FOSSIL ENERGY

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Vol. 1, Part 4

TARGET RESERVOIRS FOR CO_2 MISCIBLE FLOODING
TASK TWO: SUMMARY OF AVAILABLE RESERVOIR AND GEOLOGICAL DATA

Task Two Final Report

Vol. 1: Permian Basin Geological and Reservoir Data
Part 4: OCEANIC - Pennsylvania through YATES - Yates Lime

Work Performed for the Department of Energy
Under Contract No. DE-AC21-79MC08341

Date Published—October 1981

Gruy Federal, Inc.
Houston, Texas

Bartlesville Project Office
U. S. DEPARTMENT OF ENERGY
Bartlesville, Oklahoma

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UNITED STATES DEPARTMENT OF ENERGY

CONTENTS

	Page
Abstract	vi
Data Presentation	1
OCEANIC - Pennsylvanian, Texas	11
OCHO JUAN - Canyon Reef, Texas	13
OWNBY - San Andres, Texas	18
PAGE - Strawn-Canyon Reef, Texas	23
PARKS - Pennsylvanian, Texas	30
PAROCHIAL-BADE - Clear Fork, Texas	35
PEARL - San Andres, New Mexico	38
PECOS VALLEY - Lower Permian, Texas	40
PECOS VALLEY - Devonian, Texas	47
PEGASUS - Pennsylvanian-Bend, Texas	50
PENWELL - San Andres, Texas	57
P.H.D. - Glorieta, Texas	60
PRIEST & BEAVERS - Queen, Texas	63
QUINDUNO - Albany Dolomite, Lower, Texas	68
REEVES - San Andres, Texas	70
REINECKE - Cisco, Texas	78
REVILO - Glorieta, Texas	83
RILEY, NORTH - Clear Fork - "North Riley Unit", Texas	86
ROBERTSON, NORTH - Clear Fork, Texas	90
ROCKER -A-, San Andres, Texas	94
ROCKER -A-, Glorieta, Texas	99
ROPES - Canyon Reef, Texas	101
ROUNDTOP - Palo Pinto Reef, Texas	105

CONTENTS (continued)

	Page
RUSSELL - Glorieta, Texas	110
RUSSELL - Clear Fork, Texas	112
RUSSELL, NORTH - Devonian, Texas	117
SABLE - San Andres, Texas	120
SALT CREEK - Canyon Reef, Texas	123
SAND HILLS - Tubb, Texas	129
SCARBOROUGH - Yates and Seven Rivers, Texas	132
SEMINOLE - San Andres, Texas	135
SEMINOLE, EAST - San Andres, Texas	140
SEMINOLE, WEST - San Andres, Texas	143
SHACKELFORD, N.E. - Mississippian, Texas	148
SHAFTER LAKE - San Andres, Texas	152
SHAFTER LAKE - Wolfcamp, Texas	163
SKAGGS - Grayburg-Queen; Grayburg, Texas	166
SLAUGHTER - San Andres, Texas	170
SUNILAND - Lower San Andres, Texas	190
SQUARE LAKE - Grayburg-San Andres, New Mexico	192
SUSAN PEAK - Cisco-Canyon, Texas	195
TEX-HAMON - Silurian-Fusselman, Texas	200
THREE BAR - Devonian, Texas	205
TODD-DEEP - Crinoidal-Strawn, Texas	208
TODD-DEEP - Ellenburger, Texas	211
TOWNSEND - Wolfcamp, New Mexico	213
TUBB - Tubb, New Mexico	217

CONTENTS (continued)

	Page
TWIN - Des Moines, Texas	219
TWIN - Morrow, Texas	221
TXL - Tubb, Texas	224
TXL - Ellenburger, Texas	227
UNIVERSITY-BLOCK 9 - Wolfcamp, Texas	239
UNIVERSITY-BLOCK 9 - Pennsylvanian, Texas	243
VACUUM - Grayburg-San Andres, New Mexico	246
VADA - Pennsylvanian-Bough C, New Mexico	250
VEALMOOR - Canyon Reef, Texas	254
VEALMOOR, EAST - Canyon Reef, Texas	256
VEALMOOR, EAST - Cisco-Wolfcamp Reef, Texas	259
VON ROEDER - Canyon Reef, Texas	263
WADDELL - San Andres, Texas	267
WASSON - San Andres, Texas	270
WASSON 72 - Clear Fork 7200, Texas	287
WASSON, NE - Clear Fork, Texas	289
WELCH - San Andres, Texas	291
WELLMAN - Wolfcamp Reef, Texas	294
WORLD, WEST - Strawn, Texas	298
YARBROUGH & ALLEN - Devonian, Texas	302
YARBROUGH & ALLEN - Ellenburger, Texas	305
YATES - Yates Lime, Texas	308

ILLUSTRATIONS

	Page
Table 1	2
Figure 1	4
Figure 2	5
Exhibit 1	6

ABSTRACT

This report describes work performed by Gruy Federal, Inc. as the second of six tasks under contract no. DE-AC21-79MC08341 with the U.S. Department of Energy. The stated objective of the study is to build a solid engineering foundation to serve as the basis for field mini- and pilot tests in both high and low oil saturation carbonate reservoirs for the purpose of extending the technology base in carbon dioxide miscible flooding.

The six tasks in this study are as follows:

I. Summary of available CO_2 field test data
II. Summary of existing reservoir and geological data
III. Selection of target reservoirs
IV. Selection of specific reservoirs for CO_2 injection tests
V. Selection of specific sites for test wells in carbonate reservoirs
VI. Drilling and coring activities.

This report for Task Two consists of a summary of existing reservoir and geological data on carbonate reservoirs located in west Texas, southeast New Mexico, and the Rocky Mountain states and is contained in two volumes, each with several parts. This volume, in four parts, is a summary of reservoir data for fields in the Permian basin of west Texas and southeast New Mexico. Volume two contains data for fields in sedimentary basins in the Rocky Mountain states.

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DATA PRESENTATION

Data Source Code

Each field summary contains data from numerous sources; hence, a data source code (defined in Table 1) is used to identify each source of information. Frequently, for a given data item, such as DISCOVERY YEAR in the following example, the data reported by different sources differ. On the field summary data sheets, we show each source of data in the following manner:

2,3,1 DISCOVERY YEAR: 3-1950, 6-1949, 1949

In this example, 2 indicates that the Texas Railroad Commission Enhanced Oil Recovery Projects Report (1-1978) shows the discovery month and year to be 3-1950; 3 indicates that the Texas Railroad Commission Annual Report (1-1980) shows the discovery month and year to be 6-1949; and 1 indicates that the Petroleum Data System TEXS data file shows the discovery year to be 1949. When two sources of information agree on a data item, this is shown in the following manner:

2,3, STOCK TANK OIL GRAVITY (°API) 40

Figure 1, Divisions and Boundaries of the Permian Basin, shows sub-basin boundaries used in this report. Figure 2 is a composite correlation chart for the Permian basin. Exhibit I contains a Texas Railroad Commission District Map.

Explanation of Terms and Abbreviations

For the Permian basin of west Texas and southeast New Mexico, we have adopted the definitions and terms used by the Texas Railroad Commission for enhanced recovery projects, shown in Exhibit 1. One additional abbreviation is used on the secondary recovery projects data sheet: an abbreviation for portion (P), field-wide (FW), or field-wide by summing acreage in all projects (FW/P). We use the term "portion" to describe secondary or enhanced projects that are less than half the reservoir acreage as stated by that project's operator.

TABLE 1

DATA SOURCE CODE FOR TEXAS AND NEW MEXICO FIELDS

CODE	SOURCE OF INFORMATION
0	NOT DETERMINED
1	PETROLEUM DATA SYSTEM TEXS OR OILY DATA BASES
2	TEXAS RAILROAD COMMISSSION ENHANCED OIL RECOVERY PROJECTS REPORT (1-1978)
3	TEXAS RAILROAD COMMISSION ANNUAL REPORT (1-1980)
4a	TEXAS WATER DEVELOPMENT BOARD REPORT 157, A SURVEY OF THE SUBSURFACE SALINE WATER OF TEXAS (1972)
4b	OIL SCOUTS REPORT (1977-78)
5	OIL & GAS FIELDS IN WEST TEXAS - A SYMPOSIUM (1956 & 1965) and ABILENE GEOLOGICAL SOCIETY (1952, 1954, 1956, 1960, 1976) and PANHANDLE GEOLOGICAL SOCIETY, GENERAL INFORMATION
5a	OIL & GAS FIELDS IN WEST TEXAS - A SYMPOSIUM, West Texas Geological Society Pub. No. 66-52 (1966)
5b	OIL & GAS FIELDS IN WEST TEXAS - A SYMPOSIUM, West Texas Geological Society Pub. No. 69-57 (1969)
5c	ABILENE GEOLOGICAL SOCIETY, GEOLOGICAL CONTRIBUTIONS 1952, Monroe G. Cheney Memorial Volume
5d	ABILENE GEOLOGICAL SOCIETY, GEOLOGICAL CONTRIBUTIONS 1954
5e	ABILENE GEOLOGICAL SOCIETY, GEOLOGICAL CONTRIBUTIONS 1956
5f	ABILENE GEOLOGICAL SOCIETY, GEOLOGICAL CONTRIBUTIONS 1960
5g	ABILENE GEOLOGICAL SOCIETY, GEOLOGICAL CONTRIBUTIONS 1976
6	ROSWELL (NEW MEXICO) GEOLOGICAL SOCIETY, SYMPOSIUM OF OIL AND GAS FIELDS OF SOUTHEASTERN NEW MEXICO, 1956, 1960, 1967 1977 GENERAL INFORMATION
6a	A SYMPOSIUM OF OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO. 1956, Roswell Geological Society
6b	A SYMPOSIUM OF OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO. 1960, Roswell Geological Society
6c	A SYMPOSIUM OF OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO. 1967, Roswell Geological Society
6d	THE OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO, 1977 SUPPLEMENT, Roswell Geological Society
7	Landes, K.S., 1970, PETROLEUM GEOLOGY OF THE UNITED STATES: John Wiley & Sons, New York, New York.
8a	LEXICON OF PERMIAN STRATIGRAPHIC NAMES OF WEST TEXAS AND SOUTHEASTERN NEW MEXICO, 1976, West Texas Geological Society
8b	LEXICON OF PRE-PENNSYLVANIAN STRATIGRAPHIC NAMES OF WEST TEXAS AND SOUTHEASTERN NEW MEXICO, 1958, West Texas Geological Society
9a	Society of Petroleum Engineers ENHANCED RECOVERY FIELD REPORTS (Quarterly)
9b	Society of Petroleum Engineers Journal
9c	Journal of Petroleum Technology
10	Oil & Gas Journal
11	American Petroleum Institute
12a	American Association of Petroleum Geologist, Bulletin
12b	Society of Economic Paleontologists and Mineralogist, Journal of Sedimentary Petrology
12c	Other Geological Publications (Refrenced on Field Data Sheet)

DATA SOURCE CODE FOR TEXAS AND NEW MEXICO FIELDS, cont.

CODE	SOURCE OF INFORMATION
13a	Gulf Universities Research Consortium, THE STATE OF TEXAS GOVERNOR's ENERGY ADVISORY COUNCIL, ASSESSMENT OF ENHANCED RECOVERY TECHNOLOGY AS A MEANS FOR INCREASING TOTAL CRUDE OIL RECOVERY IN TEXAS, GURC Report 141, 1974
13b	Gulf Universities Research Consortium, APPENDICES 1-5 of PRELIMINARY FIELD TEST RECOMMENDATIONS AND PROSPECTIVE CRUDE OIL FIELDS OR RESERVOIRS FOR HIGH PRIORITY FIELD TESTING, GURC Report 148, 1976
13c	Gulf Universities Reserch Consortium, CANDIDATE RESERVOIRS FOR ENHANCED OIL RECOVERY, GUIDELINES FOR THEIR SELECTION AND APPRAISAL OF SIGNIFICANT TESTS TO DATE, GURC Report 153, 1977
14a	Energy Research and Development Administration, ANALYSIS AND ASSESSMENT OF ENHANCED OIL RECOVERY BASELINE DATA, ERDA 76-155/1 & ERDA 76-155/2, October, 1976, prepared by LaRue, Moore and Schafer, Dallas, Texas, including as Ehibit 2-3, Task II, p 1-51 and analysis and reproduction of Lewin & Associates, Inc., The Potential and Economics of Enhanced Oil Recovery (Data Base), April, 1976
14b	National Petroleum Council, ENHANCED OIL RECOVERY, AN ANALYSIS OF THE POTENTIAL FOR ENHANCED OIL RECOVERY FROM KNOWN FIELDS IN THE UNITED STATES--1976-2000, Appendix E, p.144-146, December, 1976
14c	Office of Technology Assessment, ENHANCED OIL RECOVERY POTENTIAL IN THE UNITED STATES, Appendix A-OTA Data Base p. 111-137, and Analysis of Reservoirs in Data Base to Determine Amount and Distribution of Remaining Oil, p. 139-141, January, 1978
14e	Energy Information Administration, EVALUATION OF TARGET OIL IN THE 50 MAJOR OILFIELDS OF THE PERMIAN BASIN FOR ENHANCED OIL RECOVERY, BETC/RI-78/15, October, 1978
15	PERMIAN BASIN FIELD MAP (1980 Edition), Midland Map Company
16a	TEXAS RAILROAD COMMISSION, MER HEARINGS SUMMARIES, 1965-66-67 Extracted from issues of the OIL REGULATION REPORT
16b	TEXAS RAILROAD COMMISSION, SECONDARY RECOVERY APPLICATION SUMMARIES, 1976, Extracted from issues of the OIL REGULATION REPORT
16c	MAXIMUM EFFICIENTY RATE (MER) HEARINGS IN TEXAS, Data supplied by the Energy Information Agency office in Dallas, 1979
17	GRUY Calculations for Missing Reservoir Properties Data (Explation of Calculations in Text), 1979-1980
18	New Mexico Oil & Gas Engineering Committee, ANNUAL REPORT, VOLUME 1 SOUTHEAST NEW MEXICO, 1979

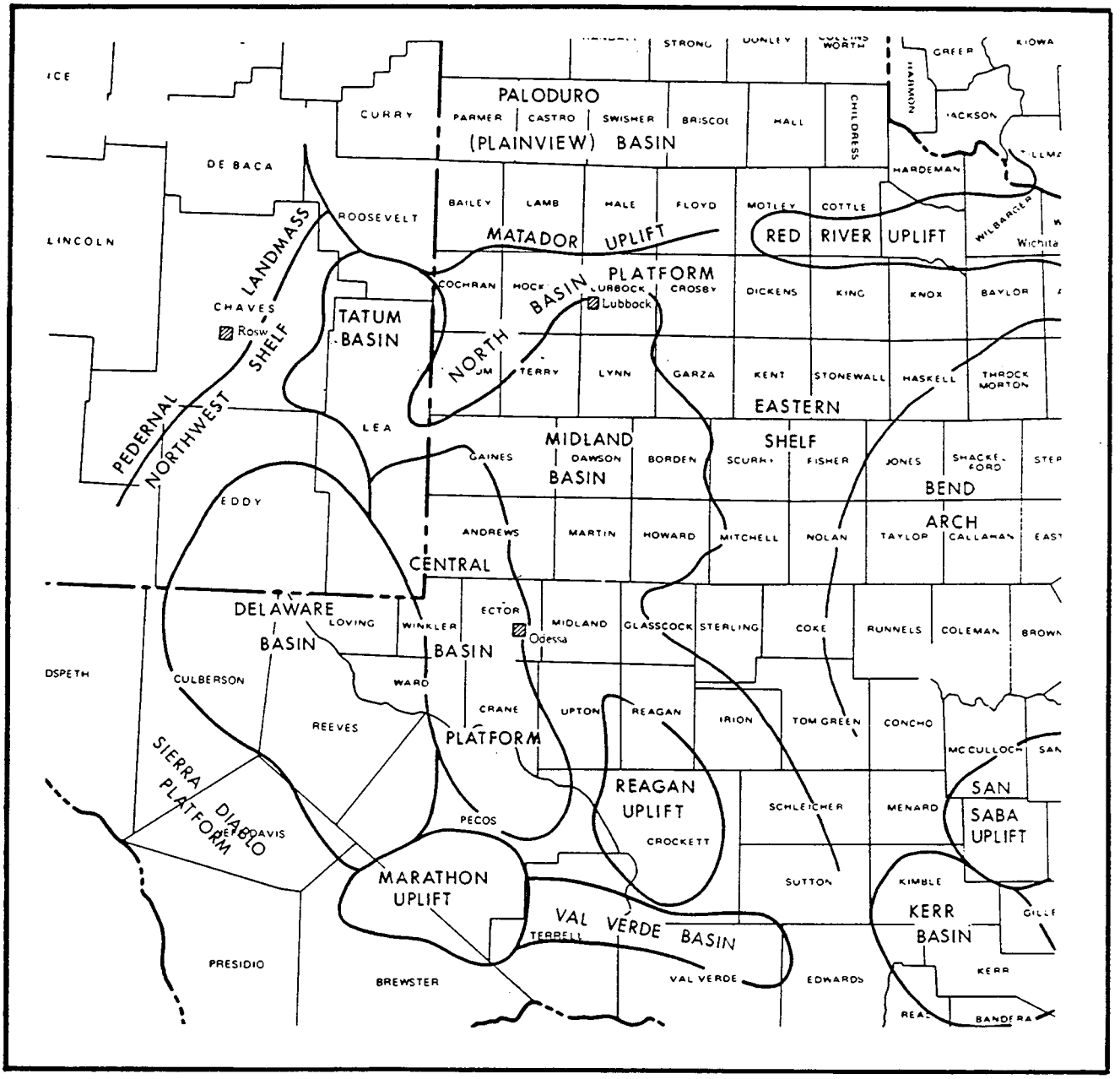


Figure 1

DIVISION AND BOUNDARIES
OF PERMIAN BASIN

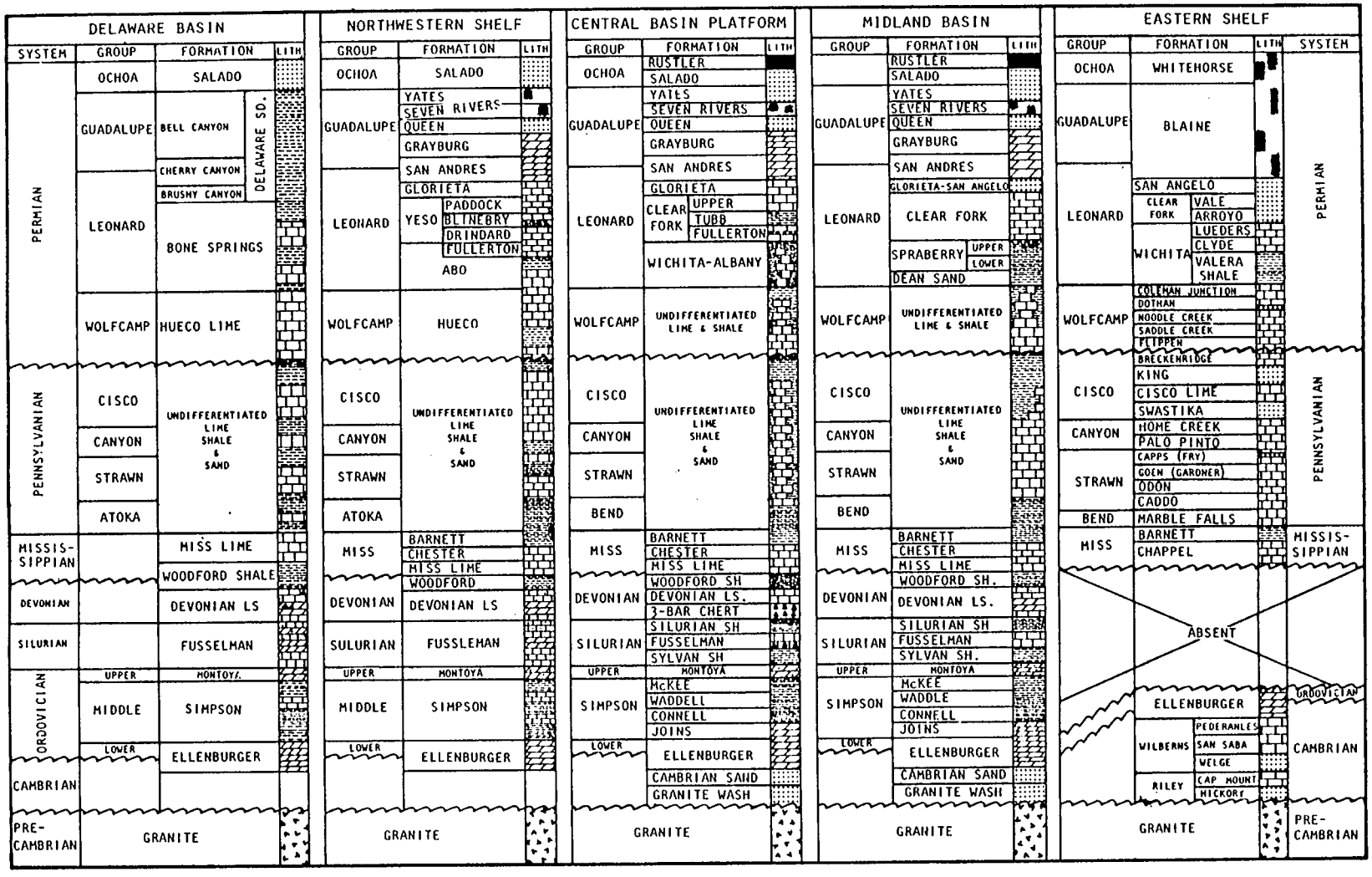


Figure 2

CORRELATION CHART WITH LITHOLOGIC SECTION FOR PERMIAN BASIN

EXHIBIT 1

EXPLANATION OF TERMS

ENHANCED RECOVERY:

In a generic sense, the term describes all fluid injection operations where the intent of the operator is to improve recovery from the reservoir. In a more limited sense, the term is used to distinguish those projects which may qualify for special allowable treatment under Statewide Rule 47 regarding allowable transfer for injection wells. (This explanation does not attempt to address "Enhanced Recovery" as referred to under the U. S. Natural Gas Policy Act of 1978).

WATER CLASSIFICATION:

The following categories are compatible with the Texas Department of Water Resources classifications:

Fresh Water - less than 1,000 PPM dissolved solids

Brackish Water - 1,000 to 3,500 PPM dissolved solids

Salt Water - over 3,500 PPM dissolved solids

M BBLS:

Thousands of barrels, M being the abbreviation for "one thousand".

MMCF:

Millions of cubic feet, MM being the abbreviation for "one million".

From, TEXAS RAILROAD COMMISSION, Secondary and Enhanced Recovery Operations in Texas to 1978, p. VI.- X.

ABBREVIATIONS
(Used in Project Table)

* Between Item (5) and Item (6)

*	Used as a separator between Item (5), Field Name, and Item 6, Reservoir, when Reservoir is shown.

Item (24) – – – TYPE INJ FLUID

SW	Salt Water
BW	Brackish Water
FW	Fresh Water
G	Natural Gas
AIR	Air
LPG	Liquid Petroleum Gas
STM	Steam
HW	Hot Water
NRG	Nergas
IG	Inert Gas
FG	Flue Gas
CO_2	Carbon Dioxide
PRG	Plant Residue Gas
PWW	Plant Waste Water
N_2	Nitrogen
CW	Carbonated Water
SSW	Surfactant & Salt Water
DOG	De-ethanized Overhead Gas
TLW	Tank Liquid Waste
UNK	Unknown

Item (25) – – – TYPE INJ

WF	Waterflood
MD	Miscible Displacement
TH	Thermal Recovery
PM	Pressure Maintenance
GC	Gas Cycling
AR	Attic Recovery
GOR	Net Gas-Oil Ratio
DP	Disposal
CR	Cellar Recovery
GS	Gas Storage
GR	Gas Repressure
LGS	Liquid Petroleum Gas Storage
TRT	Tertiary Recovery Test
UNK	Unknown

Item (26) – – – FLUID STATUS, 1–78

ICP	Injection Currently in Progress 1–1–78
INS	Injection Not Started as of 1–1–78
ITD	Injection Temporarily Discontinued
IPD	Injection Permanently Discontinued
U	Project Unreported at Publication Time

Item (28) – – – EFF OF TYPE INJ

VE	Very Effective
ME	Moderately Effective
NE	Not Effective
UD	Undetermined

Item (59) – – – INJECTION PATTERN

N	None (No injection well yet)
SW	Single Well (One Well)
I	Irregular (Random)
P	Peripheral (Perimeter)
MP	Modified Peripheral
PI	Peripheral & Irregular
LD	Direct Line Drive
MLD	Modified Line Drive
SLD	Staggered Line Drive (Split Line Drive)
MSL	Modified Split Line Drive
C	Crestal (Center)
F	Flank (Edge) (End Sweep)
MF	Modified Flank
3S	3-Spot
4S	4-Spot
5S	5-Spot
7S	7-Spot
9S	9-Spot
M5	Modified 5-Spot (Irregular 5-Spot)
I5	Inverted 5-Spot
I7	Inverted 7-Spot
I9	Inverted 9-Spot
MI9	Modified Inverted 9-Spot
E11	Enclosed 11-Spot (5-Spot & Chicken Wire)
5LD	5-Spot & Line Drive
5SL	5-Spot & Split Line Drive
5I9	5-Spot & Inverted 9-Spot
P5	Peripheral & 5-Spot
PLD	Peripheral & Line Drive
OTH	Other Injection Pattern

Item (62) – – – OPER PROBLEMS CODES

CR	Corrosion
CH	Channeling
EG	Excessive Gas-Oil Ratio
EW	Excessive Water-Oil Ratio
SC	Scale
PA	Pattern
IP	Injection Well Plugging
EP	Excessive Injection Pressure
SF	Scarcity of Injection Fluid
EB	Early Breakthrough
PI	Injection Pressure Increasing
BT	Bacteria

Item (63) – – – * – – REMARKS REFERENCE

ABBREVIATIONS

(A Complete Listing)

ABBREVIATION	MEANING OF SYMBOL
ABD	Abandoned
ADD	Additional
ADJ	Adjacent
API	American Petroleum Institute
APPROX	Approximately
AR	Attic Recovery
AVG	Average
BBL(S)	Barrels
BEG	Beginning
BHP	Bottom Hole Pressure
BT	Bacteria
BW	Brackish Water
C	Crestal (Center) in Item 59
CH	Channeling
CHEM	Chemicals, Chemical Treatment
CLRFK	Clearfork
CMT	Cement
CO	Company
CO_2	Carbon Dioxide
COND	Condensate
CONG	Conglomerate
CONS	Consolidated
COR	Corrosion
CO REG	County Regular
CR	Cellar Recovery in Item 25; Corrosion in Item 62
CSG	Casing
CUM	Cumulative
CW	Carbonated Water
D	Day
DEV	Devonian
DISC	Discovered, Discovery, Discontinued
DIST	RRC District
DOG	De-ethanized Overhead Gas
DOL	Dolomite
DP	Disposal Project
E	Enclosed in Item 59
EB	Early Breakthrough
EFF	Effective, Effectiveness
EG	Excessive Gas-Oil Ratio
EP	Excessive Injection Pressure
EST	Estimated
EW	Excessive Water-Oil Ratio
EX	Excessive
EXG	Exhaust Gas
EXT	External
F	Symbol for Fluid Injection into a Productive Zone (used as part of RRC Injection Project Number); Flank (Edge) (End Sweep) in Item 59
FG	Flue Gas
FLD(S)	Field(s)
FORM	Formation
FRAC	Fracture
FW	Fresh Water
FT	Feet
G	Gas
GC	Gas Cycling
GF	Gas Field
GOR	Gas-Oil Ratio
GR	Gas Repressure
GRAV	Gravity
GS	Gas Storage
HORZ	Horizontal
HW	Hot Water
I	Irregular (Random) in Item 59; I with number means inverted spot
ICP	Injection Currently in Progress
ID	Identification
IG	Inert Gas
INC	Increase
INHB	Inhibitors
INJ	Injection
INS	Injection not Started as of 1-1-78
IP	Injection Well Plugging
IPD	Injection Permanently Discontinued
ITD	Injection Temporarily Discontinued
LD	Direct Line Drive
LGS	Liquid Petroleum Gas Storage
LM	Lime
LMT	Limited
LO	Lower
LPG	Liquid Petroleum Gas
LSE(S)	Lease(s)
M	One Thousand; Modified in Item 59
MAX	Maximum
MCF	Thousand Cubic Feet
MD	Millidarcys, in Heading of Item 12; Miscible Displacement in Item 25
ME	Moderately Effective
MF	Modified Flank
MID	Middle
MLD	Modified Line Drive
MM	One Million
MMCF	Million Cubic Feet
MP	Modified Peripheral
MSL	Modified Split Line Drive
N_2	Nitrogen
N	Symbol for New (1976–1977) Project; None in Item 59
NE	Not Effective
NO(S)	Number(s)
NRG	Nergas
OI	Operator Involved in Project and Not the Main Injection Operator

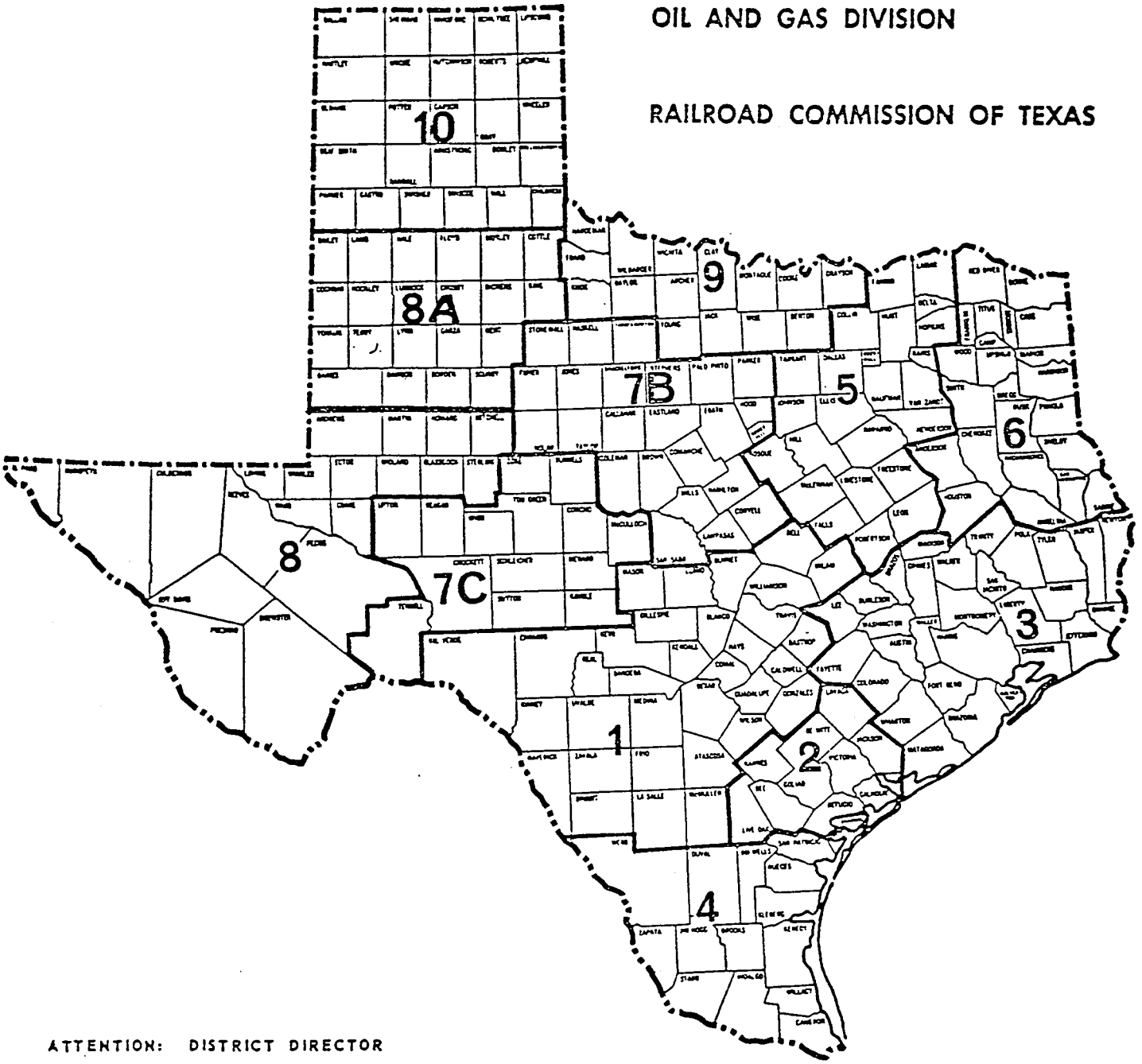
ABBREVIATION	MEANING OF SYMBOL
OPR, OPER	Operator, Operated
ORIG	Original
OTH	Other
P	Peripheral
PA	Paraffin
P & A	Plug & Abandon
PCG	Processed Casinghead Gas
PERM	Permeability
PGG	Processed Gas Well Gas
PI	Peripheral & Irregular in Item 59; Injection Pressure Increasing in Item 62
PLG	Pipeline Gas
PLUGG	Plugging
PM	Pressure Maintenance
POR	Porosity
PPD	Production Permanently Discontinued
PRESS.	Pressure
PRG	Plant Residue Gas
PROD	Production, Producing or Productive
PROJ(S)	Project(s)
PSI	Pounds Per Square Inch
PTD	Production Temporarily Discontinued
PW	Plant Waste
PWW	Plant Waste Water
RCG	Raw Casinghead Gas
REC	Recovery
RESP	Response
RESV	Reservoir
RG	Residue
RGG	Raw Gas Well Gas
RRC	Railroad Commission
S	Spot in Item 59
SC	Scale
SEC	Secondary
SD	Sand
SF	Scarcity of Injection Fluid
SLD	Staggered Line Drive (Split Line Drive) in Item 59
SQZ	Squeeze
SR	Secondary Recovery
SS	Sandstone
SSW	Surfactant & Salt Water
STM	Steam
SUC	Successful
SURF	Surface
SW	Salt Water; Single Well in Item 59
SWD	Salt Water Disposal
SYS	System
TBG	Tubing
TEMP	Temporary
TH	Thermal
TLW	Tank Liquid Waste
TOT	Total
TRT	Tertiary Recovery Test

ABBREVIATION	MEANING OF SYMBOL
UD	Undetermined
ULT	Ultimate
UNK	Unknown
UNS	Unsucessful
UP	Upper
VE	Very Effective
VOL(S)	Volume(s)
W	Wells
W/	With
WF	Waterflood
WI	Water Injection
WIW	Water Injection Well
WOR	Water - Oil Ratio
WS	Water Supply
WTR	Water
YR(S)	Years
%	Percentage
°API	Degrees API
*	Used as a separator between Item 5, Field Name, and Item 6, Reservoir, When Reservoir is shown.

DISTRICT MAP

OIL AND GAS DIVISION

RAILROAD COMMISSION OF TEXAS



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District 10:	P.O. Box 941, Municipal Bldg., Pampa, Texas 79065 – 806 665-1653

Oceanic
Pennsylvanian
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Howard (M)
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Oceanic
1	RESERVOIR	Pennsylvanian
1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	320
1	RESERVOIR LITHOLOGY	Limestone
	TRAPPING MECHANISM	
3,1	DISCOVERY YEAR	8-53; 1953
1	PROVED ACREAGE	1880
1	REGULAR WELL SPACING (acres/well)	40
1,3	RESERVOIR DEPTH	8140
	RESERVOIR THICKNESS	
1	NET PAY	55
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1	FRACTION	.12
	PERMEABILITY	
	RANGE	
1	AVERAGE	84 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production in Oceanic, NE
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	31P
1	PRODUCTION 1976 oil (cum)	18,580
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	20,115.9
3	PRODUCTION 1-1-79 to 1-1-80	18,135 mbbls oil; 200.5 mmcf gas
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Oceanic
1	RESERVOIR:	Pennsylvanian
1	PROD. ACRES:	1880
1	AVG. THICKNESS (FT.):	55
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.52
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.18
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	160
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2005
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1083.4(76)
1,3	STOCK TANK OIL GRAVITY (°API):	42.3
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1972
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

Ocho Juan
Canyon Reef
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
	COUNTY	Fisher (M)
	REGULATORY DISTRICT	7B
	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
	FIELD	Ocho Juan
2, 5a	RESERVOIR	Canyon Reef
	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	323
5a	RESERVOIR LITHOLOGY	Reef limestone, fossilferous, leached.
5a	TRAPPING MECHANISM	Canyon Reef is a local reef development over the northern part of the Strawn reef crest--frequent dual completion.
2,5a,3	DISCOVERY YEAR	7-1955
2, 5a	PROVED ACREAGE	955, 1160
5a	REGULAR WELL SPACING (acres/well)	40
2,5a,3	RESERVOIR DEPTH	5834, 6040-6209, 6112 (Strawn 5834)
	RESERVOIR THICKNESS	
2, 5a	NET PAY	45, 62
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2, 5a	FRACTION	.06, .076
	PERMEABILITY	
2, 5a	RANGE	1.85 - 4 md
2, 5a	AVERAGE	4, 1.85 md
2	HORIZONTAL	4 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Strawn
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	25 (20P-4I-1A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	5,015.5
3	PRODUCTION 1-1-79 to 1-1-80	141.4 mbbls oil; 65.1 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5a	STRUCTURE CONTOUR?	yes
5a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Ocho Juan
2, 5a	RESERVOIR:	Canyon Reef
2, 5a	PROD. ACRES:	9550, 1160
2, 5a	AVG. THICKNESS (FT.):	45, 62
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
5a	WATER SATURATION (S_W):	.45
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	147
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2, 5a	RESERVOIR PRESSURE INITIAL (psi):	5834, 2345 field
2	RESERVOIR PRESSURE LATEST (psi):	1150
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 5a, 3	STOCK TANK OIL GRAVITY (°API):	40, 42.6, 41.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):(psia)	1818
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	12,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	3,900 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

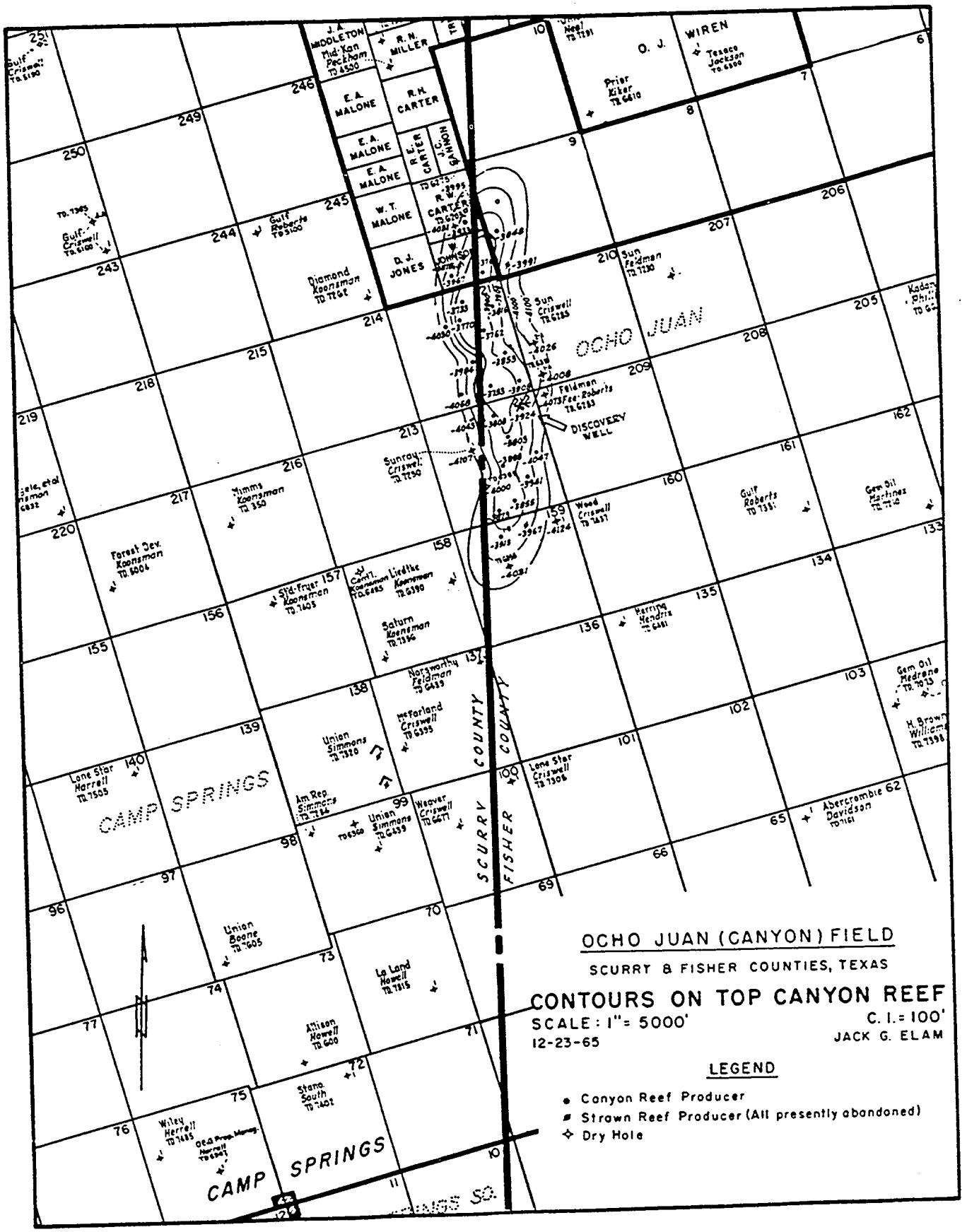
FIELD: Ocho Juan RESERVOIR: Canyon Reef TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	124				
1977 PROD. (this project):	139				
CUM. PROD. FROM DISC. TO 1/78:	4767				
PROJECT NO.	F0832				
LEASE NO.(s):	10186				
OPERATOR:	Sun Oil				
RESERVOIR:	Canyon Reef				
DEPTH PRODUCING ZONE:	5834				
PRODUCTIVE ACREAGE IN RESERVOIR:	955				
ACREAGE IN PROJECT:	955				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW, FW				
PATTERN:	I7				
YEAR BEGAN:	11-65				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2435				
BEG. INJECTION:	950				
LATEST:	1150				
NUMBER OF WELLS TOTAL:	25				
PRODUCING WELLS:	20				
INJECTION WELLS:	2SW				
MAXIMUM:	2SW				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	1				
SURFACE INJECTION PRESSURE:	1500				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:					
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	139				
FROM BEG. INJECTION:	1313				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	1500				
WATER PRODUCTION:					
CURRENT (1977):	955				
CUMULATIVE TO 1/78:	7168				
CURRENT (1977) INJECTION:	883SW; 204FW				
CUMULATIVE INJECTION:	7097SW; 6349FW				

Source 5a

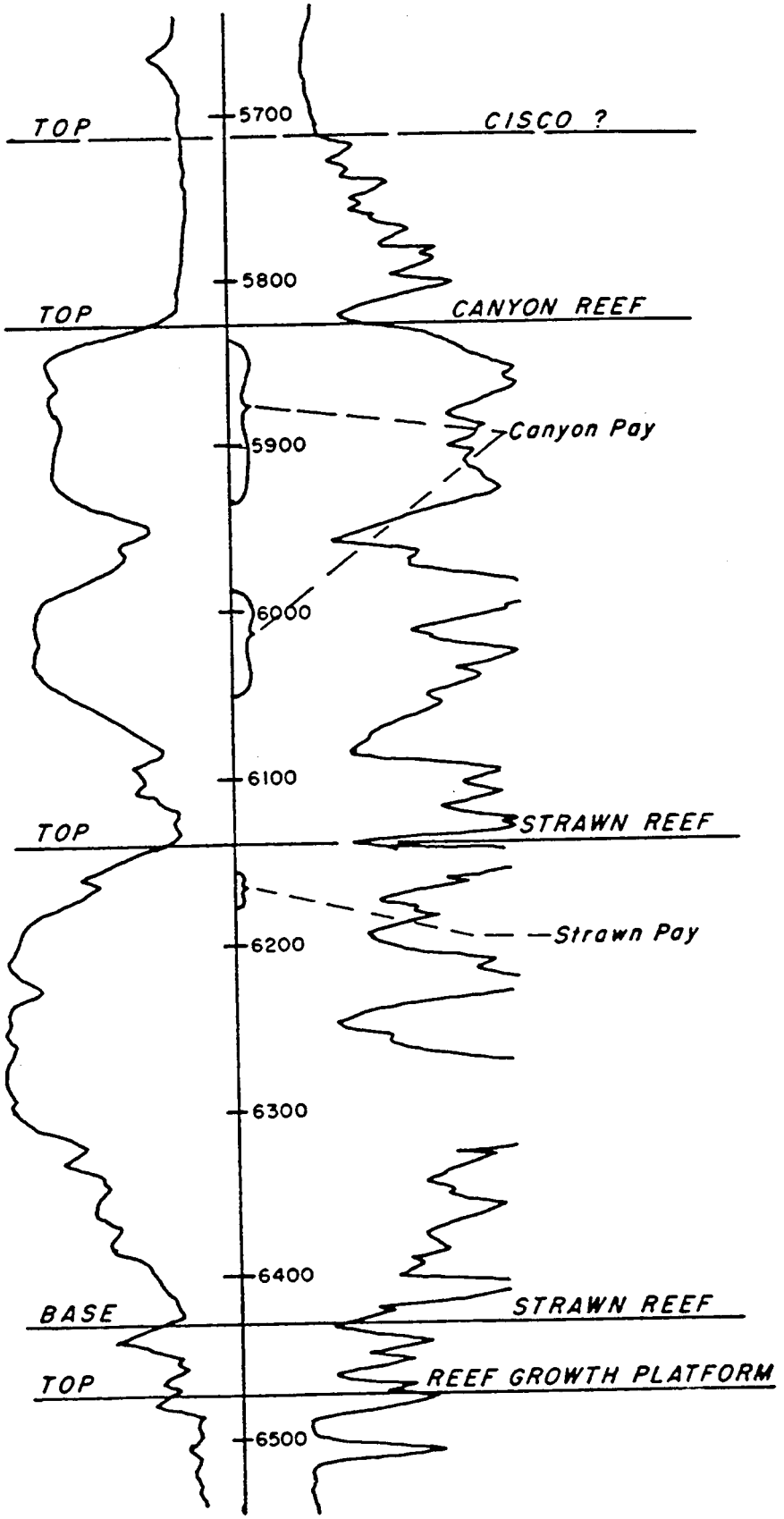
FROM: OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM: West Texas Geol. Soc. Pub. No. 66-52, 1966.



FROM: OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM; WEST TEXAS GEOL. SOC. Source 5a

OCHO JUAN FIELD TYPE LOG

SCALE: 1"=100'



Ownby
San Andres
North Basin Platform

DATA SOURCE CODE		
	STATE	Texas
	COUNTY	Yoakum
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	North Basin Platform
	FIELD	Ownby
2	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
12c	RESERVOIR LITHOLOGY	Dolomite, limestone, saccharoidal, fine-grained cherty; variable porosity and permeability
12c	TRAPPING MECHANISM	Anticlinal fold
2,3	DISCOVERY YEAR	1941
16c,2,12c	PROVED ACREAGE	2400
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	5300, 5350
	RESERVOIR THICKNESS	
16c,2,12c	NET PAY	32, 31, 65
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.12
	PERMEABILITY	
2	RANGE	2-5 md
2	AVERAGE	3.5 md
2	HORIZONTAL	3.5 md
	VERTICAL	
	OTHER INFORMATION	Other production from Clear Fork, Glorieta, Witchita-Albany
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	65 (31P-22I-12A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	8,612.4
3	PRODUCTION 1-1-79 to 1-1-80	562.6 mbbls oil; 327.5 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Ownby
2	RESERVOIR:	San Andres
2, 16c, 12c	PROD. ACRES:	2400
16c,2,12c	AVG. THICKNESS (FT.):	32, 31, 65
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.354
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.191(75)
16c	WATER SATURATION (S_W):	.381
16c	OIL SATURATION (S_O):	.48
12c	PRIMARY DRIVE MECHANISM:	depletion & waterdrive
12c	PRIMARY GAS CAP?:	yes
16c	TEMPERATURE (°F):	106
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1815
2	RESERVOIR PRESSURE INITIAL (psi):	1600-1800
2	RESERVOIR PRESSURE LATEST (psi):	1060
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,12c	STOCK TANK OIL GRAVITY (°API):	36, 30, 29.9
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1359
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	48,300 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	7,149 mbbls

OTHER INFORMATION:

12c Reference: Cooper, C. G., and Ferris, B. J., 1953, Ownby Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Economic Geology Publ. No. 5716, p. 245-246 and Waples-Platter Field, p. 375-376.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Ownby RESERVOIR: San Andres TOTAL NO. PROJECTS: 2 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	219	22			
1977 PROD. (this project):	291	28			
CUM. PROD. FROM DISC. TO 1/78:	6622	435			
PROJECT NO.	F3733	F7184			
LEASE NO.(s):	60739	04586			
OPERATOR:	Shell	Sun Oil			
RESERVOIR:	San Andres	San Andres			
DEPTH PRODUCING ZONE:	5300	5200			
PRODUCTIVE ACREAGE IN RESERVOIR:	2400	---			
ACREAGE IN PROJECT:	2400	160			
PORTION OR FIELD WIDE:	FW	FW			
TYPE:	WF/SW, FW	WF/SW			
PATTERN:	LD	I5			
YEAR BEGAN:	1-73	2-77			
YEAR TERMINATED OR STATUS:	ICP	ICP			
RESERVOIR PRESSURE INITIAL:	1800	1600			
BEG. INJECTION:	400	200			
LATEST:	1060	---			
NUMBER OF WELLS TOTAL:	60	5			
PRODUCING WELLS:	27	4			
INJECTION WELLS:	2 SW	1			
MAXIMUM:	19 FW	---			
LATEST:	---	---			
SHUT-IN/ABANDONED WELLS:	12	0			
SURFACE INJECTION PRESSURE:	1100	500			
EFFECTIVENESS OF INJECTION:	VE	UD			
OPERATOR PROBLEMS:	---	---			
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	198	---			
FROM BEG. INJECTION:	527	---			
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	2851	---			
WATER PRODUCTION:					
CURRENT (1977):	513	47			
CUMULATIVE TO 1/78:	2325	74			
CURRENT (1977) INJECTION:	513SW; 2993FW	42 SW			
CUMULATIVE INJECTION:	1999SW; 17748FW	42SW			

WATER ANALYSIS RECORD

FIELD: Ownby RESERVOIR: San Andres TOTAL NO. PROJECTS:
DATA SOURCE: 12c

TOTAL SOLIDS (mg/l):	211,092
NA	77,548
Ca	4,816
Mg	37
Fe	
SO_4	1,760
Cl	126,844
CO_2	0
HCO_3	87
OH	
H_2S	

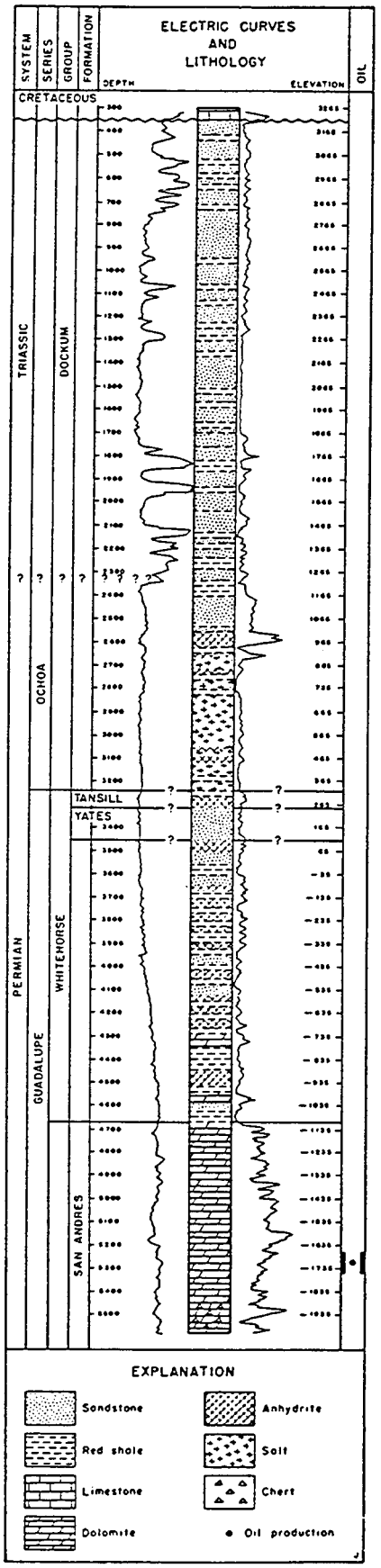
RESISTIVITY:
SPECIFIC GRAVITY:

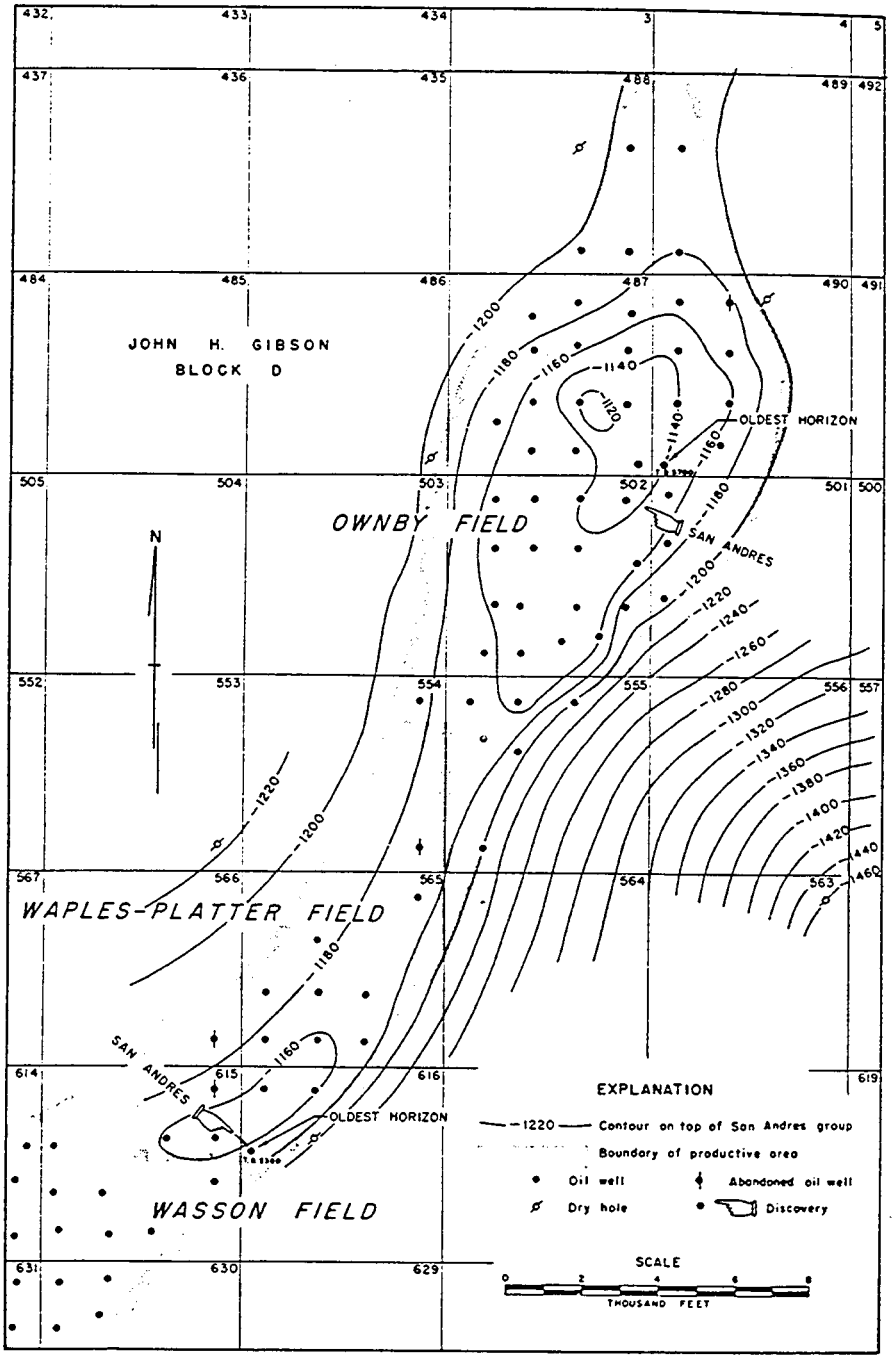
OTHER WATER QUALITY DATA:

FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECON. GEOL. PUBL. NO. 5716, August, 1957. Source 12c.

376 WAPLES-PLATTER FIELD, Yoakum County, Texas

TYPICAL SECTION OF ROCKS PENETRATED





WATER PRODUCTION

San Andres: Most of the wells have produced water either at completion or soon thereafter. At the end of 1952, only 2 of the 13 wells were producing no water; water constituted 2% to 64% of the gross production of the other 11 wells.

An analysis of the water shows milligrams of constituents per liter of water as follows: calcium, 3,900; magnesium, 2,190; sodium, 45,150; bicarbonate, 573; carbonate, none; sulphate, 3,240; chloride, 80,180; total, 135,233.

ACID TREATMENT

San Andres: All wells were treated with acid at time of completion. Treatments, in either one or two stages, ranged from 500 gallons to 15,000 gallons.

PRODUCTION HISTORY

Year	WELLS PRODUCING at end of year: Flowing	Pumping	OIL PRODUCTION (barrels): Yearly	Cumulative
1939	0	1	9,244	9,244
1940	1	1	14,396	23,640
1941	1	1	17,804	41,444
1942	3	1	22,318	63,762
1943	3	3	32,992	96,754
1944	2	12	54,210	150,964
1945	1	14	77,607	228,571
1946	0	15	73,856	302,427
1947	0	14	65,590	368,017
1948	0	14	64,007	432,024
1949	0	14	50,024	482,048
1950	0	14	48,244	530,292
1951	0	14	55,144	585,436
1952	0	13	51,070	636,506
1953*	0	13	48,790	685,296

*1953 data added by amendment.

Page
Strawn-Canyon Reef
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Schleicher
2	REGULATORY DISTRICT	7C
	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
7	FIELD	Page
7,2	RESERVOIR	Pennsylvanian Strawn-Canyon Reef, Strawn
	GEOLOGIC AGE	Pennsylvanian, Strawn
1	AAPG STRATIGRAPHIC AGE CODE	325
12c	RESERVOIR LITHOLOGY	Reef limestone
12c	TRAPPING MECHANISM	Stratigraphic - porosity zones in reef limestone
2,3	DISCOVERY YEAR	1-1936, 1936
2	PROVED ACREAGE	1960
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	5550, 5725
	RESERVOIR THICKNESS	
2,12c	NET PAY	47, 60 max.
12c	GROSS	470
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,12c	FRACTION	.075, .112
	PERMEABILITY	
	RANGE	
12c	AVERAGE	5.3 md
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	30 (6P, 1I, 23A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	4,804.2 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	17.7 mbbls oil; 34.9 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
12c	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Page
2,7	RESERVOIR:	Strawn-Canyon Reef
2	PROD. ACRES:	1960
2	AVG. THICKNESS (FT.):	47
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
12c	OIL SATURATION (S_O):	.476
12c	PRIMARY DRIVE MECHANISM:	depletion
12c	PRIMARY GAS CAP?: 2 gas zones, 3 oil zones, gas cap on 1st oil zone.	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	2100
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,12c	STOCK TANK OIL GRAVITY (°API):	42, 37-43
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	25,022 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	3,860 mbbls

OTHER INFORMATION:

12c Reference: Ellison, S. P., Jr., 1955, Page Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Econ. Geol., Pub. No. 5716, August 1957.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Page RESERVOIR: Strawn TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	20				
1977 PROD. (this project):	19				
CUM. PROD. FROM DISC. TO 1/78:	4736				
PROJECT NO.	F1060				
LEASE NO.(s):	03485, 03486				
OPERATOR:	Cities Ser.				
RESERVOIR:	Strawn				
DEPTH PRODUCING ZONE:	5550				
PRODUCTIVE ACREAGE IN RESERVOIR:	1960				
ACREAGE IN PROJECT:	1720				
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW				
PATTERN:	5S				
YEAR BEGAN:	2-61				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2100				
BEG. INJECTION:	---				
LATEST:	---				
NUMBER OF WELLS TOTAL:	30				
PRODUCING WELLS:	6				
INJECTION WELLS:	1				
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	23				
SURFACE INJECTION PRESSURE:	1450				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	---				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	19				
FROM BEG. INJECTION:	655				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	4355				
WATER PRODUCTION:					
CURRENT (1977):	73				
CUMULATIVE TO 1/78:	2488				
CURRENT (1977) INJECTION:	74				
CUMULATIVE INJECTION:	11437				

FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECON. GEOL. PUB. 5716, 248 August, 1957. Source 12c.

PAGE FIELD, Schleicher County, Texas

ELEVATION AND RELIEF OF PRODUCTIVE ZONES

Strawn:	Feet
First gas zone:	
Elevation of top of gas	-2,861
Lowest known elevation of gas	-3,038
Known relief	177
No oil in this reservoir	
Second gas zone:	
Highest known elevation of gas	-3,021
Lowest known elevation of gas	-3,200
Known relief	179
No oil in this reservoir	
First oil zone:	
Elevation of top of gas	-3,168
Elevation of bottom of gas	-3,198
Relief	33
Elevation of top of oil	-3,198
Elevation of bottom of oil	-3,282
Relief	84
Second oil zone:	
No free gas cap	
Elevation of top of oil	-3,198
Elevation of bottom of oil	-3,311
Relief	113
Third oil zone:	
No free gas cap	
Elevation of top of oil	-3,350
Elevation of bottom of oil	-3,388
Relief	38

CHARACTER OF OIL

Gravity, A.P.I. @ 60°F.: 37° to 43°

CHARACTER OF GAS

No analysis of the gas is available. However, the gas is known to be sweet and known to be rich since condensate in large quantity is produced. The gravity of the condensate averages about 61° A.P.I. The stripped residue is sold to the city of Eldorado and to the Lone Star Gas Company for domestic utilization.

WATER PRODUCTION

Negligible.

ACID TREATMENT

Acid treatments range from 1,500 to 16,000 gallons per well; average about 4,000 gallons.

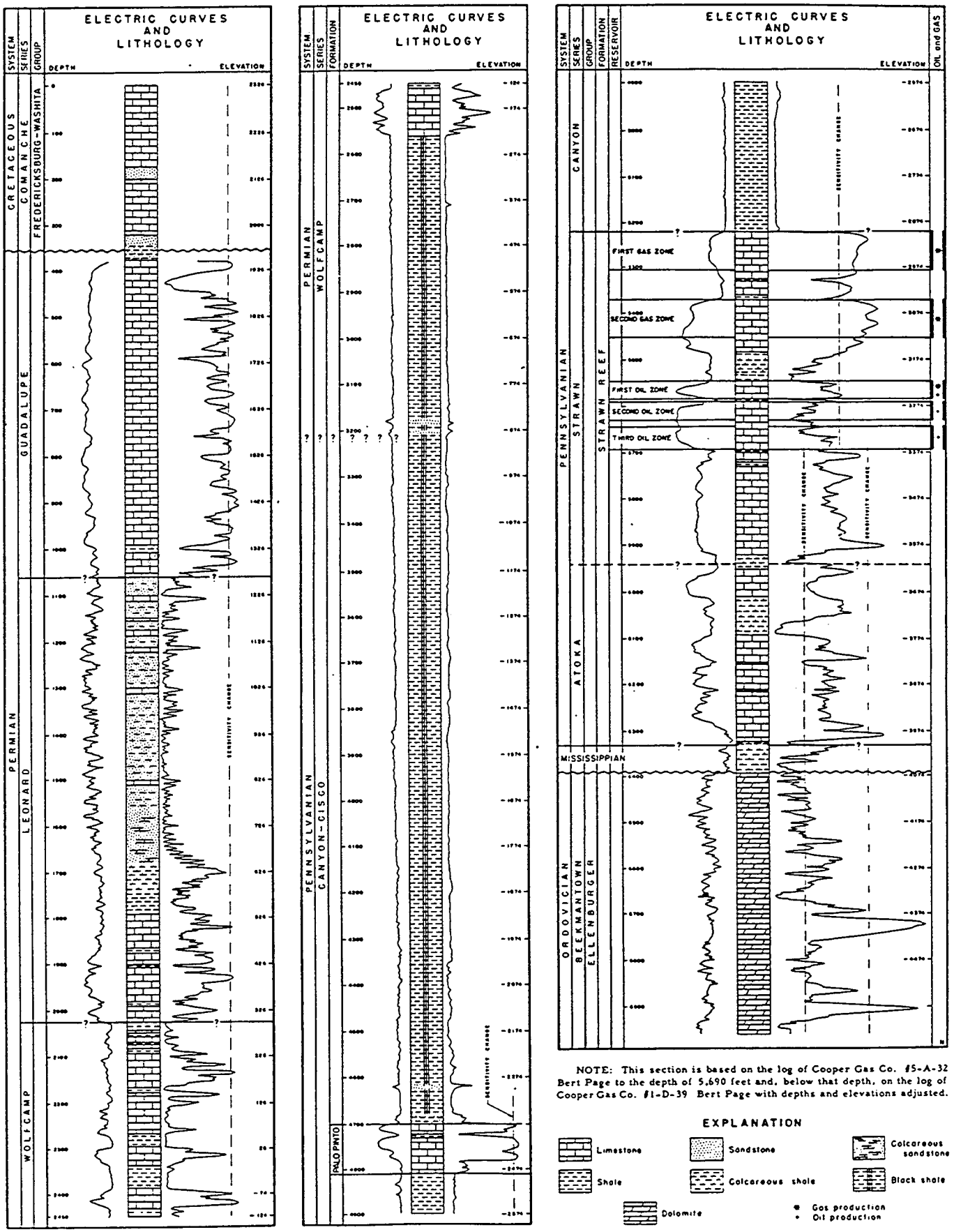
SELECTED REFERENCE

Simpson, Roscoe (1941) Page field, Schleicher County, Texas: Amer. Assoc. Petr. Geol., Bull., vol. 25, pp. 630-636.

PRODUCTION HISTORY

Year	Wells Producing at end of year: Oil Flow.	Oil Artif.	Gas & Condensate	Oil Production (barrels) Yearly	Oil Production (barrels) Cumulative	Condensate Production (barrels) Yearly	Condensate Production (barrels) Cumulative	Gas Production (Mcf @ 14.65# & 60°F) Yearly	Gas Production (Mcf @ 14.65# & 60°F) Cumulative
1934-38			1	None	None	Neg.	Neg.	Neg.	Neg.
1939	1		2	10,361	10,361	?	?	78,998	78,998
1940	1		3	12,520	22,881	?	?	58,784	137,782
1941	1		4	9,677	32,558	?	?	1,726,631	1,864,413
1942	1		5	7,859	40,417	?	4,634	2,556,747	4,421,160
1943	1		5	8,469	48,886	24,384	29,018	3,035,908	7,457,068
1944	1		5	8,263	57,149	18,879	47,897	2,625,511	10,082,579
1945	1		6	6,386	63,535	17,540	65,437	2,410,444	12,493,023
1946	5		7	56,875	120,410	13,325	78,762	2,277,125	14,770,148
1947	17	1	7	324,691	445,101	14,219	92,981	2,253,485	17,023,633
1948	32	0	5	589,078	1,034,179	6,111	99,092	1,024,655	18,048,288
1949	5	29	4	455,458	1,489,637	849	99,941	419,784	18,468,072
1950	5	29	4	311,885	1,801,522	796	100,737	157,462	18,625,534
1951	5	29	4	227,287	2,028,809	1,337	102,074	199,875	18,825,409
1952	3	33	7	210,600	2,239,409	1,321	103,395	363,960	19,189,369
1953	0	32	7	250,959	2,490,368	1,231	104,626	401,640	19,591,009
1954	0	33	9	268,589	2,758,957	1,577	106,203	511,501	20,102,510

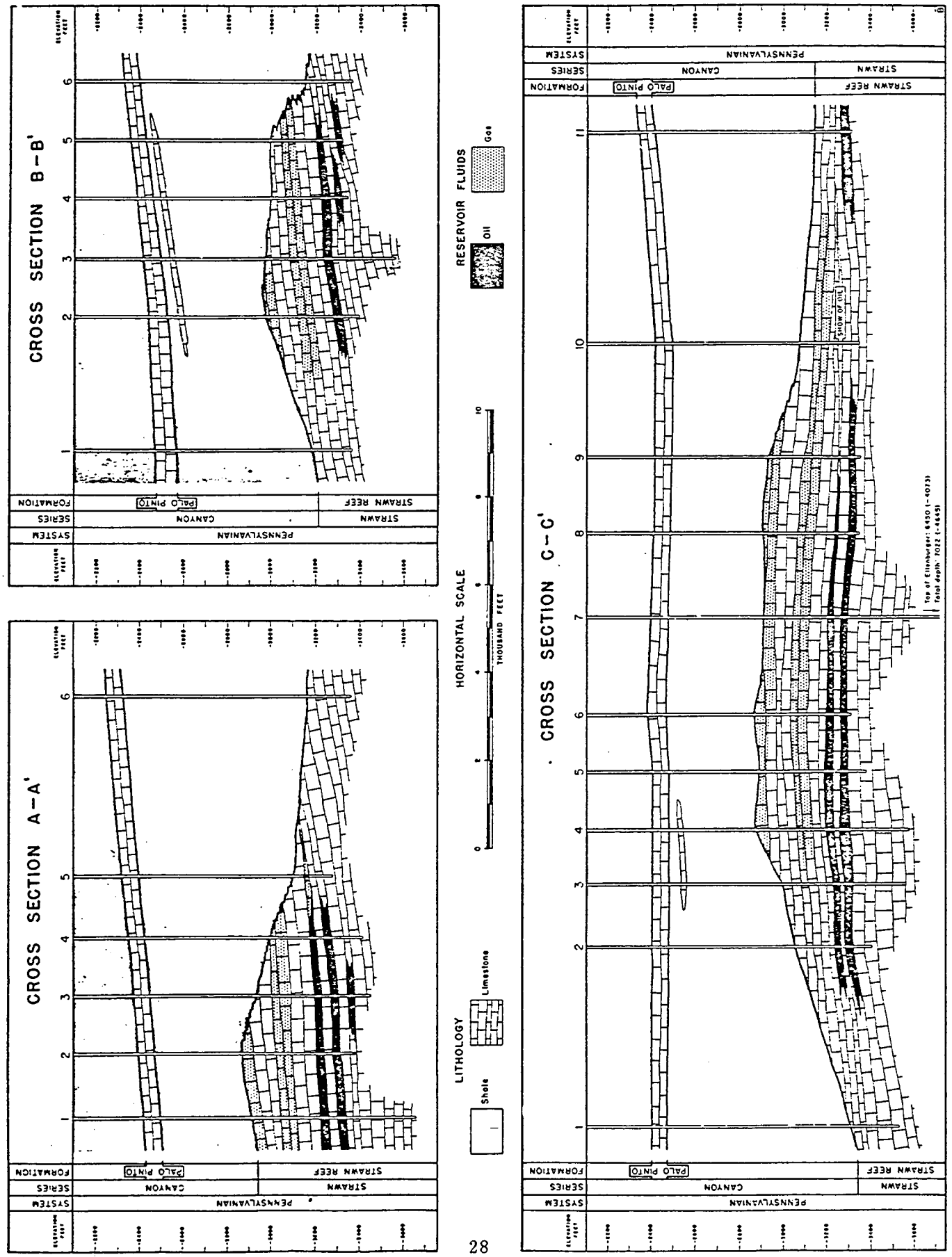
TYPICAL SECTION OF ROCKS PENETRATED

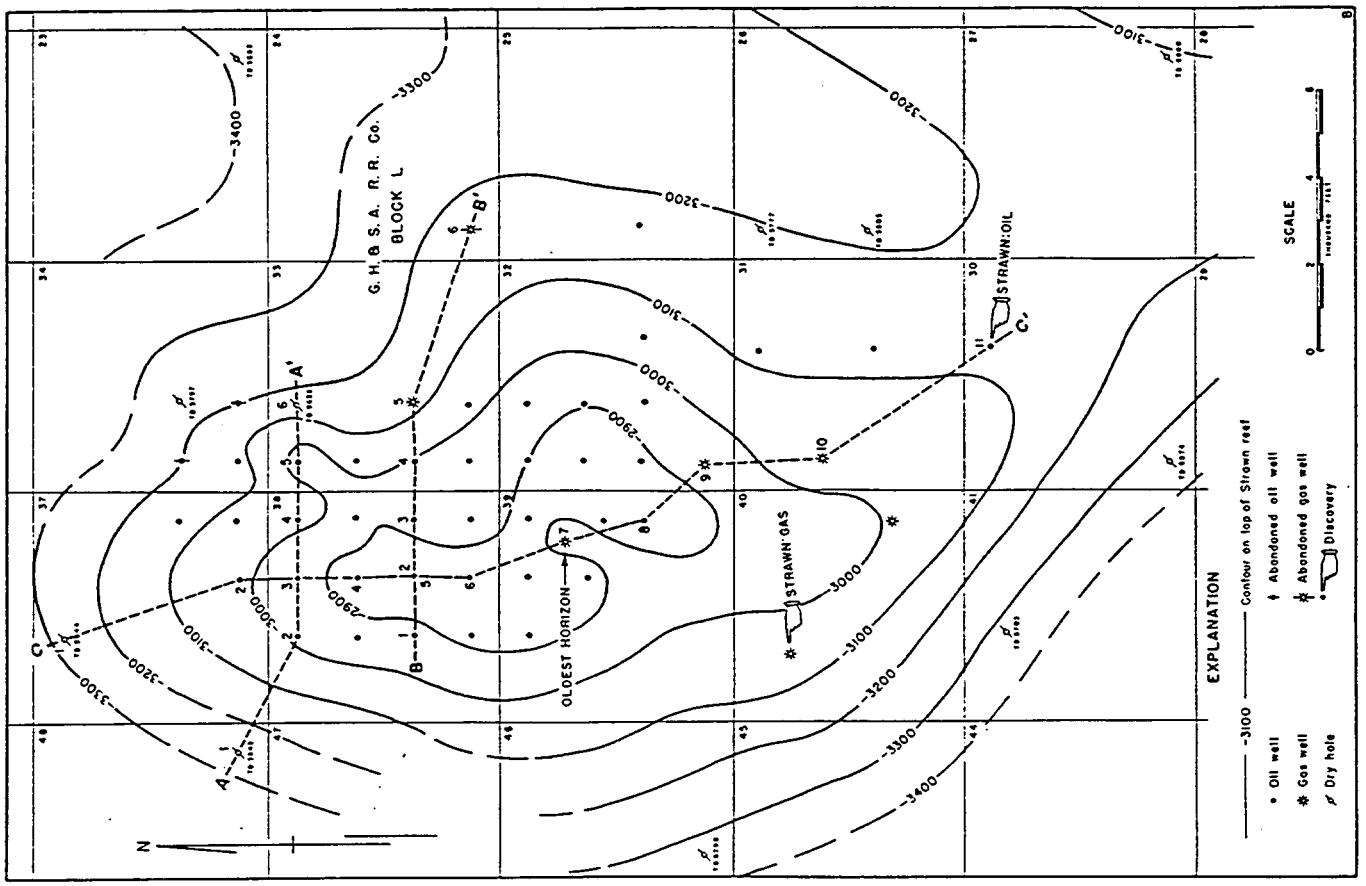


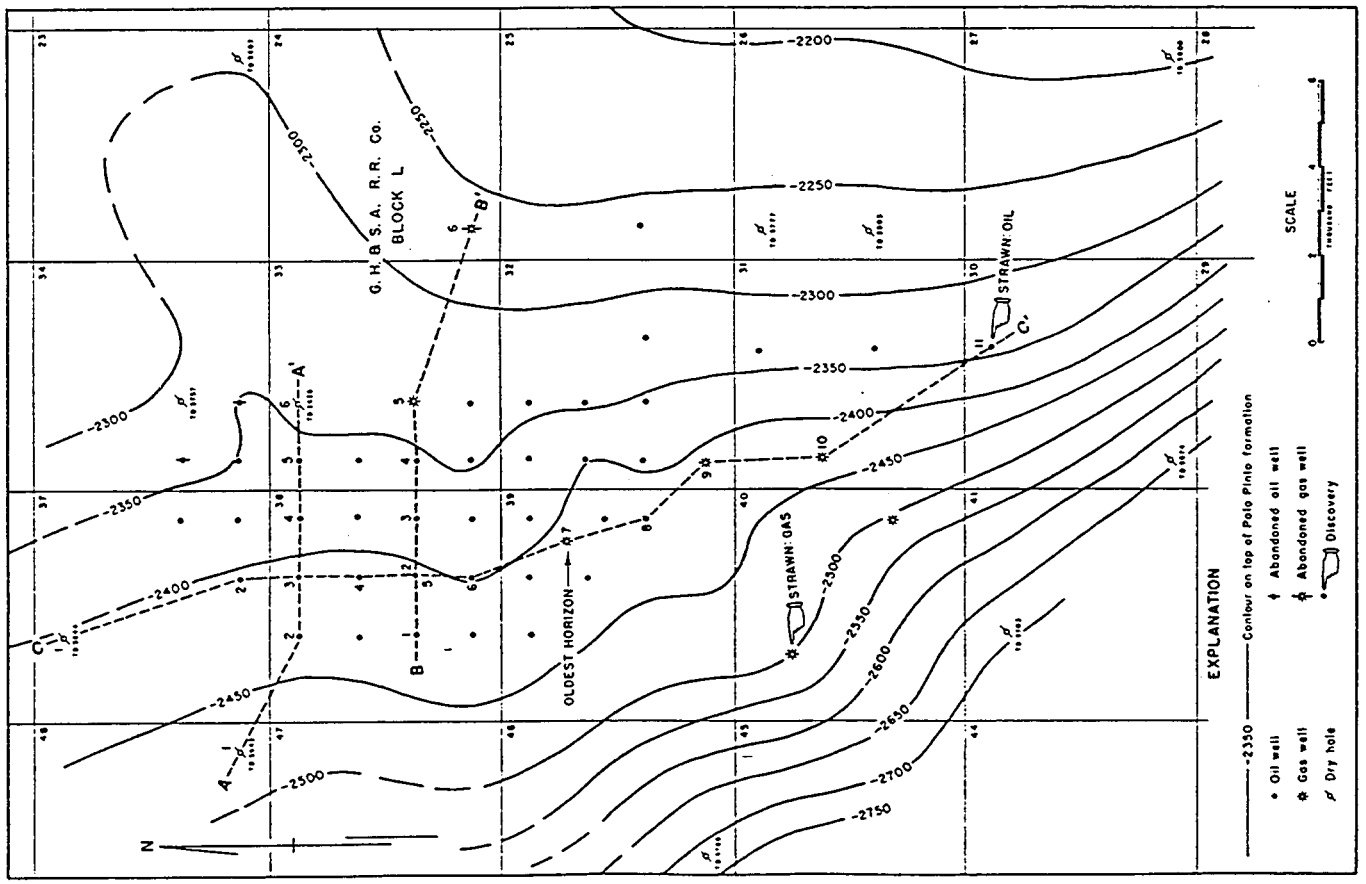
NOTE: This section is based on the log of Cooper Gas Co. #5-A-32 Bert Page to the depth of 5,690 feet and, below that depth, on the log of Cooper Gas Co. #1-D-39 Bert Page with depths and elevations adjusted.

EXPLANATION

Limestone
Sandstone
Calcareous sandstone
Shale
Calcareous shale
Black shale
Dolomite
● Gas production
• Oil production


CROSS SECTION B-B'
CROSS SECTION A-A'
CROSS SECTION C-C'
ELEVATION FEET
SYSTEM
SERIES
FORMATION
PENNSYLVANIAN
CANYON
STRAWN
PALO PINTO
STRAWN REEF
RESERVOIR FLUIDS
Gas
Oil
HORIZONTAL SCALE
THOUSAND FEET
LITHOLOGY
Limestone
Shale
Top of Ellenburger: 8450 (-4073)
Total depth: 7022 (-4645)


G. H. & S. A. R. R. Co.
BLOCK L
STRAWN-OIL
STRAWN-GAS
OLDEST HORIZON
EXPLANATION
-3100 Contour on top of Strawn reef
Oil well
Gas well
Dry hole
Abandoned oil well
Abandoned gas well
Discovery
SCALE
N


G. H. & S. A. R. R. Co.
BLOCK L
STRAWN-OIL
STRAWN-GAS
OLDEST HORIZON
EXPLANATION
-2350 Contour on top of Palo Pinto formation
Oil well
Gas well
Dry hole
Abandoned oil well
Abandoned gas well
Discovery
SCALE
N

Parks
Penn
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
	COUNTY	Midland
	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Midland Basin
	FIELD	Parks
2, 12c	RESERVOIR	Pennsylvanian-Strawn-Bend
	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	326
12c	RESERVOIR LITHOLOGY	Strawn: limestone-finely crystalline to densely crystalline, fossiliferous, cherty. Bend: limestone, crystalline, fossiliferous, cherty.
12c	TRAPPING MECHANISM	Strawn: faulted anticlinal fold with porosity influencing accumulation. Bend: faulted anticline with termination of reservoir against fault.
2, 12c	DISCOVERY YEAR	12-1950
16c,2,12c	PROVED ACREAGE	2400, 7130, 400-S and 2880-B
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	10500, 10440
	RESERVOIR THICKNESS	
2	NET PAY	14
12c	GROSS	30 avg. Strawn; 46 avg. Bend
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.067
	PERMEABILITY	
	RANGE	
2	AVERAGE	3 md
2	HORIZONTAL	3 md
	VERTICAL	
	OTHER INFORMATION	Other production due to Devonian, Ellenburger, Sprayberry, Woldcamp 9335.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	86 (16P-32I-38A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	13,071.2
3	PRODUCTION 1-1-79 to 1-1-80	175.6 mbbls oil; 508.6 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Parks
2, 12c	RESERVOIR:	Penn
2, 16c, 12c	PROD. ACRES:	7130, 2400, 400S, 2880B
2	AVG. THICKNESS (FT.):	14
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	2.067
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.985(67)
16c	WATER SATURATION (S_w):	.33
	OIL SATURATION (S_o):	
12c	PRIMARY DRIVE MECHANISM:	depletion
12c	PRIMARY GAS CAP?:	no
16c	TEMPERATURE (°F):	174
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	3523
2	RESERVOIR PRESSURE INITIAL (psi):	4567
2	RESERVOIR PRESSURE LATEST (psi):	1600
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,12c	STOCK TANK OIL GRAVITY (°API):	45.5, 44.2, 43S-44B
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	2136
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	24,792 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	3,880 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Parks RESERVOIR: Pennsylvanian TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	205				
1977 PROD. (this project):	204				
CUM. PROD. FROM DISC. TO 1/78:	11480				
PROJECT NO.	F1509				
LEASE NO.(s):	04655				
OPERATOR:	Maddox Energy				
RESERVOIR:	Penn				
DEPTH PRODUCING ZONE:	10500				
PRODUCTIVE ACREAGE IN RESERVOIR:	7130				
ACREAGE IN PROJECT:	6090				
PORTION OR FIELD WIDE:	FW				
TYPE:	MD/SW, FW, Gas, LPG				
PATTERN:	PLD				
YEAR BEGAN:	2-55WF; 6-57LPG;	7-58Gas			
YEAR TERMINATED OR STATUS:	WF-IPD; Gas-IPD;	MD-ICP			
RESERVOIR PRESSURE INITIAL:	4567				
BEG. INJECTION:	1710				
LATEST:	1600				
NUMBER OF WELLS TOTAL:	86				
PRODUCING WELLS:	16				
INJECTION WELLS:	16SW				
MAXIMUM:	16SW				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	38				
SURFACE INJECTION PRESSURE:	1200SW; 3000FW				
EFFECTIVENESS OF INJECTION:	VE				
OPERATOR PROBLEMS:	IP, EP, EB				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	204				
FROM BEG. INJECTION:	7600				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	8708				
WATER PRODUCTION:					
CURRENT (1977):	377				
CUMULATIVE TO 1/78:	6996				
CURRENT (1977) INJECTION:	377SW; 275FW				
CUMULATIVE INJECTION:	MD-6996SW, 31259FW, 12452GAS, 1540LPG; PM-6192SW, 1986FW				

FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECON. GEOL. PUBL. 5716. August, 1957, Source 12c.

260

PARKS FIELD, Midland County, Texas

PRODUCTIVE AREAS

	Acres
Strawn	400
Bend	2,880
Ellenburger (depleted)	20
Parks field	3,280

THICKNESSES OF RESERVOIR ROCKS

	Feet		
	Min.	Max.	Avg.
Strawn	10	60	30
Bend	20	79	46
Ellenburger	28	28	28

ELEVATION AND RELIEF OF PRODUCTIVE ZONES

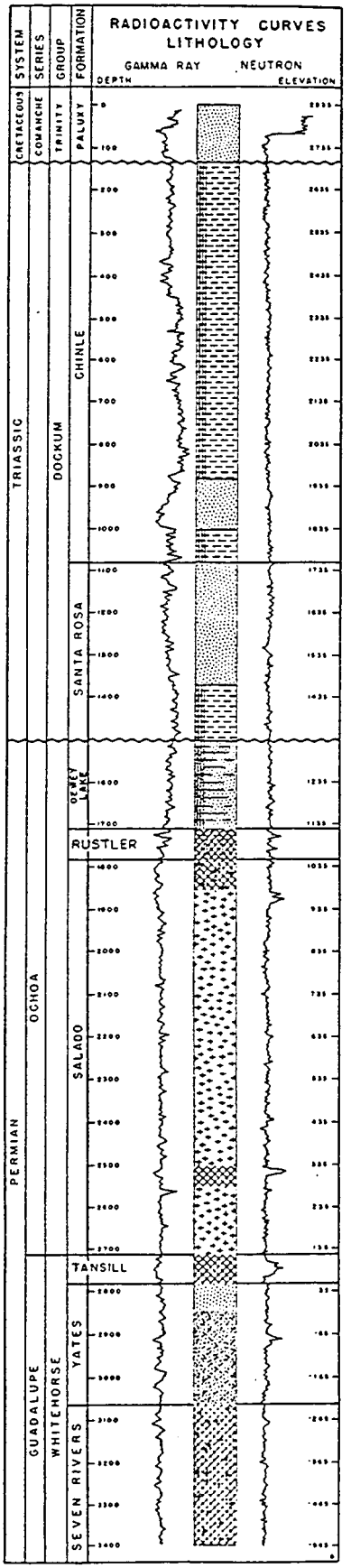
	Strawn	Bend	Ellenburger
No free gas in any reservoir			
Elevation of top of oil, feet	-7,401	-7,555	-10,107
Elevation of bottom of oil, ft.	-7,742	-7,877	-10,135
Relief, feet	341	322	28

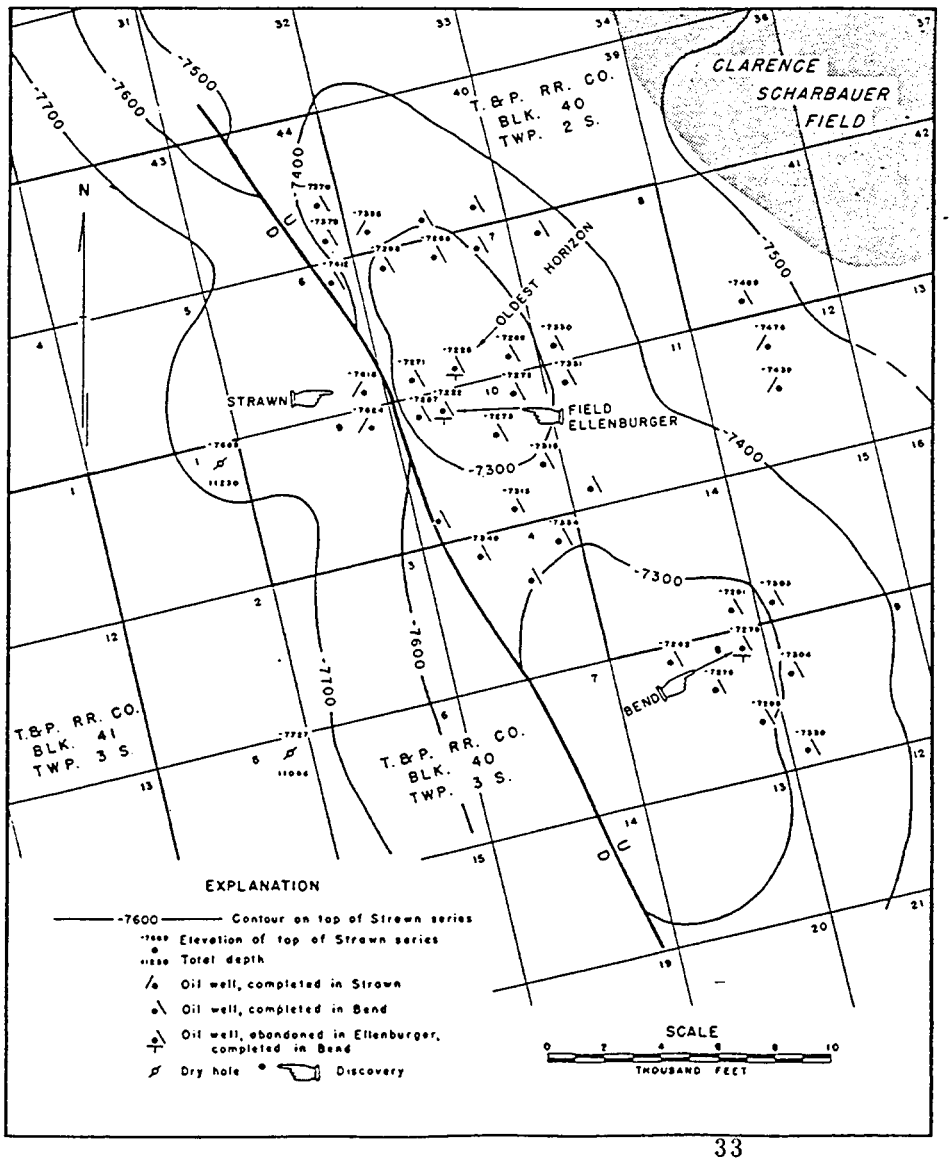
PRODUCTION HISTORY

Year	Wells producing at end of year: All flowing	Oil production (barrels): Yearly	Oil production (barrels): Cumulative
Field totals			
1950	2	62,840	62,840
1951	14	470,072	532,912
1952	29	789,002	1,321,914
1953	41	712,554	2,034,468
Strawn			
1951	3	49,616	49,616
1952	4	89,543	139,159
1953	5	74,278	213,437
Bend			
1950	1	5,516	5,516
1951	11	420,456	425,972
1952	25	699,459	1,125,431
1953	36	638,276	1,763,707
Ellenburger			
1950	1	57,324	57,324
1951	0	0	57,324

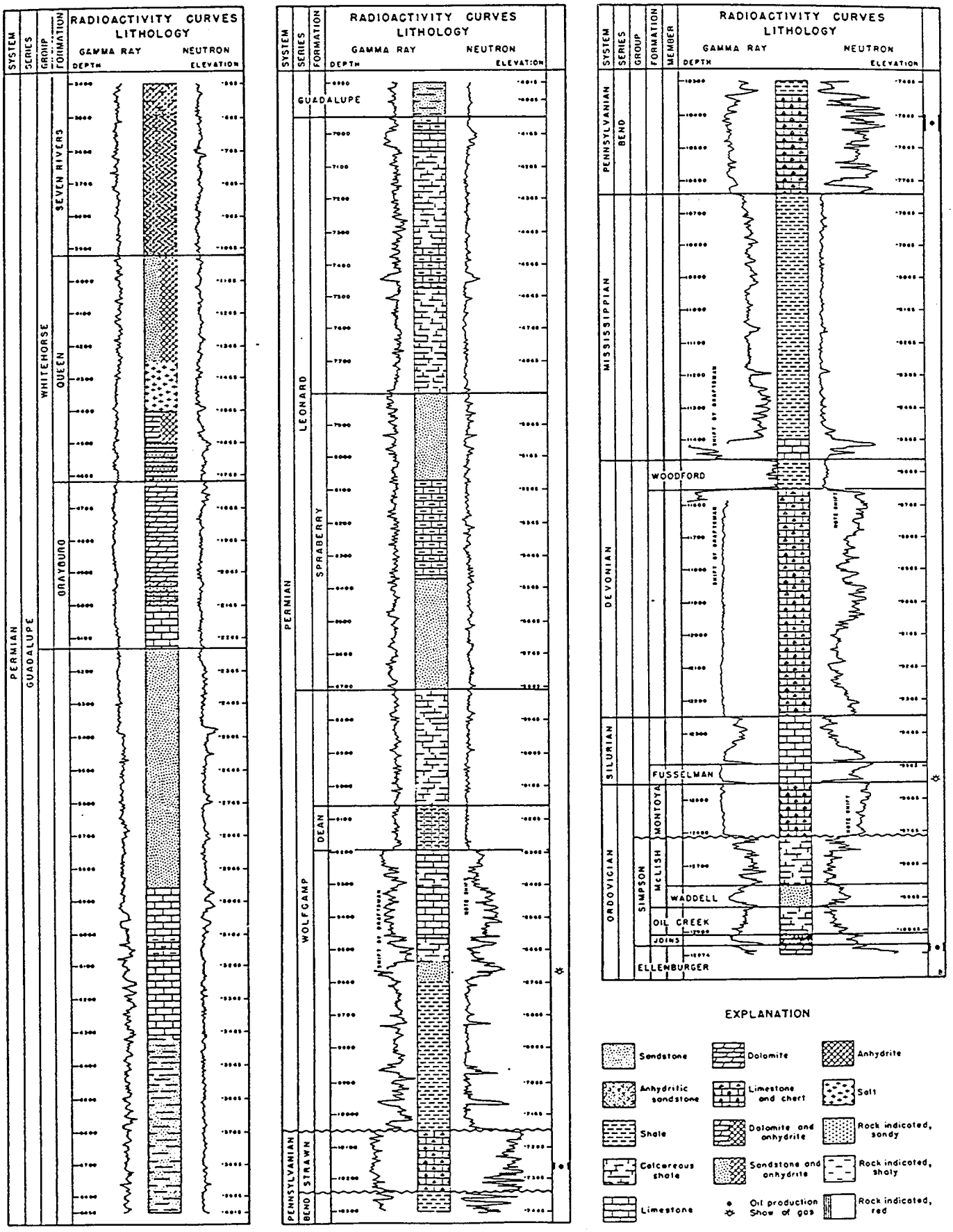
Only one well, the discovery well, has been completed for production from Ellenburger. It was abandoned in Ellenburger and plugged back to Bend in January 1951.

