FOSSIL ENERGY

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Vol. 1, Part 3

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 3: FARMER - San Andres through NOLLEY - Wolfcamp

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

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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

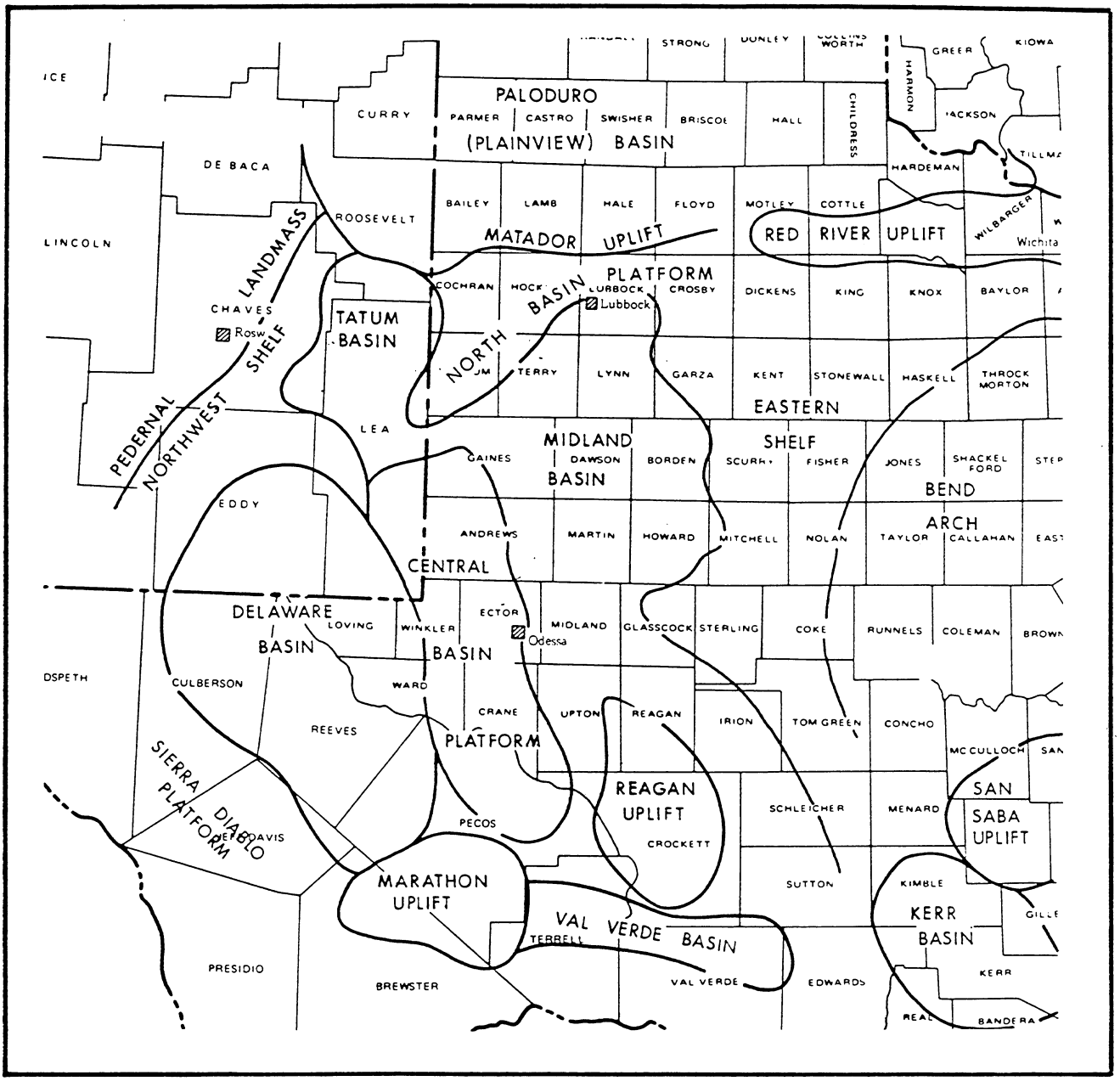
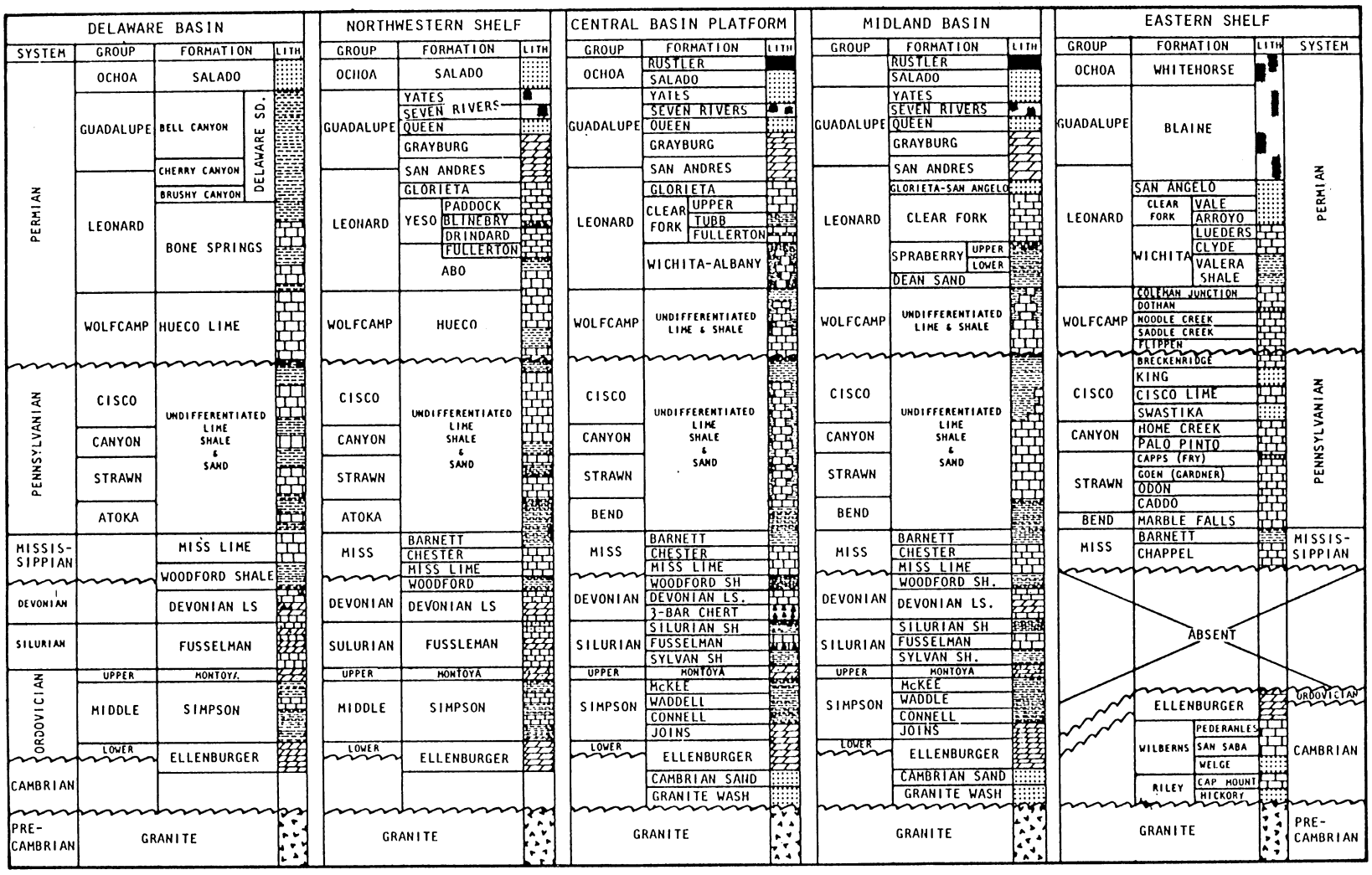


Figure 1

DIVISION AND BOUNDARIES
OF PERMIAN BASIN



Legend

LIMESTONE
DOLOMITE
SANDSTONE
ANHYDRITE
SHALE
CHERT
IGNEOUS OR METAMORPHIC

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

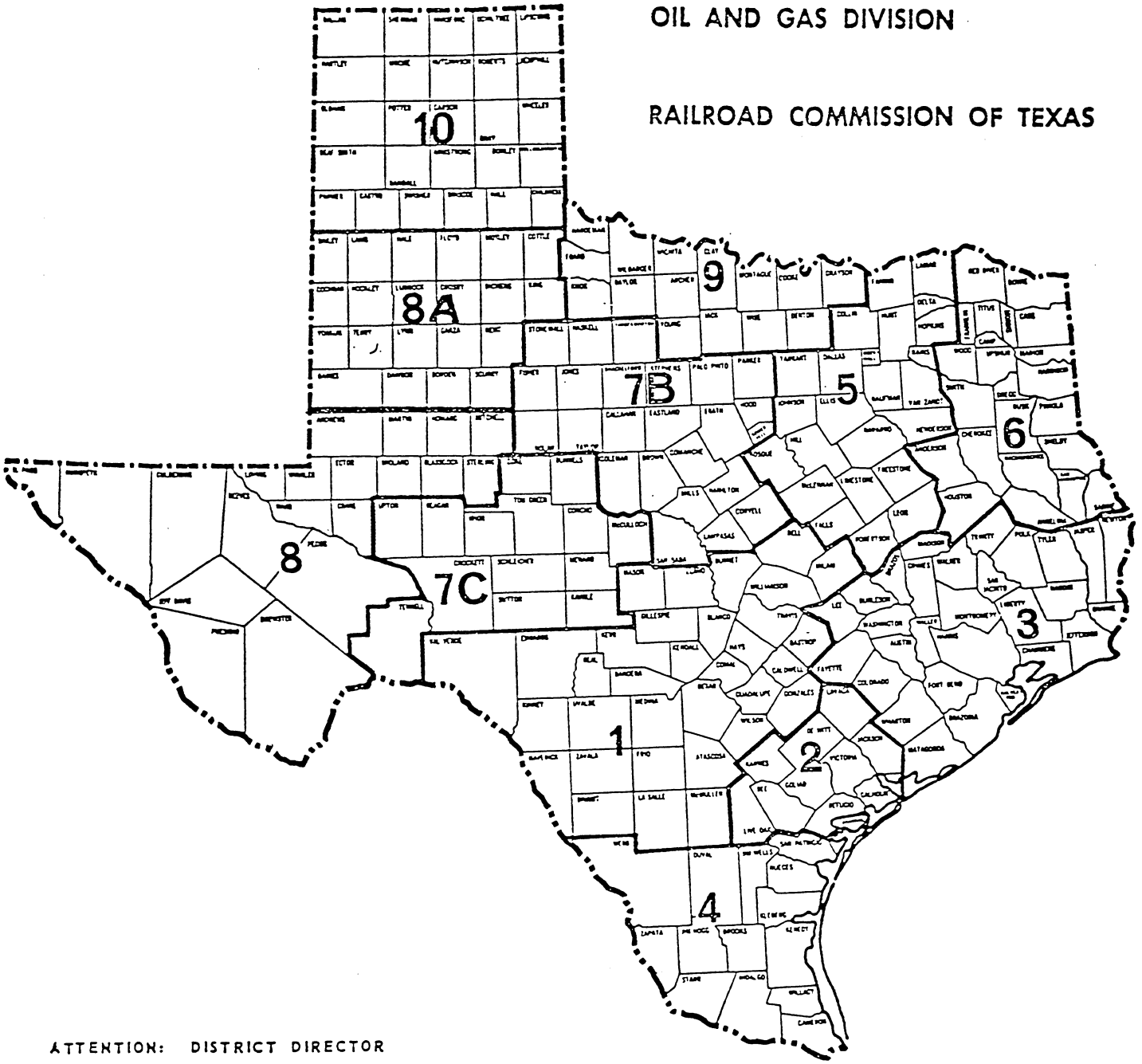
ABBREVIATION	MEANING OF SYMBOL
OPR, OPER	Operator, Operated
ORIG	Original
OTH	Other
P	Peripheral
PA	Paraffin
P&A	Plug & Abandon
PCG	Processed Casinghead Gas
PERM	Permeability
PGG	Processed Gas Well Gas
PI	Peripheral & Irregular in Item 59; Injection Pressure Increasing in Item 62
PLG	Pipeline Gas
PLUGG	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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Farmer
San Andres
Reagan Uplift (Midland)

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Crockett(M)
1	REGULATORY DISTRICT	7C
1	BASIN	Permian
15	SUB-BASIN	Reagan Uplift
1	FIELD	Farmer
1	RESERVOIR	San Andres
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2	DISCOVERY YEAR	1953
2,16	PROVED ACREAGE	5120, 5700
	REGULAR WELL SPACING (acres/well)	
2, 3	RESERVOIR DEPTH	2196, 2240
	RESERVOIR THICKNESS	
16	NET PAY	40-100
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.120
	PERMEABILITY	
	RANGE	
2	AVERAGE	5
2	HORIZONTAL	5
	VERTICAL	
	OTHER INFORMATION	
	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)	7,789.6
3	PRODUCTION 1-1-79 to 1-1-80	595.3 oil, 1,059.3 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:	Farmer
2	RESERVOIR:	San Andres
2	PROD. ACRES:	5120
2, 16	AVG. THICKNESS (FT.):	-, 40-100
16	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.2
16	FORMATION VOLUME FACTOR LATEST (FVF):	1.0 (1971)
16	WATER SATURATION (S_W):	.218 -.30
16	OIL SATURATION (S_O):	.55(1967)-50 (1971)
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	96
16	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	965
	RESERVOIR PRESSURE INITIAL (psi):	
	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, 30.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):	1235
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	not available
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	439 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Farmer 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	11
1977 PROD. (this project):	9
CUM. PROD. FROM DISC. TO 1/78:	395
PROJECT NO.	F-1018
LEASE NO.(s):	00457
OPERATOR:	Petroleum Corp.
RESERVOIR:	San Andres
DEPTH PRODUCING ZONE:	219
PRODUCTIVE ACREAGE IN RESERVOIR:	5120
ACREAGE IN PROJECT:	320
PORTION OR FIELD WIDE:	P
TYPE:	WF/SW
PATTERN:	SF
YEAR BEGAN:	3-67
YEAR TERMINATED OR STATUS:	ICP
RESERVOIR PRESSURE INITIAL:	-
BEG. INJECTION:	-
LATEST:	-
NUMBER OF WELLS TOTAL:	11
PRODUCING WELLS:	9
INJECTION WELLS:	1
MAXIMUM:	-
LATEST:	-
SHUT-IN/ABANDONED WELLS:	0
SURFACE INJECTION PRESSURE:	1000
EFFECTIVENESS OF INJECTION:	UD
OPERATOR PROBLEMS:	SW
ESTIMATED PRODUCTION DUE TO INJ.:	
1977:	4
FROM BEG. INJECTION:	21
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	22
WATER PRODUCTION:	
CURRENT (1977):	12
CUMULATIVE TO 1/78:	149
CURRENT (1977) INJECTION:	87
CUMULATIVE INJECTION:	654

