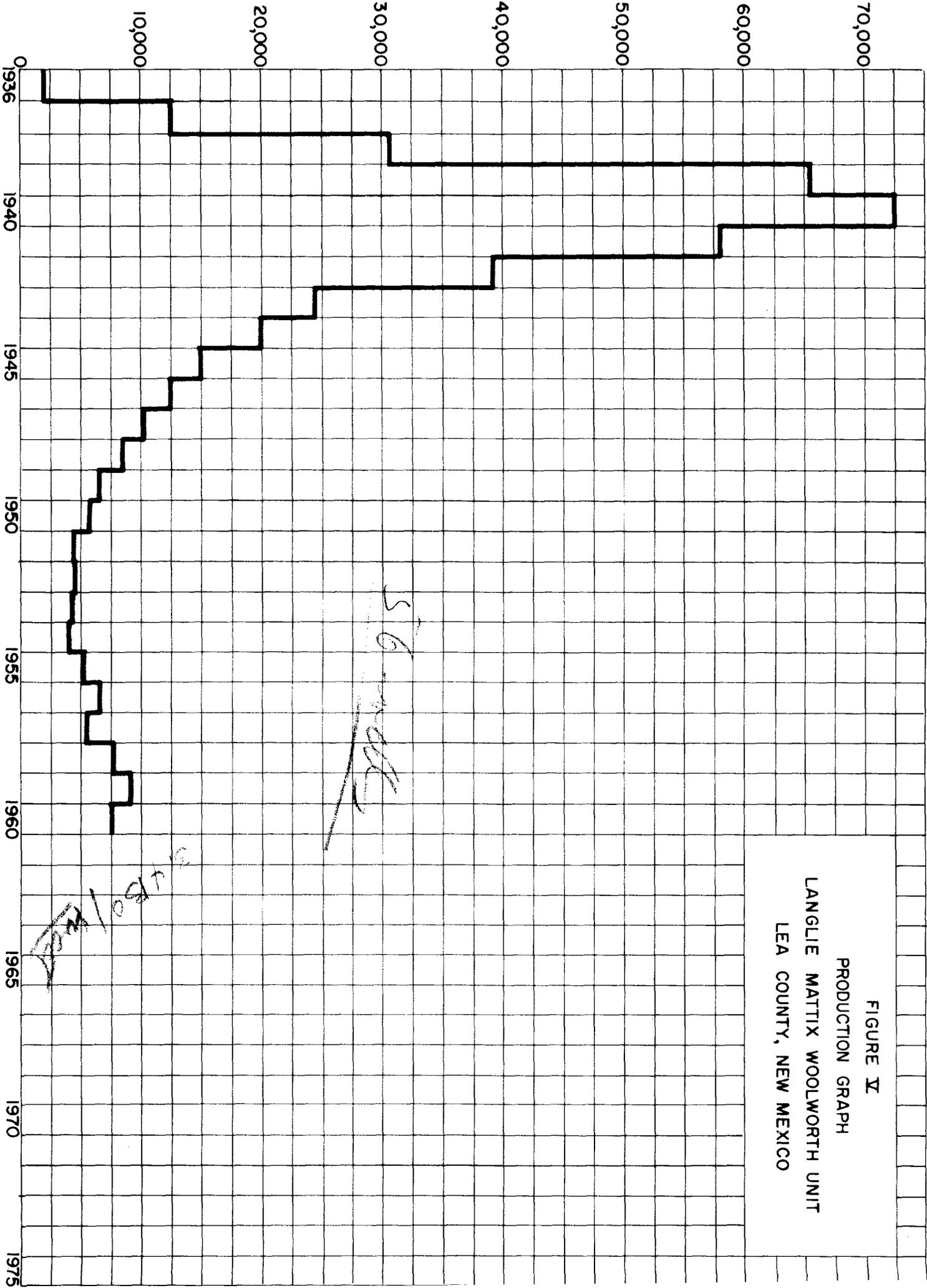