TYPICAL SECTION OF ROCKS PENETRATED





TYPICAL SECTION OF ROCKS PENETRATED



Parochial-Bade
Clear Fork
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
	COUNTY	Sterling
	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
	FIELD	Parochial-Bade
2	RESERVOIR	Clear Fork
	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2	DISCOVERY YEAR	4-1954
2,16c	PROVED ACREAGE	600, 1080
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	2250, 2211
	RESERVOIR THICKNESS	
2	NET PAY	20
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.163
	PERMEABILITY	
	RANGE	
2	AVERAGE	99 md
2	HORIZONTAL	99 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Cisco, Fusselman, Queen Sand, San Andres
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	7 (6P-1I-0A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	2,792.1
3	PRODUCTION 1-1-79 to 1-1-80	69.4 mbbls oil; .94 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Parochial-Bade
2, 16c	RESERVOIR:	Clear Fork
2	PROD. ACRES:	600, 1080
	AVG. THICKNESS (FT.):	20
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	98 (GG=1.1)
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	600
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 3	STOCK TANK OIL GRAVITY (°API):	28.0, 30
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1261
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	251 mbbls ?
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	300 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Parochial-Bade RESERVOIR: Clear Fork TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	20				
1977 PROD. (this project):	20				
CUM. PROD. FROM DISC. TO 1/78:	478				
PROJECT NO.	F1510				
LEASE NO.(s):	04661				
OPERATOR:	Amer. Petrofina				
RESERVOIR:	Clear Fork				
DEPTH PRODUCING ZONE:	2250				
PRODUCTIVE ACREAGE IN RESERVOIR:	600				
ACREAGE IN PROJECT:	94				
PORTION OR FIELD WIDE:	P				
TYPE:	WF/SW				
PATTERN:	SW				
YEAR BEGAN:	7-64				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	600				
BEG. INJECTION:	300				
LATEST:	---				
NUMBER OF WELLS TOTAL:	7				
PRODUCING WELLS:	6				
INJECTION WELLS:	1				
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	0				
SURFACE INJECTION PRESSURE:	---				
EFFECTIVENESS OF INJECTION:	---				
OPERATOR PROBLEMS:	CR				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	18				
FROM BEG. INJECTION:	181				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	300				
WATER PRODUCTION:					
CURRENT (1977):	133				
CUMULATIVE TO 1/78:	1054				
CURRENT (1977) INJECTION:	262				
CUMULATIVE INJECTION:	3279				

Pearl
San Andres
Northwest Shelf

DATA SOURCE CODE		
	STATE	New Mexico
	COUNTY	Lea
	REGULATORY DISTRICT	
	BASIN	Permian
15	SUB-BASIN	Northwest Shelf
13c,13b	FIELD	Pearl
13c,13b	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
18,13b	DISCOVERY YEAR	7-67
	PROVED ACREAGE	
18	REGULAR WELL SPACING (acres/well)	40
13c,13b	RESERVOIR DEPTH	5320
	RESERVOIR THICKNESS	
	NET PAY	
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
	FRACTION	
	PERMEABILITY	
	RANGE	
	AVERAGE	
	HORIZONTAL	
	VERTICAL	
13c	OTHER INFORMATION	Recommended for surfactant, CO_2, and polymer in GURC report-153.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS	1P
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	62
18	PRODUCTION 1-1-79 to 1-1-80	1.4 mbbls oil; 4.8 mbbls water
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Pearl
13c,13b	RESERVOIR:	San Andres
	PROD. ACRES:	
	AVG. THICKNESS (FT.):	
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_w):	
	OIL SATURATION (S_o):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
	TEMPERATURE (^oF):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
13c,13b	STOCK TANK OIL GRAVITY (^oAPI):	35
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

13c Recommended for surfactant, CO_2, polymer

Pecos Valley
Lower Permian
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Pecos
2	REGULATORY DISTRICT	8
2	BASIN	Permian
2	SUB-BASIN	Central Basin Platform
13c,2	FIELD	Pecos Valley
2	RESERVOIR	Lower Permian
8a	GEOLOGIC AGE	Wolfcamp
1	AAPG STRATIGRAPHIC AGE CODE	319
12c	RESERVOIR LITHOLOGY	Dolomite
12c	TRAPPING MECHANISM	Anticlinal folding
2,3	DISCOVERY YEAR	12-1956
2,12c	PROVED ACREAGE	1080, 320
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	5200, 5140
	RESERVOIR THICKNESS	
2,12c	NET PAY	40, 175
12c	GROSS	235
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.173
	PERMEABILITY	
	RANGE	
2	AVERAGE	4 md
2	HORIZONTAL	4 md
	VERTICAL	
12c	OTHER INFORMATION	Other production from Yates*, Whitehorse, Dolomite, Devonian, Fusselman, Montoya, McKee and Ellenburger
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	13 (10P, 3I, 0SI)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	116.7 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	9.1 mbbls oil; 4.5 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

*Yates cum: 2,240.8 mbbls

* Pecos Valley (high gravity) total 17,147.9 mbbls

Pecos Valley (low gravity) total 6,127.4 mbbls

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Pecos Valley
2	RESERVOIR:	Permian
2	PROD. ACRES:	1080
2, 2	AVG. THICKNESS (FT.):	40, 175
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_w):	
	OIL SATURATION (S_o):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
	RESERVOIR PRESSURE INITIAL (psi):	2600
2	RESERVOIR PRESSURE LATEST (psi):	648
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 3	STOCK TANK OIL GRAVITY (°API):	39, 37.6
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	8,500 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	1,300 mbbls

	OTHER INFORMATION:
12c	10 waterflood projects in 1956
12c	Reference: Ley, Ross H., 1956, Pecos Valley Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Econ. Geol., Pub. No. 5716, August 1957.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Pecos Valley RESERVOIR: Lower Permian TOTAL NO. PROJECTS: 2 PDS:

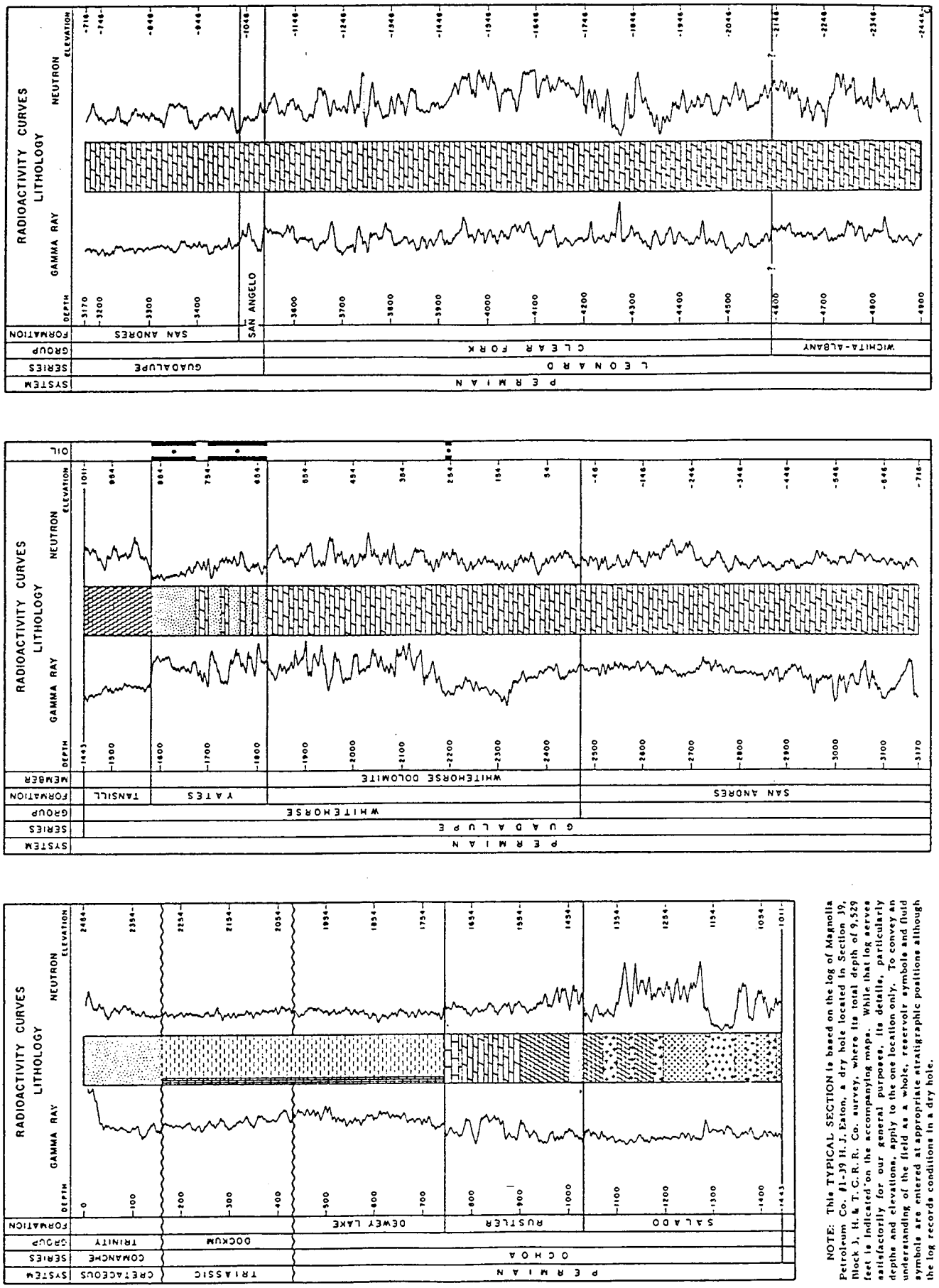
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	48				
1977 PROD. (this project):	43				
CUM. PROD. FROM DISC. TO 1/78:	1586				
PROJECT NO.	F1531				
LEASE NO.(s):	18664				
OPERATOR:	Magnatex				
RESERVOIR:	Lower Permian				
DEPTH PRODUCING ZONE:	5200				
PRODUCTIVE ACREAGE IN RESERVOIR:	1080				
ACREAGE IN PROJECT:	800				
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/BW				
PATTERN:	I				
YEAR BEGAN:	6-1961				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2600				
BEG. INJECTION:	2000				
LATEST:	648				
NUMBER OF WELLS TOTAL:	13				
PRODUCING WELLS:	10				
INJECTION WELLS:	3				
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	0				
SURFACE INJECTION PRESSURE:	3400				
EFFECTIVENESS OF INJECTION:	VE				
OPERATOR PROBLEMS:	---				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	43				
FROM BEG. INJECTION:	1216				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	1000?				
WATER PRODUCTION:					
CURRENT (1977):	---				
CUMULATIVE TO 1/78:	1226				
CURRENT (1977) INJECTION:	65				
CUMULATIVE INJECTION:	4872				

FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECON. GEOL. PUB. 5716.
August, 1957 Source 12c.

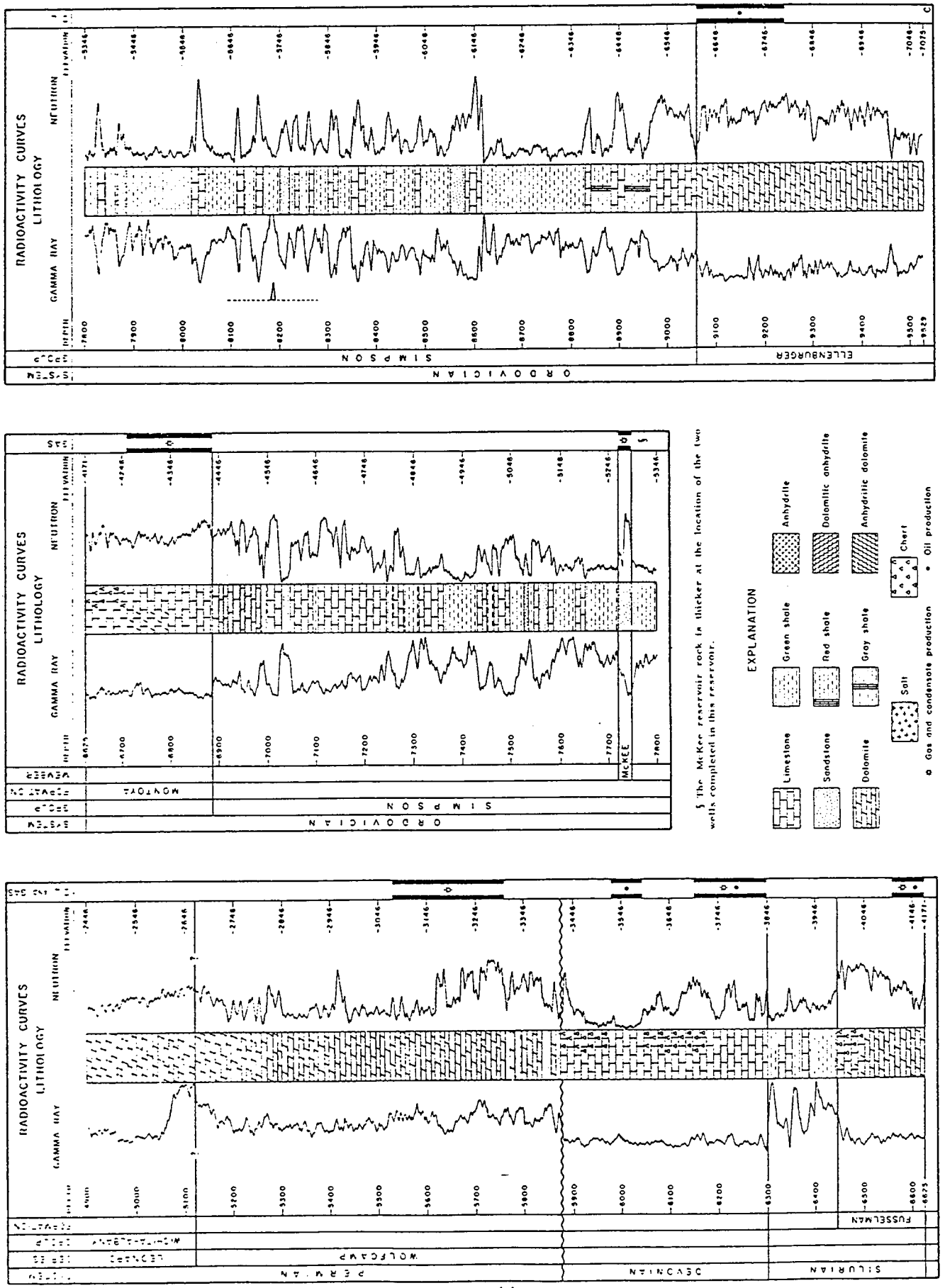
PECOS VALLEY FIELD, Pecos and Ward Counties, Texas

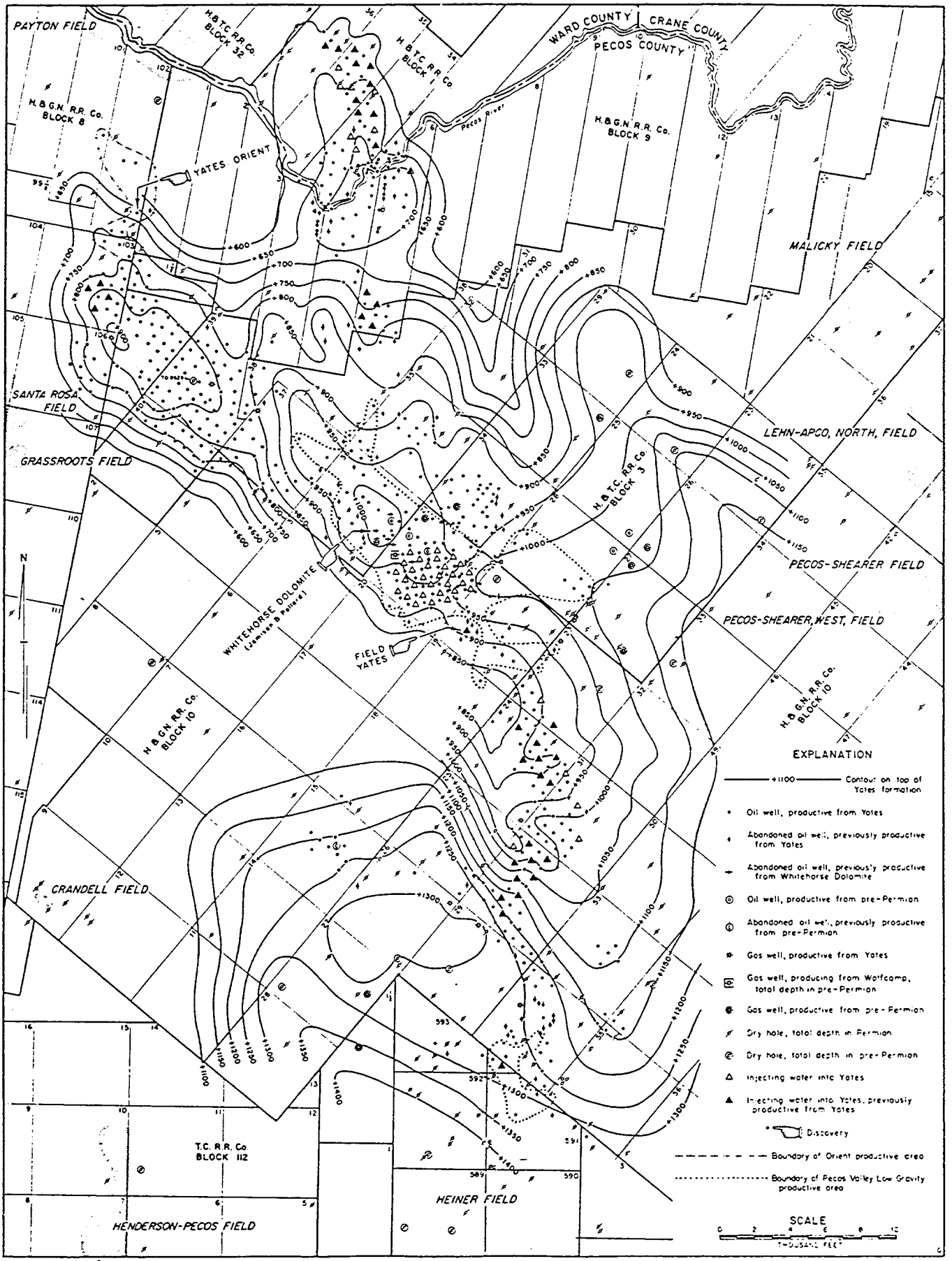
TYPICAL SECTION OF ROCKS PENETRATED



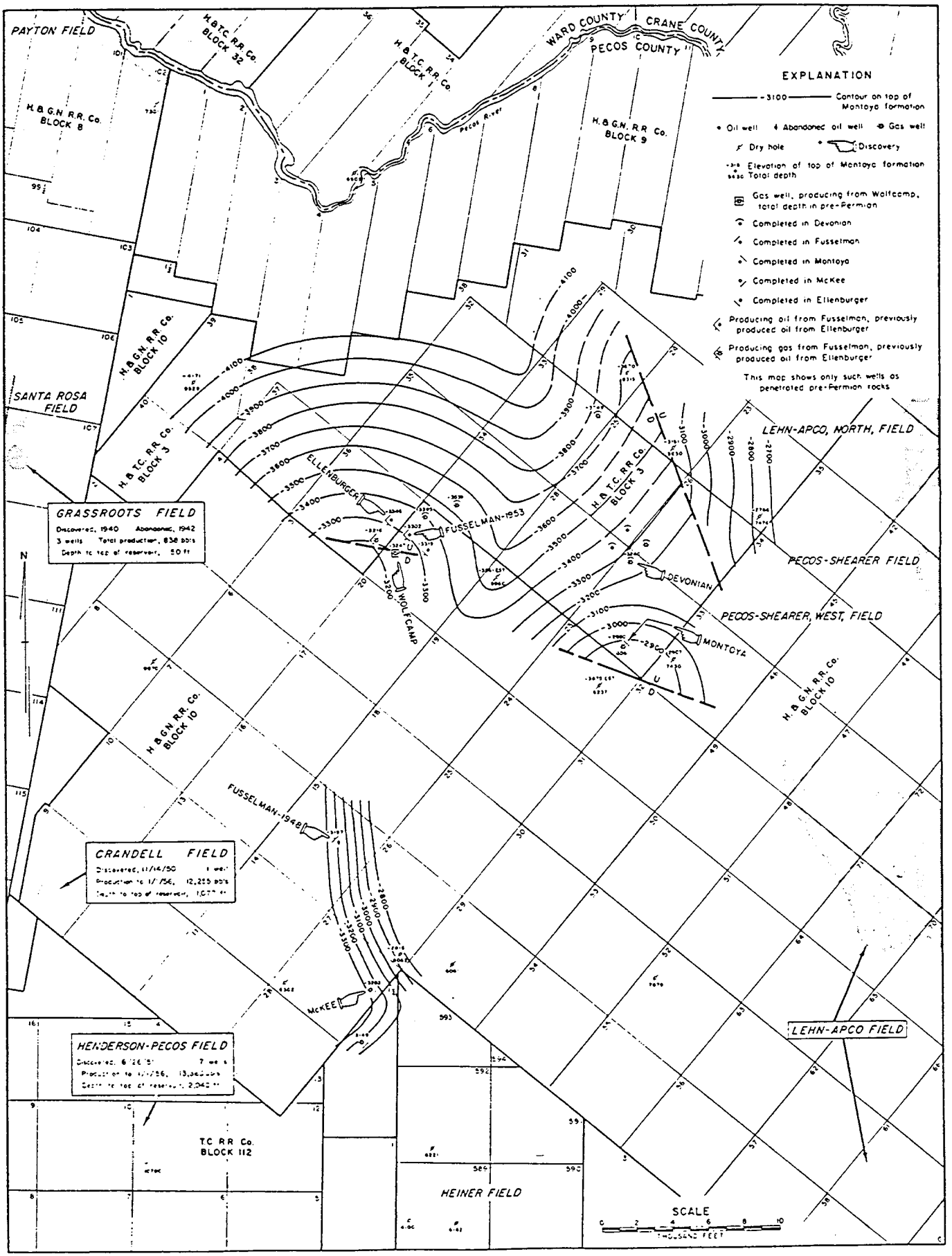
NOTE: This TYPICAL SECTION is based on the log of Magnolia Petroleum Co. #1-39 H. J. Eaton, a dry hole located in Section 39, Block 3, H. & T. C. R. R. Co. survey, where its total depth of 9,529 feet is indicated on the accompanying maps. While that log serves satisfactorily for our general purposes, its details, particularly depths and elevations, apply to the one location only. To convey an understanding of the field as a whole, reservoir symbols and fluid symbols are entered at appropriate stratigraphic positions although the log records conditions in a dry hole.

TYPICAL SECTION OF ROCKS PENETRATED




PAYTON FIELD
H.&T.C. R.R. Co. BLOCK 32
H.&T.C. R.R. Co. BLOCK 1
WARD COUNTY
CRANE COUNTY
PECOS COUNTY
Pecos River
H.&G.N. R.R. Co. BLOCK 8
H.&G.N. R.R. Co. BLOCK 9
YATES ORIENT
MALICKY FIELD
SANTA ROSA FIELD
GRASSROOTS FIELD
LEHN-APCO, NORTH, FIELD
H.&T.C. R.R. Co. BLOCK 3
PECOS-SHEARER FIELD
PECOS-SHEARER, WEST, FIELD
WHITEHORSE DOLOMITE (Jameson & Pollard)
FIELD YATES
H.&G.N. R.R. Co. BLOCK 10
CRANDELL FIELD
T.C. R.R. Co. BLOCK 112
HENDERSON-PECOS FIELD
HEINER FIELD
N
EXPLANATION
+1100 Contour on top of Yates formation
Oil well, productive from Yates
Abandoned oil well, previously productive from Yates
Abandoned oil well, previously productive from Whitehorse Dolomite
Oil well, productive from pre-Permian
Abandoned oil well, previously productive from pre-Permian
Gas well, productive from Yates
Gas well, producing from Wolfcamp, total depth in pre-Permian
Gas well, productive from pre-Permian
Dry hole, total depth in Permian
Dry hole, total depth in pre-Permian
Injecting water into Yates
Injecting water into Yates, previously productive from Yates
Discovery
Boundary of Orient productive area
Boundary of Pecos Valley Low Gravity productive area
SCALE
THOUSAND FEET

Source 12c.


PAYTON FIELD
H.&T.C. R.R. Co. BLOCK 32
H.&T.C. R.R. Co.
WARD COUNTY
CRANE COUNTY
PECOS COUNTY
Pecos River
H.&G.N. R.R. Co. BLOCK 8
H.&G.N. R.R. Co. BLOCK 9
H.&G.N. R.R. Co. BLOCK 10
SANTA ROSA FIELD
H.&T.C. R.R. Co. BLOCK 3
EXPLANATION
-3100 Contour on top of Montoya formation
Oil well
Abandoned oil well
Gas well
Dry hole
Discovery
Elevation of top of Montoya formation
Total depth
Gas well, producing from Wolfcamp, total depth in pre-Permian
Completed in Devonian
Completed in Fusselman
Completed in Montoya
Completed in McKee
Completed in Ellenburger
Producing oil from Fusselman, previously produced oil from Ellenburger
Producing gas from Fusselman, previously produced oil from Ellenburger
This map shows only such wells as penetrated pre-Permian rocks
LEHN-APCO, NORTH, FIELD
ELLENBURGER
FUSSELMAN-1953
WOLFCAMP
DEVONIAN
MONTOYA
PECOS-SHEARER FIELD
PECOS-SHEARER, WEST, FIELD
GRASSROOTS FIELD
Discovered, 1940 Abandoned, 1942
3 wells Total production, 838 bbls
Depth to top of reservoir, 50 ft
N
FUSSELMAN-1948
CRANDELL FIELD
McKEE
HENDERSON-PECOS FIELD
LEHN-APCO FIELD
TC RR Co. BLOCK 112
HEINER FIELD
SCALE
THOUSAND FEET

Pecos Valley
Devonian
Central Basin Platform

DATA SOURCE CODE		
2	STATE----------	Texas
2	COUNTY----------	Pecos
2	REGULATORY DISTRICT----------	8
2	BASIN----------	Permian
15	SUB-BASIN----------	Central Basin Platform
13c, 2	FIELD----------	Pecos Valley
2	RESERVOIR----------	Devonian (5400)
2	GEOLOGIC AGE----------	Devonian
1	AAPG STRATIGRAPHIC AGE CODE----------	340
12c	RESERVOIR LITHOLOGY----------	Finely crystalline, cherty limestone
12c	TRAPPING MECHANISM----------	Updip termination of reservoir rock by truncation with sealing by overlying relatively impervious rock.
2,3	DISCOVERY YEAR----------	5-1953, 7-1953
2,12c	PROVED ACREAGE----------	2400, 1400
	REGULAR WELL SPACING (acres/well)-----	
2,3	RESERVOIR DEPTH----------	5500, 5571
	RESERVOIR THICKNESS	
2,12c	NET PAY----------	150, 60
12c	GROSS----------	185
	NET/GROSS RATIO----------	
	POROSITY	
	TYPE----------	
2	FRACTION----------	.20
	PERMEABILITY	
	RANGE----------	
2	AVERAGE----------	4 md
2	HORIZONTAL----------	4 md
	VERTICAL----------	
12c	OTHER INFORMATION----------	Other production from Yates, Wolfcamp, Whitehorse dolomite, Fusselman, Montoya, McKee and Ellenburger.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS----------	22 (17P, 4BWI, 1Gas I)
	PRODUCTION 1976 oil (cum)----------	
	PRODUCTION 1977 oil (cum)----------	
	PRODUCTION 1978 oil (cum)----------	
3	PRODUCTION 1979 oil (cum)----------	4,619.0 mbbls
3	PRODUCTION 1-1-79 to 1-1-80----------	246.7 mbbls oil; 1,008.1 mmcf gas
2	SECONDARY RECOVERY RECORDS?----------	yes
	WATER ANALYSIS RECORDS?----------	
	OTHER DATA	
12c	STRUCTURE CONTOUR?----------	yes - see Pecos Valley-Wolfcamp
12c	LOGS?----------	yes - see Pecos Valley-Wolfcamp
	STRUCTURE SECTION?----------	
	ENGINEERING REPORTS?----------	
	CORE DESCRIPTIONS?----------	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Pecos Valley
2	RESERVOIR:	Devonian (5400)
2	PROD. ACRES:	2400
2	AVG. THICKNESS (FT.):	150
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
12c	PRIMARY DRIVE MECHANISM:	depletion
12c	PRIMARY GAS CAP?:	yes
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	2775
2	RESERVOIR PRESSURE LATEST (psi):	1773
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,12c	STOCK TANK OIL GRAVITY (°API):	40, 37.9, 34-38
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	23,000 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	2,200 mbbls

OTHER INFORMATION:

12c Reference: Ley, Ross H., 1956, Pecos Valley Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Econ. Geol., Pub. No. 5716, August 1957

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Pecos Valley RESERVOIR: Devonian (5400) TOTAL NO. PROJECTS: 1 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	237				
1977 PROD. (this project):	233				
CUM. PROD. FROM DISC. TO 1/78:	3291				
PROJECT NO.	F1515				
LEASE NO.(s):	20379				
OPERATOR:	Hunt, H.L. Est				
RESERVOIR:	Devonian				
DEPTH PRODUCING ZONE:	5500				
PRODUCTIVE ACREAGE IN RESERVOIR:	2400				
ACREAGE IN PROJECT:	1711				
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/BW, Gas				
PATTERN:	LD				
YEAR BEGAN:	11-67				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2775				
BEG. INJECTION:	1779				
LATEST:	1773				
NUMBER OF WELLS TOTAL:	22				
PRODUCING WELLS:	17				
INJECTION WELLS:	4 BW				
MAXIMUM:	1 Gas				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	0				
SURFACE INJECTION PRESSURE:	3500BW, 2200 Gas				
EFFECTIVENESS OF INJECTION:	VE				
OPERATOR PROBLEMS:	EP				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	233				
FROM BEG. INJECTION:	1091				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	2420				
WATER PRODUCTION:					
CURRENT (1977):	27				
CUMULATIVE TO 1/78:	222				
CURRENT (1977) INJECTION:	890BW; 724 Gas				
CUMULATIVE INJECTION:	5409BW; 5894 Gas				

Pegasus
Pennsylvanian
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Upton/Midland
1	REGULATORY DISTRICT	7C
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Pegasus
1,12c,2	RESERVOIR	Pennsylvanian-Bend
1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	320
12c, 1	RESERVOIR LITHOLOGY	Three beds of limestone-chalky,fine grained crystalline; dolomite.
12c, 1	TRAPPING MECHANISM	Convex folding; structural, anticline.
1,2,3,	DISCOVERY YEAR	1951, 4-1951
1,2,12c,16c	PROVED ACREAGE	900, 10500, 19200, 10000
1	REGULAR WELL SPACING (acres/well)	80
1,2,3	RESERVOIR DEPTH	10470, 10500, 10470
	RESERVOIR THICKNESS	
1,2,12c,16c	NET PAY	20, 27, 60, 28.5
12c	GROSS	290
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1,2	FRACTION	.067
	PERMEABILITY	
	RANGE	
1, 2	AVERAGE	9 md
2	HORIZONTAL	9 md
	VERTICAL	
3	OTHER INFORMATION	Other production from San Andres, Spraberry, Ellenburger, Devonian, Fusselman.
14e	PEGASUS-ELLENBURGER LISTED AS UNSUITABLE FOR EOR DUE TO FRACTURES BY BETC/RI-78/15.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	32P - 29I; 102 (24P-12I-66A)
1	PRODUCTION 1976 oil (cum)	13,796
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	14,287.9
3	PRODUCTION 1-1-79 to 1-1-80	139 mbbls oil; 242.2 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Pegasus
1,2, 12c	RESERVOIR:	Pennsylvanian
16c,1,2,12c	PROD. ACRES:	10000, 900, 10800, 19200
16c, 1,2,12c	AVG. THICKNESS (FT.):	28.5, 20, 27, 60
1, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	.19, 2.01
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.492(72)
1, 16c	WATER SATURATION (S_W):	.33, .33
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion
12c	PRIMARY GAS CAP?:	no
16c	TEMPERATURE (°F):	180
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	3448
1, 2	RESERVOIR PRESSURE INITIAL (psi):	4567
2	RESERVOIR PRESSURE LATEST (psi):	1500
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	1680
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
1,2,3,12c	STOCK TANK OIL GRAVITY (°API):	44, 43.8, 44, 44
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	2210
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	39,744 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	8,200 mbbls

OTHER INFORMATION:

1 Primary recoverable: 304 bbl/acre-ft.

16c OOIP: 81,300,000 bbl

12c Reference: Harbison, R. R., 1955, Pegasus Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Economic Geology, Publ. No. 5716, p. 271-276.

ENHANCED AND SECONDARY RECOVERY DATA:

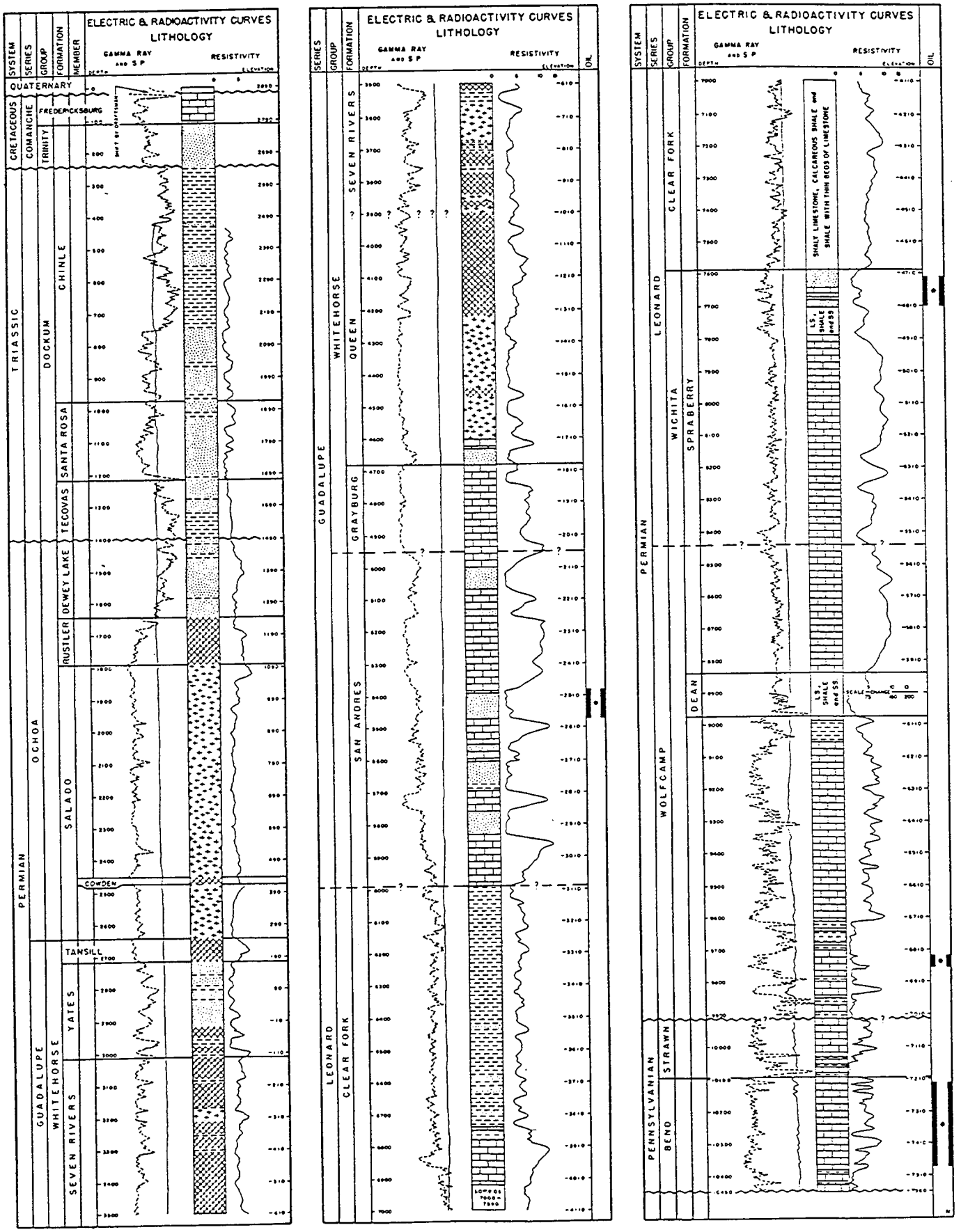
FIELD: Pegusus RESERVOIR: Pennsylvanian-Bend TOTAL NO. PROJECTS: 1 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	239				
1977 PROD. (this project):	175				
CUM. PROD. FROM DISC. TO 1/78:	12934				
PROJECT NO.	F1064				
LEASE NO.(s):	01178				
OPERATOR:	Mobile Oil				
RESERVOIR:	Pennsylvanian				Pennsylvanian
DEPTH PRODUCING ZONE:	10500				10470
PRODUCTIVE ACREAGE IN RESERVOIR:	10800				900
ACREAGE IN PROJECT:	8238				10000
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW, BW				WF
PATTERN:	5LD				
YEAR BEGAN:	2-55				1955
YEAR TERMINATED OR STATUS:	ICP				1968
RESERVOIR PRESSURE INITIAL:	4567				4567
BEG. INJECTION:	1850				
LATEST:	1500				
NUMBER OF WELLS TOTAL:	102				
PRODUCING WELLS:	24				32
INJECTION WELLS:	6SW				29
MAXIMUM:	6SW				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	66				
SURFACE INJECTION PRESSURE:	1900				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	CH, EP, PI				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	175				
FROM BEG. INJECTION:	5442				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	4799				
WATER PRODUCTION:					
CURRENT (1977):	344				
CUMULATIVE TO 1/78:	7103				
CURRENT (1977) INJECTION:	344SW; 323BW				
CUMULATIVE INJECTION:	7103SW; 40347BW				

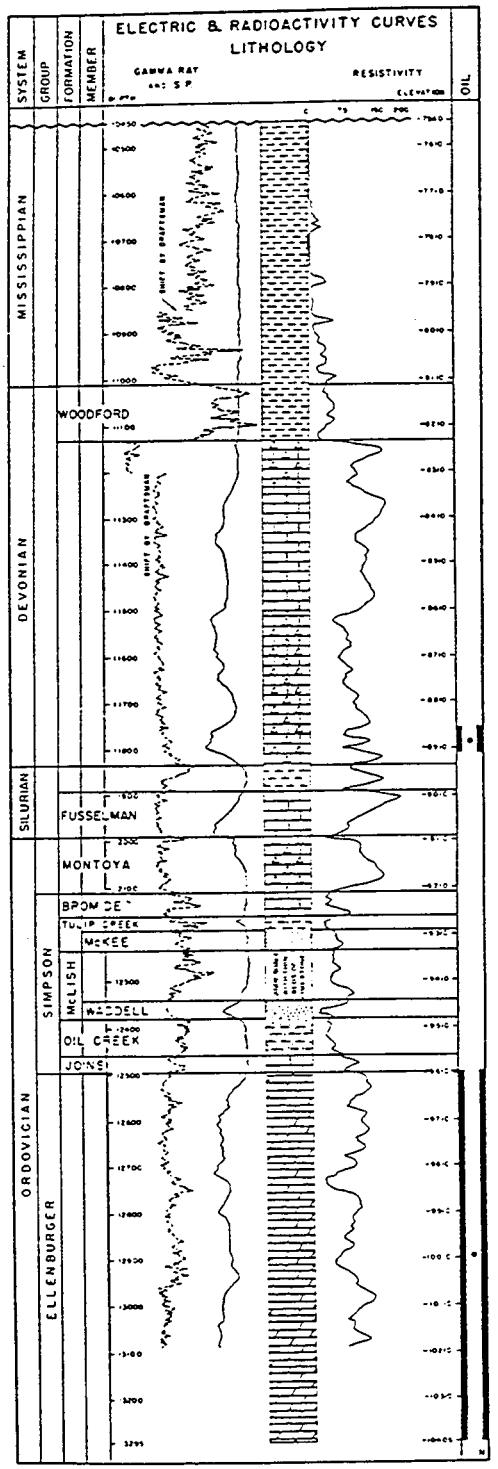
FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECON. GEOL. PUBLICATION NO. 5716, August, 1957, Source 12c

272 PEGASUS FIELD, Midland and Upton Counties, Texas

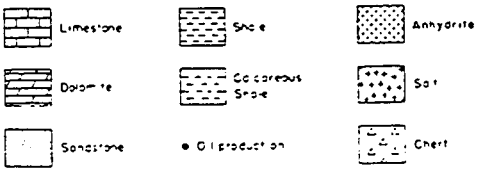
TYPICAL SECTION OF ROCKS PENETRATED

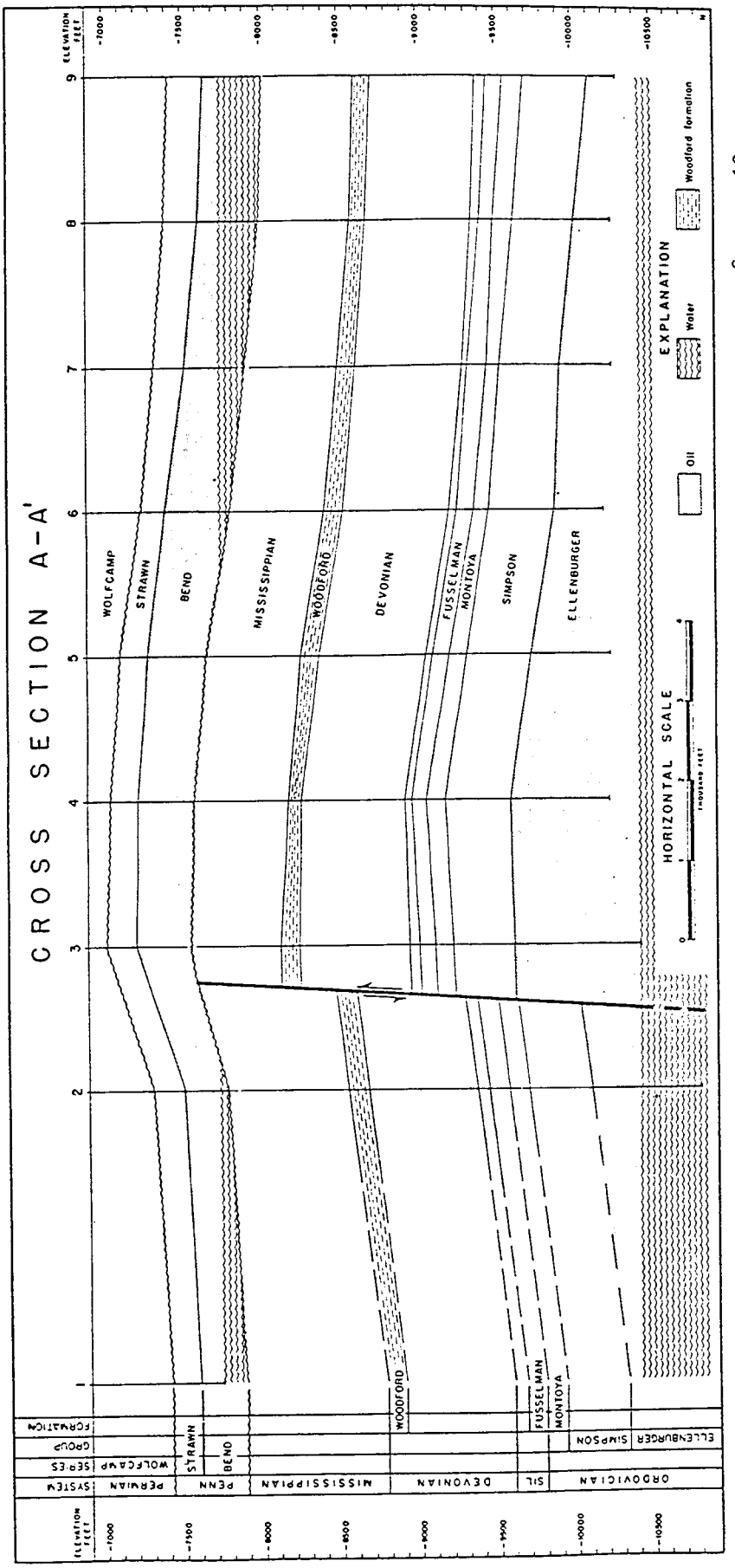


TYPICAL SECTION OF ROCKS PENETRATED



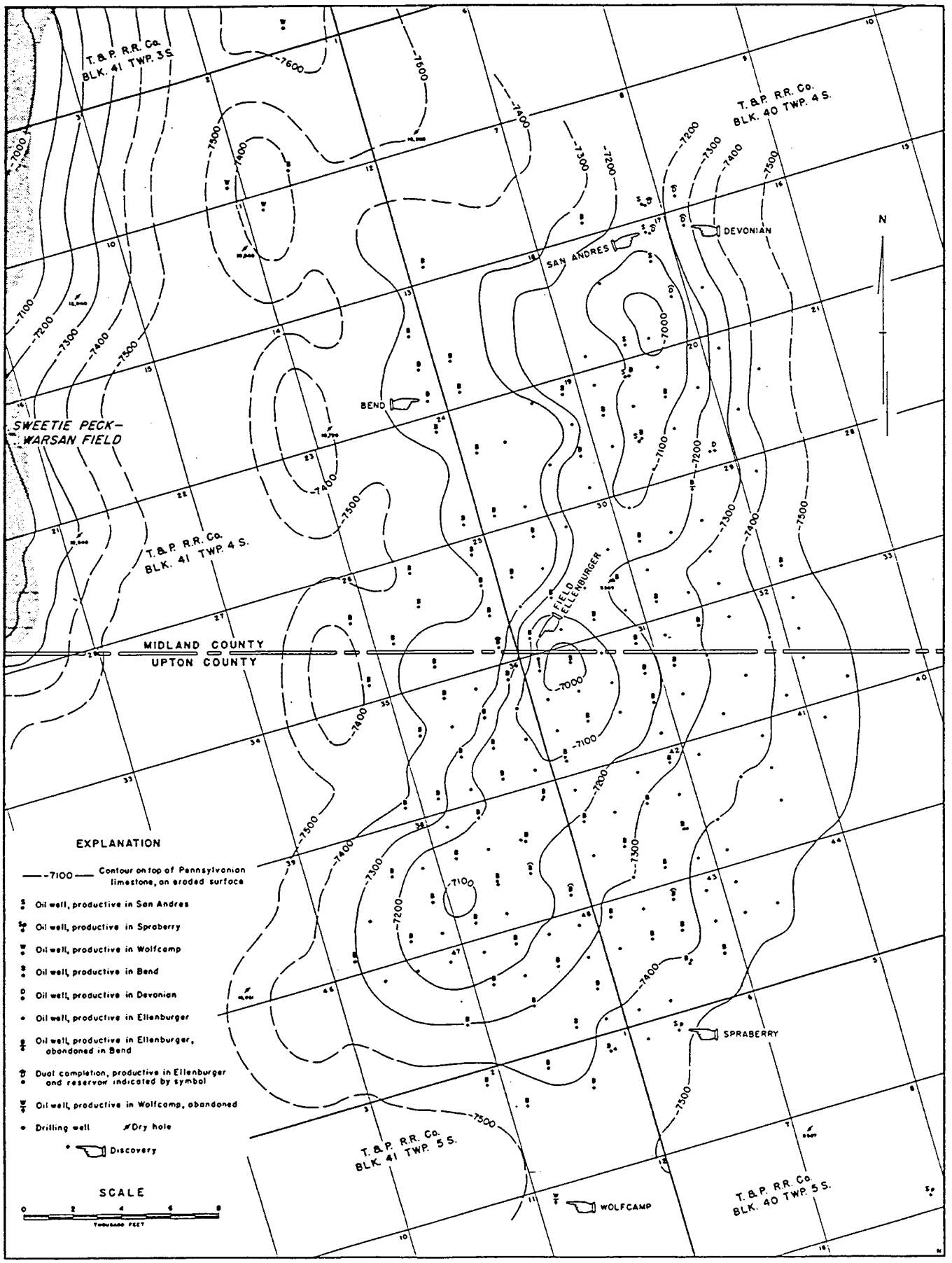
EXPLANATION



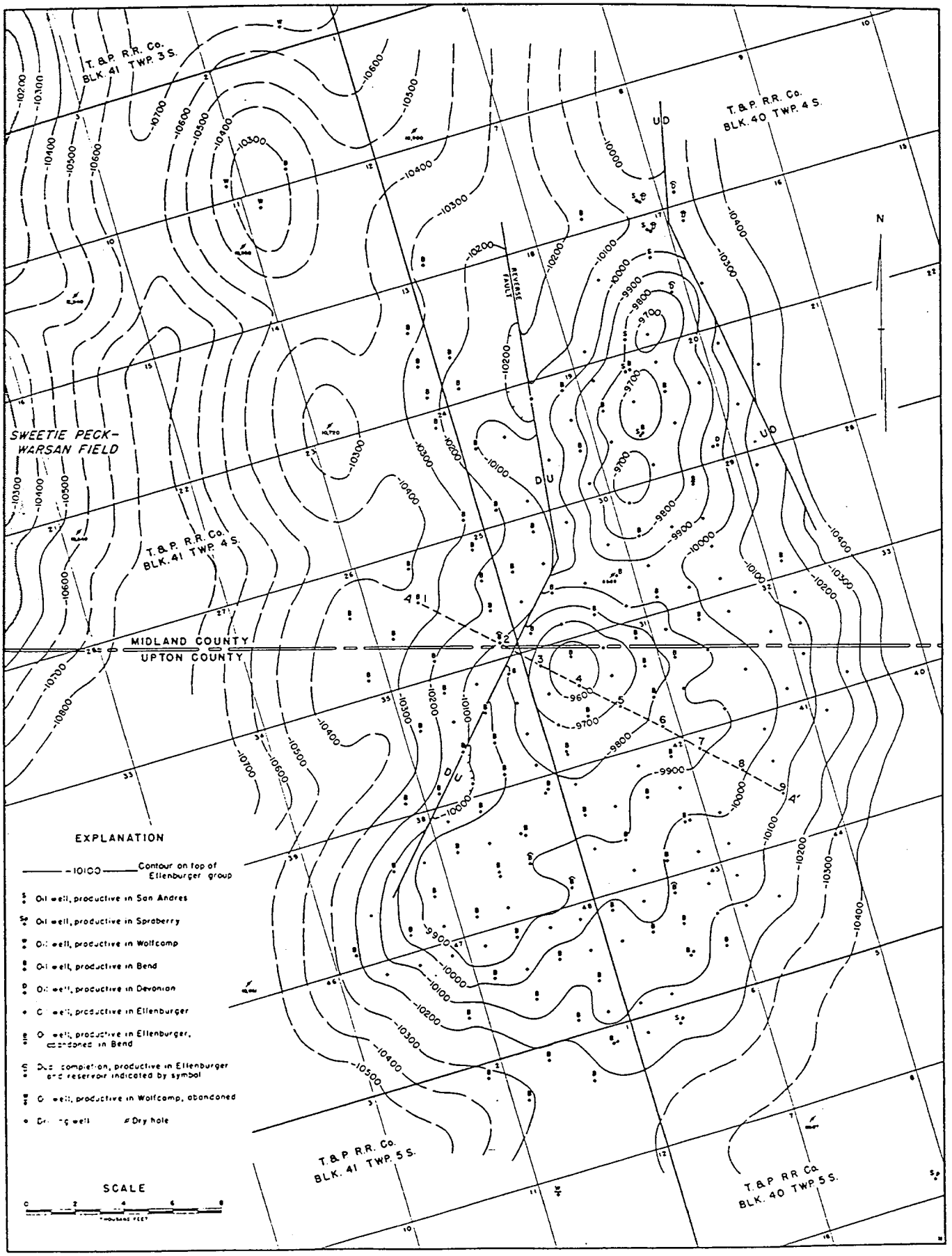


Source 12c

PEGASUS FIELD, Midland and Upton Counties, Texas



PEGASUS FIELD, Midland and Upton Counties, Texas



Penwell
San Andres
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Ector
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
2	FIELD	Penwell
2	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	3-1927; 1926
2, 16c	PROVED ACREAGE	7280-32,200 (16826 avg.); 14000
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	3400-3800; 3800
	RESERVOIR THICKNESS	
2	NET PAY	59.6 avg.
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.095 avg.
	PERMEABILITY	
2	RANGE	2-3 md
2	AVERAGE	2.75 md
2	HORIZONTAL	2.75 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Clear Fork, Devonian, Ellenburger, Fusselman, Penn, Waddel, Witchita-Albany, '4500'.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	630 (372P-160I-98A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	66,142.9
3	PRODUCTION 1-1-79 to 1-1-80	1,645.3 mbbls oil; 818.9 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Penwell
2, 16c	RESERVOIR:	San Andres
2	PROD. ACRES:	7280-32200; 14000
16c	AVG. THICKNESS (FT.):	59.6
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.22
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.16(70)
16c	WATER SATURATION (S_w):	.25-.35
16c	OIL SATURATION (S_o):	.57(75)
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	108
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1225
2	RESERVOIR PRESSURE INITIAL (psi):	1514 - 1850
2	RESERVOIR PRESSURE LATEST (psi):	450
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	32.4-37, 32.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1374
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	329,392 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	50,809 mbbls

OTHER INFORMATION:

16c Oil saturation: .57 (68)
.55 (70)
.48 (73)
.57 (75)

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Penwell RESERVOIR: San Andres TOTAL NO. PROJECTS: 3 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	435	349	129		
1977 PROD. (this project):	738	343	337		
CUM. PROD. FROM DISC. TO 1/78:	36093	13977	18387		
PROJECT NO.	F1533	F1370	F7469		
LEASE NO.(s):	21079	21556	23009		
OPERATOR:	Amer. Petrofina	Phillips	Texaco		
RESERVOIR:	San Andres	Glorieta-San An.	San Andres		
DEPTH PRODUCING ZONE:	3600	4300 & 3400	3800		
PRODUCTIVE ACREAGE IN RESERVOIR:	7280	11000	32200		
ACREAGE IN PROJECT:	3555	7832	4600		
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P		
TYPE:	WF/SW, BW	WF/SW, BW	WF/SW, BW		
PATTERN:	SW	MLD	5S		
YEAR BEGAN:	2-69	12-70	6-79		
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP		
RESERVOIR PRESSURE INITIAL:	1605	1850	1514		
BEG. INJECTION:	400	450	100		
LATEST:	---	450	---		
NUMBER OF WELLS TOTAL:	176	184	270		
PRODUCING WELLS:	105	129	138		
INJECTION WELLS:	18 SW	12SW	43SW		
MAXIMUM:	32 BW	12SW	43SW		
LATEST:	---	---	---		
SHUT-IN/ABANDONED WELLS:	21	31	46		
SURFACE INJECTION PRESSURE:	900	600	920		
EFFECTIVENESS OF INJECTION:	---	---	VE		
OPERATOR PROBLEMS:	PA, CH	---	CH, SC, EB		
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	573	86	---		
FROM BEG. INJECTION:	921	1293	---		
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	24412	3929	---		
WATER PRODUCTION:					
CURRENT (1977):	3751	395	1936		
CUMULATIVE TO 1/78:	8729	3150	2168		
CURRENT (1977) INJECTION:	3390SW; 5629BW	1186SW; 24BW	1936SW; 10357BW		
CUMULATIVE INJECTION:	10721SW; 33071BW	6125SW; 1287BW	2552SW; 25632BW		

P.H.D.
Glorieta
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Garza
1	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	P.H.D.
2	RESERVOIR	Glorieta
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1	RESERVOIR LITHOLOGY	Dolomite
	TRAPPING MECHANISM	
2,3,1	DISCOVERY YEAR	4-1955; 6-44; 1944
2, 16c	PROVED ACREAGE	550, 2720
1	REGULAR WELL SPACING (acres/well)	20
2,3,1	RESERVOIR DEPTH	4300, 3565, 3565
	RESERVOIR THICKNESS	
1,2,16c	NET PAY	60, 23, 30
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.136, .2
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	25, 11 md
2	HORIZONTAL	25 md
	VERTICAL	
	OTHER INFORMATION	Other production from basal San Andres Glorieta
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	53P; 12 (7P-1I-4A)
1	PRODUCTION 1976 oil (cum)	4883
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	5,406.9
3	PRODUCTION 1-1-79 to 1-1-80	187.2 mbbls oil; 26.8 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	P.H.D.
2	RESERVOIR:	Glorieta
2, 16c	PROD. ACRES:	550, 2720
1,2,16c	AVG. THICKNESS (FT.):	60, 23, 30
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.2
	FORMATION VOLUME FACTOR LATEST (FVF):	
16c	WATER SATURATION (S_W):	.331 - 42
16c	OIL SATURATION (S_O):	.549
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (^oF):	108
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	756
2	RESERVOIR PRESSURE INITIAL (psi):	1575
2	RESERVOIR PRESSURE LATEST (psi):	25
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	172.3(76), 172
2,3,1	STOCK TANK OIL GRAVITY (^oAPI):	35.5, 38.1, 38.1
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1352
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	no estimate
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	no estimate

OTHER INFORMATION:

1 P.H.D. San Andres Lower transferred to P.H.D. 2-1955

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: P.H.D. RESERVOIR: Glorieta TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	21				
1977 PROD. (this project):	17				
CUM. PROD. FROM DISC. TO 1/78:	911				
PROJECT NO.	F1819				
LEASE NO.(s):	60479				
OPERATOR:	Maddox Energy				
RESERVOIR:	Glorieta				
DEPTH PRODUCING ZONE:	4300				
PRODUCTIVE ACREAGE IN RESERVOIR:	550				
ACREAGE IN PROJECT:	340				
PORTION OR FIELD WIDE:	P				
TYPE:	WF/SW				
PATTERN:	SW				
YEAR BEGAN:	12-66				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	1575				
BEG. INJECTION;	325				
LATEST:	25				
NUMBER OF WELLS TOTAL:	12				
PRODUCING WELLS:	7				
INJECTION WELLS:	1				
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	4				
SURFACE INJECTION PRESSURE:	---				
EFFECTIVENESS OF INJECTION:	NE				
OPERATOR PROBLEMS:	CR, SC, PA				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---				
FROM BEG. INJECTION:	---				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---				
WATER PRODUCTION:					
CURRENT (1977):	21				
CUMULATIVE TO 1/78:	666				
CURRENT (1977) INJECTION:	21				
CUMULATIVE INJECTION:	956				

Priest & Beavers
Queen (SS)
Sheffield Channel/
Delaware

DATA SOURCE CODE		
	STATE	Texas
5a	COUNTY	Pecos
5a	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Sheffield Channel of Delaware Basin
5a	FIELD	Priest & Beavers
2	RESERVOIR	Queen SS
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
5a	RESERVOIR LITHOLOGY	Sandstone pays with dense dolomite separating upper & lower pay zones. Pay consists of sandy dolomite to medium gained calcareous sandstone.
5a	TRAPPING MECHANISM	Structural and stratigraphic combination
2,5a,3	DISCOVERY YEAR	8-1957; 8-1958; 8-1957
2,5a,16c	PROVED ACREAGE	1760, 1900, 1900
5a	REGULAR WELL SPACING (acres/well)	40
2,5a,3	RESERVOIR DEPTH	2290, 2180-2220, 2180
	RESERVOIR THICKNESS	
2,5a,16c	NET PAY	30, 29, 29
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,5a	FRACTION	.145
	PERMEABILITY	
	RANGE	
2, 5a	AVERAGE	22 md
2	HORIZONTAL	22 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Priest & Beavers East (Owen), Priest & Beavers West (Wolfcamp), Priest & Beavers West (Yates).
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	16 (11P-3I-2A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	1,932.9
3	PRODUCTION 1-1-79 to 1-1-80	29.9 mbbls oil; 4.7 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5a	STRUCTURE CONTOUR?	yes
5a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

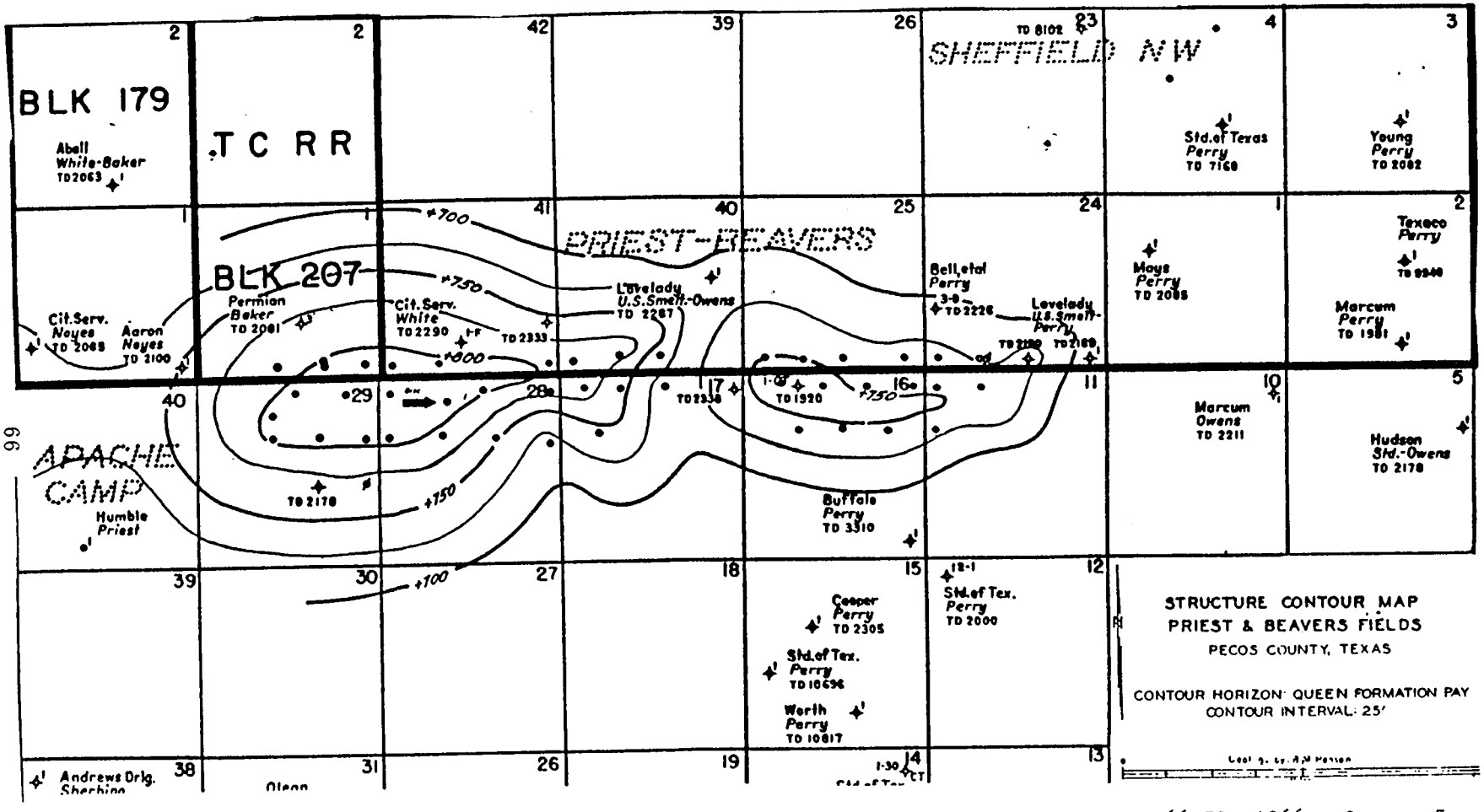
DATA SOURCE CODE		
2	FIELD:	Priest & Beavers
2, 5a, 16c	RESERVOIR:	Queen
2,5a,16c	PROD. ACRES:	1760, 1900, 1900
16c	AVG. THICKNESS (FT.):	30, 29, 29
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.1
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.14(74)
16c	WATER SATURATION (S_W):	.42
16c	OIL SATURATION (S_O):	.58 (76)
5a	PRIMARY DRIVE MECHANISM:	fluid expansion
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	87
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
5a	RESERVOIR PRESSURE INITIAL (psi):	791
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,5a,3	STOCK TANK OIL GRAVITY (°API):	31.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1121
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	no estimate
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	no estimate

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Priest & Beavers RESERVOIR: Queen SS TOTAL NO. PROJECTS: 1 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	18				
1977 PROD. (this project):	25				
CUM. PROD. FROM DISC. TO 1/78:	721				
PROJECT NO.	F4367				
LEASE NO.(s):	14792, 24297				
OPERATOR:	Austral Oil				
RESERVOIR:	Queen				
DEPTH PRODUCING ZONE:	2290				
PRODUCTIVE ACREAGE IN RESERVOIR:	1760				
ACREAGE IN PROJECT:	680				
PORTION OR FIELD WIDE:	?				
TYPE:	WF/SW				
PATTERN:	5S				
YEAR BEGAN:	12-66				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	791 (5a)				
BEG. INJECTION:	---				
LATEST:	---				
NUMBER OF WELLS TOTAL:	16				
PRODUCING WELLS:	11				
INJECTION WELLS:	3				
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	2				
SURFACE INJECTION PRESSURE:	1180				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	CR, SC				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	7				
FROM BEG. INJECTION:	7				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	384				
WATER PRODUCTION:					
CURRENT (1977):	158				
CUMULATIVE TO 1/78:	1920				
CURRENT (1977) INJECTION:	405				
CUMULATIVE INJECTION:	2188				

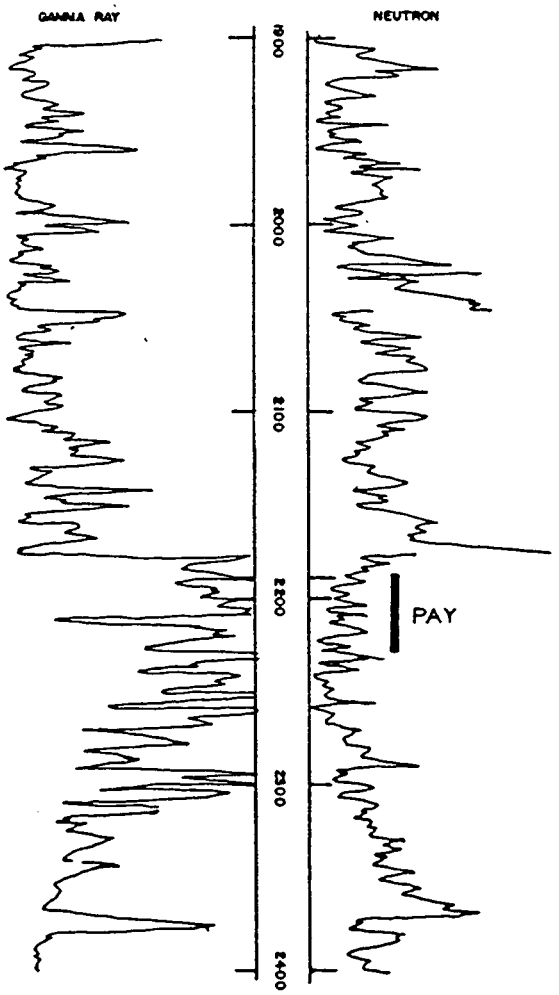


FROM: OIL & GAS FIELDS IN WEST TEXAS - SYMPOSIUM: WEST TEXAS GEOLOGICAL SOCIETY PUB. NO. 66-52, 1966. Source 5a.

Source 5a

PRIEST & BEAVERS FIELD

TYPE LOG



Quinduno
Albany Dolomite
Anadarko

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Roberts
	REGULATORY DISTRICT	10
	BASIN	Permian
1	SUB-BASIN	Anadarko
1	FIELD	Quinduno
1	RESERVOIR	Albany Dolomite, Lower
1	GEOLOGIC AGE	Wolfcamp
1	AAPG STRATIGRAPHIC AGE CODE	319
1	RESERVOIR LITHOLOGY	Dolomite
1	TRAPPING MECHANISM	Structural-Anticline
3, 1	DISCOVERY YEAR	5-52, 1952
	PROVED ACREAGE	
1	REGULAR WELL SPACING (acres/well)	40
1, 3	RESERVOIR DEPTH	4008
	RESERVOIR THICKNESS	
1	NET PAY	25
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
1	TYPE	IC
1	FRACTION	.15
	PERMEABILITY	
	RANGE	
1	AVERAGE	18 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from LeCompton, Penn, and Toronto
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	91P
1	PRODUCTION 1976 oil (cum)	14,494
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	14,797.4
3	PRODUCTION 1-1-79 to 1-1-80	93.7 mbbls oil; 1,490.2 mmcf gas
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Quinduno
1	RESERVOIR:	Albany Dolomite, Lower
	PROD. ACRES:	
1	AVG. THICKNESS (FT.):	25
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.5
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_w):	.35
	OIL SATURATION (S_o):	
1	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	144 (GG-1.0)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	38,951
1	RESERVOIR PRESSURE INITIAL (psi):	1010
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	22,343
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	24,257 (76); 24,257
1, 3	STOCK TANK OIL GRAVITY (°API):	47.6
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1756
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

Reeves
San Andres
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
2,5a	COUNTY	Yoakum (M)
2,5a	REGULATORY DISTRICT	8A
5a	BASIN	Permian
15	SUB-BASIN	Midland Basin
2	FIELD	Reeves
2	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
5a	RESERVOIR LITHOLOGY	Crystalline dolomite and dolomitized limestone.
5a	TRAPPING MECHANISM	Stratigraphic trap, updip and lateral loss of porosity and permeability.
2,3,5a	DISCOVERY YEAR	4-1957; 3-1957; 4-57
2,5a	PROVED ACREAGE	6840, 5480
5a	REGULAR WELL SPACING (acres/well)	40
2,3,5a	RESERVOIR DEPTH	5600, 5544, 5544-77
	RESERVOIR THICKNESS	
2,16c	NET PAY	45
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
5a	TYPE	IC, F
2,5a	FRACTION	.117
	PERMEABILITY	
2,5a	RANGE	2.7 - 3 md
2	AVERAGE	3 md
2	HORIZONTAL	3 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Leonard, Strawn, 11500
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
5a, 2	TOTAL NUMBER OF WELLS	127P-1A; 183 (60P-62I-61A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	20,226.4
3	PRODUCTION 1-1-79 to 1-1-80	733.4 mbbls oil; 232.5 mmcf gas
2	SECONDARY RECOVERY RECORDS?	Yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5a	STRUCTURE CONTOUR?	yes
5a	LOGS?	yes
5a	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Reeves
2, 5a	RESERVOIR:	San Andres
2, 16c	PROD. ACRES:	6840, 5480
16c	AVG. THICKNESS (FT.):	45
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.17
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.17 (76)
16c	WATER SATURATION (S_w):	.30-.357
16c	OIL SATURATION (S_o):	.55 (71)
5a	PRIMARY DRIVE MECHANISM:	solution gas
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	113
16c, 5a	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	840, 825
2, 5a	RESERVOIR PRESSURE INITIAL (psi):	2000
2	RESERVOIR PRESSURE LATEST (psi):	1800
5a	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	361
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,5a	STOCK TANK OIL GRAVITY (°API):	31, 35, 33
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1425
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	87,980 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	14,890 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Reeves RESERVOIR: San Andres TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	960				
1977 PROD. (this project):	877				
CUM. PROD. FROM DISC. TO 1/78:	18622				
PROJECT NO.	F1828				
LEASE NO.(s):	19574				
OPERATOR:	Santa Fe				
RESERVOIR:	San Andres				
DEPTH PRODUCING ZONE:	5600				
PRODUCTIVE ACREAGE IN RESERVOIR:	6840				
ACREAGE IN PROJECT:	4843				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW, BW				
PATTERN:	P5				
YEAR BEGAN:	10-76				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2000				
BEG. INJECTION:	700				
LATEST:	1800				
NUMBER OF WELLS TOTAL:	183				
PRODUCING WELLS:	60				
INJECTION WELLS:	25SW				
MAXIMUM:	37BW				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	61				
SURFACE INJECTION PRESSURE:	1200				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	CR, CH, SC, PA				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	877				
FROM BEG. INJECTION:	6535				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	10000				
WATER PRODUCTION:					
CURRENT (1977):	989				
CUMULATIVE TO 1/78:	5474				
CURRENT (1977) INJECTION:	938SW; 1675BW				
CUMULATIVE INJECTION:	1165SW; 29109BW				

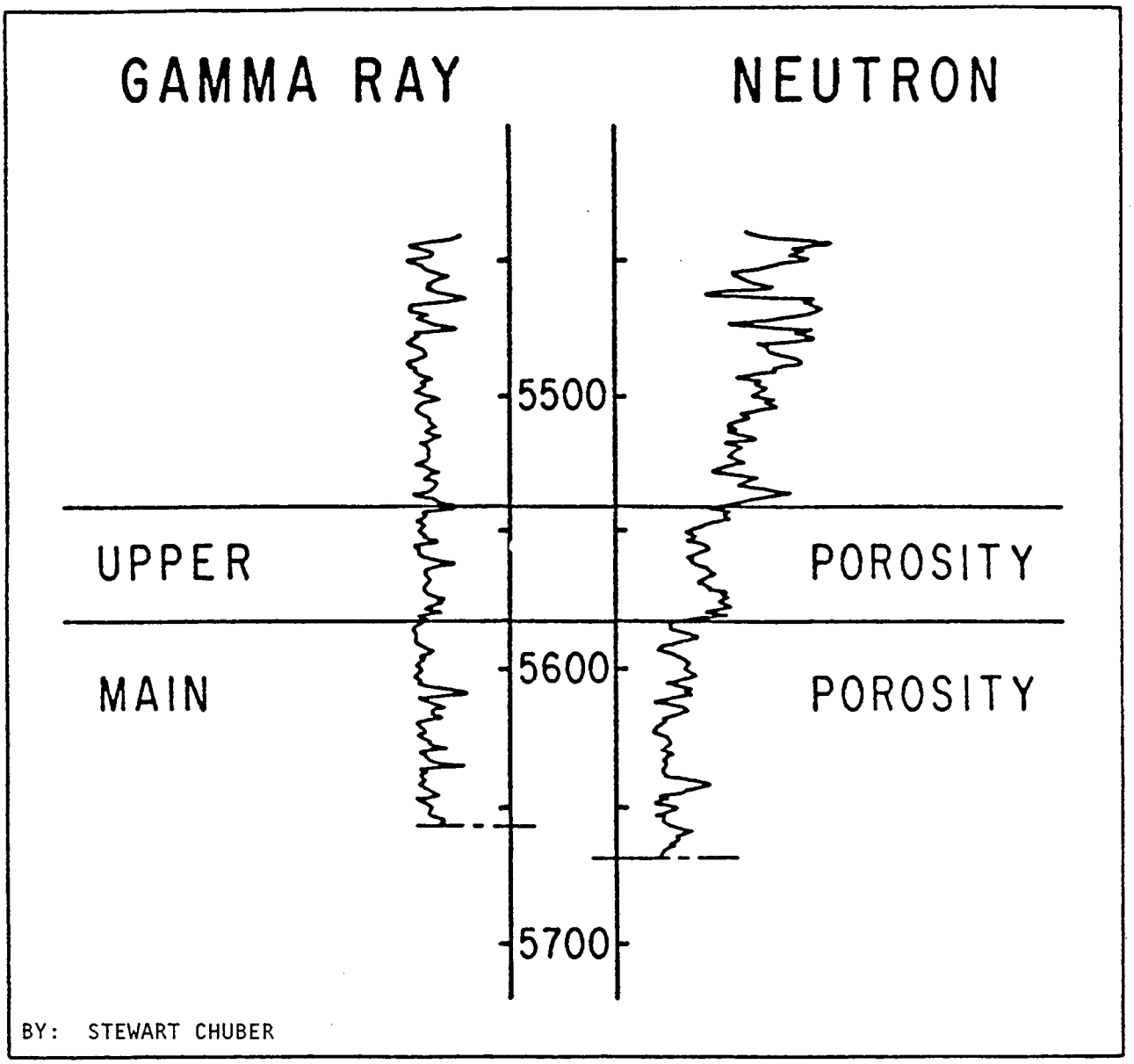
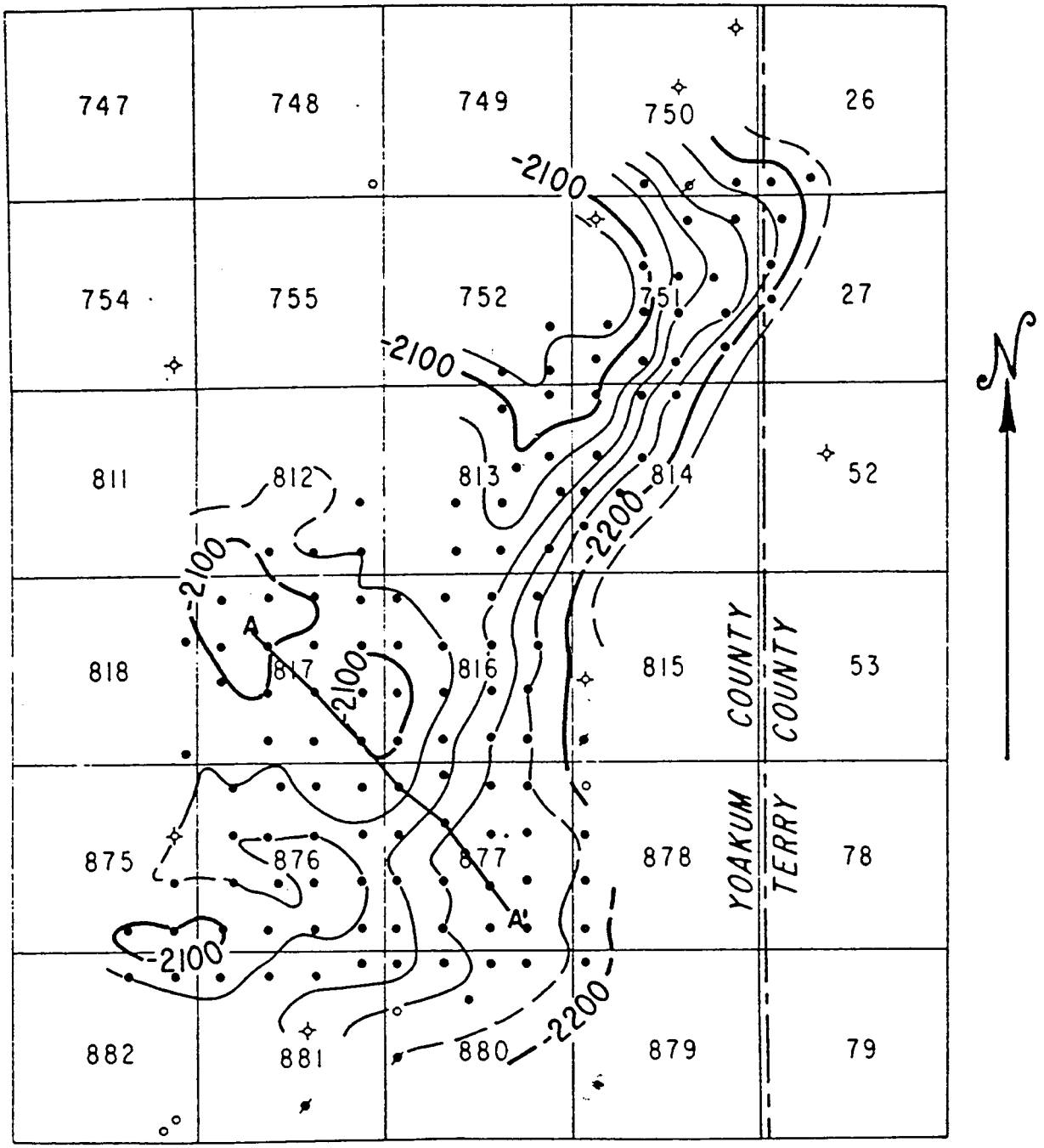


FIGURE 1 – TYPE LOG, REEVES (SAN ANDRES) FIELD.



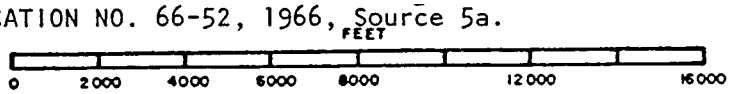
REEVES FIELD, YOAKUM COUNTY, TEXAS

Figure 2—STRUCTURE MAP of MAIN POROSITY

Contour Interval: 20 feet

S. Chuber and L.D. Sipes

FROM: OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM: WEST TEXAS GEOLOGICAL SOCIETY PUBLICATION NO. 66-52, 1966, Source 5a.



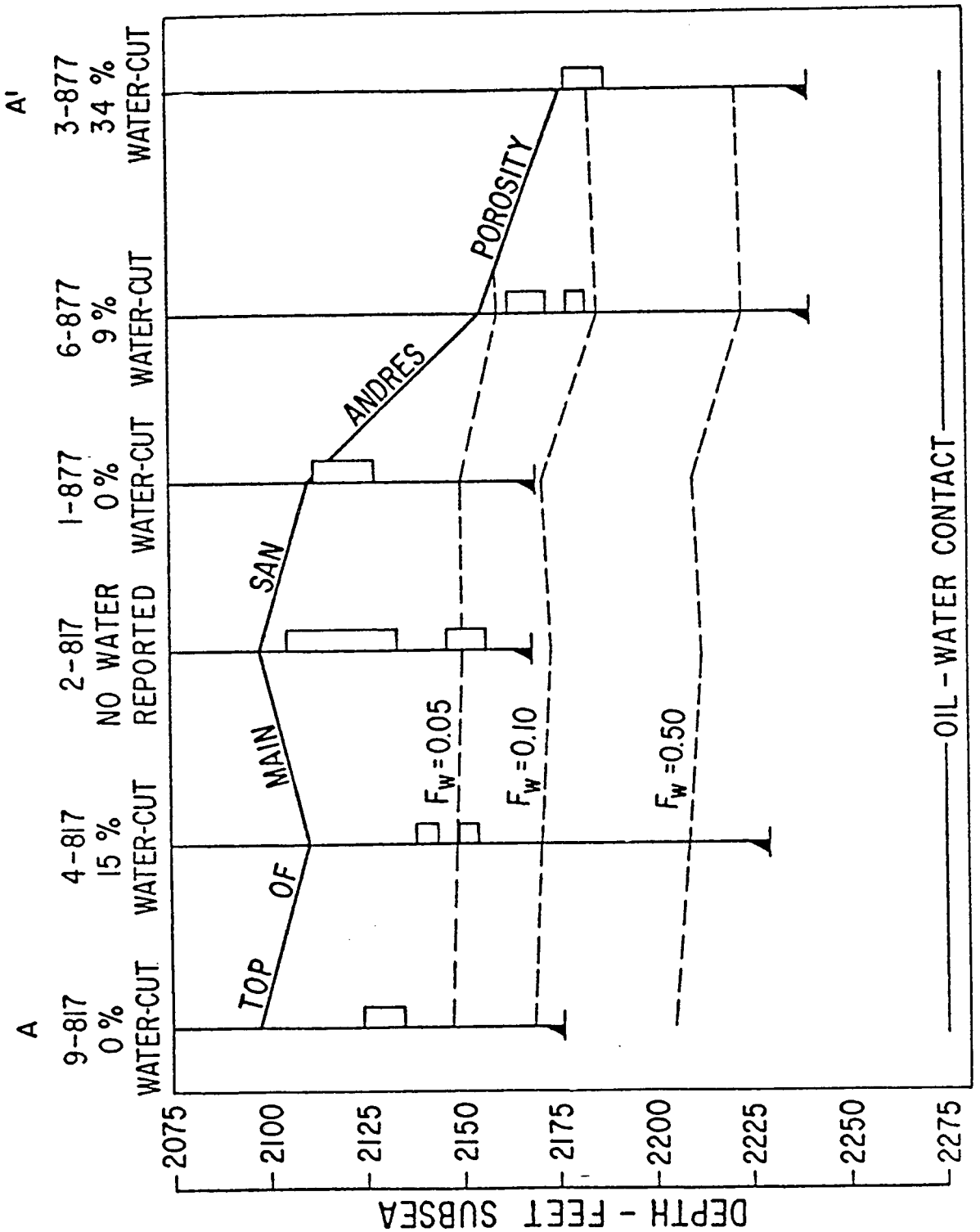
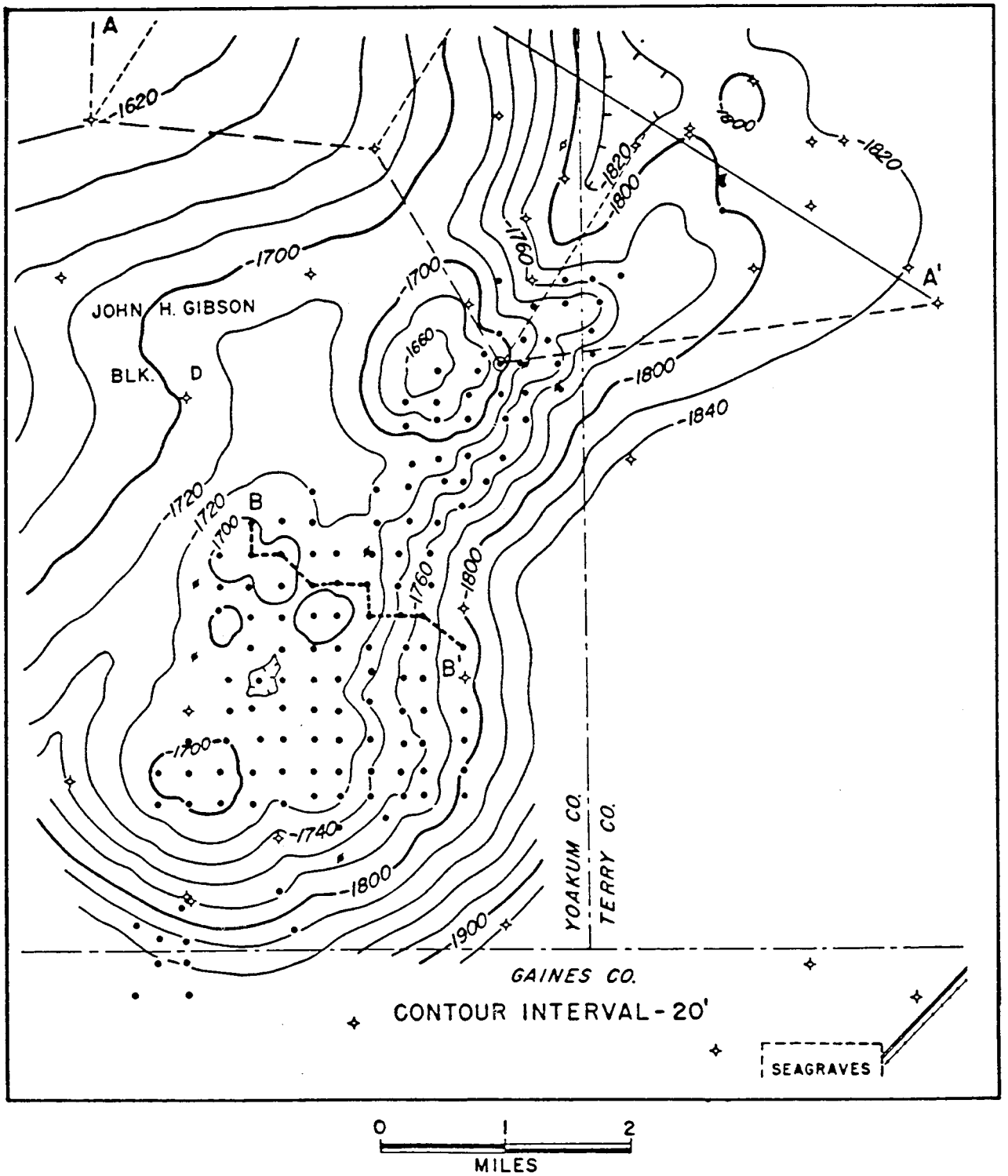
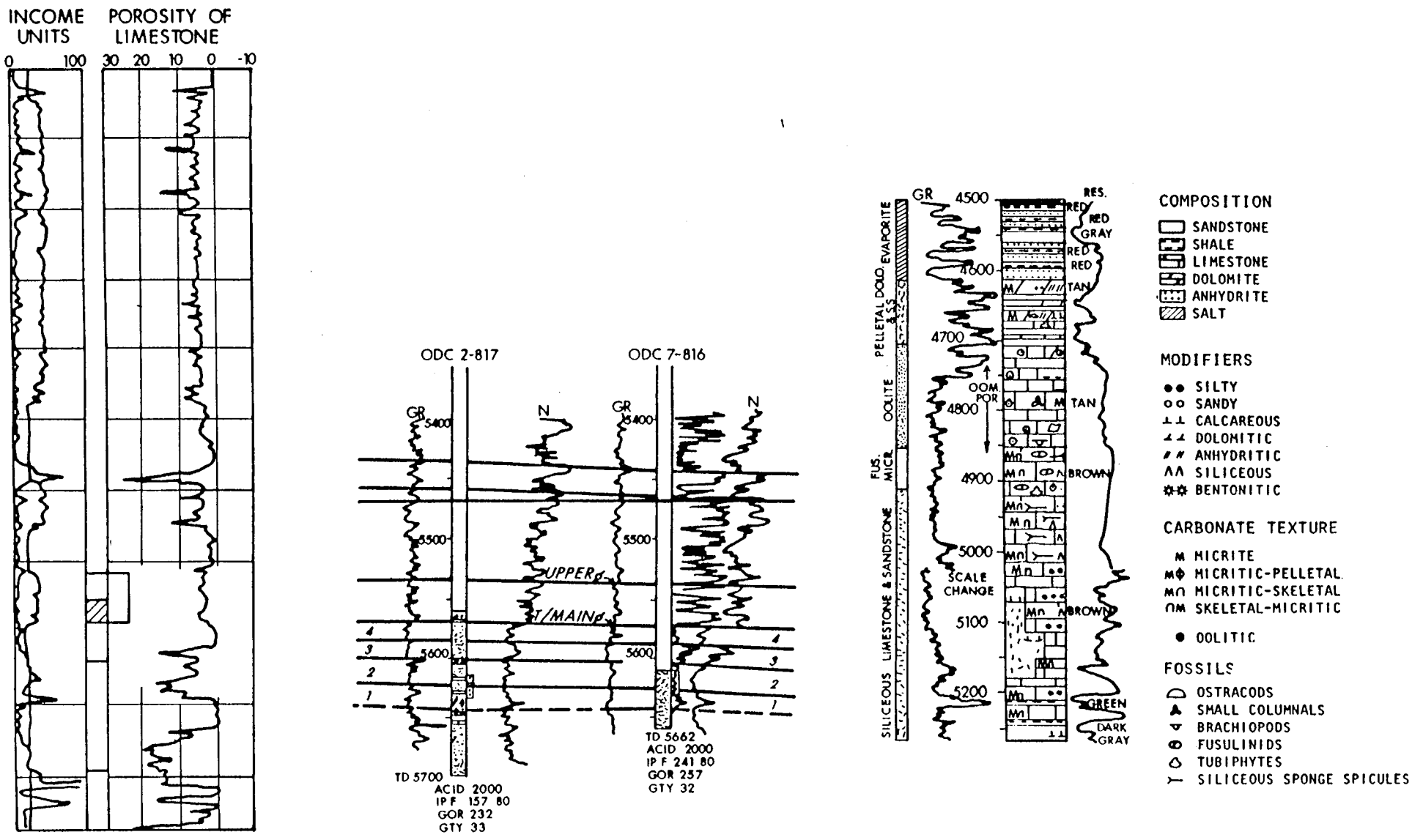


FIGURE 3 - SCHEMATIC CROSS-SECTION OF CALCULATED WATER-CUT QUALITY LINES SHOWING COMPLETION INTERVAL AND ACTUAL WATER-CUT.