Fasken
Wolfcamp
Midland Basin

DATA SOURCE CODE		
1	STATE----------	Texas
1	COUNTY----------	Andrews
1	REGULATORY DISTRICT----------	8
1	BASIN----------	Permian
15	SUB-BASIN----------	Midland Basin
1	FIELD----------	Fasken
1	RESERVOIR----------	Wolfcamp
1	GEOLOGIC AGE----------	Lower Permian
1	AAPG STRATIGRAPHIC AGE CODE----------	319
1	RESERVOIR LITHOLOGY----------	Limestone
1	TRAPPING MECHANISM----------	stratigraphic/structural
3, 1	DISCOVERY YEAR----------	11-52, 1952
1	PROVED ACREAGE----------	560
1	REGULAR WELL SPACING (acres/well)-----	80
3, 1	RESERVOIR DEPTH----------	8571
	RESERVOIR THICKNESS	
1	NET PAY----------	25
	GROSS----------	
	NET/GROSS RATIO----------	
	POROSITY	
	TYPE----------	
1	FRACTION----------	.06
	PERMEABILITY	
	RANGE----------	
1	AVERAGE----------	36
	HORIZONTAL----------	
	VERTICAL----------	
3	OTHER INFORMATION----------	production from Wolfcamp, L. Wolfcamp, U. Wolfcamp, Strawn, Penn, Penn-8800, Ellenburger, Devonian, Clearfork
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS----------	29
1	PRODUCTION 1976 oil (cum)----------	5314
	PRODUCTION 1977 oil (cum)----------	
	PRODUCTION 1978 oil (cum)----------	
3	PRODUCTION 1979 oil (cum)----------	5,807.6 Wolfcamp
3	PRODUCTION 1-1-79 to 1-1-80----------	124.2 oil, 270.2 gas (Wolfcamp)
	SECONDARY RECOVERY RECORDS?----------	no
	WATER ANALYSIS RECORDS?----------	
	OTHER DATA	
	STRUCTURE CONTOUR?----------	
	LOGS?----------	
	STRUCTURE SECTION?----------	
	ENGINEERING REPORTS?----------	
	CORE DESCRIPTIONS?----------	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Fasken
	RESERVOIR:	Wolfcamp
1	PROD. ACRES:	560
1	AVG. THICKNESS (FT.):	25
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.42
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
16	TEMPERATURE (°F):	144
16	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2515
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	953
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
3, 1	STOCK TANK OIL GRAVITY (°API):	39
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):	1789
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

Fluvanna
Strawn, Lower Strawn
Midland Basin

DATA SOURCE CODE		
1	STATE----------	Texas
1	COUNTY----------	Borden (m)
1	REGULATORY DISTRICT----------	8A
1	BASIN----------	Permian
15	SUB-BASIN----------	Midland Basin
1	FIELD----------	Fluvanna
1	RESERVOIR----------	Strawn, Lower Strawn
1	GEOLOGIC AGE----------	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE----------	325
2,1,5	RESERVOIR LITHOLOGY----------	Limestone, shale-limestone, finely crystalline to semi-chalky limestone with light separate producing zones in the Strawn.
1, 5	TRAPPING MECHANISM----------	anticline, low relief asymetrical anticlinal fold.
5a,3,1,5g	DISCOVERY YEAR----------	8-1949, 2-54, 1954, 3-1949
5a,5f	PROVED ACREAGE----------	3800, 3840
1	REGULAR WELL SPACING (acres/well)-----	40
1,5a,2,3	RESERVOIR DEPTH----------	7700-8200, 7900, 7769, 7769
5a,2,1	RESERVOIR THICKNESS	11, 11, 51
	NET PAY----------	
	GROSS----------	
	NET/GROSS RATIO----------	
	POROSITY	
	TYPE----------	
5a, 2,1	FRACTION----------	.05, .094, .09
	PERMEABILITY	
	RANGE----------	
5a,2,1	AVERAGE----------	8, 62, 93
	HORIZONTAL----------	
	VERTICAL----------	
3	OTHER INFORMATION----------	other production from Ellenburger, Leonard.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1,5f	TOTAL NUMBER OF WELLS----------	30; 84P,7DH in 1959
1	PRODUCTION 1976 oil (cum)----------	11,604
	PRODUCTION 1977 oil (cum)----------	
	PRODUCTION 1978 oil (cum)----------	
3	PRODUCTION 1979 oil (cum)----------	11,940.2
3	PRODUCTION 1-1-79 to 1-1-80----------	103.7 oil, 104.1 gas
2	SECONDARY RECOVERY RECORDS?----------	yes
	WATER ANALYSIS RECORDS?----------	
	OTHER DATA	
5a, 5f	STRUCTURE CONTOUR?----------	yes
5a	LOGS?----------	yes
5a	STRUCTURE SECTION?----------	yes
	ENGINEERING REPORTS?----------	
	CORE DESCRIPTIONS?----------	

RESERVOIR DATA

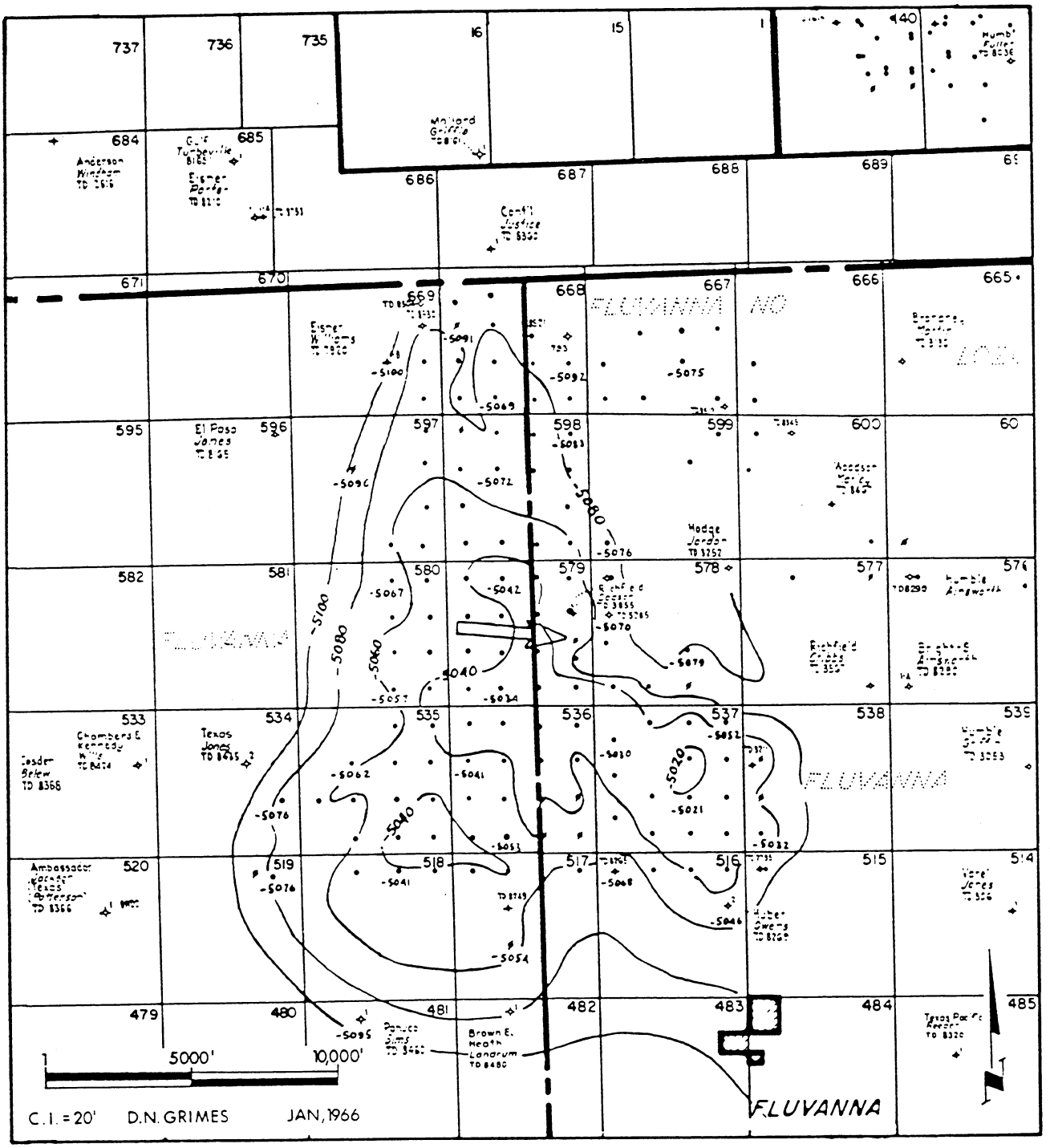
DATA SOURCE CODE		
	FIELD:	Fluvanna
1	RESERVOIR:	Strawn-L, Strawn
5a	PROD. ACRES:	3800
5a,2,1	AVG. THICKNESS (FT.):	11, 11, 51
16	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.434
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	waterdrive, depletion
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	140 (GG= .85)
16	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1875
2	RESERVOIR PRESSURE INITIAL (psi):	2722
	RESERVOIR PRESSURE LATEST (psi):	
5a, 1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	752-1, 752
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,1	STOCK TANK OIL GRAVITY (°API):	42.0, 41.5, 41.5
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):	1730
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	84,900 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	12,532 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

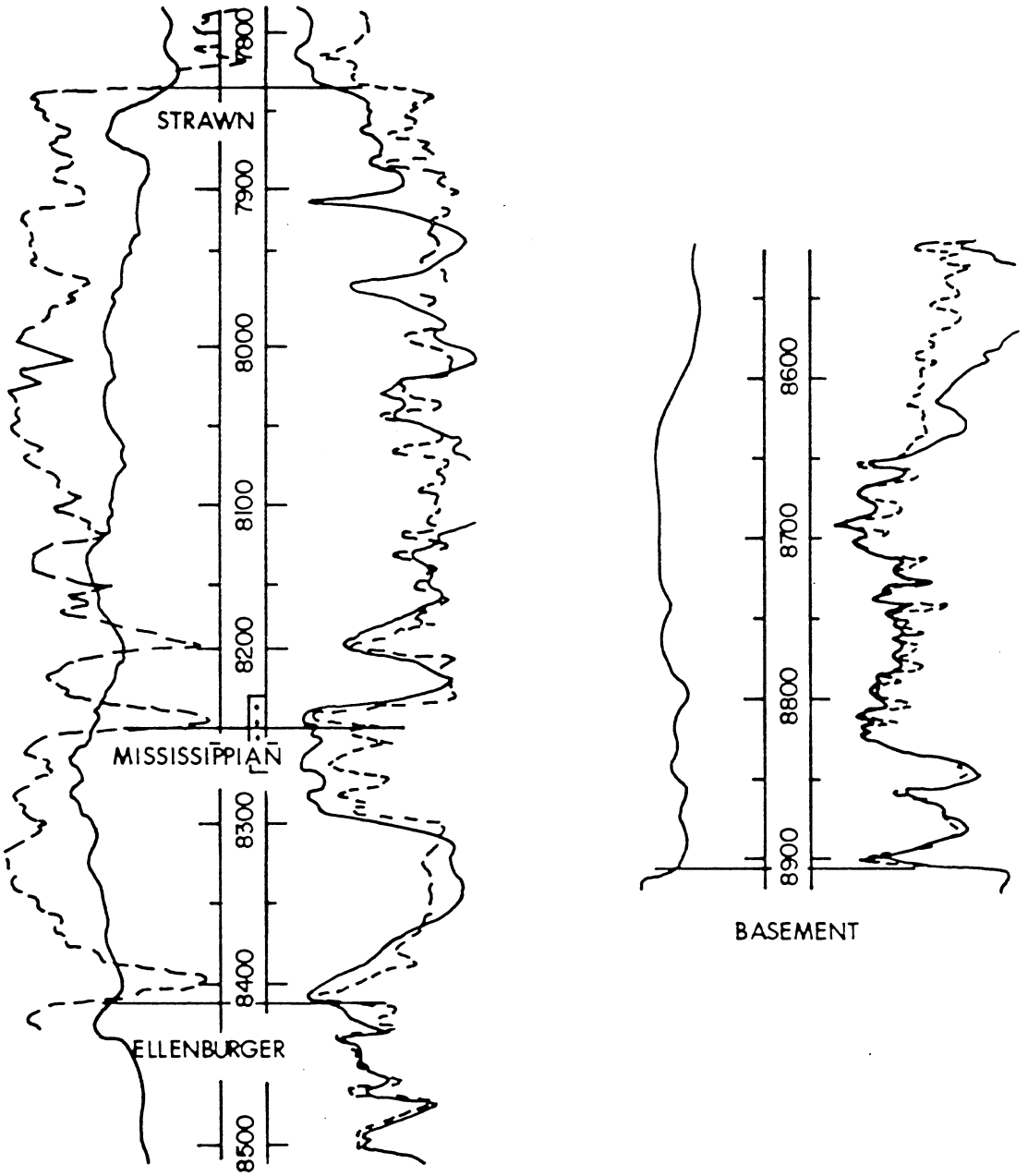
FIELD: Fluvanna RESERVOIR: Strawn, Lower Strawn TOTAL NO. PROJECTS: 1 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	640				
1977 PROD. (this project):	698				
CUM. PROD. FROM DISC. TO 1/78:	15577				
PROJECT NO.	F-6229				
LEASE NO.(s):	61119, 61565				
OPERATOR:	Dunigan, James				
RESERVOIR:	Strawn, L. Strawn				Strawn
DEPTH PRODUCING ZONE:	7900				7769
PRODUCTIVE ACREAGE IN RESERVOIR:	1500				
ACREAGE IN PROJECT:	1500				
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW, gas				
PATTERN:	P				
YEAR BEGAN:	5-76				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2722				
BEG. INJECTION:	2216				
LATEST:	2696				
NUMBER OF WELLS TOTAL:	24				30
PRODUCING WELLS:	12				
INJECTION WELLS:					
MAXIMUM:	105W				
LATEST:	2 gas				
SHUT-IN/ABANDONED WELLS:	0				
SURFACE INJECTION PRESSURE:	1500 SW, 1650 gas				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	-				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	29				
FROM BEG. INJECTION:	49				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	155				
WATER PRODUCTION:					
CURRENT (1977):	173				
CUMULATIVE TO 1/78:	249				
CURRENT (1977) INJECTION:	760 SW, 95 gas				
CUMULATIVE INJECTION:	1255 SW, 150 gas				