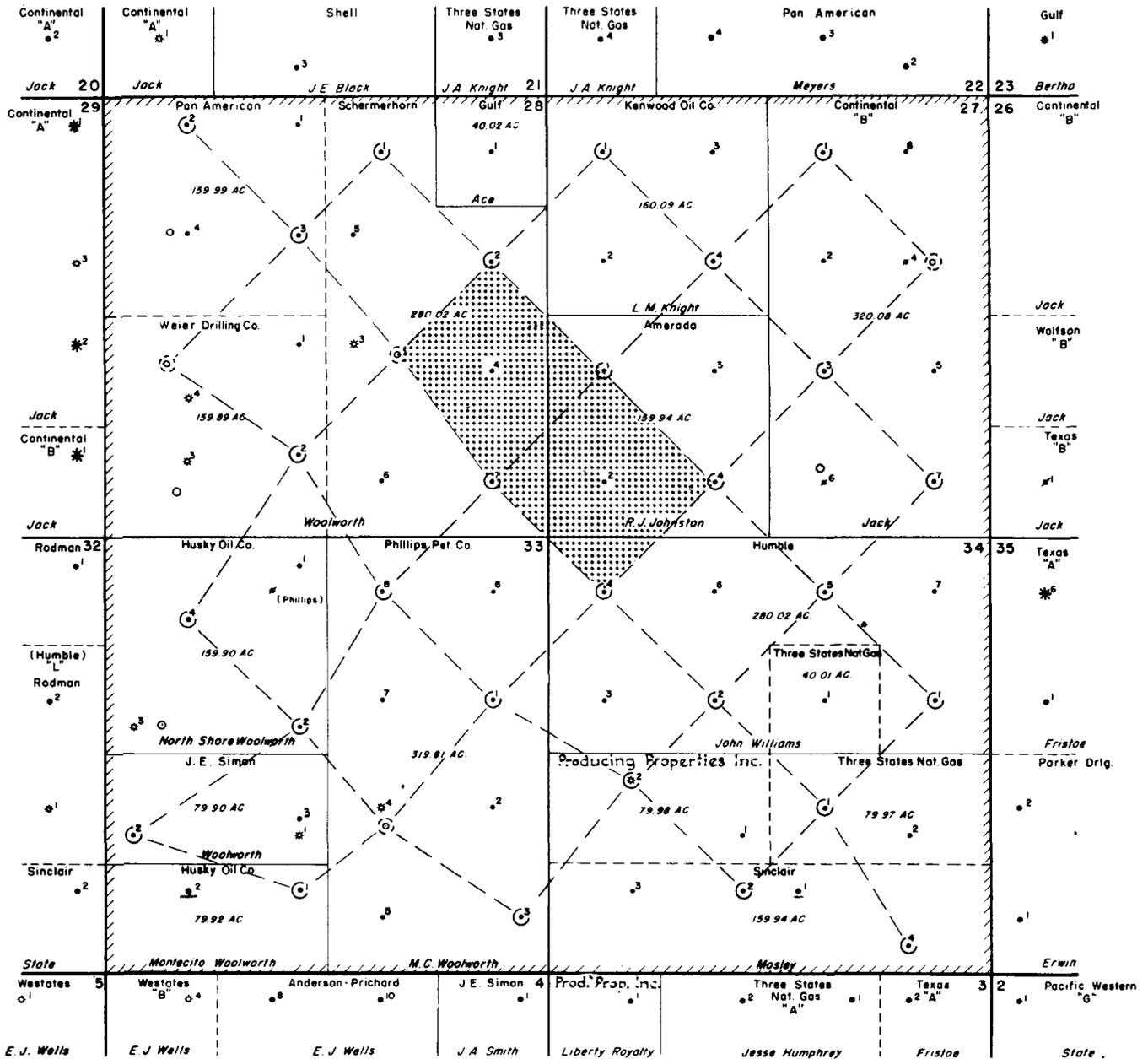