STRUCTURE MAP OF REEVES FIELD DRAWN ON LOVINGTON SAND ILLUSTRATING OVERFILL OF THE STRUCTURE WITH OIL
FROM: Chuber, Stewart, and Pussey, W.C., 1972, West Texas Geological Society, Pub. No. 72-60.



TYPE LOG OF SAN ANDRES IN NORTHWEST SHELF UPTON COUNTY AND REEVES FIELD SHOWING CYCLICAL SEDIMENTATION

FROM: Chuber, S., and Pussey, W.C., 1972, Cyclic San Andres Facies and Their Relationship to Diagenis, Porosity and Permeability in the Reeves Field, Yoakum County, Texas in Cyclic Sedimentation in the Permian Basin-A Symposium: West Texas Geological Society, Publication No. 72-60, p. 136-151.

Reinecke
Cisco
Midland Basin

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Borden
	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Reinecke
	RESERVOIR	Cisco
1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	322
12c	RESERVOIR LITHOLOGY	reef limestone, dolomitized limestone; limestone.
12c, 1	TRAPPING MECHANISM	convex upper limit of reef limestone covered by relatively impervious shale; stratigraphic-bioherm (reef).
2,1	DISCOVERY YEAR	2-1950, 1950
16c,2,12c	PROVED ACREAGE	2800, 2842, 2700
1	REGULAR WELL SPACING (acres/well)	40
1,2,3	RESERVOIR DEPTH	6791, 6791-6890, 6791
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	90, 44, 90-147
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.093, .14
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	20, 600md
2	HORIZONTAL	22 md
	VERTICAL	
	OTHER INFORMATION	other production from Clear Fork, Wolfcamp
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1,2	TOTAL NUMBER OF WELLS	42P, 78(45P-6I-27A)
1	PRODUCTION 1976 oil (cum)	51,303
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
	PRODUCTION 1979 oil (cum)	63,317.5
	PRODUCTION 1-1-79 to 1-1-80	3,498.7 mbbls; 4,597.9 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
12c	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Reinecke
	RESERVOIR:	Cisco
2, 12c, 16c	PROD. ACRES:	2842, 2700, 2800
2, 1, 16c	AVG. THICKNESS (FT.):	90, 44, 90-147
1, 12c, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.795, 1.795, 1.72
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.73 (75)
1, 16c	WATER SATURATION (S_w):	.20, .213
16c	OIL SATURATION (S_o):	.57 (76)
1, 12c	PRIMARY DRIVE MECHANISM:	waterdrive
12c	PRIMARY GAS CAP?:	no
17, 16c, 12c	TEMPERATURE (°F):	3871, 2025, 2010 @ 139°F
1, 2, 12c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	3164, 3162, 3164
2, 12c	RESERVOIR PRESSURE INITIAL (psi):	1902, 2432 (53)
12c, 1	RESERVOIR PRESSURE LATEST (psi):	1000, 1297
1, 17	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	1629.5 (75), 1630
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
1, 2, 3, 12c	STOCK TANK OIL GRAVITY (°API):	46.4, 43.3, 46.4, 46.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1197
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	165,813 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	92,986 mbbls

12c OTHER INFORMATION: Reference: Redline, R. L., 1954, Reinecke Field in Occurrence of Oil and Gas in West Texas : Texas Bureau of Economic Geology, Pub. No. 5716, Aug. 1957, pp. 287-289.

ENHANCED AND SECONDARY RECOVERY DATA:

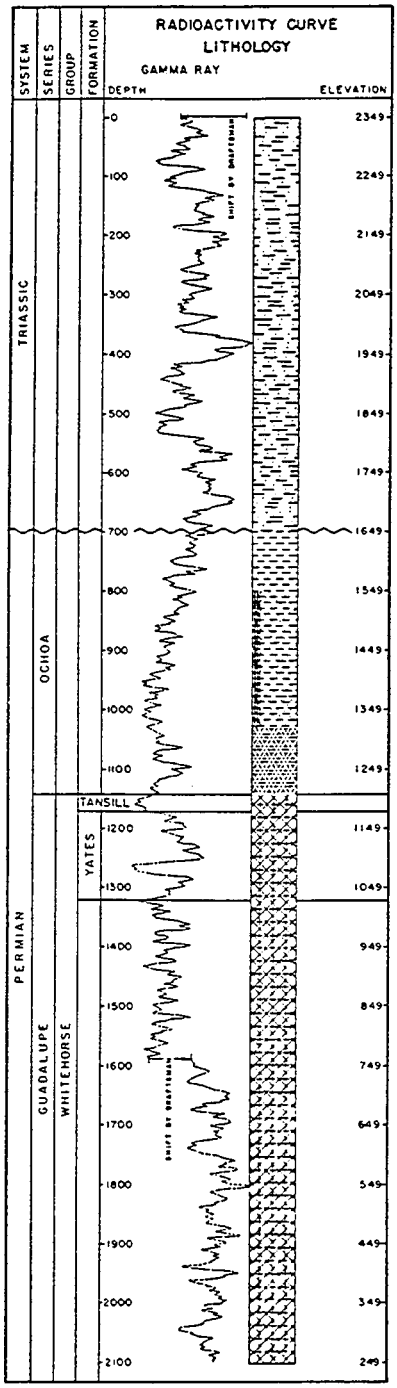
FIELD: Reinecke RESERVOIR: Canyon Reef TOTAL NO. PROJECTS: 3 (2 abd)
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

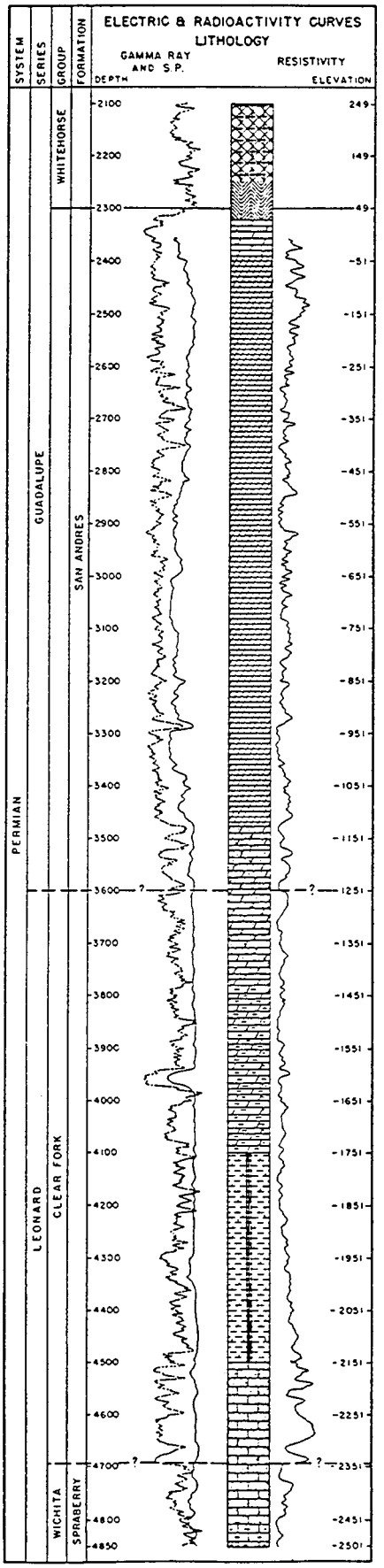
1976 PROD. (this project): MBBLS	4,264	-	-		
1977 PROD. (this project):	4,317	-	-		
CUM. PROD. FROM DISC. TO 1/78:	54,027	-	-		
PROJECT NO.	F-5649	F-6135	F-5688		
LEASE NO.(s):	60780	05067	00001, 16018		
OPERATOR:	Union Oil	Amoco	Unger		
RESERVOIR:	Canyon Reef	Canyon Reef	Canyon Reef		
DEPTH PRODUCING ZONE:	6890	6850	6791		
PRODUCTIVE ACREAGE IN RESERVOIR:	2842	2800	-		
ACREAGE IN PROJECT:	2721	110	-		
PORTION OR FIELD WIDE:	FW/P	FW/P			
TYPE:	PM/SW	PM/SW	WF/SW		
PATTERN:	P	-	-		
YEAR BEGAN:	1972	2-50	-		
YEAR TERMINATED OR STATUS:	ICP	IPD	IPD-1-72		
RESERVOIR PRESSURE INITIAL:	3162	3162	-		
BEG. INJECTION:	1881	1979	-		
LATEST:	1902	-	-		
NUMBER OF WELLS TOTAL:	78	2	-		
PRODUCING WELLS:	45	2	-		
INJECTION WELLS:	6	-	-		
MAXIMUM:	-	-	-		
LATEST:	-	-	-		
SHUT-IN/ABANDONED WELLS:	27	0	-		
SURFACE INJECTION PRESSURE:	340	-	-		
EFFECTIVENESS OF INJECTION:	VE	-	-		
OPERATOR PROBLEMS:	PA, BT	-	-		
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:					
FROM BEG. INJECTION:					
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:					
WATER PRODUCTION:					
CURRENT (1977):	1593				
CUMULATIVE TO 1/78:	8292				
CURRENT (1977) INJECTION:	7775				
CUMULATIVE INJECTION:	36427				

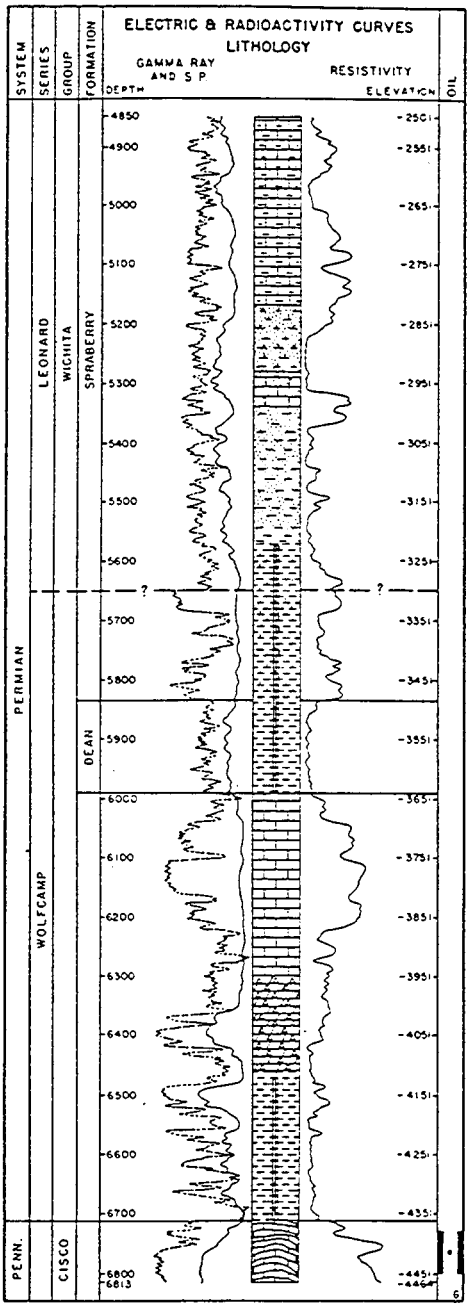
FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: Univ. of Texas, Bureau of Econ. Geol. Publication No. 5716, August, 1957. Source 12c.

288 REINECKE FIELD, Borden County, Texas

TYPICAL SECTION OF ROCKS PENETRATED







EXPLANATION

- Limestone
- Reef limestone
- Shale
- Calcareous shale
- Anhydritic shale
- Sandstone and shale
- Anhydrite and shale
- Anhydrite and salt
- Dolomite
- Anhydritic dolomite
- Sandstone
- Calcareous sandstone
- Chert
- Rock indicated, red
- Rock indicated, black
- • Oil production

PRODUCTIVE AREA

Cisco and Field 2,700 acres.

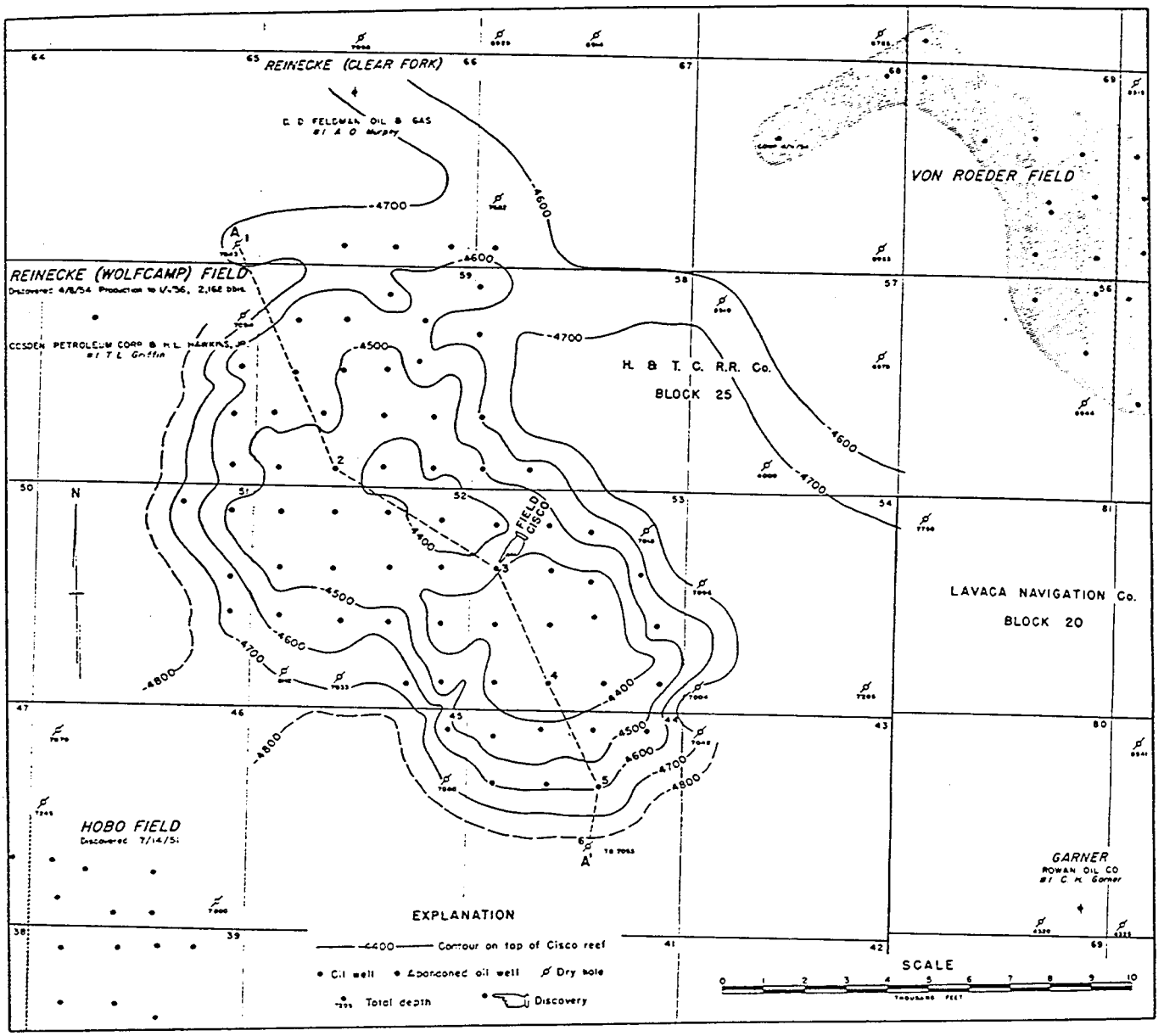
RESERVOIR PRESSURE and OIL SAMPLE DATA

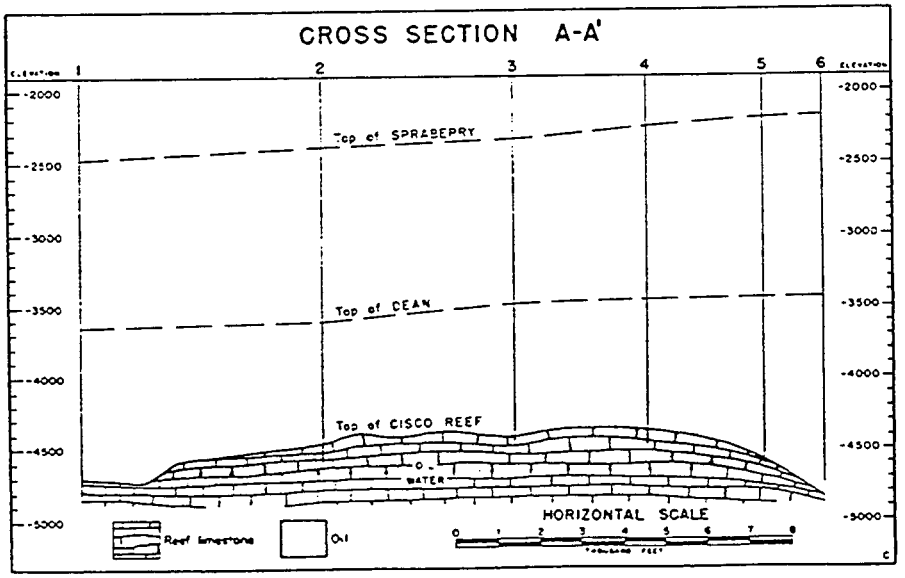
Cisco:

Reservoir pressure at -4,400 feet	
2/2/50 (initial)	3,164 psi.
9/2/53 (field average)	2,432 psi.
Gravity of oil, A.P.I. @ 60°F.	46.4°
Sulphur in oil	0.18%
Solution gas:oil ratio	1,000:1
Saturation pressure @ 139°F.	2,010 psi.
Volume factor (surface:reservoir)	1.795
Shrinkage factor (reservoir:surface)	0.557

For analyses see:
U. S. Bureau of Mines
Analyses of Crude Oils from Some West Texas Fields.
R. I. 4959 (1953)

Lab. ref. No. 51065
Item 59





ELEVATION AND RELIEF OF PRODUCTIVE ZONE

Cisco:	Feet
No free gas cap	
Elevation of top of oil	-4,356
Elevation of bottom of oil	-4,660
Relief	304

The above figures represent an estimate of conditions at the time of the discovery of the field. The oil-water contact is undoubtedly a little higher now; probably 10 to 15 feet higher.

PRODUCTION HISTORY

Cisco and Total field:

Year	No. of WELLS at end of year: Flow.	Pump.	Shut-in	OIL PRODUCTION (barrels): Yearly	Cumulative
1950	47	0	0	1,223,234	1,223,234
1951	68	2	0	3,080,586	4,303,820
1952	67	2	0	2,919,210	7,223,030
1953	65	3	1	2,696,575	9,919,605
1954*	65	4	1	1,638,944	11,558,549
1955*	65	4	1	1,568,875	13,127,424

*Data for 1954 and 1955 added by amendment.

Revilo
Glorieta
Midland Basin

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Scurry
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	Midland Basin
2	FIELD	Revilo
2	RESERVOIR	Glorieta
5	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2	DISCOVERY YEAR	1955
2,16c	PROVED ACREAGE	5000, 6430
	REGULAR WELL SPACING (acres/well)	
2	RESERVOIR DEPTH	2600
	RESERVOIR THICKNESS	
2,16c	NET PAY	10, 50
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.140
	PERMEABILITY	
	RANGE	
2	AVERAGE	3 md
2	HORIZONTAL	3 md
	VERTICAL	
3	OTHER INFORMATION	minor production from Clear Fork
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	140 (113P-6I-21A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	11,220.4
3	PRODUCTION 1-1-79 to 1-1-80	197.9 mbbls.; 43.4 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Revilo
	RESERVOIR:	Glorieta
2, 16c	PROD. ACRES:	5000, 6430
2, 16c	AVG. THICKNESS (FT.):	10, 50
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.16
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
16c	OIL SATURATION (S_O):	.18 (76)
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	98
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	1000
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2	STOCK TANK OIL GRAVITY (°API):	34.0
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):(psia)	1246
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	26,800 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	5,360 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Revilo RESERVOIR: Glorieta TOTAL NO. PROJECTS: 1

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	63				
1977 PROD. (this project):	61				
CUM. PROD. FROM DISC. TO 1/78:	751				
PROJECT NO.	F-1829				
LEASE NO.(s):	19313				
OPERATOR:	Tesoro				
RESERVOIR:	Glorieta				
DEPTH PRODUCING ZONE:	2600				
PRODUCTIVE ACREAGE IN RESERVOIR:	5000				
ACREAGE IN PROJECT:	5000				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW, FW				
PATTERN:	LD				
YEAR BEGAN:	4-65				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	1000				
BEG. INJECTION:	-				
LATEST:	-				
NUMBER OF WELLS TOTAL:	140				
PRODUCING WELLS:	113				
INJECTION WELLS:	6				
MAXIMUM:	-				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	21				
SURFACE INJECTION PRESSURE:	650				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	-				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	40				
FROM BEG. INJECTION:	368				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	434				
WATER PRODUCTION:					
CURRENT (1977):	331				
CUMULATIVE TO 1/78:	4306				
CURRENT (1977) INJECTION:	227				
CUMULATIVE INJECTION:	5877 SW, 3409 FW				

Riley, North
North Riley Unit-Clear Fork
Central Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Gaines
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
2	FIELD	Riley, North
5b, 2	RESERVOIR	Clear Fork -"North Riley Unit"
	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
5b	RESERVOIR LITHOLOGY	crystalline, vuggy, fractured, anhydritic dolomite.
5b	TRAPPING MECHANISM	large assymetrical anticlinal fold on Central Basin Platform
2,5b	DISCOVERY YEAR	9-1947
2,16c	PROVED ACREAGE	29,000
5b	REGULAR WELL SPACING (acres/well)	40
2,5b,3	RESERVOIR DEPTH	6300, 6900, 6930
	RESERVOIR THICKNESS	
5b,2,16c	NET PAY	70, 70, 50-88
5b	GROSS	300
	NET/GROSS RATIO	
	POROSITY	
5b	TYPE	IC, V, F
2,5b	FRACTION	.077, .067
	PERMEABILITY	
	RANGE	
2,5b	AVERAGE	12 md
2	HORIZONTAL	12 md
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	95 (75P-9I-11A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	18,232.8 (6930')
3	PRODUCTION 1-1-79 to 1-1-80	292.5 mbbls., 385.4 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5b	STRUCTURE CONTOUR?	yes
5b	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

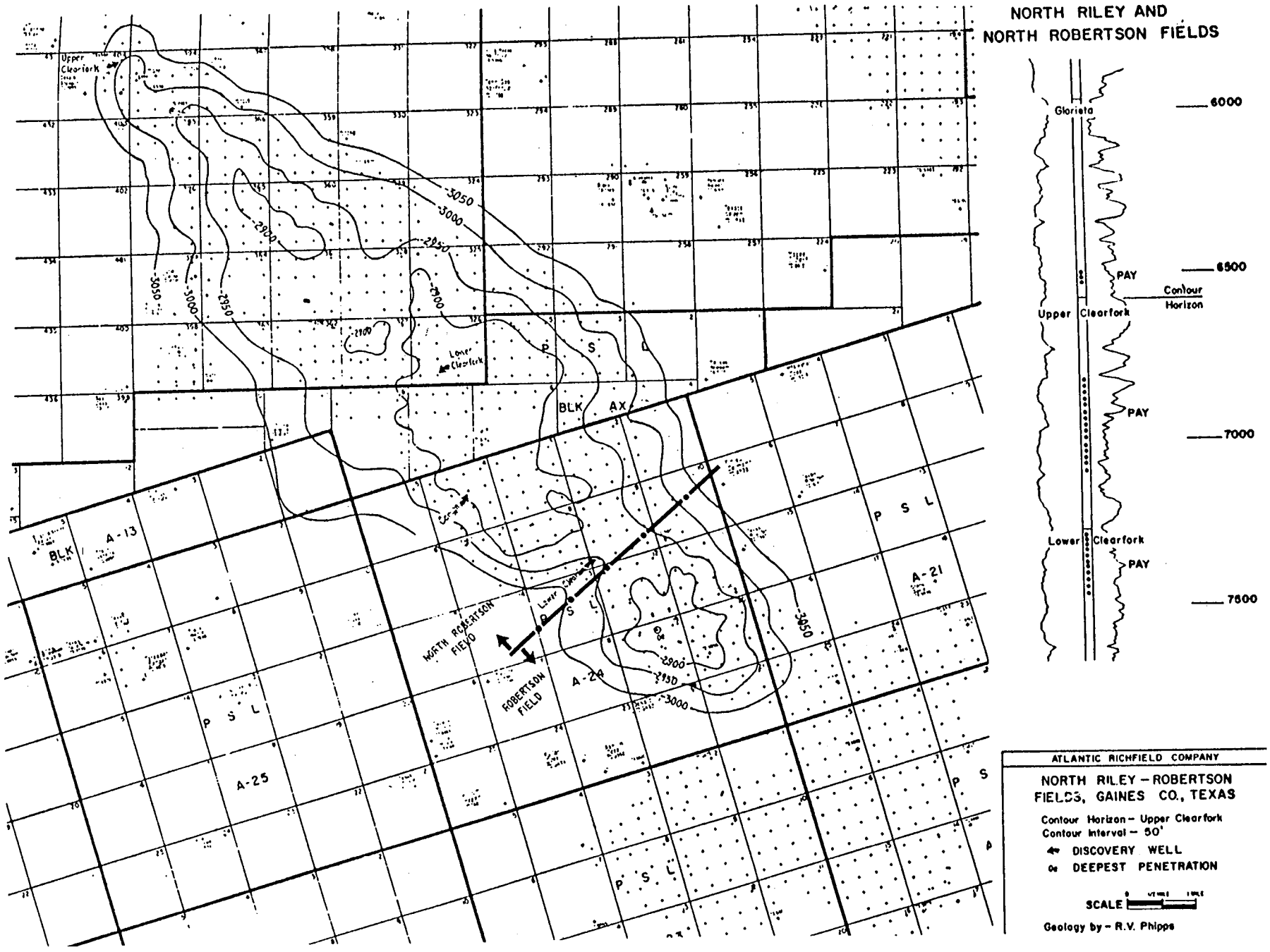
DATA SOURCE CODE		
	FIELD:	Riley, North
2, 5b	RESERVOIR:	Clear Fork
2, 16c	PROD. ACRES:	29,000
2, 5b, 16c	AVG. THICKNESS (FT.):	70, 70, 50-88
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.285
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.18 (75)
	WATER SATURATION (S_W):	
16c	OIL SATURATION (S_O):	.525 (75)
5b	PRIMARY DRIVE MECHANISM:	dissolved gas drive
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	107
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1635
2, 5b	RESERVOIR PRESSURE INITIAL (psi):	2950, 2551
	RESERVOIR PRESSURE LATEST (psi):	-
5b	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	344-1
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 5b, 3	STOCK TANK OIL GRAVITY (°API):	32
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1364
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	105,600 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	15,840 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Riley, North RESERVOIR: Clear Fork-6300 TOTAL NO. PROJECTS: 1
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	299				
1977 PROD. (this project):	267				
CUM. PROD. FROM DISC. TO 1/78:	14034				
PROJECT NO.	F-6230				
LEASE NO.(s):	61559				
OPERATOR:	Union Oil				
RESERVOIR:	Upper Clear Fork				
DEPTH PRODUCING ZONE:	6300				
PRODUCTIVE ACREAGE IN RESERVOIR:	29000				
ACREAGE IN PROJECT:	5960				
PORTION OR FIELD WIDE:	P				
TYPE:	WF/SW, FW				
PATTERN:	I9				
YEAR BEGAN:	7-77				
YEAR TERMINATED OR STATUS:	SW-INS, FW-ICP				
RESERVOIR PRESSURE INITIAL:	2950				
BEG. INJECTION:	-				
LATEST:	-				
NUMBER OF WELLS TOTAL:	95				
PRODUCING WELLS:	75				
INJECTION WELLS:	9				
MAXIMUM:	-				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	11				
SURFACE INJECTION PRESSURE:	1675				
EFFECTIVENESS OF INJECTION:	UD				
OPERATOR PROBLEMS:	PA, CR, SC				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-				
FROM BEG. INJECTION:	-				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-				
WATER PRODUCTION:					
CURRENT (1977):	157				
CUMULATIVE TO 1/78:	327				
CURRENT (1977) INJECTION:	636				
CUMULATIVE INJECTION:	-				



FROM: Phipps, R.V., NORTH RILEY in OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM: WEST TEXAS GEOL. SOC. pub. 69-57
Source 5b

Robertson, North
Clear Fork
Central Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Gaines
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
	FIELD	Robertson, North
2	RESERVOIR	Clear Fork 7100
	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
5b	RESERVOIR LITHOLOGY	Vuggy fractured, anhydritic crystalline dolomite.
5b	TRAPPING MECHANISM	anticlinal: North Riley wells coincident in part with North Robertson-7100. Some wells dually completed on both pays.
2,5b,3	DISCOVERY YEAR	(11-1944-6260'), 2-1956-7100'
16c,5b,2	PROVED ACREAGE	10,040; 10040-7100';5790-6300'
5b	REGULAR WELL SPACING (acres/well)	40
5b	RESERVOIR DEPTH	7114-7220
	RESERVOIR THICKNESS	
5b,2,16c	NET PAY	106, 250, 35-144
5b	GROSS	200
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
5b,2	FRACTION	.110, .068
	PERMEABILITY	
	RANGE	
5b,2	AVERAGE	12, 1md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from San Andres-4704' and Canyon-8861'.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	139 (87P-47I-5A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	30,719.4
3	PRODUCTION 1-1-79 to 1-1-80	2,860.9 mbbls.; 1,659.8 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5b	STRUCTURE CONTOUR?	yes
5b	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

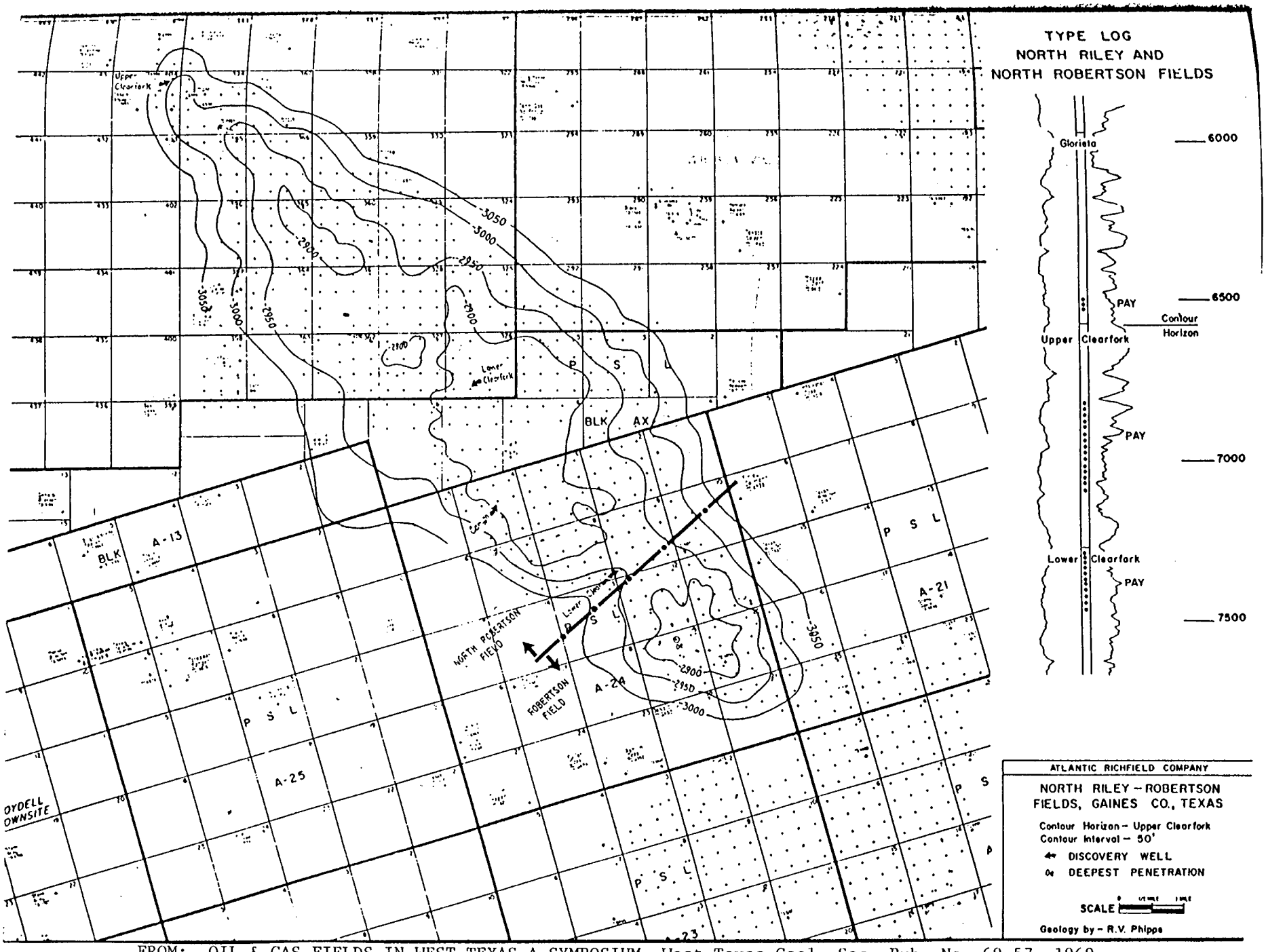
DATA SOURCE CODE		
2	FIELD:	Robertson, North
2	RESERVOIR:	Clear Fork-7100
16c, 5b, 2	PROD. ACRES:	10,040; 7100-10,400; 6300±5790
2, 5b, 16c	AVG. THICKNESS (FT.):	250, 106, 35-144
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.3816
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.1 (74)
16c	WATER SATURATION (S_W):	.25
16c	OIL SATURATION (S_O):	.55 (74)
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	117
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1555
5b, 2	RESERVOIR PRESSURE INITIAL (psi):	3800, 2950
2	RESERVOIR PRESSURE LATEST (psi):	700
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
5b, 3	STOCK TANK OIL GRAVITY (°API):	36.5, 34.5
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1476
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	275,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	18,250 mbbls.

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Robertson, North RESERVOIR: Clear Fork-6300 TOTAL NO. PROJECTS: 1
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	872				
1977 PROD. (this project):	1352				
CUM. PROD. FROM DISC. TO 1/78:	23473				
PROJECT NO.	F-1830				
LEASE NO.(s):	060580				
OPERATOR:	Exxon				
RESERVOIR:	Clear Fork				
DEPTH PRODUCING ZONE:	6260				
PRODUCTIVE ACREAGE IN RESERVOIR:	5790				
ACREAGE IN PROJECT:	4320				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW, FW				
PATTERN:	M5				
YEAR BEGAN:	4-62 SW, 4-71 FW				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2950				
BEG. INJECTION:	600				
LATEST:	700				
NUMBER OF WELLS TOTAL:	139				
PRODUCING WELLS:	87				
INJECTION WELLS:	12 SW				
MAXIMUM:	35 FW				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	5				
SURFACE INJECTION PRESSURE:	2950				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	CR, SC, PA, ES				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	1352				
FROM BEG. INJECTION:	5223				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	10750				
WATER PRODUCTION:					
CURRENT (1977):	1517				
CUMULATIVE TO 1/78:	10380				
CURRENT (1977) INJECTION:	1517 SW, 5167 FW				
CUMULATIVE INJECTION:	10380 SW, 58960 FW				



FROM: OIL & GAS FIELDS IN WEST TEXAS-A SYMPOSIUM, West Texas Geol. Soc. Pub. No. 69-57, 1969.

Rocker -A-
San Andres
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Garza
1	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	Rocker -A-
2	RESERVOIR	San Andres
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
5a	RESERVOIR LITHOLOGY	finely crystalline to granular, anhydritic dolomite with intercrystalline and solution porosity.
5a	TRAPPING MECHANISM	anticlinal structure
2,5a,3	DISCOVERY YEAR	2-1950, 2-1951, 2-1950
2,16c	PROVED ACREAGE	2375
5a	REGULAR WELL SPACING (acres/well)	20
2,5a,3	RESERVOIR DEPTH	2485, 2450-700,2422
	RESERVOIR THICKNESS	
16c,2	NET PAY	15-60, 15
5a	GROSS	250
	NET/GROSS RATIO	
	POROSITY	
5a	TYPE	IC, V
2,5a	FRACTION	.247, .236
	PERMEABILITY	
	RANGE	
2,5a	AVERAGE	4, 3.6 md
2	HORIZONTAL	4 md
	VERTICAL	
3	OTHER INFORMATION	other production from Clear Fork, Ellenburger, Glorieta
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	30 (19P-7I-4A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	4,118.3
3	PRODUCTION 1-1-79 to 1-1-80	85.9 mbbls, 3.6 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5a	STRUCTURE CONTOUR?	yes
5a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Rocker -A-
2, 16c	RESERVOIR:	San Andres
2, 16c	PROD. ACRES:	2375
16c	AVG. THICKNESS (FT.):	15, 15-60
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.14
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.0 (69)
16c	WATER SATURATION (S_W):	.45 - .54
16c	OIL SATURATION (S_O):	.17 (73)
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	100
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	1100
2	RESERVOIR PRESSURE LATEST (psi):	100
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,5a, 3	STOCK TANK OIL GRAVITY (°API):	34, 34, 37
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1258
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	9,748 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	1,219 mbbls

OTHER INFORMATION:

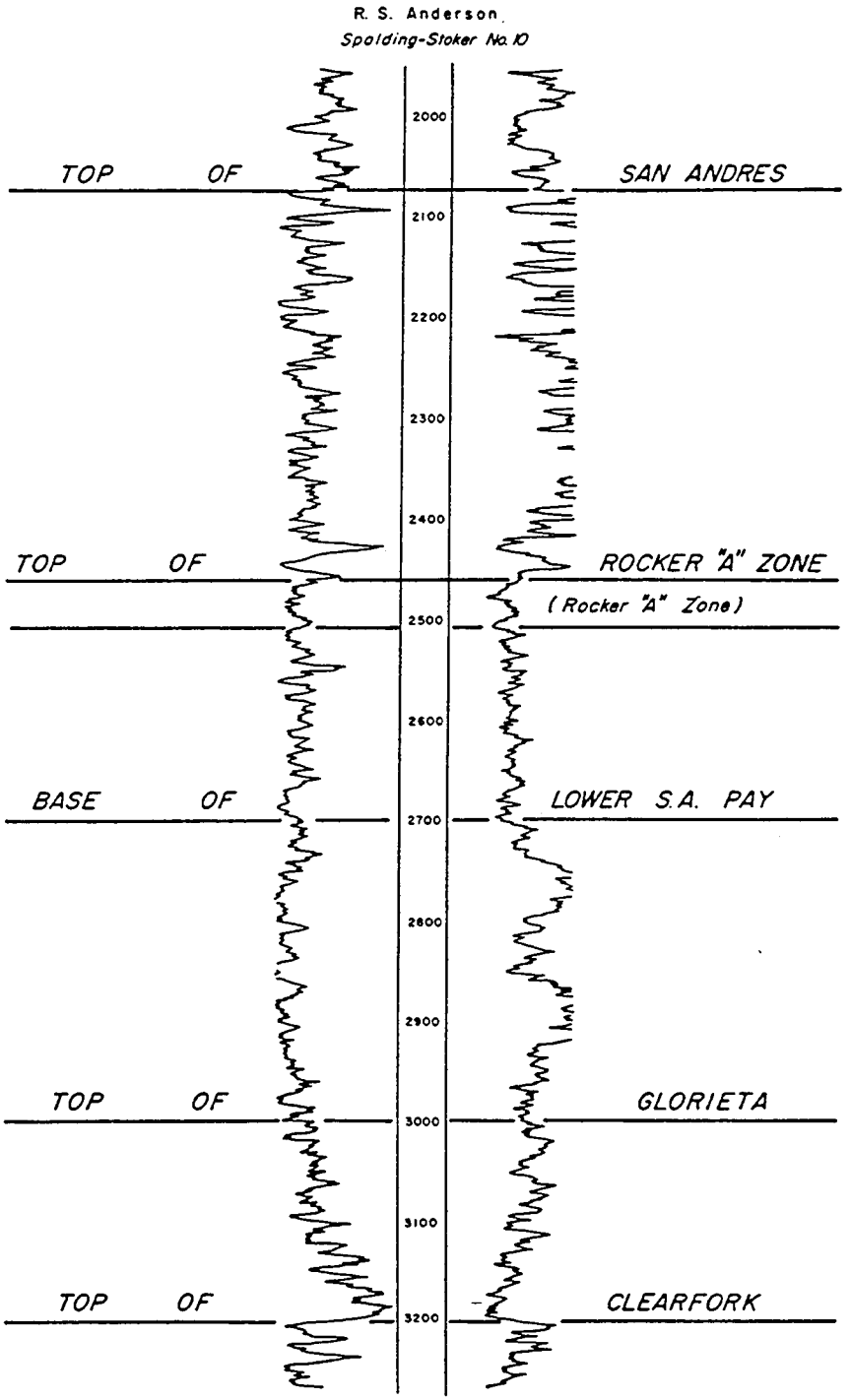
ENHANCED AND SECONDARY RECOVERY DATA:

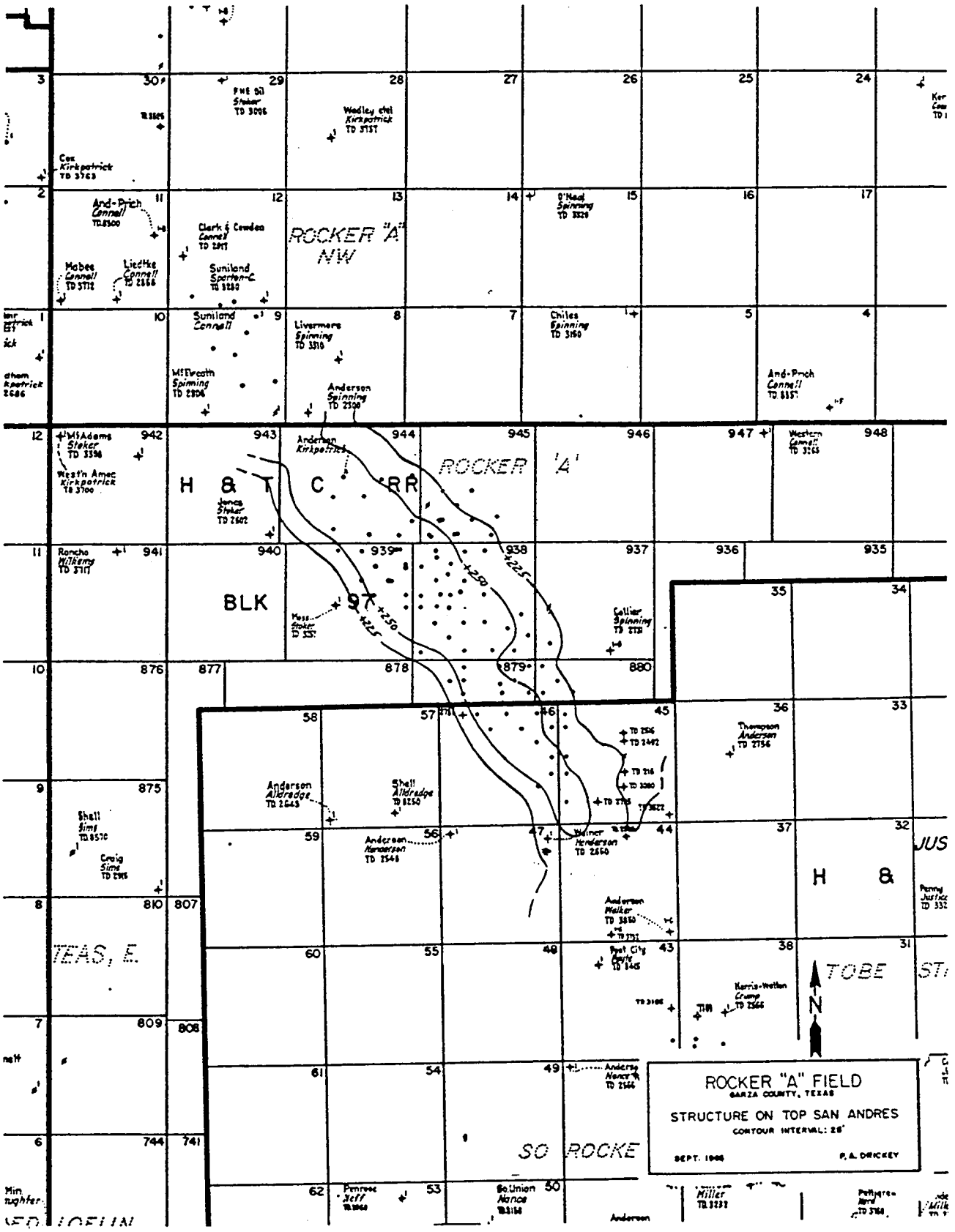
FIELD: Rocker -A- RESERVOIR: San Andres TOTAL NO. PROJECTS: 1
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	26				
1977 PROD. (this project):	24				
CUM. PROD. FROM DISC. TO 1/78:	1535				
PROJECT NO.	F-1835				
LEASE NO.(s):	60253				
OPERATOR:	Anderson,R.S.,Inc.				
RESERVOIR:	San Andres				
DEPTH PRODUCING ZONE:	2485				
PRODUCTIVE ACREAGE IN RESERVOIR:	2375				
ACREAGE IN PROJECT:	775				
PORTION OR FIELD WIDE:	P				
TYPE:	WF/SW				
PATTERN:	P				
YEAR BEGAN:	8-67				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	1100				
BEG. INJECTION:	100				
LATEST:	100				
NUMBER OF WELLS TOTAL:	30				
PRODUCING WELLS:	19				
INJECTION WELLS:	7				
MAXIMUM:	-				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	4				
SURFACE INJECTION PRESSURE:	1300				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	CR, EW				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	24				
FROM BEG. INJECTION:	309				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	390				
WATER PRODUCTION:					
CURRENT (1977):	150				
CUMULATIVE TO 1/78:	1501				
CURRENT (1977) INJECTION:	488				
CUMULATIVE INJECTION:	7085				

TYPICAL LOG

ROCKER "A" (SAN ANDRES) FIELD
GARZA CO., TEXAS





FROM: Drickey, P.A., 1966.

Rocker -A-
Glorieta
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Garza
1	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	Rocker -A-
1	RESERVOIR	Glorieta
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
5a, 1	RESERVOIR LITHOLOGY	crystalline to granular dolomite with intercrystalline porosity; dolomite.
1, 5a	TRAPPING MECHANISM	anticlinal structure
5a, 3, 1	DISCOVERY YEAR	7-1955, 6-1955, 1955
5a, 16c	PROVED ACREAGE	1120
1	REGULAR WELL SPACING (acres/well)	20
5a,3,16c	RESERVOIR DEPTH	3006-88, 3082, 3082
	RESERVOIR THICKNESS	
5a,1,16c	NET PAY	40, 142, 25-100
5a	GROSS	100
	NET/GROSS RATIO	
	POROSITY	
5a	TYPE	IC
5a, 1	FRACTION	.132
	PERMEABILITY	
	RANGE	
5a, 1	AVERAGE	4.6 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from San Andres, Clear Fork, Ellenburger
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	27P
1	PRODUCTION 1976 oil (cum)	1941
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	2,153.6
3	PRODUCTION 1-1-79 to 1-1-80	67.6 mbbls, 2,793.0 mmcf
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Rocker -A-
5a	RESERVOIR:	Glorieta
5a, 16c	PROD. ACRES:	1120
5a, 1, 16c	AVG. THICKNESS (FT.):	40, 142, 25-100
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.16 (76)
16c	WATER SATURATION (S_W):	.30 - .615
16c	OIL SATURATION (S_O):	.385 (71)
1	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	103
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	280
5a	RESERVOIR PRESSURE INITIAL (psi):	-
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	56.4 (76), 56
5a, 3, 1	STOCK TANK OIL GRAVITY (°API):	34, 38, 38
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1291
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

Ropes
Canyon Reef
Midland Basin

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Hockley
1	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Ropes
2	RESERVOIR	Canyon Reef
5a	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	323
5a,1	RESERVOIR LITHOLOGY	Reef limestone; shale-limestone
5a,1	TRAPPING MECHANISM	Stratigraphic. Oil cumulation due to a convex trap resulting from the topography of a cavernous and fractured reef limestone. Oil trapped in topographic crest of the reef which is buried in relatively impervious shale structural-bio-herm (reef).
2,5a,1	DISCOVERY YEAR	5-1950, 1950
5a, 2,1,16c	PROVED ACREAGE	1320, 1803, 250, 1120
1	REGULAR WELL SPACING (acres/well)	44
1,2,5a	RESERVOIR DEPTH	9290
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	100, 35, 90-161
5a	GROSS	404
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,5a,1	FRACTION	.085, .085, .15
	PERMEABILITY	
1,5a	RANGE	high = 1100 md; 1-1100 md
2,5a,1	AVERAGE	66, 66, 137 md
2	HORIZONTAL	66 md
	VERTICAL	
3	OTHER INFORMATION	other production from Leonard
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1,2,5a	TOTAL NUMBER OF WELLS	31P; 35(31P-2I-2A); 29P
1	PRODUCTION 1976 oil (cum)	20,348
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	22,272.8
3	PRODUCTION 1-1-79 to 1-1-80	792.9 mbbls, 446.9 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5a	STRUCTURE CONTOUR?	yes
5a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Ropes
5a,2,1,16c	RESERVOIR:	Canyon Reef
2,1,16c	PROD. ACRES:	1320, 1803, 250, 1120
1,16c	AVG. THICKNESS (FT.):	100, 35, 90-161
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.35, 1.3194
1, 16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.365 (71)
	WATER SATURATION (S_W):	.24, .22-.32
1	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	depletion
16c	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	159
2, 1	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1421
2	RESERVOIR PRESSURE INITIAL (psi):	3754
5a, 1	RESERVOIR PRESSURE LATEST (psi):	2740
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	368-1, 386
2,5a,3,42	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
	STOCK TANK OIL GRAVITY (°API):	41, 42, 42, 42
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1961
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

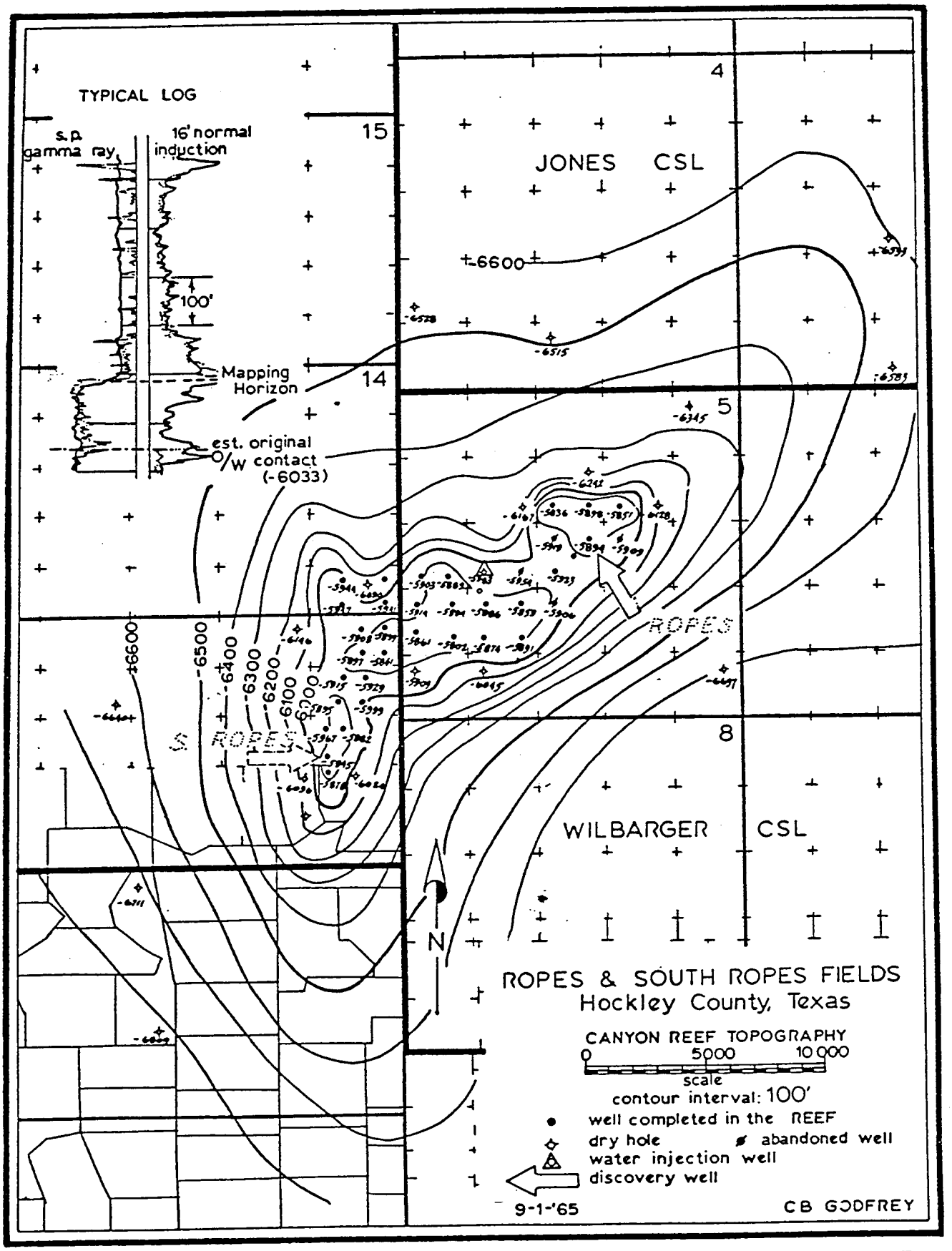
1 OTHER INFORMATION: primary recoverable: (1966) 59,000,000 bbl
160 bbl/acre-ft

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Ropes RESERVOIR: Canyon Reef TOTAL NO. PROJECTS: 1

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	718				
1977 PROD. (this project):	558				
CUM. PROD. FROM DISC. TO 1/78:	21089				
PROJECT NO.	F 1832				
LEASE NO.(s):	13852				
OPERATOR:	Amoco				
RESERVOIR:	Canyon Reef				
DEPTH PRODUCING ZONE:	9290				
PRODUCTIVE ACREAGE IN RESERVOIR:	1803				
ACREAGE IN PROJECT:	1803				
PORTION OR FIELD WIDE:	P				
TYPE:	PM/SW, BW, FW				
PATTERN:	F				
YEAR BEGAN:	6-59 SW, 11-63 FW				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	3754				
BEG. INJECTION:	2599				
LATEST:	2740				
NUMBER OF WELLS TOTAL:	35				
PRODUCING WELLS:	31				
INJECTION WELLS:	1 SW				
MAXIMUM:	1 FW				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	2				
SURFACE INJECTION PRESSURE:	-				
EFFECTIVENESS OF INJECTION:	-				
OPERATOR PROBLEMS:	CR, SC				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-				
FROM BEG. INJECTION:	-				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-				
WATER PRODUCTION:					
CURRENT (1977):	1421				
CUMULATIVE TO 1/78:	8304				
CURRENT (1977) INJECTION:	1421 SW, 0BW, 1128 FW				
CUMULATIVE INJECTION:	8928 SW, 2219BW, 23624FW				



FROM: Godfrey, C.B., 1966, ROPES & SOUTH ROPES, PENN. in OIL & GAS FIELDS IN WEST TEXAS: West Texas Geological Society Symposium Pub. No. 66-52, Source 5a.

Roundtop
Palo Pinto Reef
Eastern Shelf

DATA SOURCE CODE		
1, 2	STATE	Texas
1, 2	COUNTY	Fisher
1, 2	REGULATORY DISTRICT	7B
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	Roundtop
1, 2	RESERVOIR	Palo Pinto Reef-Canyon Reef
1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	323
5g, 1	RESERVOIR LITHOLOGY	Fossiliferous limestone with pin point to vugular porosity; limestone.
5g	TRAPPING MECHANISM	"Domal"-porous bioherm reef
2,5g,1	DISCOVERY YEAR	2-1947, 10-1946, 1947
2,5g	PROVED ACREAGE	3121, 3400
1,5g	REGULAR WELL SPACING (acres/well)	20
2,5g,1	RESERVOIR DEPTH	4758, 4887-4942, 4758
	RESERVOIR THICKNESS	
2,5g,1	NET PAY	90, 55, 47
5g	GROSS	900
	NET/GROSS RATIO	
	POROSITY	
5g	TYPE	IC, V, F
1,2,5g	FRACTION	.12, .107, .104
	PERMEABILITY	
	RANGE	
1,2,5g	AVERAGE	4, 6, 7.11 md
2	HORIZONTAL	6 md
	VERTICAL	
3	OTHER INFORMATION	Canyon, Flippen Lime, Noodle Creek and Swastika are other producing formations in Roundtop Field.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	86P; 143(83P-30I-30A)
1	PRODUCTION 1976 oil (cum)	34,386
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	38,390.3 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	1,223.0 mbbld oil; 1,914.3 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5g	STRUCTURE CONTOUR?	yes
5g	LOGS?	yes
5g	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Roundtop
1,2	RESERVOIR:	Palo Pinto Reef
2, 5g	PROD. ACRES:	3121, 3400
2, 5g, 1	AVG. THICKNESS (FT.):	90, 55, 47
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.4
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.25
	OIL SATURATION (S_O):	
1, 5g	PRIMARY DRIVE MECHANISM:	depletion, solution gas with partial water
1	PRIMARY GAS CAP?:	yes
17	TEMPERATURE (°F):	131
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	469
2, 5g	RESERVOIR PRESSURE INITIAL (psi):	2018
	RESERVOIR PRESSURE LATEST (psi):	
5g	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	840-1
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	100 (76), 100
2, 5g, 1	STOCK TANK OIL GRAVITY (°API):	40.5, 42.0, 40
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1626
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	115,832 mbbls.
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	49,999 mbbls.

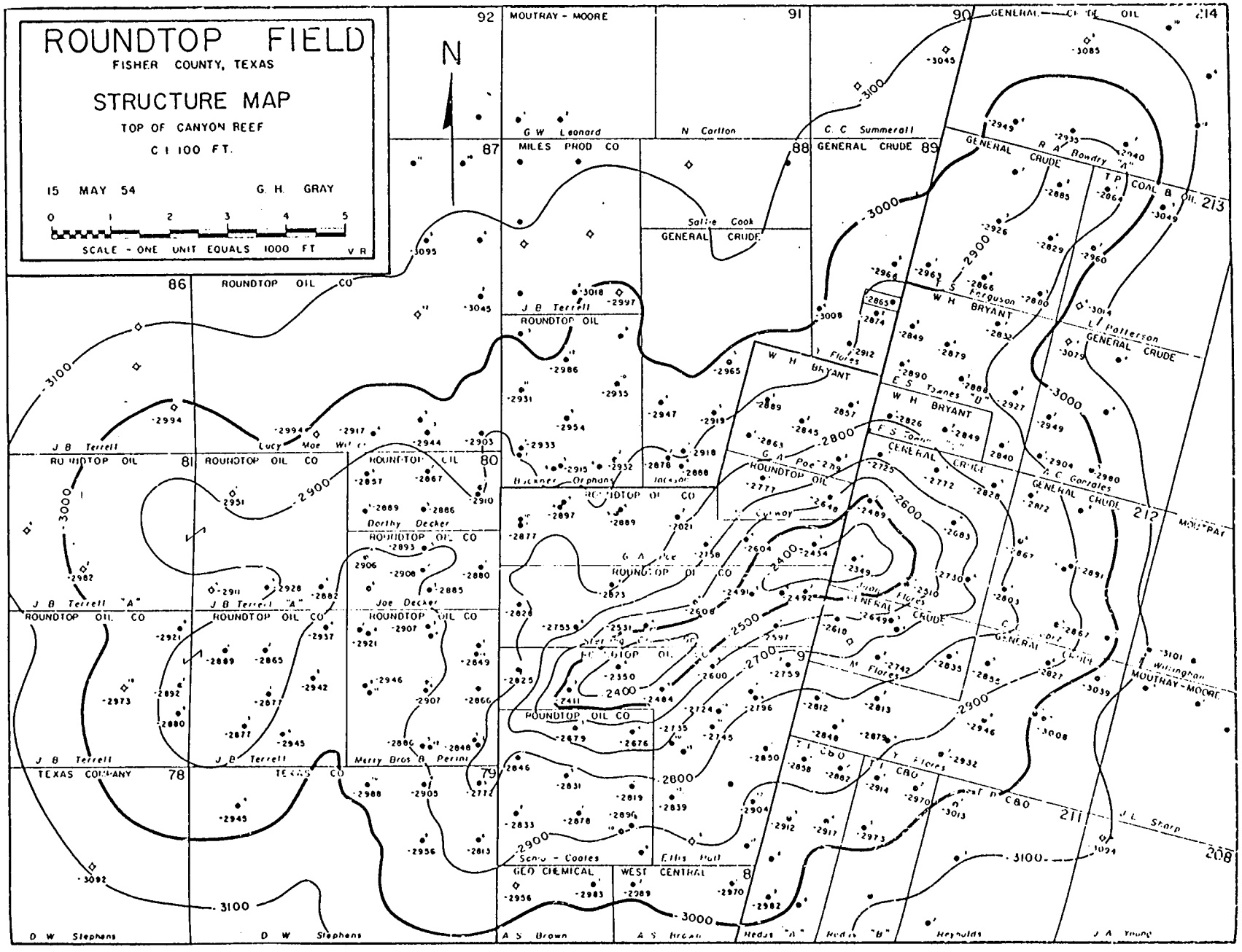
OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

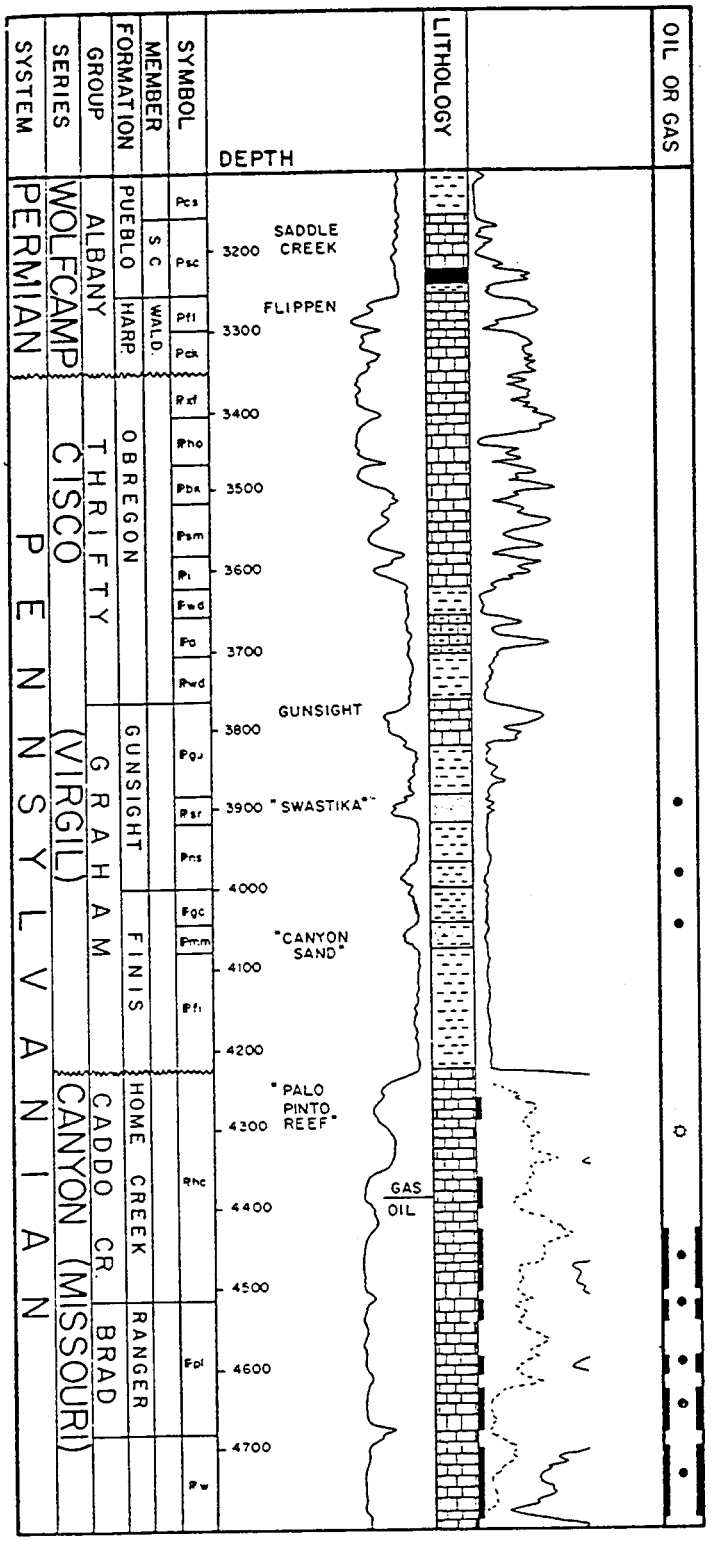
FIELD: Roundtop RESERVOIR: Palo Pinto Reef TOTAL NO. PROJECTS: 1

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	1069				
1977 PROD. (this project):	1350				
CUM. PROD. FROM DISC. TO 1/78:	22215				
PROJECT NO.	F-3658				
LEASE NO.(s):	11416				
OPERATOR:	Conoco				
RESERVOIR:	Palo Pinto Reef				
DEPTH PRODUCING ZONE:	4758				
PRODUCTIVE ACREAGE IN RESERVOIR:	3121				
ACREAGE IN PROJECT:	3084				
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW, gas				
PATTERN:	P				
YEAR BEGAN:	1-71				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2018				
BEG. INJECTION:	-				
LATEST:	-				
NUMBER OF WELLS TOTAL:	143				
PRODUCING WELLS:	83				
INJECTION WELLS:	29 SW				
MAXIMUM:	1 gas				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	30				
SURFACE INJECTION PRESSURE:	880 SW, 780 gas				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	SC				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	667				
FROM BEG. INJECTION:	2645				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	16011				
WATER PRODUCTION:					
CURRENT (1977):	3776				
CUMULATIVE TO 1/78:	30025				
CURRENT (1977) INJECTION:	8483 SW, 865 gas				
CUMULATIVE INJECTION:	41177 SW, 4317 gas				



FROM: Gray, G.H., 1976, ROUNDTOP (PALO PINTO REEF) FIELD: ABILENE GEOLOGICAL SOCIETY, CONTRIBUTIONS. Source 5g.



FORMATION SYMBOLS

P	Permian undifferentiated
Pcs	Camp Creek Shale
Pta	Tannehill Sandstone
Psc	Saddle Creek Limestone
Pwa	Waldrip Shale
Pbs	Bluff Creek Sandstone
Pfs	Flippen Sandstone
Pfl	Flippen Limestone
Pck	Cook member
P	Pennsylvanian undifferentiated
Pxf	Crystal Falls Limestone
Pho	Hope Sandstone
Pbk	Breckenridge Limestone
Pkg	King Sandstone
Psm	Speck Mtn. Ls. (Black Ranch)
Pi	Ivan Limestone
Pwd	Wayland Shale
Pa	Swastika Sandstone (Avis)
Pgu	Gunsight Limestone
Psr	Serrat Sandstone
Pns	Necessity Shale
Pgc	Gonzales Creek Shale
Pmm	McMillan Sandstone
Pfi	Finis Shale
Phc	Home Creek Limestone
Pov	Overall Sandstone
Pcc	Hog Creek Shale (Colony Cr.)
Pr	Ranger Limestone
Ppl	Placid Shale
Pw	Winchell Limestone (Merriman)

CANYON REEF RESERVOIR DATA

Porosity	10.38%
Permeability	7.11 md
Water Saturation	27.95%
FVF	1.42 RB/B
Oil Gravity	42.10°API
Gas Gravity (specific)	.96 (wet)
Solution GOR	797.0 CF/B
Reservoir Pressure (@ -2850)	2018.0 psia.
Oil Viscosity	.39 cp.
Bubble Point (@ -2850)	1935.0 psia.

TYPICAL GEOLOGIC SECTION

ROUNDTOP FIELD
FISHER COUNTY, TEXAS

LIMESTONE
SHALE
SANDSTONE
COAL

15 JAN 75 G H GRAY

FROM: Gray, G.H., 1976, ROUNDTOP (PALO PINTO REEF) FIELD: Abilene Geological Society Contributions, Source 5g.

Russell
Glorieta
North Basin Platform

DATA SOURCE CODE		
3	STATE	Texas
3	COUNTY	Gaines
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	North Basin Platform
	FIELD	Russell
3	RESERVOIR	Glorieta
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
3	DISCOVERY YEAR	12-1942
16c	PROVED ACREAGE	1800
	REGULAR WELL SPACING (acres/well)	
3	RESERVOIR DEPTH	6100
	RESERVOIR THICKNESS	
16c	NET PAY	40-100
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
	FRACTION	
	PERMEABILITY	
	RANGE	
	AVERAGE	
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from Clear Fork, San Andres, Wichita-Albany.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
	TOTAL NUMBER OF WELLS	
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	6,290.2
3	PRODUCTION 1-1-79 to 1-1-80	157.7 mbbls., 127.3 mmcf
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Russell
3	RESERVOIR:	Glorieta
16c	PROD. ACRES:	1800
16c	AVG. THICKNESS (FT.):	40-100
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.294 (62)
16c	WATER SATURATION (S_w):	.184
	OIL SATURATION (S_o):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	119
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
3	STOCK TANK OIL GRAVITY (°API):	34.2
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1502
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

Russell
Clear Fork
North Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Gaines
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	North Basin Platform
	FIELD	Russell
2	RESERVOIR	Clear Fork
5	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
12c	RESERVOIR LITHOLOGY	dolomite, anhydritic with inter-crystalline and solution porosity.
12c	TRAPPING MECHANISM	combination anticline and up-dip decrease in porosity.
2,3,12c	DISCOVERY YEAR	2-1942, 1943, 1943
2,12c,16c	PROVED ACREAGE	8910, 3000, 9700
	REGULAR WELL SPACING (acres/well)	
2, 3	RESERVOIR DEPTH	7350, 7300
	RESERVOIR THICKNESS	
16c,2,12c	NET PAY	75; 101; 50avg Upper CF, 171 avg Lower CF
12c	GROSS	150 avg Upper CF, 12 avg Lower CF
	NET/GROSS RATIO	
	POROSITY	
12c	TYPE	IC, V
2	FRACTION	.052
	PERMEABILITY	
	RANGE	
2	AVERAGE	1 md
2	HORIZONTAL	1 md
	VERTICAL	
3	OTHER INFORMATION	other production from San Andres, Glorieta, Wichita-Albany
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	345 (102P-178I-65A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	42,272.2
3	PRODUCTION 1-1-79 to 1-1-80	1,770.6 mbbls, 645.6 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	no, field map
12c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Russell
	RESERVOIR:	Clear Fork
16c, 2, 12c	PROD. ACRES:	9700, 8910, 3000
16c, 2, 12c	AVG. THICKNESS (FT.):	75; 101; 50U-171L
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.279
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.222 (76)
16c	WATER SATURATION (S_W):	.238-35
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	120
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1620
2	RESERVOIR PRESSURE INITIAL (psi):	2600
2	RESERVOIR PRESSURE LATEST (psi):	600
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,12c	STOCK TANK OIL GRAVITY (°API):	34.7, 34, 34.5
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1513
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	206,037 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	39,000 mbbls

12c

OTHER INFORMATION: Reference: Bailey, M.W., and Rascoe, C.M., 1953, Russell Field in Occurrence of Oil and Gas in West Texas : University of Texas, Bureau of Economic Geology, Publ No. 5716, Aug., 1957, pp 290-293.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Russell RESERVOIR: Clear Fork TOTAL NO. PROJECTS: 1

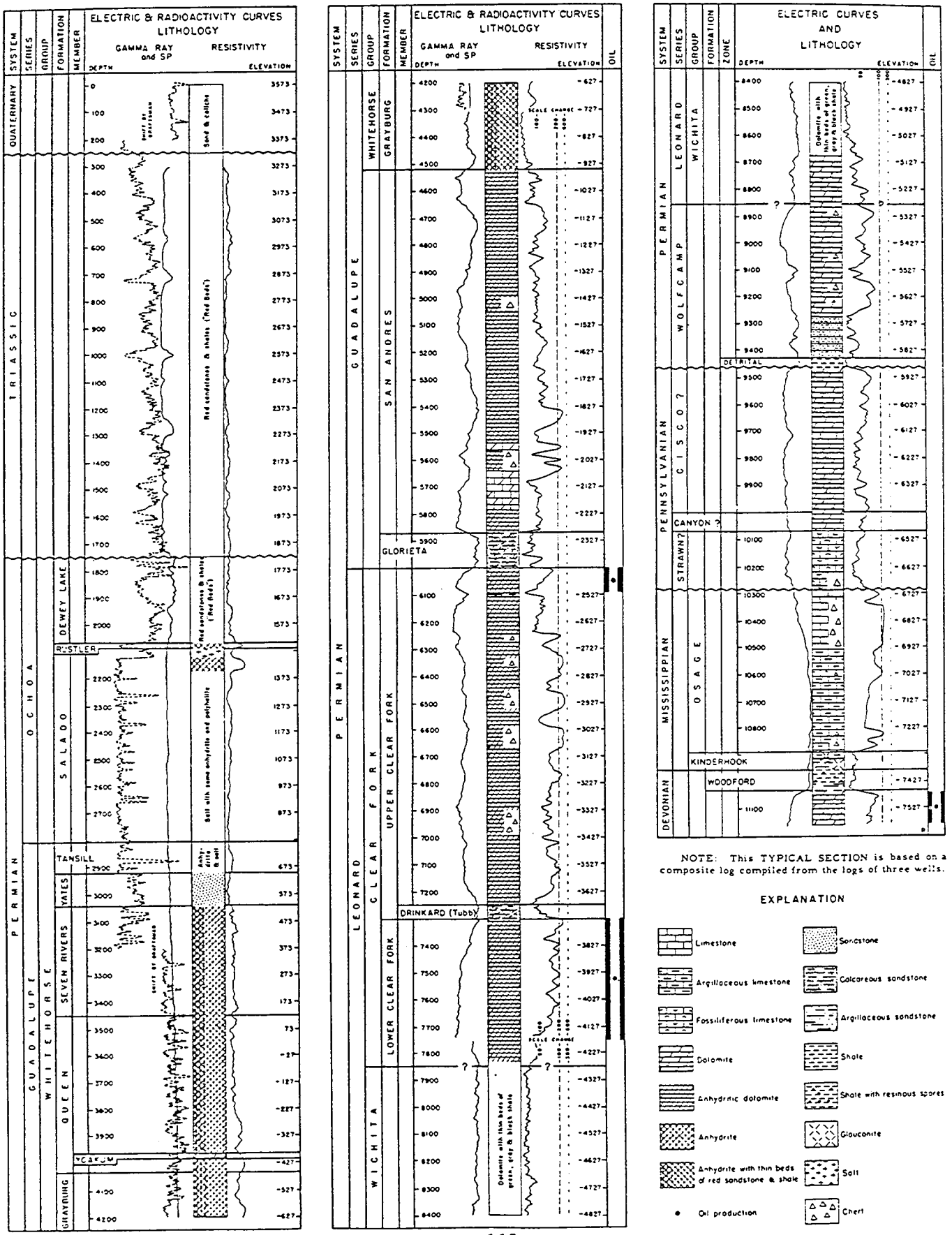
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

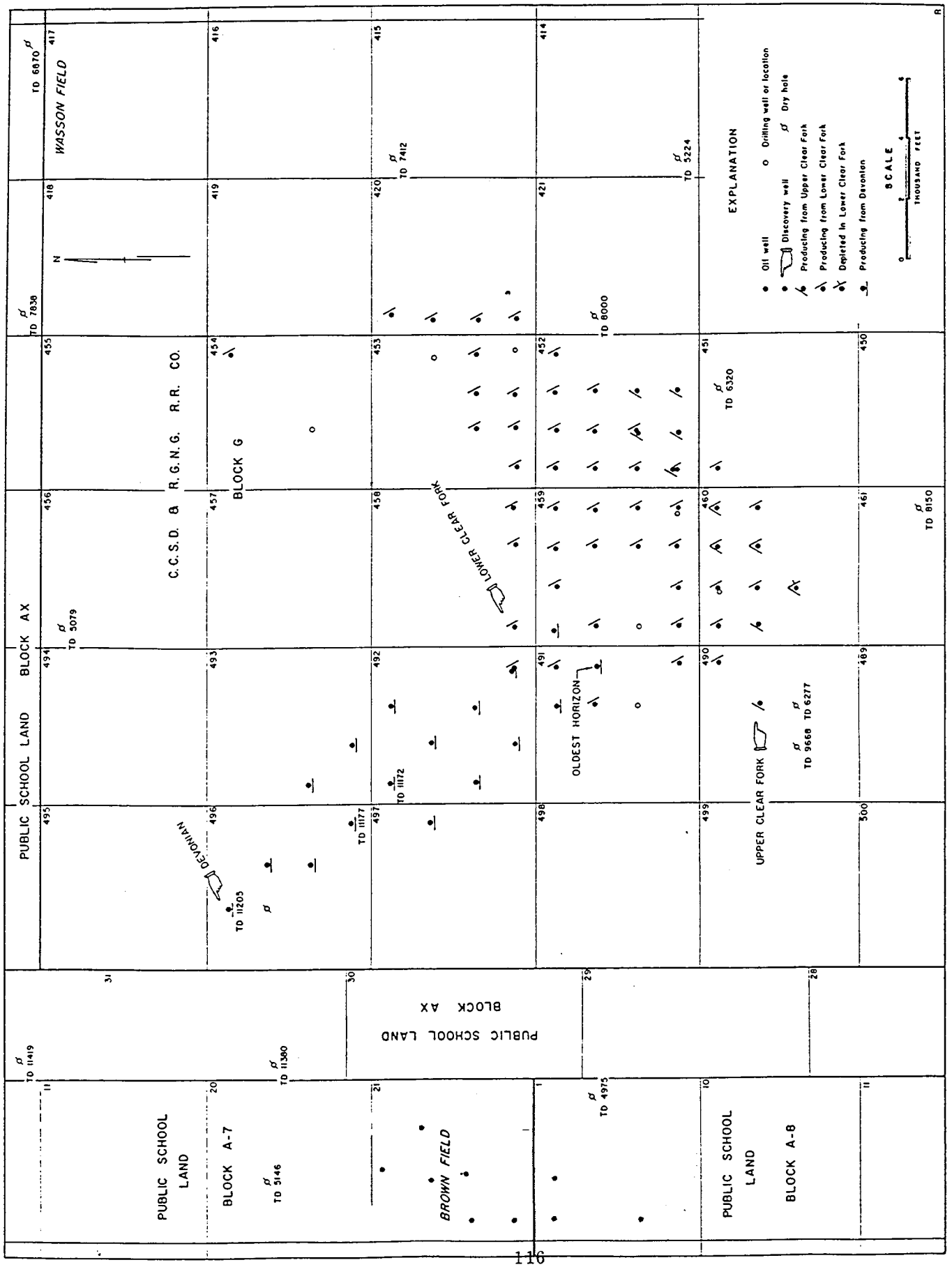
1976 PROD. (this project): MBBLS	1154				
1977 PROD. (this project):	1450				
CUM. PROD. FROM DISC. TO 1/78:	36280				
PROJECT NO.	F-3736				
LEASE NO.(s):	60679				
OPERATOR:	Mobil				
RESERVOIR:	Clear Fork				
DEPTH PRODUCING ZONE:	7350				
PRODUCTIVE ACREAGE IN RESERVOIR:	8910				
ACREAGE IN PROJECT:	8510				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW, FW				
PATTERN:	I9				
YEAR BEGAN:	2-71				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2600				
BEG. INJECTION:	600				
LATEST:	600				
NUMBER OF WELLS TOTAL:	345				
PRODUCING WELLS:	102				
INJECTION WELLS:	89 SW				
MAXIMUM:	89 FW				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	65				
SURFACE INJECTION PRESSURE:	1800				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	EB, PI				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	858				
FROM BEG. INJECTION:	1734				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	24000				
WATER PRODUCTION:					
CURRENT (1977):	1022				
CUMULATIVE TO 1/78:	6790				
CURRENT (1977) INJECTION:	1022 SW, 10003 FW				
CUMULATIVE INJECTION:	3618 SW, 62308 FW				

FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: Univ. of Texas, Bureau of Econ. Geol. Publ. 5716. August, 1957. Source 12c.

RUSSELL FIELD, Gaines County, Texas

TYPICAL SECTION OF ROCKS PENETRATED




WASSON FIELD
BROWN FIELD
C.C.S.D. & R.G.N.G. R.R. CO.
BLOCK G
PUBLIC SCHOOL LAND BLOCK AX
PUBLIC SCHOOL LAND BLOCK A-7
PUBLIC SCHOOL LAND BLOCK A-8
DEVONIAN
LOWER CLEAR FORK
OLDEST HORIZON
UPPER CLEAR FORK
EXPLANATION
Oil well
Discovery well
Producing from Upper Clear Fork
Producing from Lower Clear Fork
Depleted in Lower Clear Fork
Producing from Devonian
Drilling well or location
Dry hole
SCALE
THOUSAND FEET

Source 12c

Russell, North
Devonian
North Basin Platform

DATA SOURCE CODE		
1	STATE----------	Texas
1	COUNTY----------	Gaines
1	REGULATORY DISTRICT----------	8A
1	BASIN----------	Permian
15	SUB-BASIN----------	North Basin Platform
1	FIELD----------	Russell, North
1, 2	RESERVOIR----------	Devonian
1	GEOLOGIC AGE----------	Devonian
1	AAPG STRATIGRAPHIC AGE CODE----------	340
1	RESERVOIR LITHOLOGY----------	dolomite
1	TRAPPING MECHANISM----------	structural-anticline
1,2,3	DISCOVERY YEAR----------	1948, 7-1952, 11-48
2,16c	PROVED ACREAGE----------	1280, 1322
1	REGULAR WELL SPACING (acres/well)-----	40
2,3,1	RESERVOIR DEPTH----------	10,900; 11,125; 11,125
	RESERVOIR THICKNESS	
1,2,16c	NET PAY----------	65, 141, 35-140
	GROSS----------	
	NET/GROSS RATIO----------	
	POROSITY	
	TYPE----------	
2,1	FRACTION----------	.061, .05
	PERMEABILITY	
	RANGE----------	
2,1	AVERAGE----------	141, 51 md
2	HORIZONTAL----------	141 md
	VERTICAL----------	
3	OTHER INFORMATION----------	Other production from Glorieta and Clear Fork.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS----------	58P; 27(20P-7A)
1	PRODUCTION 1976 oil (cum)----------	70,353
	PRODUCTION 1977 oil (cum)----------	
	PRODUCTION 1978 oil (cum)----------	
3	PRODUCTION 1979 oil (cum)----------	72,708.7
3	PRODUCTION 1-1-79 to 1-1-80----------	666.5 mbbls, 167.9 mmcf
2	SECONDARY RECOVERY RECORDS?----------	yes
	WATER ANALYSIS RECORDS?----------	
	OTHER DATA	
	STRUCTURE CONTOUR?----------	
	LOGS?----------	
	STRUCTURE SECTION?----------	
	ENGINEERING REPORTS?----------	
	CORE DESCRIPTIONS?----------	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Russell, North
2, 16c	RESERVOIR:	Devonian
1,2,16c	PROD. ACRES:	1280, 1322
1	AVG. THICKNESS (FT.):	65, 141, 35-140
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.08
16c,1	FORMATION VOLUME FACTOR LATEST (FVF):	1.121 (72)
16c	WATER SATURATION (S_W):	.131-30, 20
1	OIL SATURATION (S_O):	.715 (72)
	PRIMARY DRIVE MECHANISM:	water drive
16c	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	155
2	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	540
2	RESERVOIR PRESSURE INITIAL (psi):	4620
1	RESERVOIR PRESSURE LATEST (psi):	1000
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	193
1,2,3	GAS OIL RATIO LATEST (GOR) (cf/bbl):	147.8 (76)
	STOCK TANK OIL GRAVITY (°API):	41.6, 38.1, 41.6
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1914
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

1 OTHER INFORMATION: primary recoverable: 100 bbl/acre-ft

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Russell, North RESERVOIR: Devonian TOTAL NO. PROJECTS: 1

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	-				
1977 PROD. (this project):	-				
CUM. PROD. FROM DISC. TO 1/78:	-				
PROJECT NO.					
LEASE NO.(s):	05187				
OPERATOR:	Mobil				
RESERVOIR:	Devonian				
DEPTH PRODUCING ZONE:	10900				
PRODUCTIVE ACREAGE IN RESERVOIR:	1280				
ACREAGE IN PROJECT:	320				
PORTION OR FIELD WIDE:	P				
TYPE:	PM/SW				
PATTERN:	P				
YEAR BEGAN:	11-72				
YEAR TERMINATED OR STATUS:	IPD				
RESERVOIR PRESSURE INITIAL:	4620				
BEG. INJECTION:	100				
LATEST:	1000				
NUMBER OF WELLS TOTAL:	27				
PRODUCING WELLS:	20				
INJECTION WELLS:	-				
MAXIMUM:	-				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	7				
SURFACE INJECTION PRESSURE:	-				
EFFECTIVENESS OF INJECTION:					
OPERATOR PROBLEMS:	EP				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:					
FROM BEG. INJECTION:					
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:					
WATER PRODUCTION:					
CURRENT (1977):	-				
CUMULATIVE TO 1/78:	10757				
CURRENT (1977) INJECTION:	-				
CUMULATIVE INJECTION:	625				

Sable
San Andres
North Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Yoakum
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	North Basin Platform
	FIELD	Sable
2	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2	DISCOVERY YEAR	1957
2	PROVED ACREAGE	1200
	REGULAR WELL SPACING (acres/well)	
2, 3	RESERVOIR DEPTH	5258
	RESERVOIR THICKNESS	
2	NET PAY	39
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.092
	PERMEABILITY	
	RANGE	
2	AVERAGE	2 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from Devonian and Mississippian.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	65 (23P-42I-0A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	5,644.6
3	PRODUCTION 1-1-79 to 1-1-80	467.4 mbbls, 130.6 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Sable
	RESERVOIR:	San Andres
2	PROD. ACRES:	1200
2	AVG. THICKNESS (FT.):	39
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.2
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.2 (76)
16c	WATER SATURATION (S_W):	.28-.35
16c	OIL SATURATION (S_O):	.50 (76)
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	108
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1550
2	RESERVOIR PRESSURE INITIAL (psi):	1467
2	RESERVOIR PRESSURE LATEST (psi):	1372
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	31.7, 30.6
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1381
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	15,486 mbbls.
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	2,630 mbbls.

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Sable RESERVOIR: San Andres TOTAL NO. PROJECTS: 1

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	512				
1977 PROD. (this project):	539				
CUM. PROD. FROM DISC. TO 1/78:	4669				
PROJECT NO.	F-1834				
LEASE NO.(s):	60182				
OPERATOR:	Arco				
RESERVOIR:	San Andres				
DEPTH PRODUCING ZONE:	5258				
PRODUCTIVE ACREAGE IN RESERVOIR:	1200				
ACREAGE IN PROJECT:	1200				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW, FW				
PATTERN:	F				
YEAR BEGAN:	2-67				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	1467				
BEG. INJECTION:	650				
LATEST:	1372				
NUMBER OF WELLS TOTAL:	65				
PRODUCING WELLS:	23				
INJECTION WELLS:	21 SW				
MAXIMUM:	21 FW				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	0				
SURFACE INJECTION PRESSURE:	1300				
EFFECTIVENESS OF INJECTION:	FW				
OPERATOR PROBLEMS:	SC, CR, EH				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	498				
FROM BEG. INJECTION:	1446				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	2630				
WATER PRODUCTION:					
CURRENT (1977):	1259				
CUMULATIVE TO 1/78:	4877				
CURRENT (1977) INJECTION:	1259 SW, 130 FW				
CUMULATIVE INJECTION:	4877 SW, 6298 FW				

Salt Creek
Canyon Reef
Eastern Shelf

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Kent
1	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	Salt Creek
2	RESERVOIR	Canyon Reef
1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	323
5c, 1	RESERVOIR LITHOLOGY	Bioherm reef - 90% limestone, very fossiliferous; limestone
1, 5c	TRAPPING MECHANISM	reef mass - stratigraphic
1,2,3	DISCOVERY YEAR	1950, 5-1950, 3-1950
1,2,5c	PROVED ACREAGE	9269, 9269, 8000
1, 5c	REGULAR WELL SPACING (acres/well)	80
1,2,3	RESERVOIR DEPTH	6200, 6400, 6200
	RESERVOIR THICKNESS	
1,2,16c	NET PAY	36, 200, 177-192
5c	GROSS	461
	NET/GROSS RATIO	
	POROSITY	
5c	TYPE	IC, V, F
1,2,5c	FRACTION	.12, .09, .084
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	11, 17 md
2,5c	HORIZONTAL	11, 27md
5c	VERTICAL	10.6 md
3	OTHER INFORMATION	other production from Strawn.
14e	BETC/RI-78/15 list as suitable for carbon dioxide EOR.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
5c,1,2	TOTAL NUMBER OF WELLS	119P; 134P-13I; 161(123P-33I-5A)
1	PRODUCTION 1976 oil (cum)	148,383
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	178,420.5
3	PRODUCTION 1-1-79 to 1-1-80	9,312.9 mbbls.; 6,059.0 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5c	STRUCTURE CONTOUR?	yes
5c	LOGS?	yes
5c	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Salt Creek
	RESERVOIR:	Canyon Reef
1,2,5c	PROD. ACRES:	9269, 9269, 8000
1,2,16c	AVG. THICKNESS (FT.):	36, 200, 177-192
1,16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.269, 1.291
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.2923 (76)
1,16c	WATER SATURATION (S_W):	.29, .16-.30
16c	OIL SATURATION (S_O):	.60 (76)
1	PRIMARY DRIVE MECHANISM:	depletion
14e	PRIMARY GAS CAP?:	no
16c, 14e	TEMPERATURE (°F):	129
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1260
1, 2, 14e	RESERVOIR PRESSURE INITIAL (psi):	2940
2	RESERVOIR PRESSURE LATEST (psi):	2997
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	338
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	510.5 (76)
1,2,3	STOCK TANK OIL GRAVITY (°API):	39.2, 40.0, 39.2
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	0.79 cp
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1605
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	500,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	100,000 mbbls.