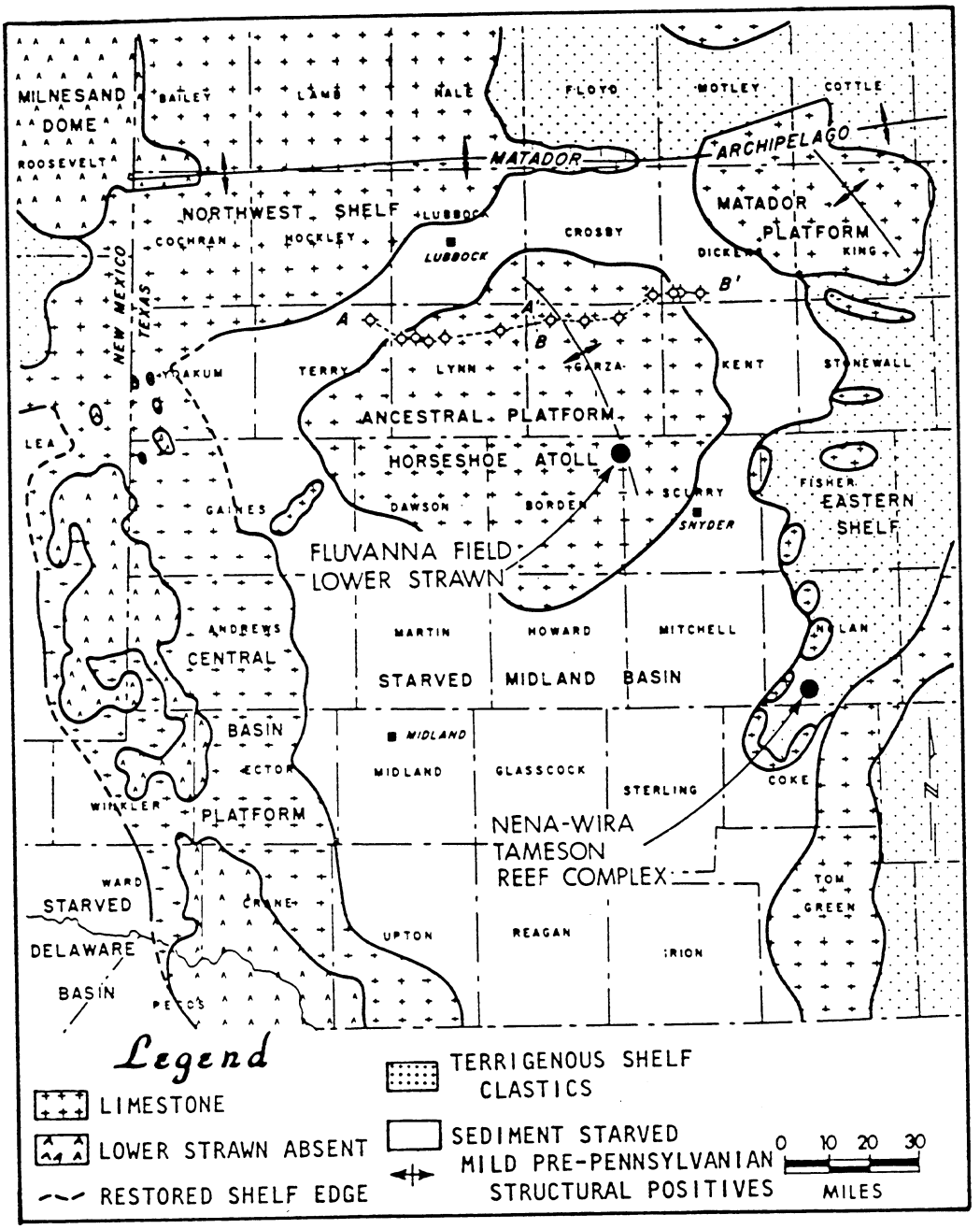
'STRUCTURE OF STRAWN FLUVANNA FIELD,
BORDEN AND SCURRY COUNTIES, TEXAS

FROM: Oil & Gas Fields in West Texas Symposium, West Texas Geological Society Pub. No. 66-52, 1966. Source 5a.



TYPE LOG OF FLUVANNA FIELD

FROM: Oil & Gas Fields in West Texas Symposium, West Texas Geological Society Pub. No. 66-52, 1966. Source 5a.



ENVIRONMENTS IN SHELF AND PLATFORM AREAS BORDERING SEDIMENT STARVED MIDLAND BASIN NEAR END OF LOWER STRAWN

From: Anderson, R.W., 1960, ABILENE GEOLOGICAL SOCIETY, CONTRIBUTIONS. Source 5f.

Reservoir Characteristics

The Fluvanna production is from three horizons; the Strawn limestone, the Mississippian limestone and chert, and the Ellenburger dolomite.

As of October 1, 1959 there were 84 producing locations in the field, 3 abandoned producers, and a total of 7 dry and abandoned locations, with a total of approximately 3860 proven productive acres.

STRAWN LIMESTONE

There are eight zones of porosity in the Strawn limestone section, each with its own, somewhat variable, oil-water contact. These zones are correlative, as can been seen from the northwest-southeast cross section, (pl. 1) and because of the fluctuating oil-water contact, are generally unpredictable as to their productive capability. Thus each zone must be individually tested, treated and produced.

The upper zone, or zone "A", is being produced in a few wells at the south end of the field where it is better developed, but most of the Strawn production is from the "B" and "E" zones. The "B" zone has a poorly defined oil-water contact and is usually a low pressure zone with bottom hole pressures in the range of 1100 to 1600 pounds. The "E" zone has a distinct oil-water contact and a definite water drive. The bottom hole pressures are in the range of 3100 to 3800 pounds.

Lithologically each zone of porosity has its own characteristics. The "A" zone is usually buff to brown, finely-crystalline with intra-crystalline porosity. The porosity is usually very low, averaging 6 percent.

The "B" zone is a white to grey semi-chalky limestone in the northern part of the field; and is usually a dark brown, finely-crystalline limestone with slightly vugular porosity in the mid-field area.

The "C" zone is quite similar to the "B" zone and has been grouped with it, but it has its own oil-water contact and has been found to be water free in areas where the "B" zone produces water.

The "D" zone usually has three sections of porosity. The upper two zones are quite similar, both being a buff, fine-to-coarsely crystalline limestone and occasionally showing a honeycomb coral development. The lower section is invariably a chalky zone exhibiting good porosity but very low permeability.

The "E" zone, the most prolific Strawn zone, is usually a brown to dark brown, finely-crystalline limestone with porosity averaging 10 to 14 percent.

The "F" zone porosity is not developed very well in the northern portion of the field but where it is found it is a white to grey semi-chalky zone.

The "G" zone is usually a light tan to brown crystalline limestone with porosity averaging 10 percent. This zone has a definite water drive.

The "H" zone in the northern part of the field is a chalky limestone; but to the south it becomes a buff crystalline limestone with productive characteristics similar to the "G" zone.

FROM: Anderson, R.W., 1960, Source 5f.

The discovery well for the Strawn limestone was the Superior Oil Company No. 1 Laws located in Section 516. Production began in August 1952 and as of October 1, 1959 there were 52 wells producing from this horizon, 19 of which were flowing. The cumulative production from the Strawn limestone to October 1, 1959 amounts to 3,463,445 barrels of oil.

MISSISSIPPIAN

The Mississippian limestone is a white to grey limestone containing white chert nodules. The limestone is usually tight and has very poor productive charactistics.

The chert section which pinches out both in the middle of the field and in the northern portions of the field is a white, crystalline, highly fractured chert. The fracture porosity from electric log determinations is as high as 24 percent, but the permeability is quite low and stimulation in the form of a large volume of "sand frac" is necessary.

The Mississippian production began in June 1951, and as of October 1, 1959 there were 25 Mississippian producers in the field, one of which was flowing. Cumulative production to October 1, 1959 was 2,251,509 barrels of oil.

ELLENBURGER

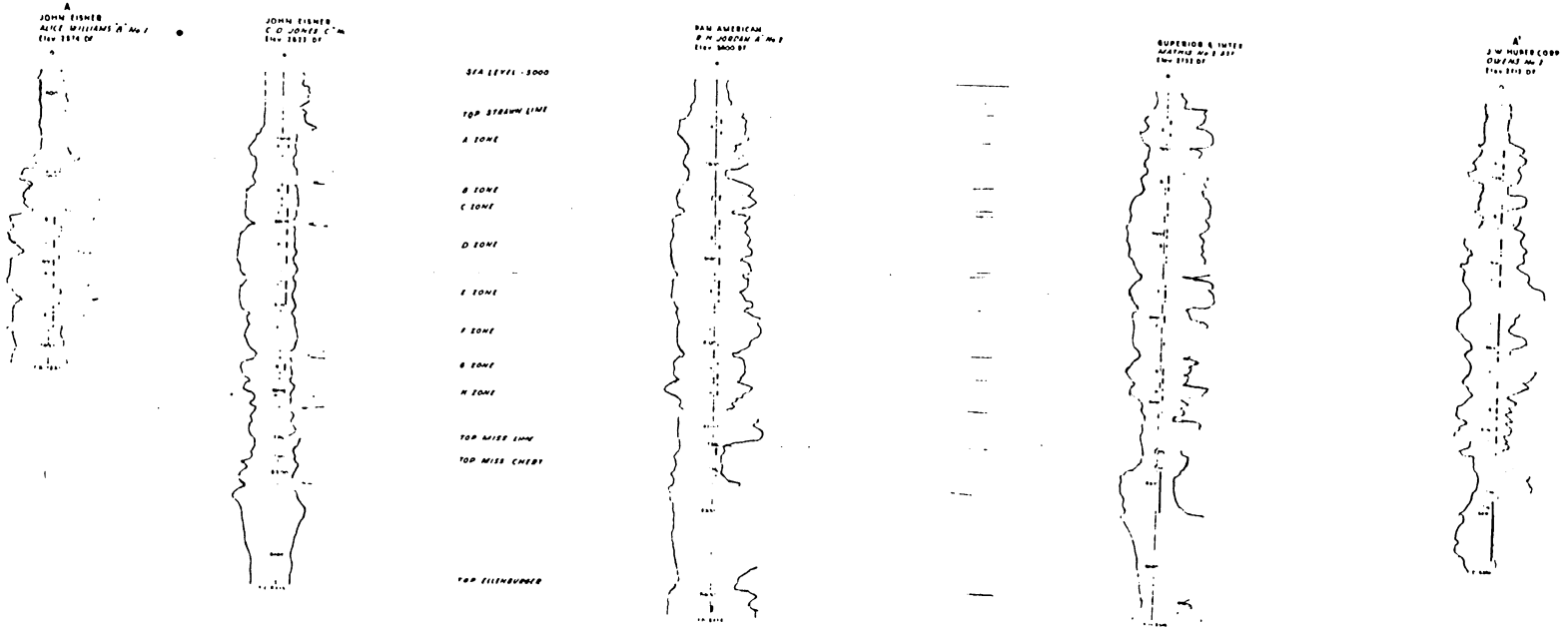
The Ellenburger varies in lithology from a tan, dense, crystalline dolomite with vugular and fractured porosity, to a tan sucrosic, or a brown crystalline dolomite exhibiting ideal rhombic development. When the Ellenburger is found in the latter two forms it usually has exceptionally good intra-crystalline porosity and very good permeability.

Ellenburger production began with the completion of the Superior Oil Company No. 13-579 B. H. Jordan in July 1952. This well is now a Strawn producer. On October 1, 1959 there were 17 wells producing from this formation, five of which were flowing. Cumulative production to October 1, 1959 was 1,129,848 barrels of oil.

Structure

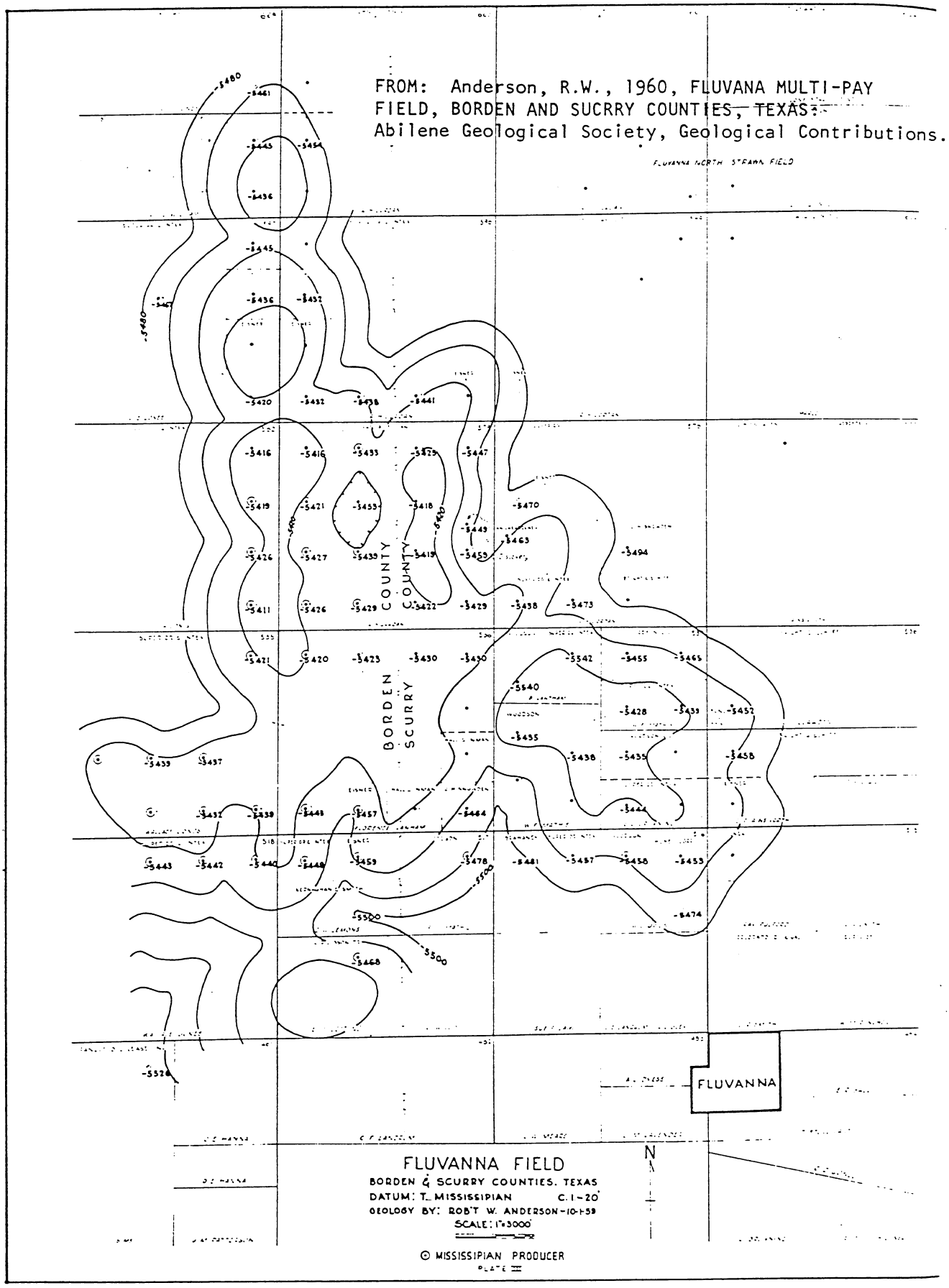
The "structure" as present on top of the Ellenburger surface is that of a low relief asymetrical anticlinal fold with only 60 feet of closure (pl. 11).

This Ellenburger structure is reflected by both the overlying Mississippian and the Strawn datums (pl. III and IV).