FIGURE IV
PRODUCTION GRAPH
LANGLIE MATTIX WOOLWORTH UNIT
LEA COUNTY, NEW MEXICO

56 months

34,150 / month



80 ACRE PILOT & DEVELOPMENT

LANGLIE MATTIX FIELD



LEGEND

- ☆ JALMAT GAS WELL
- ★ GAS WELL IN LANGLIE MATTIX POOL
- OIL WELL
- ⊙ DUAL COMPLETION
- UNIT BOUNDARY
- ⊙ INJECTION WELL
- ⊙ INJECTION WELL TO BE DRILLED
- PRODUCING WELL TO BE DRILLED
- ▨ PILOT FLOOD

18 Closed 5-Spots
 To Be Drilled :
 4 Injection Wells
 4 Producing Wells

LANGLIE MATTIX WATER FLOOD UNIT

FIGURE VI

TABLE I
LANGFLE MARTIX WOOLWORTH UNIT
PARTICIPATION BY TRACTS

| Tract No. | Operator | Lease | Acres | Percent Acreage | Usable Wells | Percent Usable Wells | Cumulative Production 11-30-59 | Percent Cum. Production To 11-30-59 | Production 6-1-59 to 11-30-59 | Percent Prod. 6-1-59 to 11-30-59 | Initial Participation | Final Participation |
|-----------|-----------------|----------------|----------------|------------------|--------------|----------------------|--------------------------------|-------------------------------------|-------------------------------|----------------------------------|-----------------------|---------------------|
| 6 | Amerada | Johnson | 159.94 | 6.24993 | 4 | 7.14286 | 411,068 | 7.85821 | 5,279 | 9.05846 | 7.87718 | 7.08333 |
| 7 | Continental | Jack B-27 | 320.08 | 12.50566 | 6 | 10.71428 | 575,796 | 11.00724 | 2,405 | 4.12684 | 7.86840 | 11.40905 |
| 4 | Gulf | Ace | 40.02 | 1.56360 | 1 | 1.78571 | 61,809 | 1.18158 | 91 | 0.15615 | 0.91540 | 1.51030 |
| 12 | Humble | Williams | 280.02 | 10.94050 | 7 | 12.50000 | 664,194 | 12.69711 | 12,818 | 21.99495 | 16.85760 | 12.04587 |
| 10 | Husky | M. Woolworth | 79.92 | 3.12251 | 2 | 3.57143 | 128,913 | 2.46437 | 6,321 | 10.84647 | 7.09672 | 3.05277 |
| 8 | Husky | N.S. Woolworth | 159.90 | 6.24736 | 3 | 5.35714 | 179,701 | 3.43527 | 2,953 | 5.06718 | 5.43472 | 5.01326 |
| 5 | Kenwood | Knight | 160.09 | 6.25479 | 4 | 7.14286 | 339,203 | 6.48439 | 2,184 | 3.74762 | 5.22322 | 6.62735 |
| 1 | Pan American | Woolworth | 159.99 | 6.25088 | 3 | 5.35714 | 254,364 | 4.86256 | 2,675 | 4.59015 | 5.19708 | 5.49019 |
| 11 | Phillips | Woolworth | 319.81 | 12.49512 | 7 | 12.50000 | 707,994 | 13.53441 | 11,723 | 20.11600 | 16.30678 | 12.84318 |
| 14 | Producing Prop. | Moseley | 79.98 | 3.12485 | 2 | 3.57143 | 249,239 | 4.76459 | 484 | 0.83052 | 2.08933 | 3.82028 |
| 3 | Schermerhorn | Woolworth | 280.02 | 10.94050 | 6 | 10.71429 | 688,694 | 13.16546 | 3,824 | 6.56177 | 8.69458 | 11.60675 |
| 9 | Simon | Woolworth | 79.90 | 3.12173 | 2 | 3.57143 | 75,353 | 1.44049 | 1,032 | 1.77085 | 2.55873 | 2.71122 |
| 16 | Sinclair | Moseley | 159.94 | 6.24893 | 4 | 7.14286 | 412,354 | 7.88279 | 4,814 | 8.26055 | 7.47822 | 7.09153 |
| 15 | Three States | Moseley | 79.97 | 3.12446 | 2 | 3.57143 | 173,548 | 3.31764 | 467 | 0.80134 | 2.07464 | 3.33784 |
| 13 | Three States | Williams | 40.01 | 1.56321 | 1 | 1.78571 | 103,102 | 1.97096 | 299 | 0.51307 | 1.09376 | 1.77330 |
| 2 | Weler | Woolworth | 159.89 | 6.24697 | 2 | 3.57143 | 205,734 | 3.93293 | 908 | 1.55808 | 3.23364 | 4.58378 |
| | | | <u>2559.48</u> | <u>100.00000</u> | <u>56</u> | <u>100.00000</u> | <u>5,231,066</u> | <u>100.00000</u> | <u>58,277</u> | <u>100.00000</u> | <u>100.00000</u> | <u>100.00000</u> |

TABLE II

WELL TEST DATA

LANGLIE MATTIX WOOLWORTH UNIT

| <u>OPERATOR</u> <u>LEASE AND WELL</u> | | <u>OIL</u> <u>BARRELS</u> | <u>WATER</u> <u>BARRELS</u> | <u>GAS</u> <u>MCF</u> | <u>GOR</u> |
|--|---|------------------------------|--------------------------------|--------------------------|------------|
| <u>AMERADA</u> | | | | | |
| R. J. Johnson | 1 | 6 | Tr. | 20 | 3,630 |
| | 2 | 10 | Tr. | 30 | 3,150 |
| | 3 | 8 | Tr. | 24 | 3,229 |
| | 4 | 5 | Tr. | 24 | 5,048 |
| <u>CONTINENTAL</u> | | | | | |
| Jack "B-27" | 1 | 7 | 3 | 9.66 | 1,380 |
| | 5 | 9 | 2 | 5.59 | 621 |
| | 7 | 2.3 | 0 | 6.59 | 2,865 |
| | 8 | 1 | 0 | 1.52 | 1,520 |
| <u>HUMBLE</u> | | | | | |
| John Williams | 1 | 6 | 0 | 92 | 15,333 |
| | 2 | 1 | 0 | 11 | 9,310 |
| | 3 | 5 | 0 | 20 | 4,000 |
| | 4 | 24 | 0 | 84 | 3,500 |
| | 5 | 7 | 0 | 33 | 4,714 |
| | 6 | 4 | 0 | 17 | 4,250 |
| | 7 | 2 | 0 | 5 | 2,275 |
| <u>HUSKY</u> | | | | | |
| M. Woolworth | 1 | 25 | 3 | 38 | 1,525 |
| | 2 | 8 | 10 | 14 | 1,780 |
| N.S. Woolworth | 4 | 15 | 4 | 36 | 2,368 |
| <u>KENWOOD</u> | | | | | |
| L. M. Knight | 1 | 3 | 0 | 2.5 | 840 |
| | 2 | 3 | 0 | 2.7 | 920 |
| | 3 | 5 | 0 | 4 | 800 |
| | 4 | 5 | 0 | 4.9 | 980 |
| <u>PAN AMERICAN</u> | | | | | |
| Woolworth | 1 | 11 | 4.13 | 2 | 182 |
| | 4 | 5 | 0 | 7 | 1,400 |