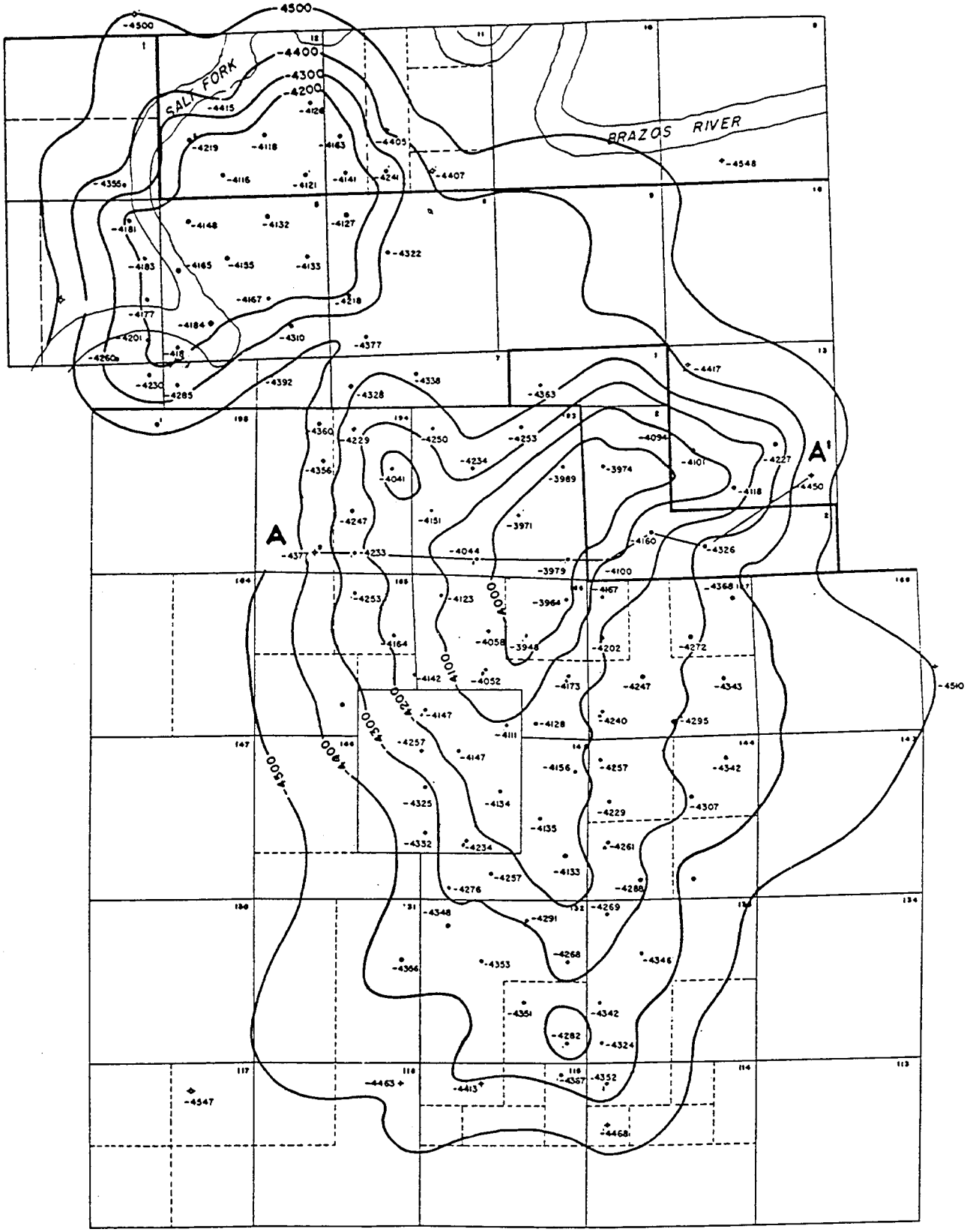
OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Salt Creek RESERVOIR: Canyon Reef TOTAL NO. PROJECTS: 1 P.D.S.

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	11976				
1977 PROD. (this project):	11289				
CUM. PROD. FROM DISC. TO 1/78:	155808				
PROJECT NO.	F-1835				
LEASE NO.(s):	05254				
OPERATOR:	General Crude				
RESERVOIR:	Canyon Reef				
DEPTH PRODUCING ZONE:	6200				6200
PRODUCTIVE ACREAGE IN RESERVOIR:	9269				9269
ACREAGE IN PROJECT:	9269				9269
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW, BW				PM-MD
PATTERN:	C				
YEAR BEGAN:	12-52 MD, 6-52 PR				1952
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2940				2940
BEG. INJECTION:	2360				
LATEST:	2997				
NUMBER OF WELLS TOTAL:	161				
PRODUCING WELLS:	123				134
INJECTION WELLS:	5 gas				13
MAXIMUM:	5 LPG				
LATEST:	6 SW, 17 FW				
SHUT-IN/ABANDONED WELLS:	5				
SURFACE INJECTION PRESSURE:	2300				
EFFECTIVENESS OF INJECTION:	VE				
OPERATOR PROBLEMS:	IP, PI, BT				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	1229				
FROM BEG. INJECTION:	6115				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	177000				
WATER PRODUCTION:					
CURRENT (1977):	6802				
CUMULATIVE TO 1/78:	30654				
CURRENT (1977) INJECTION:	5846 gas, 2LPG, 6586 SW, 12704 BW				
CUMULATIVE INJECTION:	63767 gas, 9LPG, 143067 SW, 63519 BW				



By: GALBRAITH, G.S., 1952 in Abilene Geological Society Contributions.

SALT CREEK FIELD

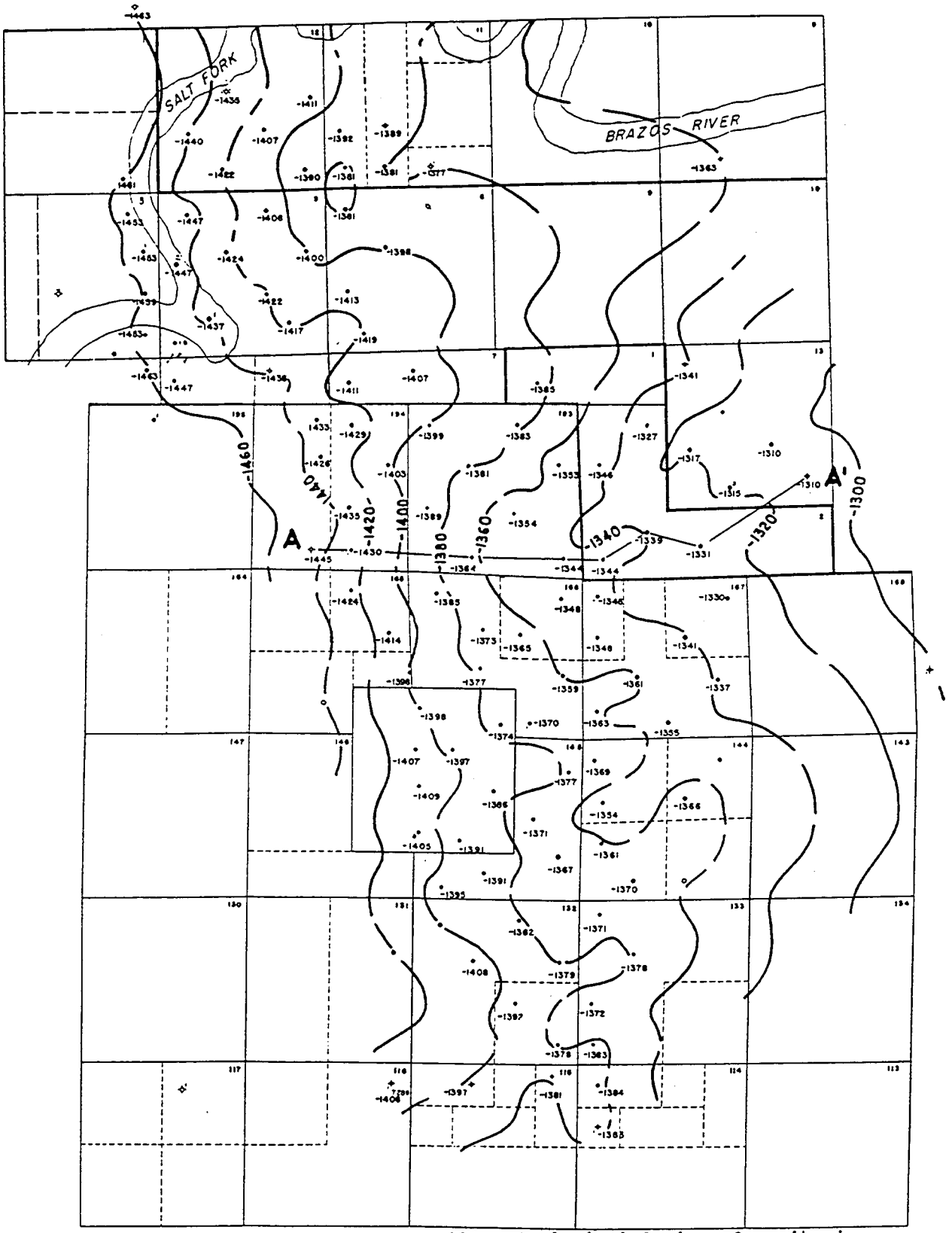
KENT COUNTY, TEXAS

STRUCTURAL CONTOURS ON TOP OF REEF

CONTOUR INTERVAL: 100 FEET

0 2 4 6 8 10,000

Sept., 1952



BY: GALBRAITH, G.S., 1952 in Abilene Geological Society Contributions.

SALT CREEK FIELD

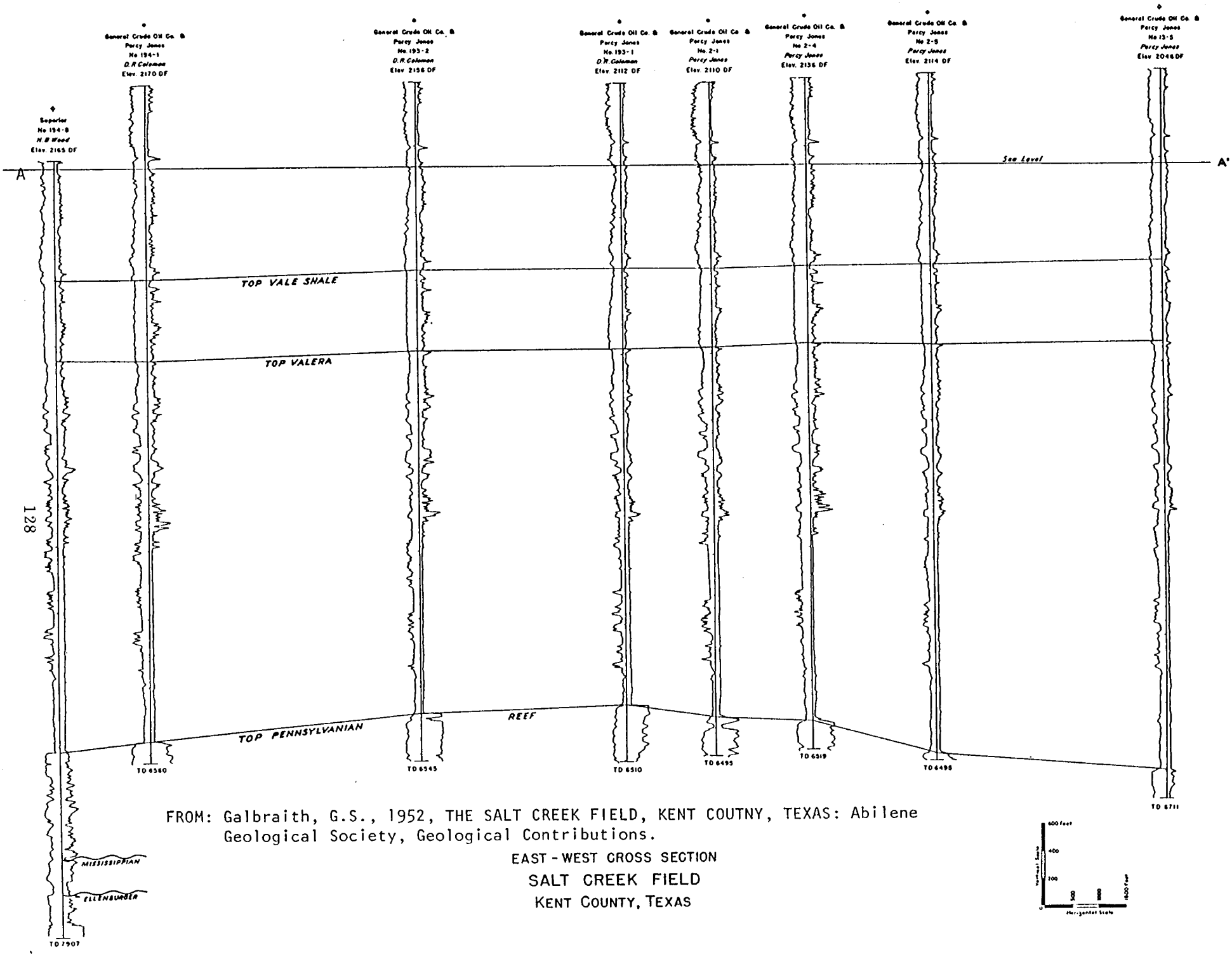
KENT COUNTY, TEXAS

STRUCTURAL CONTOURS ON TOP OF VALERA

CONTOUR INTERVAL: 20 FEET

0 2 4 6 8 10,000

Sept., 1952



FROM: Galbraith, G.S., 1952, THE SALT CREEK FIELD, KENT COUTNY, TEXAS: Abilene Geological Society, Geological Contributions.

EAST - WEST CROSS SECTION

SALT CREEK FIELD

KENT COUNTY, TEXAS

Sand Hills
Tubb
Central Basin Platform

DATA SOURCE CODE		
	STATE----------	Texas
2, 8a	COUNTY----------	Crane
2	REGULATORY DISTRICT----------	8
2	BASIN----------	Permian
15	SUB-BASIN----------	Central Basin Platform
2,8a	FIELD----------	Sand Hills
2,8a	RESERVOIR----------	Tubb *
5, 8a	GEOLOGIC AGE----------	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE----------	318
14e	* SAND HILLS-SAN ANDRES NOT LISTED BY PDS BUT RESERVOIR PROPERTIES ON NEXT PAGE.	
8a ,14e	RESERVOIR LITHOLOGY----------	silty sand, sandy dolomite, calcareous and argillaceous sandstone, sandy shale in part pyritic interbedded with sandy dolomite, fine siltstone, gritty shales, impure dolomites; carbonate.
	TRAPPING MECHANISM----------	
2, 3	DISCOVERY YEAR----------	1930 and 1931, 1930
2,16c	PROVED ACREAGE----------	16,255 avg. (range of 15,020 to 17,000);
	REGULAR WELL SPACING (acres/well)-----	17,040
2, 3	RESERVOIR DEPTH----------	4,360 avg. with a range of 4200 to 4500; 4500
	RESERVOIR THICKNESS	
2, 8a	NET PAY----------	49.25 avg. (range 35 to 60); 50-200
16c	GROSS----------	250
	NET/GROSS RATIO----------	
	POROSITY	
	TYPE----------	
2	FRACTION----------	.107 avg (range .1 to .128)
	PERMEABILITY	
	RANGE----------	
2 ,14e	AVERAGE----------	28.5 avg. (range 10 to 56) md,39md
	HORIZONTAL----------	
	VERTICAL----------	
3	OTHER INFORMATION----------	other reservoirs include McKnight, Clear Fork, Judkins, Ordovician, Upper San Angelo, Wichita-Albany, Wolfcamp, and 5800'Ellenburger
14e	Recommended as most suitable for carbon dioxide EOR because of poor waterflood.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS----------	3983 (3888P-74I-21A)
	PRODUCTION 1976 oil (cum)----------	
	PRODUCTION 1977 oil (cum)----------	
	PRODUCTION 1978 oil (cum)----------	
3	PRODUCTION 1979 oil (cum)----------	78,746.9 mbbls.
3	PRODUCTION 1-1-79 to 1-1-80----------	1,141.3 mbbls. oil; 6,725.0 mmcf gas
2	SECONDARY RECOVERY RECORDS?----------	yes
	WATER ANALYSIS RECORDS?----------	
	OTHER DATA	
	STRUCTURE CONTOUR?----------	
	LOGS?----------	
	STRUCTURE SECTION?----------	
	ENGINEERING REPORTS?----------	
	CORE DESCRIPTIONS?----------	
14e	Reservoir Properties for Sand Hills-San Andres listed on next page.	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Sand Hills
	RESERVOIR:	Tubb Sand
2,16c	PROD. ACRES:	16,255 avg., 17,040
2,8a	AVG. THICKNESS (FT.):	49.25 avg., 50-200
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.229
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.23 (75)
16c	WATER SATURATION (S_W):	.40
16c	OIL SATURATION (S_O):	.44 (74)
14e	PRIMARY DRIVE MECHANISM:	no natural water drive
14e	PRIMARY GAS CAP?:	no
16c	TEMPERATURE (°F):	96
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2100
2	RESERVOIR PRESSURE INITIAL (psi):	2100
2	RESERVOIR PRESSURE LATEST (psi):	660-804
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	35.25 avg., 35
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	1.045 cp
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1217
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 5 SRPs:	126,769 mbbls.
2	ESTIMATED PRIMARY OIL RECOVERED FOR 5 SRPs:	13,638 mbbls.

OTHER INFORMATION:

16c Oil Saturation: .44 (68)
.53 (69)
.50 (71)
.44 (74)

14e SAN HILLS FIELD - SAN ANDRES RESERVOIR PROPERTIES

OIL GRAVITY , °API	35
OIL VISCOSITY, cp	1.17
DEPTH, FT	3420
BHT, °F	85
PERMEABILITY, md	114
LITHOLOGY	carbonate
ORIGINAL BHP, psi	1510
NATURAL H_2O DRIVE	no
GAS CAP	no
FRACTURED	no

Recommended by BETC/RI-78/15 for polymer EOR because it was assumed that polymers will be more readily available than carbon dioxide.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Sand Hills RESERVOIR: Tubb Sand TOTAL NO. PROJECTS: 5

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	187	646	15	101	(ABD)
1977 PROD. (this project):	177	551	12	88	1597
CUM. PROD. FROM DISC. TO 1/78:	7273	16261	2890	6522	1597
PROJECT NO.	F-1537	F-1538	F-3216	F-1539	F-3415
LEASE NO.(s):	21178	05294	05301, 02, 03	20865	05295
OPERATOR:	Arco	Gulf	Lario O&G	Mobil	Exxon
RESERVOIR:	Tubb	Tubb	Tubb	Tubb	Tubb
DEPTH PRODUCING ZONE:	4200	4500	4200	4400	4500
PRODUCTIVE ACREAGE IN RESERVOIR:	16000	15020	17000	17000	-
ACREAGE IN PROJECT:	1360	4763	480	1320	-
PORTION OR FIELD WIDE:	P	P	P	P	P
TYPE:	WF/SW	PM/BW	WF/SW	WF/SW	PM/gas
PATTERN:	MI9	P5	5S	I9	-
YEAR BEGAN:	1-70	7-58	7-74	6-68	2-69
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	5PD
RESERVOIR PRESSURE INITIAL:	2100	2100	2100	2100	2100
BEG. INJECTION:	700	942	400	400	-
LATEST:	660	-	-	804	-
NUMBER OF WELLS TOTAL:	66	3858	11	48	-
PRODUCING WELLS:	26	3829	6	27	-
INJECTION WELLS:	16 SW	29	1	12	-
MAXIMUM:	16 BW	-	-	-	
LATEST:					
SHUT-IN/ABANDONED WELLS:	8	-	4	9	-
SURFACE INJECTION PRESSURE:	1000	1317	-	900	-
EFFECTIVENESS OF INJECTION:	ME	ME	-	ME	-
OPERATOR PROBLEMS:	CR	CR, EG, SC	-	EB	-
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-	-	-	45 mbbls	-
FROM BEG. INJECTION:	-	-	-	340 mbbls	-
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	0	-	-	3464 mbbls	-
WATER PRODUCTION:					
CURRENT (1977):	941	2000	68	303	
CUMULATIVE TO 1/78:	5124	27294	435	2055	
CURRENT (1977) INJECTION:	941 SW, 797 BW	3672 BW	68 SW	1557 SW	
CUMULATIVE INJECTION:	6653 SW, 9533 BW	78275 BW	306 SW	17670 SW	

Scarborough
Yates and Seven Rivers
Central Basin Platform

DATA SOURCE CODE		
	STATE	New Mexico
1, 6c	COUNTY	Lea
1	REGULATORY DISTRICT	Southeast
1, 6c	BASIN	Permian
1-	SUB-BASIN	Central Basin Platform
1, 6c	FIELD	Scarborough
1, 6c	RESERVOIR	Yates and Seven Rivers
6, 1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
6c, 1	RESERVOIR LITHOLOGY	* (see notes on next page) Alternating sandstone and dolomite
6c, 1	TRAPPING MECHANISM	Several structural highs on north-south axis; anticline and bioherm.
6c, 1	DISCOVERY YEAR	7-16-26; 1975
6c, 1	PROVED ACREAGE	2840, 2960
6c, 1	REGULAR WELL SPACING (acres/well)	40
6c	RESERVOIR DEPTH	2895 (+43)
1	RESERVOIR THICKNESS	500 ft. avg.
	NET PAY	
6c	GROSS	500'
	NET/GROSS RATIO	
	POROSITY	
6c	TYPE	IG, IC, V, F
6c, 1	FRACTION	.141 - Yates SS; .141
	PERMEABILITY	
	RANGE	
6c, 1	AVERAGE	4.6 md - Yates SS; 4.6 md
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	79 Total, 52 pump, 8 flow, 5 injection, 14 shut-in; 65P, 17S-I, 4I.
1	PRODUCTION 1977 oil (cum)	15,240
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	15,623
	PRODUCTION 1-1-79 to 1-1-80	
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6c	STRUCTURE CONTOUR?	yes
6c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Scarborough
6c, 1	RESERVOIR:	Yates and Seven Rivers
6c, 1	PROD. ACRES:	2840, 2960
1	AVG. THICKNESS (FT.):	500
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
6c, 1	WATER SATURATION (S_w):	.468-YatesSS; .468
6c, 1	OIL SATURATION (S_o):	.103 - Yates SS; .103
6c, 1	PRIMARY DRIVE MECHANISM:	water drive
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	(GG=1.0)
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	2307
6c, 1	STOCK TANK OIL GRAVITY (°API):	37
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

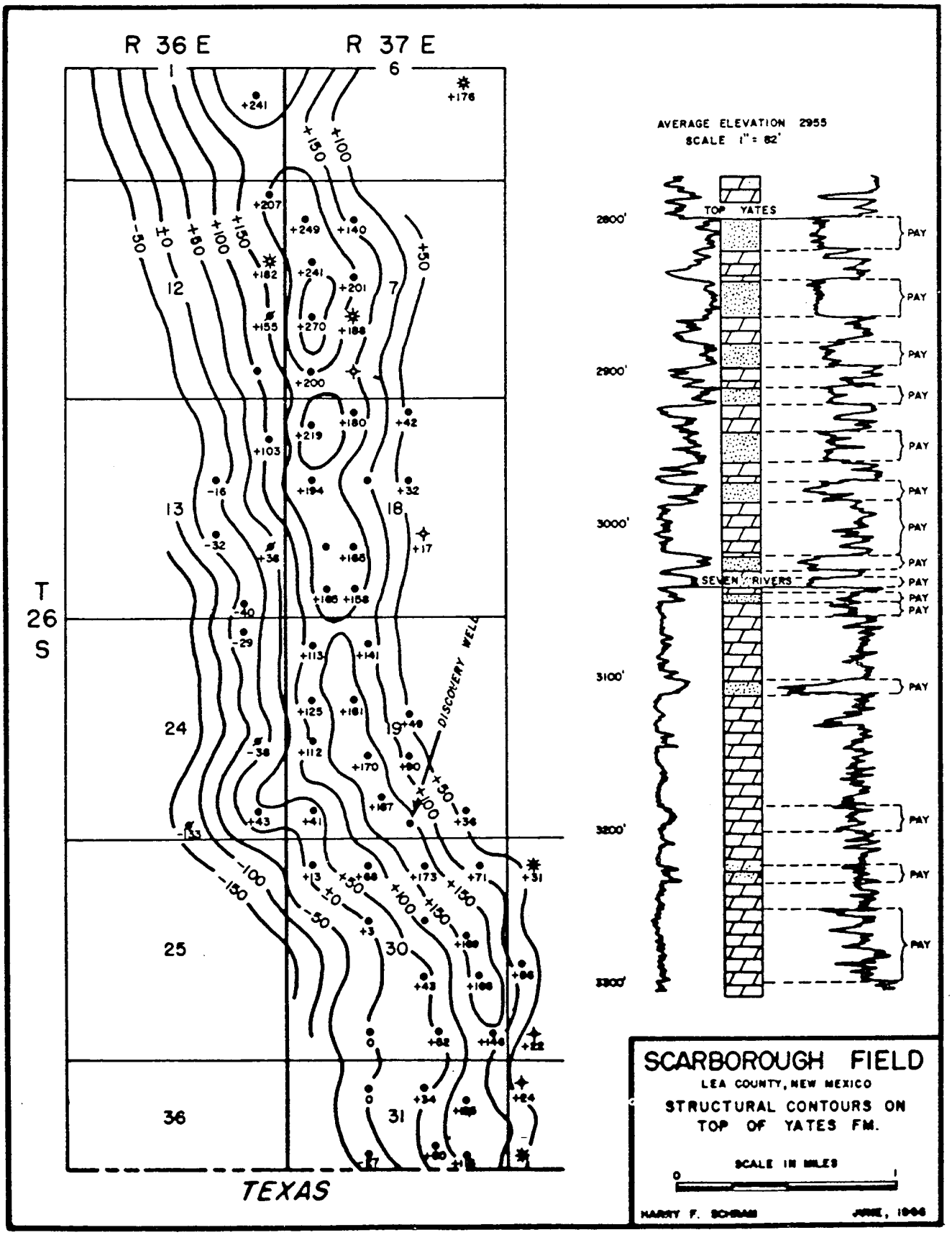
OTHER INFORMATION:

* Yates - alternating sandstone and dolomite

Seven Rivers - dolomite with granular and fracture porosity.
Pay may encompass all or part of the two formations.

FROM: Schram, H.F., 1966, SCARBOROUGH YATES - SEVEN RIVERS in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO - 1967, Source 6c.

ROSWELL GEOLOGICAL SOCIETY SYMPOSIUM



Seminole
San Andres
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Gaines
1, 2	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1, 2	FIELD	Seminole
1, 2	RESERVOIR	San Andres
1, 12c	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1,7,12c	RESERVOIR LITHOLOGY	anhydrite dolomite
1,7,12c	TRAPPING MECHANISM elongate anticline	structural-anticline; trap is an
1,2,3	DISCOVERY YEAR	1936, 11-1936, 1936
1,2,7,12c,16c	PROVED ACREAGE	514; 15,700; over 13,400; 13,411; 17,345
1	REGULAR WELL SPACING (acres/well)	40
1,2,3	RESERVOIR DEPTH	5032, 5100 to 5355, 5032
	RESERVOIR THICKNESS	
1,2	NET PAY	125, 195
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.132, .11
	PERMEABILITY	
	RANGE	
2, 1	AVERAGE	31, 19 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from Devonian, San Angel Wolfcamp, Wolfcamp-Upper, Wolfcamp-Lime, and Wolfcamp-Reef.
14e		Not recommended as suitable for EOR due to gas cap.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	282P-24I; 500 (286P-176I-38A)
1	PRODUCTION 1976 oil (cum)	227,511
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	229,151.6 mbbls.
3	PRODUCTION 1-1-79 to 1-1-80	24,934.9 mbbls oil; 13,830.1 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Seminole
2, 1	RESERVOIR:	San Andres
16c,2,1,7,12c	PROD. ACRES:	17,345; 15,700; 514; 13,700; 13,441
2, 1	AVG. THICKNESS (FT.):	195, 175
1,16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.37, 1.38
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.39 (76)
1,16c	WATER SATURATION (S_w):	.174, .115-.174
16c	OIL SATURATION (S_o):	.65 (74)
1	PRIMARY DRIVE MECHANISM:	depletion
1	PRIMARY GAS CAP?:	yes
1,16c , 14e	TEMPERATURE (°F):	108 , 108 BHT
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2020
2, 1	RESERVOIR PRESSURE INITIAL (psi):	2020, 2000
2	RESERVOIR PRESSURE LATEST (psi):	1392
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	11 (76)
2,3,1	STOCK TANK OIL GRAVITY (°API):	35.0, 37, 37
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	0.92 cp
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1356
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	970,700 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	266,943 mbbls.

1 OTHER INFORMATION: primary recovery = .80

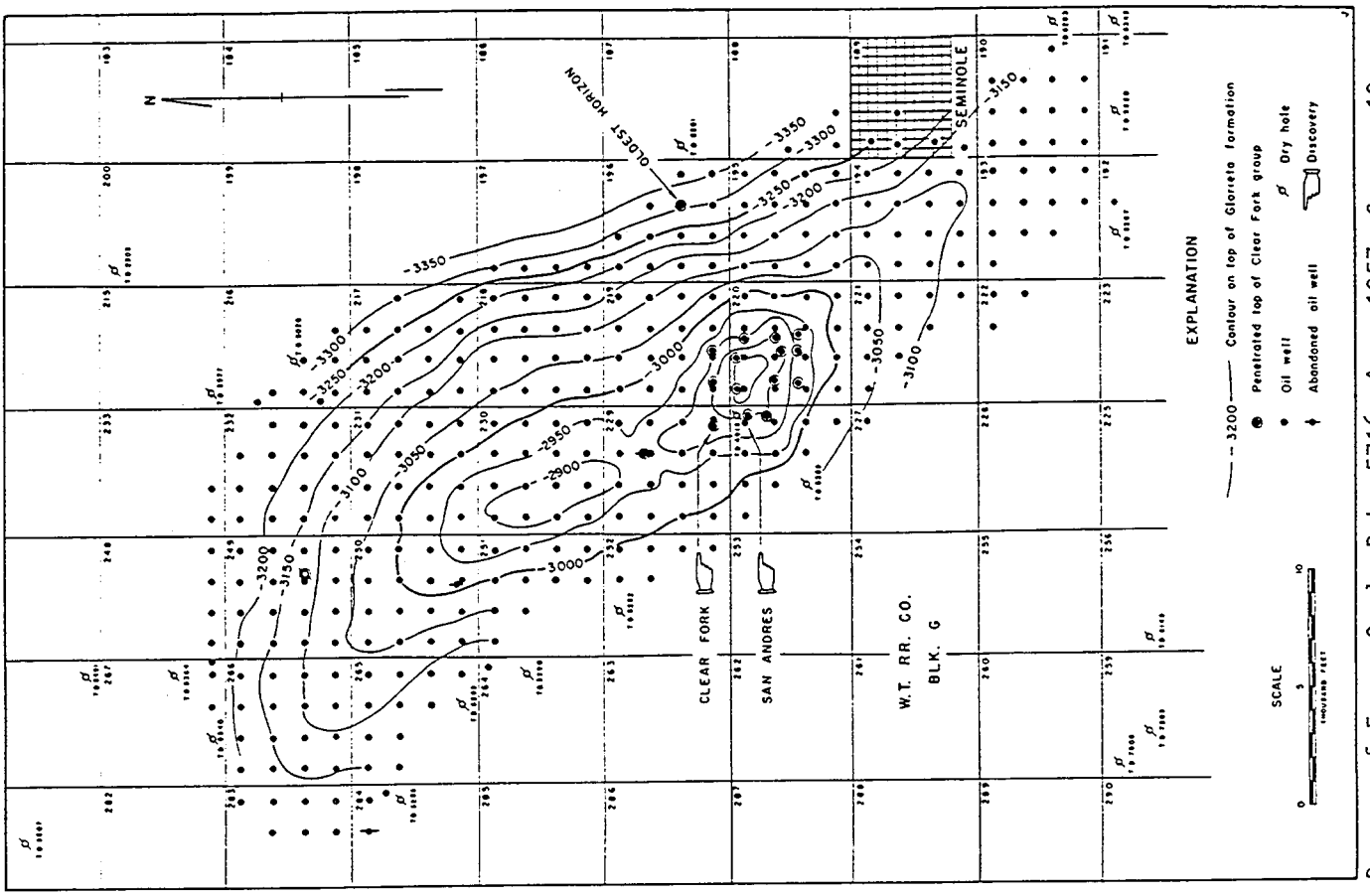
12c Reference: Douglas, E.R., 1953, Seminole Field in Occurrence of Oil and Gas in West Texas : University of Texas, Bureau of Economic Geology, publ No. 5716, Aug., 1957, pp 303-306.

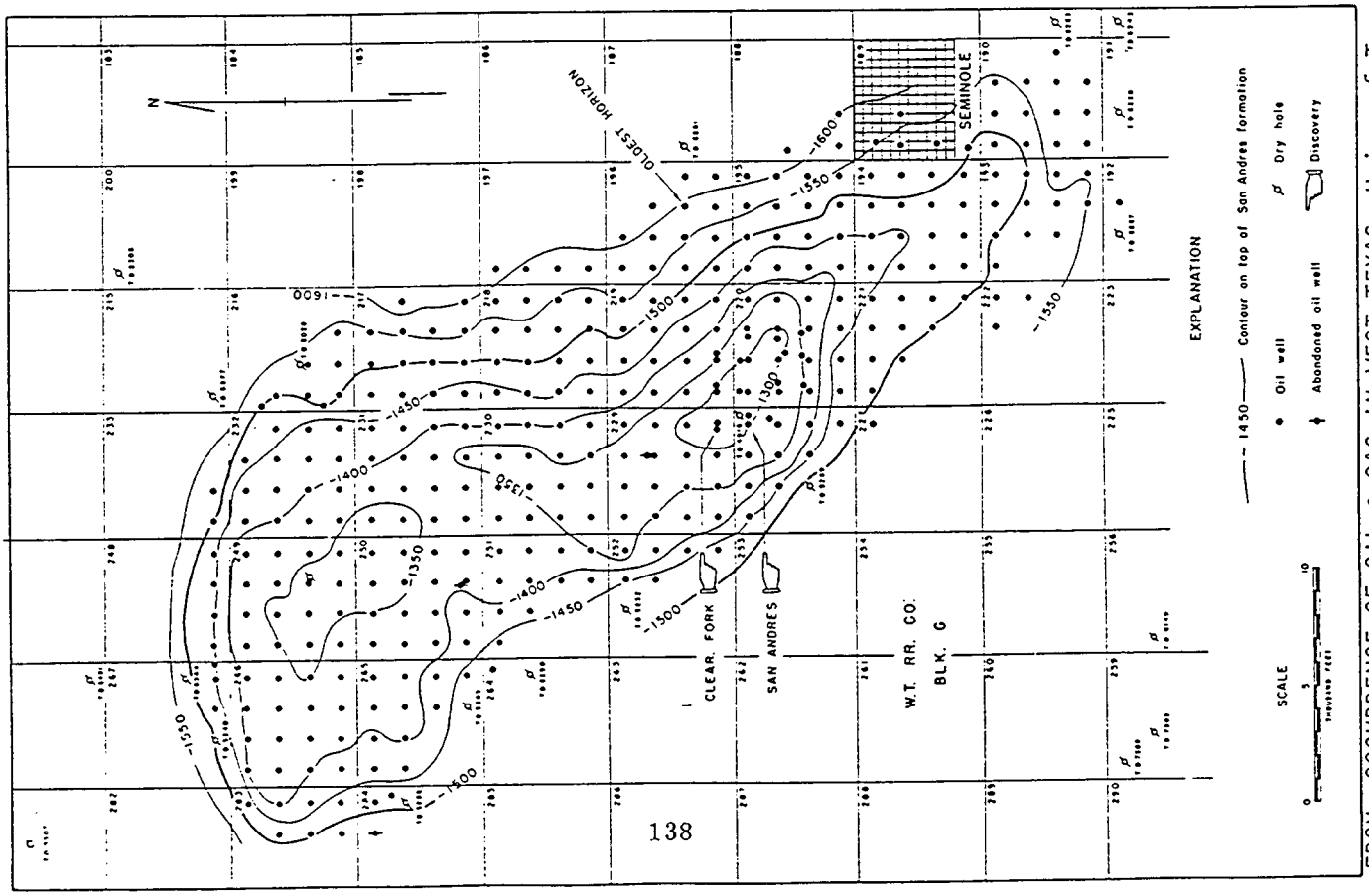
ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Seminole RESERVOIR: San Andres TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

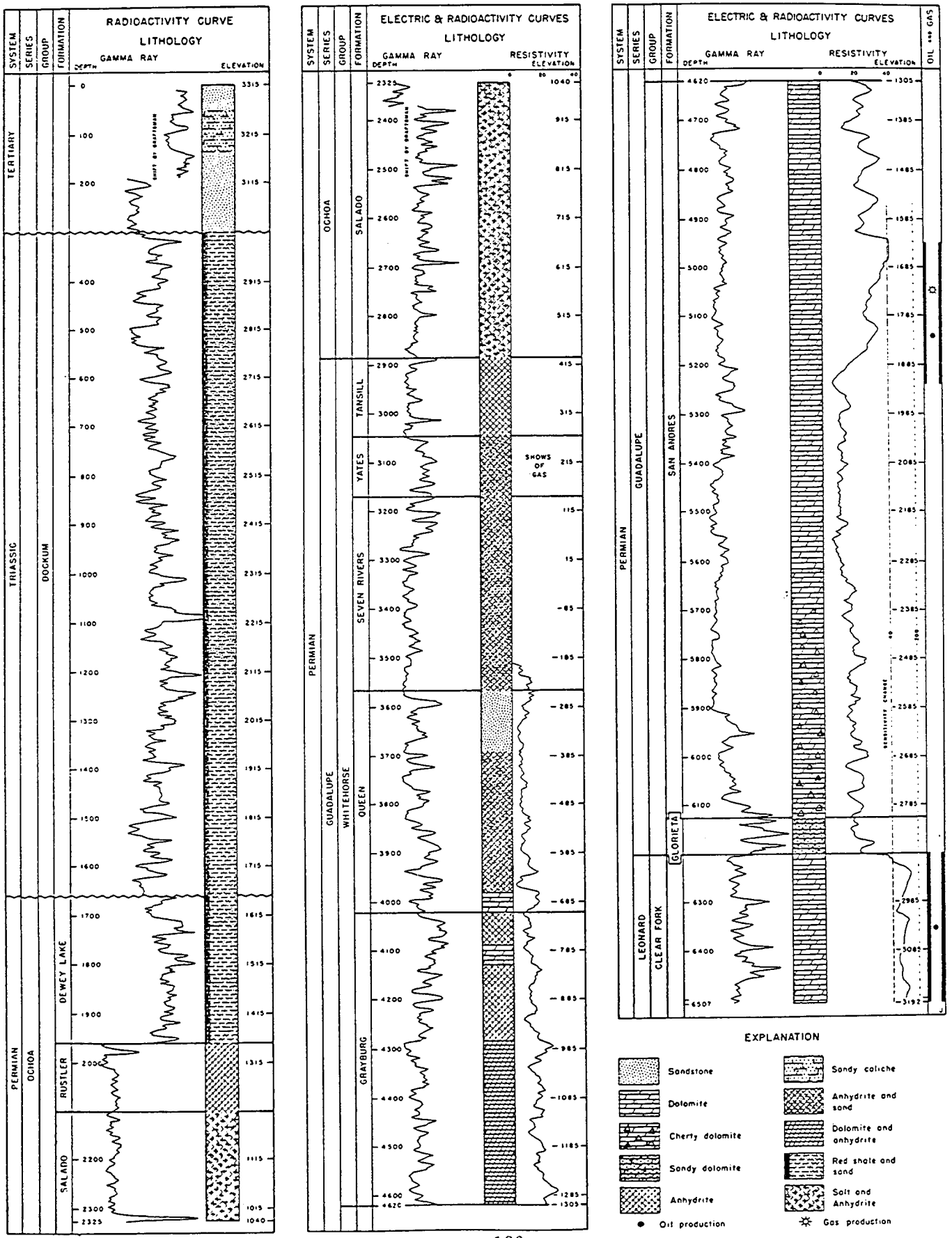
1976 PROD. (this project): MBBLS	23731				
1977 PROD. (this project):	22749				
CUM. PROD. FROM DISC. TO 1/78:	127511				
PROJECT NO.	F-1837				
LEASE NO.(s):	60475				
OPERATOR:	Amerada Hess				
RESERVOIR:	San Andres				San Andres
DEPTH PRODUCING ZONE:	5100-5355				5032
PRODUCTIVE ACREAGE IN RESERVOIR:	15700				514
ACREAGE IN PROJECT:	14625				14625
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW, FW, gas				WF
PATTERN:	I9				
YEAR BEGAN:	12-70, 10-69, 7-69				1969
YEAR TERMINATED OR STATUS:	SW-ICP, FW-ICP, gas-IP				
RESERVOIR PRESSURE INITIAL:	2020				2000
BEG. INJECTION:	1165				
LATEST:	1392				
NUMBER OF WELLS TOTAL:	500				
PRODUCING WELLS:	286				282
INJECTION WELLS:	88 SW				24
MAXIMUM:	88 FW				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	38				
SURFACE INJECTION PRESSURE:	1400				
EFFECTIVENESS OF INJECTION:	VF				
OPERATOR PROBLEMS:	CR, SC, PA, ID				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	6825				
FROM BEG. INJECTION:	50351				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	116118				
WATER PRODUCTION:					
CURRENT (1977):	17754				
CUMULATIVE TO 1/78:	45560				
CURRENT (1977) INJECTION:	17433 SW, 49361 FW				
CUMULATIVE INJECTION:	42405 SW, 348492 FW, 5649 gas				





FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: Univ. of Texas Bureau of Econ. Geol. Pub. 5716, Aug. 1957, Source 12c.

TYPICAL SECTION OF ROCKS PENETRATED Source 12c.



Seminole, East
San Andres
Central Basin Platform/
(Midland Basin)

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Gaines
	REGULATORY DISTRICT	8A
	BASIN	Permian
13	SUB-BASIN	Central Basin Platform
2	FIELD	Seminole, East
2	RESERVOIR	San Andres
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2, 3	DISCOVERY YEAR	5-1959
2	PROVED ACREAGE	1218
	REGULAR WELL SPACING (acres/well)	
2, 3	RESERVOIR DEPTH	5400, 5450
	RESERVOIR THICKNESS	
2	NET PAY	52
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.08
	PERMEABILITY	
	RANGE	
2	AVERAGE	5 md
2	HORIZONTAL	5 md
	VERTICAL	
3	OTHER INFORMATION	no other production noted for Seminole, East
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	22 (14P-12I-6A)
	PRODUCTION 1976 oil (cum)	3289
	PRODUCTION 1977 oil (cum)	3500
	PRODUCTION 1978 oil (cum)	3698
3	PRODUCTION 1979 oil (cum)	3,903.8 mbbls.
3	PRODUCTION 1-1-79 to 1-1-80	204.8 mbbls. oil; 34.9 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Seminole, East
2	RESERVOIR:	San Andres
2	PROD. ACRES:	1218
2	AVG. THICKNESS (FT.):	52
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_w):	
	OIL SATURATION (S_o):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	1950
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	33, 34
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	18,849 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	951 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Seminole, East RESERVOIR: San Andres TOTAL NO. PROJECTS: 1

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	358				
1977 PROD. (this project):	213				
CUM. PROD. FROM DISC. TO 1/78:	-				
PROJECT NO.	F-3737				
LEASE NO.(s):	60717				
OPERATOR:	GMK Oil Co.				
RESERVOIR:	San Andres				
DEPTH PRODUCING ZONE:	5400				
PRODUCTIVE ACREAGE IN RESERVOIR:	1218				
ACREAGE IN PROJECT:	1360				
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW, FW				
PATTERN:	P				
YEAR BEGAN:	9-71				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	1950				
BEG. INJECTION:	-				
LATEST:	-				
NUMBER OF WELLS TOTAL:	22				
PRODUCING WELLS:	14				
INJECTION WELLS:	1SW				
MAXIMUM:	11FW				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	6				
SURFACE INJECTION PRESSURE:	1400				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	-				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-				
FROM BEG. INJECTION:	-				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-				
WATER PRODUCTION:					
CURRENT (1977):	49				
CUMULATIVE TO 1/78:	481				
CURRENT (1977) INJECTION:	144SW, 990 FW				
CUMULATIVE INJECTION:	387SW, 6755 FW				

Seminole, West
San Andres
Central Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Gaines
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
2	FIELD	Seminole, West
2	RESERVOIR	San Andres
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
7, 12c	RESERVOIR LITHOLOGY	anhydrite dolomite and Wolfcamp dolomite. Dolomite, medium crystalline, contains anhydrite inclusions.
12c	TRAPPING MECHANISM	Convex trap on northwest-southeast trending anticline
2, 3	DISCOVERY YEAR	6-48
2,16c	PROVED ACREAGE	2782, 2960
	REGULAR WELL SPACING (acres/well)	
2, 3	RESERVOIR DEPTH	5112, 5042
	RESERVOIR THICKNESS	
2,16c .12c	NET PAY	120, 99-118, 60 min & 300 max with 180 avg
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.139
	PERMEABILITY	
	RANGE	
2	AVERAGE	21 md
	HORIZONTAL	
	VERTICAL	
7 3	OTHER INFORMATION	other production from Glorieta, Devonian, Leonard and Wolfcamp.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	111 (48P-48I-15A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	27,947.1 mbbls.
3	PRODUCTION 1-1-79 to 1-1-80	1,474 mbbls. oil, 6,468.3 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Seminole, West
	RESERVOIR:	San Andres
2,16c	PROD. ACRES:	2782, 2960
2,16c	AVG. THICKNESS (FT.):	120, 99-118
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.382
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.315 (71)
16c	WATER SATURATION (S_W):	.15 - .2753
16c	OIL SATURATION (S_O):	.6172 (71)
	PRIMARY DRIVE MECHANISM:	
12c	PRIMARY GAS CAP?:	yes
16c	TEMPERATURE (°F):	102
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	2020
2	RESERVOIR PRESSURE LATEST (psi):	1227
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	31.2, 34.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1293
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	154,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	26,000 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Seminole, West RESERVOIR: San Andres TOTAL NO. PROJECTS: 1

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

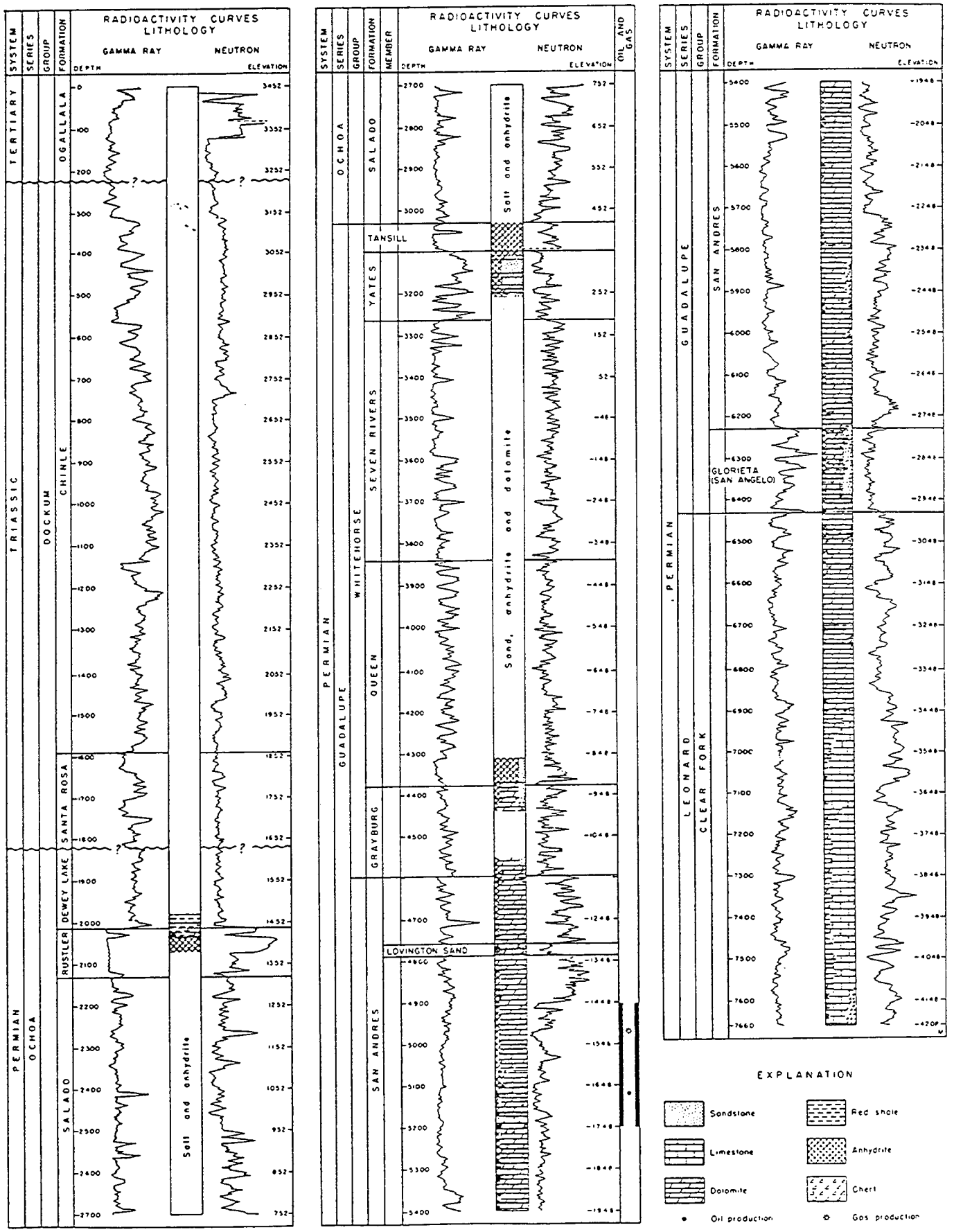
1976 PROD. (this project): MBBLS	1310				
1977 PROD. (this project):	1080				
CUM. PROD. FROM DISC. TO 1/78:	21822				
PROJECT NO.	F-1838				
LEASE NO.(s):	017310				
OPERATOR:	Cities				
RESERVOIR:	San Andres				
DEPTH PRODUCING ZONE:	5112				
PRODUCTIVE ACREAGE IN RESERVOIR:	2782				
ACREAGE IN PROJECT:	2557				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/FW; PM/gas				
PATTERN:	P				
YEAR BEGAN:	12-68, 12-62				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2020				
BEG. INJECTION:	1630				
LATEST:	1227				
NUMBER OF WELLS TOTAL:	111				
PRODUCING WELLS:	48				
INJECTION WELLS:	47 FW				
MAXIMUM:	1 gas				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	15				
SURFACE INJECTION PRESSURE:	500				
EFFECTIVENESS OF INJECTION:	UD-FW; ME-Gas				
OPERATOR PROBLEMS:	EG, PA, PI, CR				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-				
FROM BEG. INJECTION:	-				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-				
WATER PRODUCTION:					
CURRENT (1977):	492				
CUMULATIVE TO 1/78:	2218				
CURRENT (1977) INJECTION:	4020 FW, 2782 gas				
CUMULATIVE INJECTION:	27828 FW, 44199 gas				

FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECON. GEOL PUB. 5716.

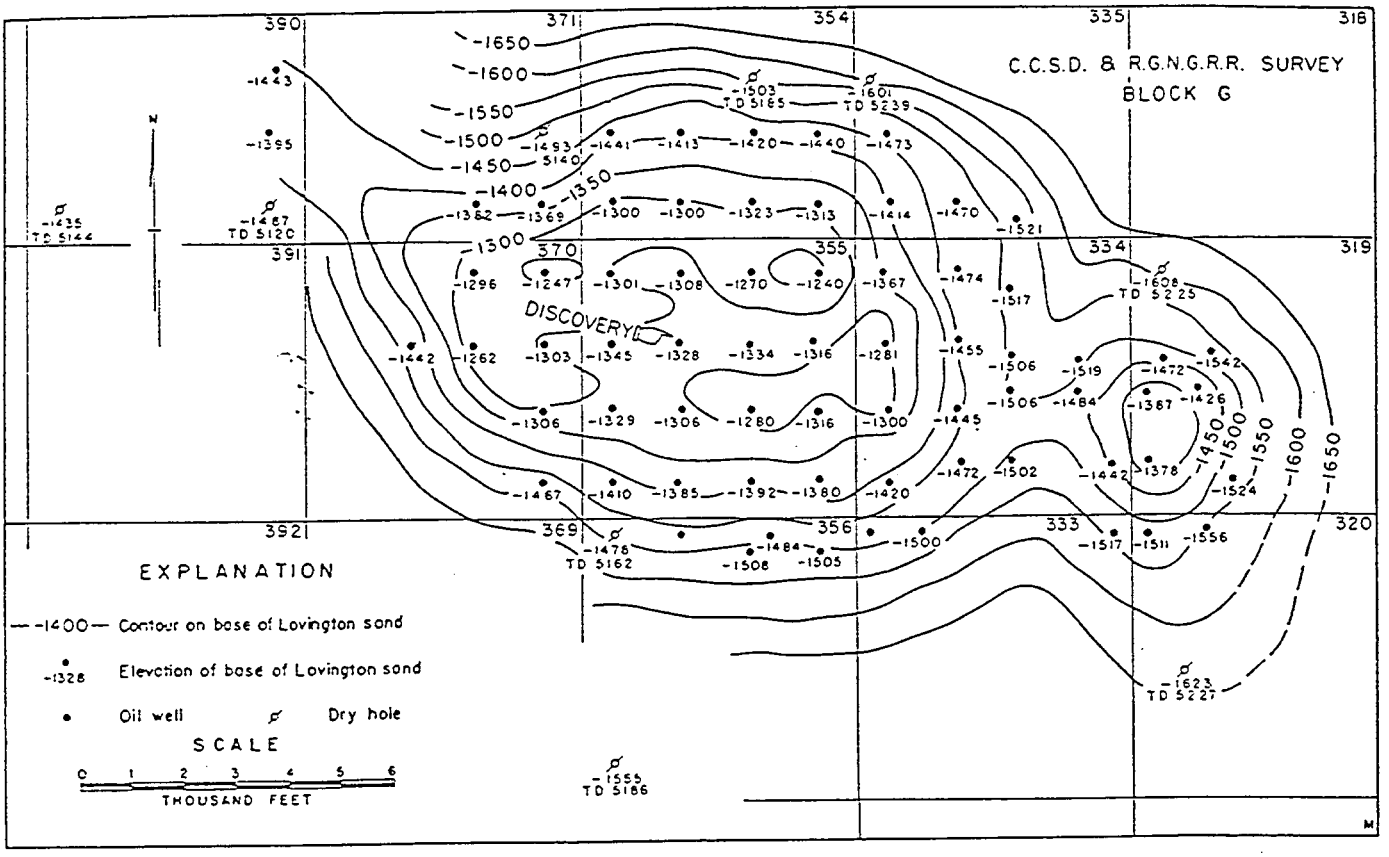
WEST SEMINOLE FIELD, Gaines County, Texas 395

Source 12c.

TYPICAL SECTION OF ROCKS PENETRATED



WEST SEMINOLE FIELD, Gaines County, Texas Source 12c



CONTINUITY OF RESERVOIR ROCK

San Andres: This reservoir rock is present throughout most of the Permian basin exclusive of that portion designated as Delaware basin. It is a prolific producing zone in numerous fields on the Central Basin platform and in scattered fields in the Midland basin and on the Eastern platform.

ELEVATION AND RELIEF OF PRODUCTIVE ZONE

San Andres:	Feet
Elevation of top of gas	-1,450
Elevation of bottom of gas	-1,585
Relief	135
Elevation of top of oil	-1,585
Elevation of bottom of oil	-1,650 to -1,760*
Relief	65 to 175

*The elevation of the oil-water contact was -1,760 feet, or lower, on the east end of the field; -1,750 on the highest part of the structure; -1,700 on the north, south and southwest flanks; -1,650 on the west and northwest extremities of present development.

The above figures represent conditions at the time of discovery of the field.

CHARACTER OF OIL

San Andres:	
Gravity, A.P.I. @ 60° F.,	30.5° to 36.5°
Sulphur,	1.18%
Color,	Dark green
Odor,	Sour

WATER PRODUCTION

San Andres: Only the lowermost edge wells have produced water in appreciable quantity.

ACID TREATMENT

San Andres: Several of the wells which would not produce their allowables without treatment were acidized with from 500 to 8,000 gallons of 15% acid. In practically all cases, the injection of acid resulted in substantially increased rates of production.

PRODUCTION HISTORY

San Andres and Field total:

Year	WELLS PRODUCING at end of year		OIL PRODUCTION (barrels)	
	Flowing	Pumping	Yearly	Cumulative
1948	4	1	20,685	20,685
1949	32	2	296,550	317,235
1950	41	5	736,738	1,053,973
1951	50	6	1,032,148	2,086,121
1952*	61	5	1,107,946	3,194,067

*1952 data added by amendment.

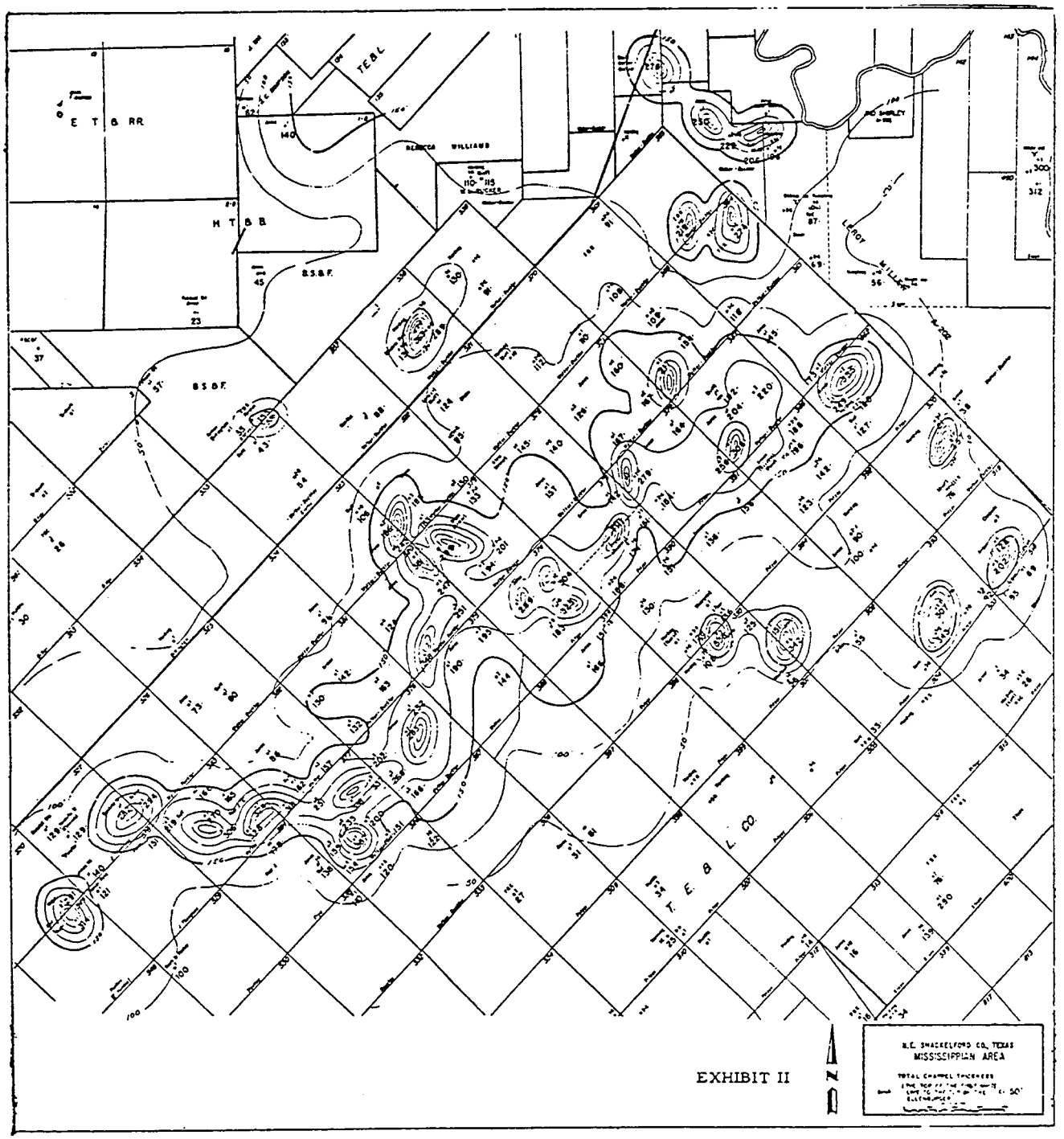
Shackelford, N.E.
Mississippian
Bend Arch

DATA SOURCE CODE		
	STATE	Texas
5g	COUNTY	Shackelford
5g	REGULATORY DISTRICT	7B
5g	BASIN	Permian
8a	SUB-BASIN	Bend Arch
5g	FIELD	Shackelford, N.E.
5g	RESERVOIR	Mississippian
5	GEOLOGIC AGE	Mississippian
1	AAPG STRATIGRAPHIC AGE CODE	330
5g	RESERVOIR LITHOLOGY	limestone with poor continuity.
5g	TRAPPING MECHANISM	stratigraphic bioherm
5g, 3	DISCOVERY YEAR	11-7-60, 2-73
5g	PROVED ACREAGE	10,000
5g	REGULAR WELL SPACING (acres/well)	660-1320
5g, 3	RESERVOIR DEPTH	4583-4616, 4592
	RESERVOIR THICKNESS	
	NET PAY	
5g	GROSS	100 to 300
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
5g	FRACTION	.02 - .10
	PERMEABILITY	
5g	RANGE	.10- 50 md
	AVERAGE	
	HORIZONTAL	
	VERTICAL	
5g	OTHER INFORMATION	primary depletion in 1976.
3	Effective 2-1-73, 11 reservoirs combined into this field total.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
5g	TOTAL NUMBER OF WELLS	79P
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	3,652.4
3	PRODUCTION 1-1-79 to 1-1-80	206.9 mbbls oil; 1,726.3 mmcf gas
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5g	STRUCTURE CONTOUR?	yes
5g	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

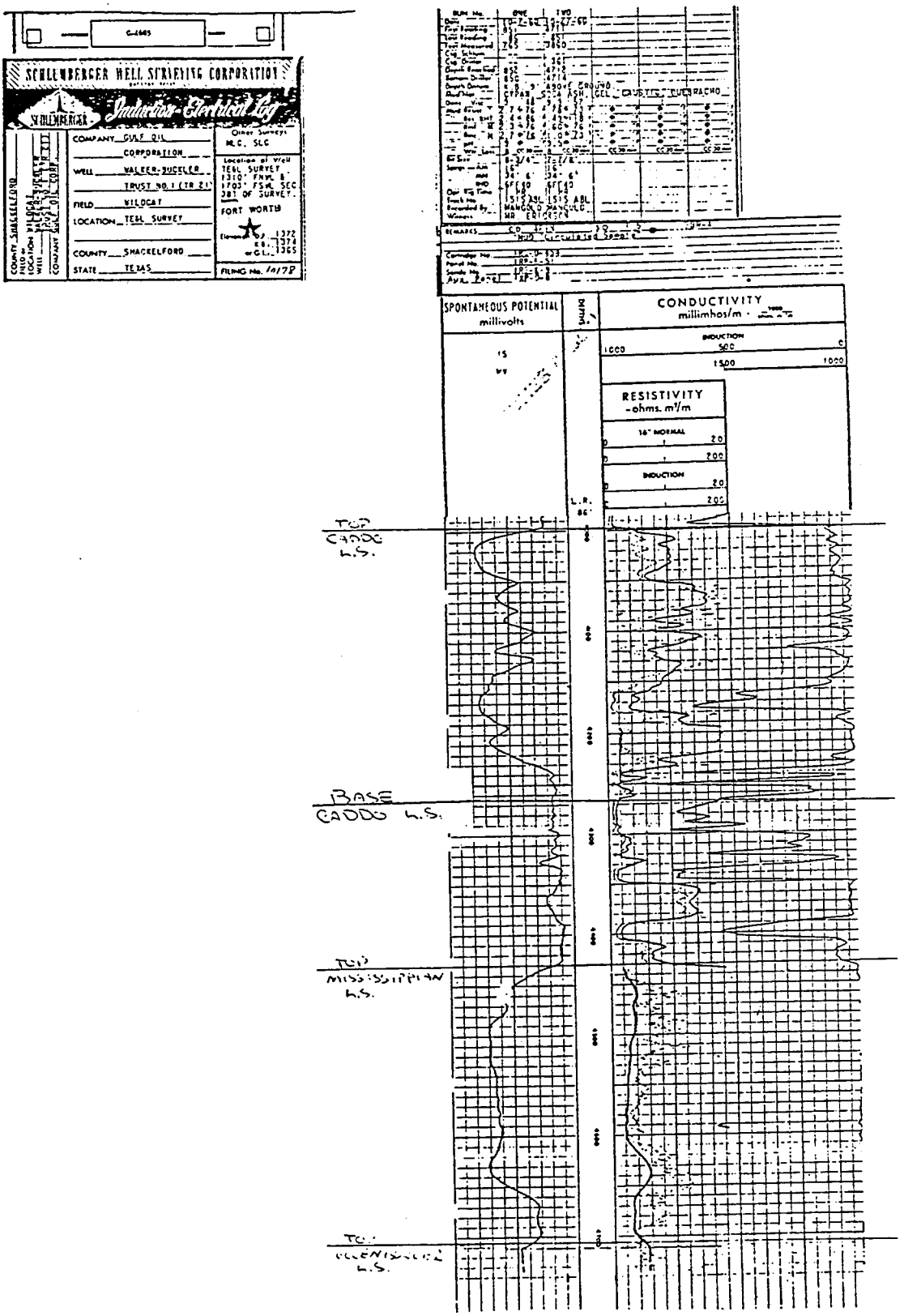
RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Shackelford, N.E.
5g	RESERVOIR:	Mississippian
5g	PROD. ACRES:	10,000
5g	AVG. THICKNESS (FT.):	100 to 300
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
5g	PRIMARY DRIVE MECHANISM:	solution gas
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	147 (GG= 1.6)
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
5g	RESERVOIR PRESSURE INITIAL (psi):	2060
	RESERVOIR PRESSURE LATEST (psi):	
5g	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	804-1
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
5g, 3	STOCK TANK OIL GRAVITY (°API):	42, 43
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1810
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:



FROM: Ranier, Mark, 1976, SKACKELFORD, NE: Abilene Geological Society Contributions. Source 5g.



FROM: Rainer, Mark, 1976, SHACKELFORD, NE: Abilene Geological Society Contributions, Source 5g.

Shafter Lake
San Andres
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Andrews
1, 2	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1, 2	FIELD	Shafter Lake
1, 2	RESERVOIR	San Andres
1, 5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
12c, 1	RESERVOIR LITHOLOGY	fine crystalline dolomite; dolomite.
12c, 1	TRAPPING MECHANISM	stratigraphic-updip and lateral termination of reservoir due to decrease of porosity; structural.
2, 3	DISCOVERY YEAR	1929, 4-1953
2,12c,1,16c	PROVED ACREAGE	12,720; 5,760; 680; 15,680
1	REGULAR WELL SPACING (acres/well)	40
1,2,3	RESERVOIR DEPTH	4482, 4500, 4482
	RESERVOIR THICKNESS	
1,2,12c	NET PAY	53, 49, 65
12c	GROSS	100
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2, 1	FRACTION	.065, .069
	PERMEABILITY	
	RANGE	
1, 2	AVERAGE	5md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from Clear Fork, Devonian, Ellenburger, Pennsylvanian, Wolfcamp, Yates and 7200'. Total cum. additional 46,166.5 mbbls.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	263P-69I; 426 (169P-146I-111A)
1	PRODUCTION 1976 oil (cum)	30,606
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	33,617.9 mbbls.
3	PRODUCTION 1-1-79 to 1-1-80	890.7 mbbls oil; 448.6 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
12c	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2, 1	FIELD:	Shafter Lake
12c,2,1,16c	RESERVOIR:	San Andres
2,1,12c	PROD. ACRES:	5760; 12,720; 680; 15,680
1,16c	AVG. THICKNESS (FT.):	49, 53, 65
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.23, 1.245
1, 16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.15 (75)
16c	WATER SATURATION (S_W):	.30
1	OIL SATURATION (S_O):	.54 (75)
12c	PRIMARY DRIVE MECHANISM:	depletion
17, 12c,16c	PRIMARY GAS CAP?:	no
17	TEMPERATURE (°F):	105, 93, 105
1,2,12c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2058
2	RESERVOIR PRESSURE INITIAL (psi):	1865, 1865, 1600
12c, 1	RESERVOIR PRESSURE LATEST (psi):	550
1, 17	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	50-1 6o 1400-1, 876
1,2,3,12c	GAS OIL RATIO LATEST (GOR) (cf/bbl):	507.9 (76), 509
	STOCK TANK OIL GRAVITY (°API):	35.1, 32, 35.1, 30.0
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
2	MINIMUM MISCIBILITY PRESSURE (MMP):(psia)	1327
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	164,926 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	19,681 mbbls

12c OTHER INFORMATION: Reference: Zimmerman, J.B., 1953, University of Texas, Bureau of Economic Geology, pub. No. 5716.

1 Primary recoverable: 61 bbl/acre-ft.

16c Oil saturation: .55 (66)
.604 (67)
.60 (68)
.54 (74)
.54 (75)

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Shafter Lake RESERVOIR: San Andres TOTAL NO. PROJECTS: 1 PDS:

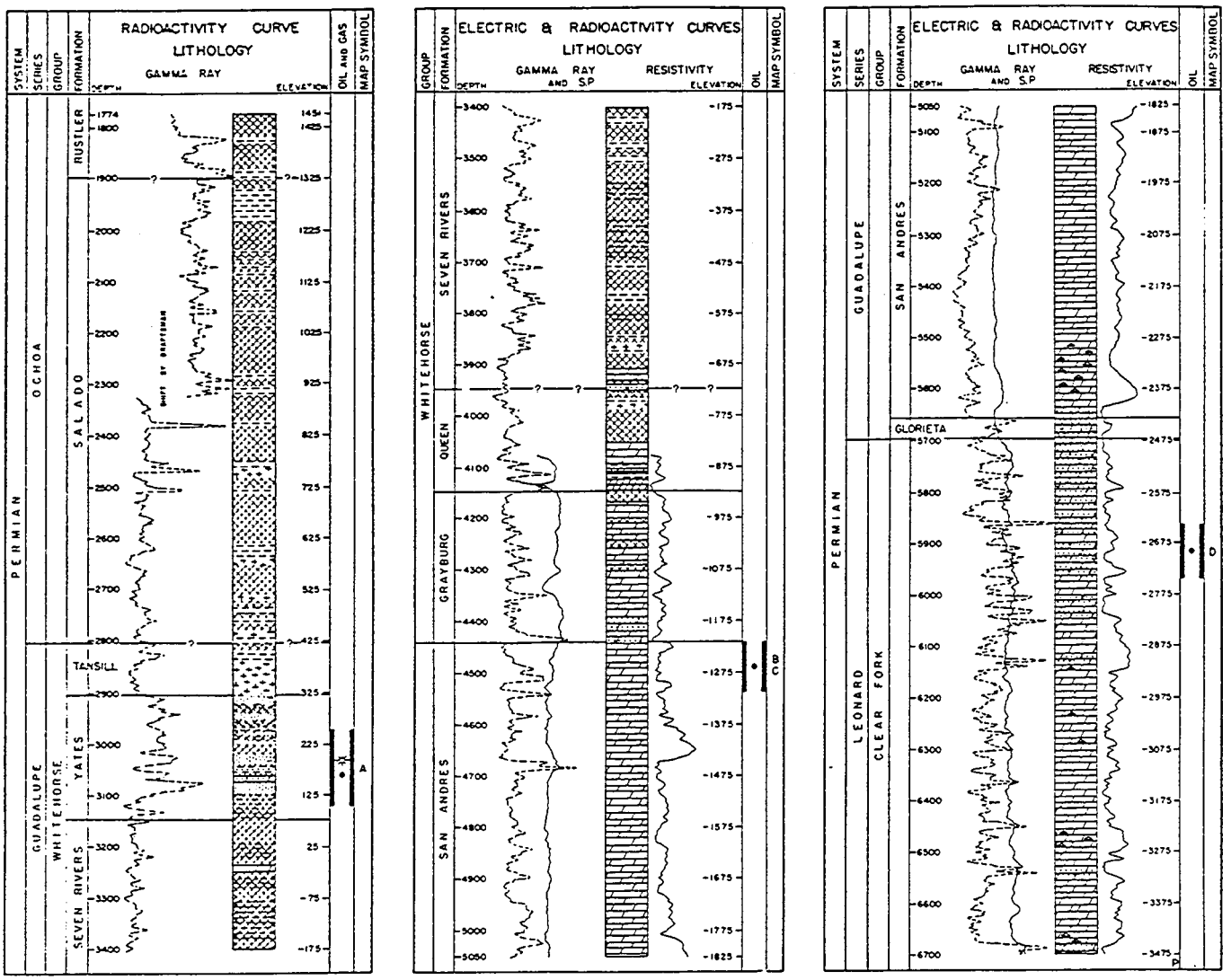
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	946				
1977 PROD. (this project):	876				
CUM. PROD. FROM DISC. TO 1/78:	27118				
PROJECT NO.	F-1555				
LEASE NO.(s):	020587				
OPERATOR:	Mobil				
RESERVOIR:	San Andres				~~San Andres~~
DEPTH PRODUCING ZONE:	4500				~~4482~~
PRODUCTIVE ACREAGE IN RESERVOIR:	12720				~~680~~
ACREAGE IN PROJECT:	11080				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW, FW				
PATTERN:	I9				~~PM~~
YEAR BEGAN:	7-67				~~1967~~
YEAR TERMINATED OR STATUS:	SW/ICP				
RESERVOIR PRESSURE INITIAL:	FW/ICP				~~1865~~
BEG. INJECTION:	1865				
LATEST:	550				
NUMBER OF WELLS TOTAL:	550				
PRODUCING WELLS:	426				
INJECTION WELLS:	169				~~263~~
MAXIMUM:	73 SW				~~69~~
LATEST:	73 FW				
SHUT-IN/ABANDONED WELLS:	111				
SURFACE INJECTION PRESSURE:	1050				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	CR, CH, EW, SC				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	876				
FROM BEG. INJECTION:	7437				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	18200				
WATER PRODUCTION:					
CURRENT (1977):	1724				
CUMULATIVE TO 1/78:	16141				
CURRENT (1977) INJECTION:	1724 SW, 8134 FW				
CUMULATIVE INJECTION:	16121 SW, 102154 FW				

FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: Univ. of Texas Bureau of Econ. Geol. Pub. 5716.
August, 1957, Source 12c.

SHAFTER LAKE—DEEP ROCK FIELD, Andrews County, Texas

TYPICAL SECTION OF ROCKS PENETRATED



ELEVATION AND RELIEF OF PRODUCTIVE ZONES

	Elevation of oil, feet Top	Elevation of oil, feet Bottom	Relief, feet
Yates (Pre gas, see note)*	170	67*	103+
Deep Rock San Andres Main field (south)	-998	-1,194	196
North and east	-1,220	-1,370	150
North San Andres	-1,290	-1,370	80
Deep Rock Clear Fork	-2,551	-2,651	100
Shafter Lake Clear Fork	-3,530	-3,680	150
Wolfcamp	-5,139	-5,343	204
Pennsylvanian	-5,253	-5,323	70
East Pennsylvanian	-6,014	-6,024	10
Devonian	-6,017	-6,727	710
Ellenburger	-8,234	-8,644	410

*Yates: Elevation of top of gas, 331 feet; elevation of bottom of gas, 170 feet; relief, 161 feet. The elevation of the oil-water contact has not yet been determined; it is lower than 100 feet and higher than 45 feet.

No free gas cap has been found in any reservoir other than the reservoir in the Yates formation.

RESERVOIR TEMPERATURE and PRESSURE and OIL SAMPLE DATA

	Original bottom hole Temp. (°F)	Original bottom hole Press. (psi)	Original gas-oil ratio (cf/bbl)	Bubble point (psi)	Volume factor (sur.: res.)	Character of oil Gravity A.P.I. @ 60°F.	Character of oil Type
Yates	87	1,940	200:1 to 5,000:1	?	1.4 est.	42.0	Sweet
Deep Rock San Andres	93	1,600	50:1 to 1,400:1	?	?	30.0	Sour
North San Andres	93	1,600	190:1 to 230:1	?	?	31.2	Sour
Deep Rock Clear Fork	103	2,000	29:1	?	?	30.0	Sour
Shafter Lake Clear Fork	108	2,210	528:1	1,310	1.342	41.4	Sour
Wolfcamp	125	3,414	800:1	1,467	1.43	41.0	Sweet
Pennsylvanian	127	2,825	233:1	?	?	38.4	Sweet
East Pennsylvanian	129	4,625	982:1	?	?	39.0	Sweet
Devonian	135	4,200	289:1	1,210	1.25	38.1	Sweet
Ellenburger	152	4,664	244:1	800±	1.24	42.5	Sweet

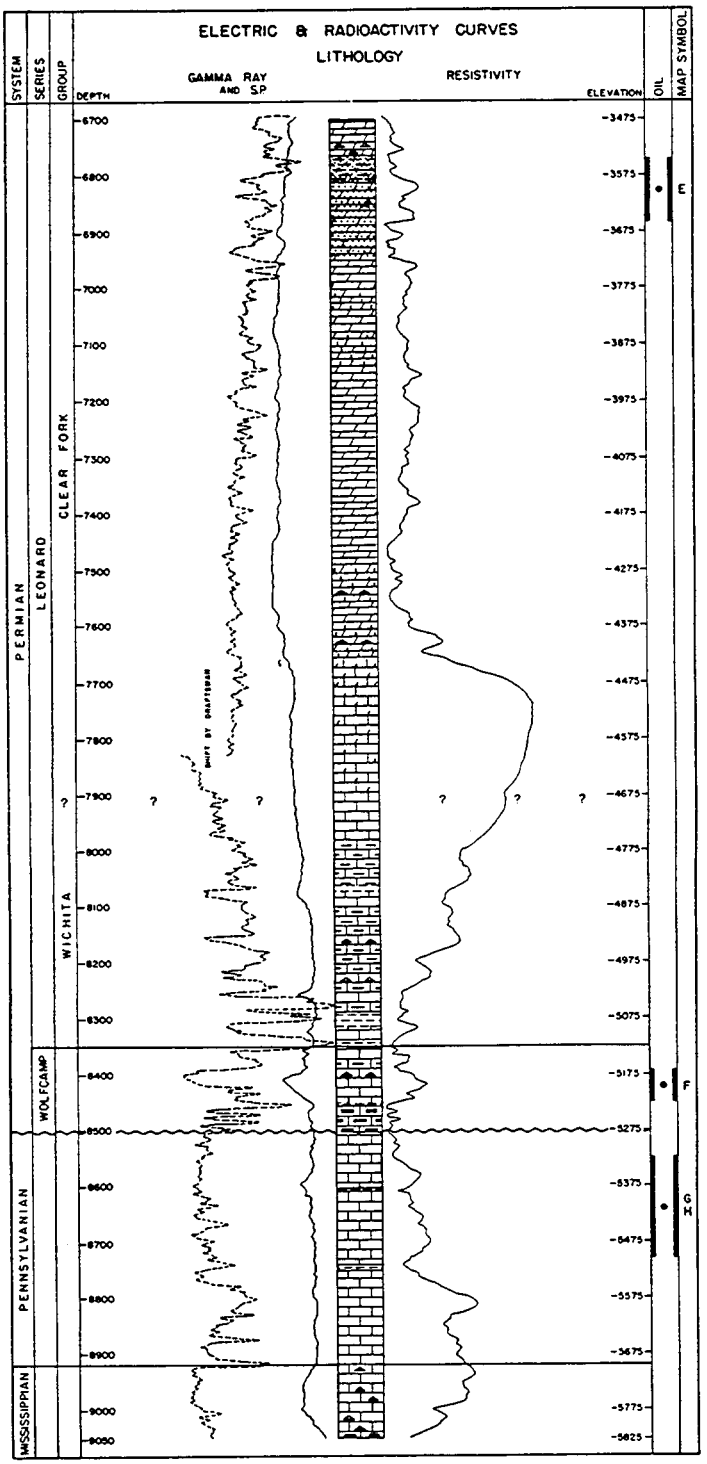
For analyses of Devonian and Ellenburger samples see:

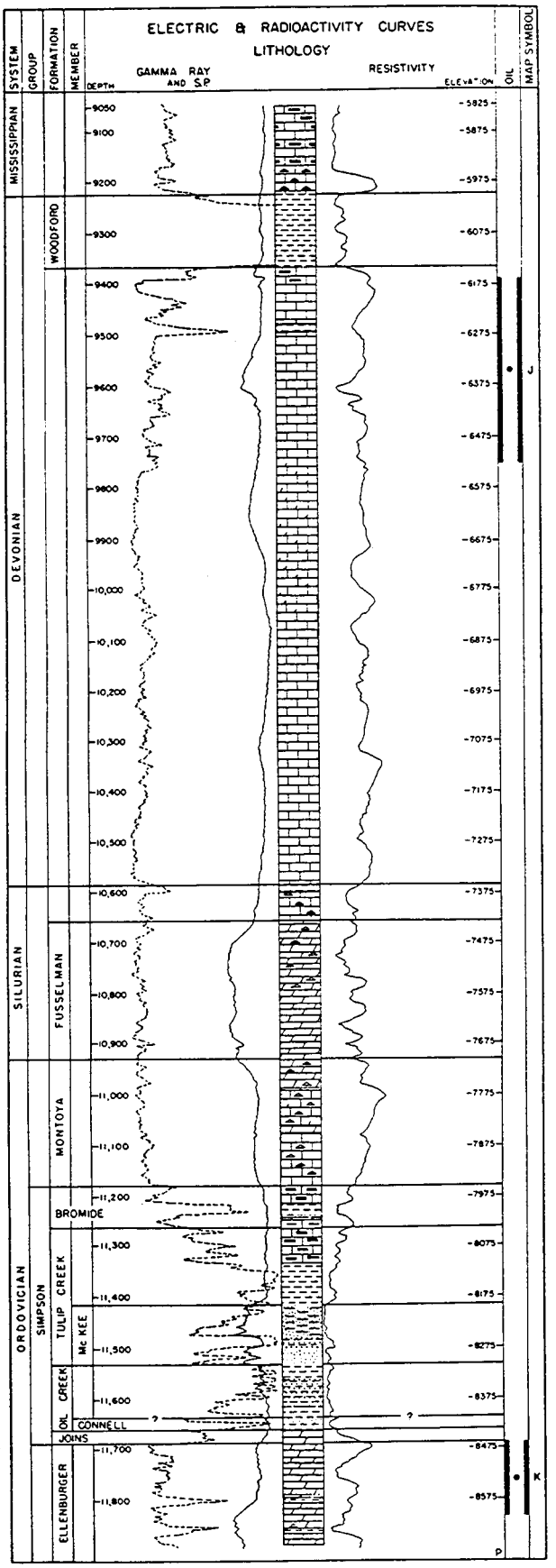
U. S. Bureau of Mines — Lab. ref. No. 51056 51055

Analyses of Crude Oils from Some West Texas Fields. R. I. 4959 (1953) — Item 46 47

Source 12c

TYPICAL SECTION OF ROCKS PENETRATED





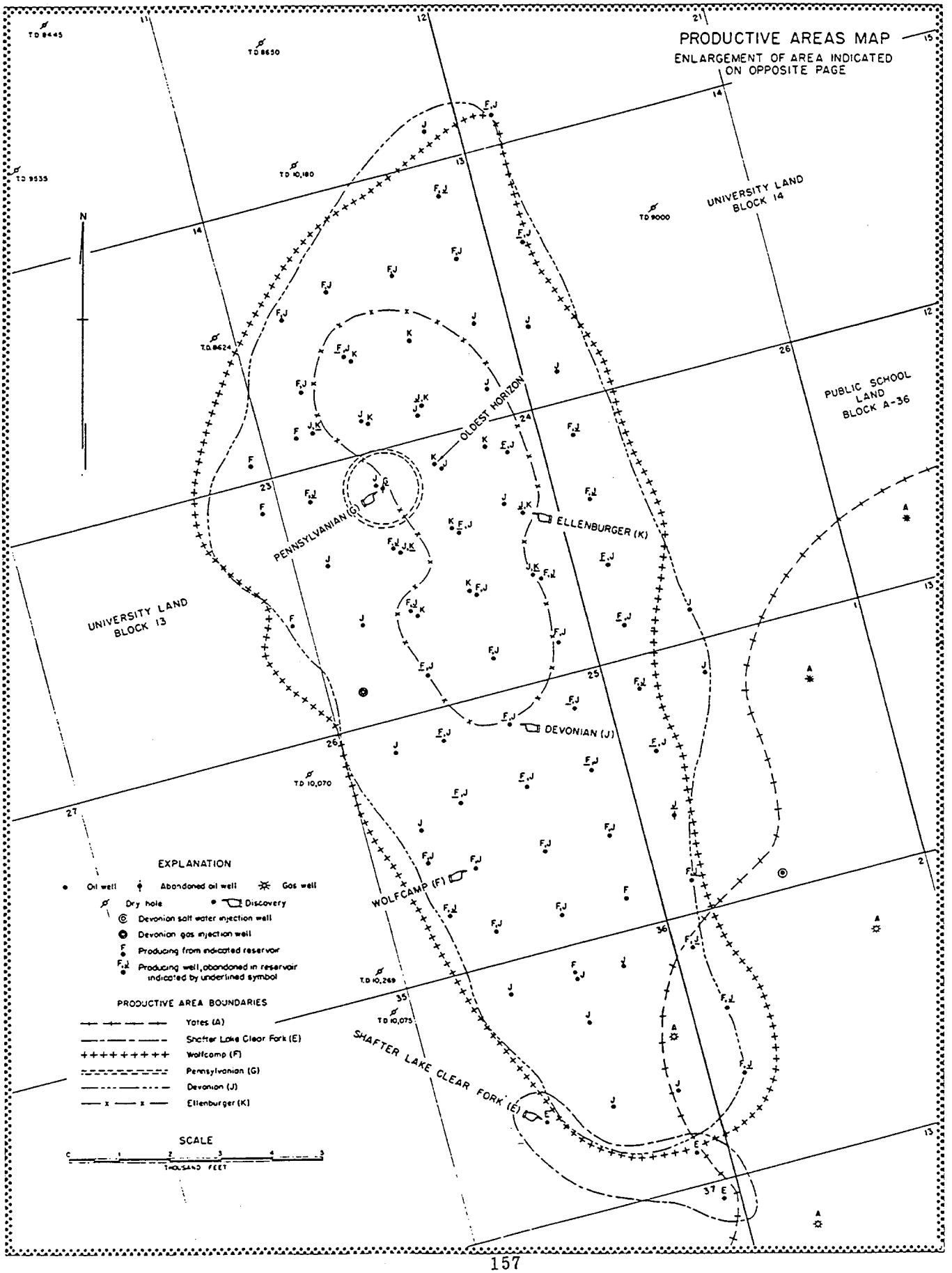
EXPLANATION

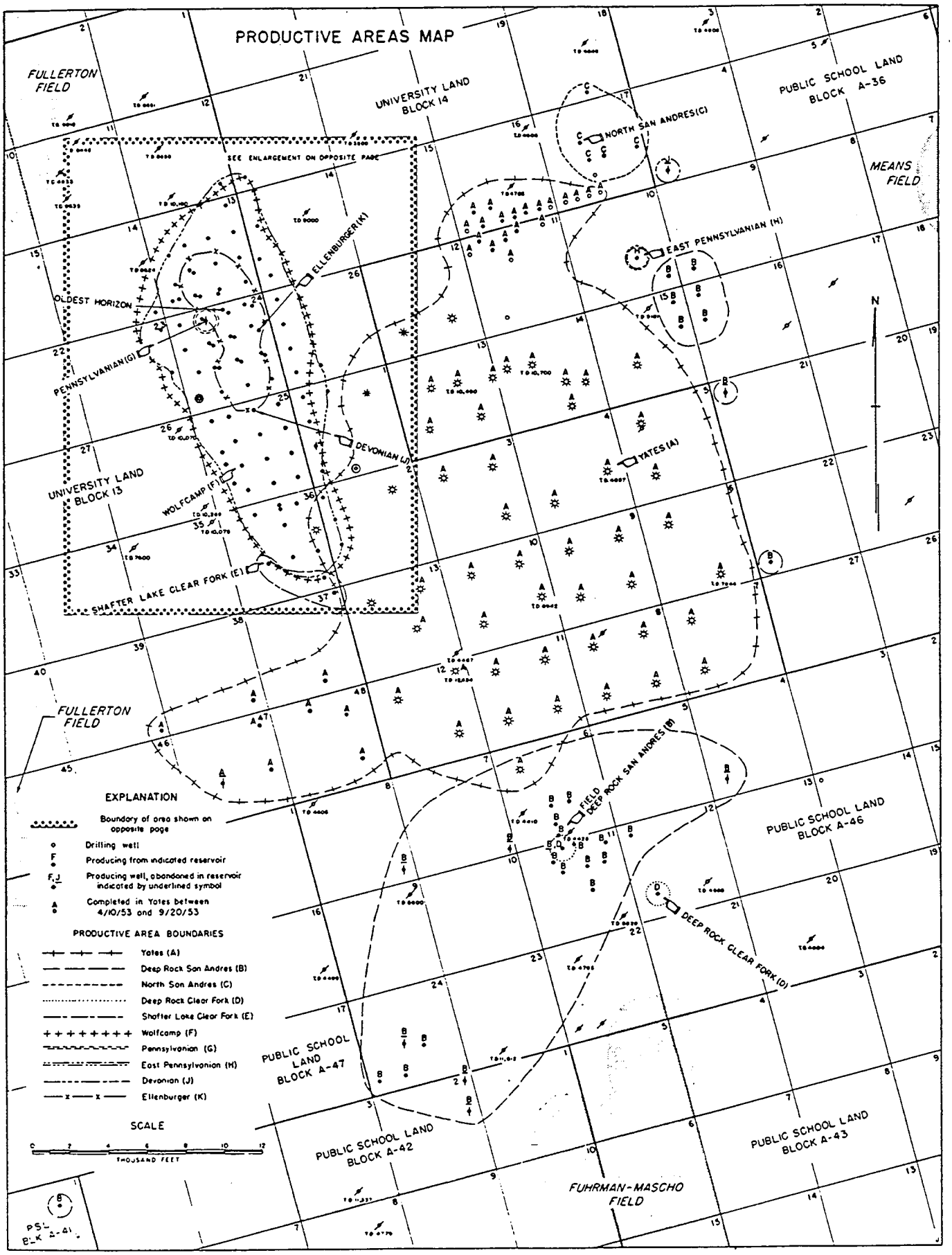
Sandstone
Shale
Dolomite
Dolomitic sandstone
Limestone and shale
Anhydritic dolomite
Limestone
Anhydrite
Calcareous dolomite
Dolomitic limestone
Salt
Chert

● Oil production
✲ Gas production

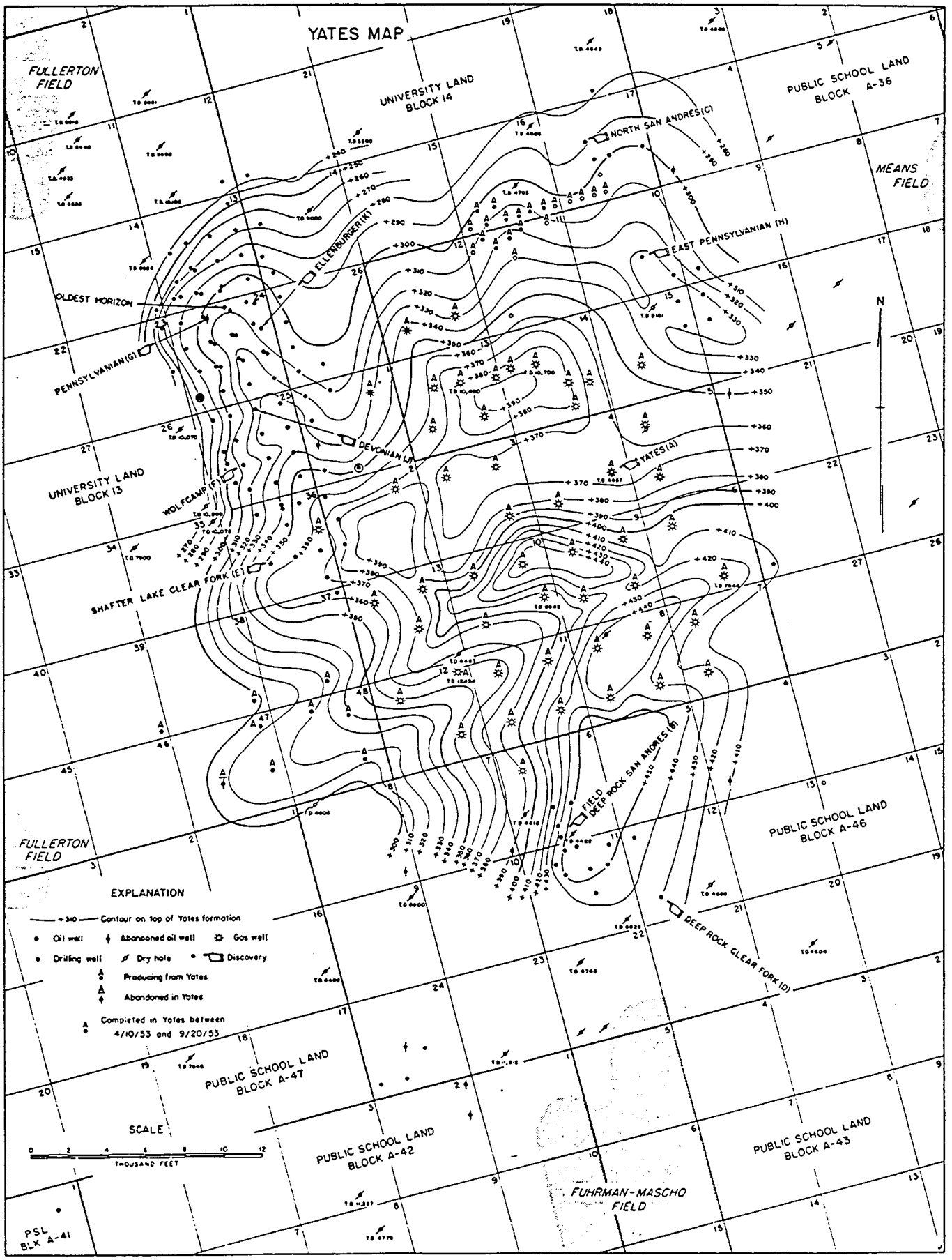
Source 12c.