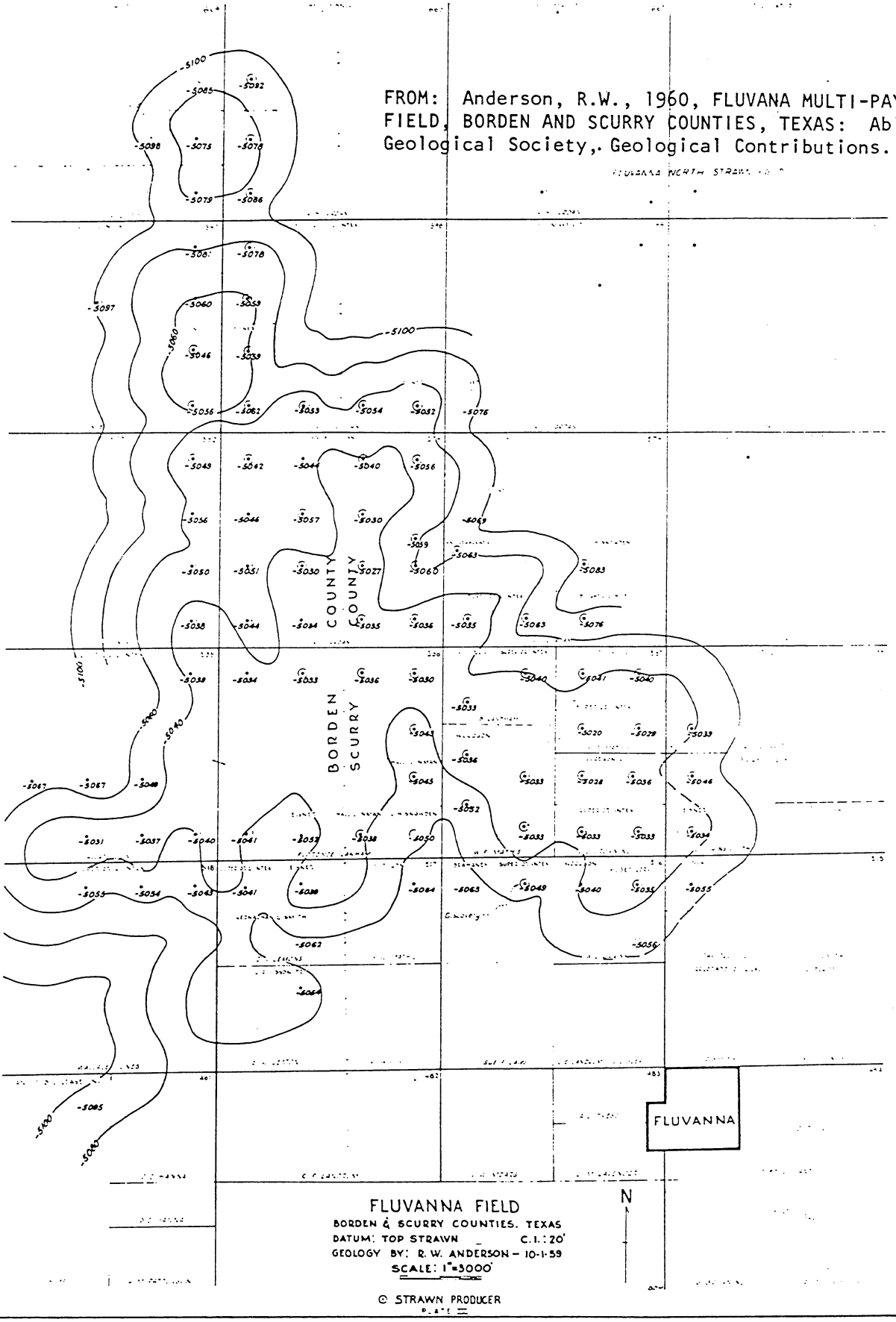


NORTHWEST-SOUTHEAST CROSS SECTION
FLUVANNA FIELD
BORDEN & SCURRY COUNTIES, TEXAS
VERTICAL SCALE 1"=250
HORIZONTAL SCALE 1"=10,000
MICRO LOG EFFECT=I

FROM: Anderson, R.W., 1960, FLUVANA MULTI-PAY FIELD, BORDEN and SCURRY COUNTIES, TEXAS in GEOLOGICAL CONTRIBUTIONS: Abilene Geological Society, Source 5f.


FROM: Anderson, R.W., 1960, FLUVANA MULTI-PAY FIELD, BORDEN AND SUCRRY COUNTIES, TEXAS: Abilene Geological Society, Geological Contributions.
FLUVANNA NORTH STRAWN FIELD
BORDEN COUNTY
SCURRY COUNTY
FLUVANNA
FLUVANNA FIELD
BORDEN & SCURRY COUNTIES, TEXAS
DATUM: T. MISSISSIPIAN C.I.-20'
GEOLOGY BY: ROB'T W. ANDERSON-10-1-58
SCALE: 1"=3000'
⊙ MISSISSIPIAN PRODUCER
PLATE III

FROM: Anderson, R.W., 1960, FLUVANA MULTI-PAY FIELD, BORDEN AND SCURRY COUNTIES, TEXAS: Abilene Geological Society,. Geological Contributions.



FLYING M
San Andres
Tatum Basin

DATA SOURCE CODE		
	STATE	New Mexico
1, 6a	COUNTY	Lea
1	REGULATORY DISTRICT	Southeast
1, 6c	BASIN	Permian
15	SUB-BASIN	Tatum Basin
1, 6c	FIELD	Flying M
1, 6c	RESERVOIR	San Andres
1, 6	GEOLOGIC AGE	Guadalupian; Guadalupe
1	AAPG STRATIGRAPHIC AGE CODE	313
1, 6c	RESERVOIR LITHOLOGY	Finely crystalline dolomite with interstitial and solution porosity anhydrite and alga-oolitic in part. Some incidence of fracturing present.
1, 6c	TRAPPING MECHANISM	Stratigraphic trap
1	DISCOVERY YEAR	1964
1, 6c	PROVED ACREAGE	3000
1, 6c	REGULAR WELL SPACING (acres/well)	80
6c	RESERVOIR DEPTH	4550
1	RESERVOIR THICKNESS	16' average
6c	NET PAY	15
6c	GROSS	100
	NET/GROSS RATIO	
	POROSITY	
1, 6c	TYPE	IC, V
1, 6c	FRACTION	.129
	PERMEABILITY	
	RANGE	
1, 6c	AVERAGE	7.5 md
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	96 Total, 73 pump, 19 inject., 4 shut-in; 67P, 9SI, 12I.
1	PRODUCTION 1977 oil (cum)	5688
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	6505
	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		
6c	FIELD:	Flying M
6c	RESERVOIR:	San Andres
1, 6c	PROD. ACRES:	3000
1	AVG. THICKNESS (FT.):	16
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
1, 6c	WATER SATURATION (S_W):	.25
	OIL SATURATION (S_O):	
1, 6c	PRIMARY DRIVE MECHANISM:	Gas expansion or volumetric; weak gas
6c	PRIMARY GAS CAP?:	expansion
1, 6c, 17	TEMPERATURE (°F):	106; (G6=.71)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1278
6c	RESERVOIR PRESSURE INITIAL (psi):	1466 @ 4550
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	342
6c, 1	STOCK TANK OIL GRAVITY (°API):	19.3; 19.3-26
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (PSIA)	1320
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

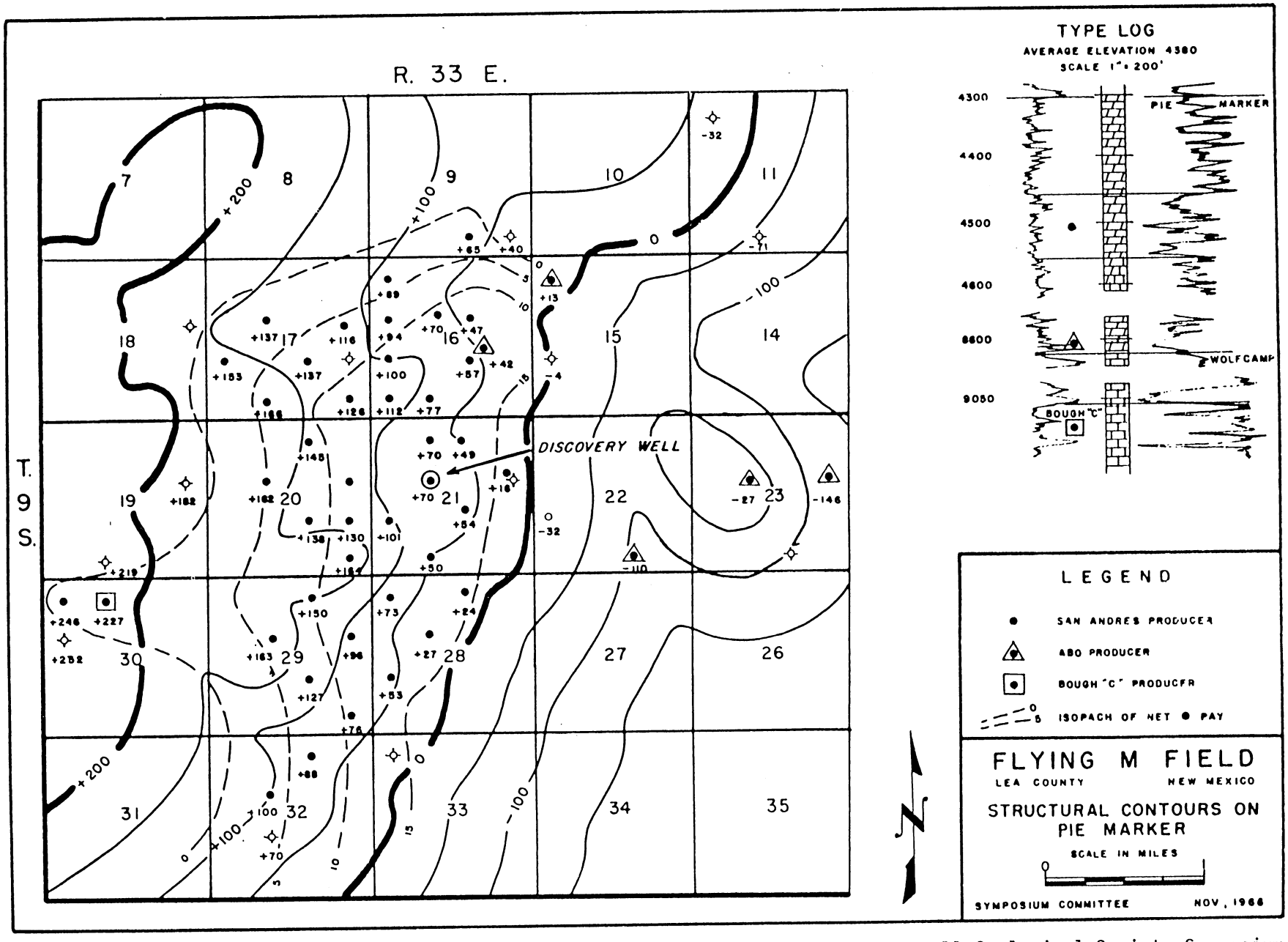
WATER ANALYSIS RECORD

FIELD: Flying M RESERVOIR: San Andres TOTAL NO. PROJECTS:

DATA SOURCE: 6c, 1

	mg/liter
TOTAL SOLIDS (ppm):	
NA	91,940
Ca	2,800
Mg	7,060
Fe	11
SO_4	2,850
Cl	146,000
CO_2	
HCO_3	
OH	
H_2S	
CO3	488
RESISTIVITY:	.047 ohm-meters @ 75°F
SPECIFIC GRAVITY:	

OTHER WATER QUALITY DATA:



FROM: FLYING M (SAN ANDRES) in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO: Roswell Geological Society Symposium, 1967.

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Coke-Runnels (m)
1	REGULATORY DISTRICT	7C
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	Fort Chadbourne
	RESERVOIR	Odom Lime
1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	325
1, 5c	RESERVOIR LITHOLOGY	Limestone, fossiliferous limestone with intercrystalline porosity and irregularly developed vugs and fractures.
5c	TRAPPING MECHANISM	monoclinal structure which rises to the east at a slope of 1° - stratigraphic trap.
2,3,1	DISCOVERY YEAR	3-1950, 6-1949, 1949
2, 1	PROVED ACREAGE	15170
1	REGULAR WELL SPACING (acres/well)	40
2,3,1	RESERVOIR DEPTH	5420, 5600, 5600
	RESERVOIR THICKNESS	
2	NET PAY	42
5c	GROSS	43
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2, 1	FRACTION	.05
	PERMEABILITY	
	RANGE	
2, 1	AVERAGE	35, 20
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	other production from Canyon-4200, Cook, Gardner, Gardner-5300, Gray, Morris.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	37, INJECTION: 20
1	PRODUCTION 1976 oil (cum)	51,790
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	52,299.7
3	PRODUCTION 1-1-79 to 1-1-80	155.9 oil, 66.7 gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5c	STRUCTURE CONTOUR?	yes
	LOGS?	no
5c	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