LANGLIE MATTIX
WOOLWORTH UNIT

WELL TEST DATA

PAGE 2

| <u>OPERATOR</u> <u>LEASE AND WELL</u> | | <u>OIL</u> <u>BARRELS</u> | <u>WATER</u> <u>BARRELS</u> | <u>GAS</u> <u>MCF</u> | <u>GOR</u> |
|--|---|------------------------------|--------------------------------|--------------------------|------------|
| <u>PHILLIPS</u> | | | | | |
| Woolworth | 1 | 5 | 15 | TSTM | |
| | 2 | 13 | 8 | 22.3 | 1,715 |
| | 3 | 6 | 7 | 16.64 | 2,773 |
| | 5 | 6 | 2 | 3.5 | 583 |
| | 6 | 5 | 2 | 4.14 | 828 |
| | 7 | 6 | 0 | 10.13 | 1,688 |
| | 8 | 7 | 0 | 8.79 | 1,256 |
| <u>SCHERMERHORN</u> | | | | | |
| Woolworth | 1 | 4 | 0 | 4.2 | 1,060 |
| | 2 | 4 | 0 | 3.6 | 900 |
| | 4 | 4 | 0 | 5.6 | 1,410 |
| | 5 | 3 | 0 | 2.5 | 860 |
| | 6 | 4 | 0 | 5 | 1,280 |
| | 7 | 4 | 0 | 3.6 | 920 |
| <u>SIMON</u> | | | | | |
| Woolworth | 3 | 4 | 0 | 4.7 | 1,175 |
| <u>SINCLAIR</u> | | | | | |
| Moseley | 1 | 8 | 0 | 71 | 8,875 |
| | 2 | 7 | 0 | 50 | 7,143 |
| | 3 | 8 | 0 | 45 | 5,625 |
| <u>PRODUCING PROPERTIES</u> | | | | | |
| Moseley | 1 | 3 | 2 | 17 | 5,667 |
| <u>THREE STATES</u> | | | | | |
| Moseley | 1 | 1.35 | 0 | 16.22 | 1,217 |
| Williams | 1 | 2.07 | 0 | 22.9 | 11,101 |

CASING PROGRAM
 PROPOSED INJECTION WELLS
 LANGLIE MATTHEY WOOLWORTH UNIT

| <u>Operator</u> | <u>Well</u> | <u>Location</u> | <u>Size</u> | <u>Casing</u> | <u>Depth</u> | <u>Cement</u> |
|-----------------|----------------------|---------------------------|-------------|---------------|---------------|---------------|
| Amerada | H. J. Johnston No. 1 | NW/4 SW/4 Sec. 27-24S-37E | 10 3/4" | 7" | 439' | 300 sx. |
| Amerada | R. J. Johnston No. 4 | SE/4 SW/4 Sec. 27-24S-37E | 8 5/8" | 5 1/2" | 3266' | 250 sx. |
| Humble | John Williams No. 4 | NW/4 NW/4 Sec. 34-24S-37E | 9 5/8" | 7" | 421' | 250 sx. |
| Schermerhorn | Woolworth No. 2 | SE/4 NE/4 Sec. 28-24S-37E | 13" | 5" | 3254 to 3530' | * ? |
| Schermerhorn | Woolworth No. 7 | SE/4 SE/4 Sec. 28-24S-37E | 13" | 8 5/8" | 1411' | 100 sx. |
| | | | | 7" | 3238' | 200 sx. |
| | | | | 5 1/2" | 1428' | 150 sx. |
| | | | | | 3273' | 100 sx. |

Case No. 2497
 Ex. No. 6