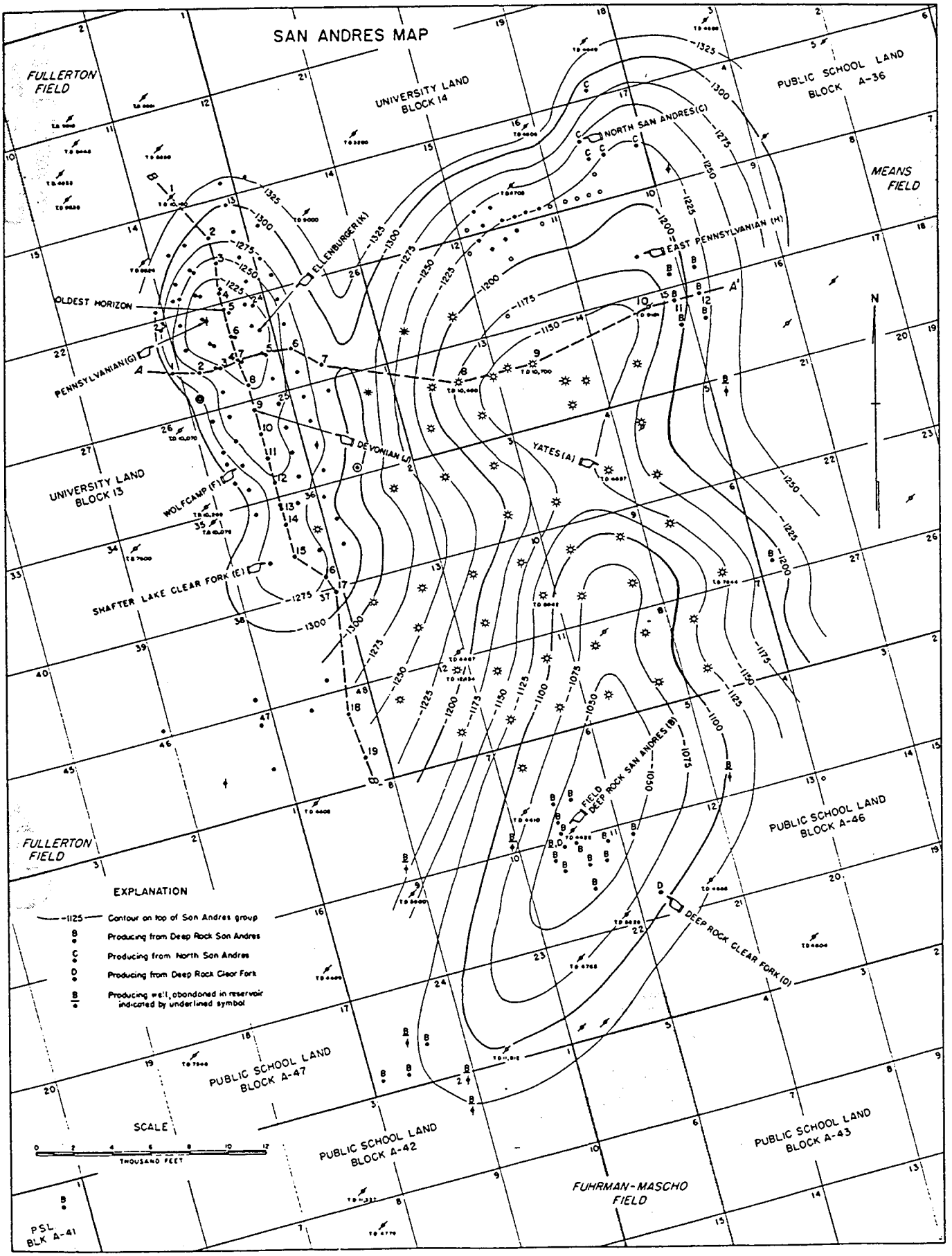
SHAFTER LAKE—DEEP ROCK FIELD, Andrews County, Texas



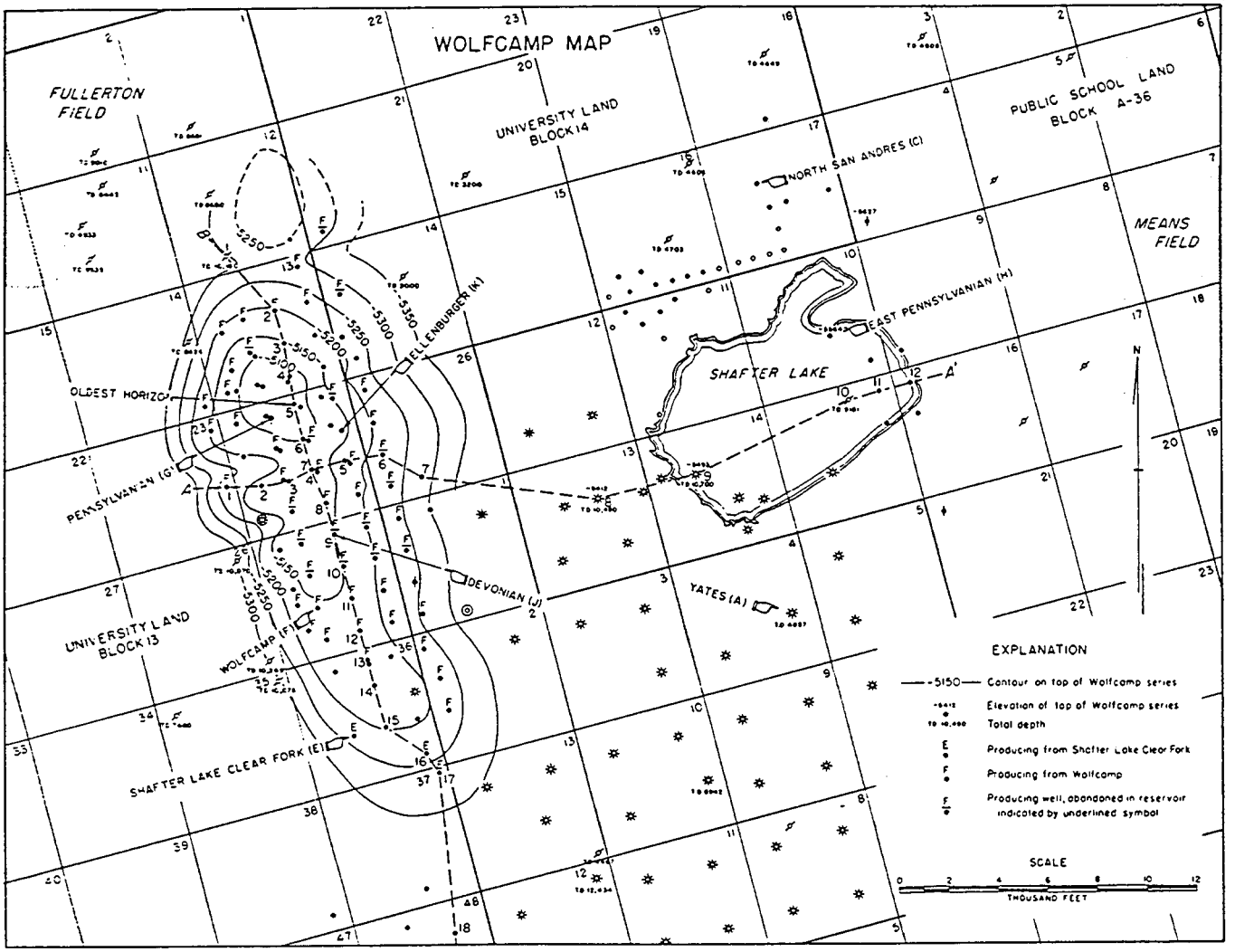

PRODUCTIVE AREAS MAP
FULLERTON FIELD
UNIVERSITY LAND BLOCK 14
PUBLIC SCHOOL LAND BLOCK A-36
SEE ENLARGEMENT ON OPPOSITE PAGE
NORTH SAN ANDRES(C)
MEANS FIELD
ELLENBURGER(K)
EAST PENNSYLVANIAN (H)
OLDEST HORIZON
PENNSYLVANIAN(G)
DEVONIAN (J)
YATES(A)
UNIVERSITY LAND BLOCK 13
WOLFCAMP (F)
SHAFTER LAKE CLEAR FORK (E)
FULLERTON FIELD
FIELD DEEP ROCK SAN ANDRES (B)
PUBLIC SCHOOL LAND BLOCK A-46
DEEP ROCK CLEAR FORK (D)
PUBLIC SCHOOL LAND BLOCK A-47
PUBLIC SCHOOL LAND BLOCK A-42
PUBLIC SCHOOL LAND BLOCK A-43
FUHRMAN-MASCHO FIELD
N
EXPLANATION
Boundary of area shown on opposite page
Drilling well
Producing from indicated reservoir
Producing well, abandoned in reservoir indicated by underlined symbol
Completed in Yates between 4/10/53 and 9/20/53
PRODUCTIVE AREA BOUNDARIES
Yates (A)
Deep Rock San Andres (B)
North San Andres (C)
Deep Rock Clear Fork (D)
Shafter Lake Clear Fork (E)
Wolfcamp (F)
Pennsylvanian (G)
East Pennsylvanian (H)
Devonian (J)
Ellenburger (K)
SCALE
THOUSAND FEET

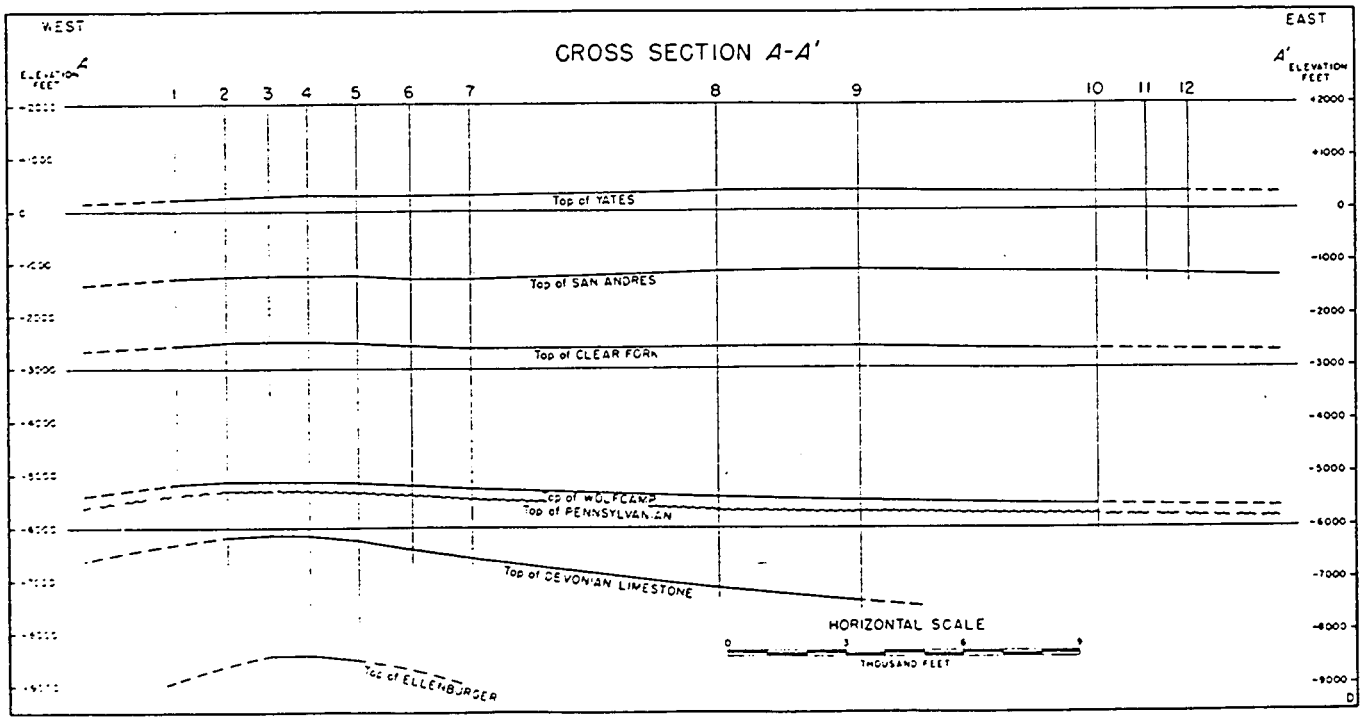
Source 12c.


YATES MAP
FULLERTON FIELD
UNIVERSITY LAND BLOCK 14
PUBLIC SCHOOL LAND BLOCK A-36
MEANS FIELD
NORTH SAN ANDRES (C)
ELLENBURGER (K)
EAST PENNSYLVANIAN (H)
OLDEST HORIZON
PENNSYLVANIAN (G)
DEVONIAN (J)
YATES (A)
UNIVERSITY LAND BLOCK 13
WOLFCAMP (F)
SHAFTER LAKE CLEAR FORK (E)
FIELD DEEP ROCK SAN ANDRES (B)
PUBLIC SCHOOL LAND BLOCK A-46
DEEP ROCK CLEAR FORK (D)
FULLERTON FIELD
EXPLANATION
Contour on top of Yates formation
Oil well
Abandoned oil well
Gas well
Drilling well
Dry hole
Discovery
Producing from Yates
Abandoned in Yates
Completed in Yates between 4/10/53 and 9/20/53
PUBLIC SCHOOL LAND BLOCK A-47
SCALE
THOUSAND FEET
PUBLIC SCHOOL LAND BLOCK A-42
PUBLIC SCHOOL LAND BLOCK A-43
FUHRMAN-MASCHO FIELD
PSL BLK A-41
N


SAN ANDRES MAP
FULLERTON FIELD
UNIVERSITY LAND BLOCK 14
PUBLIC SCHOOL LAND BLOCK A-36
MEANS FIELD
NORTH SAN ANDRES (C)
ELLENBURGER (K)
EAST PENNSYLVANIAN (H)
OLDEST HORIZON
PENNSYLVANIAN (G)
DEVONIAN (J)
YATES (A)
UNIVERSITY LAND BLOCK 13
WOLFCAMP (F)
SHAFTER LAKE CLEAR FORK (E)
FIELD DEEP ROCK SAN ANDRES (B)
PUBLIC SCHOOL LAND BLOCK A-46
DEEP ROCK CLEAR FORK (D)
EXPLANATION
Contour on top of San Andres group
Producing from Deep Rock San Andres
Producing from North San Andres
Producing from Deep Rock Clear Fork
Producing well, abandoned in reservoir indicated by underlined symbol
PUBLIC SCHOOL LAND BLOCK A-47
SCALE
THOUSAND FEET
PUBLIC SCHOOL LAND BLOCK A-42
PUBLIC SCHOOL LAND BLOCK A-43
FUHRMAN-MASCHO FIELD
PSL BLK A-41
N

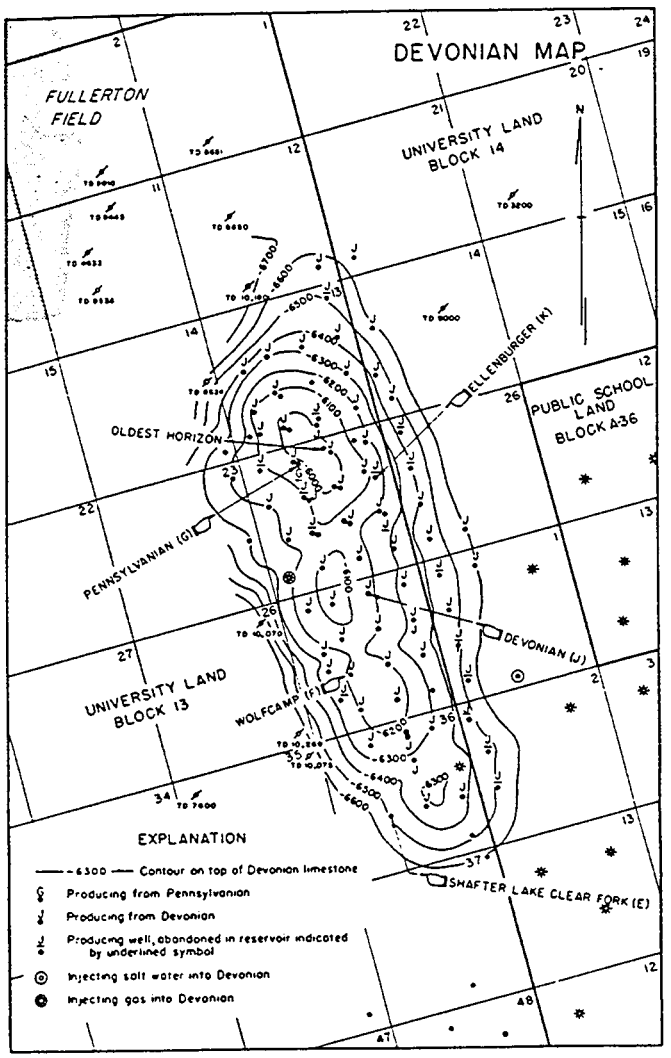
Source 12c.

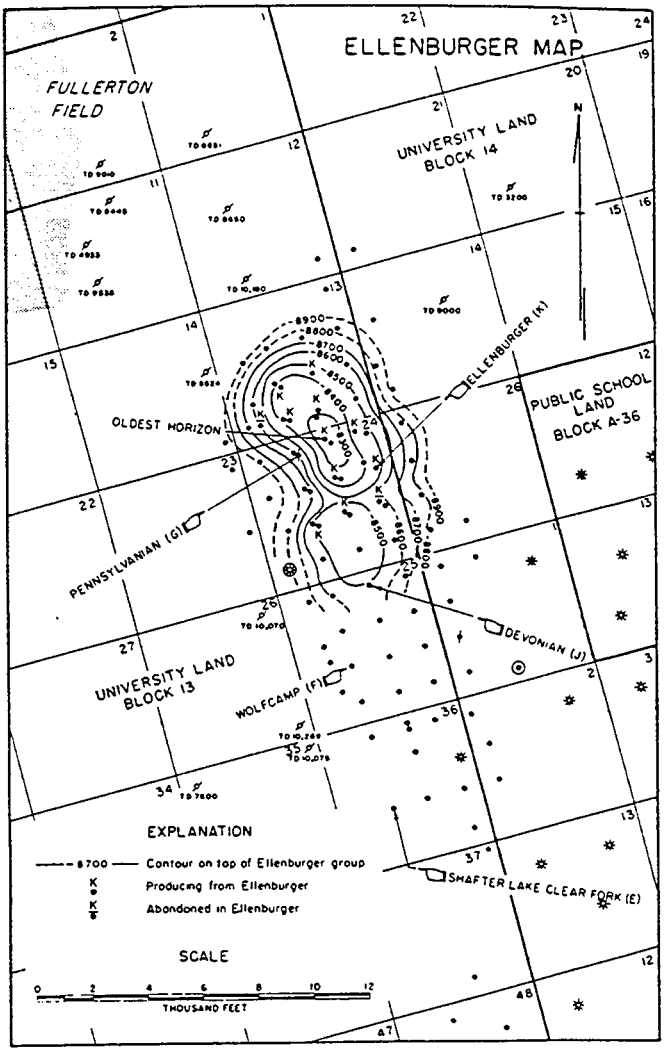

WOLFCAMP MAP
FULLERTON FIELD
UNIVERSITY LAND BLOCK 14
PUBLIC SCHOOL LAND BLOCK A-36
MEANS FIELD
NORTH SAN ANDRES (C)
EAST PENNSYLVANIAN (H)
SHAFTER LAKE
ELLENBURGER (K)
OLDEST HORIZON
PENNSYLVANIAN (G)
DEVONIAN (J)
YATES (A)
UNIVERSITY LAND BLOCK 13
WOLFCAMP (F)
SHAFTER LAKE CLEAR FORK (E)
EXPLANATION
-5150- Contour on top of Wolfcamp series
Elevation of top of Wolfcamp series
Total depth
Producing from Shafter Lake Clear Fork
Producing from Wolfcamp
Producing well, abandoned in reservoir indicated by underlined symbol
SCALE
THOUSAND FEET

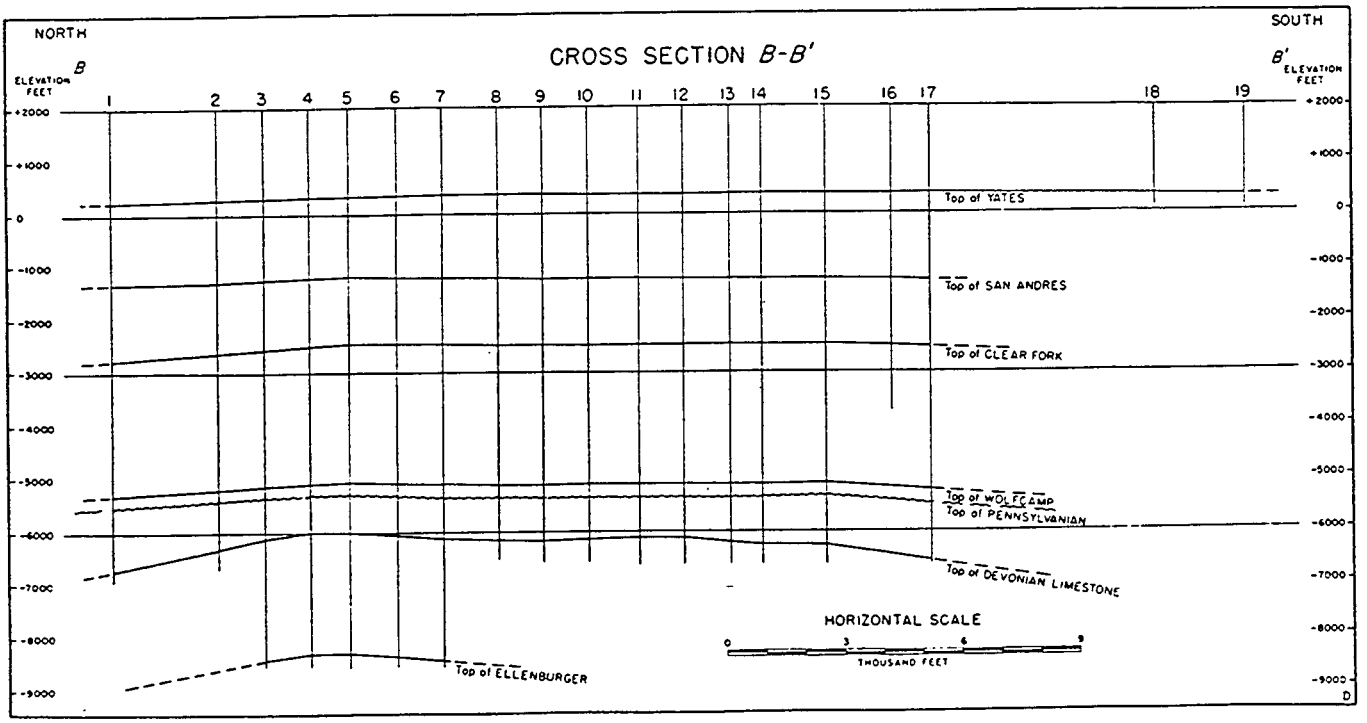

WEST
EAST
CROSS SECTION A-A'
ELEVATION FEET
Top of YATES
Top of SAN ANDRES
Top of CLEAR FORK
Top of WOLFCAMP
Top of PENNSYLVANIAN
Top of DEVONIAN LIMESTONE
Top of ELLENBURGER
HORIZONTAL SCALE
THOUSAND FEET

SHAFTER LAKE—DEEP ROCK FIELD, Andrews County, Texas

Source 12c.







Shafter Lake
Wolfcamp
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Andrews
1, 2	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1, 2	FIELD	Shafter Lake
1, 2	RESERVOIR	Wolfcamp
1, 5	GEOLOGIC AGE	Wolfcamp
1	AAPG STRATIGRAPHIC AGE CODE	319
12c, 1	RESERVOIR LITHOLOGY	Medium crystalline, cherty limestone; dolomite.
12c	TRAPPING MECHANISM	convex folding
1,2,3	DISCOVERY YEAR	1951, 1-48, 1-51
1,2,16c	PROVED ACREAGE	360, 4980, 4980
	REGULAR WELL SPACING (acres/well)	
1,2,3	RESERVOIR DEPTH	8405
	RESERVOIR THICKNESS	
1,2	NET PAY	50, 13
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.134, .136
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	28, 48 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from Clear Fork, Devonian, San Andres, Ellenburger, Pennsylvanian, Yates and 7200.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	37P-16I; 60(9P-11I-40A)
1	PRODUCTION 1976 oil (cum)	11,757
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	11,937.9 mmbls
3	PRODUCTION 1-1-79 to 1-1-80	46.4 mbbls oil; 21.1 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes - see Shafter Lake-San Andres
12c	LOGS?	yes - see Shafter Lake-San Andres
12c	STRUCTURE SECTION?	yes - see Shafter Lake-San Andres
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2, 1	FIELD:	Shafter Lake
2,1,16c	RESERVOIR:	Wolfcamp
2,1	PROD. ACRES:	4980, 360, 4980
1,12c,16c	AVG. THICKNESS (FT.):	13, 50
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.43, 1.43, 1.46
1,16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.18 (75)
16c	WATER SATURATION (S_W):	.205, .22
1	OIL SATURATION (S_O):	.167
12c	PRIMARY DRIVE MECHANISM:	depletion
12c, 16c	PRIMARY GAS CAP?:	no
12c, 16c	TEMPERATURE (°F):	125
1,2,12c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1467, 1700
	RESERVOIR PRESSURE INITIAL (psi):	3468, 3468, 3414
12c	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	800-1
1,2,3,12c	GAS OIL RATIO LATEST (GOR) (cf/bbl):	613 (76)
	STOCK TANK OIL GRAVITY (°API):	42, 42, 42, 41
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
2	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1545
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	25,000 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	7,400 mbbls

12c OTHER INFORMATION: Reference: Zimmerman, J. B., 1953, Shafter Lake-Deep Rock Field in Occurrence of Oil and Gas in West Texas; Univ. of Texas, Bureau of Economic Geology, Pub. No. 5716, Aug., 1957, p 307-318.

1 Primary recoverable: 170 bbl/acre-ft.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Shafter Lake RESERVOIR: Wolfcamp TOTAL NO. PROJECTS: 1 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	92				
1977 PROD. (this project):	69				
CUM. PROD. FROM DISC. TO 1/78:	4773				
PROJECT NO.	F-1556				
LEASE NO.(s):	17621				
OPERATOR:	Arco				
RESERVOIR:	Wolfcamp				Wolfcamp
DEPTH PRODUCING ZONE:	4980				8405
PRODUCTIVE ACREAGE IN RESERVOIR:	4000				360
ACREAGE IN PROJECT:					4000
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW				WF
PATTERN:	LD				
YEAR BEGAN:	5-63				1963
YEAR TERMINATED OR STATUS:	SW-ICP				
RESERVOIR PRESSURE INITIAL:	3468				3468
BEG. INJECTION:	600				
LATEST:	-				
NUMBER OF WELLS TOTAL:	60				
PRODUCING WELLS:	9				37
INJECTION WELLS:	11				16
MAXIMUM:	-				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	40				
SURFACE INJECTION PRESSURE:	1600				
EFFECTIVENESS OF INJECTION:	VE				
OPERATOR PROBLEMS:	IP, EP				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	68 mbbls				
FROM BEG. INJECTION:	4580 mbbls				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	4800 mbbls				
WATER PRODUCTION:					
CURRENT (1977):	976				
CUMULATIVE TO 1/78:	7989				
CURRENT (1977) INJECTION:	1934 SW				
CUMULATIVE INJECTION:	27248 SW				

Skaggs
Grayburg
Central Basin Platform

DATA SOURCE CODE		
1, 6a	STATE	New Mexico
	COUNTY	Lea
1	REGULATORY DISTRICT	Southeast
1, 6a	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
6a, 1	FIELD	Skaggs
6a, 1	RESERVOIR	Grayburg-Queen; Grayburg
1, 6	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
6a, 1	RESERVOIR LITHOLOGY	Pay zone comprised of sandstone and dolomite in the lowermost Queen; upper Grayburg very fine grained, silty and shaley; dolomites are finely crystalline.
1, 6a	TRAPPING MECHANISM	Permeability trap on broad anticline.
1, 6a	DISCOVERY YEAR	3-14-37
1	PROVED ACREAGE	3400
	REGULAR WELL SPACING (acres/well)	
6a, 1	RESERVOIR DEPTH	∿3750; 3800
1	RESERVOIR THICKNESS	50' avg.
	NET PAY	
6a	GROSS	100 ft.
	NET/GROSS RATIO	
	POROSITY	
6a, 1	TYPE	IG, IC; IC-V
6a, 1	FRACTION	.027
	PERMEABILITY	
	RANGE	
	AVERAGE	
1, 6a	HORIZONTAL	7 md
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	78 Total, 44 pump, 1 flow, 28 inject., 5 shut-in; 46P, 10S-I, 2I.
1	PRODUCTION 1977 oil (cum)	8419
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	8717
	PRODUCTION 1-1-79 to 1-1-80	
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6a	STRUCTURE CONTOUR?	yes
6a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Skaggs
1, 6a	RESERVOIR:	Grayburg; Queen-Grayburg
1	PROD. ACRES:	3400
1	AVG. THICKNESS (FT.):	50
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
1, 6a	WATER SATURATION (S_w):	.182
1, 6a	OIL SATURATION (S_o):	.272
6a, 1	PRIMARY DRIVE MECHANISM:	solution gas
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	112 (GG=1.0)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	4745
1, 6a	RESERVOIR PRESSURE INITIAL (psi):	1542
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1400
1, 6a	STOCK TANK OIL GRAVITY (°API):	36
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1409
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

WATER ANALYSIS RECORD

FIELD: Skaggs RESERVOIR: Grayburg TOTAL NO. PROJECTS:

DATA SOURCE: 6a,1

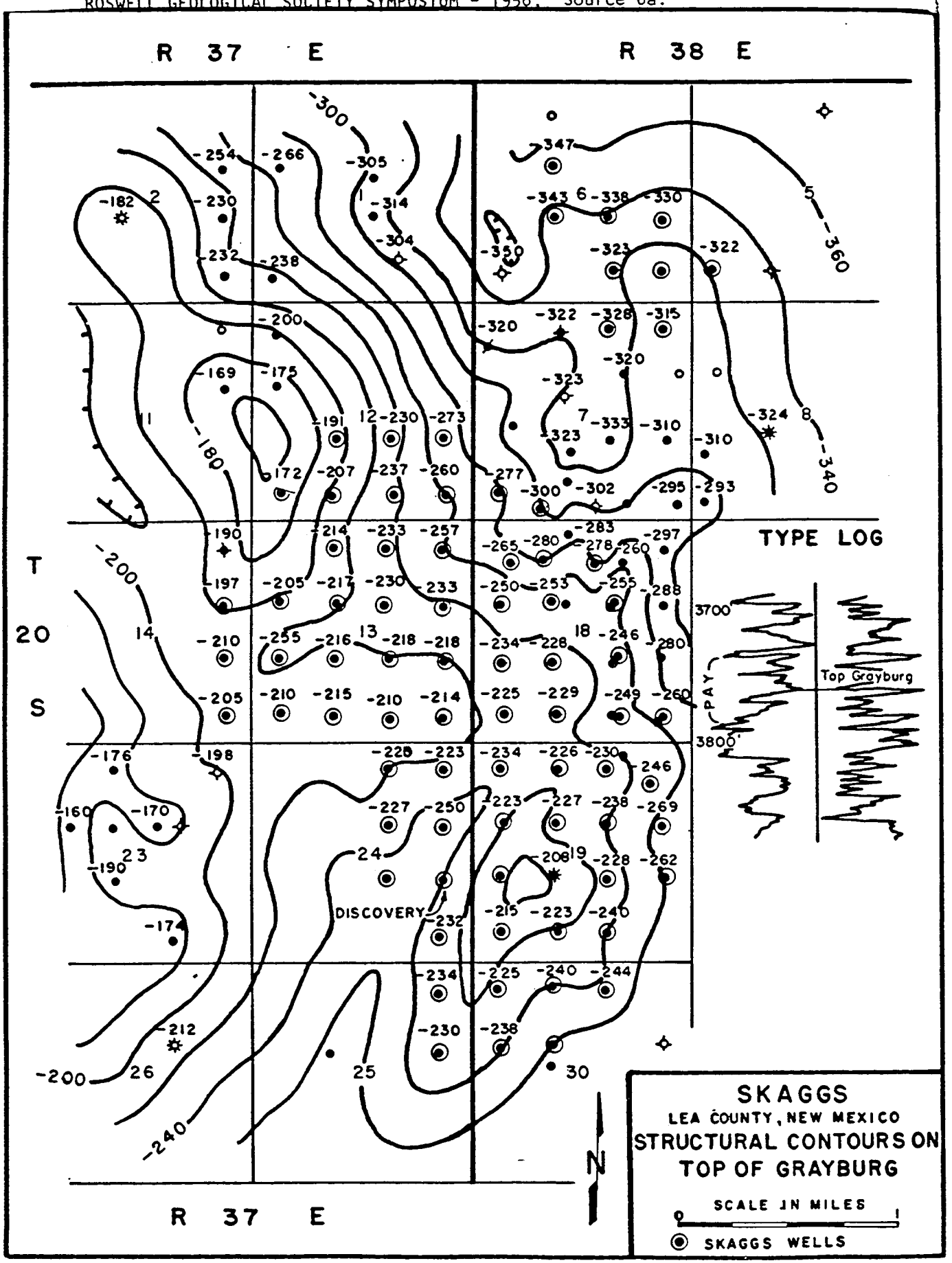
TOTAL SOLIDS (ppm):	37,000
NA	10,000
Ca	300
Mg	
Fe	100
SO_4	3,200
Cl	1,206
CO_2	180
HCO_3	710
OH	
H_2S	3
CO_3	180

RESISTIVITY:

SPECIFIC GRAVITY:

OTHER WATER QUALITY DATA:

FROM: SKAGGS (QUEEN-GRAYBURG) in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO: ROSWELL GEOLOGICAL SOCIETY SYMPOSIUM - 1956. Source 6a.



Slaughter
San Andres
North Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Hockley-Cochran
1, 2	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	North Basin Platform
1, 2	FIELD	Slaughter
2	RESERVOIR	San Andres
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
9a, 1	RESERVOIR LITHOLOGY	crystalline anhydritic dolomite; dolomite
9c, 1	TRAPPING MECHANISM	monocline, dipping at less than 1° to the south-southeast; stratigraphic-lateral porosity/permeability change.
1,2,3	DISCOVERY YEAR	1937, 1936 and 1937, 1937
1,2,9c,16c	PROVED ACREAGE	900; 87640 avg; 100,000; 106,000
1, 9c	REGULAR WELL SPACING (acres/well)	35, 5 wells/labor (35.4 ac/well)*
1,2,3	RESERVOIR DEPTH	5000, 4958 avg., 5000
$9a_1$, $9a_2$	Estate Unit-4984, Mallet Unit-5040	
	RESERVOIR THICKNESS	
2,9a,1,16c	NET PAY	47.8 avg., 89, 100, 10-100
$9a_1$	GROSS	150
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1,2,$9a_1$	FRACTION	.122, .116 avg., .098
	PERMEABILITY	
2	RANGE	3-50 md
2, 1	AVERAGE	7.9 avg., 11 md
$9a_1$	HORIZONTAL	8.08 md
	VERTICAL	
3	OTHER INFORMATION	other production from Abo, Clear Fork-7190, and Wolfcamp
9a, 14e	Enhanced CO_2 project described for "Estate Unit-4984'". BETC/RI-78/15 list as suitable for carbon dioxide EOR.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
9c,1,2	TOTAL NUMBER OF WELLS	2311 PC, 903 WIW; 2649P-874I;4903 (2493P-2127I-285A)
	PRODUCTION 1976 oil (cum)	
1	PRODUCTION 1977 oil (cum)	725,593
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	797,157.9 mbbls.
3	PRODUCTION 1-1-79 to 1-1-80	34,176.6 mbbls, 13,561.6 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
$9a_1$, $9a_2$	LOGS?	yes
	STRUCTURE SECTION?	
$9a_1$, $9a_2$, 9c	ENGINEERING REPORTS?	yes
	CORE DESCRIPTIONS?	

* area originally surveyed in Spanish land measurements of hectares, labors, and leagues.

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Slaughter
2	RESERVOIR:	San Andres
9c,2,1,16c	PROD. ACRES:	100,000; 137,498 avg.;900; 106,000
9a,2,1,16c	AVG. THICKNESS (FT.):	89, 47.8 avg., 100, 10-100
$9a_1$,1,16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.2280, .12, 1.23
$9a_1$, 16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.1065, 1.35 (76)
$9a_1$, 1, 16c	WATER SATURATION (S_w):	.087, .13, .10-.30
$9a_1$, $9a_2$	OIL SATURATION (S_o):	.311, .281, .494 (76)
1, $9a_1$	PRIMARY DRIVE MECHANISM:	depletion, solution gas
14e	PRIMARY GAS CAP?:	no
$9a_1$, 16c, 14e	TEMPERATURE (°F):	105, 108, 108
16c, $9a_1$	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1310, 1710 initial, 600
1, 2	RESERVOIR PRESSURE INITIAL (psi):	1710, 1720 avg.(1690-1750)
$9a_1$, 2	RESERVOIR PRESSURE LATEST (psi):	2000, 137-1960
$9a_1$	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	460
1, $9a_1$,$9a_2$,17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1453 (77), 235, 182, 1453
1,2,3,$9a_1$	STOCK TANK OIL GRAVITY (°API):	32, 31.6, 32, 27.5
$9a_1$, 14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}): cp	1.382, 1.1
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1376
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 23 SRPs:	1,115,809 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 25 SRPs:	142,318 mbbls

2 OTHER INFORMATION: water salinity: Estate Unit 200,000 ppm Unit
20,000 ppm secondary
Mallet Unit 200,000 ppm Unit
40,000 ppm secondary

References:

$9a_1$ Smith, L. R., 1975 "Slaughter Field-Estate Unit, Amoco Production Co.": SPE Improved Oil Recovery Field Reports, June v.1, n.1, pp. 125-133.

$9a_2$ Smith, L. R., 1975, "Slaughter Field-Central Mallet Unit, Amock Production Co.": SPE Improved Oil Recovery Field Reports, Sept., v.1, n.2, pp. 307-315.

9c Thomas, J.E., and Dirscoll, V.J., 1973, "A Modeling Approach for Optimizing Waterflood Performance, Slaughter Field, Chickenwire Pattern": Journal of Petroleum Technology, June, pp 757-763.

1 primary recoverable: 158 bbl/acre.ft.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	200	2188	149	296	
1977 PROD. (this project):	252	2445	139	278	
CUM. PROD. FROM DISC. TO 1/78:	3609	31459	2723	4018	
PROJECT NO.	F-1875	F-1882	F-1865	F-1872	
LEASE NO.(s):	060410	019691	060027	005942	
OPERATOR:	Amoco	Amoco	Amoco	Amoco	
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	
DEPTH PRODUCING ZONE:	4850-4950	5900-5000	4920-5000	4939-5025	5000
PRODUCTIVE ACREAGE IN RESERVOIR:	87,246	87,246	87,246	87,246	900
ACREAGE IN PROJECT:	1,899	5,409	164	425	62,658
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF-PM
PATTERN:	E11	OTH	E11	E11	
YEAR BEGAN:	2-69	6-66	8-65	1-67	1957
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	
RESERVOIR PRESSURE INITIAL:	1710	1710	1710	1710	1710
BEG. INJECTION:	800	450	614	300	
LATEST:	270	247	215	425	
NUMBER OF WELLS TOTAL:	66	281	13	23	
PRODUCING WELLS:	26	149	6	13	2649
INJECTION WELLS:	18 SW	149	3 SW	5 SW	874
MAXIMUM:	18 FW	66 SW	3 FW	5 FW	
LATEST:		66 FW			
SHUT-IN/ABANDONED WELLS:	4	0	1	0	
SURFACE INJECTION PRESSURE:	1100	1000	400	1200	
EFFECTIVENESS OF INJECTION:	VE	VE	VE	VE	
OPERATOR PROBLEMS:	-	-	-	-	-
ESTIMATED PRODUCTION DUE TO INJ.:					
1977: mbbls	252	2445	139	278	
FROM BEG. INJECTION: mbbls	1014	15901	1764	2153	
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	-	-	-	
WATER PRODUCTION:					
CURRENT (1977):	327	3612	465	365	
CUMULATIVE TO 1/78:	1130	13182	2299	1347	
CURRENT (1977) INJECTION:	327 SW, 1073 FW	3612 SW, 6673 FW	465 SW, 342 FW	365 SW, 132 FW	
CUMULATIVE INJECTION:	1130 SW, 12041 FW	13182SW, 91411FW	2299SW, 4265FW	1347SW, 5116FW	

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	3,057	7,237	144	249
1977 PROD. (this project):	2,707	6,312	152	275
CUM. PROD. FROM DISC. TO 1/78:	32,816	92,777	2,480	4,594
PROJECT NO.	F-1876	F-1879	F-1880	F-1881
LEASE NO.(s):	006042, 006043	018105	006071	060282
OPERATOR:	Amoco	Amoco	Amoco	Amoco
RESERVOIR:	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4940-5000	4940-4985	4940-5000	4940-4990
PRODUCTIVE ACREAGE IN RESERVOIR:	87,246	87,246	87,246	87,246
ACREAGE IN PROJECT:	1,518	5,704	178	1,581
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	*	WF/SW, FW	WF/SW, FW
PATTERN:	LD	Ell	Ell	Ell
YEAR BEGAN:	5-62	**	SW/6-74;FW/5-64	3-68
YEAR TERMINATED OR STATUS:	ICP	WF,TRT-ICP;gas-IP	DSW-ICP;FW-ITD	ICP
RESERVOIR PRESSURE INITIAL:	1710	1710	1710	1710
BEG. INJECTION:	500	800	500	300
LATEST:	600	1083	198	220
NUMBER OF WELLS TOTAL:	145	448	11	66
PRODUCING WELLS:	56	190	5	32
INJECTION WELLS:	37 SW	WF/104SW,104 FW	3	17 SW
MAXIMUM:	37 FW	TRT/6 FW, 6CO_2	-	17 FW
LATEST:	-	-	-	-
SHUT-IN/ABANDONED WELLS:	15	38	3	0
SURFACE INJECTION PRESSURE:	700	900-1100	1000	1000
EFFECTIVENESS OF INJECTION:	VE	UD-UD	VE	VE
OPERATOR PROBLEMS:	-	-	-	-
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	2707	6312; 12, 12	152	275
FROM BEG. INJECTION:	23595	68132; 211, 242	1636	1433
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	-	-	-
WATER PRODUCTION:				
CURRENT (1977):	6240	19071	515	377
CUMULATIVE TO 1/78:	20269	79847	1913	1125
CURRENT (1977) INJECTION:	6240SW, 2189 FW	19071 SW, 7264 FW	410 SW	377 SW, 813 FW
CUMULATIVE INJECTION:	20269SW, 44810FW	79847SW TRT 132849FW 3915 FW 900 gas 599 CO_2	1517SW, 2013FW	1125 SW, 10360 FW

* WF/SW, FW; PM'gas;TRT/FW,CO_2

** WF/3-61; gas/3-68; TRT/9-76

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	199	2,921	158	42
1977 PROD. (this project):	223	2,632	150	55
CUM. PROD. FROM DISC. TO 1/78:	2,669	50,123	2,494	1,727
PROJECT NO.	F-1869	F-1868	F-1874	F-1870
LEASE NO.(s):	006034	018244	005944	060377
OPERATOR:	Amoco	Amoco	Amoco	Amoco
RESERVOIR:	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4950-5000	4960-5000	4980-4950	5000-5050
PRODUCTIVE ACREAGE IN RESERVOIR:	87,246	87,246	87,246	87,246
ACREAGE IN PROJECT:	160	6,413	210	1,120
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW,FW;TRT/FW,	WF/SW, FW	WF/SW, FW
PATTERN:	OTH	E11 PRG	I	M-5
YEAR BEGAN:	3-62	WF/6-61;TRT-FW/4-72	3-65	4-69
YEAR TERMINATED OR STATUS:	ICP	WF,TRT-ICP;PRG-INS	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1750	1710	1710	1700
BEG. INJECTION:	750	530	530	750
LATEST:	1960	226	700	137
NUMBER OF WELLS TOTAL:	14	382	13	37
PRODUCING WELLS:	6	228	5	13
INJECTION WELLS:	3SW	71SW, 71FW	3SW	8SW
MAXIMUM:	3FW	6FW-TRT	3FW	8FW
LATEST:	-	6PRG	-	-
SHUT-IN/ABANDONED WELLS:	2	0	2	8
SURFACE INJECTION PRESSURE:	400	600-200	800	1800
EFFECTIVENESS OF INJECTION:	VE	VE	VE	ME
OPERATOR PROBLEMS:	-	-	-	-
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	223	2632, TRT-4	150	55
FROM BEG. INJECTION:	1743	30779, TRT-100	1737	246
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	-	-	-
WATER PRODUCTION:				
CURRENT (1977):	520	7663	238	106
CUMULATIVE TO 1/78:	1808	34643	1304	519
CURRENT (1977) INJECTION:	520SW, 347FW	*	238SW, 178FW	105SW, 462FW
CUMULATIVE INJECTION:	1808SW, 4922FW	34643SW, 80846FW 1232FW, 5PRG	1304SW, 3154FW	519SW, 3975FW

*7663SW, 2234FW, 176FW, 5PRG

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	978	1,182	274	23
1977 PROD. (this project):	907	1,139	262	25
CUM. PROD. FROM DISC. TO 1/78:	18,602	30,158	10,620	353
PROJECT NO.	F-1877	F-1878	F-1867	F-1866
LEASE NO.(s):	905947	018246	018102	005941
OPERATOR:	Amoco	Amoco	Amoco	Amoco
RESERVOIR:	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	5000 - 5050	4000 & 4950-5000	5010 - 5050	5020 - 5050
PRODUCTIVE ACREAGE IN RESERVOIR:	87,246	87,246	87,246	87,246
ACREAGE IN PROJECT:	2,124	4,493	3,045	802
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW
PATTERN:	4S	E11	E11	I
YEAR BEGAN:	10-61	6-62	SW/5-62;FW/11-63	4-69
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1710	1710	1710	1710
BEG. INJECTION:	350	530	300	300
LATEST:	300	465	322	1257
NUMBER OF WELLS TOTAL:	120	197	128	10
PRODUCING WELLS:	67	93	51	8
INJECTION WELLS:	26SW	52SW	31SW	1
MAXIMUM:	26FW	52FW	31FW	-
LATEST:	-	-	-	-
SHUT-IN/ABANDONED WELLS:	1	0	15	1
SURFACE INJECTION PRESSURE:	1500	1500	1500	1850
EFFECTIVENESS OF INJECTION:	VE	VE	ME	ME
OPERATOR PROBLEMS:	-	-	-	-
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	907	1139	262	25
FROM BEG. INJECTION:	11062	17946	3989	189
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	-	-	-
WATER PRODUCTION:				
CURRENT (1977):	1801	2022	1143	177
CUMULATIVE TO 1/78:	8829	15153	7720	874
CURRENT (1977) INJECTION:	1801SW, 977FW	2022SW, 2006FW	1143SW, 260FW	177SW
'MULATIVE INJECTION:	8829SW, 28365FW	15153SW, 54546FW	7720SW, 19079FW	832SW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	542	31	629	2,356
1977 PROD. (this project):	537	30	633	2,457
CUM. PROD. FROM DISC. TO 1/78:	12,460	548	16,885	39,158
PROJECT NO.	F-1871	F-1873	F-1842	F-1843
LEASE NO.(s):	060076	006038	005907	005909, 006005-08-19-14-15-48
OPERATOR:	Amoco	Amoco	Arco	Bass Ent. Prod. Co.
RESERVOIR:	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	5027 - 5070	5000 - 5029	5000	4900
PRODUCTIVE ACREAGE IN RESERVOIR:	87,246	87,246	86,000	-
ACREAGE IN PROJECT:	5,611	71	1,247	-
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW
PATTERN:	5S	I	I	E11
YEAR BEGAN:	5-65	2-67	5-58	SW/8-67; FW/3-66
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	SW-ICP; FW-ITD
RESERVOIR PRESSURE INITIAL:	1710	1710	1695	-
BEG. INJECTION:	530	600	625	-
LATEST:	200	800	1000	-
NUMBER OF WELLS TOTAL:	284	2	76	207
PRODUCING WELLS:	80	1	32	130
INJECTION WELLS:	65SW	1	22SW	47
MAXIMUM:	65FW	-	22FW	-
LATEST:	-	-	-	-
SHUT-IN/ABANDONED WELLS:	75	0	0	30
SURFACE INJECTION PRESSURE:	2100	1100	1400	-
EFFECTIVENESS OF INJECTION:	ME	VE	VE	-
OPERATOR PROBLEMS:	-	-	-	-
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	537	30	600	2457
FROM BEG. INJECTION:	6043	322	5830	25062
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	-	19850	-
WATER PRODUCTION:				
CURRENT (1977):	1160	50	3090	4184
CUMULATIVE TO 1/78:	7440	223	13732	21417
CURRENT (1977) INJECTION:	1160SW, 1621FW	50SW, 41FW	3090SW, 155FW	7329SW, 0FW
CUMULATIVE INJECTION:	7440SW, 23676FW	223SW, 627FW	13746SW, 25047FW	37258SW, 44288FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	31	1,296	62	631
1977 PROD. (this project):	32	1,158	62	716
CUM. PROD. FROM DISC. TO 1/78:	1,262	23,473	1,898	11,118
PROJECT NO.	F-5340	F-1844	F-1845	F-1846
LEASE NO.(s):	005927	005913	018974	060106
OPERATOR:	Burre Royalty Co	Cities Service	Cities Service	Conoco
RESERVOIR:	San Adres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4960	4950	4950	5000
PRODUCTIVE ACREAGE IN RESERVOIR:	88,000	87,843	87,843	87,000
ACREAGE IN PROJECT:	525	2,673	680	3,625
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/FW	WF/SW, FW	WF/SW, FW	WF/SW, FW
PATTERN:	5S	MI9	MI9	P
YEAR BEGAN:	12-73	9-63	3-65	11-67
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1690	1750	1750	1710
BEG. INJECTION:	-	600	200	300
LATEST:	-	-	-	900
NUMBER OF WELLS TOTAL:	16	179	39	103
PRODUCING WELLS:	10	49	11	70
INJECTION WELLS:	6	52SW	10SW	27FW
MAXIMUM:	-	52FW	10FW	6SW
LATEST:	-	-	-	-
SHUT-IN/ABANDONED WELLS:	0	26	8	0
SURFACE INJECTION PRESSURE:	2250	1450	1705	1900-2175
EFFECTIVENESS OF INJECTION:	ME	VE	ME	VE
OPERATOR PROBLEMS:	CR	CR,SC,PA	CR,SC,PA	CH,FW,SC,PA
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	32	1013	62	716
FROM BEG. INJECTION:	84	9454	513	4618
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	15800	1426	8999
WATER PRODUCTION:				
CURRENT (1977):	-	1827	63	1481
CUMULATIVE TO 1/78:	-	11071	548	6170
CURRENT (1977) INJECTION:	734FW	1827SW, 2709FW	65SW, 860FW	1468SW, 2126FW
CUMULATIVE INJECTION:	2835FW	10667SW, 50998FW	500SW, 14812FW	6139SW, 24318FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	30	160	886	960
1977 PROD. (this project):	28	131	833	964
CUM. PROD. FROM DISC. TO 1/78:	2,224	2,414	2,510	15,779
PROJECT NO.	F-1885	F-1847	F-1856	F-1811
LEASE NO.(s):	006129	005924-25	005755	006035
OPERATOR:	Crown Central	Depco Inc.	Exxon	Getty
RESERVOIR:	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	5000	5000	5000	4915
PRODUCTIVE ACREAGE IN RESERVOIR:	87,246	87,834	88,000	87,300
ACREAGE IN PROJECT:	2,000	422	569	6,268
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW
PATTERN:	I	5S	I	5S
YEAR BEGAN:	1-61	SW/3-77; FW/5-65	3-65	7-66
YEAR TERMINATED OR STATUS:	SW-ICP; FW-ITD/1-72	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1710	1750	1710	1710
BEG. INJECTION:	566	200	710	1200
LATEST:	-	-	800	1200
NUMBER OF WELLS TOTAL:	43	20	33	177
PRODUCING WELLS:	38	10	19	94
INJECTION WELLS:	4	4SW	7SW	74
MAXIMUM:	-	5FW	7FW	-
LATEST:	-	-	-	-
SHUT-IN/ABANDONED WELLS:	1	1	0	9
SURFACE INJECTION PRESSURE:	1600	1400-1550	950	2150
EFFECTIVENESS OF INJECTION:	NE	VE	VE	ME
OPERATOR PROBLEMS:	CR, SC, IP	-	-	CR, SC, PA
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	-	131	833	511
FROM BEG. INJECTION:	-	918	6400	6873
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	-	9060	118000
WATER PRODUCTION:				
CURRENT (1977):	423	379	624	1604
CUMULATIVE TO 1/78:	3335	1773	2505	12239
CURRENT (1977) INJECTION:	502SW, 0-FW	265SW, 471FW	684SW, 897 FW	3199FW
CUMULATIVE INJECTION:	4576SW, 1471FW	693SW, 5281FW	2564SW, 13039FW	8125SW, 41974 FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	147	116	72	49	
1977 PROD. (this project):	146	110	72	41	
CUM. PROD. FROM DISC. TO 1/78:	2,145	1,825	2,019	1,655	
PROJECT NO.	F-1883	F-1848	F-1849	F-1850	
LEASE NO.(s):	019770	006124	018891	005935	
OPERATOR:	Getty	Getty	Great Western	Great Western	
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	
DEPTH PRODUCING ZONE:	5000	5040	5000	5000	
PRODUCTIVE ACREAGE IN RESERVOIR:	87,000	87,000	87,834	87,834	
ACREAGE IN PROJECT:	164	164	320	422	
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW,BW,FW	WF/SW, FW	
PATTERN:	LD	5S	5S	5S	
YEAR BEGAN:	SW/11-69;FW/5-67	10-66	6-66	6-66	
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	
RESERVOIR PRESSURE INITIAL:	1710	1720	1750	1750	
BEG. INJECTION:	530	550	-	200	
LATEST:	435	1130	-	-	
NUMBER OF WELLS TOTAL:	11	11	9	10	
PRODUCING WELLS:	7	7	5	4	
INJECTION WELLS:	2SW	2SW	4	3SW	
MAXIMUM:	2FW	2FW	-	3FW	
LATEST:	-	-	-	-	
SHUT-IN/ABANDONED WELLS:	0	0	0	0	
SURFACE INJECTION PRESSURE:	1700	950	1500	1500	
EFFECTIVENESS OF INJECTION:	VE	ME	ME	ME	
OPERATOR PROBLEMS:	PA	PA	EW, PI	EW, PI	
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	146	104	72	41	
FROM BEG. INJECTION:	1269	822	700	370	
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	960	542	1200	1002	
WATER PRODUCTION:					
CURRENT (1977):	346	260	370	231	
CUMULATIVE TO 1/78:	1615	1328	1737	1138	
CURRENT (1977) INJECTION:	259SW, 457FW	260SW, 171FW	370SW	231SW, 54FW	
CUMULATIVE INJECTION:	1615SW, 5441FW	963SW, 3247FW	2987FW	1238SW, 2507FW	

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	156	285	1,244	185
1977 PROD. (this project):	144	260	1,206	158
CUM. PROD. FROM DISC. TO 1/78:	2,715	4,916	33,224	5,063
PROJECT NO.	F-1851	F-1854	F-1852	F-1853
LEASE NO.(s):	006138	006144	017616	005937
OPERATOR:	Gulf	Gulf	Gulf	Gulf
RESERVOIR:	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4910	4980	5000	5000
PRODUCTIVE ACREAGE IN RESERVOIR:	88,000	88,000	88,000	88,000
ACREAGE IN PROJECT:	164	320	7,048	425
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW	WF/SW, FW	WF/SW, FW
PATTERN:	5S	5S	MI9	M5
YEAR BEGAN:	10-66	4-65	12-60	4-65
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1750	1750	1710	1750
BEG. INJECTION:	566	-	614	612
LATEST:	-	-	-	-
NUMBER OF WELLS TOTAL:	11	18	290	29
PRODUCING WELLS:	6	10	120	12
INJECTION WELLS:	3SW	7	78SW	8SW
MAXIMUM:	3FW	-	78FW	8FW
LATEST:	-	-	-	-
SHUT-IN/ABANDONED WELLS:	1	1	14	1
SURFACE INJECTION PRESSURE:	250	250	1900	1100
EFFECTIVENESS OF INJECTION:	-	-	-	-
OPERATOR PROBLEMS:	SC, PI	IP,PI,CH,SC	IP,PI,CH,SC	SC
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	-	-	-	-
FROM BEG. INJECTION:	-	-	-	-
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	-	-	-
WATER PRODUCTION:				
CURRENT (1977):	346	843	3499	605
CUMULATIVE TO 1/78:	1578	4742	20591	3977
CURRENT (1977) INJECTION:	346SW, 460FW	756SW	3499SW, 1404FW	605SW, 234FW
CUMULATIVE INJECTION:	1578SW, 5624FW	11999SW	76846SW,14745FW	3777SW, 12191FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	354	401	719	71
1977 PROD. (this project):	248	422	748	65
CUM. PROD. FROM DISC. TO 1/78:	6,341	4,809	11,505	1,306
PROJECT NO.	F-1855	F-1862	F-1863	F-1857
LEASE NO.(s):	005938	005996	005990,005998	005981
OPERATOR:	Gulf	Mobil	Mobil	Mobil
RESERVOIR:	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	5000	4950	4950	5000
PRODUCTIVE ACREAGE IN RESERVOIR:	88,000	95,000	95,000	95,000
ACREAGE IN PROJECT:	520	1527	1280	320
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW
PATTERN:	M5	MLD	P	5S
YEAR BEGAN:	4-65	12-66	5-64	6-66
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1750	1710	1710	1715
BEG. INJECTION:	430	700	700	200
LATEST:	-	1000	-	1200
NUMBER OF WELLS TOTAL:	45	66	64	15
PRODUCING WELLS:	19	36	42	7
INJECTION WELLS:	13SW	15SW	11SW	4SW
MAXIMUM:	13FW	15FW	11FW	4FW
LATEST:	-	-	-	-
SHUT-IN/ABANDONED WELLS:	0	0	0	0
SURFACE INJECTION PRESSURE:	1100	1500	1500	2125
EFFECTIVENESS OF INJECTION:	-	ME	ME	ME
OPERATOR PROBLEMS:	CH, SC	CR,SC,PA,PI	SC, PI	SC, PI
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	-	422	748	65
FROM BEG. INJECTION:	-	1183	4805	596
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	4000	6700	709
WATER PRODUCTION:				
CURRENT (1977):	712	262	602	69
CUMULATIVE TO 1/78:	4815	1372	3442	331
CURRENT (1977) INJECTION:	712SW, 343FW	262SW, 2914FW	602SW, 1693FW	69SW, 215FW
CUMULATIVE INJECTION:	4815SW, 14631FW	1298SW, 26418FW	3442SW, 21809FW	316SW, 3397FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	1,192	1,941	29	95
1977 PROD. (this project):	1,139	1,704	52	86
CUM. PROD. FROM DISC. TO 1/78:	25,277	42,148	821	2,257
PROJECT NO.	F-1858	F-1859	F-1860	F-1861
LEASE NO.(s):	015298	018149	005985	005994
OPERATOR:	Mobil	Mobil	Mobil	Mobil
RESERVOIR:	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	5000	5000	5000	5000
PRODUCTIVE ACREAGE IN RESERVOIR:	95,000	95,000	95,000	95,000
ACREAGE IN PROJECT:	2495	4780	286	177
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW
PATTERN:	LD	LD	M5	E11
YEAR BEGAN:	6-64	7-64	6-65	8-61
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1710	1710	1710	1710
BEG. INJECTION:	200	200	200	500
LATEST:	1200	1200	-	1000
NUMBER OF WELLS TOTAL:	129	235	16	13
PRODUCING WELLS:	79	135	5	7
INJECTION WELLS:	25SW	48SW	4SW	3SW
MAXIMUM:	25FW	48FW	4FW	3FW
LATEST:	-	-	-	-
SHUT-IN/ABANDONED WELLS:	0	4	3	0
SURFACE INJECTION PRESSURE:	1600	1800	2100	2000
EFFECTIVENESS OF INJECTION:	VE	VE	ME	E11
OPERATOR PROBLEMS:	CR,SC,PA,PI	SC,PA,PI	PI	CR,SC,PA,PI
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	1139	1704	52	86
FROM BEG. INJECTION:	11678	18144	121	1257
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	14787	29000	400	1479
WATER PRODUCTION:				
CURRENT (1977):	3289	5428	37	261
CUMULATIVE TO 1/78:	25738	29983	110	2355
CURRENT (1977) INJECTION:	3289SW, 2293FW	5428SW, 3657 FW	37SW, 639FW	261SW, 165FW
CUMULATIVE INJECTION:	25448SW, 50869FW	29763SW, 81026FW	101SW, 5766FW	2328SW, 2409FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	111	124	26	480	
1977 PROD. (this project):	104	152	30	387	
CUM. PROD. FROM DISC. TO 1/78:	1,980	2,776	1,517	11,617	
PROJECT NO.	F-1864	F-1884	F-1886	F-1887	
LEASE NO.(s):	006003	060084	006086	006094, 006097	
OPERATOR:	Murchison & Closuit	Sun	Tenneco	Texaco	
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	
DEPTH PRODUCING ZONE:	5000	4850	5050	4900	
PRODUCTIVE ACREAGE IN RESERVOIR:	-	87,246	88,000	100,000	
ACREAGE IN PROJECT:	248	1163	762	1247	
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/FW	
PATTERN:	SW	5S	I	9S	
YEAR BEGAN:	SW/1-76; FW/12-62	5-67	3-65	7-64	
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	
RESERVOIR PRESSURE INITIAL:	1720	1690	1720	1750	
BEG. INJECTION:	700	158	50	600	
LATEST:	-	158	1760	-	
NUMBER OF WELLS TOTAL:	12	48	19	57	
PRODUCING WELLS:	10	22	8	41	
INJECTION WELLS:	1SW	13SW	1SW	14	
MAXIMUM:	1FW	13FW	4FW	-	
LATEST:	-	-	-	-	
SHUT-IN/ABANDONED WELLS:	0	10	6	2	
SURFACE INJECTION PRESSURE:	150	1800	675-1330	2015	
EFFECTIVENESS OF INJECTION:	-	VE	ME	VE	
OPERATOR PROBLEMS:	-	IP	CH, SC	-	
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-	123	27	-	
FROM BEG. INJECTION:	-	803	185	-	
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	2600	293	-	
WATER PRODUCTION:					
CURRENT (1977):	17	557	158	2754	
CUMULATIVE TO 1/78:	54	2752	2193	11936	
CURRENT (1977) INJECTION:	14SW, 58FW	557SW, 180FW	158SW, 261FW	4832FW	
CUMULATIVE INJECTION:	2910FW	2752SW, 6108FW	1409SW, 2758FW	44925FW	

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	1,133	6,388	82	176
1977 PROD. (this project):	905	5,361	74	164
CUM. PROD. FROM DISC. TO 1/78:	17,871	103,343	1,619	2,278
PROJECT NO.	F-1888	F-1889	F-1890	F-1892
LEASE NO.(s):	006093,95,96,etc	065936,87,88,etc	006110	019699
OPERATOR:	Texaco	Texaco	TPC&O	TPC&O
RESERVOIR:	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4900	4900	4950	4950
PRODUCTIVE ACREAGE IN RESERVOIR:	100,000	100,000	86,900	86,900
ACREAGE IN PROJECT:	6740	7405	178	198
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	PM/SW, FW	WF/SW, FW	WF/SW, FW
PATTERN:	E11	9S	SLD	SLD
YEAR BEGAN:	7-64	3-59	11-64	2-64
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	SW-INS;FW-ICP
RESERVOIR PRESSURE INITIAL:	1750	1750	1710	1720
BEG. INJECTION:	600	600	406	600
LATEST:	-	-	630	630
NUMBER OF WELLS TOTAL:	138	408	9	7
PRODUCING WELLS:	92	277	4	5
INJECTION WELLS:	27SW	70SW	2SW	-
MAXIMUM:	15FW	53FW	2FW	-
LATEST:	-	-	-	-
SHUT-IN/ABANDONED WELLS:	4	8	1	0
SURFACE INJECTION PRESSURE:	2000	1720	-	-
EFFECTIVENESS OF INJECTION:	VE	-	ME	ME
OPERATOR PROBLEMS:	-	-	-	-
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	-	-	74	164
FROM BEG. INJECTION:	-	-	664	1566
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	-	780	2140
WATER PRODUCTION:				
CURRENT (1977):	4363	19584	163	283
CUMULATIVE TO 1/78:	12993	107252	862	1512
CURRENT (1977) INJECTION:	4363SW, 2567 FW	22338SW, 12107FW	163SW, 35FW	283FW
CUMULATIVE INJECTION:	20944SW, 45876FW	127914SW,171105FW	865SW, 2302FW	0-SW, 4127FW

ENHANCED AND SECONDARY RECOVERY DATA:

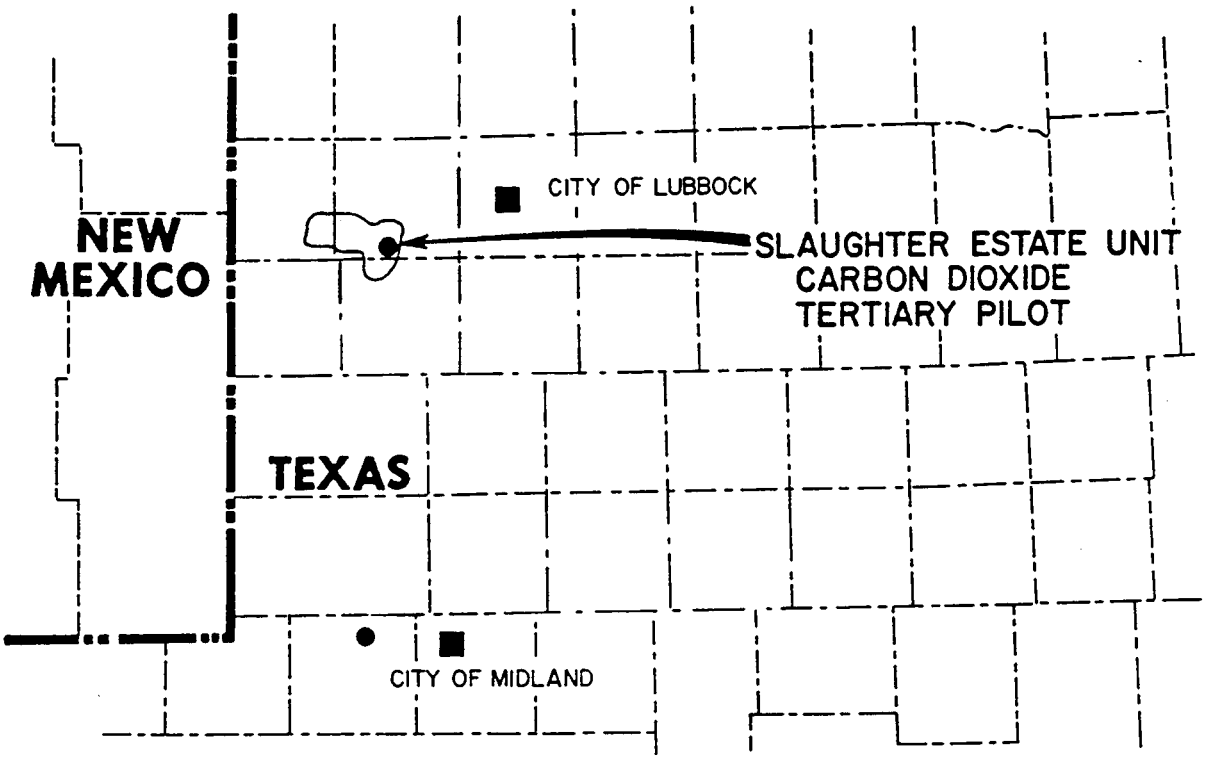
FIELD: Slaughter RESERVOIR: San Andres TOTAL NO. PROJECTS: 53

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

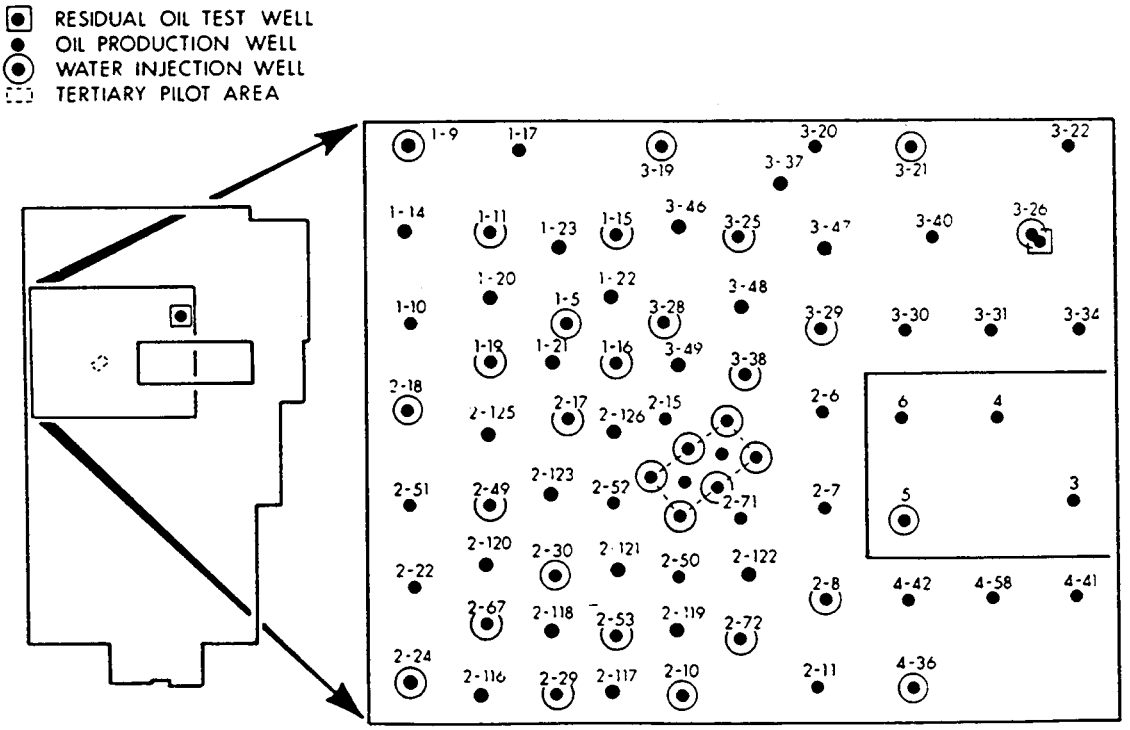
1976 PROD. (this project): MBBLS	485				
1977 PROD. (this project):	568				
CUM. PROD. FROM DISC. TO 1/78:	7,077				
PROJECT NO.	F-1891				
LEASE NO.(s):	019316				
OPERATOR:	Union Tex. Pet. Co.				
RESERVOIR:	San Andres				
DEPTH PRODUCING ZONE:	4950				
PRODUCTIVE ACREAGE IN RESERVOIR:	87,000				
ACREAGE IN PROJECT:	1891				
PORTION OR FIELD WIDE:	FW/P				
TYPE:	WF/SW, FW				
PATTERN:	M5				
YEAR BEGAN:	10-65				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	1710				
BEG. INJECTION:	330				
LATEST:	-				
NUMBER OF WELLS TOTAL:	99				
PRODUCING WELLS:	41				
INJECTION WELLS:	29SW				
MAXIMUM:	29FW				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	0				
SURFACE INJECTION PRESSURE:	1750				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	CR, SC, PA				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	426				
FROM BEG. INJECTION:	2331				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	5900				
WATER PRODUCTION:					
CURRENT (1977):	393				
CUMULATIVE TO 1/78:	1631				
CURRENT (1977) INJECTION:	1411FW				
CUMULATIVE INJECTION:	19175FW				

FROM: Smith, L.R., 1975: SPE Improved Oil-Recovery Field Reports, June, v.1, n.1, p. 125-133.

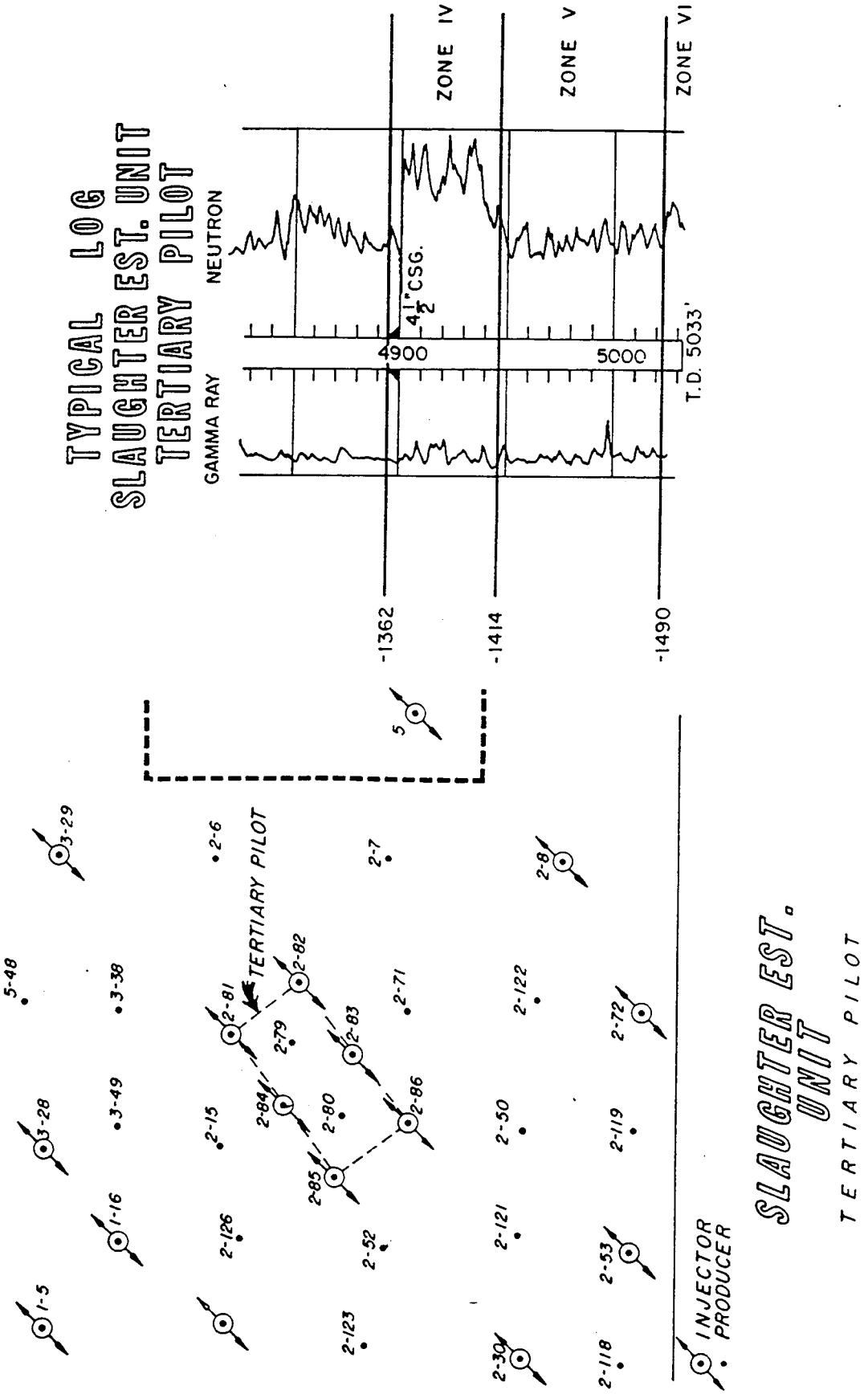
SLAUGHTER EST. UNIT TERTIARY PILOT



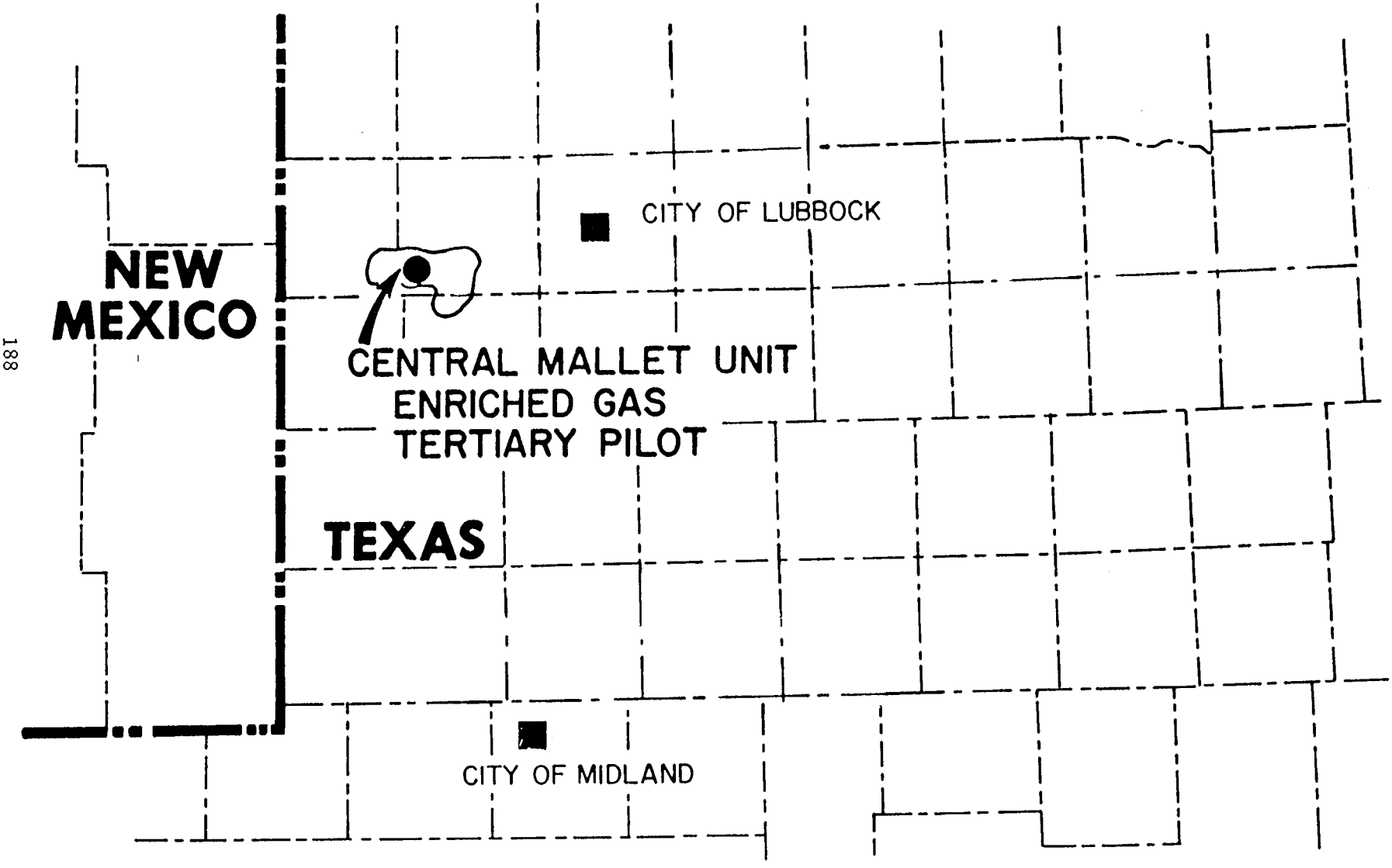
TERTIARY PILOT AREA
SLAUGHTER ESTATE UNIT



FROM: Smith, L.R., 1975: SPE Improved Oil-Recovery Field Reports, June, v. 1, n. 1, p. 125-133. 9a1



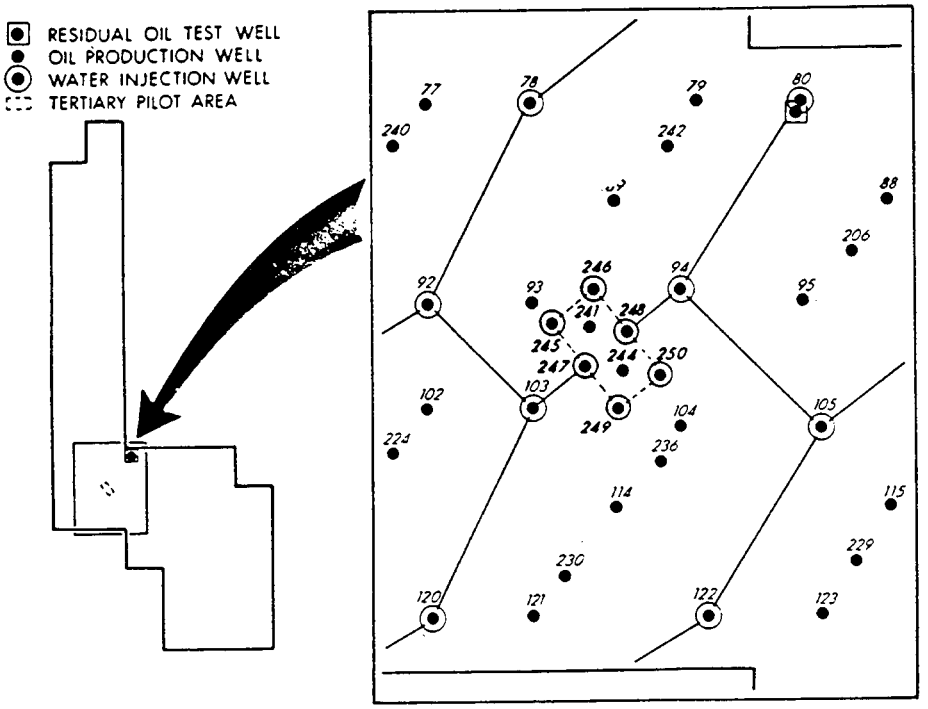
CENTRAL MALLET UNIT TERTIARY PILOT



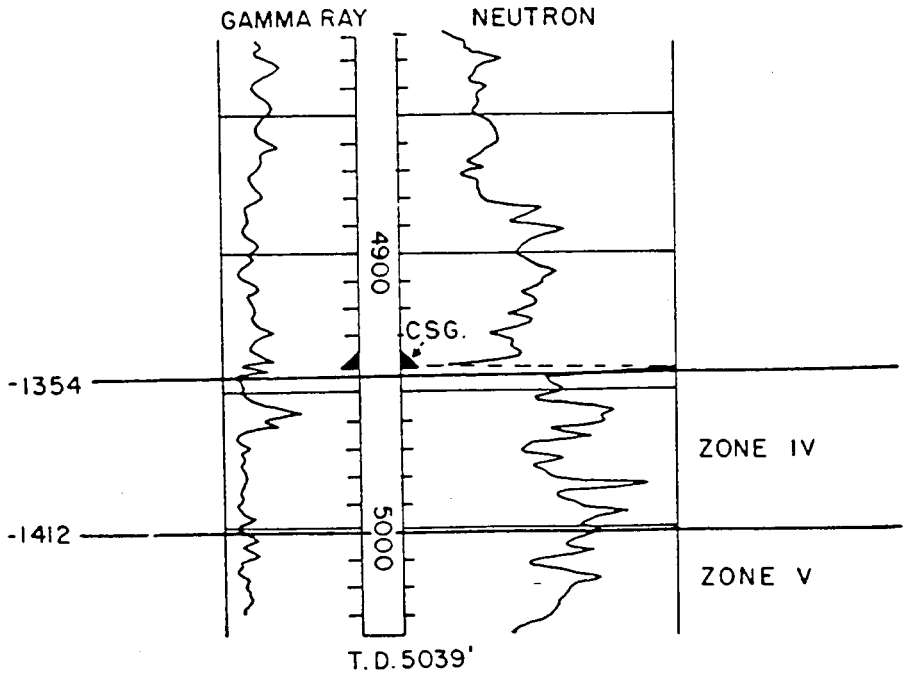
FROM: Smith, L. R., 1975: SPE Improved Oil-Recovery Field Reports, September, v. 1, no. 2, p. 307-315. 9a2

FROM: Smith, L.R.: SPE Improved Oil-Recovery Field Reports, September, v. 1, n. 2, p. 307-315.

TERTIARY PILOT AREA
CENTRAL MALLET UNIT



TYPICAL LOG
CENTRAL MALLET UNIT
TERTIARY PILOT



Suniland
Lower San Andres
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
1, 3	COUNTY	Lynn
1, 3	REGULATORY DISTRICT	8A
3, 1	BASIN	Permian
15	SUB-BASIN	Midland
1, 3	FIELD	Suniland
1, 3	RESERVOIR	Lower San Andres
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1	RESERVOIR LITHOLOGY	Dolomite
	TRAPPING MECHANISM	
1, 3	DISCOVERY YEAR	1956, 5-56
1	PROVED ACREAGE	160
1	REGULAR WELL SPACING (acres/well)	20
1, 3	RESERVOIR DEPTH	4000
	RESERVOIR THICKNESS	
1	NET PAY	110
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1	FRACTION	.14
	PERMEABILITY	
	RANGE	
1	AVERAGE	17 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from Glorieta, San Andres.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	19P
1	PRODUCTION 1976 oil (cum)	2,216
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	2,296.1 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	1.5 mbbls; .012 mmcf
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
1, 3	FIELD:	Suniland
1	RESERVOIR:	Lower San Andres
1	PROD. ACRES:	160
1	AVG. THICKNESS (FT.):	110
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.2
	FORMATION VOLUME FACTOR LATEST (FVF):	
1, 16c	WATER SATURATION (S_W):	.36, .365
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
1	RESERVOIR PRESSURE INITIAL (psi):	1450
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	530
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	3376.7 (76)
1, 3	STOCK TANK OIL GRAVITY (°API):	35.9
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1748
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

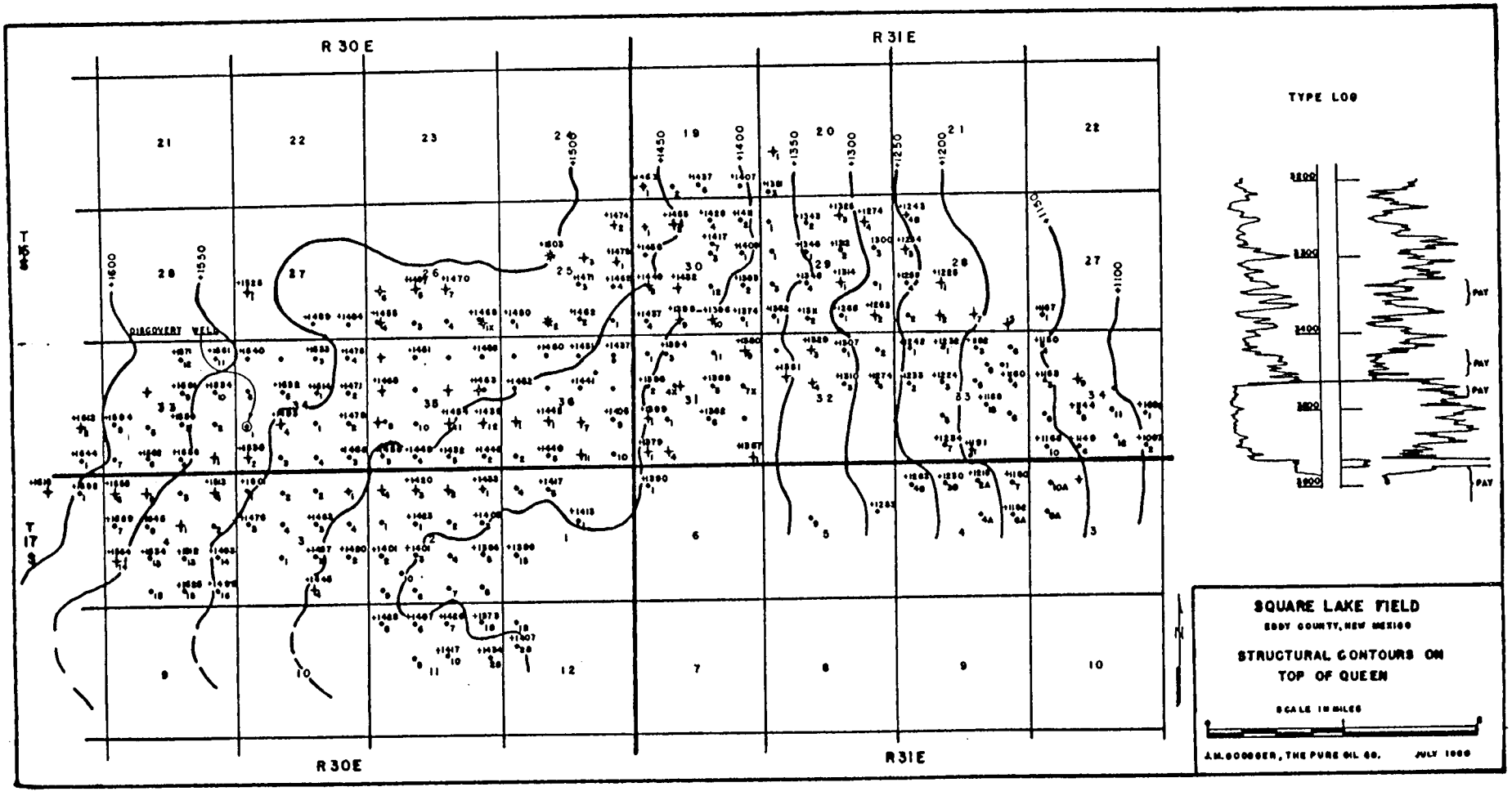
Square Lake
Grayburg-San Andres
Northwest Shelf

DATA SOURCE CODE		
	STATE	New Mexico
1, 6a	COUNTY	Eddy
1	REGULATORY DISTRICT	Southeast
1, 6a	BASIN	Permian
15	SUB-BASIN	Northwest Shelf
1, 6a	FIELD	Square Lake
1, 6a	RESERVOIR	Grayburg-San Andres
1,6	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1, 6a	RESERVOIR LITHOLOGY	Sands and dolomite sand is fine to medium grained, semi-friable; dolomite is sucrose.
6a, 1	TRAPPING MECHANISM	Structural and stratigraphic; lateral change in porosity and permeability.
1,6a	DISCOVERY YEAR	11-41
1	PROVED ACREAGE	12,880
	REGULAR WELL SPACING (acres/well)	
1	RESERVOIR DEPTH	2700
1	RESERVOIR THICKNESS	15' avg.
	NET PAY	
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
6a	TYPE	IG-IC
1, 6a	FRACTION	.021
	PERMEABILITY	
	RANGE	
	AVERAGE	
1, 6a	HORIZONTAL	110 md
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	391 Total, 228 pump, 128 inject., 35 shut-in; 239P, 123S-I, 21I.
1	PRODUCTION 1977 oil (cum)	22,037
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	23,146
	PRODUCTION 1-1-79 to 1-1-80	
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6a	STRUCTURE CONTOUR?	yes
6a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Square Lake
6c, 1	RESERVOIR:	Grayburg-San Andres
1	PROD. ACRES:	12,880
1	AVG. THICKNESS (FT.):	15
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
6a	WATER SATURATION (S_W):	NA
6a	OIL SATURATION (S_O):	NA
6a, 1	PRIMARY DRIVE MECHANISM:	gas; solution gas
	PRIMARY GAS CAP?:	
17	TEMPERATURE (^oF):	106 (GG=1.2)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1396
1, 6a	RESERVOIR PRESSURE INITIAL (psi):	950
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	363
1, 6a	STOCK TANK OIL GRAVITY (^oAPI):	38.7
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):	1325
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:



FROM: Goodger, J.M., 1956, SQUARE LAKE (GRAYBURG-SAN ANDRES) in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO: Roswell Geological Society Symposium, Source 6a.