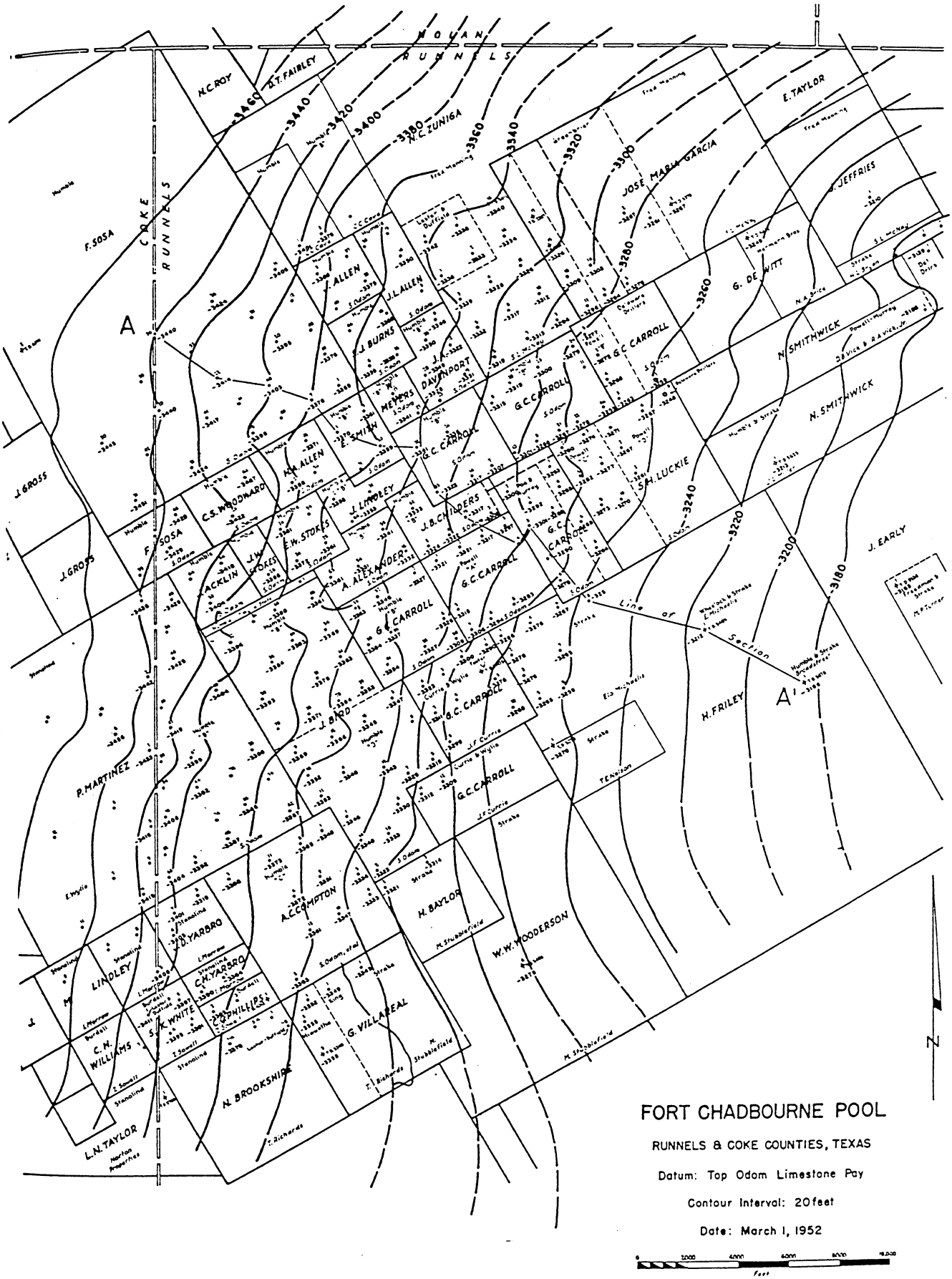
DATA SOURCE CODE		
	FIELD:	Fort Chadbourne
	RESERVOIR:	Odom
2, 1	PROD. ACRES:	15,170
	AVG. THICKNESS (FT.):	42
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	dissolved gas, waterfl
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	138 (GG = 1.15)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1513
2, 1	RESERVOIR PRESSURE INITIAL (psi):	2230
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	458
2,3,1	STOCK TANK OIL GRAVITY (°API):	44, 45, 45
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):	1692
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	98,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	25,127 mbbls

OTHER INFORMATION:

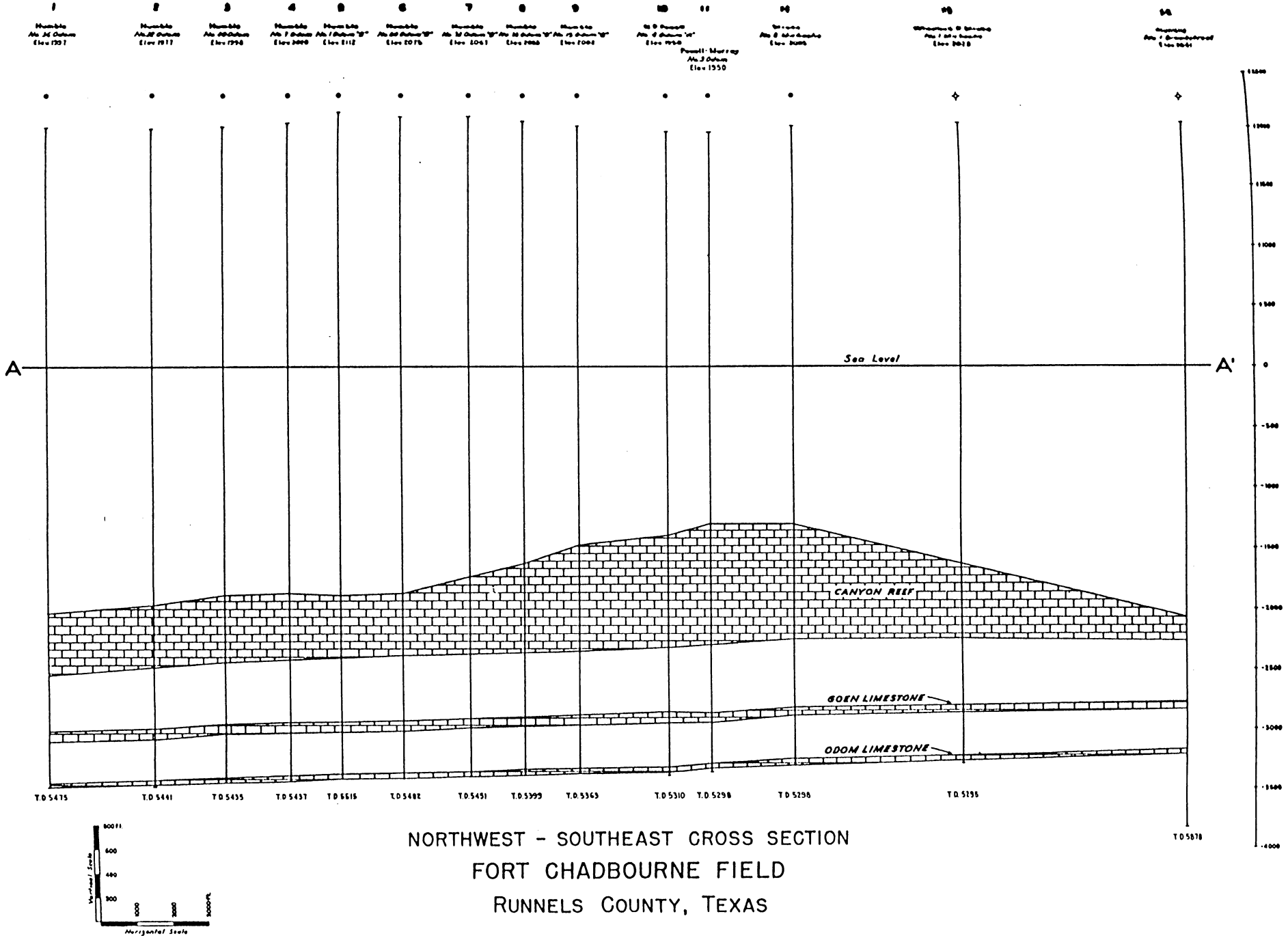
ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Fort Chadbourne RESERVOIR: Odom 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	217				
1977 PROD. (this project):	192				
CUM. PROD. FROM DISC. TO 1/78:	51793				
PROJECT NO.	F-1023				
LEASE NO.(s):	00506				
OPERATOR:	Exxon				
RESERVOIR:	Odom Lime				
DEPTH PRODUCING ZONE:	5420				5600
PRODUCTIVE ACREAGE IN RESERVOIR:	15170				15170
ACREAGE IN PROJECT:	15170				15170
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW, gas				
PATTERN:	PLD				
YEAR BEGAN:	3-53 gas, 9-54 SW				
YEAR TERMINATED OR STATUS:	ICP SW, IPD-GAS				
RESERVOIR PRESSURE INITIAL:	2230				2230
BEG. INJECTION:	1670				
LATEST:	2031				
NUMBER OF WELLS TOTAL:	278				
PRODUCING WELLS:	33				37
INJECTION WELLS:	5				20
MAXIMUM:	-				
LATEST:	-				
SHUT-IN/ABANDONED WELLS:	240				
SURFACE INJECTION PRESSURE:	950				
EFFECTIVENESS OF INJECTION:	VE				
OPERATOR PROBLEMS:	CR, SC				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	192				
FROM BEG. INJECTION:	26963				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	27162				
WATER PRODUCTION:					
CURRENT (1977):	3151				
CUMULATIVE TO 1/78:	71389				
CURRENT (1977) INJECTION:	3151				
CUMULATIVE INJECTION:	165818SW, 66000 gas				



FROM: WALKER, L.A., 1952, FORT CHADBOURNE FIELD: ABILENE GEOLOGICAL SOCIETY CONTRIBUTIONS, Source 5c.



NORTHWEST - SOUTHEAST CROSS SECTION

FORT CHADBOURNE FIELD

RUNNELS COUNTY, TEXAS

FROM: Walker, L.A., FORT CHADBOURNE FIELD: Abilene Geological Society, Geological Contributions, 1952, Source 5d.

Fort Stockton
Yates
Delaware Basin

DATA SOURCE CODE		
1	STATE----------	Texas
1	COUNTY----------	Pecos
1	REGULATORY DISTRICT----------	8
1	BASIN----------	Permian
15	SUB-BASIN----------	Delaware Basin-N. Sheffield Channel
1	FIELD----------	Fort Stockton
	RESERVOIR----------	Yates (ss)
1	GEOLOGIC AGE----------	Permian, Permian Upper
1	AAPG STRATIGRAPHIC AGE CODE----------	311
2, 1	RESERVOIR LITHOLOGY----------	Sandstone; anhydritic sands; dolomite.
	TRAPPING MECHANISM----------	
2, 1	DISCOVERY YEAR----------	6-1944, 1944
16,2,1	PROVED ACREAGE----------	200, 20,000, 11,500
1	REGULAR WELL SPACING (acres/well)-----	40
2, 3	RESERVOIR DEPTH----------	2770-2900, 2892
	RESERVOIR THICKNESS	
2, 1	NET PAY----------	37.5 avg., 55
	GROSS----------	
	NET/GROSS RATIO----------	
	POROSITY	
	TYPE----------	
2, 1	FRACTION----------	.175 avg., .17
	PERMEABILITY	
2	RANGE----------	20 - 50
2, 1	AVERAGE----------	37, 31
	HORIZONTAL----------	
	VERTICAL----------	
	OTHER INFORMATION----------	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS----------	168, INJECTION: 69
1	PRODUCTION 1976 oil (cum)----------	23,655
	PRODUCTION 1977 oil (cum)----------	
	PRODUCTION 1978 oil (cum)----------	
3	PRODUCTION 1979 oil (cum)----------	25,742.1
3	PRODUCTION 1-1-79 to 1-1-80----------	587.2 oil, 71.3 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:	Fort Stockton
2	RESERVOIR:	Yates
2	PROD. ACRES:	20,000, 11,500
2	AVG. THICKNESS (FT.):	37.5
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.2
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	91
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2661
2, 1	RESERVOIR PRESSURE INITIAL (psi):	1415, 2200
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	739
2,3,1	STOCK TANK OIL GRAVITY (°API):	33-36, 36, 36
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):	1152
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 6 SRPs:	29093 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 6 SRPs:	6548 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Fort Stockton RESERVOIR: Yates TOTAL NO. PROJECTS: 8

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

1976 PROD. (this project): MBBLS	6	28	157	13	10
1977 PROD. (this project):	4	13	129	11	10
CUM. PROD. FROM DISC. TO 1/78:	243	592	7846	471	373
PROJECT NO.	F-5273	F-4133	F-1200	F-1203	F-1201
LEASE NO.(s):	01434	08595	01459,18342	01492	19211
OPERATOR:	Andover Oil	Continental Oil	Exxon	Getty Oil	Phillips
RESERVOIR:	Yates	Yates	Yates	Yates	Yates
DEPTH PRODUCING ZONE:	2770	2829	2892	2892	2900
PRODUCTIVE ACREAGE IN RESERVOIR:	20000	12700	4000	11500	11500
ACREAGE IN PROJECT:	310	81	4000	375	240
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW	WF/SW, BW	WF/BW	WF/SW, BW	WF/SW
PATTERN:	SW	5S	I	5S	5S
YEAR BEGAN:	6-72	3-75	1-61	5-67	3-67
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP-SW,IPD BW	ICP
RESERVOIR PRESSURE INITIAL:	1000	1415	1415	1415	1410
BEG. INJECTION:	200	450	240	406	200
LATEST:	200	-	401	406	-
NUMBER OF WELLS TOTAL:	7	4	105	6	8
PRODUCING WELLS:	5	2	33	4	2
INJECTION WELLS:	1	1 SW, 1 BW	17	2	3
MAXIMUM:	-	-	-	-	-
LATEST:	-	-	-	-	-
SHUT-IN/ABANDONED WELLS:	1	0	55	-	3
SURFACE INJECTION PRESSURE:	2000	950SW, 875BW	930	1500	1500
EFFECTIVENESS OF INJECTION:	UD	ME	ME	ME	ME
OPERATOR PROBLEMS:	-	-	-	-	-
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	2	13	113	4	10
FROM BEG. INJECTION:	8	77	2067	201	48
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	10	105	3745	223	250
WATER PRODUCTION:					
CURRENT (1977):	9	67	418	92	18
CUMULATIVE TO 1/78:	109	302	5401	408	262
CURRENT (1977) INJECTION:	18	199 SW, 99 BW	1221	92	67
CUMULATIVE INJECTION:	172	561SW, 309 BW	38172	537 SW, 965 BW	1475

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Fort Stockton RESERVOIR: Yates TOTAL NO. PROJECTS: 8 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	552	60	2		
1977 PROD. (this project):	515	55	2		
CUM. PROD. FROM DISC. TO 1/78:	10603	2188	169		
PROJECT NO.	F-1205	F-1204	F-7177		
LEASE NO.(s):	20364	20139	01519		
OPERATOR:	Texaco	Texaco	Wood, McShane &	Thams	
RESERVOIR:	Yates	Yates	Yates		
DEPTH PRODUCING ZONE:	2800	2892	2800		2892
PRODUCTIVE ACREAGE IN RESERVOIR:	12700	12700	12700		11800
ACREAGE IN PROJECT:	4500	2502	160		4000
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P		
TYPE:	WF/SW	WF/SW	WF/BW		
PATTERN:	5S	P	SW		
YEAR BEGAN:	10-67	2-67	5-77		1961
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP		
RESERVOIR PRESSURE INITIAL:	1415	1415	1415		2200
BEG. INJECTION:	200	200	100		
LATEST:	209	218	-		
NUMBER OF WELLS TOTAL:	204	67	4		168
PRODUCING WELLS:	66	67	3		69
INJECTION WELLS:	60	22	1		
MAXIMUM:	-	18	-		
LATEST:	-	-	-		
SHUT-IN/ABANDONED WELLS:	78	17	0		
SURFACE INJECTION PRESSURE:	1200	1000	900		
EFFECTIVENESS OF INJECTION:	VE	ME	UD		
OPERATOR PROBLEMS:	-	-	CR		
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-	-	-		
FROM BEG. INJECTION:	-	-	-		
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	-	-		
WATER PRODUCTION:					
CURRENT (1977):	2896	210	21		
CUMULATIVE TO 1/78:	18155	9274	153		
CURRENT (1977) INJECTION:	11349	1340	21		
CUMULATIVE INJECTION:	74695	18212	21		

Foster
Grayburg
Central Basin

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Ector
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Foster
2	RESERVOIR	Grayburg
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1, 12c	RESERVOIR LITHOLOGY	Dolomite; finely crystalline, in part aphanitic, sometimes oolitic dolomite.
12c	TRAPPING MECHANISM	stratigraphic- porosity pinchout
2,3,1	DISCOVERY YEAR	1936, 1948, 1948
2,1,12c	PROVED ACREAGE	31,000, 440, 30,960*
2	REGULAR WELL SPACING (acres/well)	40
1, 2, 3	RESERVOIR DEPTH	4300, 3900-4500, 4300
	RESERVOIR THICKNESS	
2,16c, 1	NET PAY	91 avg (34-208), 100, 110
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.10 avg (.07-.15), .12
	PERMEABILITY	
2	RANGE	2 - 20 md
2, 1,14e	AVERAGE	7, 20 md ,3 md
	HORIZONTAL	
	VERTICAL	
12c, 14e	OTHER INFORMATION	South Cowden, Johnson and Foster fields are continuous; BETC/RI-78/15 list as being most suitable for CO_2 EOR.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	625P-263I; 1219(562P-562I-95A)
1	PRODUCTION 1976 oil (cum)	184,724
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	206,782.9
3	PRODUCTION 1-1-79 to 1-1-80	7,118.9 oil, 1,544.1 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?	

* for Foster-Johnson-South Cowden

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Foster
2	RESERVOIR:	Grayburg
2, 1, 12c	PROD. ACRES:	31,000, 440, 30960
2,16c, 1	AVG. THICKNESS (FT.):	91, 100, 110
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.239
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.35 (avg)
16c	OIL SATURATION (S_O):	.39
1, 14e	PRIMARY DRIVE MECHANISM:	depletion, not H_2O-dri
14e	PRIMARY GAS CAP?:	no
16c,14e	TEMPERATURE (°F):	93 ,96 BHT
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1740
2, 1	RESERVOIR PRESSURE INITIAL (psi):	1740
2, 14e	RESERVOIR PRESSURE LATEST (psi):	213-1800 , 1740
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1056.7 (1976)
2,3,1	STOCK TANK OIL GRAVITY (°API):	33-39 avg 35, 39, 39
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	2.6 cp
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1165
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 18 SRPs:	349,734 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 18 SRPs:	73,420 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Foster RESERVOIR: Grayburg TOTAL NO. PROJECTS: 20 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	618	1651	79	375	38
1977 PROD. (this project):	690	1657	103	375	36
CUM. PROD. FROM DISC. TO 1/78:	3650	39609	1967	12636	1113
PROJECT NO.	F-1212	F-1213	F-1128	F-1207	F-1208
LEASE NO.(s):	*	17541	21471, 22199	16940	01620
OPERATOR:	Amoco	Amoco	Atl. Richfield	Atlantic	Baruch-Foster
RESERVOIR:	Grayburg	Grayburg	Grayburg	Grayburg	Grayburg
DEPTH PRODUCING ZONE:	4000 & 4300	4100	3900	4100 - 4200	4300 & 4400
PRODUCTIVE ACREAGE IN RESERVOIR:	14000	34000	25000	20000	31000
ACREAGE IN PROJECT:	3475	2293	320	1960	100
PORTION OR FIELD WIDE:	P	P	P	P	P
TYPE:	WF/SW, BW	WF/SW, BW	WF/BW	WF/BW	WF/SW
PATTERN:	5S	LD	I	MP	LU
YEAR BEGAN:	1-56SW, 66BW	3-63SW, 64BW	10-61	2-63	9-65
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1740	1740	1842	1740	750
BEG. INJECTION:	230	500	330	150	100
LATEST:	-	1800	1156	213	450
NUMBER OF WELLS TOTAL:	329	276	15	93	6
PRODUCING WELLS:	98	86	11	56	4
INJECTION WELLS:	95SW	82SW	4	24	1
MAXIMUM:	95BW	82BW	-	-	-
LATEST:	-	-	-	-	-
SHUT-IN/ABANDONED WELLS:	41	26	0	13	1
SURFACE INJECTION PRESSURE:	445SW, 445BW	305SW, 305BW	480	800	600
EFFECTIVENESS OF INJECTION:	VE	VE	ME	ME	ME
OPERATOR PROBLEMS:	-	-	CR, SC	-	CR,SC,PA
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	-	-	103	375	12
FROM BEG. INJECTION:	-	-	667	4128	107
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	-	-	1000	7000	200
WATER PRODUCTION:					
CURRENT (1977):	5731	3242	307	822	47
CUMULATIVE TO 1/78:	61706	19559	1331	11657	460
CURRENT (1977) INJECTION:	5731SW, 1089BW	3242SW, 19559BW	574	2264	45
CUMULATIVE INJECTION:	61706SW, 91397BW	2883SW, 48790BW	7164	35007	783

*01586, 21532, 01579, 01580, 01581

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Foster RESERVOIR: Grayburg TOTAL NO. PROJECTS: 20 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	237	23	923	146	69
1977 PROD. (this project):	211	18	999	148	68
CUM. PROD. FROM DISC. TO 1/78:	3975	1817	7887	7422	4577
PROJECT NO.	F-1209	F-1211	F-1210	F-1139	F-6113
LEASE NO.(s):	01549	01554	19373	21835	01561
OPERATOR:	Cities Service	Continental Oil	Continental Oil	Great Western	Kerr-McGee
RESERVOIR:	Grayburg	Grayburg	Grayburg	San Andres	Grayburg-SA
DEPTH PRODUCING ZONE:	4200	4174	4382	3960	4150
PRODUCTIVE ACREAGE IN RESERVOIR:	17260	14000	14000	18240	1400
ACREAGE IN PROJECT:	160	320	2145	420	167
PORTION OR FIELD WIDE:	P	P	P	P	P
TYPE:	WF/SW,BW	WF/SW,BW	WF/SW,BW	WF/SW,BW	WF/SW,BW
PATTERN:	P	P	PLD	P	LD
YEAR BEGAN:	12-75SW,11-63BW	7-63	6-65	3-70SW,2-66BW	10-75
YEAR TERMINATED OR STATUS:	ICP	SW-ICP,BW-IPD	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1700	1740	1740	1740	1740
BEG. INJECTION:	245	1375	-	500	300
LATEST:	1100	-	-	-	800
NUMBER OF WELLS TOTAL:	17	18	91	32	18
PRODUCING WELLS:	12	11	49	18	10
INJECTION WELLS:	4SW	2	19SW	7SW	4SW
MAXIMUM:	1BW	-	19BW	7BW	4BW
LATEST:	-	-	-	-	-
SHUT-IN/ABANDONED WELLS:	0	5	4	0	0
SURFACE INJECTION PRESSURE:	650SW, 500BW	800	690	575	600
EFFECTIVENESS OF INJECTION:	ME	-	-	VE	-
OPERATOR PROBLEMS:	-	CH	CH, EB	CH	-
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	134	12	948	148	33
FROM BEG. INJECTION:	496	240	6598	1077	69
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	1500	485	9422	3000	999
WATER PRODUCTION:					
CURRENT (1977):	254	153	2000	86	212
CUMULATIVE TO 1/78:	676	3890	11030	523	4252
CURRENT (1977) INJECTION:	230SW, 183BW	92SW	2000SW, 2064BW	86SW, 428BW	202SW, 521BW
CUMULATIVE INJECTION:	344SW, 2176BW	3513SW, 6003BW	30077SW,11579BW	523SW, 4724BW	554SW, 989BW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Foster RESERVOIR: Grayburg TOTAL NO. PROJECTS: 20 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	36	40	490	52	53
1977 PROD. (this project):	29	36	741	60	48
CUM. PROD. FROM DISC. TO 1/78:	2196	2195	20258	4812	1383
PROJECT NO.	F-1214	F-1215	F-6107	F-1206	F-1226
LEASE NO.(s):	01558	01579	01538	019801	21919
OPERATOR:	Petro-Lewis	Shell Oil	Southland Roylty	Southland Roylty	Sun Oil
RESERVOIR:	Grayburg-SA			Grayburg-SA	Grayburg
DEPTH PRODUCING ZONE:	4000	4300	4150-4300	4500	3900
PRODUCTIVE ACREAGE IN RESERVOIR:	14000	14000	14000	20000	14000
ACREAGE IN PROJECT:	80	160	240	640	160
PORTION OR FIELD WIDE:	P	P	P	P	P
TYPE:	WF/SW, BW	WF/BW	WF/BW	WF/BW	WF/SW, BW
PATTERN:	MS	5S	5S	P	I
YEAR BEGAN:	1-60	9-59	7-75	3-63	10-61
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1740	1740	1740	1740	1740
BEG. INJECTION:	200	300	300	150	500
LATEST:	-	500	-	-	500
NUMBER OF WELLS TOTAL:	10	7	30	38	12
PRODUCING WELLS:	3	5	24	26	7
INJECTION WELLS:	3SW	2BW	6	11	2SW
MAXIMUM:	3BW	-	-	0	2BW
LATEST:	-	-	-	0	-
SHUT-IN/ABANDONED WELLS:	1	0	0	1	1
SURFACE INJECTION PRESSURE:	510SW, 510BW	500	240	900	500SW, 500BW
EFFECTIVENESS OF INJECTION:	-	-	VE	ME	ME
OPERATOR PROBLEMS:	-	SC	-	SC,PA,IP,BT	SC,CR
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	29	36	362	60	3
FROM BEG. INJECTION:	1295	695	553	2117	46
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	1528	720	4300	2400	300
WATER PRODUCTION:					
CURRENT (1977):	41	85	962	1155	289
CUMULATIVE TO 1/78:	621	3976	2553	15695	1817
CURRENT (1977) INJECTION:	41SW, 276BW	94	867	1324	91SW, 119BW
CUMULATIVE INJECTION:	4779SW, 6517BW	11053	1817	34045	1681SW, 2199BW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Foster RESERVOIR: Grayburg TOTAL NO. PROJECTS: 20 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	34	91	768	514	9
1977 PROD. (this project):	29	98	728	568	10
CUM. PROD. FROM DISC. TO 1/78:	1823	3850	21096	8230	1079
PROJECT NO.	F-1219	F-1217	F-1218	F-1222	F-1223
LEASE NO.(s):	01605,01606,01607	01592	016793	01610	01611
OPERATOR:	Sun Oil	Sun Oil	Sun Oil	Tenneco	Texas Pacific
RESERVOIR:	Grayburg	Grayburg	Grayburg	Grayburg	Grayburg
DEPTH PRODUCING ZONE:	4100	4100-4350	4200-4350	4150	4200
PRODUCTIVE ACREAGE IN RESERVOIR:	14000	14000	14000	14000	14000
ACREAGE IN PROJECT:	160	40	2025	240	80
PORTION OR FIELD WIDE:	P	P	P	P	P
TYPE:	WF/SW, BW	WF/SW	WF/SW, BW	PM/SW	WF/SW, FW
PATTERN:	5S	5S	5LD	5S	5S
YEAR BEGAN:	12-59	5-64	5-62SW, 8-69BW	2-69	9-60
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1740	1740	1740	1740	1740
BEG. INJECTION:	300	300	300	300	-
LATEST:	300	400	400	-	-
NUMBER OF WELLS TOTAL:	14	9	168	32	4
PRODUCING WELLS:	8	8	100	23	3
INJECTION WELLS:	6	1	66	9	1
MAXIMUM:	-	-	-	-	-
LATEST:	-	-	-	-	-
SHUT-IN/ABANDONED WELLS:	0	0	2	0	0
SURFACE INJECTION PRESSURE:	725	400	925	520	-
EFFECTIVENESS OF INJECTION:	ME	ME	ME	VE	NE
OPERATOR PROBLEMS:	-	EW	CR,SC,EP	SC,CR	FB
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	25	11	619	350	10
FROM BEG. INJECTION:	938	2566	7323	906	311
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	800	3000	10127	250	-
WATER PRODUCTION:					
CURRENT (1977):	440	1074	3556	1063	93
CUMULATIVE TO 1/78:	3479	4980	26241	2830	2403
CURRENT (1977) INJECTION:	803	285	2987	1811	93SW, 1BW
CUMULATIVE INJECTION:	5300SW,11230BW	1875	30906SW,45449BW	5163	2411SW,1673BW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Foster RESERVOIR: Grayburg TOTAL NO. PROJECTS: 20 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

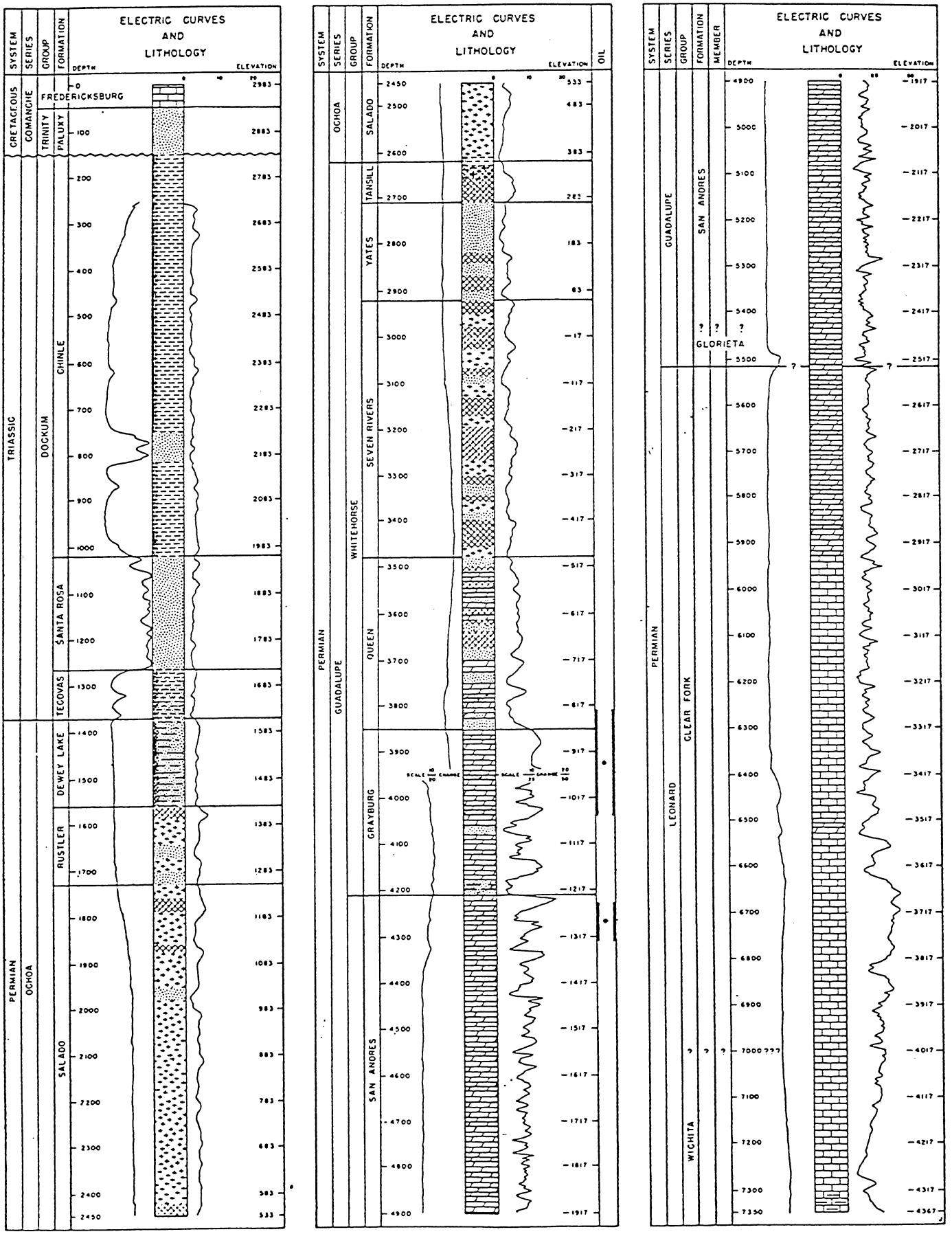
1976 PROD. (this project): MBBLS	
1977 PROD. (this project):	
CUM. PROD. FROM DISC. TO 1/78:	
PROJECT NO.	
LEASE NO.(s):	
OPERATOR:	
RESERVOIR:	
DEPTH PRODUCING ZONE:	4300
PRODUCTIVE ACREAGE IN RESERVOIR:	440
ACREAGE IN PROJECT:	3475
PORTION OR FIELD WIDE:	
TYPE:	waterflood
PATTERN:	
YEAR BEGAN:	1955
YEAR TERMINATED OR STATUS:	
RESERVOIR PRESSURE INITIAL:	1740
BEG. INJECTION:	
LATEST:	
NUMBER OF WELLS TOTAL:	
PRODUCING WELLS:	625
INJECTION WELLS:	263
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:	

Source 12c.