Susan Peak
Cisco-Canyon
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Tom Green
1, 2	REGULATORY DISTRICT	7C
1, 2	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1, 2	FIELD	Susan Peak
2	RESERVOIR	Cisco-Canyon
5, 1	GEOLOGIC AGE	Pennsylvanian, Pennsylvanian Des Moines
1	AAPG STRATIGRAPHIC AGE CODE	325
12c, 1	RESERVOIR LITHOLOGY	Variable from clean white sand with minor calcareous cement to high calcareous sand to arenaceous limestone; limestone.
12c, 1	TRAPPING MECHANISM	convex folding along apex of an anticline; structural anticline
1, 2, 3	DISCOVERY YEAR	1948, 1-50, 8-1950
1,2,12c,16c	PROVED ACREAGE	680, 800, 720, 2240
	REGULAR WELL SPACING (acres/well)	
2, 3, 1	RESERVOIR DEPTH	4600, 4535, 4724-4754
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	12, 60, 43
12c	GROSS	73 max
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2, 1	FRACTION	.14, .13
	PERMEABILITY	
	RANGE	
2, 1	AVERAGE	7; 294 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production include Susan Peak-Shallow and Upper Strawn
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	24P; 17 (2P-15A)
1	PRODUCTION 1976 oil (cum)	13,685
	PRODUCTION 1977 oil (cum)	13,870
	PRODUCTION 1978 oil (cum)	14,000
3	PRODUCTION 1979 oil (cum)	14,096 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	96 mbbls, 9.3 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
12c	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Susan Peak
2,1,12c,16c	RESERVOIR:	Cisco Canyon
2,1,16c	PROD. ACRES:	800, 680, 720, 2240
16c	AVG. THICKNESS (FT.):	12, 60, 43
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.41
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.41 (76)
	WATER SATURATION (S_W):	.20-.35
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	waterdrive
12c	PRIMARY GAS CAP?:	yes
12c, 16c	TEMPERATURE (°F):	139 for Strawn
16c, 17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1682, 9399
2, 1	RESERVOIR PRESSURE INITIAL (psi):	1800, 70
2	RESERVOIR PRESSURE LATEST (psi):	1300
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	600
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	2859.7 (76), 2860
1,2,3,12c	STOCK TANK OIL GRAVITY (°API):	36, 42, 37.4, 37.4-39.6
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1923
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs,abd:	6,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs,abd:	1,150 mbbls

12c OTHER INFORMATION: Reference:

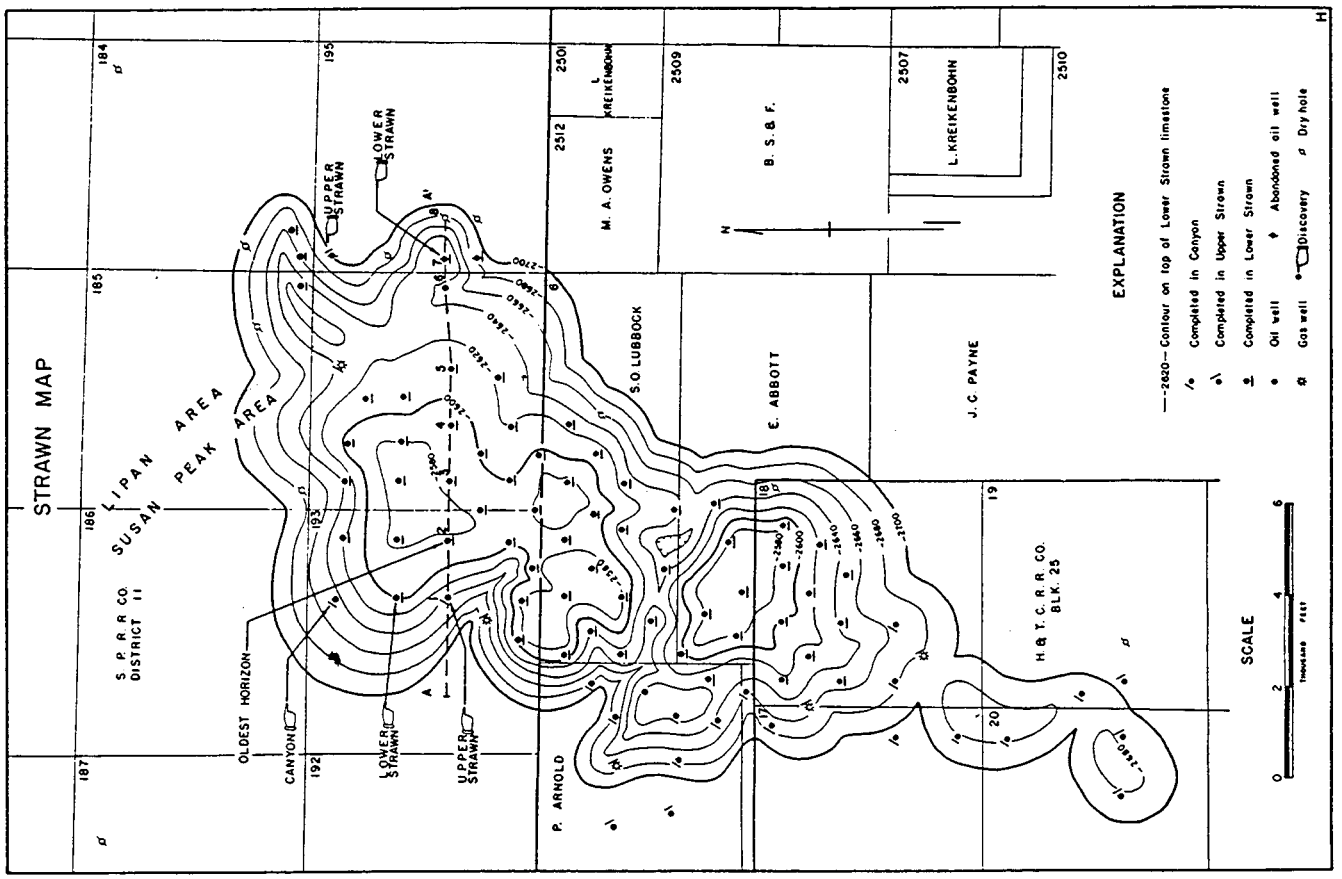
Graham, O. W., 1953, Susan Peak in Occurrence of Oil and Gas in West Texas : University of Texas, Bureau of Economic Geology, Pub. No. 5716, pp. 333-337.

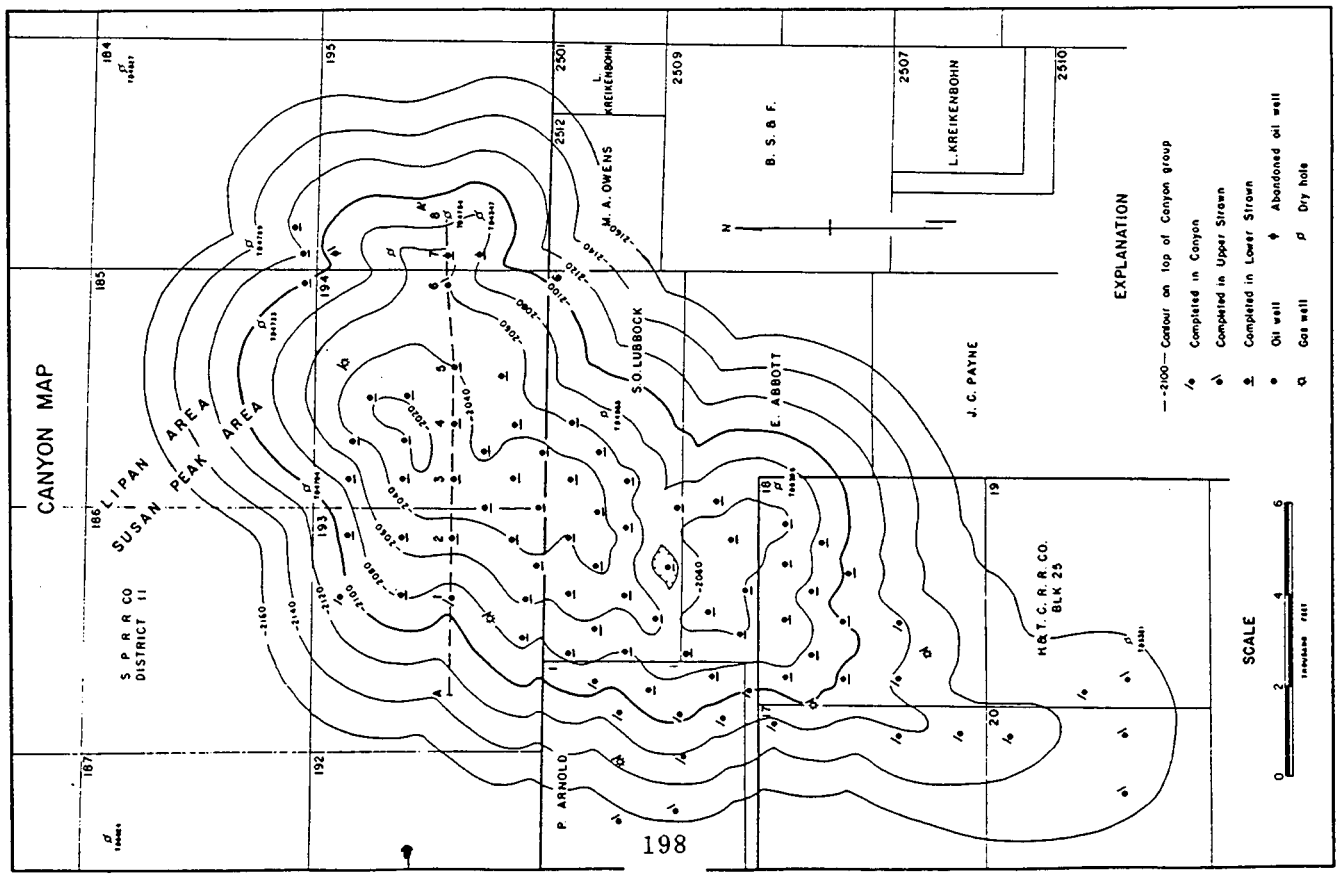
1 Primary recoverable: 300bbl/acre-ft.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Susan Peak RESERVOIR: Cisco Canyon TOTAL NO. PROJECTS: 1
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

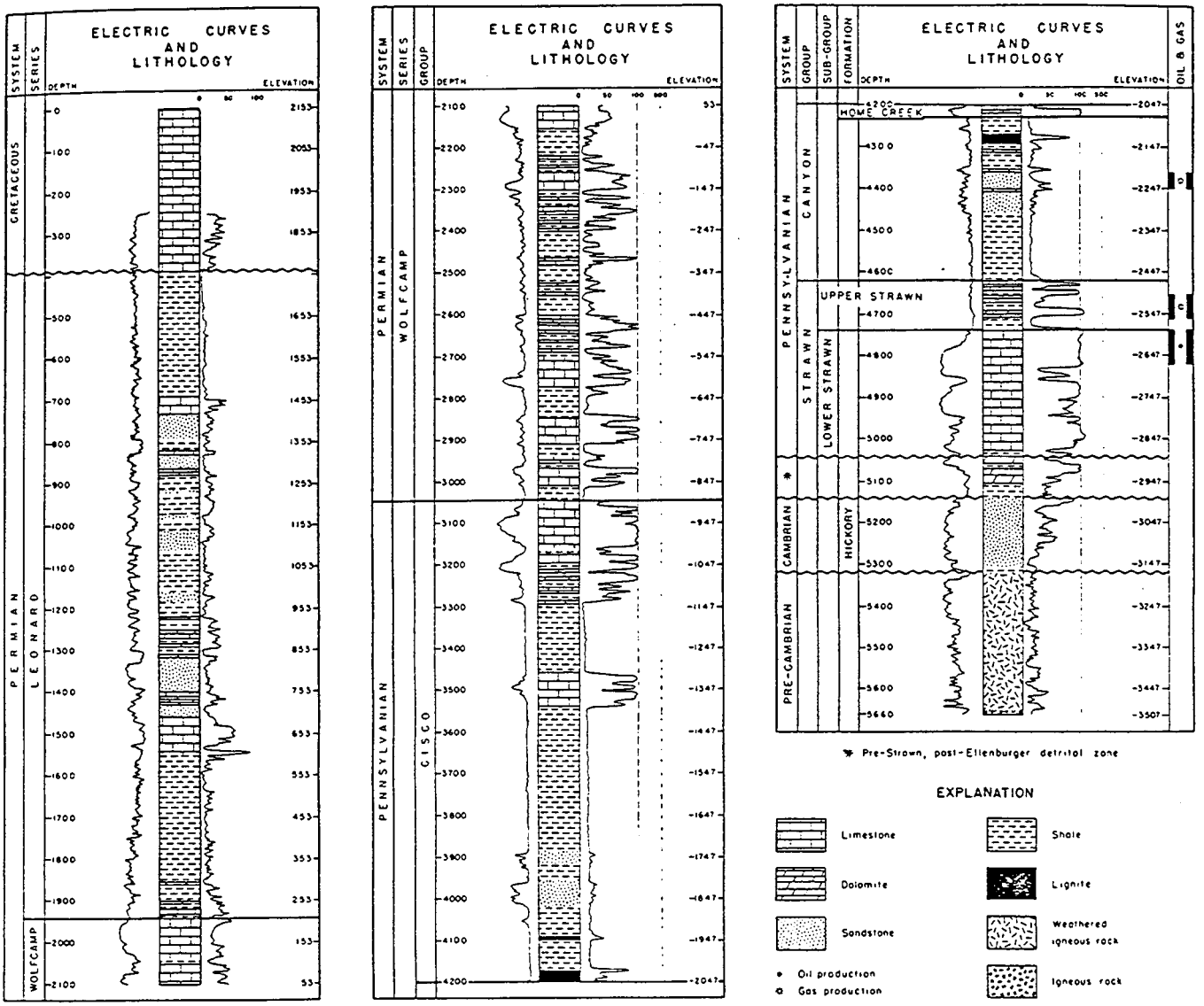
1976 PROD. (this project): MBBLS	-				
1977 PROD. (this project):	-				
CUM. PROD. FROM DISC. TO 1/78:	555				
PROJECT NO.	F-1082				
LEASE NO.(s):	01970, 01972,	02904			
OPERATOR:	Marathon Oil Co.				
RESERVOIR:	Cisco Canyon				
DEPTH PRODUCING ZONE:	4600				
PRODUCTIVE ACREAGE IN RESERVOIR:	800				
ACREAGE IN PROJECT:	800				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW				
PATTERN:	LD				
YEAR BEGAN:	2-62				
YEAR TERMINATED OR STATUS:	SW-IPD/5-72				
RESERVOIR PRESSURE INITIAL:	1800				
BEG. INJECTION:	1100				
LATEST:	1300				
NUMBER OF WELLS TOTAL:	17				
PRODUCING WELLS:	2				
INJECTION WELLS:	-				
MAXIMUM:	-				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	15				
SURFACE INJECTION PRESSURE:	-				
EFFECTIVENESS OF INJECTION:	-				
OPERATOR PROBLEMS:	EB				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-				
FROM BEG. INJECTION:	-				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-				
WATER PRODUCTION:					
CURRENT (1977):	-				
CUMULATIVE TO 1/78:	368				
CURRENT (1977) INJECTION:	-				
CUMULATIVE INJECTION:	3309 SW				

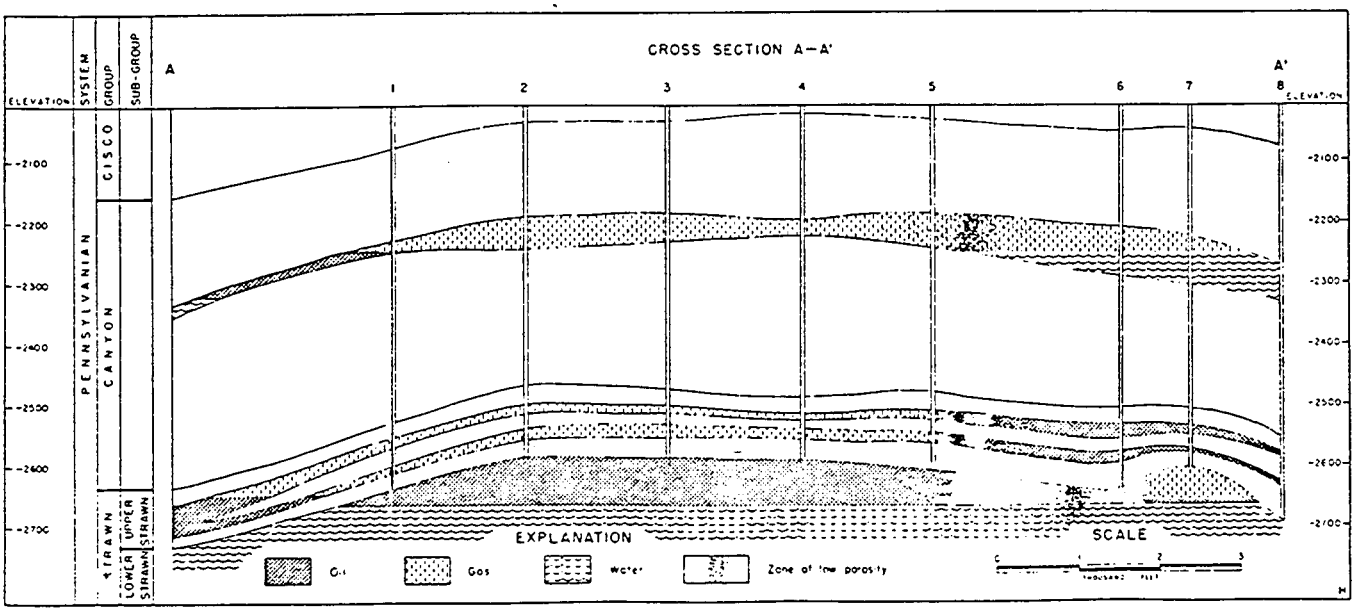




FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: Univ. of Texas, Bureau of Econ. Geol., Aug. 1957. Source 12c.

TYPICAL SECTION OF ROCKS PENETRATED





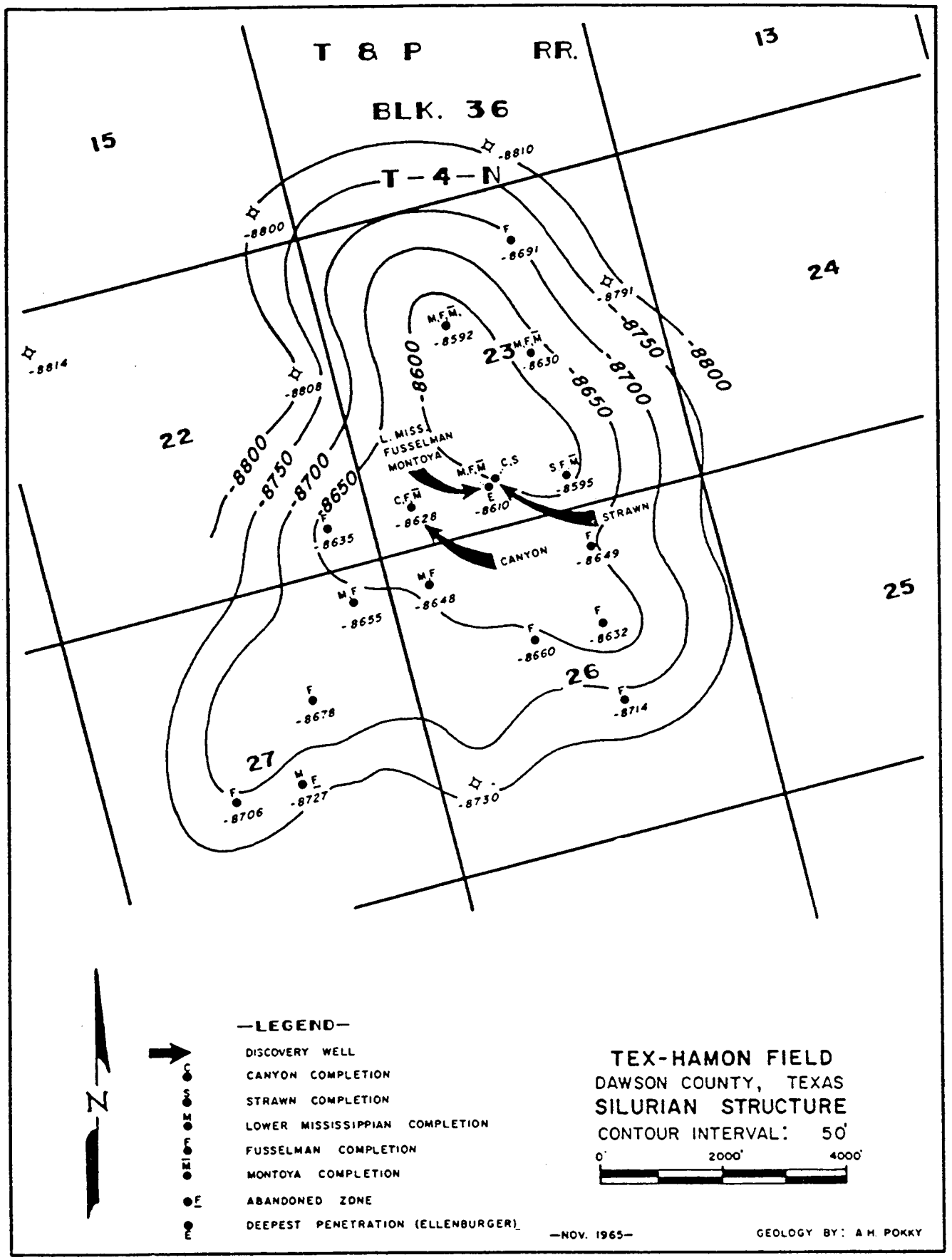
Tex-Hamon
Silurian-Fusselman
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
1, 5a	COUNTY	Dawson
1, 5a	REGULATORY DISTRICT	8A
1, 5a	BASIN	Permian
15	SUB-BASIN	Midland Basin
1, 5a	FIELD	Tex-Hamon
1, 5a	RESERVOIR	Silurian, Fusselman
1, 5	GEOLOGIC AGE	Silurian
1	AAPG STRATIGRAPHIC AGE CODE	354
5c, 1	RESERVOIR LITHOLOGY	Dolomite- white to pale yellow- orange, slightly green tinted, fine to medium grained rhombic with some white to light bluish gray, perly to vitreous opaque chert cavernous and vuggy porosity; chert dolomite.
5, c	TRAPPING MECHANISM	N-S trending convex fold with slight nosing to the SW, production primarily dependent on porosity trends; structural-nose plus lateral porosity/permeability change.
5a, 3, 1	DISCOVERY YEAR	1-27-62, 1962
5a, 1	PROVED ACREAGE	1200
5a, 1	REGULAR WELL SPACING (acres/well)	80
5a, 3, 1	RESERVOIR DEPTH	11574-11642, 11574
	RESERVOIR THICKNESS	
1, 16c	NET PAY	52, 65
5a	GROSS	150
	NET/GROSS RATIO	
	POROSITY	
5a	TYPE	cavernous and vuggy porosity
1, 5a	FRACTION	.070
	PERMEABILITY	
	RANGE	
5a, 1	AVERAGE	25.3, 25 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from Canyon, Dean, Fusselman, Lower Mississippian, Strawn
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 5a	TOTAL NUMBER OF WELLS	19P; 15P-1A
1	PRODUCTION 1976 oil (cum)	13,543
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	14,999.9 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	307.0 mbbls; 11.2 mmcf
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5a	STRUCTURE CONTOUR?	yes
5a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

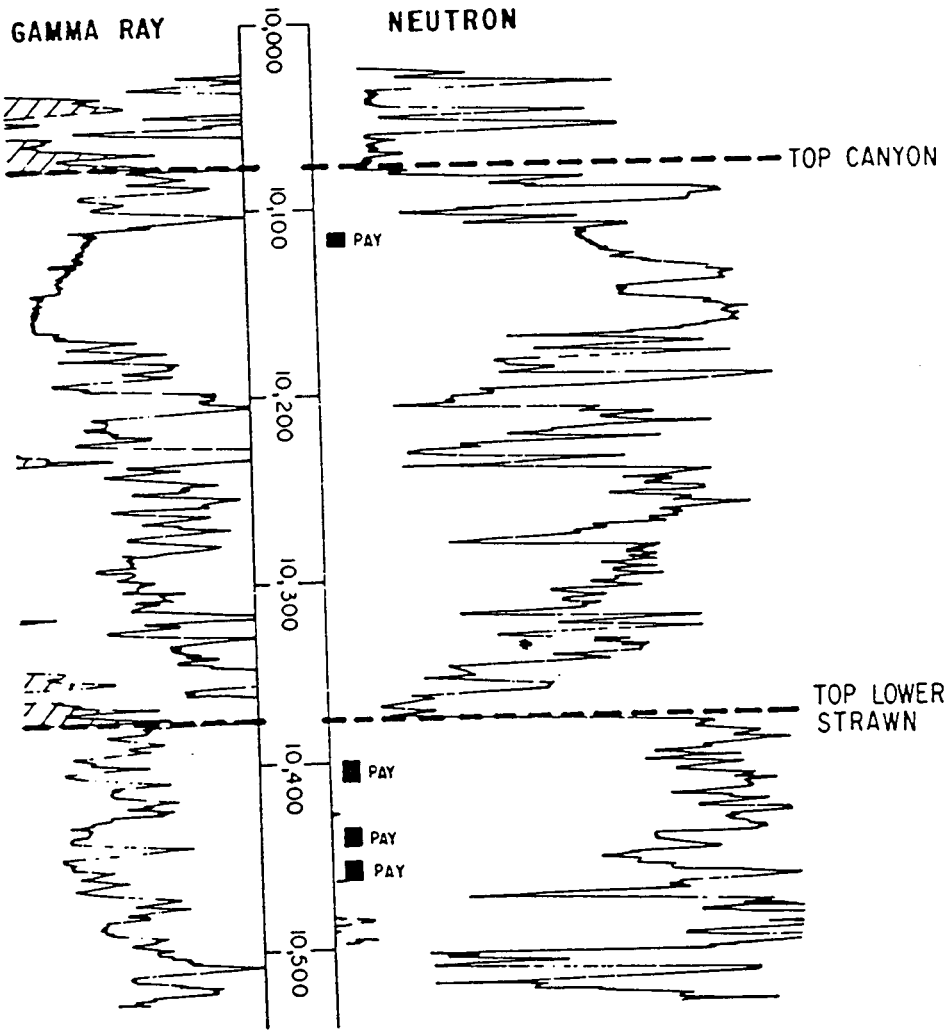
DATA SOURCE CODE		
	FIELD:	Tex-Hamon
1, 5a	RESERVOIR:	Silurian Fusselman
1, 5a	PROD. ACRES:	1200
1, 16c	AVG. THICKNESS (FT.):	52, 65
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.045
	FORMATION VOLUME FACTOR LATEST (FVF):	
5a, 1	WATER SATURATION (S_W):	.35
16c	OIL SATURATION (S_O):	.65 (63)
5a, 1	PRIMARY DRIVE MECHANISM:	waterdrive
	PRIMARY GAS CAP?:	
16c, 17	TEMPERATURE (°F):	154, 154 (GG= .6)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	272
5a, 1	RESERVOIR PRESSURE INITIAL (psi):	5066
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
5a, 1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	169-1, 52.6 (76), 53
5a, 3, 1	STOCK TANK OIL GRAVITY (°API):	40.2
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1772
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:



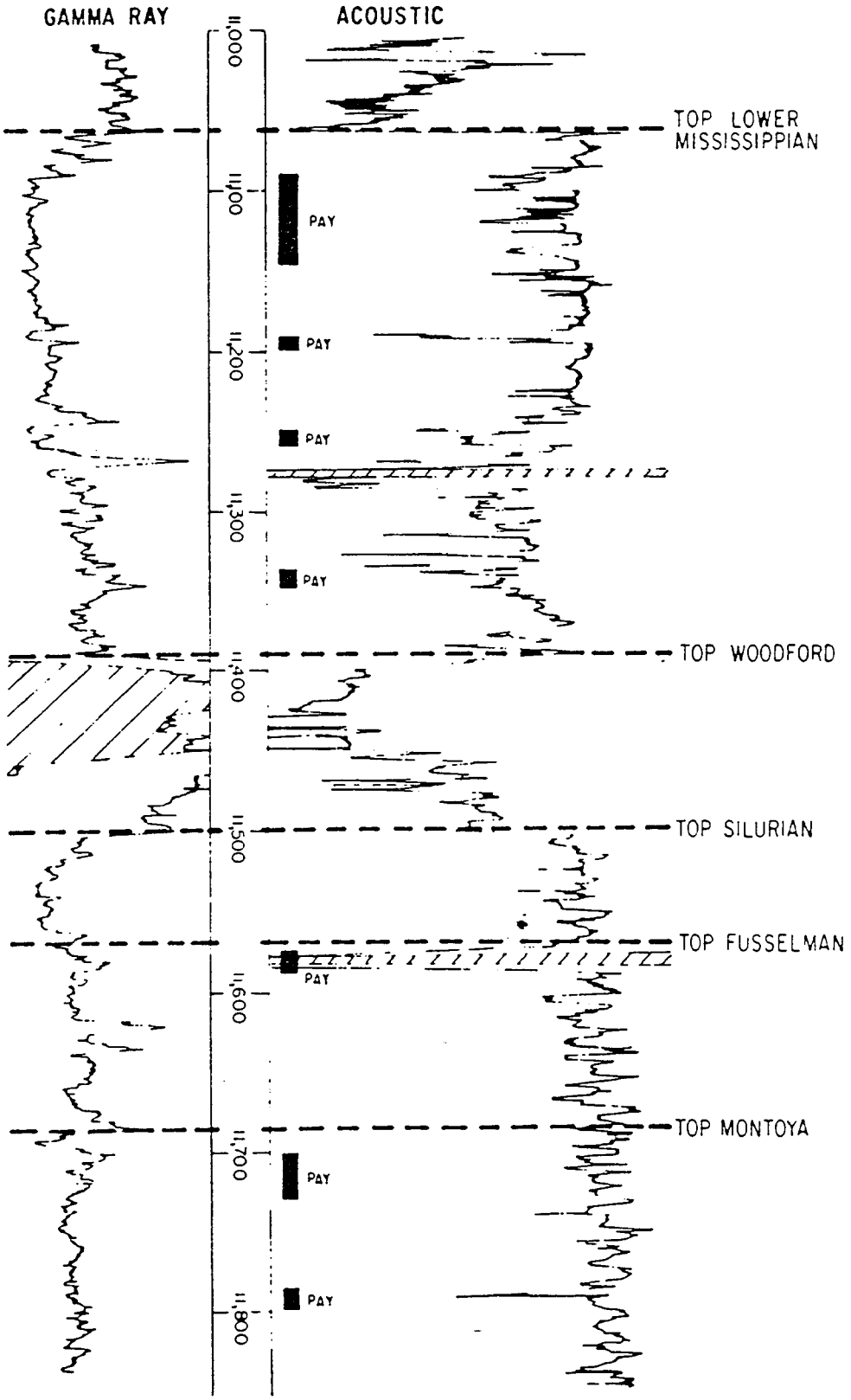
FROM: Pokky, A.H., 1966, Tex-Hamon in OIL & GAS FIELDS IN WEST TEXAS - A SYMPOSIUM: West Texas Geological Society Publication No. 66-52, 1966, p. 352-361.

TYPICAL LOG
TEXACO No. 2 McDOUGAL
TEX-HAMON FIELD
DAWSON COUNTY, TEXAS
SCALE 1 in. = 100 ft.



FROM: Pokky, A.H., 1966, Tex-Hamon in OIL & GAS FIELDS IN WEST TEXAS-A SYMPOSIUM, West Texas Geological Society Pub. No. 66-52, p. 352-61.

TYPICAL LOG
TEXACO No.1 PAINTER
TEX-HAMON FIELD
DAWSON COUNTY, TEXAS
SCALE 1 in. = 100 ft.



FROM: Pokky, A.H., 1966: West Texas Geological Society Pub. No. 66-52, p. 352-61.

Three Bar
Devonian
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Andrews
1, 2	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1, 2	FIELD	Three Bar
1, 2	RESERVOIR	Devonian
1, 5	GEOLOGIC AGE	Devonian
1	AAPG STRATIGRAPHIC AGE CODE	340
5a, 1	RESERVOIR LITHOLOGY	limestone; dolomite
1	TRAPPING MECHANISM	structural plus stratigraphic-unconformity
2, 3, 1	DISCOVERY YEAR	2-45, 1945
1, 2, 16c	PROVED ACREAGE	100, 5400, 1700
1	REGULAR WELL SPACING (acres/well)	80
1, 2, 3	RESERVOIR DEPTH	8385
	RESERVOIR THICKNESS	
1, 2	NET PAY	55, 70
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2, 1	FRACTION	.199
	PERMEABILITY	
	RANGE	
2, 1	AVERAGE	54 md
	HORIZONTAL	
	VERTICAL	
5a, 3	OTHER INFORMATION	minor production from San Andres and Wichita.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	36P-1I; 101 (45 P-56I)
1	PRODUCTION 1976 oil (cum)	31,174
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	34,220 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	840.8 mbbls, 749.0 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
1, 2	FIELD:	Three Bar
	RESERVOIR:	Devonian
2, 1, 16c	PROD. ACRES:	5400, 100, 1700
2, 1	AVG. THICKNESS (FT.):	70, 55
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.6
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.475 (72)
1	WATER SATURATION (S_W):	.30
16c	OIL SATURATION (S_O):	.70 (72)
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
16c, 17	TEMPERATURE (°F):	120, 133
17; 16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	15,739; 2449
1, 2	RESERVOIR PRESSURE INITIAL (psi):	3214
2	RESERVOIR PRESSURE LATEST (psi):	1733
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	669
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	6666 (76)
1, 2, 3	STOCK TANK OIL GRAVITY (°API):	41.0
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1647
2	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	no estimate
2	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	no estimate

1 OTHER INFORMATION: Primary recoverable: 85 bbl/acre-ft

16c Oil saturation: .50 (59)
.63 (61)
.64 (64)
.70 (71)
.70 (72)

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Three Bar RESERVOIR: Devonian TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	1151				
1977 PROD. (this project):	1206				
CUM. PROD. FROM DISC. TO 1/78:	16741				
PROJECT NO.	F-1604				
LEASE NO.(s):	06783				
OPERATOR:	Amoco				
RESERVOIR:	Devonian				Devonian
DEPTH PRODUCING ZONE:	8385				8385
PRODUCTIVE ACREAGE IN RESERVOIR:	5400				100
ACREAGE IN PROJECT:	3470				3470
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW, BW, FW, gas				WF
PATTERN:	LD				
YEAR BEGAN:	WF/5-61; FW/3-70; gas 11-52				1960
YEAR TERMINATED OR STATUS:	WF-ICP; FW-ITD; gas-IPD/12-70				
RESERVOIR PRESSURE INITIAL:	3214				3214
BEG. INJECTION:	1640				
LATEST:	1733				
NUMBER OF WELLS TOTAL:	101				
PRODUCING WELLS:	45				36
INJECTION WELLS:	28 SW				1
MAXIMUM:	28 FW				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	0				
SURFACE INJECTION PRESSURE:	1100, 1100, 1100				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	-				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-				
FROM BEG. INJECTION:	-				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-				
WATER PRODUCTION:					
CURRENT (1977):	3086				
CUMULATIVE TO 1/78:	14673				
CURRENT (1977) INJECTION:	2857 SW, 2919 BW, 435 FW, 0 gas				
CUMULATIVE INJECTION:	11035 SW, 17924 BW, 17792 FW, 64937 gas				

Todd-Deep
Crinoidal-Strawn
Reagan Uplift

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Crockett
1, 2	REGULATORY DISTRICT	7C
1	BASIN	Permian
15	SUB-BASIN	Reagan Uplift
1, 2	FIELD	Todd-Deep
1, 2, 7	RESERVOIR	Crinoidal-Strawn
1, 5	GEOLOGIC AGE	Pennsylvanian Missouri
1	AAPG STRATIGRAPHIC AGE CODE	323
7, 1	RESERVOIR LITHOLOGY	Crinoidal reef limestone; limestone
7	TRAPPING MECHANISM	trap is a reef protuberance on the west flank of a large dome in the Ordovician Ellenburger.
1, 2, 3	DISCOVERY YEAR	1940, 4-40, 1940
2, 1	PROVED ACREAGE	1894, 1742
1	REGULAR WELL SPACING (acres/well)	40
2, 3, 1	RESERVOIR DEPTH	5678, 5778, 5778
	RESERVOIR THICKNESS	
2, 1, 16c	NET PAY	80, 50, 115
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2, 1	FRACTION	.117, .12
	PERMEABILITY	
	RANGE	
2, 1	AVERAGE	4, 13 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	another reservoir is the Ellenburger
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	26P-1I; 38 (25P-8I-5A)
1	PRODUCTION 1976 oil (cum)	26,995
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	29,437.3 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	792.2 mbbls, 441.0 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Todd-Deep
1,2,7	RESERVOIR:	Crinoidal-Strawn
2,1	PROD. ACRES:	1894, 1742
2,1,16c	AVG. THICKNESS (FT.):	80, 50, 115
1, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.328, 1.3275 (55)
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.19
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	163
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2743
2, 1	RESERVOIR PRESSURE INITIAL (psi):	2639
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	578.3 (76)
2,3,1	STOCK TANK OIL GRAVITY (°API):	41.1, 40.0, 40
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	2018
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	117,500 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	25,269 mbbls

OTHER INFORMATION:

16c ORIGINAL OIL IN PLACE: 120,000,000 bbl

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Todd-Deep RESERVOIR: Crinoidal-Strawn TOTAL NO. PROJECTS: 1 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	1030				
1977 PROD. (this project):	885				
CUM. PROD. FROM DISC. TO 1/78:	24683				
PROJECT NO.	F-1083				
LEASE NO.(s):	02014				
OPERATOR:	Conoco				
RESERVOIR:	Crinoidal				Crinoidal
DEPTH PRODUCING ZONE:	5678				5778
PRODUCTIVE ACREAGE IN RESERVOIR:	1898				1742
ACREAGE IN PROJECT:	1894				1742
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW				PM
PATTERN:	LD				
YEAR BEGAN:	7-50				1950
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2639				2639
BEG. INJECTION:	1800				
LATEST:	-				
NUMBER OF WELLS TOTAL:	38				
PRODUCING WELLS:	25				26
INJECTION WELLS:	8				1
MAXIMUM:	-				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	5				
SURFACE INJECTION PRESSURE:	800				
EFFECTIVENESS OF INJECTION:	-				
OPERATOR PROBLEMS:	CR, EW, SC, PA				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	885				
FROM BEG. INJECTION:	5045				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	10192				
WATER PRODUCTION:					
CURRENT (1977):	5875				
CUMULATIVE TO 1/78:	34048				
CURRENT (1977) INJECTION:	7194 SW				
CUMULATIVE INJECTION:	59871 SW				

Todd-Deep
Ellenburger
Reagan Uplift

DATA SOURCE CODE		
	STATE	Texas
1, 5a	COUNTY	Crockett
1, 5a	REGULATORY DISTRICT	7C
1, 5a	BASIN	Permian
15	SUB-BASIN	Reagan Uplift
1, 5a	FIELD	Todd-Deep
1, 5a	RESERVOIR	Ellenburger
1, 5	GEOLOGIC AGE	Ordovician
1	AAPG STRATIGRAPHIC AGE CODE	364
1, 5a	RESERVOIR LITHOLOGY	Dolomite
	TRAPPING MECHANISM	
3, 1	DISCOVERY YEAR	3-1940, 1940
1, 16c	PROVED ACREAGE	600, 2600
1	REGULAR WELL SPACING (acres/well)	40
1, 3	RESERVOIR DEPTH	6232
	RESERVOIR THICKNESS	
1, 16c	NET PAY	88, 154
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1	FRACTION	.09
	PERMEABILITY	
	RANGE	
1	AVERAGE	5 md
	HORIZONTAL	
	VERTICAL	
2, 3	OTHER INFORMATION	another reservoir is the crinoidal.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	46P
1	PRODUCTION 1976 oil (cum)	39,585
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	40,258.1 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	198.4 mbbls, 116.4 mmcf
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Todd-Deep
1, 5a	RESERVOIR:	Ellenburger
1, 16c	PROD. ACRES:	600, 2600
1, 16c	AVG. THICKNESS (FT.):	88, 154
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.32
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_w):	.342
	OIL SATURATION (S_o):	
1	PRIMARY DRIVE MECHANISM:	waterdrive
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	136
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	5713
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	2000
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1890.7 (76), 1891
1, 3	STOCK TANK OIL GRAVITY (°API):	40
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1687
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

1 OTHER INFORMATION: Primary recoverable: 155 bbl/acre-ft

Townsend
Wolfcamp
Tatum Basin

DATA SOURCE CODE		
	STATE	New Mexico
1,6a	COUNTY	Lea
1	REGULATORY DISTRICT	Southeast
1,6a	BASIN	Permian
15	SUB-BASIN	Tatum Basin
1,6a	FIELD	Townsend
1,6a	RESERVOIR	Wolfcamp
1,6	GEOLOGIC AGE	Wolfcamp
1	AAPG STRATIGRAPHIC AGE CODE	319
1,6a	RESERVOIR LITHOLOGY	Crystalline limestone
6a,1	TRAPPING MECHANISM	Stratigraphic trap; lateral change in porosity and permeability.
1,6a	DISCOVERY YEAR	5-52
6a,1	PROVED ACREAGE	2480, 120
	REGULAR WELL SPACING (acres/well)	
6a,1	RESERVOIR DEPTH	10400 - 10700; 10410
1	RESERVOIR THICKNESS	29' avg.
	NET PAY	
6a	GROSS	<100'
	NET/GROSS RATIO	
	POROSITY	
6a,1	TYPE	IC-V
6a,1	FRACTION	.089, .084
	PERMEABILITY	
	RANGE	
1	AVERAGE	38 md
6a	HORIZONTAL	38 md
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	53 Total, 26 pump, 5 flow, 12 gas lift 10 shut-in; 42P, 58 S-I.
1	PRODUCTION 1977 oil (cum)	18,403
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	18,786
	PRODUCTION 1-1-79 to 1-1-80	
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6a	STRUCTURE CONTOUR?	yes
6a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Townsend
1, 6a	RESERVOIR:	Wolfcamp
1, 6a	PROD. ACRES:	120, 2480
1	AVG. THICKNESS (FT.):	29
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.85
	FORMATION VOLUME FACTOR LATEST (FVF):	
6a	WATER SATURATION (S_W):	N/A
6a	OIL SATURATION (S_O):	N/A
1, 6a	PRIMARY DRIVE MECHANISM:	dissolved gas
	PRIMARY GAS CAP?:	
1, 17	TEMPERATURE (°F):	156; (GG=.79)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	8105
1, 6a	RESERVOIR PRESSURE INITIAL (psi):	3950
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	886
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	2736
1, 6a	STOCK TANK OIL GRAVITY (°API):	40
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1932
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

WATER ANALYSIS RECORD

FIELD: Townsend RESERVOIR: Wolfcamp TOTAL NO. PROJECTS:

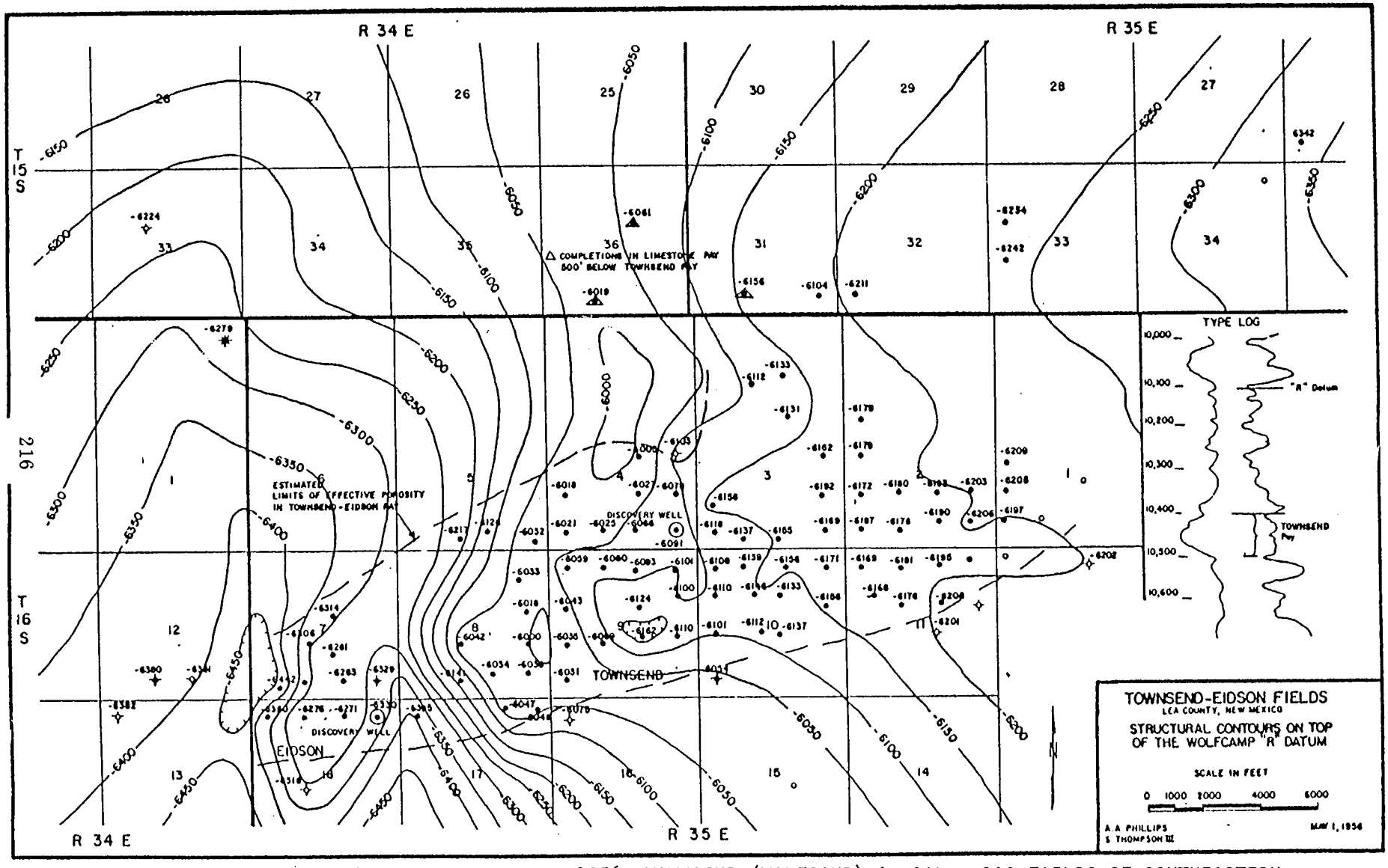
DATA SOURCE: 6a, 1

TOTAL SOLIDS (ppm):	114,851
NA	37,002
Ca	5,529
Mg	1,354
Fe	
SO_4	352
Cl	70,400
CO_2	
HCO_3	214
OH	
H_2S	

RESISTIVITY:

SPECIFIC GRAVITY:

OTHER WATER QUALITY DATA:



FROM: Phillips, A., and Thompson, S., III., 1956, TOWNSEND (WOLFCAMP) in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO: Roswell Geological Society Symposium, Source 6a.

Tubb
Tubb
Central Basin Platform

DATA SOURCE CODE		
	STATE----------	New Mexico
1	COUNTY----------	Lea
1	REGULATORY DISTRICT----------	Southeast
1	BASIN----------	Permian
15	SUB-BASIN----------	Central Basin Platform
1	FIELD----------	Tubb
1	RESERVOIR----------	Tubb
1, 6	GEOLOGIC AGE----------	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE----------	318
1	RESERVOIR LITHOLOGY----------	Dolomite
	TRAPPING MECHANISM----------	
1	DISCOVERY YEAR----------	1956
1	PROVED ACREAGE----------	640
	REGULAR WELL SPACING (acres/well)-----	
	RESERVOIR DEPTH----------	6105
1	RESERVOIR THICKNESS	72' avg.
	NET PAY----------	
	GROSS----------	
	NET/GROSS RATIO----------	
	POROSITY	
	TYPE----------	
1	FRACTION----------	.19
	PERMEABILITY	
	RANGE----------	
1	AVERAGE----------	5 md
	HORIZONTAL----------	
	VERTICAL----------	
	OTHER INFORMATION----------	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS----------	216 Total, 44 pump, 152 flow, 20 shut-in; 55P
1	PRODUCTION 1977 oil (cum)----------	1734
	PRODUCTION 1978 oil (cum)----------	
18	PRODUCTION 1979 oil (cum)----------	5951
	PRODUCTION 1-1-79 to 1-1-80----------	
	SECONDARY RECOVERY RECORDS?----------	
	WATER ANALYSIS RECORDS?----------	
	OTHER DATA	
	STRUCTURE CONTOUR?----------	
	LOGS?----------	
	STRUCTURE SECTION?----------	
	ENGINEERING REPORTS?----------	
	CORE DESCRIPTIONS?----------	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Tubb
1	RESERVOIR:	Tubb
1	PROD. ACRES:	640
1	AVG. THICKNESS (FT.):	72
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	solution gas
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	135 (GG=1.0)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	39696
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	18198
1	STOCK TANK OIL GRAVITY (°API):	35
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1683
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

Twin
Des Moines
Anadarko

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Hansford (M) and Ochiltree
1	REGULATORY DISTRICT	10
1	BASIN	Anadarko
1	SUB-BASIN	Anadarko
1	FIELD	Twin
1	RESERVOIR	Des Moines
1, 8b	GEOLOGIC AGE	Pennsylvanian, Des Moines
1	AAPG STRATIGRAPHIC AGE CODE	325
1	RESERVOIR LITHOLOGY	limestone
1	TRAPPING MECHANISM	stratigraphic-lateral porosity/ permeability change plus monocline.
1, 3	DISCOVERY YEAR	1956, 6-56
	PROVED ACREAGE	
1	REGULAR WELL SPACING (acres/well)	80
1, 3	RESERVOIR DEPTH	6135
	RESERVOIR THICKNESS	
1	NET PAY	38
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1	FRACTION	.06
	PERMEABILITY	
	RANGE	
1	AVERAGE	7 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from Cherokee and Morrow
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	96P
1	PRODUCTION 1976 oil (cum)	7674
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	7,791.8 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	34.4 mbbls; 280.1 mmcf
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
1, 2	FIELD:	Twin
	RESERVOIR:	Des Moines
	PROD. ACRES:	
1	AVG. THICKNESS (FT.):	38
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	gas cap
1	PRIMARY GAS CAP?:	yes
17	TEMPERATURE (^oF):	142 (GG= 1.1)
1	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	8080
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	6942
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	3005.6 (76), 3006
1	STOCK TANK OIL GRAVITY (^oAPI):	41.8
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1754
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

Twin
Morrow
Anadarko Basin

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Hansford
2	REGULATORY DISTRICT	10
2	BASIN	Permian
1	SUB-BASIN	Anadarko
2	FIELD	Twin
2	RESERVOIR	Morrow
8b	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	326
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2, 3	DISCOVERY YEAR	10-54
2	PROVED ACREAGE	700
	REGULAR WELL SPACING (acres/well)	
2, 3	RESERVOIR DEPTH	7082, 7058
	RESERVOIR THICKNESS	
2	NET PAY	25
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.145
	PERMEABILITY	
	RANGE	
2	AVERAGE	47 md
2	HORIZONTAL	47 md
	VERTICAL	
3	OTHER INFORMATION	other production from Cherokee and Des Moines
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	6P
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	2,660.8 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	9.4 mbbls; 499.3 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Twin
2	RESERVOIR:	Morrow
2	PROD. ACRES:	700
2	AVG. THICKNESS (FT.):	25
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
	TEMPERATURE (^oF):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	2370
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 3	STOCK TANK OIL GRAVITY (^oAPI):	40.2, 39.5
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	6,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	200 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Twin RESERVOIR: Morrow TOTAL NO. PROJECTS: 1

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	-				
1977 PROD. (this project):	-				
CUM. PROD. FROM DISC. TO 1/78:	361				
PROJECT NO.	F-3180				
LEASE NO.(s):	01938				
OPERATOR:	Diamond Shamrock				
RESERVOIR:	Morrow				
DEPTH PRODUCING ZONE:	7082				
PRODUCTIVE ACREAGE IN RESERVOIR:	700				
ACREAGE IN PROJECT:	350				
PORTION OR FIELD WIDE:	-				
TYPE:	PM/gas				
PATTERN:	SW				
YEAR BEGAN:	11-68				
YEAR TERMINATED OR STATUS:	gas-UPD				
RESERVOIR PRESSURE INITIAL:	2370				
BEG. INJECTION:	1600				
LATEST:	-				
NUMBER OF WELLS TOTAL:	-				
PRODUCING WELLS:	6				
INJECTION WELLS:	-				
MAXIMUM:	-				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	-				
SURFACE INJECTION PRESSURE:	-				
EFFECTIVENESS OF INJECTION:	-				
OPERATOR PROBLEMS:	-				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-				
FROM BEG. INJECTION:	-				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-				
WATER PRODUCTION:					
CURRENT (1977):	-				
CUMULATIVE TO 1/78:	-				
CURRENT (1977) INJECTION:	3021 gas				
CUMULATIVE INJECTION:	-				

TXL
Tubb
Central Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Ector
	REGULATORY DISTRICT	8
	BASIN	Permian
12c, 15	SUB-BASIN	Central Basin Platform
2	FIELD	TXL
2	RESERVOIR	Tubb
5	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
12c	RESERVOIR LITHOLOGY	Dolomitic limestone-compact to finely saccharoidal, porous.
12c	TRAPPING MECHANISM	anticlinal fold
2, 3	DISCOVERY YEAR	12-50
2, 12c	PROVED ACREAGE	81400 north unit, 16400 south unit; 1500
	REGULAR WELL SPACING (acres/well)	7920 + 9260(2SRPs) = 17180 proved acres
2, 3, 12c	RESERVOIR DEPTH	5600 & 6100 NU, 6158 SU; 6158; 6001
	RESERVOIR THICKNESS	
2	NET PAY	57 avg, range 55 to 59
12c	GROSS	220
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.115 avg., range .09 to .14
	PERMEABILITY	
	RANGE	
2	AVERAGE	1 md
2	HORIZONTAL	1 md
	VERTICAL	
3	OTHER INFORMATION	production also from Ellenburger (126,197.4 mbbls cum.), Central Waddell, Upper Clear Fork, Devonian, McKee, Montova, Pennsylvanian, San Andres, Silurian, Waddell, Wichita-Albany, Wolfcamp.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	512 (365P-57I-90A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
	PRODUCTION 1979 oil (cum)	33,480.4 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	724.9 mbbls, 2,097.5 mmcf
3	SECONDARY RECOVERY RECORDS?	yes
2	WATER ANALYSIS RECORDS?	yes
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
12c	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	TXL
2, 12c	RESERVOIR:	Tubb
2	PROD. ACRES:	81,400, 1500
	AVG. THICKNESS (FT.):	59
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
	TEMPERATURE (^oF):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	2450
2	RESERVOIR PRESSURE LATEST (psi):	1390
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,12c	STOCK TANK OIL GRAVITY (^oAPI):	35.0, 40.0, 37.2
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	191,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	19,300 mbbls

12c OTHER INFORMATION: Reference:

Cooper, C. G. and Ferris, B.J., 1954, TXL Field in Occurrence of Oil and Gas in West Texas : University of Texas, Bureau of Economic Geology, Pub. No. 5716, pp. 358-368.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: TXL RESERVOIR: Tubb TOTAL NO. PROJECTS: 2

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	380	392			
1977 PROD. (this project):	394	690			
CUM. PROD. FROM DISC. TO 1/78:	10292	6726			
PROJECT NO.	F-1598	F-1600			
LEASE NO.(s):	20487	20726			
OPERATOR:	Shell	Texaco			
RESERVOIR:	Tubb	Tubb			
DEPTH PRODUCING ZONE:	5600 & 6100	6158			
PRODUCTIVE ACREAGE IN RESERVOIR:	81400	16400			
ACREAGE IN PROJECT:	7920	9260			
PORTION OR FIELD WIDE:	FW	FW			
TYPE:	WF, BW	WF/SW, BW			
PATTERN:	LD	LD			
YEAR BEGAN:	4-68	11-68			
YEAR TERMINATED OR STATUS:	ICP	ICP			
RESERVOIR PRESSURE INITIAL:	2330	2600			
BEG. INJECTION:	1600	675			
LATEST:	-	1390			
NUMBER OF WELLS TOTAL:	239	273			
PRODUCING WELLS:	118	247			
INJECTION WELLS:	31	13 SW			
MAXIMUM:	-	13 BW			
LATEST:	-	-			
SHUT-IN/ABANDONED WELLS:	90	-			
SURFACE INJECTION PRESSURE:	1350	824			
EFFECTIVENESS OF INJECTION:	ME	-			
OPERATOR PROBLEMS:	SC, IP, PI	-			
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	394	-			
FROM BEG. INJECTION:	1320				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	7100				
WATER PRODUCTION:					
CURRENT (1977):	381	607			
CUMULATIVE TO 1/78:	2894	8883			
CURRENT (1977) INJECTION:	9705 BW	607 SW, 1351 BW			
CUMULATIVE INJECTION:	64806 BW	6183 SW, 1351 BW			

TXL
Ellenburger
Central Basin Platform

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Ector
	REGULATORY DISTRICT	8
1, 7	BASIN	Permian
12c, 15	SUB-BASIN	Central Basin Platform
1, 7	FIELD	TXL
1, 7	RESERVOIR	Ellenburger
1, 5	GEOLOGIC AGE	Ordovician
1	AAPG STRATIGRAPHIC AGE CODE	364
7, 12c, 1	RESERVOIR LITHOLOGY	crystalline Dolomite-Devonian in stream channel fill-in is weathered chert; dolomite.
12c	TRAPPING MECHANISM	anticlinal fold terminated by faulting in south part of field.
3, 1, 12c	DISCOVERY YEAR	5-1949, 1949, 5-1945
12c, 1	PROVED ACREAGE	5900, 560
1	REGULAR WELL SPACING (acres/well)	40
1,,16c,12c	RESERVOIR DEPTH	9600, 9600, 8000, 9250
	RESERVOIR THICKNESS	
1, 16c	NET PAY	240, 150
12c	GROSS	205
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1	FRACTION	.045
	PERMEABILITY	
	RANGE	
1 ,14e	AVERAGE	39 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production in field include: Central Waddell, Upper Clear Fork, Devonian, McKee, Montoya, Pennsylvanian San Andres, Silurian, Tubb, Waddell, Wichita-Albany, Wolfcamp. Data source 14e list as unsuitable for EOR due to H_2O drive and fractures.
14e	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	39P-4I
1	PRODUCTION 1976 oil (cum)	124,347
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	126,197.4 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	444.1 mbbls; 488.1 mmcf
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
12c	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
1	FIELD:	TXL
12c, 1	RESERVOIR:	Ellenburger
1, 16c	PROD. ACRES:	5900, 560
1	AVG. THICKNESS (FT.):	240, 150
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.63
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.15
	OIL SATURATION (S_O):	
1 ,14e	PRIMARY DRIVE MECHANISM:	waterdrive
14e	PRIMARY GAS CAP?:	no
17 ,14e	TEMPERATURE (°F):	160, 138 BHT
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
1 ,	RESERVOIR PRESSURE INITIAL (psi):	4080 ,4065
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1594.8 (76)
1, 3, 12c	STOCK TANK OIL GRAVITY (°API):	44, 44, 44.5
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	0.44 cp
17	MINIMUM MISCIBILITY PRESSURE (MMP):(psia)	1965
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

12c OTHER INFORMATION: Reference:

Cooper, C. G. and Ferris, B. J., 1954, TXL Field in Occurrence of Oil and Gas in West Texas : University of Texas, Bureau of Economic Geology, Pub. No. 5716, pp. 358-368.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: TXL RESERVOIR: Ellenburger TOTAL NO. PROJECTS: 0 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS					
1977 PROD. (this project):					
CUM. PROD. FROM DISC. TO 1/78:					
PROJECT NO.					
LEASE NO.(s):					
OPERATOR:					
RESERVOIR:					Ellenburger
DEPTH PRODUCING ZONE:					9600
PRODUCTIVE ACREAGE IN RESERVOIR:					560
ACREAGE IN PROJECT:					
PORTION OR FIELD WIDE:					
TYPE:					PM
PATTERN:					
YEAR BEGAN:					1951
YEAR TERMINATED OR STATUS:					
RESERVOIR PRESSURE INITIAL:					4080
BEG. INJECTION:					
LATEST:					
NUMBER OF WELLS TOTAL:					
PRODUCING WELLS:					39
INJECTION WELLS:					4
MAXIMUM:					
LATEST:					
SHUT-IN/ABANDONED WELLS:					
SURFACE INJECTION PRESSURE:					
EFFECTIVENESS OF INJECTION:					
OPERATOR PROBLEMS:					
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:					
FROM BEG. INJECTION:					
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:					
WATER PRODUCTION:					
CURRENT (1977):					
CUMULATIVE TO 1/78:					
CURRENT (1977) INJECTION:					
CUMULATIVE INJECTION:					

WATER ANALYSIS RECORD

FIELD: TXL RESERVOIR: Ellenburger TOTAL NO. PROJECTS:

DATA SOURCE:

TOTAL SOLIDS (ppm):	45,572
NA	13,807
Ca	1,713
Mg	577
Fe	
SO_4	93
Cl	25,312
CO_2	0
HCO_3	1,070
OH	
H_2S	

RESISTIVITY:

SPECIFIC GRAVITY:

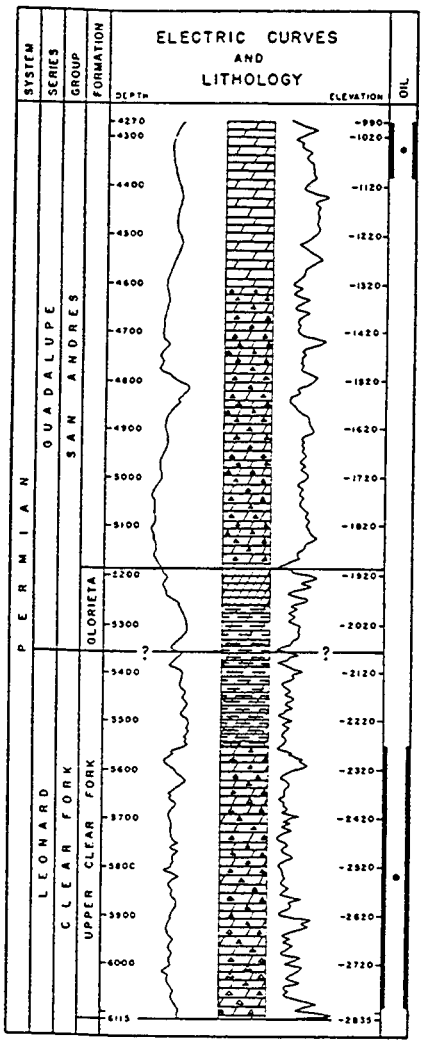
OTHER WATER QUALITY DATA:

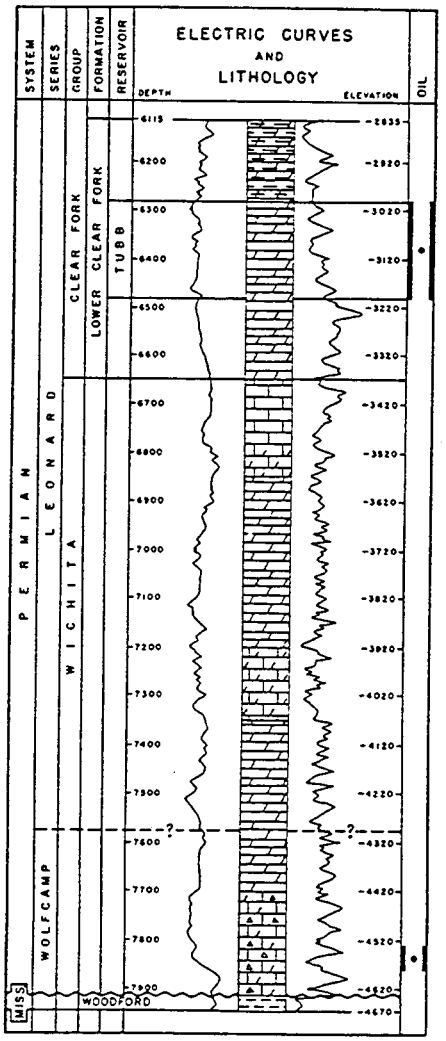
TXL FIELD, Ector County, Texas

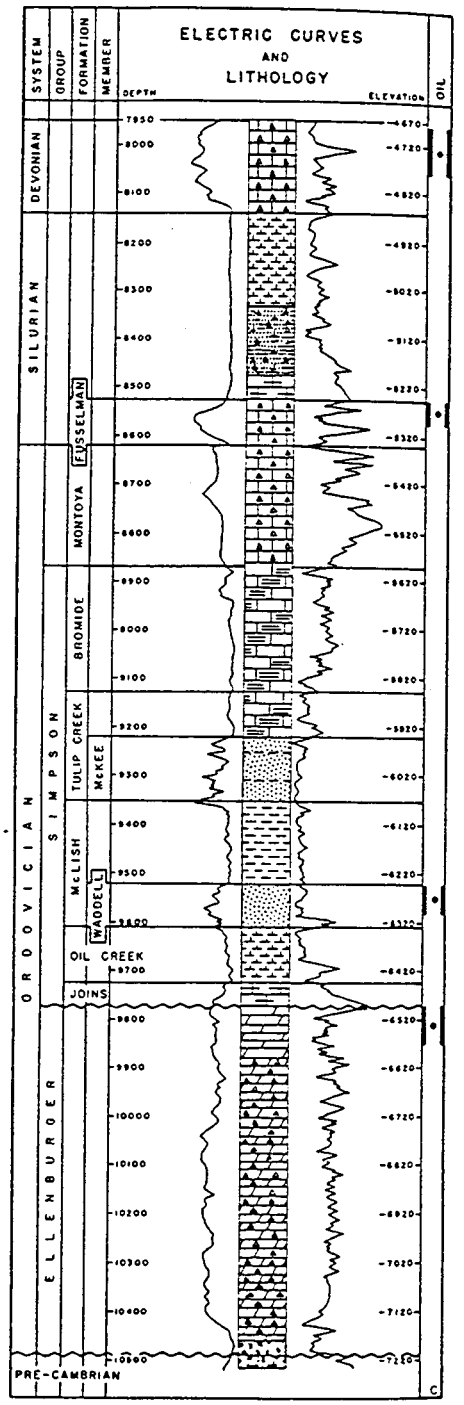
TYPICAL SECTION OF ROCKS PENETRATED

SURFACE FORMATION: Lower Cretaceous limestone

ELEVATION OF SURFACE: Highest, 3,361 feet; lowest, 3,058 feet







DEPTH, ELEVATION AND RELIEF OF PRODUCTIVE ZONES

Free gas is present in only the north closure of the Fusselman North reservoir; there, the gas-oil contact was originally at -4,925 feet with maximum known gas column of 73 feet above that elevation.

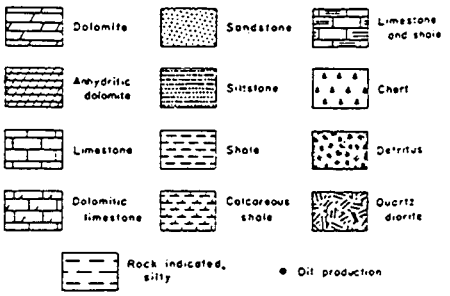
	Top of reservoir at wells				Elevation of oil (feet)		Oil Column (feet)
	Depth (ft. below D.F.)		Elevation (feet)				
	Minimum	Maximum	Highest	Lowest	Top	Bottom	
San Andres	4,260	4,290	-1,023	-1,058	Unknown	Unknown	Unknown
Upper Clear Fork	5,302	5,692	-2,047	-2,441	-2,047	-2,790	743
Tubb	6,001	6,280	-2,902	-3,171	-2,902	-3,175	273
Wolfcamp	7,795		-4,742		-4,742	Unknown	Unknown
Devonian*	7,690	8,090	-4,433	-4,733	-4,433	-4,850	417
Fusselman South	8,300	8,523	-5,050	-5,266	-5,050	-5,380	330
Fusselman North	8,164	8,493	-4,852	-5,153	-4,925	-5,185	260
Ellenburger	9,250		-5,940		-5,940	-6,600§	660
Ellenburger Deep	10,740		-7,475		-7,475	-7,675	200

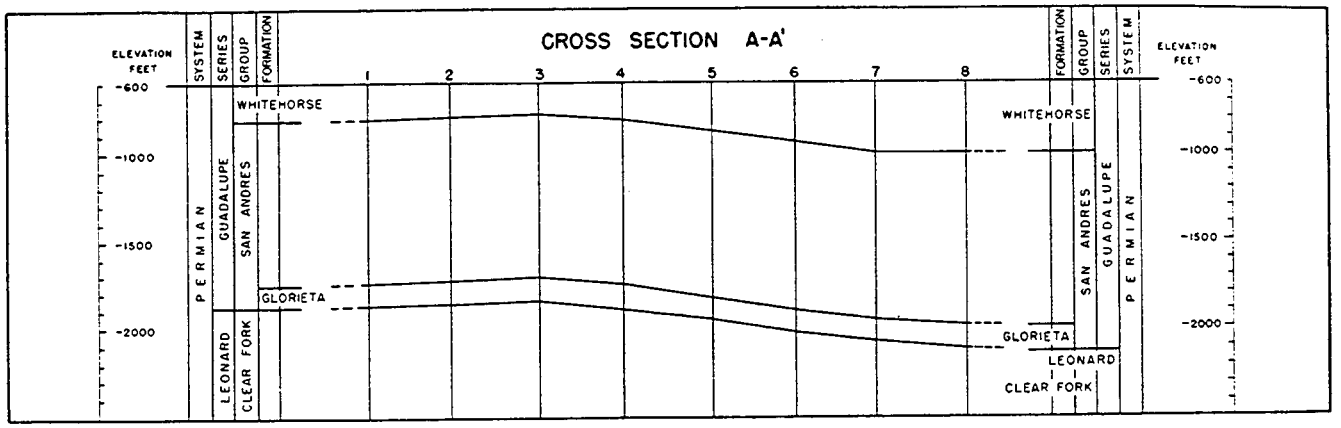
Figures reporting elevation of oil and oil column in the several reservoirs represent conditions at respective discovery dates.

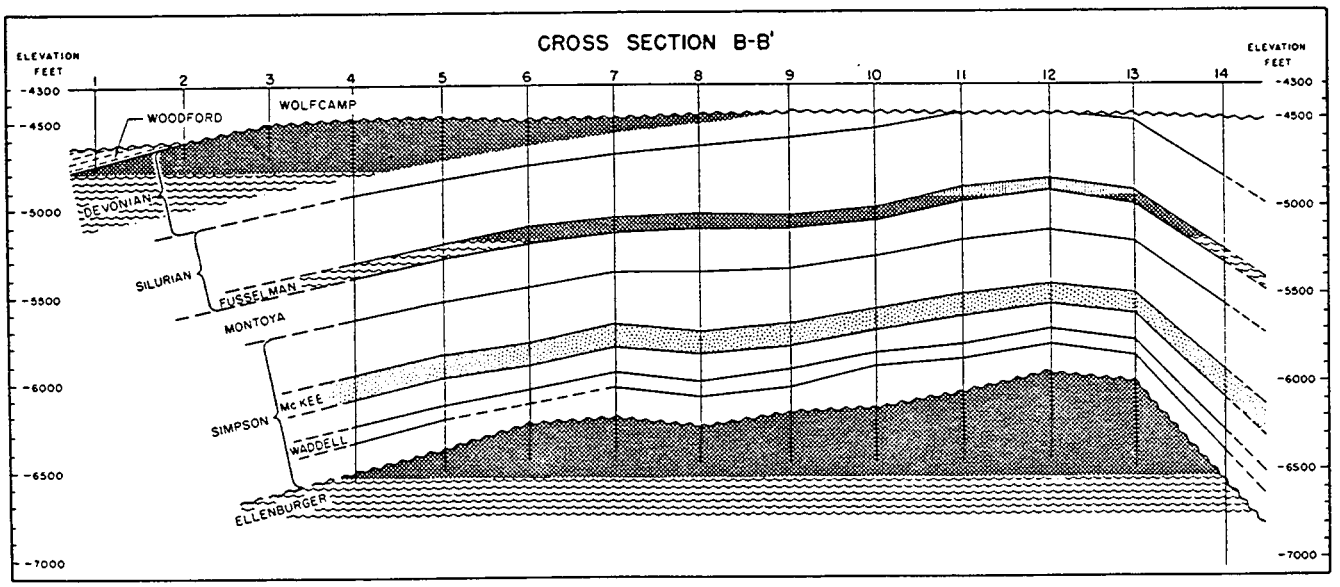
* The difference of 300 feet in the elevations of the top of the Devonian does not represent the proven structural relief since a portion of the Devonian has been eroded off at the higher location.

§ The elevation of the oil-water contact in the Ellenburger reservoir varied through a range of about 60 feet: from -6,540 feet to the extreme of -6,600 feet at the south extent of the Ellenburger productive area.

EXPLANATION




CROSS SECTION A-A'
ELEVATION FEET
SYSTEM
SERIES
GROUP
FORMATION
PERMIAN
GUADALUPE
SAN ANDRES
LEONARD
CLEAR FORK
WHITEHORSE
GLORIETA
-600
-1000
-1500
-2000
1
2
3
4
5
6
7
8


CROSS SECTION B-B'
ELEVATION FEET
WOODFORD
WOLFCAMP
DEVONIAN
SILURIAN
FUSSELMAN
MONTOYA
SIMPSON
McKEE
WADDELL
ELLENBURGER
-4300
-4500
-5000
-5500
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-7000
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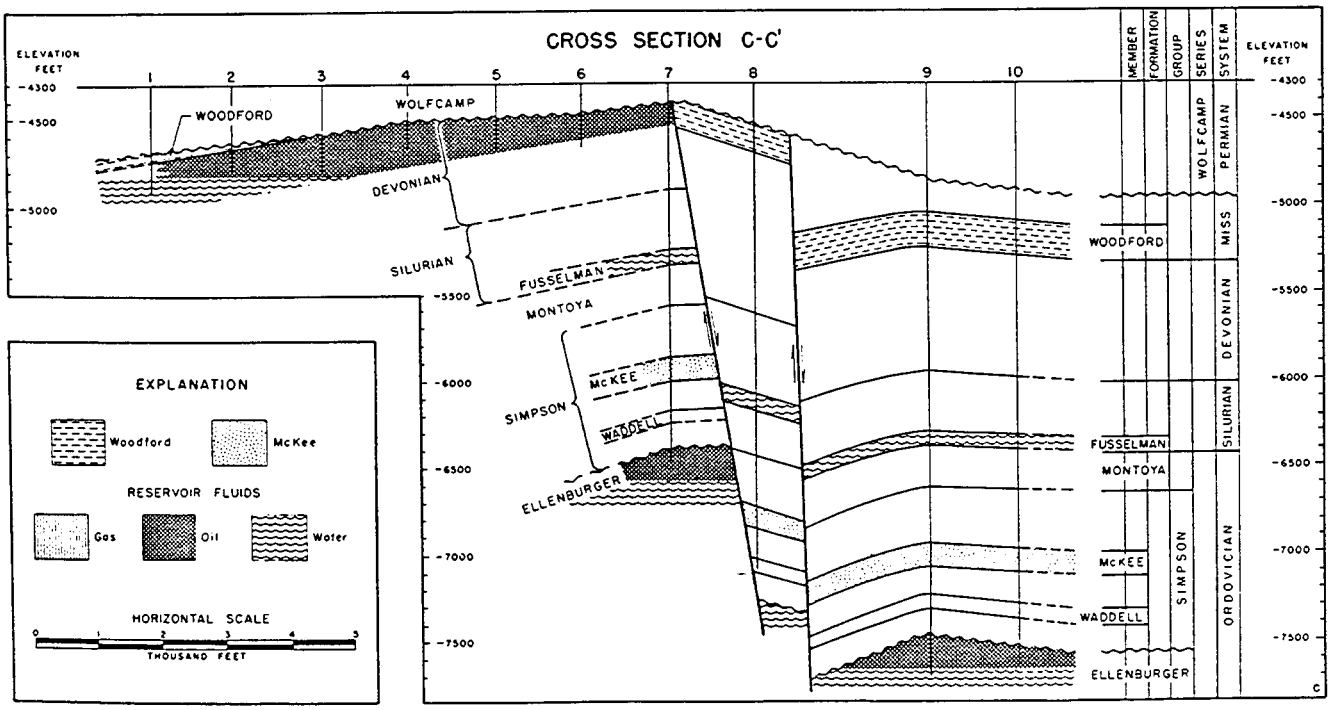
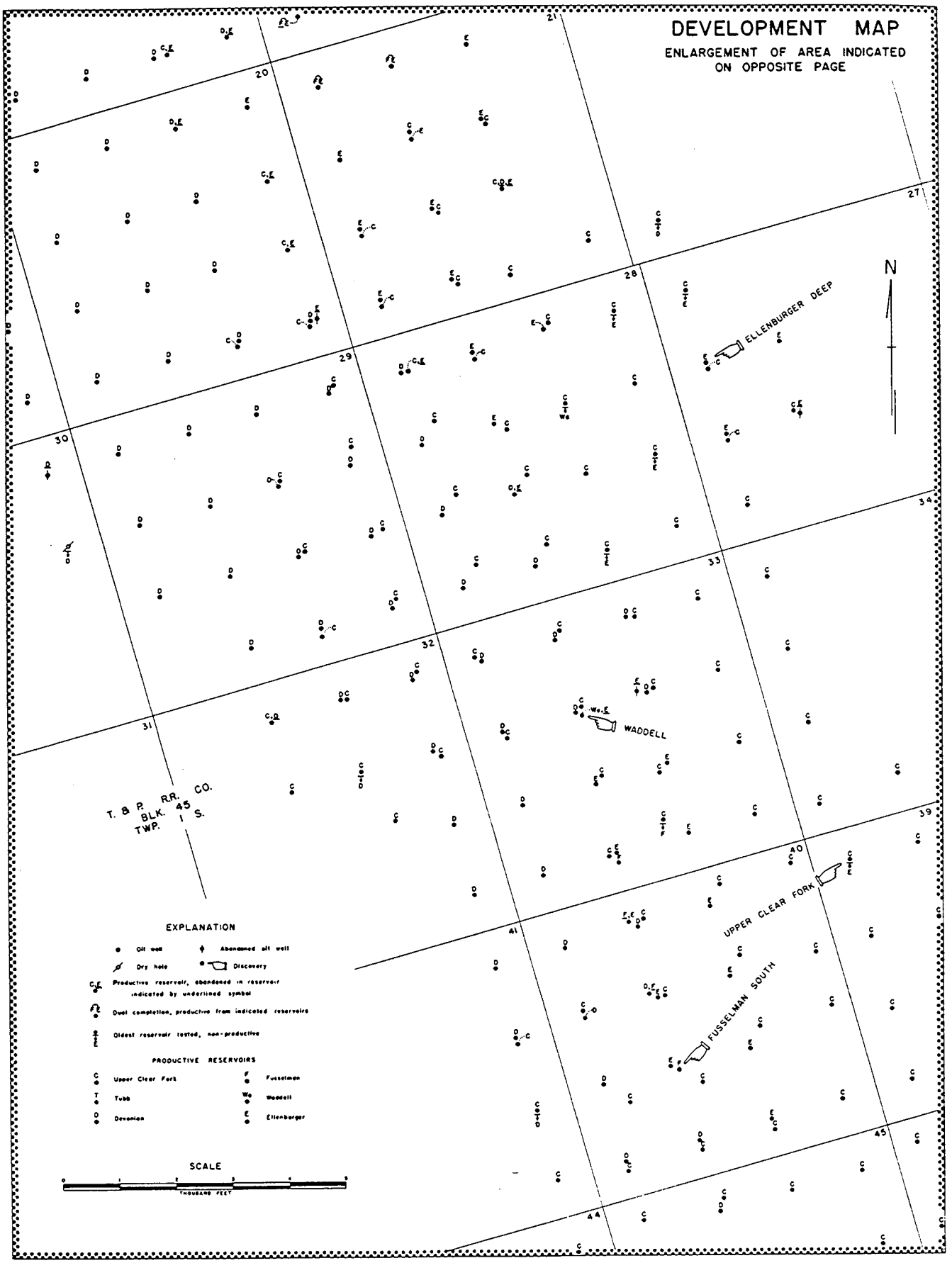
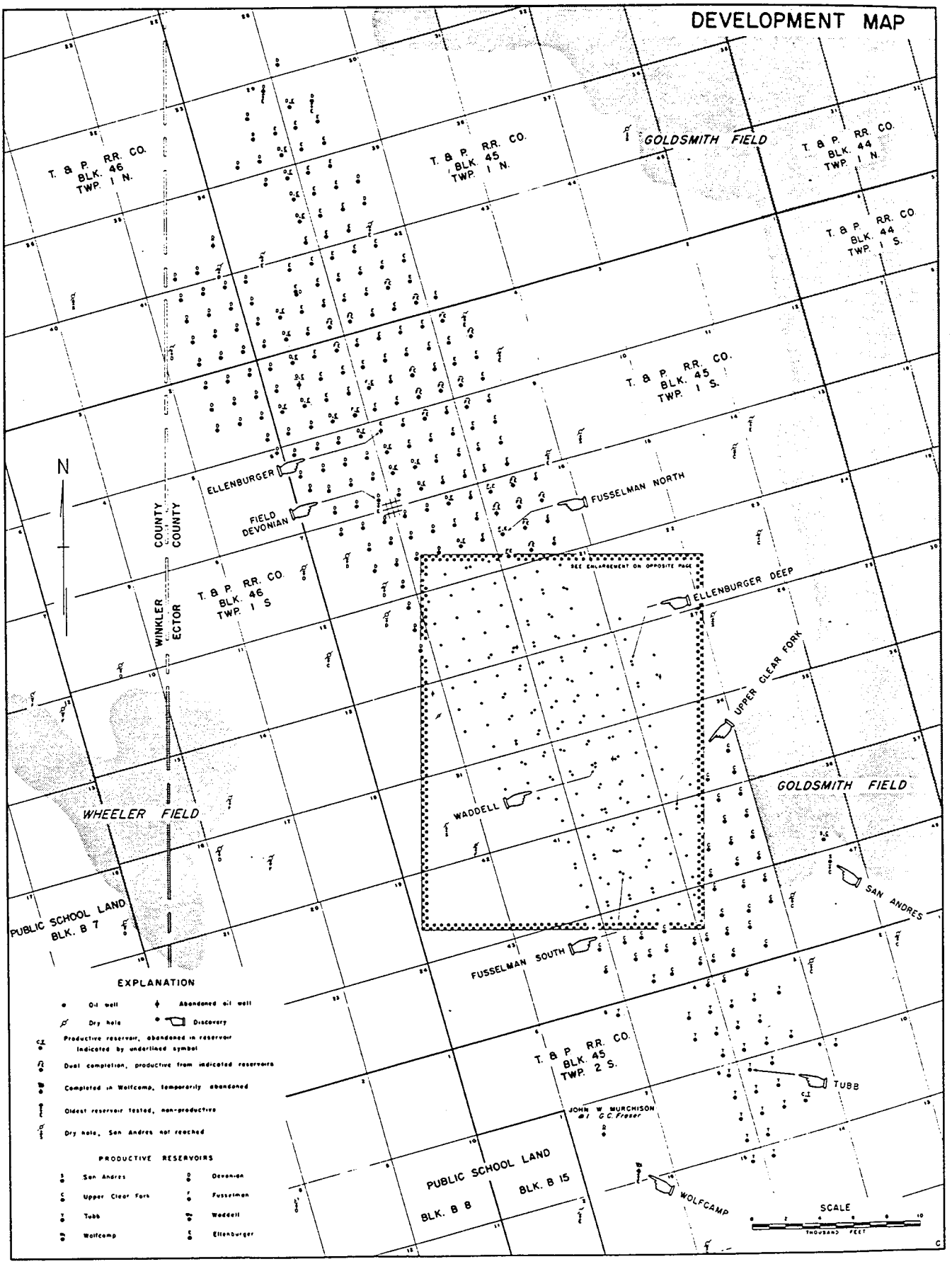
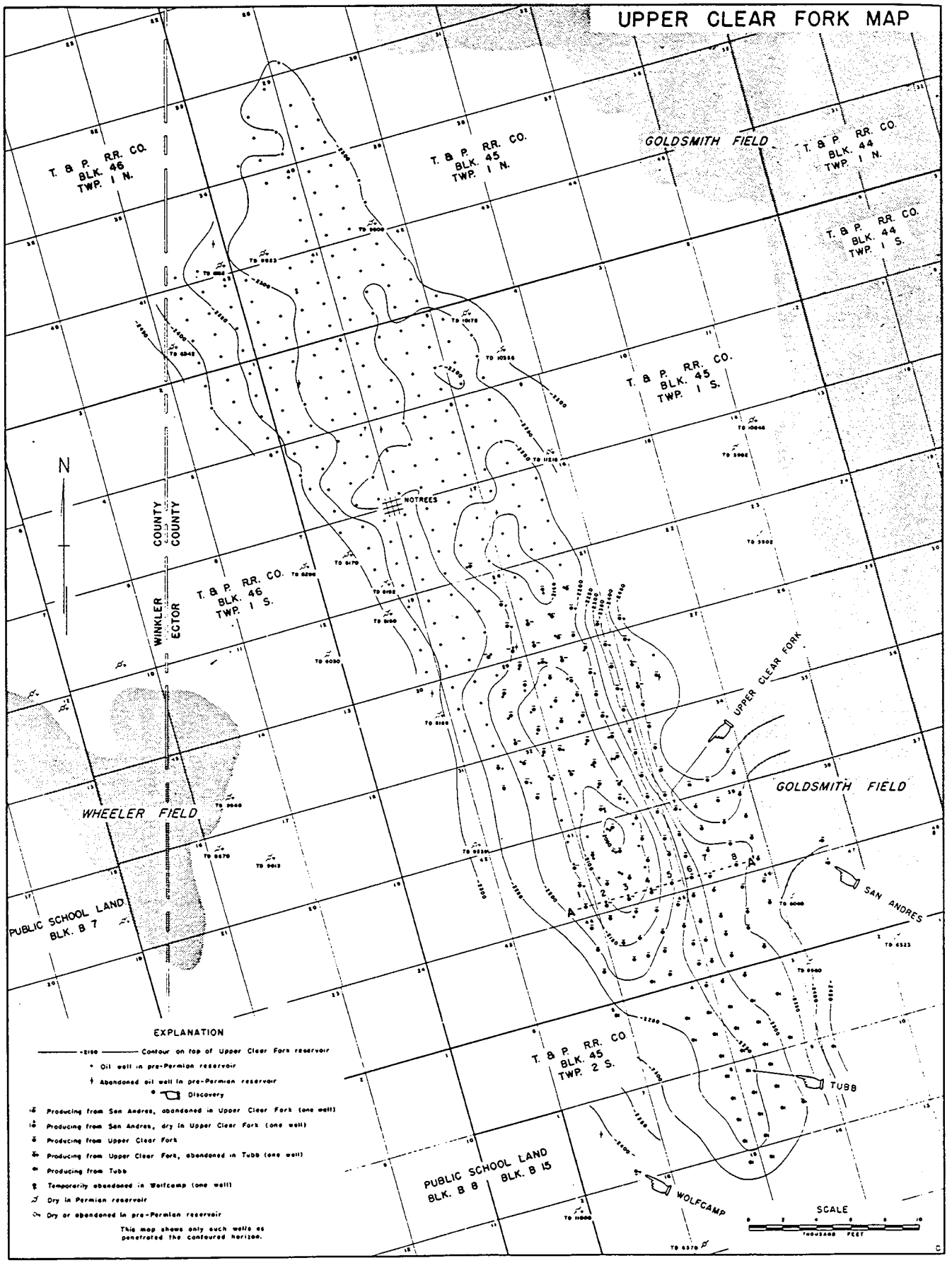
9
10
11
12
13
14

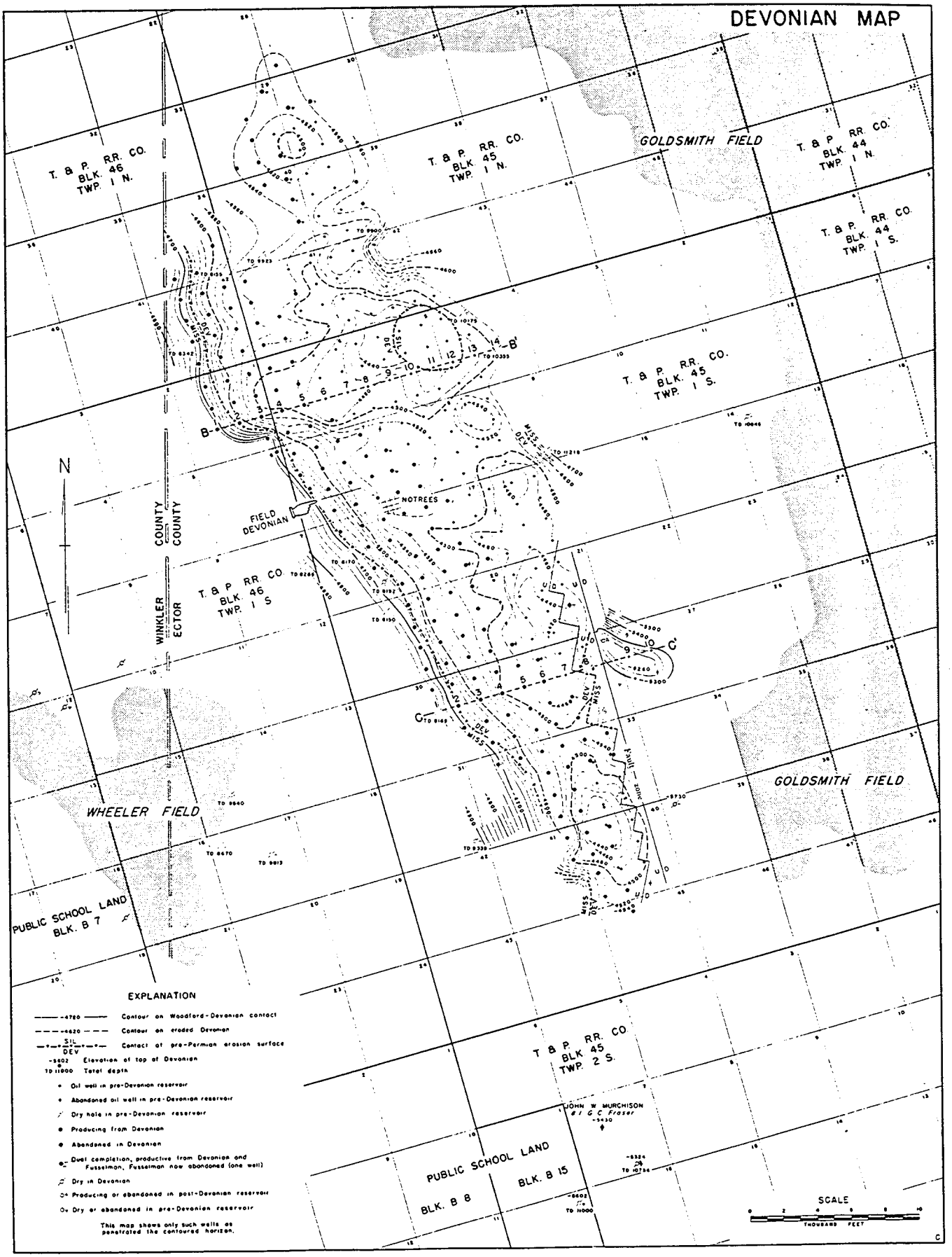

CROSS SECTION C-C'
ELEVATION FEET
WOODFORD
WOLFCAMP
DEVONIAN
SILURIAN
FUSSELMAN
MONTOYA
SIMPSON
McKEE
WADDELL
ELLENBURGER
-4300
-4500
-5000
-5500
-6000
-6500
-7000
-7500
1
2
3
4
5
6
7
8
9
10
MEMBER
FORMATION
GROUP
SERIES
SYSTEM
WOLFCAMP
PERMIAN
MISS
DEVONIAN
SILURIAN
ORDOVICIAN
EXPLANATION
Woodford
McKee
RESERVOIR FLUIDS
Gas
Oil
Water
HORIZONTAL SCALE
THOUSAND FEET

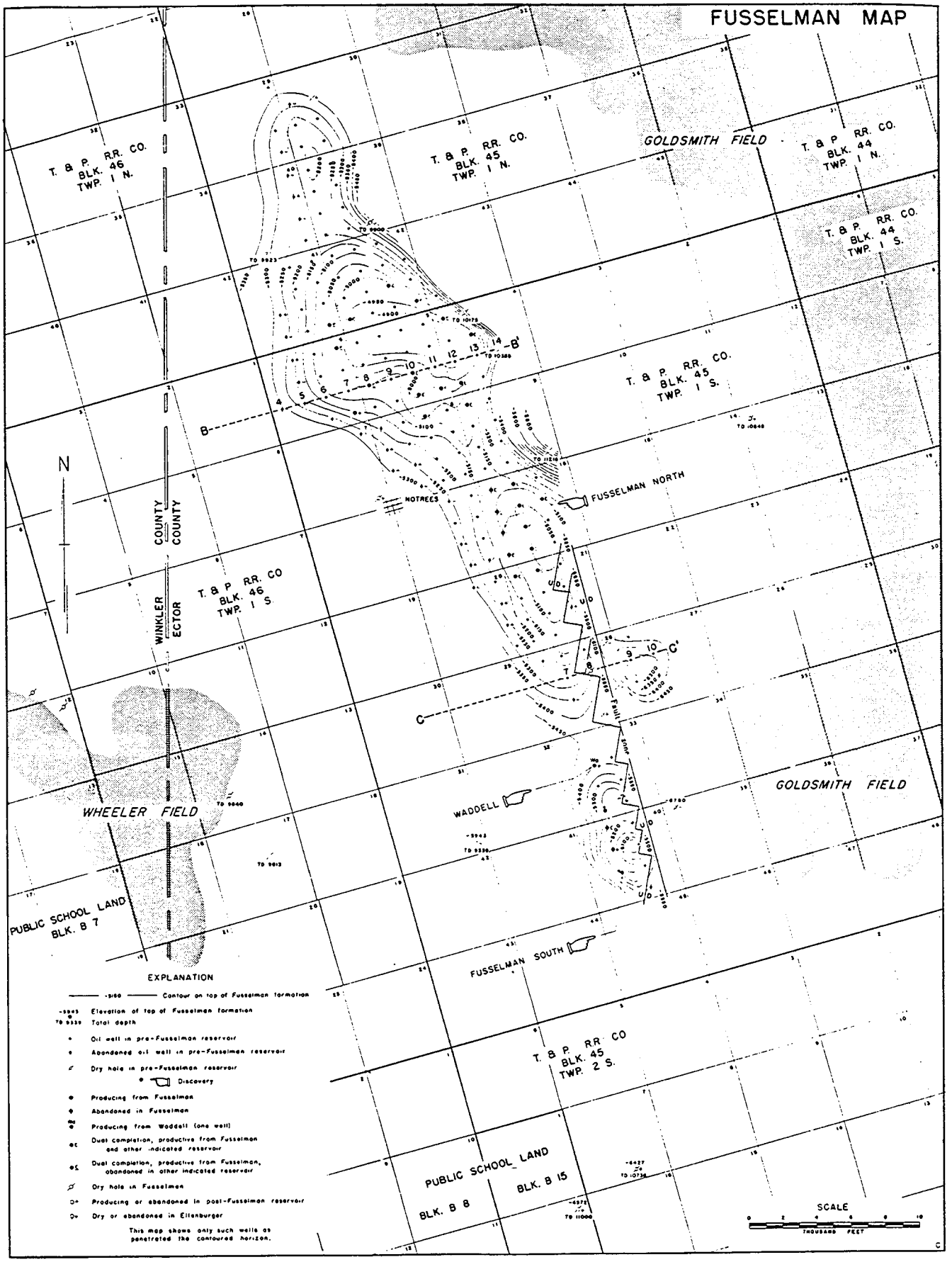

DEVELOPMENT MAP
ENLARGEMENT OF AREA INDICATED ON OPPOSITE PAGE
N
ELLENBURGER DEEP
WADDELL
UPPER CLEAR FORK
FUSSELMAN SOUTH
T. & P. RR. CO.
BLK. 45
TWP. 1 S.
21
20
27
28
29
30
34
33
32
31
39
40
41
45
44
EXPLANATION
Oil well
Abandoned oil well
Dry hole
Discovery
Productive reservoir, abandoned in reservoir indicated by underlined symbol
Dual completion, productive from indicated reservoirs
Oldest reservoir tested, non-productive
PRODUCTIVE RESERVOIRS
Upper Clear Fork
Fusselman
Tubb
Waddell
Devonian
Ellenburger
SCALE
THOUSAND FEET

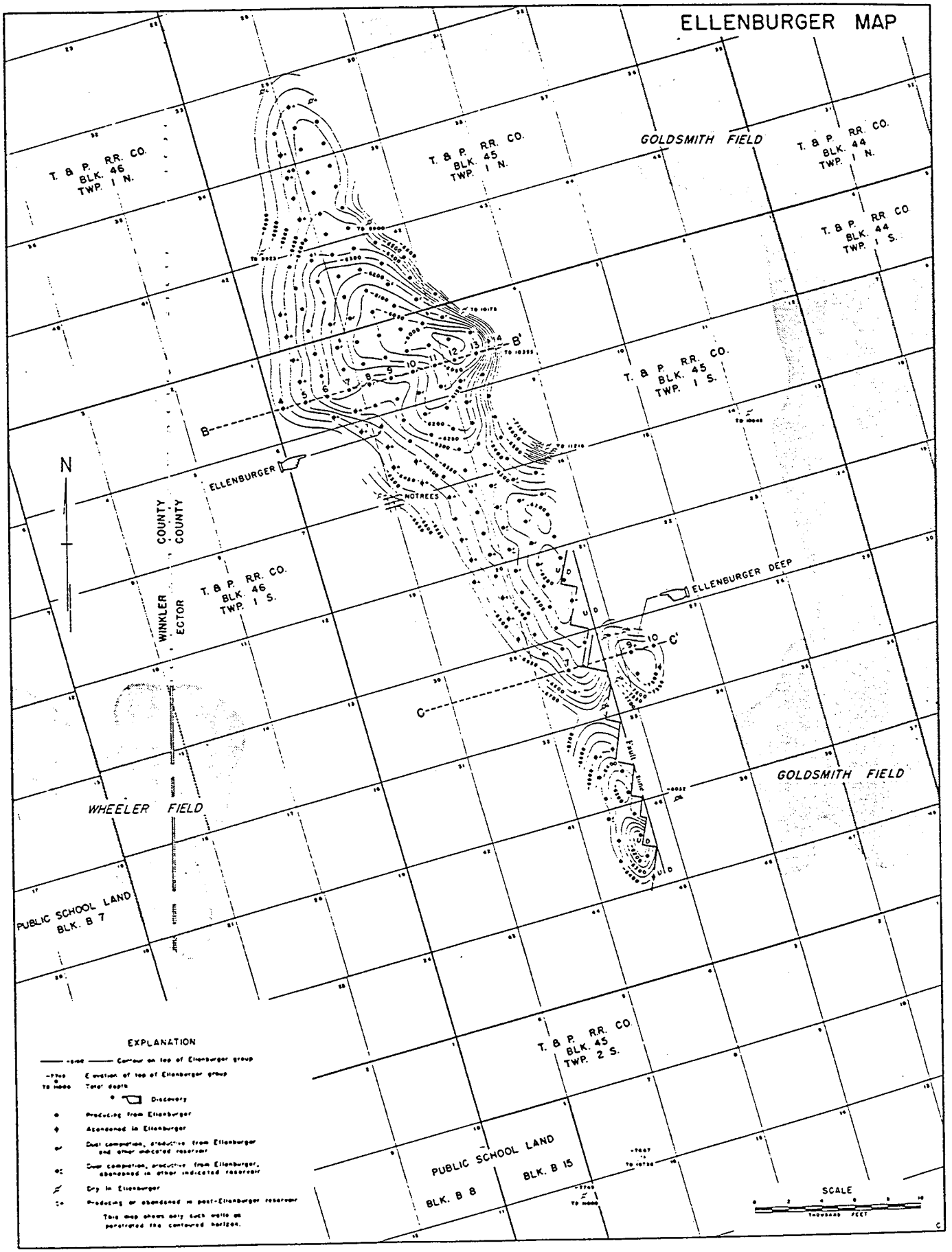

DEVELOPMENT MAP
T. & P. RR. CO. BLK. 46 TWP. 1 N.
T. & P. RR. CO. BLK. 45 TWP. 1 N.
GOLDSMITH FIELD
T. & P. RR. CO. BLK. 44 TWP. 1 N.
T. & P. RR. CO. BLK. 44 TWP. 1 S.
T. & P. RR. CO. BLK. 45 TWP. 1 S.
N
ELLENBURGER
FIELD DEVONIAN
FUSSELMAN NORTH
WINKLER COUNTY
ECTOR COUNTY
T. & P. RR. CO. BLK. 46 TWP. 1 S
SEE ENLARGEMENT ON OPPOSITE PAGE
ELLENBURGER DEEP
UPPER CLEAR FORK
WADDELL
GOLDSMITH FIELD
WHEELER FIELD
SAN ANDRES
PUBLIC SCHOOL LAND BLK. B 7
FUSSELMAN SOUTH
T. & P. RR. CO. BLK. 45 TWP. 2 S.
TUBB
JOHN W. MURCHISON #1 G.C. Fraser
PUBLIC SCHOOL LAND BLK. B 8
BLK. B 15
WOLFCAMP
SCALE
THOUSAND FEET
EXPLANATION
Oil well
Abandoned oil well
Dry hole
Discovery
Productive reservoir, abandoned in reservoir indicated by underlined symbol
Dual completion, productive from indicated reservoirs
Completed in Wolfcamp, temporarily abandoned
Oldest reservoir tested, non-productive
Dry hole, San Andres not reached
PRODUCTIVE RESERVOIRS
San Andres
Upper Clear Fork
Tubb
Wolfcamp
Devonian
Fusselman
Waddell
Ellenburger

Source 12c


UPPER CLEAR FORK MAP
T. & P. RR. CO. BLK. 46 TWP. 1 N.
T. & P. RR. CO. BLK. 45 TWP. 1 N.
GOLDSMITH FIELD
T. & P. RR. CO. BLK. 44 TWP. 1 N.
T. & P. RR. CO. BLK. 44 TWP. 1 S.
T. & P. RR. CO. BLK. 45 TWP. 1 S.
T. & P. RR. CO. BLK. 46 TWP. 1 S.
WINKLER COUNTY
ECTOR COUNTY
N
NOTREES
UPPER CLEAR FORK
GOLDSMITH FIELD
WHEELER FIELD
SAN ANDRES
PUBLIC SCHOOL LAND BLK. B 7
T. & P. RR. CO. BLK. 45 TWP. 2 S.
TUBB
PUBLIC SCHOOL LAND BLK. B 8
BLK. B 15
WOLFCAMP
SCALE
THOUSAND FEET
EXPLANATION
Contour on top of Upper Clear Fork reservoir
Oil well in pre-Permian reservoir
Abandoned oil well in pre-Permian reservoir
Discovery
Producing from San Andres, abandoned in Upper Clear Fork (one well)
Producing from San Andres, dry in Upper Clear Fork (one well)
Producing from Upper Clear Fork
Producing from Upper Clear Fork, abandoned in Tubb (one well)
Producing from Tubb
Temporarily abandoned in Wolfcamp (one well)
Dry in Permian reservoir
Dry or abandoned in pre-Permian reservoir
This map shows only such wells as penetrated the contoured horizon.