18 ADDIS-JOHNSON-FOSTER-SOUTH COWDEN FIELD, Ector County, Texas

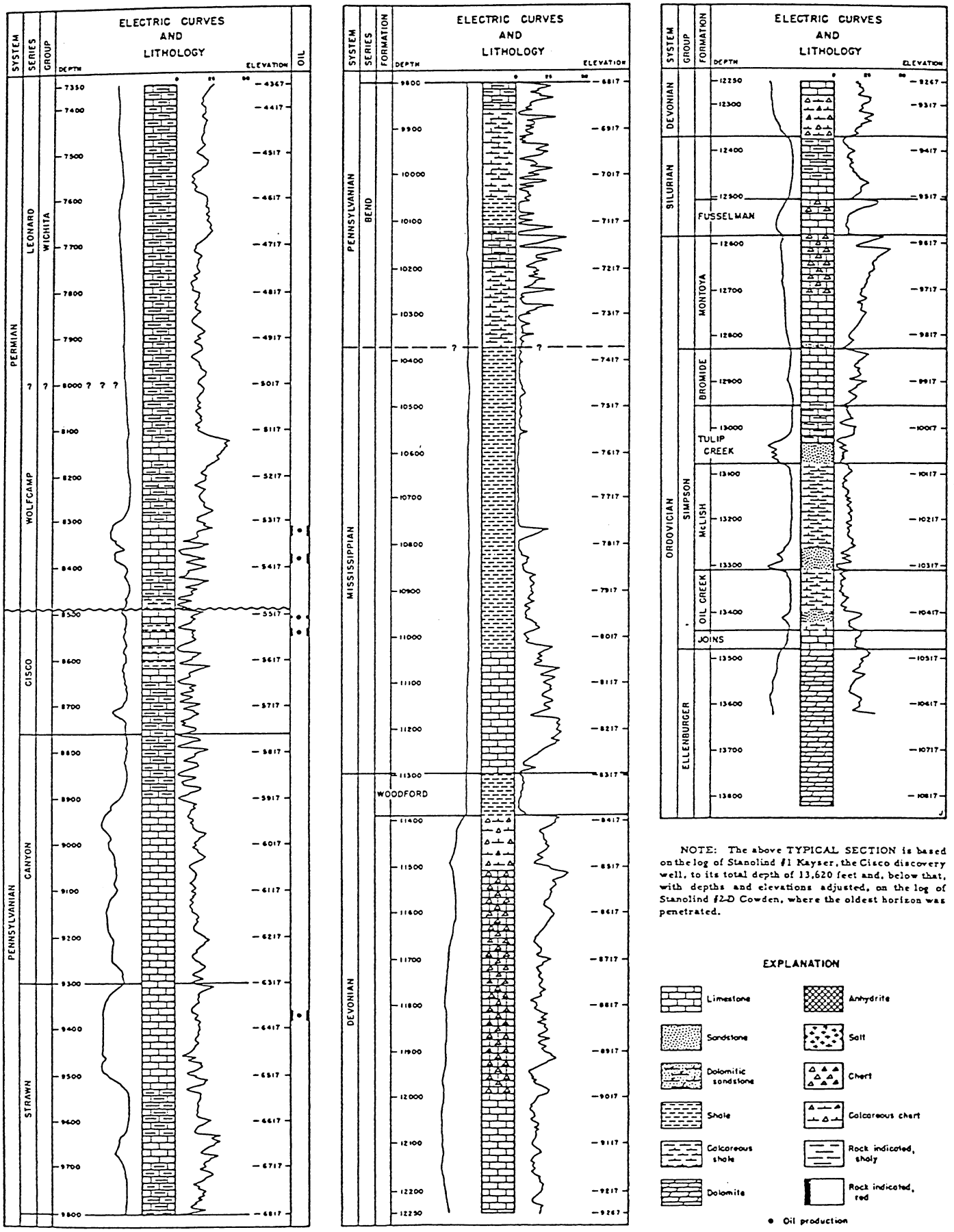
OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECONOMIC GEOLOGY, PUB. 5716.

TYPICAL SECTION OF ROCKS PENETRATED



TYPICAL SECTION OF ROCKS PENETRATED

Source 12c.

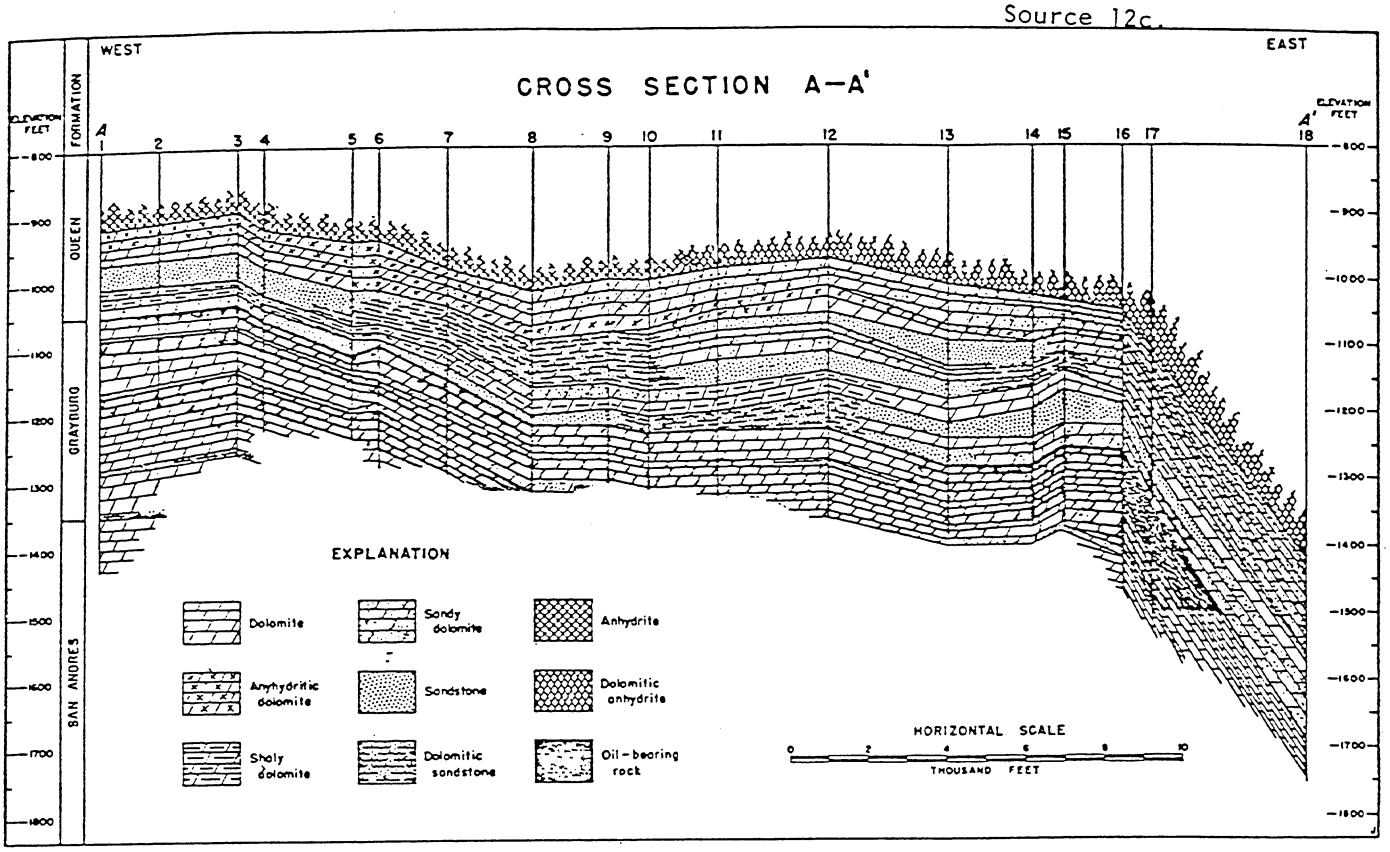


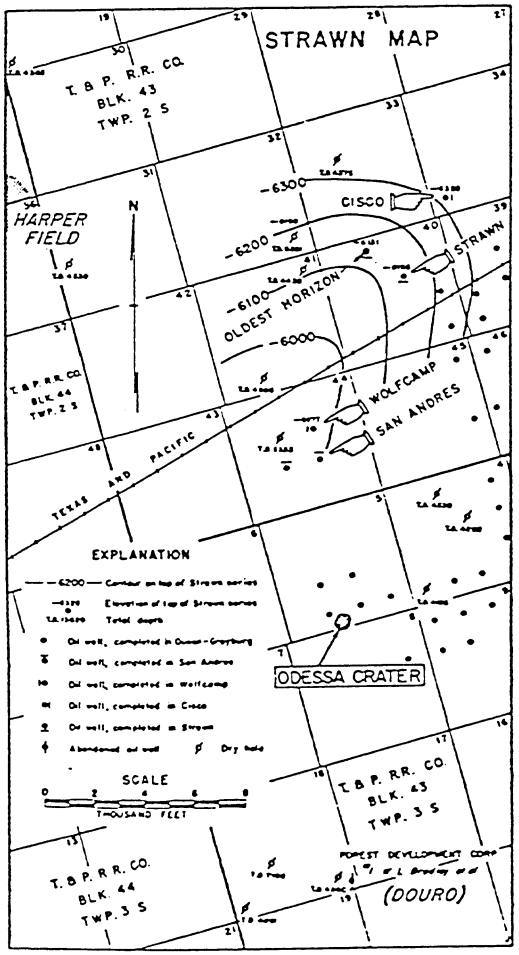
NOTE: The above TYPICAL SECTION is based on the log of Stanolind #1 Kayser, the Cisco discovery well, to its total depth of 13,620 feet and, below that, with depths and elevations adjusted, on the log of Stanolind #2-D Cowden, where the oldest horizon was penetrated.

EXPLANATION

- Limestone
- Anhydrite
- Sandstone
- Salt
- Dolomitic sandstone
- Chert
- Shale
- Calcareous chert
- Calcareous shale
- Rock indicated, shaly
- Dolomite
- Rock indicated, red
- Oil production

Source 12c.





THICKNESSES OF RESERVOIR ROCKS

	Feet		
	Min.	Max.	Avg.
Queen-Grayburg:			
From top to bottom	10	260	95
Net productive	10	200	70
San Andres: (2 wells)			
From top to bottom	65	65	65
Net productive	40	40	40
Wolfcamp: (1 well)			
From top to bottom	110	110	110
Net productive	40	40	40
Cisco: (1 well)			
From top to bottom	50	50	50
Net productive	20	20	20
Strawn: (2 wells)			
From top to bottom	20	20	20
Net productive	20	20	20

ELEVATION AND RELIEF OF PRODUCTIVE ZONES

	Elevation of oil, feet		Known relief
	Top	Bottom	
Queen-Grayburg*	-900	-1,170 to 1,850±	*
San Andres (2 wells)	-1,199	-1,264	65
Wolfcamp (1 well)	-5,167	-5,277	110
Cisco (1 well)	-5,517	-5,567	50
Strawn (2 wells)	-6,190	-6,216	26

*Queen-Grayburg: Elevation of top of gas, -794 ft.; elevation of bottom of gas, -900 ft.; relief of gas column, 106 ft. The water table is not horizontal. Water has been found at various elevations up to as high as -1,170 feet and oil has been found as low as about -1,850 feet, but it is unlikely that there is a continuous oil-water contact through such range of elevation. The base of the oil corresponds roughly to structure.