DEVONIAN MAP
T. & P. RR. CO. BLK. 46 TWP. 1 N.
T. & P. RR. CO. BLK. 45 TWP. 1 N.
GOLDSMITH FIELD
T. & P. RR. CO. BLK. 44 TWP. 1 N.
T. & P. RR. CO. BLK. 44 TWP. 1 S.
T. & P. RR. CO. BLK. 45 TWP. 1 S.
N
COUNTY
COUNTY
WINKLER
ECTOR
FIELD DEVONIAN
NOTREES
T. & P. RR. CO. BLK. 46 TWP. 1 S
WHEELER FIELD
GOLDSMITH FIELD
PUBLIC SCHOOL LAND BLK. B 7
T. & P. RR. CO. BLK. 45 TWP. 2 S.
JOHN W. MURCHISON #1 G.C. Fraser
PUBLIC SCHOOL LAND BLK. B 8
BLK. B 15
SCALE
THOUSAND FEET
EXPLANATION
Contour on Woodford-Devonian contact
Contour on eroded Devonian
Contact of pre-Permian erosion surface
Elevation of top of Devonian
Total depth
Oil well in pre-Devonian reservoir
Abandoned oil well in pre-Devonian reservoir
Dry hole in pre-Devonian reservoir
Producing from Devonian
Abandoned in Devonian
Dual completion, productive from Devonian and Fusselman, Fusselman now abandoned (one well)
Dry in Devonian
Producing or abandoned in post-Devonian reservoir
Dry or abandoned in pre-Devonian reservoir
This map shows only such wells as penetrated the contoured horizon.


FUSSELMAN MAP
T. & P. R.R. CO. BLK. 46 TWP. 1 N.
T. & P. R.R. CO. BLK. 45 TWP. 1 N.
GOLDSMITH FIELD
T. & P. R.R. CO. BLK. 44 TWP. 1 N.
T. & P. R.R. CO. BLK. 44 TWP. 1 S.
T. & P. R.R. CO. BLK. 45 TWP. 1 S.
N
WINKLER COUNTY
ECTOR COUNTY
T. & P. R.R. CO BLK. 46 TWP. 1 S.
NOTREES
FUSSELMAN NORTH
WHEELER FIELD
WADDELL
GOLDSMITH FIELD
PUBLIC SCHOOL LAND BLK. B 7
FUSSELMAN SOUTH
T. & P. R.R. CO BLK. 45 TWP. 2 S.
PUBLIC SCHOOL LAND BLK. B 8
BLK. B 15
EXPLANATION
Contour on top of Fusselman formation
Elevation of top of Fusselman formation
Total depth
Oil well in pre-Fusselman reservoir
Abandoned oil well in pre-Fusselman reservoir
Dry hole in pre-Fusselman reservoir
Discovery
Producing from Fusselman
Abandoned in Fusselman
Producing from Waddell (one well)
Dual completion, productive from Fusselman and other indicated reservoir
Dual completion, productive from Fusselman, abandoned in other indicated reservoir
Dry hole in Fusselman
Producing or abandoned in post-Fusselman reservoir
Dry or abandoned in Ellenburger
This map shows only such wells as penetrated the contoured horizon.
SCALE
THOUSAND FEET


ELLENBURGER MAP
T. & P. RR. CO. BLK. 46 TWP. 1 N.
T. & P. RR. CO. BLK. 45 TWP. 1 N.
GOLDSMITH FIELD
T. & P. RR. CO. BLK. 44 TWP. 1 N.
T. & P. RR. CO. BLK. 44 TWP. 1 S.
T. & P. RR. CO. BLK. 45 TWP. 1 S.
B'
B
N
ELLENBURGER
NO TREES
WINKLER COUNTY
ECTOR COUNTY
T. & P. RR. CO. BLK. 46 TWP. 1 S.
ELLENBURGER DEEP
C'
C
GOLDSMITH FIELD
WHEELER FIELD
PUBLIC SCHOOL LAND BLK. B 7
T. & P. RR. CO. BLK. 45 TWP. 2 S.
PUBLIC SCHOOL LAND BLK. B 8
PUBLIC SCHOOL LAND BLK. B 15
EXPLANATION
Contour on top of Ellenburger group
Elevation of top of Ellenburger group
Total depth
Discovery
Producing from Ellenburger
Abandoned in Ellenburger
Dual completion, productive from Ellenburger and other indicated reservoir
Dual completion, productive from Ellenburger, abandoned in other indicated reservoir
Dry in Ellenburger
Producing or abandoned in post-Ellenburger reservoir
This map shows only such wells as penetrated the contoured horizon.
SCALE
THOUSAND FEET

University-Block 9
Wolfcamp
Central Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Andrews
	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
2	FIELD	University-Block 9
2	RESERVOIR	Wolfcamp
5	GEOLOGIC AGE	Permian-Wolfcamp
1	AAPG STRATIGRAPHIC AGE CODE	319
9c	RESERVOIR LITHOLOGY	limestone
9c	TRAPPING MECHANISM	domal structure
2, 3	DISCOVERY YEAR	9-53
9c, 16c, 2	PROVED ACREAGE	4000
	REGULAR WELL SPACING (acres/well)	
2, 3	RESERVOIR DEPTH	8200, 8430
	RESERVOIR THICKNESS	
2, 9c, 16c	NET PAY	13, 30, 30
9c	GROSS	4-45
	NET/GROSS RATIO	
	POROSITY	
9c	TYPE	IC, V
2	FRACTION	.10
	PERMEABILITY	
	RANGE	
2	AVERAGE	14 md
2	HORIZONTAL	14 md
	VERTICAL	
3	OTHER INFORMATION	production also from Devonian and Pennsylvanian
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	78 (22P-44I-12A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	23,255.4 mbbls.
3	PRODUCTION 1-1-79 to 1-1-80	336.7 mbbls oil; 547.1 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
9c	STRUCTURE CONTOUR?	yes
	LOGS?	
	STRUCTURE SECTION?	
9c	ENGINEERING REPORTS?	yes
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	University-Block 9
16c, 2, 9c	RESERVOIR:	Wolfcamp
2, 9c, 16c	PROD. ACRES:	4000
16c	AVG. THICKNESS (FT.):	13, 30, 30
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.329
16c, 9c	FORMATION VOLUME FACTOR LATEST (FVF):	
16c	WATER SATURATION (S_W):	.268
	OIL SATURATION (S_O):	.65 (67)
	PRIMARY DRIVE MECHANISM:	
9c, 16c	PRIMARY GAS CAP?:	
9c, 16c	TEMPERATURE (°F):	140
2, 9c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1775, 1795
2	RESERVOIR PRESSURE INITIAL (psi):	3500
	RESERVOIR PRESSURE LATEST (psi):	4000
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
2, 3, 9c	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
9c	STOCK TANK OIL GRAVITY (°API):	38.3, 38.3, 38
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	.250
2	MINIMUM MISCIBILITY PRESSURE (MMP):(psia)	1743
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	50,300 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	8,600 mbbls

9c

OTHER INFORMATION: Reference:

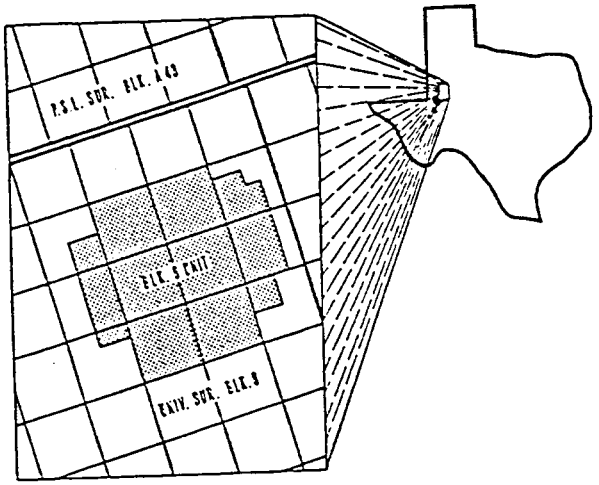
Cone, Clifford, 1970, Case History of the University-Block 9 (Wolfcamp) Field - A Gas-Water Injection Secondary Recovery Project : Journal of Petroleum Technology, December 1979, pp. 1485-1491.

ENHANCED AND SECONDARY RECOVERY DATA:

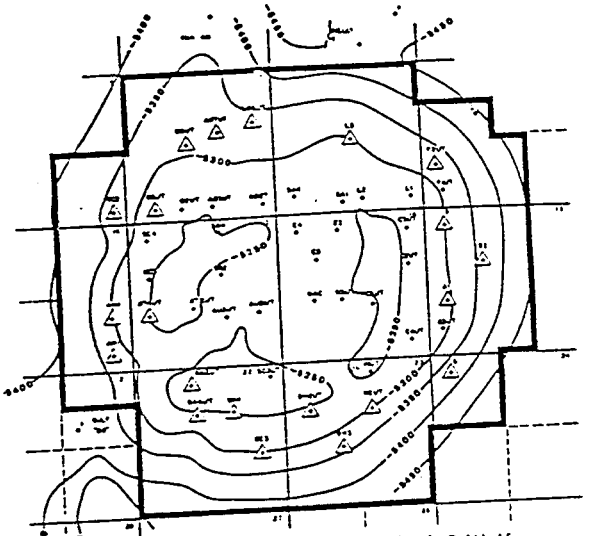
FIELD: University-Block 9 RESERVOIR: Wolfcamp TOTAL NO. PROJECTS: 1

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

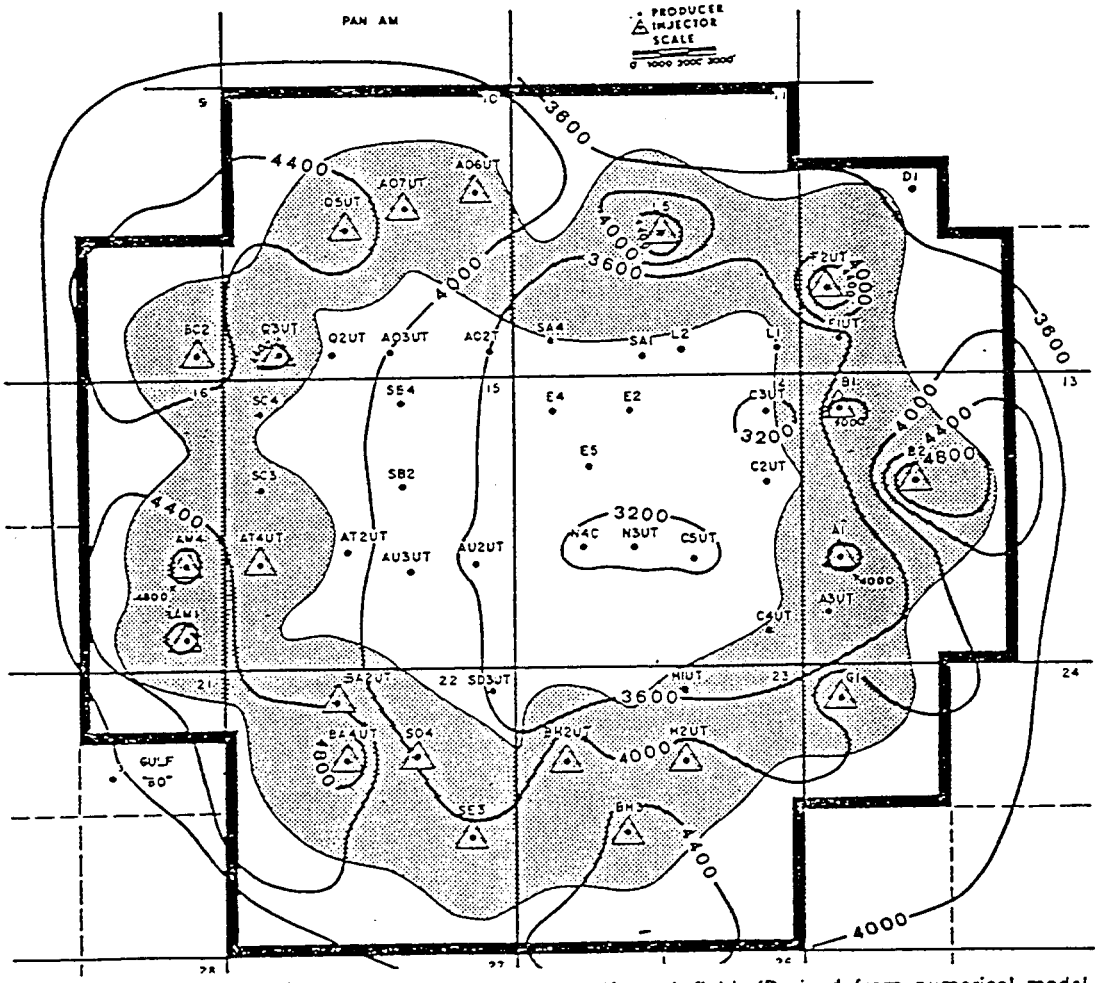
1976 PROD. (this project): MBBLS	347				
1977 PROD. (this project):	371				
CUM. PROD. FROM DISC. TO 1/78:	17126				
PROJECT NO.	F-1620				
LEASE NO.(s):	15046				
OPERATOR:	Arco				
RESERVOIR:	Wolfcamp				
DEPTH PRODUCING ZONE:	8200				
PRODUCTIVE ACREAGE IN RESERVOIR:	4000				
ACREAGE IN PROJECT:	4000				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW, BW;gas				
PATTERN:	P				
YEAR BEGAN:	WF/7-61; gas/8-60				
YEAR TERMINATED OR STATUS:	WF-ICP; gas-IPD				
RESERVOIR PRESSURE INITIAL:	3500				
BEG. INJECTION:	1458				
LATEST:	4000				
NUMBER OF WELLS TOTAL:	78				
PRODUCING WELLS:	22				
INJECTION WELLS:	22SW				
MAXIMUM:	22BW				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	12				
SURFACE INJECTION PRESSURE:	3000				
EFFECTIVENESS OF INJECTION:	VE				
OPERATOR PROBLEMS:	SC, IP, CR				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	370				
FROM BEG. INJECTION:	12993				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	15590				
WATER PRODUCTION:					
CURRENT (1977):	3597				
CUMULATIVE TO 1/78:	23459				
CURRENT (1977) INJECTION:	3597 SW, 49 BW				
CUMULATIVE INJECTION:	23459 SW, 32625 BW, 40616 gas				



Location of the University Block 9 (Wolfcamp) unit, Andrews County, Tex.



Structure map of Block 9 Wolfcamp, 50-ft contour interval.



Isobaric and water front map, University Block 9 (Wolfcamp) field. (Derived from numerical model pressure and saturation maps.)

LEGEND

- PRODUCER
- INJECTOR
- WATER FRONTS—JAN. 1969
- CONTOUR INTERVAL 400 LBS.
- SCALE

0' 1000' 2000' 3000'

FROM:- Cone, Clifford, 1970, Case History of the University Block 9 (Wolfcamp) Field--A Gas-Water Injection Secondary Recovery Project: Jour. Petroleum Technology, December, p. 1485-1491.

University-Block 9
Pennsylvanian
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Andrews
1, 2	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1, 2	FIELD	University-Block 9
1, 2	RESERVOIR	Pennsylvanian
1, 5	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	320
1	RESERVOIR LITHOLOGY	limestone
	TRAPPING MECHANISM	
1, 2, 3	DISCOVERY YEAR	1954, 8-54, 7-54
16c, 2, 1	PROVED ACREAGE	2800, 2800, 520
1	REGULAR WELL SPACING (acres/well)	80
1, 2, 3	RESERVOIR DEPTH	8956, 8400, 8956
	RESERVOIR THICKNESS	
2, 1, 16c	NET PAY	300, 50, 18-40
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2, 1	FRACTION	.120, .063
	PERMEABILITY	
	RANGE	
1, 2	AVERAGE	11 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	production also from Devonian and Wolfcamp
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	26P; 32 (15P-6I-11A)
1	PRODUCTION 1976 oil (cum)	9886
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	10,508.5 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	184.7 mbbls; 123.2 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	University-Block 9
2, 1	RESERVOIR:	Pennsylvanian
2, 1, 16c	PROD. ACRES:	2800, 520, 2800
2, 1, 16c	AVG. THICKNESS (FT.):	300, 50, 18-40
1, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.48, 1.489
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.325
1	WATER SATURATION (S_W):	.30
16c	OIL SATURATION (S_O):	.66 (70)
1	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	151
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2530
1, 2	RESERVOIR PRESSURE INITIAL (psi):	3900
2	RESERVOIR PRESSURE LATEST (psi):	1000
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	760
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	752.4 (76)
2, 3, 1	STOCK TANK OIL GRAVITY (°API):	40.2, 42.6, 42.6
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1861
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	48,200 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	9,407 mbbls

1 OTHER INFORMATION: primary recoverable: 53 bbl/acre-ft

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: University-Block 9 RESERVOIR: Pennsylvanian TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	296				
1977 PROD. (this project):	212				
CUM. PROD. FROM DISC. TO 1/78:	2559				
PROJECT NO.	F-1619				
LEASE NO.(s):	21413				
OPERATOR:	Shell				
RESERVOIR:	Pennsylvanian				Pennsylvanian
DEPTH PRODUCING ZONE:	8400				8956
PRODUCTIVE ACREAGE IN RESERVOIR:	2800				520
ACREAGE IN PROJECT:	2600				2600
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW, BW				WF
PATTERN:	P				
YEAR BEGAN:	5-71				
YEAR TERMINATED OR STATUS:	SW-ICP; BW-ITD				
RESERVOIR PRESSURE INITIAL:	3900				3900
BEG. INJECTION:	1300				
LATEST:	1000				
NUMBER OF WELLS TOTAL:	32				
PRODUCING WELLS:	15				26
INJECTION WELLS:	6				
MAXIMUM:	-				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	11				
SURFACE INJECTION PRESSURE:	2200				
EFFECTIVENESS OF INJECTION:	MF				
OPERATOR PROBLEMS:	IP, EB, CR				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-				
FROM BEG. INJECTION:	-				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-				
WATER PRODUCTION:					
CURRENT (1977):	714				
CUMULATIVE TO 1/78:	5751				
CURRENT (1977) INJECTION:	1220 SW				
CUMULATIVE INJECTION:	6857 SW, 3213 BW				

Vacuum
Grayburg-San Andres
Northwest Shelf

DATA SOURCE CODE		
	STATE	New Mexico
1,6a	COUNTY	Lea
1	REGULATORY DISTRICT	Southeast
6a	BASIN	Permian
15	SUB-BASIN	Northwest Shelf
6a, 1	FIELD	Vacuum
1	RESERVOIR	Grayburg-San Andres
6,1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
6a,1	RESERVOIR LITHOLOGY	Oolitic dolomite; dolomite
6a,1	TRAPPING MECHANISM	Anticlinal trap
6a,1	DISCOVERY YEAR	5-29
1 , 17	PROVED ACREAGE	120 , 19200
	REGULAR WELL SPACING (acres/well)	
6a, 1	RESERVOIR DEPTH	4200-4750; 4400
1	RESERVOIR THICKNESS	95' avg.
	NET PAY	
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
6a,1	FRACTION	.0875; .089
	PERMEABILITY	
1	RANGE	374.5 - 404.5 md
1	AVERAGE	400 md
6a	HORIZONTAL	404.5 md
6a	VERTICAL	374.5 md
~~14e~~ 14e	OTHER INFORMATION	Vacuum-Abo Reservoir listed in BETC/RI-78/15 as suitable for carbon dioxide EOR. VACUUM-GRAYBURG listed as not suitable for surfactant, polymer or CO_2 due to natural water drive.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	658 Total, 449 pump, 12 flow, 157 inject. 40 shut-in; 461P, 71S-I, 28 Serv., 55I.
1	PRODUCTION 1977 oil (cum)	170,608
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	180,997
	PRODUCTION 1-1-79 to 1-1-80	
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6a	STRUCTURE CONTOUR?	yes
6a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Vacuum
6c, 1	RESERVOIR:	Grayburg-San Andres
1,17	PROD. ACRES:	120, 19200
1	AVG. THICKNESS (FT.):	95
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.25
	FORMATION VOLUME FACTOR LATEST (FVF):	
6a, 1	WATER SATURATION (S_W):	.2902
6a, 1	OIL SATURATION (S_O):	.3137
6a, 1	PRIMARY DRIVE MECHANISM:	H_2O and gas solution
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	118 (GG=1.0)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	4970
6a, 1	RESERVOIR PRESSURE INITIAL (psi):	1660
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1408
6c, 1, 14e	STOCK TANK OIL GRAVITY (°API):	36, 35, 40
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1487
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

14e

OTHER INFORMATION: RESERVOIR DATA FOR VACUUM-ABO RESERVOIR

OIL GRAVITY, API . . . 40°
OIL VISCOSITY, cp . . 2
DEPTH, FT. 8650
BHT, °F 136
LITHOLOGY . . . . . carbonate
ORIGINAL BHP, psi . . 3230
NATURAL H_2O DRIVE . . weak
GAS CAP . . . . . no
FRACTURED . . . . . no
HARDNESS, ppm 1710

WATER ANALYSIS RECORD

FIELD: Vaccum RESERVOIR: Grayburg-San Andres TOTAL NO. PROJECTS:

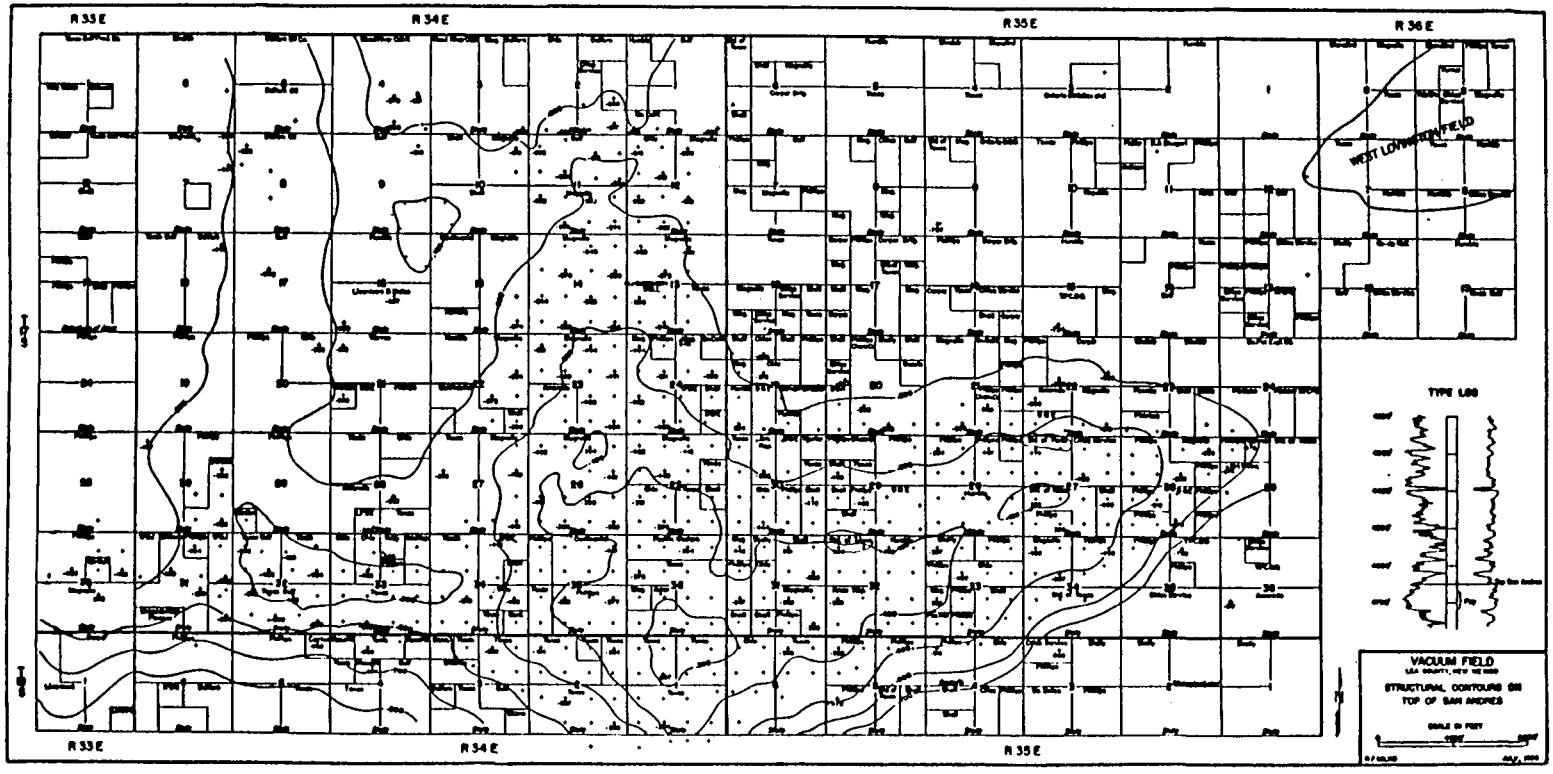
DATA SOURCE: 6a, 1

TOTAL SOLIDS (ppm):	160,049.6
NA	57.9
Ca	3,195
Mg	796
Fe	112
SO_4	2,470
Cl	94,221
CO_2	
HCO_3	700
OH	
H_2S	

RESISTIVITY:

SPECIFIC GRAVITY:

OTHER WATER QUALITY DATA:



FROM: Milks, Roy, 1956, VACUUM (GRAYBURG-SAN ANDRES) in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO: Roswell Geological Society Symposium, Source 6a.

Vada
Pennsylvanian
Tatum Basin

DATA SOURCE CODE		
	STATE	New Mexico
1, 6c	COUNTY	Lea & Roosevelt
1	REGULATORY DISTRICT	Southeast
1, 6c	BASIN	Permian
15	SUB-BASIN	Tatum Basin
1, 6c	FIELD	Vada
1, 6c	RESERVOIR	Pennsylvanian,Bough C
1,6	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	320
6c, 1	RESERVOIR LITHOLOGY	Phylloid alga mats, biosporite with primary and secondary intercrystalline and vuggy Ø grading into a biomicrite with poor crystalline porosity; limestone.
6c, 1	TRAPPING MECHANISM	Generally stratigraphic alga mound, lateral change in porosity and permeability
1, 6c	DISCOVERY YEAR	1966
1, 6c	PROVED ACREAGE	56,320
6c	REGULAR WELL SPACING (acres/well)	160
6c	RESERVOIR DEPTH	9792 (-5490 datum)
1	RESERVOIR THICKNESS	10' avg.
6c	NET PAY	10
6c	GROSS	25
	NET/GROSS RATIO	
	POROSITY	
6c, 1	TYPE	IC, V
1, 6c	FRACTION	.08
	PERMEABILITY	
1, 6c	RANGE	100 to 200 md
	AVERAGE	
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	151 Total, 115 pump, 5 flow, 31 shut-in; 146P, 186 Shut-in
1	PRODUCTION 1977 oil (cum)	4861
	PRODUCTION 1978 oil (cum)	4927
18	PRODUCTION 1979 oil (cum)	4978
	PRODUCTION 1-1-79 to 1-1-80	
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6c	STRUCTURE CONTOUR?	yes
6c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Vada
1, 6c	RESERVOIR:	Pennsylvanian
1, 6c	PROD. ACRES:	56320
1, 6c	AVG. THICKNESS (FT.):	10
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
1, 6c	WATER SATURATION (S_W):	.33
1, 6c	OIL SATURATION (S_O):	.10
1, 6c	PRIMARY DRIVE MECHANISM:	solution gas with connate H20 expansion
6c	PRIMARY GAS CAP?:	-5600
1,6c, 17	TEMPERATURE (°F):	145 (GG=.73)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	10302
1, 6c	RESERVOIR PRESSURE INITIAL (psi):	2800
	RESERVOIR PRESSURE LATEST (psi):	
1, 17	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	1130
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	4463
6c, 1	STOCK TANK OIL GRAVITY (°API):	47; 45 to 47; 45 avg.
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1778
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

WATER ANALYSIS RECORD

FIELD: Vada RESERVOIR: Pennsylvanian TOTAL NO. PROJECTS:

DATA SOURCE: 6c, 1

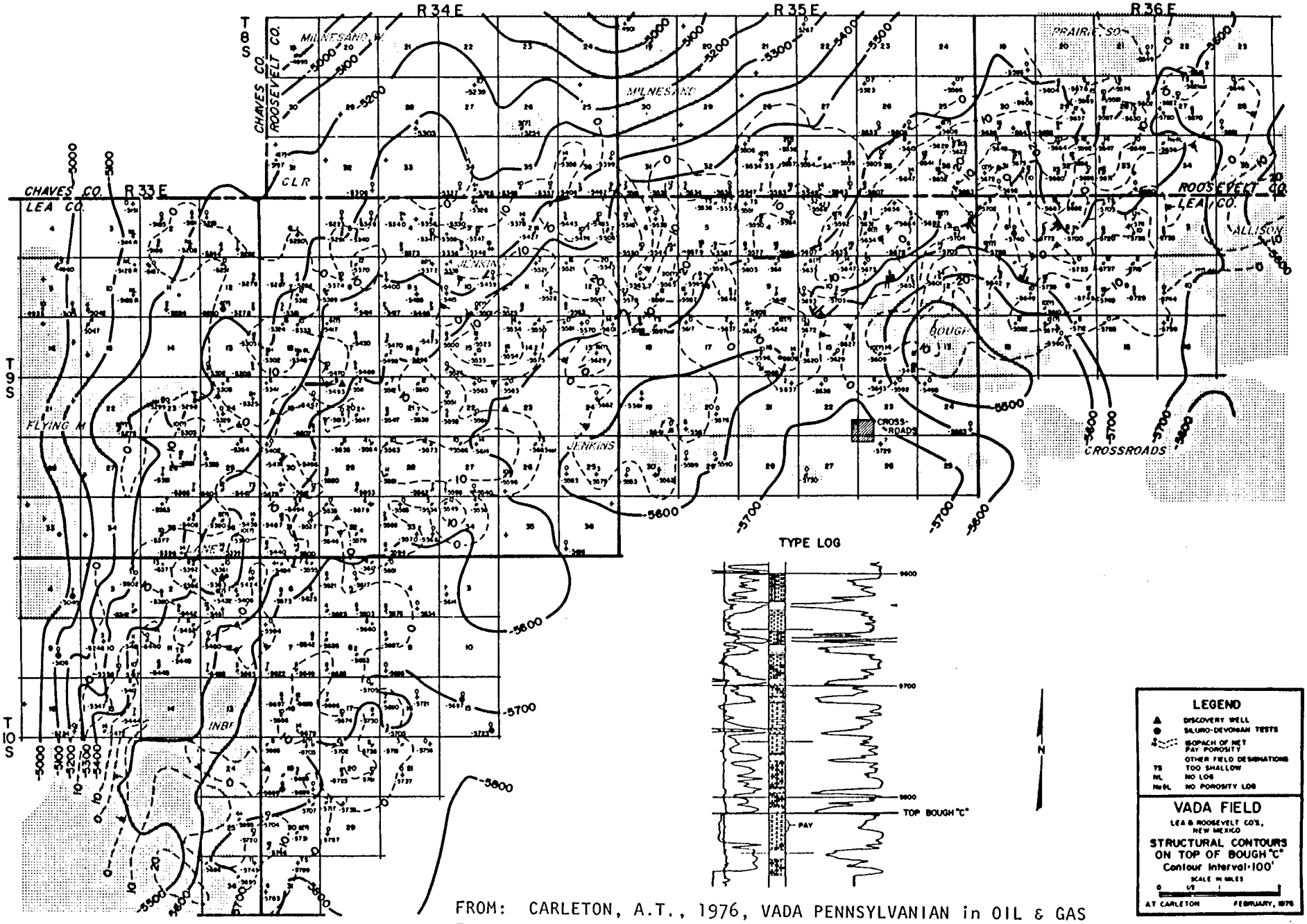
TOTAL SOLIDS (ppm):

NA	37,000
Ca	4,200
Mg	2,400
Fe	10
SO_4	1,400
Cl	85,000
CO_2	150
HCO_3	
OH	
H_2S	

RESISTIVITY: .075 @ 72°F

SPECIFIC GRAVITY:

OTHER WATER QUALITY DATA:



FROM: CARLETON, A.T., 1976, VADA PENNSYLVANIAN in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO - 1977, Source 6c.

Vealmoor
Canyon Reef
Midland Basin

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Howard (M)
	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Vealmoor
	RESERVOIR	Canyon Reef
1, 5	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	320
12c, 1	RESERVOIR LITHOLOGY	Reef limestone - oil production in reef rocks of the Horseshoe atoll; limestone
	TRAPPING MECHANISM	
1, 3	DISCOVERY YEAR	1948
1, 16c	PROVED ACREAGE	240, 280
1	REGULAR WELL SPACING (acres/well)	40
1, 3	RESERVOIR DEPTH	7934
	RESERVOIR THICKNESS	
1, 16c	NET PAY	75, 11-206
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1	FRACTION	.10
	PERMEABILITY	
	RANGE	
1	AVERAGE	32 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from Cisco
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	50P
1	PRODUCTION 1976 oil (cum)	31,845
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	33,749.8 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	538.4 mbbls oil; 668.4 mmcf gas
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Vealmoor
	RESERVOIR:	Canyon Reef
1, 16c	PROD. ACRES:	240, 280
1, 16c	AVG. THICKNESS (FT.):	75, 11-206
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.695
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.695
1, 16c	WATER SATURATION (S_W):	.32, .293
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	waterdrive
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	165
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2339
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	1000
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1082.8 (76)
1, 3	STOCK TANK OIL GRAVITY (°API):	46
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	2019
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

12c OTHER INFORMATION: Reference:

Myers, O.A., Stafford, P.T., and Burnside, R. J., 1956, Geology of the Late Paleozoic Horseshoe Atoll in West Texas : University of Texas, Bureau of Economic Geology, Pub. No. 5607, April, 1979

1 Primary recoverable: 75 bbl/acre-ft

Vealmoor, East
Canyon Reef
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Borden, Howard
1,2	REGULATORY DISTRICT	8A, 8
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1,2	FIELD	Vealmoor, East
2	RESERVOIR	Canyon Reef
1, 5	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	323
12c, 1	RESERVOIR LITHOLOGY	Reef limestone; oil production in reef rock of the Horseshoe Atoll; limestone.
	TRAPPING MECHANISM	
5a,2,3,1	DISCOVERY YEAR	3-50; 1950
5a,2,1	PROVED ACREAGE	3500 and 3800; 3500
5a, 1	REGULAR WELL SPACING (acres/well)	40
1,2,3	RESERVOIR DEPTH	7414; 7383 avg., range 7335-7414; 7414
	RESERVOIR THICKNESS	
16c,2,1	NET PAY	30, 151.5 avg., range 30-273; 38
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1, 2	FRACTION	.15, .114 avg., range .102-.120
	PERMEABILITY	
2	RANGE	14-267 md
1,2	AVERAGE	267, 102 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from Clear Fork and Wolfcamp.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1,2	TOTAL NUMBER OF WELLS	68P; 18 (12P-4I-2A)
1	PRODUCTION 1976 oil (cum)	44,059
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	49,007.6
3	PRODUCTION 1-1-79 to 1-1-80	1.581.3 mbbls oil; 1829.5 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Vealmoor, East
2, 1	RESERVOIR:	Canyon Reef
2,1,16c	PROD. ACRES:	3500 and 3800, 3500
1	AVG. THICKNESS (FT.):	151.5 avg., 38, 30
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.804
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.729
16c	WATER SATURATION (S_W):	.163
1	OIL SATURATION (S_O):	.199 (75)
	PRIMARY DRIVE MECHANISM:	water drive
16c	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	155
1,2	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2249
2	RESERVOIR PRESSURE INITIAL (psi):	3362
	RESERVOIR PRESSURE LATEST (psi):	2100
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1,2,3	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1313.4 (76)
	STOCK TANK OIL GRAVITY (°API):	472., 46.1 to 47.8, 47.2
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
2	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1892
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	2858 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	975 mbbls

OTHER INFORMATION:

12c Reference: Myers, D. A., Stafford, P. T., and Burnside, R. J. 1956, Geology of the Late Paleozoic Horseshoe Atoll in West Texas: Univ. of Texas, Bureau of Economic Geology, Pub. No. 5607, April.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Vealmoor, East RESERVOIR: Canyon Reef TOTAL NO. PROJECTS: 3 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	---	13	202		
1977 PROD. (this project):	---	13	229		
CUM. PROD. FROM DISC. TO 1/78:	---	---	2294		
PROJECT NO.	F1625	F6098	F1611		
LEASE NO.(s):	07114	07107	17121		
OPERATOR:	Getty	Lario Oil & Gas	Sun Oil		
RESERVOIR:	Canyon Reef	Canyon Reef	Canyon Reef		
DEPTH PRODUCING ZONE:	7414	7335	7400		7414
PRODUCTIVE ACREAGE IN RESERVOIR:	3500	3800	3500		3500
ACREAGE IN PROJECT:	770	200	642		770
PORTION OR FIELD WIDE:	P	P	P		
TYPE:	WF/SW	PM/SW	WF/SW		
PATTERN:	---	SW	LD		
YEAR BEGAN:	---	11-75	10-70		
YEAR TERMINATED OR STATUS:	SW-INS	ICP	SW-ICP		
RESERVOIR PRESSURE INITIAL:	3362	3362	3362		
BEG. INJECTION:	2495	2125	2100		
LATEST:	---	---	2100		
NUMBER OF WELLS TOTAL:	---	4	14		
PRODUCING WELLS:	---	3	9		68
INJECTION WELLS:	---	1	3		
MAXIMUM:	---	---	---		
LATEST:	---	---	---		
SHUT-IN/ABANDONED WELLS:	---	0	2		
SURFACE INJECTION PRESSURE:	---	---	2000		
EFFECTIVENESS OF INJECTION:	---	---	---		
OPERATOR PROBLEMS:	---	---	CR		
ESTIMATED PRODUCTION DUE TO INJ.:	---	---	229		
1977:					
FROM BEG. INJECTION:	---	---	1088		
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	---	100-0		
WATER PRODUCTION:					
CURRENT (1977):	---	231	979		
CUMULATIVE TO 1/78:	---	2735	3132		
CURRENT (1977) INJECTION:	---	231SW	979SW		
CUMULATIVE INJECTION:	---	518FW	3056SW		

Vealmoor, East
Cisco-Wolfcamp Reef
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
5a,1	COUNTY	Howard
5a,1	REGULATORY DISTRICT	8
5a,1	BASIN	Permian
15	SUB-BASIN	Midland Basin
5a,1	FIELD	Vealmoor, East
5a,1	RESERVOIR	Cisco-Wolfcamp Reef; Wolfcamp
5,1	GEOLOGIC AGE	Pennsylvanian, Wolfcamp
1	AAPG STRATIGRAPHIC AGE CODE	319
1,5a	RESERVOIR LITHOLOGY	Limestone; limestone reef mound encased in shale, reef development along the basinward edge of Pennsylvanian, horseshoe platform. Maximum reef growth contributes to vertical closure is of Penn. Virgil & Permian age.
	TRAPPING MECHANISM	
5a,3,1	DISCOVERY YEAR	3-50, 1950, 1950-ABD, 1951
5a	PROVED ACREAGE	3600
5a, 1	REGULAR WELL SPACING (acres/well)	40
1,3	RESERVOIR DEPTH	6960
	RESERVOIR THICKNESS	
5a,1	NET PAY	100, 50
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
5a,1	FRACTION	.102
	PERMEABILITY	
	RANGE	
5a,1	AVERAGE	267 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from Vealmoor, East 7414 & Clear Fork iscovery well W.L.Wilson #1, Sun Ray.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
5a	TOTAL NUMBER OF WELLS	99 (83P-10A-6DH)
1	PRODUCTION 1976 oil (cum)	19.2
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	19.2 mbbls
	PRODUCTION 1-1-79 to 1-1-80	
	SECONDARY RECOVERY RECORDS?	No
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5a	STRUCTURE CONTOUR?	yes
5a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Vealmoor, East
5a, 1	RESERVOIR:	Cisco-Wolfcamp
5a	PROD. ACRES:	3600
5a,1	AVG. THICKNESS (FT.):	100, 50
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
	TEMPERATURE (^oF):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
5a, 1	RESERVOIR PRESSURE INITIAL (psi):	3362
	RESERVOIR PRESSURE LATEST (psi):	
5a, 1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	range 900-1 to 1000-1; 898
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
5a,3,1	STOCK TANK OIL GRAVITY (^oAPI):	46.1, 40, 40
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

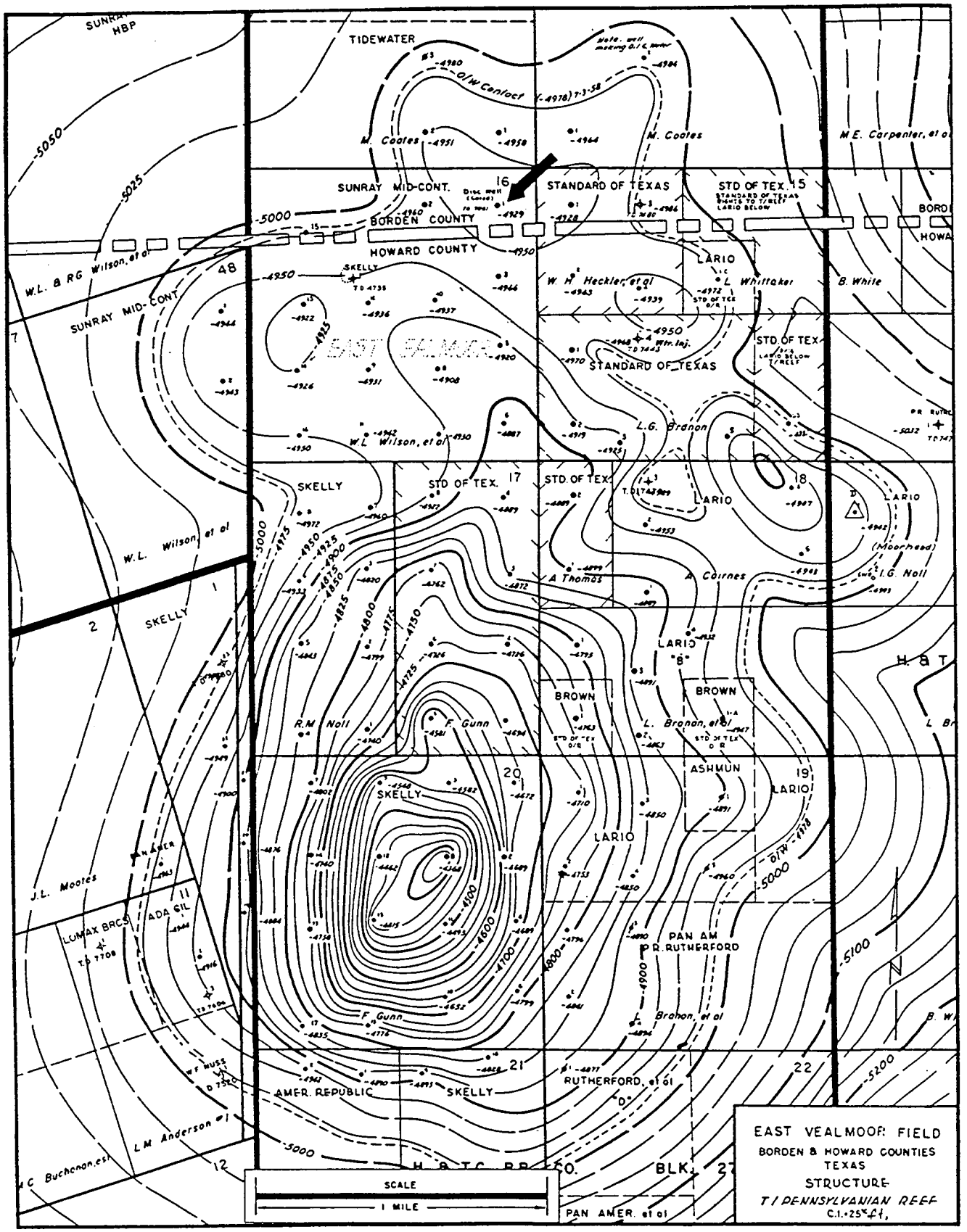
OTHER INFORMATION:

5a Rw = .084 @ 68°F

1 Primary recoverable: (1966)

37,800,000 bbl
10,500 bbl/acre

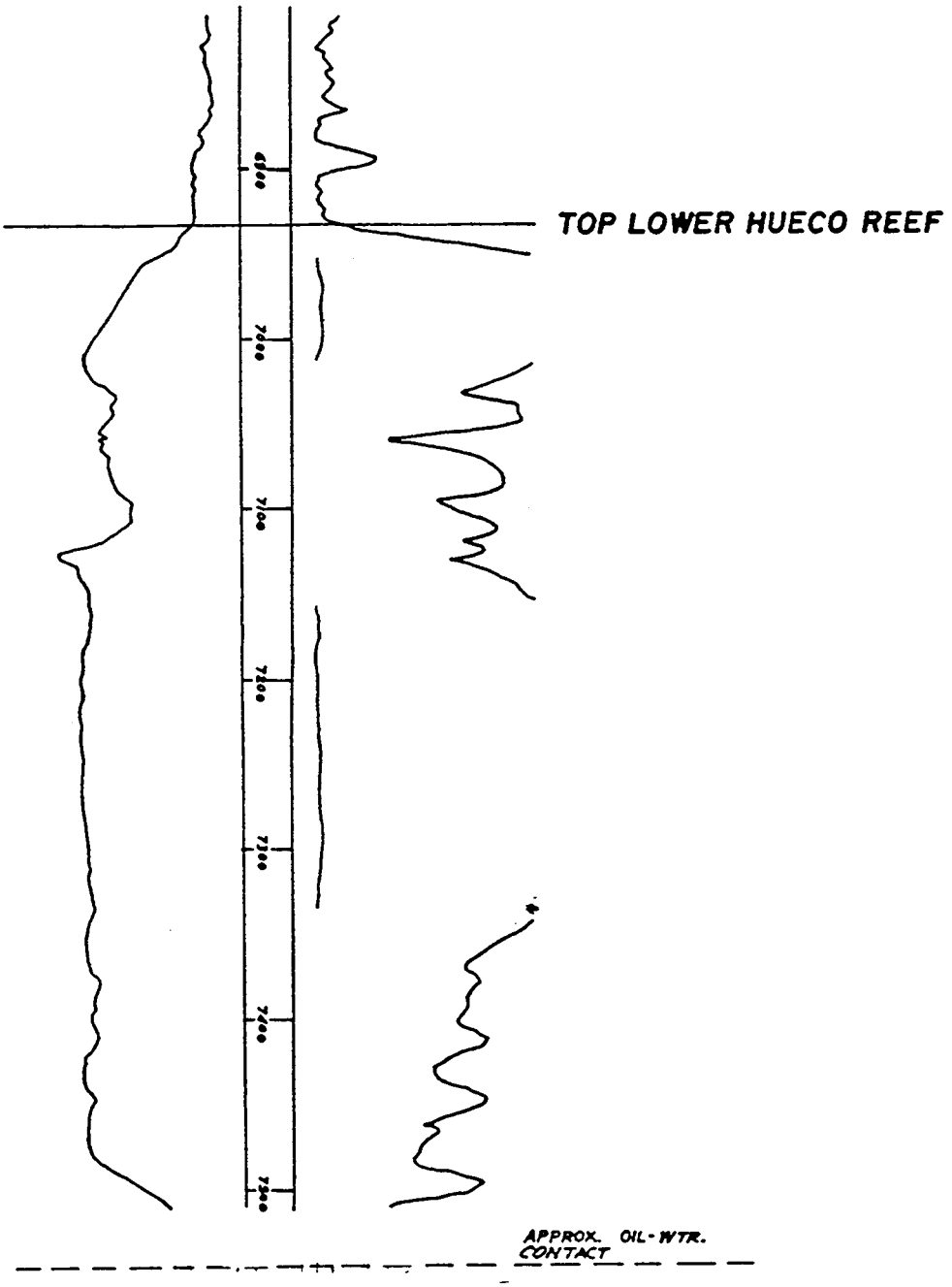
1 Year ABD: 1951
Present status of pool: Oil (abandoned)


EAST VEALMOOR FIELD
BORDEN & HOWARD COUNTIES
TEXAS
STRUCTURE
T/PENNSYLVANIAN REEF
C.I.=25' ft.
SCALE
1 MILE
TIDEWATER
O/W Contact
SUNRAY MID-CONT.
STANDARD OF TEXAS
STD OF TEX.
BORDEN COUNTY
HOWARD COUNTY
SKELLY
LARIO
BROWN
ASHMUN
PAN AM
PR. RUTHERFORD
AMER. REPUBLIC
RUTHERFORD, et al
LUMAX BRCS
ADA OIL
M. Cootes
M.E. Carpenter, et al
W.L. & RG Wilson, et al
W.L. Wilson, et al
W.H. Heckler, et al
L. Whittaker
B. White
L.G. Branon
W.L. Wilson, et al
A. Thomas
A. Cornes
I.G. Noll
(Moorhead)
R.M. Noll
F. Gunn
L. Branon, et al
J.L. Mootes
L.M. Anderson
H.&T.C. RR. CO.
BLK. 27
PAN AMER. et al

TYPE LOG
EAST VEALMOOR FIELD
HOWARD COUNTY, TEXAS
SCALE: 1in.=100ft.

5a

FROM: OIL & GAS IN WEST TEXAS, WEST TEXAS GEOLOGICAL SOCIETY
Pub. No. 66-52, 1966



SKELLY OIL CO.
GUNN 8

Von Roeder
Canyon Reef
Midland Basin

DATA SOURCE CODE		
1,2	STATE	Texas
1,2	COUNTY	Borden
	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1,2	FIELD	Von Roeder
2	RESERVOIR	Canyon Reef
1,5	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	323
1,12c	RESERVOIR LITHOLOGY	Limestone; reef limestone-fine to medium crystalline with dominantly secondary vuggy porosity.
12c	TRAPPING MECHANISM	Convex limit of reef limestone covered by impervious black shale and claystone.
1,2,3	DISCOVERY YEAR	1959, 7-50, 12-59
16c,2,12c	PROVED ACREAGE	1360, 1730, 2120
1	REGULAR WELL SPACING (acres/well)	40
1,2,3	RESERVOIR DEPTH	6835, 6700, 6835
	RESERVOIR THICKNESS	
1,2,12c	NET PAY	10, 45, 39North, 81South
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
12c	TYPE	IC, V
1,2	FRACTION	.10, .094
	PERMEABILITY	
	RANGE	
1,2	AVERAGE	32, 19 md
2	HORIZONTAL	19 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Clear Fork, Wolfcamp.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1,2	TOTAL NUMBER OF WELLS	21P; 4(3P-1I)
1	PRODUCTION 1976 oil (cum)	14,225
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	15,823.6 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	461.6 mbbls oil; 552.3 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Von Roeder
2	RESERVOIR:	Canyon Reef
2,16c,12c	PROD. ACRES:	1730, 1360, 2120
2,1,12c	AVG. THICKNESS (FT.):	45, 10, 39N, 81S
1,16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.6, 1.653
	FORMATION VOLUME FACTOR LATEST (FVF):	
16c	WATER SATURATION (S_W):	.36
16c	OIL SATURATION (S_O):	.60 (1969)
1	PRIMARY DRIVE MECHANISM:	depletion
12c	PRIMARY GAS CAP?:	no
16c	TEMPERATURE (°F):	134
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2034
2	RESERVOIR PRESSURE INITIAL (psi):	3020
2	RESERVOIR PRESSURE LATEST (psi):	1954
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1039.4 (1976)
1,2,3	STOCK TANK OIL GRAVITY (°API):	38.8, 46.0, 38.8
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1668
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	21,593 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	10,327 mbbls

OTHER INFORMATION:

1 Primary recoverables: 100 bbl/acre-ft

12c Reference: Ellis, W. B., 1953, Von Roeder Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Econ. Geology, Pub. No. 5716, August, p.372-374.

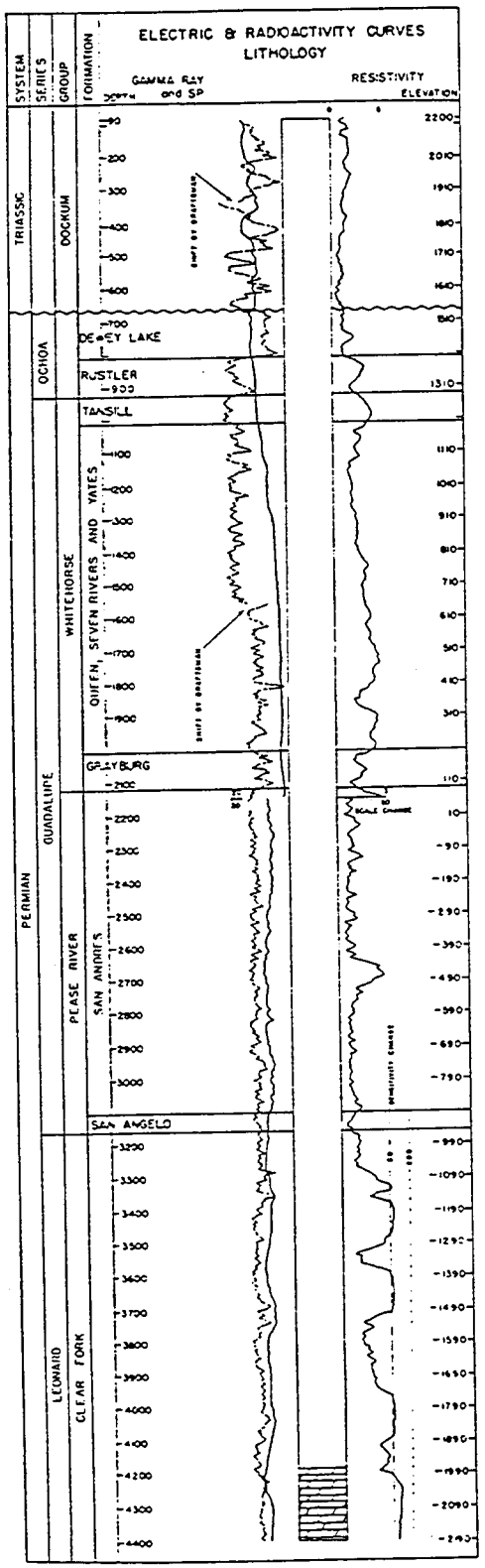
ENHANCED AND SECONDARY RECOVERY DATA:

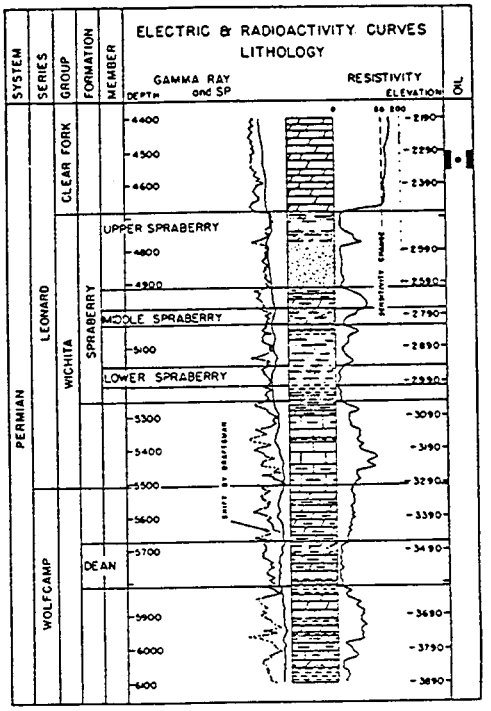
FIELD: Von Roeder RESERVOIR: Canyon Reef TOTAL NO. PROJECTS: 1 PDS:

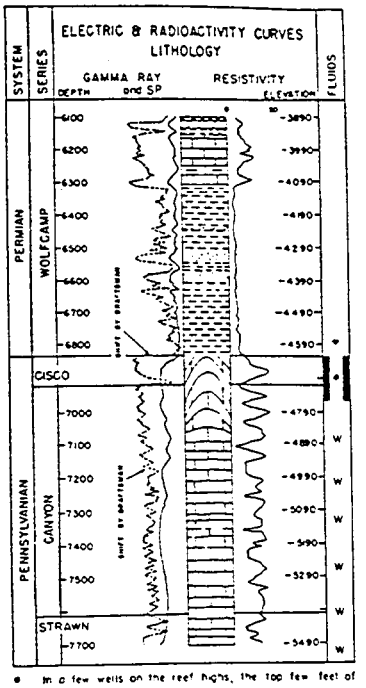
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	80				
1977 PROD. (this project):	70				
CUM. PROD. FROM DISC. TO 1/78:	592				
PROJECT NO.	F3743				
LEASE NO.(s):	07144				
OPERATOR:	Mobil				
RESERVOIR:	Canyon Reef				
DEPTH PRODUCING ZONE:	6700				
PRODUCTIVE ACREAGE IN RESERVOIR:	1730				
ACREAGE IN PROJECT:	160				
PORTION OR FIELD WIDE:	P				
TYPE:	PM/SW				
PATTERN:	P				
YEAR BEGAN:	2-1972				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	3020				
BEG. INJECTION:	1892				
LATEST:	1954				
NUMBER OF WELLS TOTAL:	4				
PRODUCING WELLS:	3				
INJECTION WELLS:	1				
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	0				
SURFACE INJECTION PRESSURE:	1000				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	---				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	49				
FROM BEG. INJECTION:	207				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	647				
WATER PRODUCTION:					
CURRENT (1977):	142				
CUMULATIVE TO 1/78:	834				
CURRENT (1977) INJECTION:	412SW				
CUMULATIVE INJECTION:	1061SW				

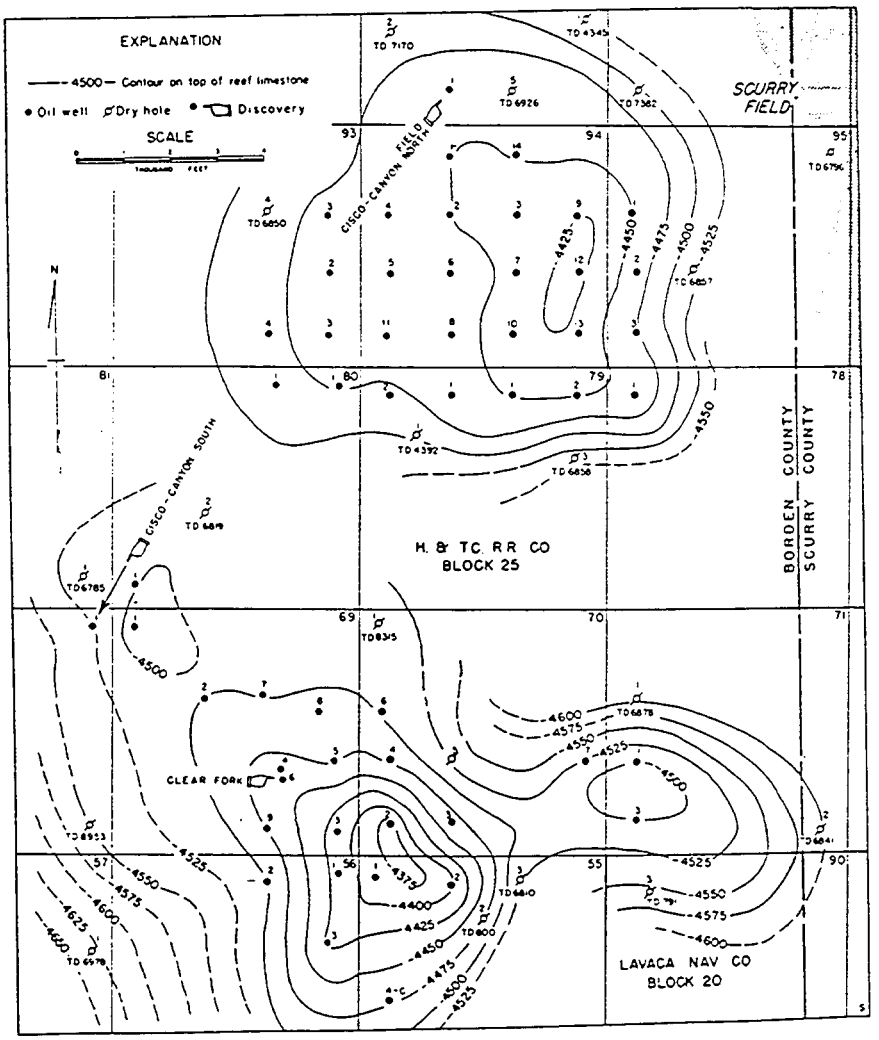
TYPICAL SECTION OF ROCKS PENETRATED

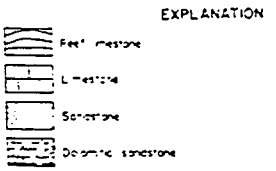






• In a few wells on the reef highs, the top few feet of productive limestone is probably Wolfcamp in age





Waddell
San Andres
Central Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Crane
	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
2	FIELD	Waddell
2	RESERVOIR	San Andres
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	8-27
2,16c	PROVED ACREAGE	8000; 10,000
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	3500, 3500
	RESERVOIR THICKNESS	
2,16c	NET PAY	53, 145
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.069 - .118
	PERMEABILITY	
2	RANGE	2-12 md
2	AVERAGE	7 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from Devonian, Ellenburger, Pennsylvanian, Upper Pennsylvanian, and Silurian.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	536 (187P-81I-268A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	89,942.1 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	1,554.2 mbbls oil; 843.5 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Waddell
	RESERVOIR:	San Andres
2, 16c	PROD. ACRES:	1337 and 8000; 10,000
2, 16c	AVG. THICKNESS (FT.):	53, 145
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.27
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.263 (76)
16c	WATER SATURATION (S_W):	.35 - .50
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	88
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1149
2	RESERVOIR PRESSURE INITIAL (psi):	1650
2	RESERVOIR PRESSURE LATEST (psi):	1345
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 3	STOCK TANK OIL GRAVITY (°API):	33-35.5, 33.70
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1124
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	no estimate
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	no estimate

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Waddell RESERVOIR: San Andres TOTAL NO. PROJECTS: 2 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	2158	92			
1977 PROD. (this project):	1814	85			
CUM. PROD. FROM DISC. TO 1/78:	57,465	1590			
PROJECT NO.	F1628	F1627			
LEASE NO.(s):	07153, 07155	07154, 07155			
OPERATOR:	Gulf Oil	Gulf Oil			
RESERVOIR:	San Andres	Grayburg-San Andres-Dolomite			
DEPTH PRODUCING ZONE:	3450-3500	3450			
PRODUCTIVE ACREAGE IN RESERVOIR:	8000	1337			
ACREAGE IN PROJECT:	5840	1337			
PORTION OR FIELD WIDE:	FW	---			
TYPE:	PM/SW, BW	PM/BW			
PATTERN:	P	---			
YEAR BEGAN:	1-59	7-64			
YEAR TERMINATED OR STATUS:	ICP	ICP			
RESERVOIR PRESSURE INITIAL:	1650	1440			
BEG. INJECTION:	843	263			
LATEST:	1345	192			
NUMBER OF WELLS TOTAL:	457	79			
PRODUCING WELLS:	143	44			
INJECTION WELLS:	73	8			
MAXIMUM:	---	---			
LATEST:	---	---			
SHUT-IN/ABANDONED WELLS:	241	27			
SURFACE INJECTION PRESSURE:	860, 860	1067			
EFFECTIVENESS OF INJECTION:	VE	NE			
OPERATOR PROBLEMS:	CR,CH,EW,SC	CR,SC,PA			
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---	---			
FROM BEG. INJECTION:					
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	---			
WATER PRODUCTION:					
CURRENT (1977):	21526	58			
CUMULATIVE TO 1/78:	172120	1801			
CURRENT (1977) INJECTION:	12983SW, 5893BW	1011BW			
CUMULATIVE INJECTION:	194258SW, 114299BW	14751 BW			

Wasson
San Andres
North Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2, 1	COUNTY	Yoakum/Gaines(M), Gaines
2, 1	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	North Basin Platform
2, 1	FIELD	Wasson
2	RESERVOIR	San Andres
5, 1	GEOLOGIC AGE	Guadalupian
2, 1	AAPG STRATIGRAPHIC AGE CODE	313
7,12c	RESERVOIR LITHOLOGY	"Backreef" dolomite sands grading into dolomite muds. Reservoir is a finely crystalline dolomite ∿ 350' to 500' below top of San Andres.
12c, 9c	TRAPPING MECHANISM	Primarily stratigraphic; anticline capped by dense dolomite and underlain by an essentially inactive aquifer.
1,2,3,9c	DISCOVERY YEAR	1937, 1935-37, 1937, 1936
9c,2,1,16c	PROVED ACREAGE	62500, 63514, 150, 63500
9a,1,9c	REGULAR WELL SPACING (acres/well)	40,20, 40 original w/20 infill
1,2,3,9c	RESERVOIR DEPTH	4900, 5031 avg., 4900, 5200
1,2,9a,12c,16c,9c	RESERVOIR THICKNESS	250, 160 avg., range 57-245, 111, 216,137
7,9a,12c,9c	NET PAY	500+, 450', 186', 200-500
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1,9c	FRACTION	.095 avg., range .085-.120, .115, .12
	PERMEABILITY	
2	RANGE	1 - 5 md
2,1,9c	AVERAGE	4 avg., 20 md, 5 md
2	HORIZONTAL	4 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Glorieta, Pennsylvanian, Wichita-Albany, Wolfcamp "66", "72" CO_2 enhanced pilot project.
14e		BETC/RI-78/15 list as most suitable for carbon dioxide EOR.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1,2,9c	TOTAL NUMBER OF WELLS	1797P 434I; 3393(1810P-1524I-59A); 1265 (902P-363I-14A)
	PRODUCTION 1976 oil (cum)	
1	PRODUCTION 1977 oil (cum)	1,042,773
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	1,190,937.1 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	72,049.5 mbbls oil; 43,183.2 mmcf gas
2	SECONDARY RECOVERY RECORDS?	Yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	Yes
12c	LOGS?	Yes
	STRUCTURE SECTION?	
9a	ENGINEERING REPORTS?	Yes
9a	CORE DESCRIPTIONS?	Yes

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Wasson
16c, 2, 1	RESERVOIR:	San Andres
9c,9a,12c,2,1,16c	PROD. ACRES:	63500, 63514 avg., 150
9c,9a,1,16c	AVG. THICKNESS (FT.):	137, 111, 160, 250, 216
9a, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.312, 1.310, 1.13, 1.312
9a, 1, 16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.224, 1.207 (76)
9a, 16c	WATER SATURATION (S_W):	0.26, .20, .11-.28
9a, 9c	OIL SATURATION (S_O):	0.31, .70(74)
12c, 9c	PRIMARY DRIVE MECHANISM:	solution gas
9a,17,9c	PRIMARY GAS CAP?:	yes
9c,16c,9a	TEMPERATURE (°F):	107, 103, 105
1,9a,2,9c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1805;1805;1805I; 900P
2,9a	RESERVOIR PRESSURE INITIAL (psi):	1805
9a, 9c	RESERVOIR PRESSURE LATEST (psi):	700-2000, 2000
1,17,9c	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	588, 420
9c,1,3,2	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1293.5(77), 1294, 600
9a, 9c,14e	STOCK TANK OIL GRAVITY (°API):	33, 34, 34, 32avg, 30-34 ran.
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}): cp	3.0, 1.18, 1.1
2	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1307
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 5 SRPs:	3,262,483 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 5 SRPs:	536,023 mbbls

OTHER INFORMATION:

12c Salinity: total dissolved solids/ppm producing initial 197,000; 60,000 present.

1 Primary recoverable: 91 bbl/acre-ft

9a Reference: Henry, J. O., 1975, Wasson/San Andres Field: SPE Improved Oil Recovery Field Report, Sept., V.1, N.2, p. 329-338.

9a Downs, S. L., and Gohel, Manhack, 1974, Injection Profile Corrections--A Review of Workover Techniques, Willard Unit: Jour. of Petroleum Technology, May, p.557-562.

12c Schneider, W. T. O., 1955, Wasson Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Economic Geology, Pub. No. 5716, August, p.377-384.

9c Ghauri, W. K., 1980, Production Technology Experience in a Large Carbonate Waterflood, Denver Unit, Wasson San Andres Field: Journal Of Petroleum Technology, Sept., p.1493-1502.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Wasson RESERVOIR: San Andres TOTAL NO. PROJECTS: 7

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

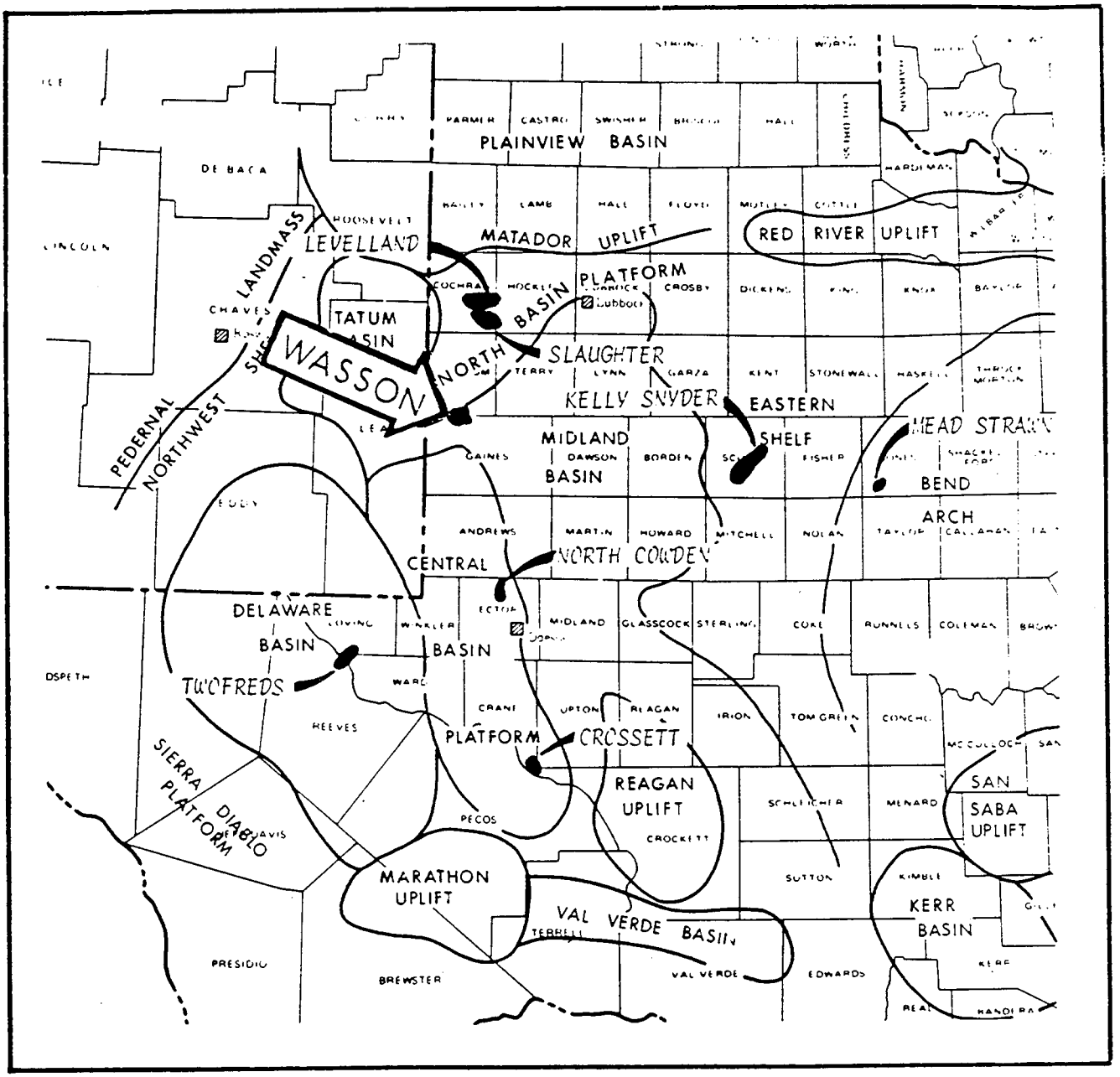
1976 PROD. (this project): MBBLS	4538	12491	8713	2253	1566
1977 PROD. (this project):	4315	11022	7292	2534	1477
CUM. PROD. FROM DISC. TO 1/78:	35090	90491	82796	21920	11484
PROJECT NO.	F1904	F1903	F1900	F1901	F1902
LEASE NO.(s):	19212	60000	19308	19453	07572
OPERATOR:	Texaco	Amoco	Arco	Cornell Oil	Mobil
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	5000	5100, 4900	5100	4900	4950
PRODUCTIVE ACREAGE IN RESERVOIR:	63500	63500	63500	67599	63500
ACREAGE IN PROJECT:	13575	7840	13130	1921	640
PORTION OR FIELD WIDE:					
TYPE:	WF/SW, FW	WF/SW,FW;PM/Gas	WF/SW,FW;MD/CO2	WF/SW, FW	PM/SW, FW
PATTERN:	P5	5LD	5LD	---	LD
YEAR BEGAN:	2-65	WF/4-66;PM/8-69	WF/4-65;MD/11-72	7-65	11-66
YEAR TERMINATED OR STATUS:	ICP	ICP	WF-ICP;MD-INS	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1805	1805	1805	1800	1805
BEG. INJECTION:	650	825	730	825	1035
LATEST:	---	700	2000	1574	1049
NUMBER OF WELLS TOTAL:	506	520	674	93	50
PRODUCING WELLS:	222	265	270	46	34
INJECTION WELLS:	120SW	128FW	202SW	20SW	8SW
MAXIMUM:	143FW	112SW	202FW	20FW	8FW
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	21	15	0	7	0
SURFACE INJECTION PRESSURE:	1775	750	1350	1120	600
EFFECTIVENESS OF INJECTION:	VE	VE	VE	---	VE
OPERATOR PROBLEMS:	---	SC	CR,EW,PA	CR,SC	CR,PA,IP
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---	11022	7280	2196	1477
FROM BEG. INJECTION:	---	90490	72781	17365	9613
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	---	1,145,000	34702	11315
WATER PRODUCTION:					
CURRENT (1977):	10300	23572	16864	1910	2249
CUMULATIVE TO 1/78:	31550	72964	81534	7859	7236
CURRENT (1977) INJECTION:	10300SW, 17929FW	23572SW, 17871FW	16864FW, 14508SW	2247SW, 5817FW	2249SW, 2652FW
CUMULATIVE INJECTION:	41874SW, 222300FW	72523SW, 202659FW	1565FW, 251281FW	8534SW, 75839FW	7110SW, 25056F
		4180 gas	3726 CO2		

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Wasson RESERVOIR: San Andres TOTAL NO. PROJECTS: 7 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	53355	3986			
1977 PROD. (this project):	50081	3521			
CUM. PROD. FROM DISC. TO 1/78:	388981	35330			
PROJECT NO.	F1905	F1906			
LEASE NO.(s):	18910	19151			
OPERATOR:	Shell Oil	Texas Pacific			
RESERVOIR:	San Andres	San Andres			
DEPTH PRODUCING ZONE:	5100	5200			4900
PRODUCTIVE ACREAGE IN RESERVOIR:	63500	63500			150
ACREAGE IN PROJECT:	25505	7027			13130
PORTION OR FIELD WIDE:					
TYPE:	WF/SW, FW	WF/SW, FW			WF, PM
PATTERN:	I9	LD			
YEAR BEGAN:	11-64	6-65			1965
YEAR TERMINATED OR STATUS:	ICP	ICP			
RESERVOIR PRESSURE INITIAL:					1805
BEG. INJECTION:	1805	1805			
LATEST:	825	500			
NUMBER OF WELLS TOTAL:	1140	410			
PRODUCING WELLS:	821	152			1797
INJECTION WELLS:	235FW	121SW			
MAXIMUM:	84SW	121FW			
LATEST:	---	---			
SHUT-IN/ABANDONED WELLS:	0	16			
SURFACE INJECTION PRESSURE:	1190-1445	---			
EFFECTIVENESS OF INJECTION:	---	VE			
OPERATOR PROBLEMS:	---	SC			
ESTIMATED PRODUCTION DUE TO INJ.:	37561	3521			
1977:	253255	33799			
FROM BEG. INJECTION:					
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	280,000	36,100			
WATER PRODUCTION:					
CURRENT (1977):	52698	7441			
CUMULATIVE TO 1/78:	197440	38759			
CURRENT (1977) INJECTION:	52698SW, 114682FW	7441SW, 8584FW			
CUMULATIVE INJECTION:	194341SW, 1072145FW	385235SW, 118226FW			

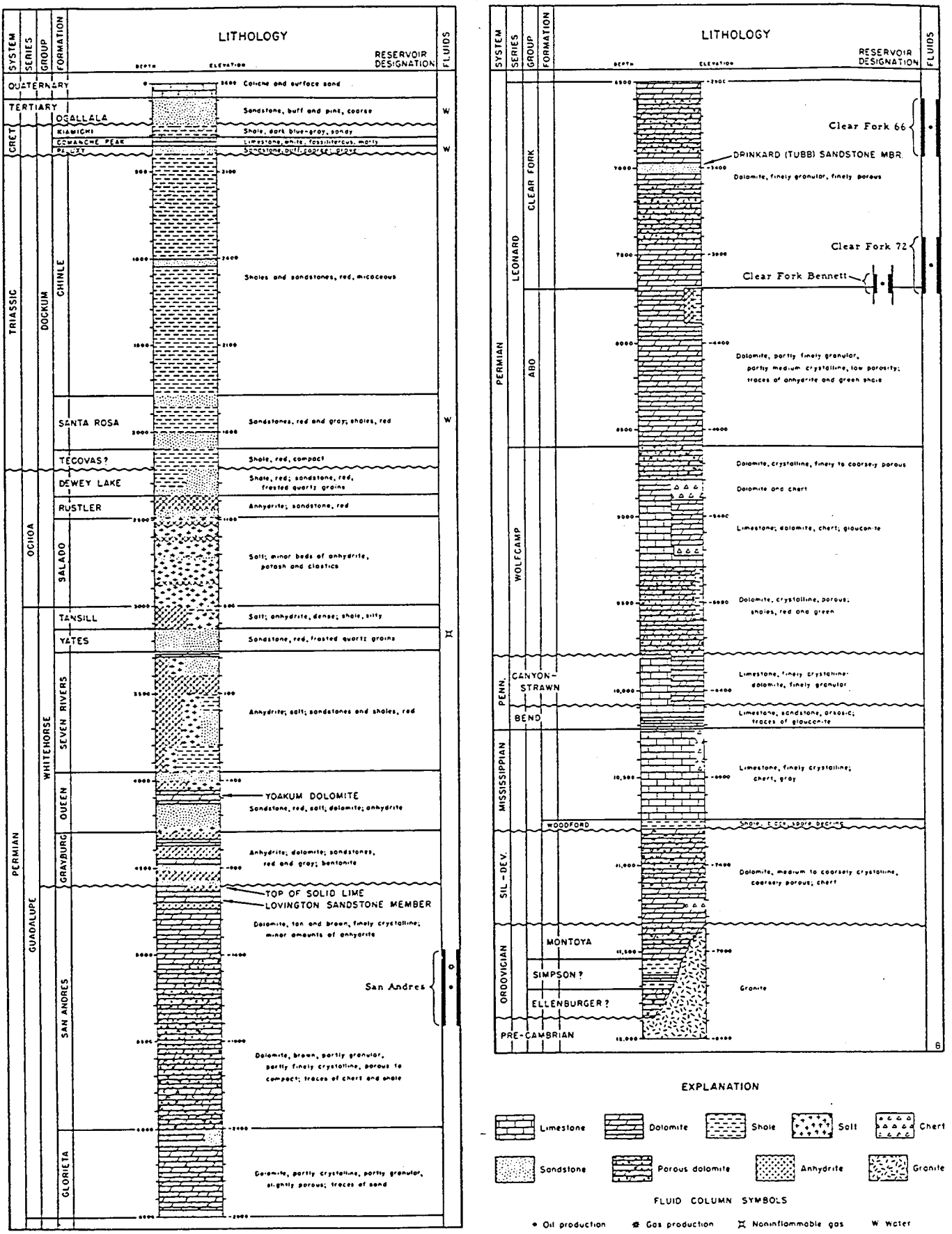


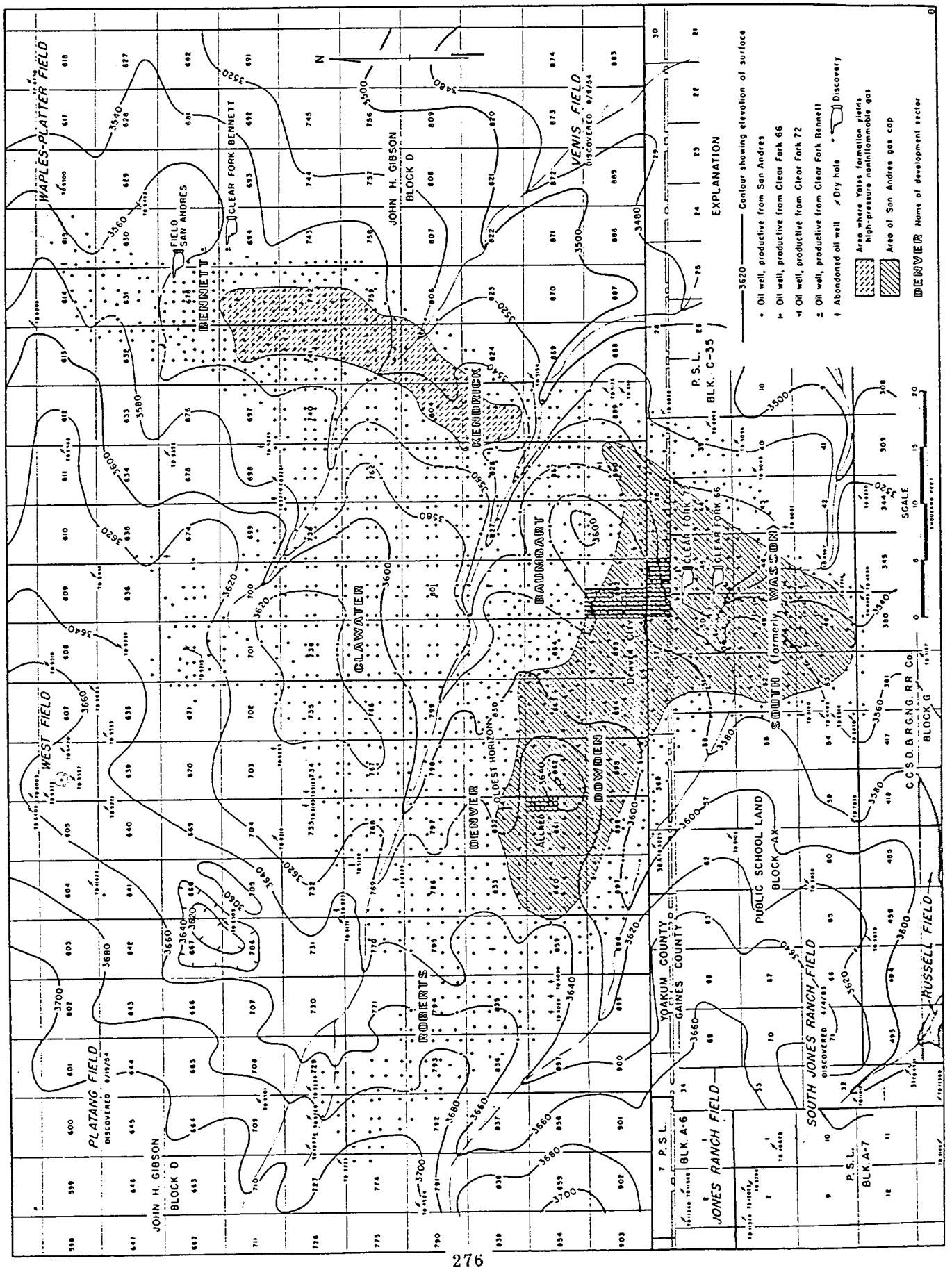
Index map: carbon dioxide injection projects in west Texas.

FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: Univ. of Texas, Bureau of Econ. Geol. Pub. 5716. August, 1957. Source 12c.

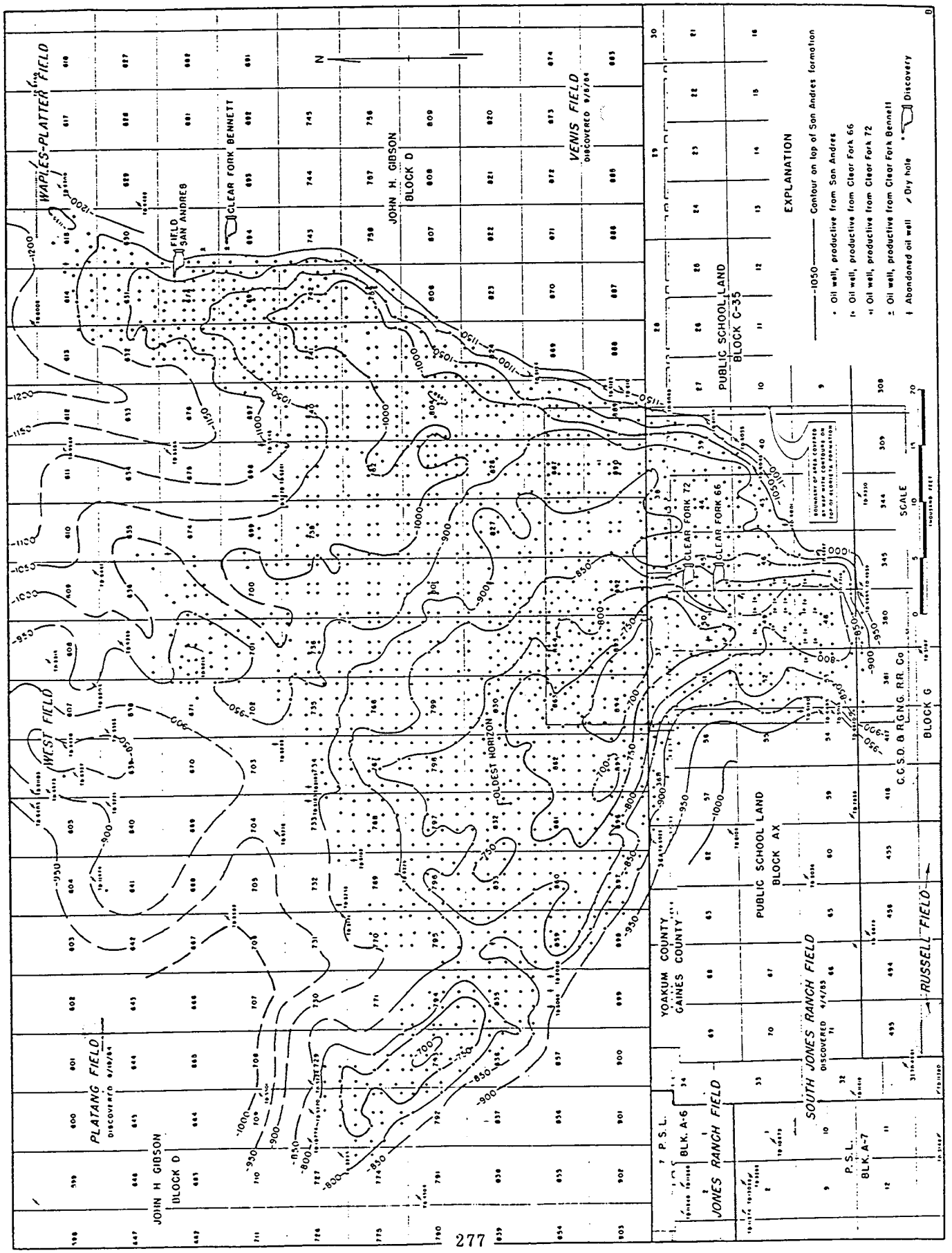
380 WASSON FIELD, Yoakum and Gaines Counties, Texas

GENERALIZED COMPOSITE SECTION OF ROCKS PENETRATED




WAPLES-PLATTER FIELD
VENIS FIELD
DISCOVERED 9/8/54
JOHN H. GIBSON
BLOCK D
CLEAR FORK BENNETT
FIELD SAN ANDRES
BENNETT
MENDRICK
CLAWATER
BAUMGART
DOWDEN
DENVER
OLDEST HORIZON
ROBERTS
WEST FIELD
PLATANG FIELD
DISCOVERED 8/19/54
SOUTH (formerly WASSON)
CLEAR FORK
CLEAR FORK 66
DENVER CITY
YOAKUM COUNTY
GAINES COUNTY
PUBLIC SCHOOL LAND
BLOCK AX
C.C.S.D.B.R.G.N.G. R.R. Co
BLOCK G
SOUTH JONES RANCH FIELD
DISCOVERED 4/4/55
RUSSELL FIELD
JONES RANCH FIELD
P.S.L. BLK. A-6
P.S.L. BLK. A-7
P.S.L. BLK. C-35
N
EXPLANATION
3620 Contour showing elevation of surface
Oil well, productive from San Andres
Oil well, productive from Clear Fork 66
Oil well, productive from Clear Fork 72
Oil well, productive from Clear Fork Bennett
Abandoned oil well
Dry hole
Discovery
Area where Yates formation yields high-pressure noninflammable gas
Area of San Andres gas cap
DENVER Name of development sector
SCALE

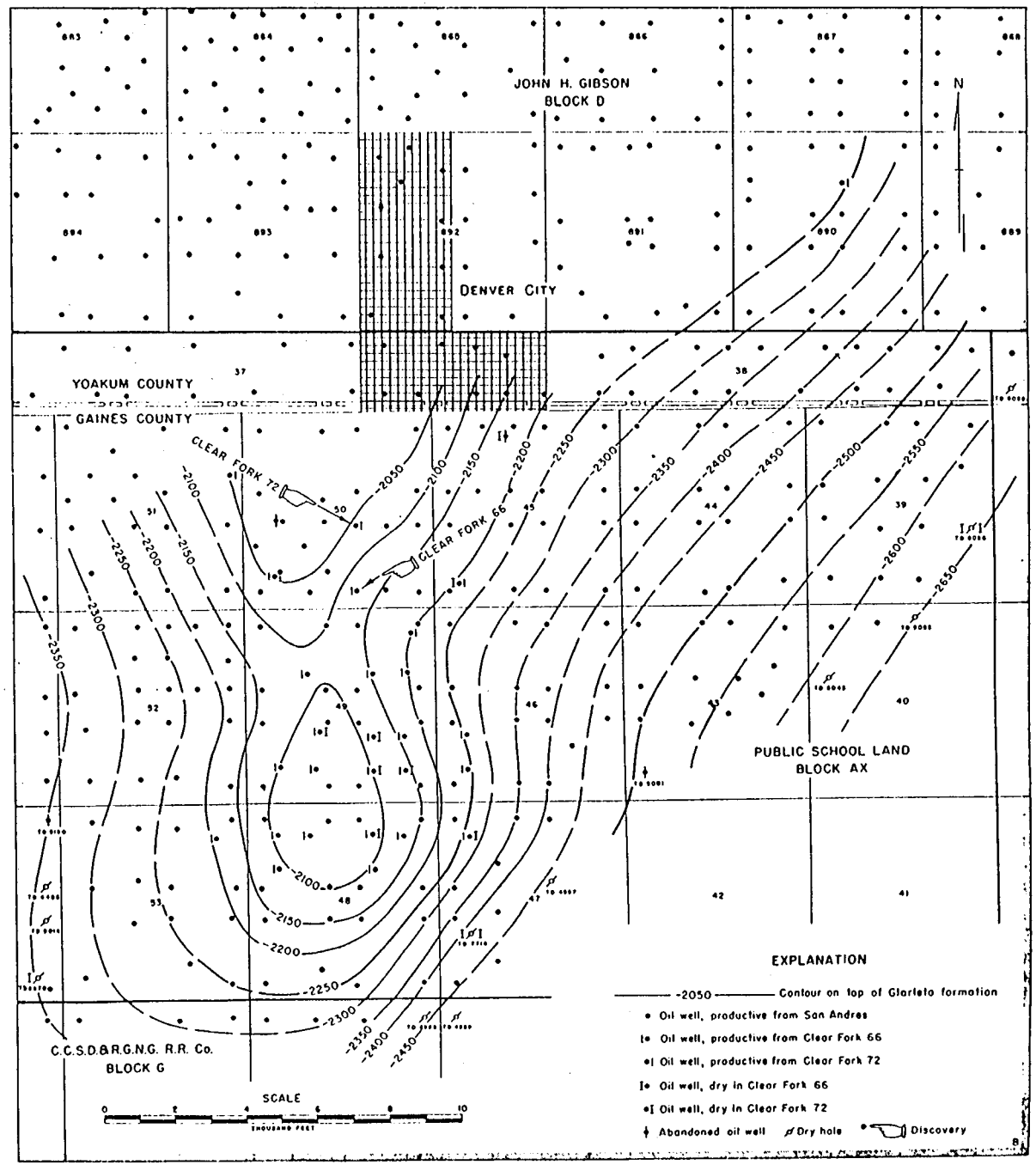
Source 12c.

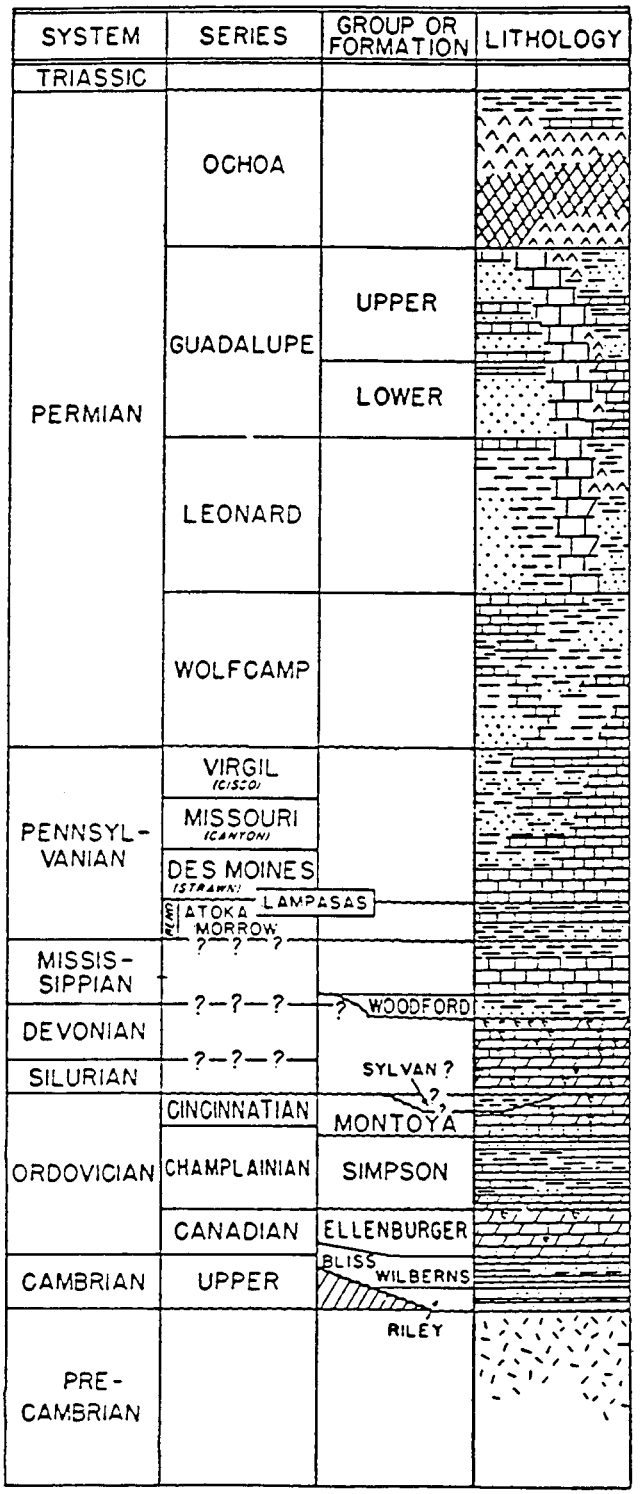

WAPLES-PLATTER FIELD
CLEAR FORK BENNETT
FIELD SAN ANDRES
JOHN H. GIBSON BLOCK D
VENIS FIELD
DISCOVERED 9/8/64
PUBLIC SCHOOL LAND BLOCK C-35
EXPLANATION
Contour on top of San Andres formation
Oil well, productive from San Andres
Oil well, productive from Clear Fork 66
Oil well, productive from Clear Fork 72
Oil well, productive from Clear Fork Bennett
Abandoned oil well
Dry hole
Discovery
SCALE
CLEAR FORK 72
CLEAR FORK 66
WEST FIELD
OLDEST HORIZON
C.C.S.D. & R.G.N.G. R.R. Co
BLOCK G
PUBLIC SCHOOL LAND BLOCK AX
YOAKUM COUNTY
GAINES COUNTY
SOUTH JONES RANCH FIELD
DISCOVERED 4/4/83
RUSSELL FIELD
PLATANG FIELD
DISCOVERED 8/18/64
JOHN H GIBSON BLOCK D
P.S.L. BLK. A-6
JONES RANCH FIELD
P.S.L. BLK. A-7

PRODUCTION HISTORY

Year	Wells producing at end of year: Flowing	Wells producing at end of year: Art. lift	Oil production (barrels): Yearly	Oil production (barrels): Cumulative
San Andres				
1936	1	0	9,506	9,506
1937	26	0	314,024	323,530
1938	201	0	2,801,645	3,125,175
1939	707	22	5,934,151	9,059,326
1940	1,021	23	10,976,744	20,036,070
1941	1,253	58	13,013,979	33,050,049
1942	1,311	68	9,511,962	42,562,011
1943	1,337	113	12,386,516	54,948,527
1944	1,366	143	23,725,909	78,674,436
1945	1,347	192	22,659,524	101,333,960
1946	1,346	198	20,706,513	122,040,473
1947	1,380	193	25,407,883	147,448,356
1948	1,377	211	28,165,780	175,614,136
1949	1,368	232	18,765,190	194,379,326
1950	1,387	247	18,051,249	212,430,575
1951	1,370	275	21,633,959	234,064,534
1952	1,376	302	19,438,608	253,503,142
1953	1,392	306	18,421,128	271,924,270
1954	1,380	319	15,415,569	287,339,839
Clear Fork 66				
1940	1	0	1,849	1,849
1941	1	0	19,173	21,022
1942	1	0	14,747	35,769
1943	1	0	19,013	54,782
1944	3	0	63,263	118,045
1945	11	0	245,461	363,506
1946	14	0	423,823	787,329
1947	14	6	512,459	1,299,788
1948	5	18	643,533	1,943,321
1949	1	21	447,359	2,390,680
1950	1	21	430,961	2,821,641
1951	1	21	502,507	3,324,148
1952	2	21	443,425	3,767,573
1953	1	22	421,714	4,189,287
1954	1	23	362,845	4,552,132
Clear Fork 72				
1941	1	0	1,077	1,077
1942	1	0	33,819	34,896
1943	1	0	14,932	49,828
1944	6	0	62,611	112,439
1945	10	0	180,232	292,671
1946	10	2	183,048	475,719
1947	5	2	129,927	605,646
1948	4	2	72,604	678,250
1949	0	5	37,290	715,540
1950	0	5	36,474	752,014
1951	0	5	34,988	787,002
1952	0	4	31,973	818,975
1953	0	4	29,473	848,448
1954	0	4	25,116	873,564
Clear Fork Bennett				
1954	0	2	11,954	11,954

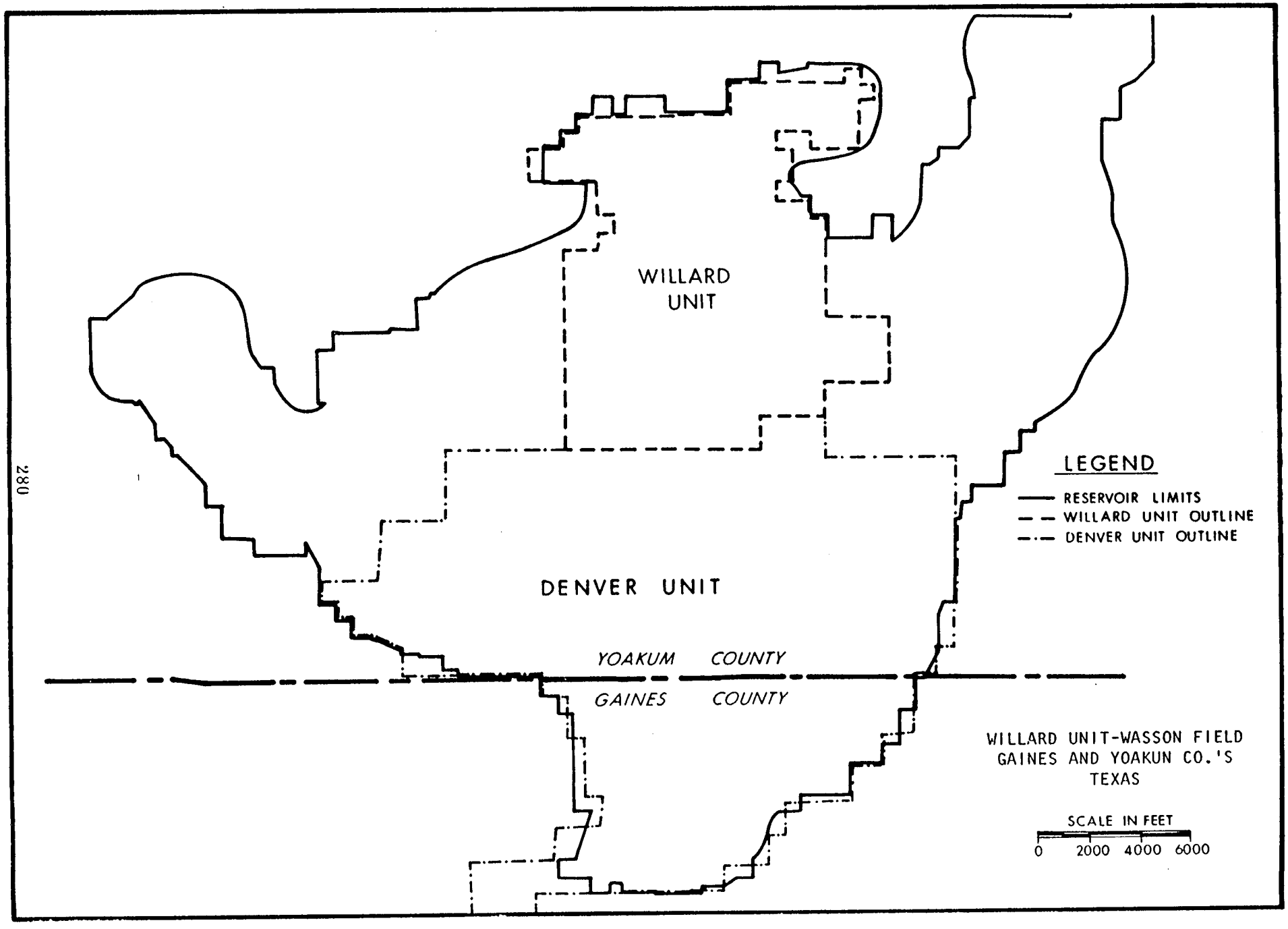
GAS PRODUCTION: Although in the San Andres reservoir there was a gas cap which extended over an area of about 12,800 acres and which contained a large volume of free gas, there were only very few wells ever operated as gas wells. From time to time, there have been one, two or three wells operated temporarily as gas wells. The total quantity of gas produced by such wells has been relatively small. However, a very large quantity of gas has been produced incidental to the production of oil from the San Andres reservoir and minor amounts from the Clear Fork 66 and Clear Fork 72 reservoirs. The writer estimates that the total quantity of gas produced to January 1, 1941, amounted to 35,500,000 Mcf and to January 1, 1955, to 449,288,727 Mcf. Practically all of this gas has been treated in one or the other of two gasoline plants (combined capacity, 142,000 Mcf per day) located within the field. The liquid products have been exported mainly through two 6-inch pipelines, only one of which is now operating.

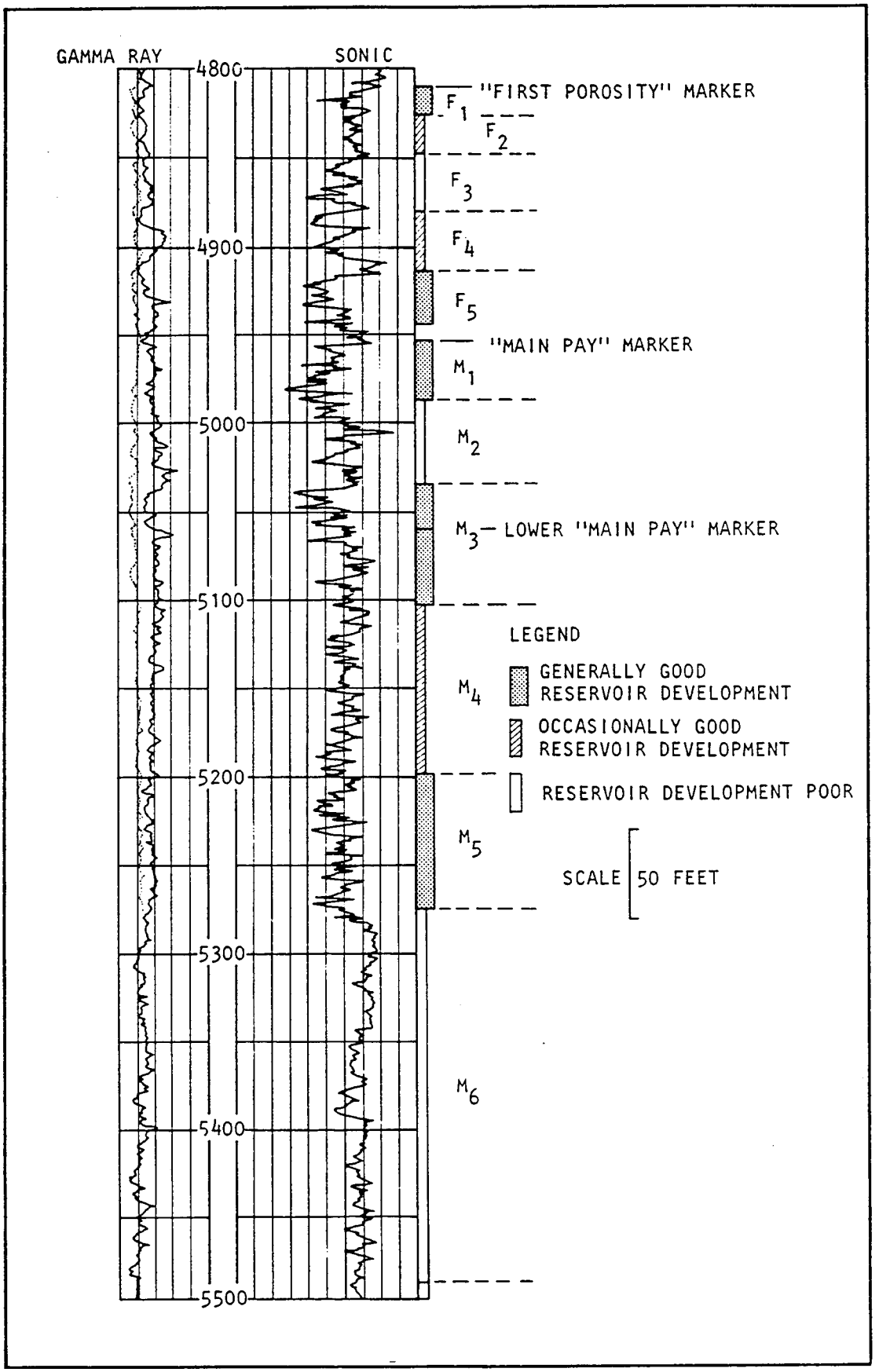




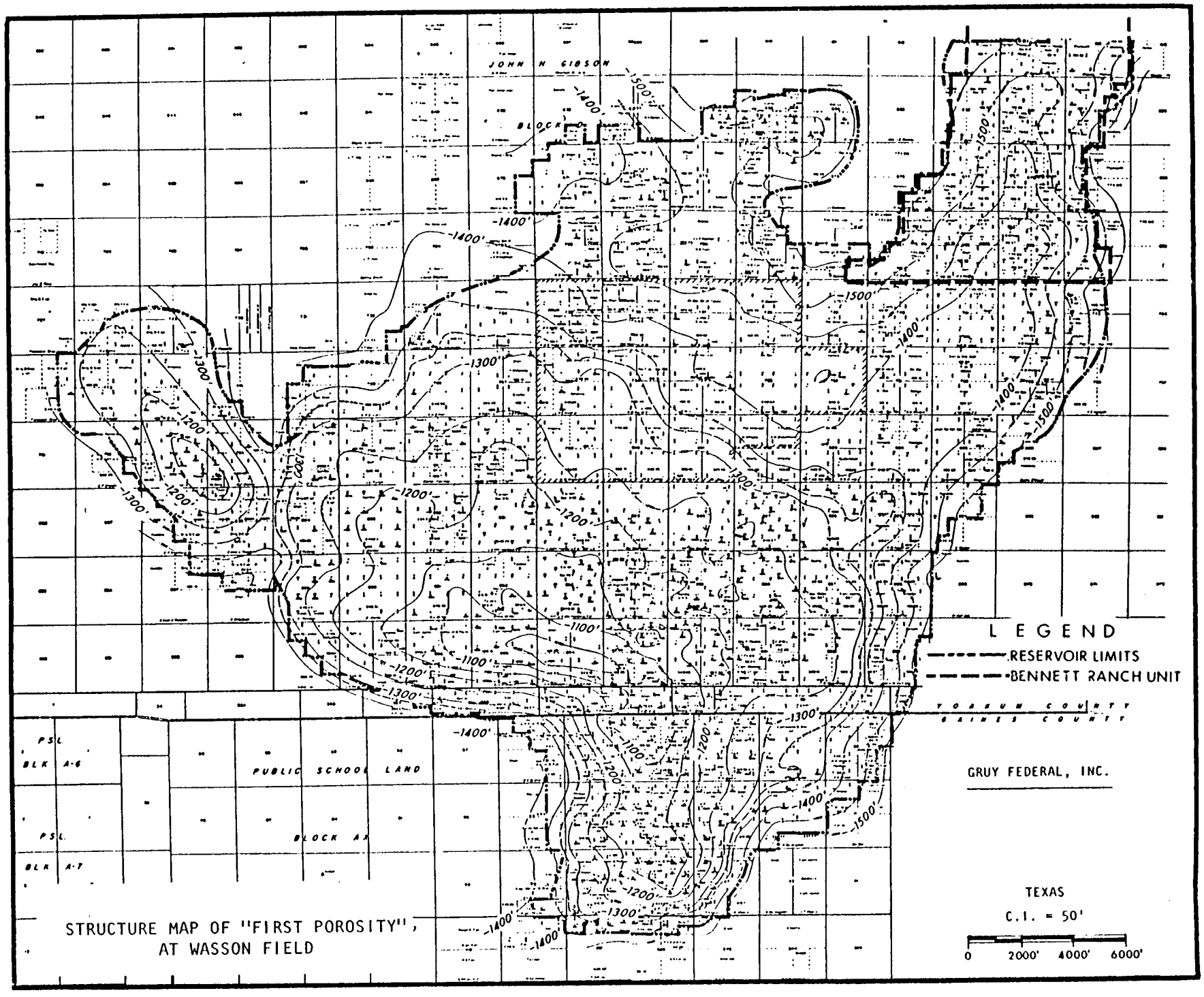
● WASSON SAN ANDRES PRODUCTION

GEOLOGIC COLUMN AND STRATIGRAPHIC NOMENCLATURE, WASSON FIELD AREA, PERMIAN BASIN, WEST TEXAS.

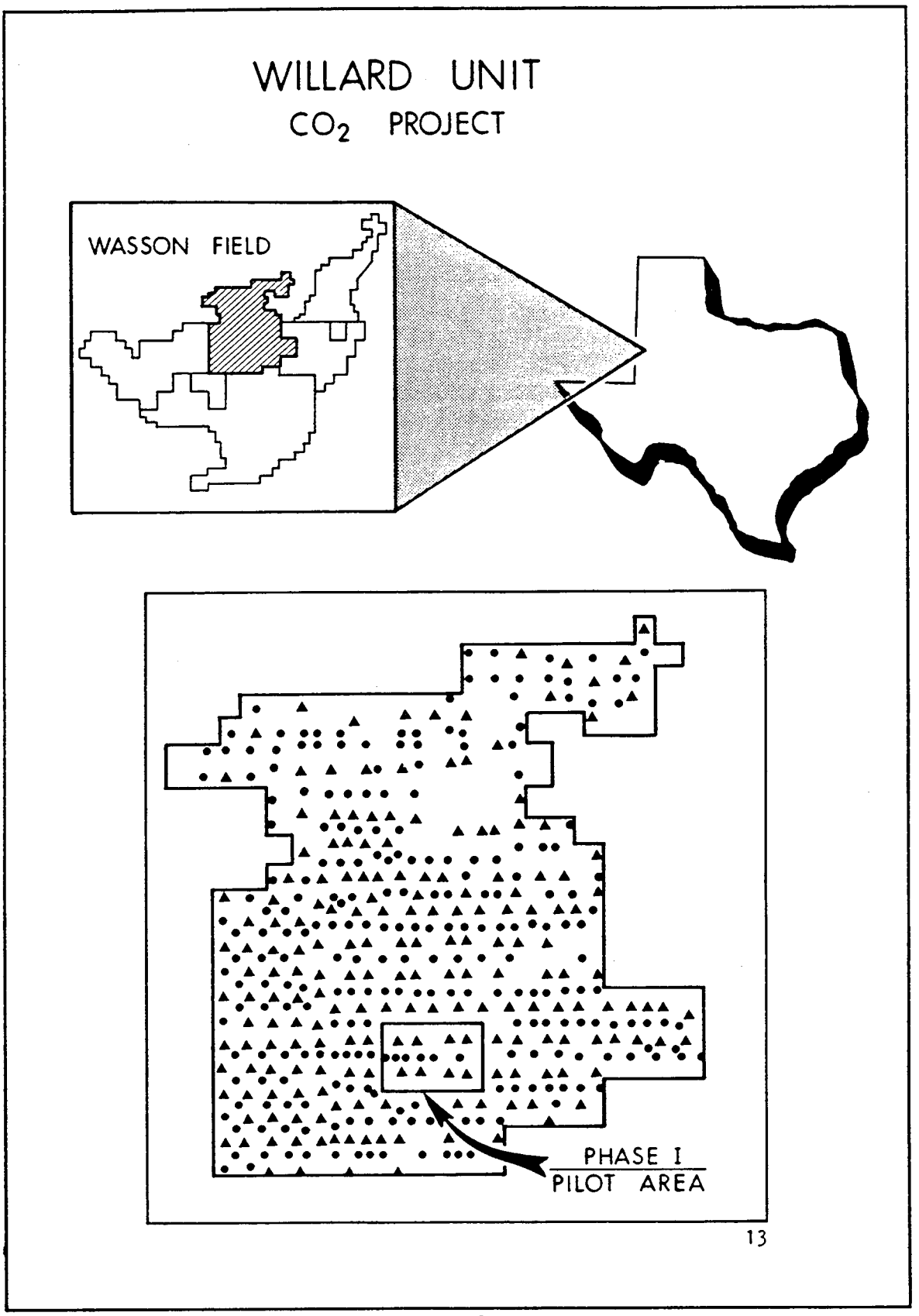

WILLARD UNIT
DENVER UNIT
YOAKUM COUNTY
GAINES COUNTY
LEGEND
RESERVOIR LIMITS
WILLARD UNIT OUTLINE
DENVER UNIT OUTLINE
WILLARD UNIT-WASSON FIELD
GAINES AND YOAKUN CO.'S
TEXAS
SCALE IN FEET
0 2000 4000 6000



TYPE LOG SHOWING ZONATION OF SAN ANDRES PAY.
WASSON FIELD/DENVER UNIT/, GAINES AND YOAKUM COUNTIES, TEXAS



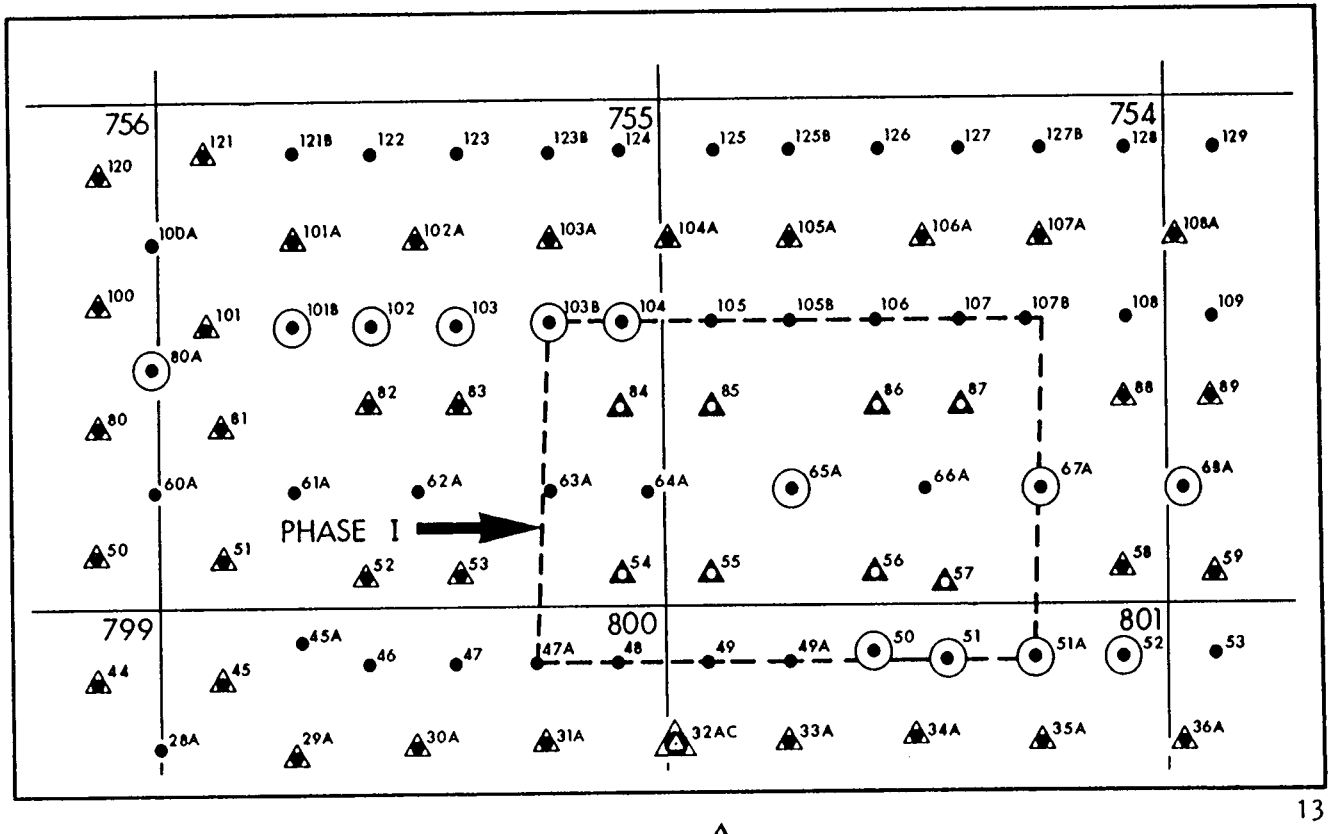
STRUCTURE MAP OF "FIRST POROSITY", AT WASSON FIELD



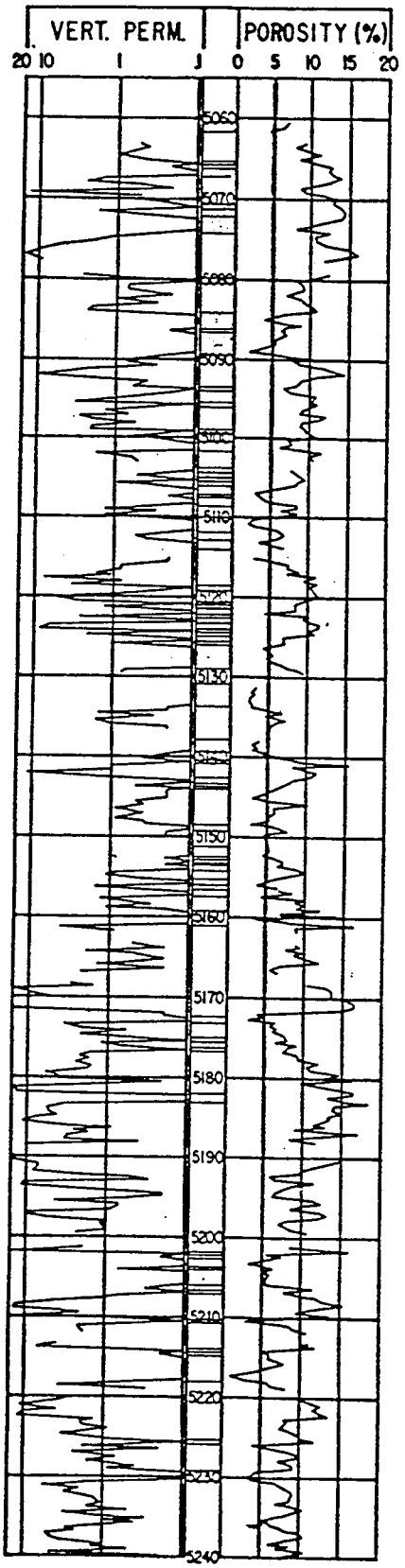
LOCATION OF WILLARD UNIT CO_2 INJECTION PROJECT

WILLARD UNIT

PHASE I

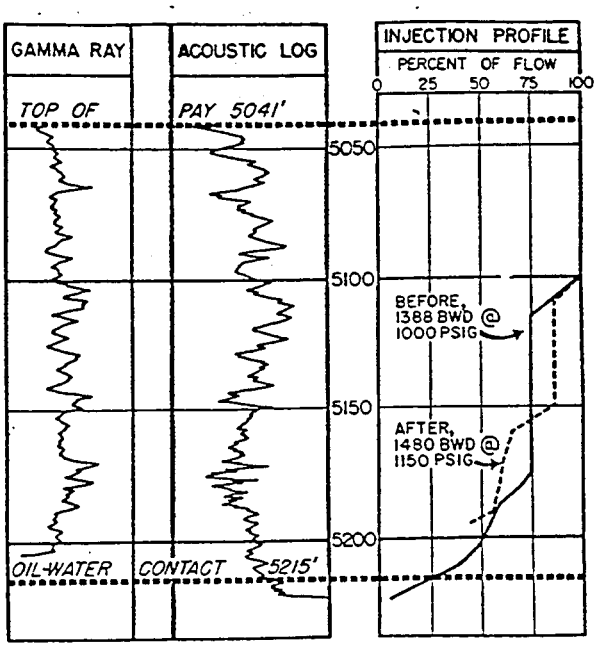


PHASE 1 AREA

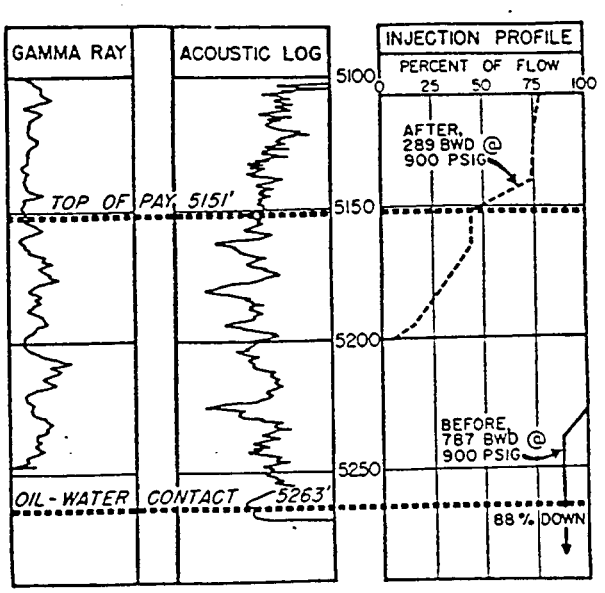


—San Andres core analysis, Willard Unit.

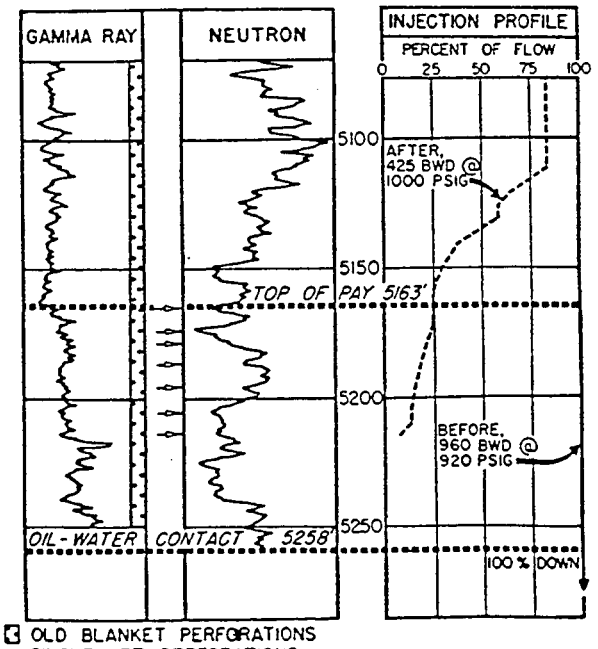
FROM: Downs, S.L., and Gohel, M.K., 1974, Injection Profile Corrections-A Review of Workover Techniques, Willard Unit: Jour. Petroleum Technology, May, p. 557-562.



—Workover and results, Willard Unit Well A.

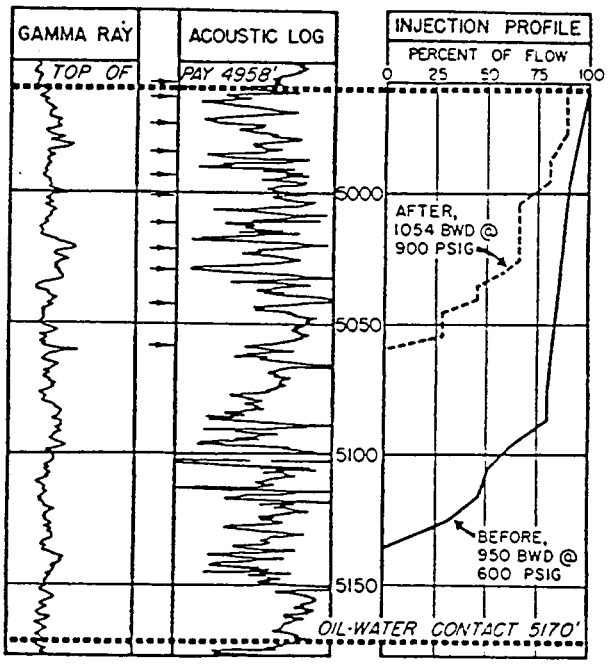


—Workover and results, Willard Unit Well B.



OLD BLANKET PERFORATIONS
SINGLE JET PERFORATIONS

—Workover and results, Willard Unit Well C.



SINGLE JET PERFORATIONS

—Workover and results, Willard Unit Well D.

FROM: Downs, S.L., and Gohel, M.K., 1974, Injection Profile Corrections-A Review of Workover Techniques, Willard Unit: Jour. Petroleum Technology, May, p. 557-562.

Wasson 72
Clear Fork 72
North Basin Platform

DATA SOURCE CODE		
3	STATE	Texas
3	COUNTY	Gaines
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	North Basin Platform
3	FIELD	Wasson 72
3, 12c	RESERVOIR	Clear Fork 72
	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
12c	RESERVOIR LITHOLOGY	Dolomite, fine grained with low porosity & permeability.
12c	TRAPPING MECHANISM	Structural nose which may be due to reefing and differential movement; also permeability and porosity control.
3,12c	DISCOVERY YEAR	1941
12c,17	PROVED ACREAGE	480, 8320(calculated from Glorieta top from 12c maps)
	REGULAR WELL SPACING (acres/well)	
3	RESERVOIR DEPTH	7200
	RESERVOIR THICKNESS	
16c	NET PAY	74-300
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
12c	FRACTION	low
	PERMEABILITY	
	RANGE	
12c	AVERAGE	low
	HORIZONTAL	
	VERTICAL	
12c	OTHER INFORMATION	Production from San Andres, Clear Fork 66, Clear Fork 72, Clear Fork Bennett.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
	TOTAL NUMBER OF WELLS	
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	35,192.2 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	1,444.1 mbbls oil; 2,872.3 mmcf gas
	SECONDARY RECOVERY RECORDS?	No
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes - See Wasson-San Andres
12c	LOGS?	yes - See Wasson-San Andres
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
3, 12c	FIELD:	Wasson
	RESERVOIR:	"72"
12c , 17	PROD. ACRES:	480, 8320
16c ,12c	AVG. THICKNESS (FT.):	74-300, 323
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.3
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.12 (74)
16c	WATER SATURATION (S_W):	.24 - .36
16c	OIL SATURATION (S_O):	.65(74)
	PRIMARY DRIVE MECHANISM:	
12c	PRIMARY GAS CAP?:	no
16c	TEMPERATURE (°F):	122
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1673
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
3	STOCK TANK OIL GRAVITY (°API):	31
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1551
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

12c Reference: Schneider, W. T., 1955, Wasson Field Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Economic Geology, Pub. No. 5716, August, p. 377-384.

Wasson, NE
Clear Fork
North Basin Platform

DATA SOURCE CODE		
	STATE	Texas
3	COUNTY	Gaines (M)
3	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	North Basin Platform
3	FIELD	Wasson, NE
3	RESERVOIR	Clear Fork
	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
3	DISCOVERY YEAR	9-1954
	PROVED ACREAGE	
	REGULAR WELL SPACING (acres/well)	
3	RESERVOIR DEPTH	7800
	RESERVOIR THICKNESS	
	NET PAY	
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
	FRACTION	
	PERMEABILITY	
	RANGE	
	AVERAGE	
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	Other production from Wichita-Albany
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
	TOTAL NUMBER OF WELLS	
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	9,755.1 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	304.6 mbbls oil; 470.9 mmcf gas
	SECONDARY RECOVERY RECORDS?	No
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Wasson, NE
3	RESERVOIR:	Clear Fork
	PROD. ACRES:	
	AVG. THICKNESS (FT.):	
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (^oF):	121
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
3	STOCK TANK OIL GRAVITY (^oAPI):	30.1
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1542
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

Welch
San Andres
Midland Basin

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Dawson
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	Midland Basin
2	FIELD	Welch
2	RESERVOIR	San Andres
5,1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
5a	RESERVOIR LITHOLOGY	Tan granular anhydrite dolomite.
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	1936 to 1957; 1941
2,16c	PROVED ACREAGE	7555 avg., 746-16480 range; 17500
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	4911 avg., 4850-4950; 5000
	RESERVOIR THICKNESS	
2,16c	NET PAY	44.2 avg., range 20-79; 25-100
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.110 avg., range .093 to .124
	PERMEABILITY	
2	RANGE	3-9 md.
2,14e	AVERAGE	4.6 md, 4 md
2	HORIZONTAL	4.6 md
	VERTICAL	
14e	OTHER INFORMATION	BETC/RI-78/15 list as being most suitable for carbon dioxide EOR.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	1279 (448P-729I-102A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	109,507.0 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	3,875.6 mbbls oil; 646.7 mmcf gas
2	SECONDARY RECOVERY RECORDS?	Yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Welch
2	RESERVOIR:	San Andres
2, 16c	PROD. ACRES:	7555 avg., 17500
2, 16c	AVG. THICKNESS (FT.):	44.2 avg., 25-100
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.1
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.11(76)
16c	WATER SATURATION (S_W):	.173 - .40
16c	OIL SATURATION (S_O):	.68(74)
14e	PRIMARY DRIVE MECHANISM:	not water drive
14e	PRIMARY GAS CAP?:	no
16c, 14e	TEMPERATURE (°F):	92, 93 BHT
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	340
2	RESERVOIR PRESSURE INITIAL (psi):	2100-2200
2	RESERVOIR PRESSURE LATEST (psi):	325-2552
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3, 14e	STOCK TANK OIL GRAVITY (°API):	33-38, 33,33
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	2.32 cp
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1176
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 5 SRPs:	508,813 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 5 SRPs:	55,122 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Welch RESERVOIR: San Andres TOTAL NO. PROJECTS: 5

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	1857	1641	1379	129	14
1977 PROD. (this project):	1662	1396	1396	142	11
CUM. PROD. FROM DISC. TO 1/78:	34102	13766	14351	1089	185
PROJECT NO.	F1909	F1908	F1911	F1910	F1907
LEASE NO.(s):	14783	60337	19573	60301	18403
OPERATOR:	Cities Ser.	Cities Ser.	Gulf	Gulf	Naromos N.Am.Inc
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4900	4950	4850	4950	4905
PRODUCTIVE ACREAGE IN RESERVOIR:	16480	12000	7460	1090	746
ACREAGE IN PROJECT:	9415	2833	6873	1090	160
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, BW	WF/SW, BW	WF/BW
PATTERN:	5S	5S	5S	5S	5S
YEAR BEGAN:	7-55	1-69	4-60, 3-66	1-68	4-67
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	2200	2100	2100	2100	2100
BEG. INJECTION:	325	270	325	250	325
LATEST:	---	---	2552	---	---
NUMBER OF WELLS TOTAL:	705	209	318	43	4
PRODUCING WELLS:	199	71	156	19	3
INJECTION WELLS:	203SW	68SW	81SW	12SW	1
MAXIMUM:	203FW	68FW	81BW	12BW	---
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	100	2	0	0	0
SURFACE INJECTION PRESSURE:	1756	1286	1650	1500	2000
EFFECTIVENESS OF INJECTION:	ME	VE	VE	VE	ME
OPERATOR PROBLEMS:	CR,SC,PA,IP	CR,SC,PA	---	---	PA,CR, SC
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	1662	1212	1153	139	11
FROM BEG. INJECTION:	26279	12200	10199	909	123
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	54924	30000-0	14500	1050	135
WATER PRODUCTION:					
CURRENT (1977):	3130	4400	1938	831	3
CUMULATIVE TO 1/78:	26393	19536	15847	3181	49
CURRENT (1977) INJECTION:	3138SW, 4094FW	4400SW, 2986FW	1938SW, 3310BW	831SW, 39BW	31BW
CUMULATIVE INJECTION:	25676SW, 96992FW	19317SW, 34433FW	10460SW, 52118BW	3178SW, 3178BW	207BW

Wellman
Wolfcamp
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
5a,1	COUNTY	Terry
5a,1	REGULATORY DISTRICT	8A
5a,1	BASIN	Permian
15	SUB-BASIN	Midland Basin
5a,1	FIELD	Wellman
5a	RESERVOIR	Wolfcamp Reef
5,1	GEOLOGIC AGE	Permian-Wolfcamp
1	AAPG STRATIGRAPHIC AGE CODE	319
5a,1	RESERVOIR LITHOLOGY	Limestone, fine to medium crystalline, fossiliferous, with pinpoint vuggy porosity; limestone.
5a,1	TRAPPING MECHANISM	Convex trap formed by reef pinnacle; bioherm (reef).
1,5a,3	DISCOVERY YEAR	1950; 10-50, 7-1950
5a,1,16c	PROVED ACREAGE	1200, 200, 1200
	REGULAR WELL SPACING (acres/well)	
5a,3,1	RESERVOIR DEPTH	9515-9665; 9712; 9712
	RESERVOIR THICKNESS	
1	NET PAY	350
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
5a	TYPE	IC, V
1	FRACTION	.075
	PERMEABILITY	
	RANGE	
1	AVERAGE	231 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from Fusselman
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	29P
1	PRODUCTION 1976 oil (cum)	36,643
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	44,709.9 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	2,682.6 mbbls oil; 1,134.2 mmcf gas
	SECONDARY RECOVERY RECORDS?	No
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5a	STRUCTURE CONTOUR?	Yes
5a	LOGS?	Yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

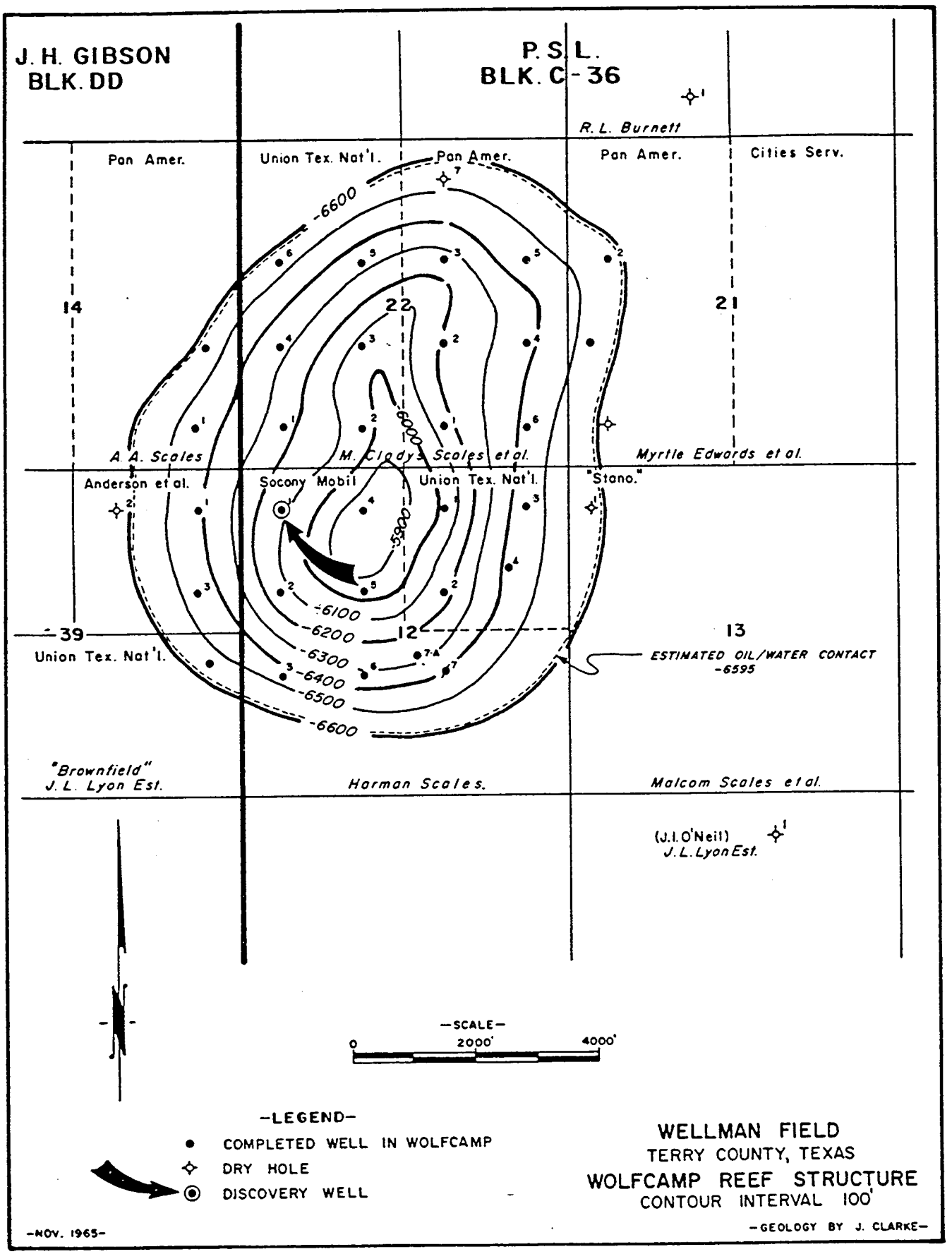
RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Wellman
5a	RESERVOIR:	Wolfcamp Reef
5a,1,16c	PROD. ACRES:	1200, 200, 1200
1	AVG. THICKNESS (FT.):	350
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.39
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.39(66)
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
5a	PRIMARY DRIVE MECHANISM:	water drive
	PRIMARY GAS CAP?:	
5a,1,16c	TEMPERATURE (°F):	150
5a,16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1290, 1305
5a, 1	RESERVOIR PRESSURE INITIAL (psi):	4150
	RESERVOIR PRESSURE LATEST (psi):	
5a, 1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	350:1, 470
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	414.3(76)
5a,3,1	STOCK TANK OIL GRAVITY (°API):	41 to 44, 42, 42
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1851
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

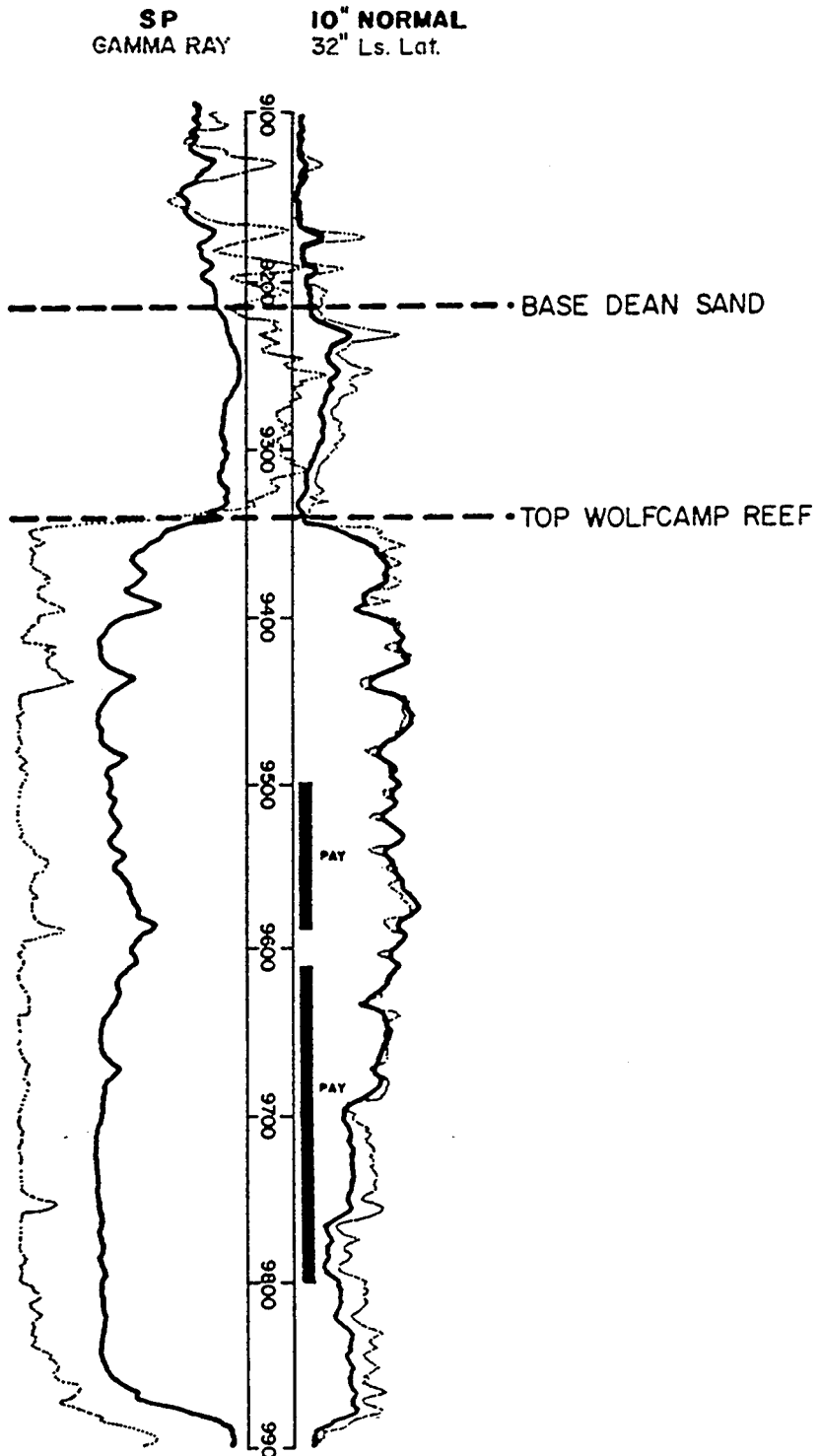
1 Primary recoverable: 55 bbl/acre-ft.

1 Rw = .05 ohm-meters @ 75°F



FROM: OIL & GAS FIELDS IN WEST TEXAS, WEST TEXAS GEOLOGICAL SOCIETY PUB. NO. 66-52, 1955

TYPICAL LOG
UNION TEX. No. 2 M.G. SCALES
WELLMAN FIELD
TERRY COUNTY, TEXAS
SCALE 1 in. = 100 ft.



FROM: OIL & GAS FIELDS IN WEST TEXAS, WEST TEXAS GEOLOGICAL SOCIETY PUB. NO. 66-52, 1966.

World, West
Strawn
Reagan Uplift

DATA SOURCE CODE		
	STATE	Texas
2,1	COUNTY	Crockett
2,1	REGULATORY DISTRICT	7C
1	BASIN	Permian
15	SUB-BASIN	Reagan Uplift
2,1	FIELD	World, West
2,1	RESERVOIR	Strawn
5,1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	325
1,12c	RESERVOIR LITHOLOGY	Limestone
	TRAPPING MECHANISM	
1,2,3	DISCOVERY YEAR	1954, 4-54, 3-1954
2,1,16c	PROVED ACREAGE	2940
1	REGULAR WELL SPACING (acres/well)	80
1,2,3	RESERVOIR DEPTH	8190
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	33, 41, 33
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.092, .17
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	10, 87 md
2	HORIZONTAL	10 md
	VERTICAL	
12c	OTHER INFORMATION	Other reservoir is the Grayburg.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1,2	TOTAL NUMBER OF WELLS	29P, 3I; 29 (25P-1I-3A)
1	PRODUCTION 1976 oil (cum)	7921
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	8,103.4 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	62.1 mbbls oil; 648 mmcf gas
2	SECONDARY RECOVERY RECORDS?	Yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
12c	LOGS?	Yes, from World field
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2,1	FIELD:	World, West
2,1,16c	RESERVOIR:	Strawn
2,1,16c	PROD. ACRES:	2940
2,1,16c	AVG. THICKNESS (FT.):	33, 41, 33
1, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	2.618
	FORMATION VOLUME FACTOR LATEST (FVF):	
1, 16c	WATER SATURATION (S_W):	.20
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion
12c	PRIMARY GAS CAP?:	no
16c	TEMPERATURE (°F):	158
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	3275
1,2	RESERVOIR PRESSURE INITIAL (psi):	3447
2	RESERVOIR PRESSURE LATEST (psi):	1760
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	2100
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	57(76)
2,3,1	STOCK TANK OIL GRAVITY (°API):	44.1, 46, 46.6
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1931
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	15,500 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	3,700 mbbls

OTHER INFORMATION:

16c ORIGINAL OIL IN PLACE: 23,753,000 bbl

12c Spencer, Maria and Muery, Warren, 1954, World Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Economic Geology, Pub. No. 5716, August, p.422-425 - adjacent to World, West.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: World, West RESERVOIR: Strawn TOTAL NO. PROJECTS: 1 PDS:

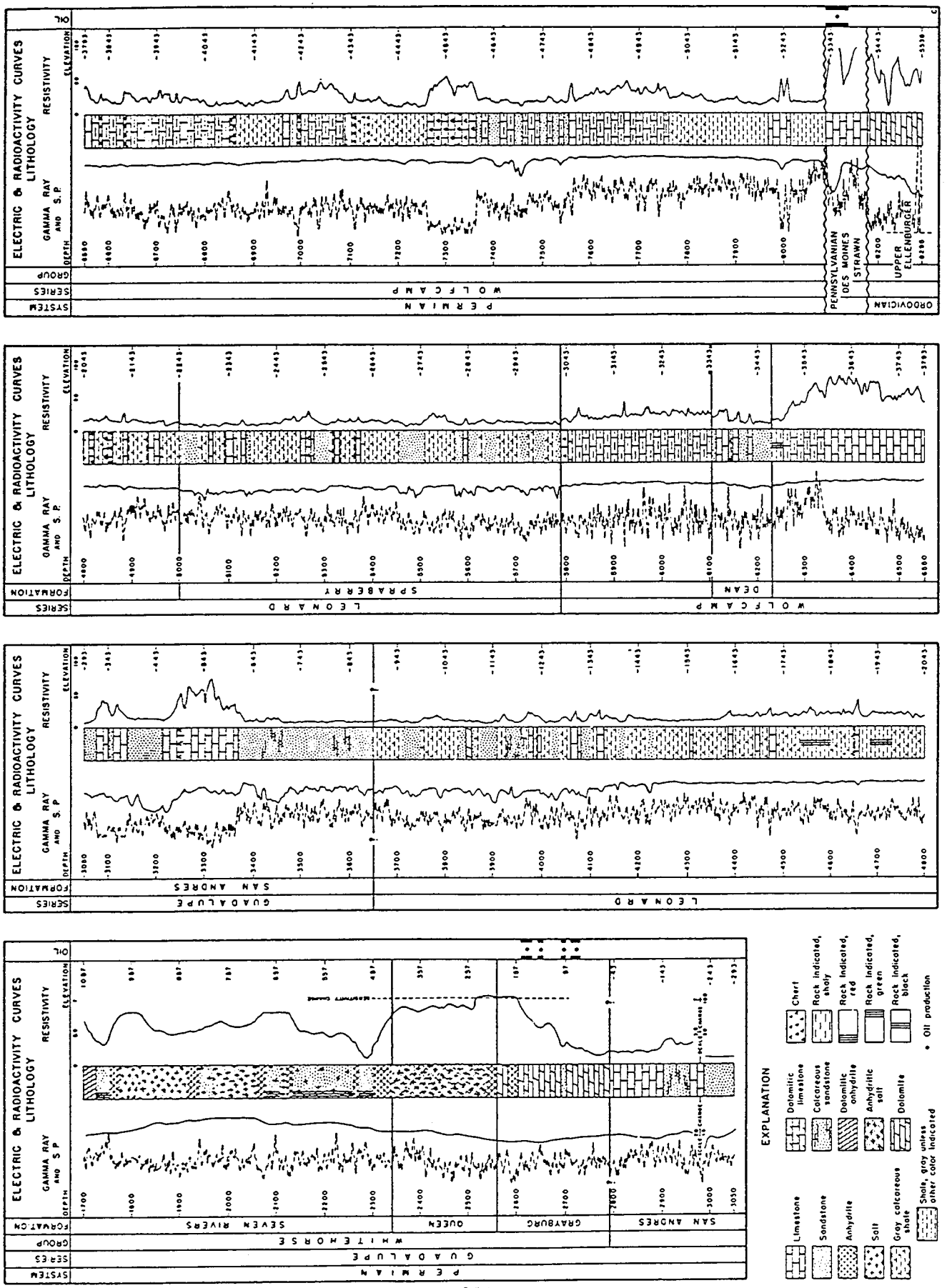
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	56				
1977 PROD. (this project):	43				
CUM. PROD. FROM DISC. TO 1/78:	7232				
PROJECT NO.	F1091				
LEASE NO.(s):	03241				
OPERATOR:	Cities				
RESERVOIR:	Strawn				Strawn
DEPTH PRODUCING ZONE:	8190				8190
PRODUCTIVE ACREAGE IN RESERVOIR:	2940				2940
ACREAGE IN PROJECT:	2940				2940
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW, Gas				WF, PM
PATTERN:	SW				
YEAR BEGAN:	SW/12-68; Gas/11-55				1955
YEAR TERMINATED OR STATUS:	SW-ICP; Gas-ITD/5-72				
RESERVOIR PRESSURE INITIAL:	3447				3447
BEG. INJECTION:	3258				
LATEST:	1760				
NUMBER OF WELLS TOTAL:	29				
PRODUCING WELLS:	25				29
INJECTION WELLS:	1				3
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	3				
SURFACE INJECTION PRESSURE:	950				
EFFECTIVENESS OF INJECTION:	---				
OPERATOR PROBLEMS:	---				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	43				
FROM BEG. INJECTION:	7232				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---				
WATER PRODUCTION:					
CURRENT (1977):	30				
CUMULATIVE TO 1/78:	813				
CURRENT (1977) INJECTION:	30SW				
CUMULATIVE INJECTION:	328SW, 55904Gas				

WORLD FIELD, Crockett County, Texas

OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OR ECON GEOLOGY PUB. 5716

TYPICAL SECTION OF ROCKS PENETRATED



Yarbrough & Allen
Devonian
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Ector
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
2	FIELD	Yarbrough & Allen
2	RESERVOIR	Devonian
5	GEOLOGIC AGE	Devonian
1	AAPG STRATIGRAPHIC AGE CODE	340
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	11-54
2	PROVED ACREAGE	1600
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	8500, 8505
	RESERVOIR THICKNESS	
2	NET PAY	80
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.08
	PERMEABILITY	
	RANGE	
2	AVERAGE	1 md
2	HORIZONTAL	1 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Connell, Ellenburger, Fusselman, Mississippian, Waddell, Wolfcamp
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	5 (3P-1I-1A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	2,536.9 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	69.4 mbbls oil; 76 mmcf gas
2	SECONDARY RECOVERY RECORDS?	Yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Yarbrough & Allen
2	RESERVOIR:	Devonian
2	PROD. ACRES:	160
2	AVG. THICKNESS (FT.):	80
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_w):	
	OIL SATURATION (S_o):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	3625
2	RESERVOIR PRESSURE LATEST (psi):	1230
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	37.5, 37
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	no estimate
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	no estimate

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Yarbrough & Allen RESERVOIR: Devonian TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	---				
1977 PROD. (this project):	---				
CUM. PROD. FROM DISC. TO 1/78:	---				
PROJECT NO.	F1715				
LEASE NO.(s):	08070, 08079, 10381				
OPERATOR:	BTA Oil Producers				
RESERVOIR:	Devonian				
DEPTH PRODUCING ZONE:	8500				
PRODUCTIVE ACREAGE IN RESERVOIR:	1600				
ACREAGE IN PROJECT:	200				
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW				
PATTERN:	I				
YEAR BEGAN:	10-68				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	3625				
BEG. INJECTION:	1230				
LATEST:	1230				
NUMBER OF WELLS TOTAL:	5				
PRODUCING WELLS:	3				
INJECTION WELLS:	1				
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	1				
SURFACE INJECTION PRESSURE:	600				
EFFECTIVENESS OF INJECTION:	UD				
OPERATOR PROBLEMS:					
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---				
FROM BEG. INJECTION:	---				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---				
WATER PRODUCTION:					
CURRENT (1977):	---				
CUMULATIVE TO 1/78:	427				
CURRENT (1977) INJECTION:	95SW				
CUMULATIVE INJECTION:	638SW				

Yarbrough and Allen
Ellenburger
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2,1	COUNTY	Ector
2,1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
2,1	FIELD	Yarbrough and Allen
2,1	RESERVOIR	Ellenburger
5,1	GEOLOGIC AGE	Ordovician
1	AAPG STRATIGRAPHIC AGE CODE	364
1	RESERVOIR LITHOLOGY	Dolomite
	TRAPPING MECHANISM	
2,3,1	DISCOVERY YEAR	9-47, 1947
2,1,16c	PROVED ACREAGE	3040, 400, 3040
1	REGULAR WELL SPACING (acres/well)	40
2,3,1	RESERVOIR DEPTH	10500, 10490, 10490
	RESERVOIR THICKNESS	
1,2	NET PAY	24, 250
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1,2	FRACTION	.01, .014
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	28 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from Connell, Devonian, Fusselman, Mississippian, Waddel, Wolfcamp.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1,2	TOTAL NUMBER OF WELLS	22P, 3I; 37 (13P-1I-23A)
1	PRODUCTION 1976 oil (cum)	39,023
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	39,430.5 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	105.4 mbbls oil; 92 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2,1	FIELD:	Yarbrough & Allen
2,1,16c	RESERVOIR:	Ellenburger
2,1	PROD. ACRES:	3040, 400, 3040
1, 16c	AVG. THICKNESS (FT.):	250, 24
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.32, 1.36
1, 16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.36(68)
	WATER SATURATION (S_W):	.20, .20-.33
1	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	water drive
16c	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	147
1,2	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	3830
2	RESERVOIR PRESSURE INITIAL (psi):	4662
	RESERVOIR PRESSURE LATEST (psi):	3145
1, 17	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
2,3,1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1171(76), 1171
	STOCK TANK OIL GRAVITY (°API):	41.0, 40.8, 40.8
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
2	MINIMUM MISCIBILITY PRESSURE (MMP):(psia)	1819
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	43,365 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	23,070 mbbls

OTHER INFORMATION:

1 Primary recoverable: 73 bbl/acre-ft.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Yarbrough & Allen RESERVOIR: Ellenburger TOTAL NO. PROJECTS: 1 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	111				
1977 PROD. (this project):	84				
CUM. PROD. FROM DISC. TO 1/78:	3348				
PROJECT NO.	F1716				
LEASE NO.(s):	16664				
OPERATOR:	Exxon Corp.				
RESERVOIR:	Ellenburger				Ellenburger
DEPTH PRODUCING ZONE:	10500				10490
PRODUCTIVE ACREAGE IN RESERVOIR:	3040				400
ACREAGE IN PROJECT:	2000				2000
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW				WF, PM
PATTERN:	LD				
YEAR BEGAN:	6-69				1969
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	4662				4662
BEG. INJECTION:	3257				
LATEST:	3145				
NUMBER OF WELLS TOTAL:	37				
PRODUCING WELLS:	13				22
INJECTION WELLS:	1				3
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	23				
SURFACE INJECTION PRESSURE:	450				
EFFECTIVENESS OF INJECTION:	UD				
OPERATOR PROBLEMS:	PA				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	1				
FROM BEG. INJECTION:	34				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	50				
WATER PRODUCTION:					
CURRENT (1977):	1564				
CUMULATIVE TO 1/78:	14086				
CURRENT (1977) INJECTION:	1033SW				
CUMULATIVE INJECTION:	8146SW				

Yates
Yates Lime
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Pecos
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
7	FIELD	Yates
7,12c	RESERVOIR	Grayburg Dolomite; Yates Lime
8a	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
12c	RESERVOIR LITHOLOGY with high degree of permeability.	Dolomite, vuggy to cavernous, limestone
12c	TRAPPING MECHANISM	Anticlinal folding
2,3	DISCOVERY YEAR	10-1926
2,12c	PROVED ACREAGE	26423, 20700
	REGULAR WELL SPACING (acres/well)	
2,3,14e	RESERVOIR DEPTH	965 & 1200; 1500; 1500
	RESERVOIR THICKNESS	
12c	NET PAY	variable up to 120 ft.
12c	GROSS	variable from 225 to 400 ft.
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.999?
	PERMEABILITY	
	RANGE	
14e	AVERAGE	118 md
	HORIZONTAL	
	VERTICAL	
14e	OTHER INFORMATION in BETC/RI-78/15 because of large secondary gas co	Rated as not suitable for EOR methods
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	611 (573P, 20I, 18A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	768,661 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	45,621.4 mbbls oil; 9,323.9 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
12c, 2	FIELD:	Yates
2	RESERVOIR:	Yates Lime
	PROD. ACRES:	26423
	AVG. THICKNESS (FT.):	
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
14e	PRIMARY DRIVE MECHANISM:	weak H_2O drive
14e	PRIMARY GAS CAP?:	yes
14e	TEMPERATURE (°F):	82
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	700
2	RESERVOIR PRESSURE LATEST (psi):	401
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,14e	STOCK TANK OIL GRAVITY (°API):	30, 29.5, 30
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	5.7 cp
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	4,000,000 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR ___ SRPs:	no estimate

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Yates RESERVOIR: Yates Lime TOTAL NO. PROJECTS: 1 PDS:

DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	27448				
1977 PROD. (this project):	36387				
CUM. PROD. FROM DISC. TO 1/78:	683531				
PROJECT NO.	F6861				
LEASE NO.(s):	24061				
OPERATOR:	Marathon Oil				
RESERVOIR:	Yates Field				
DEPTH PRODUCING ZONE:	965 & 1200				
PRODUCTIVE ACREAGE IN RESERVOIR:	26423				
ACREAGE IN PROJECT:	26423				
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW,Gas,IG,PRG				
PATTERN:	I				
YEAR BEGAN:	7-76				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	700				
BEG. INJECTION:	411				
LATEST:	401				
NUMBER OF WELLS TOTAL:	611				
PRODUCING WELLS:	573				
INJECTION WELLS:	7SW; 4 Gas				
MAXIMUM:	4 IG				
LATEST:	5 PRG				
SHUT-IN/ABANDONED WELLS:	18				
SURFACE INJECTION PRESSURE:	SW/145; Gas/454				
EFFECTIVENESS OF INJECTION:	VE				
OPERATOR PROBLEMS:	---				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	6793				
FROM BEG. INJECTION:	10225				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	200000				
WATER PRODUCTION:					
CURRENT (1977):	1215				
CUMULATIVE TO 1/78:	41095				
CURRENT (1977) INJECTION:	1215SW; 139 Gas; 957 IG; 4909 PRG				
CUMULATIVE INJECTION:	2155SW; 143 Gas; 1459 IG; 7491 PRG				

YATES FIELD, Pecos and Crockett Counties, Texas

CONTINUITY OF RESERVOIR ROCKS

Toborg: Except in the central part of the field where they have been removed by erosion, the Trinity and Triassic zones which contain the locally productive lenses are continuous throughout the area of the field and far beyond the extent of the field. However, the individual productive lenses are only local.

Yates Sand: The stratigraphic equivalent of the reservoir rock is recognizable throughout a large portion of the field. However, in only a small area in the western part of the field is the degree of porosity and permeability adequate for commercial production.

Yates Lime: That portion of the reservoir rock which is in the Queen formation consists of a series of members deposited around a sinking island. Even the higher members were not deposited over the apex of the anticline. The character of each productive member is different at different distances from the apex. That portion of the reservoir rock below the unconformity is continuous throughout the field and far beyond except that the uppermost portion of the Grayburg formation was truncated locally at the apex before post-erosional deposition was continuous over the entire area.

ELEVATION AND RELIEF OF PRODUCTIVE ZONES

Toborg:
Data are not readily available.

Yates Sand:
Data are not readily available.

Yates Lime:		Feet
Highest known elevation of oil		1,476
Elevation of bottom of oil	Between 1,060 &	1,090
Relief	Between 386 &	416

In their paper cited under SELECTED REFERENCES, Hennen and Metcalf say, "the water-table maintains a practically uniform level" and report that the elevation of the water-table was between 1,060 and 1,090 feet above sea-level.

COMPLETION TREATMENT

Toborg: No artificial completion treatments have been used.

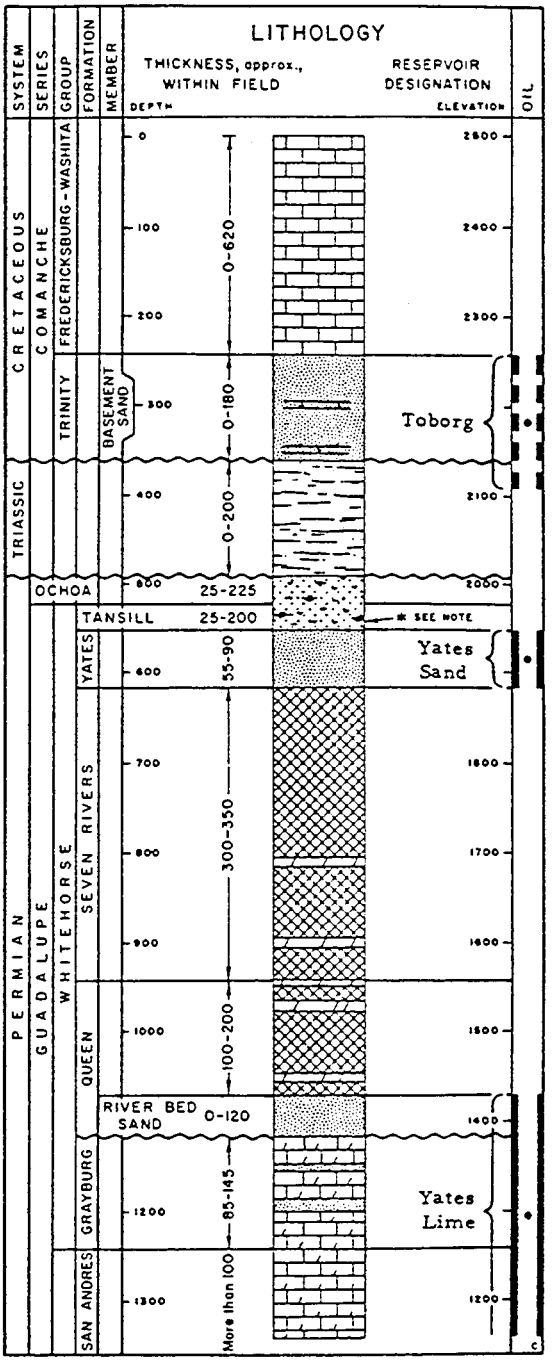
Yates Sand: No artificial completion treatments have been used.

Yates Lime: Of the total of about 600 wells completed in the Yates Lime reservoir, 109 were acidized and about 60 were shot with nitroglycerin.

SECONDARY RECOVERY

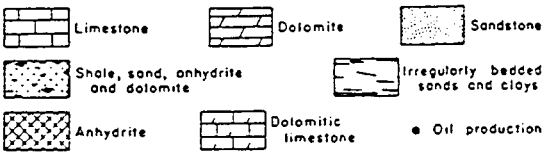
Water injection projects are in operation in the Toborg reservoir and in the Yates Sand reservoir.

GENERALIZED COMPOSITE SECTION OF ROCKS PENETRATED

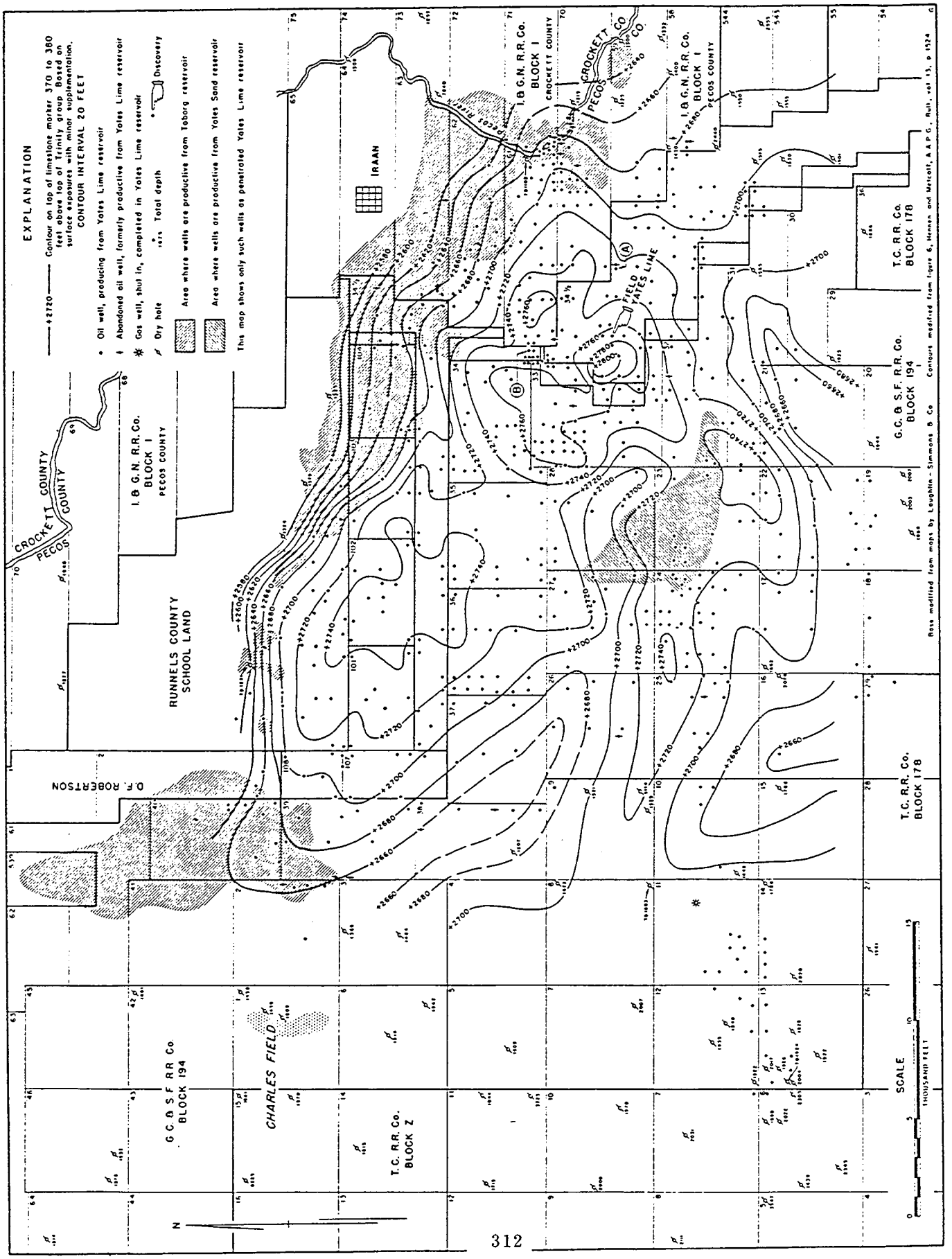


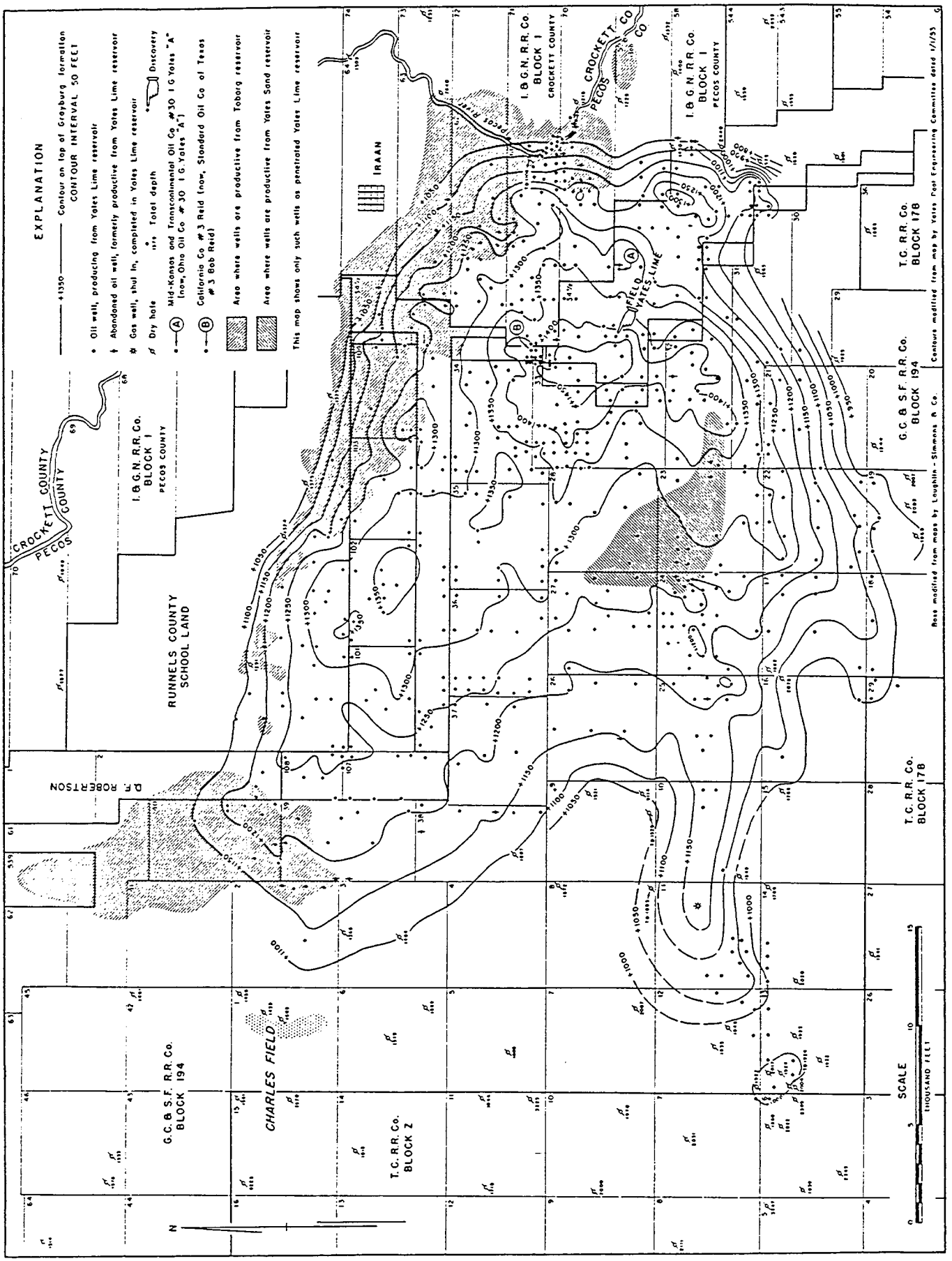
* The "BIG SALT" member of the Tansill formation, which is prominent in the surrounding area, thins toward the structural axis and is entirely absent in the central part of the field.

EXPLANATION



The above graph is representive of the lithology in the central portion of the field. Generally, each of the stratigraphic units is thicker around the periphery of the field than indicated in the above graph. The thickening away from the apex decreases upward in the section. Rugged topography occasions a wide variation in the amount of Cretaceous rocks penetrated.


EXPLANATION
+2720 Contour on top of limestone marker 370 to 380 feet above top of Trinity group. Based on surface exposures with minor supplementation. CONTOUR INTERVAL 20 FEET
Oil well, producing from Yates Lime reservoir
Abandoned oil well, formerly productive from Yates Lime reservoir
Gas well, shut in, completed in Yates Lime reservoir
Dry hole
Total depth
Discovery
Area where wells are productive from Toborg reservoir
Area where wells are productive from Yates Sand reservoir
This map shows only such wells as penetrated Yates Lime reservoir
IRAAN
I & G.N. R.R. Co. BLOCK 1 PECOS COUNTY
I & G.N. R.R. Co. BLOCK 1 CROCKETT COUNTY
CROCKETT CO.
PECOS CO.
CROCKETT COUNTY
PECOS COUNTY
RUNNELS COUNTY SCHOOL LAND
D.F. ROBERTSON
FIELD YATES LIME
T.C. R.R. Co. BLOCK 178
G.C. & S.F. R.R. Co. BLOCK 194
G.C. & S.F. RR Co BLOCK 194
CHARLES FIELD
T.C. R.R. Co. BLOCK Z
SCALE
THOUSAND FEET
N
Base modified from maps by Laughlin - Simmons & Co. Contours modified from figure 6, Hansen and Metcalf, A.A.P.G. Bull., vol 13, p 1524



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