CHARACTER OF OIL

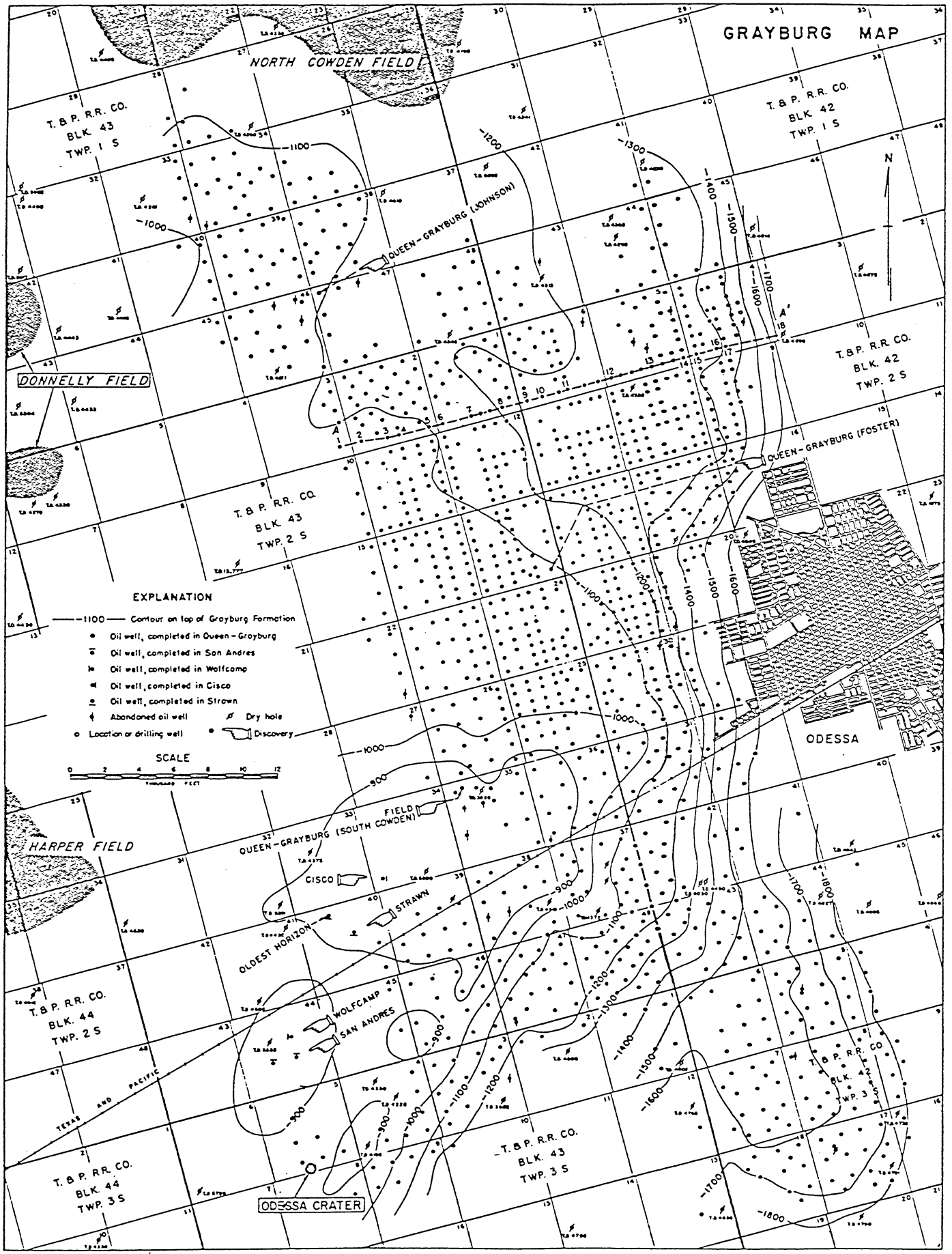
	Queen-Grayburg*	San Andres	Wolfcamp	Cisco	Strawn
Gravity, A.P.I. @ 60° F.	33° - 36.4°	32.8°	34.4°	33°	39° - 41°

*Queen-Grayburg: Color, greenish black; sulphur, 1.07 - 1.38%; viscosity, Saybolt universal @ 100° F., 41 - 46 sec.; base, intermediate. For analyses see:

		Foster	Johnson	South Cowden
Railroad Commission of Texas				
Analyses of Texas Crude Oils (1940), pp.		32 and 63	33 and 64	
U. S. Bureau of Mines	Lab. ref. No.	40009	41240	34004
Tabulated Analyses of Texas Crude Oils T. P. 607 (1939)	Item			1, Group 2
Analyses of Crude Oils from Some Fields of Texas. R. I. 3699 (1943)	Item	34	35	
Analyses of Crude Oils from Some West Texas Fields. R. I. 3744 (1944)	Page	10	11	
Analyses of Crude Oils from 283 Important Oil Fields of the United States R. I. 4289 (1948)	Item	204		198

20 ADDIS-JOHNSON-FOSTER-SOUTH COWDEN FIELD, Ector County, Texas

Source 12c.



Fowler
Upper Yeso
Delaware Basin

DATA SOURCE CODE		
6	STATE	New Mexico
1	COUNTY	Lea
	REGULATORY DISTRICT	Southeast
1, 6	BASIN	Permian
15	SUB-BASIN	Delaware Basin
1, 6	FIELD	Fowler
1, 6	RESERVOIR	Upper Yeso
6, 1	GEOLOGIC AGE	Leoandian
1	AAPG STRATIGRAPHIC AGE CODE	318
6a,6d	RESERVOIR LITHOLOGY	Fine grained dolomite; Tan to brown, very finely crystalline, slightly anhydritic, fractured dolmite.
6d, 1	TRAPPING MECHANISM	Porous, permeable, fractured dolmite on an anticline; anticline
6a,6d,1	DISCOVERY YEAR	11-5-53; 8-10-50;1970
6a,1	PROVED ACREAGE	1200
1, 6d	REGULAR WELL SPACING (acres/well)	40
6a,6d	RESERVOIR DEPTH	6210-6320; 5705 to 5765
	RESERVOIR THICKNESS	
6d	NET PAY	75
6c,6d	GROSS	110, 350
	NET/GROSS RATIO	
	POROSITY	
6a, 1	TYPE	IC-F; IG
6a, 1	FRACTION	.015
	PERMEABILITY	
	RANGE	
6d, 1	AVERAGE	5
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18,1	TOTAL NUMBER OF WELLS	41 Total, 27 Pump, 12 Flow, 2 Shut-In; 37 P, 3SI
1	PRODUCTION 1977 oil (cum)	2946
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	3355
	PRODUCTION 1-1-79 to 1-1-80	
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6d	STRUCTURE CONTOUR?	yes
6d	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Fowler
1, 6	RESERVOIR:	Upper Yeso
1,6a,1	PROD. ACRES:	1200
6a, 6d	AVG. THICKNESS (FT.):	110; 350
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
6d	WATER SATURATION (S_W):	.40
6d	OIL SATURATION (S_O):	.20
1,6a,6d	PRIMARY DRIVE MECHANISM:	Dissolved gas; volumetric; solution gas
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	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):	
6a,6d,1	STOCK TANK OIL GRAVITY (°API):	38; 42; 38
	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:

WATER ANALYSIS RECORD

FIELD: Fowler
RESERVOIR: Upper Yeso
TOTAL NO. PROJECTS: 1

DATA SOURCE:

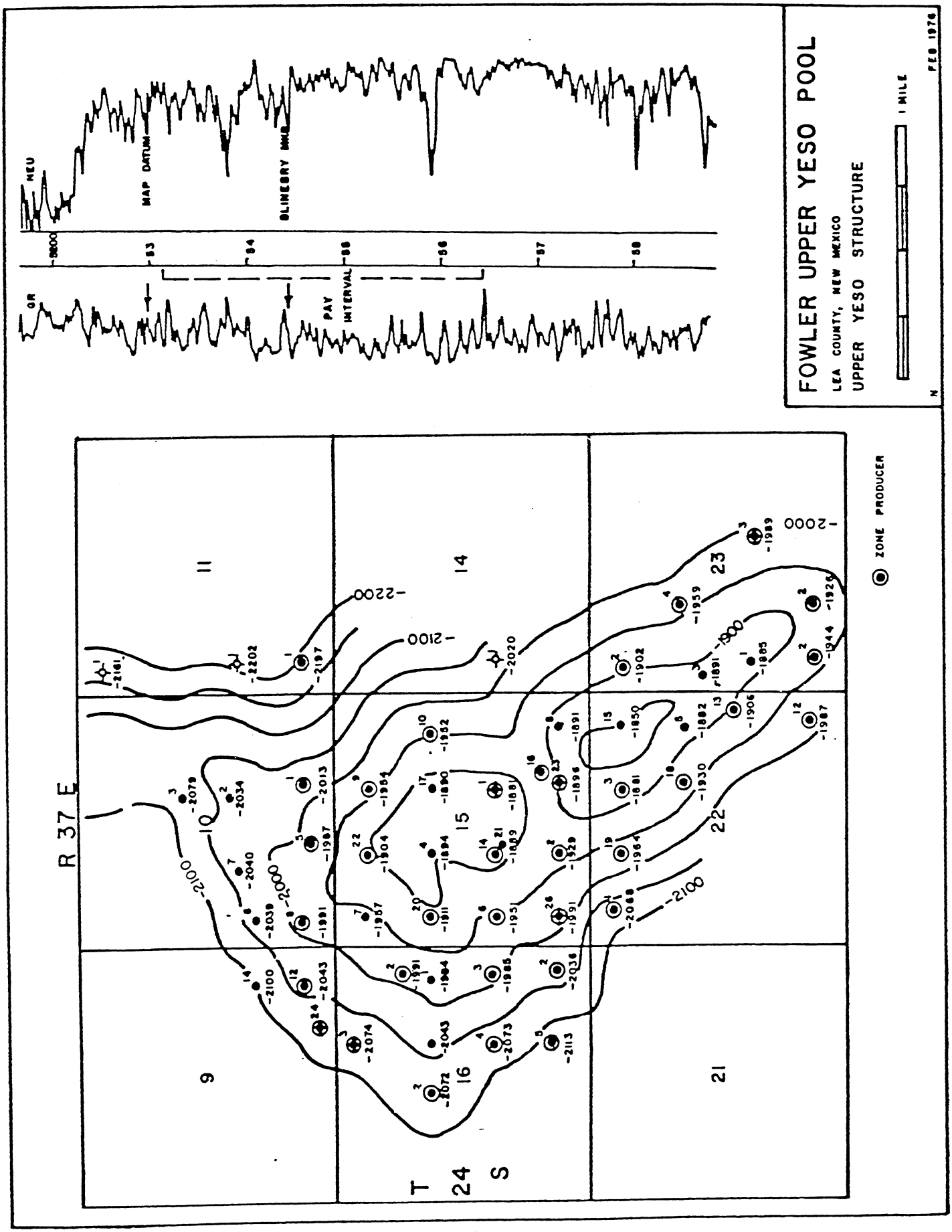
TOTAL SOLIDS (ppm):

NA
Ca
Mg
Fe
SO_4
Cl
CO_2
HCO_3
OH
H_2S

RESISTIVITY: .10 ohm-meters @ 50° F
SPECIFIC GRAVITY: 1.038 @ 68° F

OTHER WATER QUALITY DATA:

FROM: FOWLER UPPER YESO POOL in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO:
ROSWELL GEOLOGICAL SOCIETY SYMPOSIUM - 1977. Source 6d.



Fullerton
San Andres
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Andrews
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Fullerton
1, 2	RESERVOIR	San Andres
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1	RESERVOIR LITHOLOGY	Dolomite
1	TRAPPING MECHANISM	Structural, anticline
2,3,1	DISCOVERY YEAR	1945, 5-1945, 1945
2,1,16c	PROVED ACREAGE	5000, 800, 6500
1	REGULAR WELL SPACING (acres/well)	40
2,3,1	RESERVOIR DEPTH	4500-66, 4785, 4785
	RESERVOIR THICKNESS	
2,1	NET PAY	46, 205
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.105, .16
	PERMEABILITY	
2	RANGE	1-2 md
2,1	AVERAGE	1.5, 1700 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Production from Clear Fork (3590.6), Connel, Ellenburger, Wichita-Albany & Wolfcamp
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	112P-10I; 112(37P-50I-25A)
1	PRODUCTION 1976 oil (cum)	7034
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	8,583.8
3	PRODUCTION 1-1-79 to 1-1-80	551.4 mbbls oil; 351.7 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 , 1	FIELD:	Fullerton
2,1,16c	RESERVOIR:	San Andres
2,1	PROD. ACRES:	5000, 800, 6500
1, 16c	AVG. THICKNESS (FT.):	46, 205
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.09, 1.2
1, 16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.05 (76)
16c	WATER SATURATION (S_W):	.385, .35-.47
1	OIL SATURATION (S_O):	.57 (66); .48 (76)
	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2,1	RESERVOIR PRESSURE INITIAL (psi):	1800
2	RESERVOIR PRESSURE LATEST (psi):	1020
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	560
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	497.6 (76)
2,3,1	STOCK TANK OIL GRAVITY (°API):	32.5, 35.2, 35.2
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1192
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	31,400 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	1,820 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Fullerton 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	209	32			
1977 PROD. (this project):	229	35			
CUM. PROD. FROM DISC. TO 1/78:	2801	2146			
PROJECT NO.	F1232	F4142			
LEASE NO.(s):	15385, 15737,20307	17015			
OPERATOR:	Pan American	Phillips			
RESERVOIR:	San Andres	San Andres			San Andres
DEPTH PRODUCING ZONE:	4500	4566			4785
PRODUCTIVE ACREAGE IN RESERVOIR:	5000	5000			800
ACREAGE IN PROJECT:	1614	1600			1614
PORTION OR FIELD WIDE:	FW/P	FW/P			
TYPE:	WF/SW, FW	WF/SW, FW			WF
PATTERN:	LD	I9			
YEAR BEGAN:	11-66SW; 11-69FW	11-74			1966
YEAR TERMINATED OR STATUS:	ICP	ICP			
RESERVOIR PRESSURE INITIAL:	1800	1800			1800
BEG. INJECTION:	150	150			
LATEST:	1020	----			
NUMBER OF WELLS TOTAL:	78	34			
PRODUCING WELLS:	21	16			112
INJECTION WELLS:	19 SW	6 SW			10
MAXIMUM:	19 FW	6 FW			
LATEST:	----	----			
SHUT-IN/ABANDONED WELLS:	19	6			
SURFACE INJECTION PRESSURE:	1150SW; 1150FW	800SW; 800FW			
EFFECTIVENESS OF INJECTION:	----	UD			
OPERATOR PROBLEMS:	SC,IP,EP,BT	----			
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	229	----			
FROM BEG. INJECTION:	1635	----			
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	2260	----			
WATER PRODUCTION:					
CURRENT (1977):	58	47			
CUMULATIVE TO 1/78:	678	2292			
CURRENT (1977) INJECTION:	224SW; 392FW	47SW; 579FW			
CUMULATIVE INJECTION:	1950SW; 3559FW	603SW; 1176FW			

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Andrews
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
2	FIELD	Fullerton
9c, 2	RESERVOIR	Clear Fork
5	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
9c	RESERVOIR LITHOLOGY	Primarily dolomite; complex shelf carbonate which includes oolitic shallow water facies and skeletal facies showing good porosity.
9c	TRAPPING MECHANISM	Stratigraphic-hydrocarbon trapping controlled by vertical and lateral limits of porosity.
2,3	DISCOVERY YEAR	12-1941 & 2-1942; 12-1941
2, 9c	PROVED ACREAGE	34680, 17300
	REGULAR WELL SPACING (acres/well)	
2,3,9c	RESERVOIR DEPTH	6700 & 7300; 6080-7300; 7000
	RESERVOIR THICKNESS	
2	NET PAY	75
9c	GROSS	600
	NET/GROSS RATIO	
	POROSITY	
9c	TYPE	"numerous porosity stringers within a
2, 9c	FRACTION	.077-.10; .099 gross, vertical, carbonate section of several hundred feet"
	PERMEABILITY	
2, 9c	RANGE	1-3; 3 md
	AVERAGE	
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other producing reservoirs are Connell, Ellenburger, San Andres, San Andres South, Wichita-Albany, Wolfcamp, "8500".
14e	BETC/RI-78/15 list as being most suitable for CO_2 EOR.	
	PRODUCTION STATISTICS	
	(oil in mbbls, gas in mmcf)	
9c , 2	TOTAL NUMBER OF WELLS	> 700 ; 794 (296P-234I-264A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	199,544.3
3	PRODUCTION 1-1-79 to 1-1-80	5,617.9 mbbls oil; 4,012.7 mmcf gas
2	SECONDARY RECOVERY RECORDS?	Yes
	WATER ANALYSIS RECORDS?	No
	OTHER DATA	
	STRUCTURE CONTOUR?	
9c	LOGS?	Yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Fullerton
2	RESERVOIR:	Clear Fork
2 , 9c	PROD. ACRES:	34680, 17300
2	AVG. THICKNESS (FT.):	75
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
9c	FORMATION VOLUME FACTOR LATEST (FVF):	1.62 (may be initial)
9c	WATER SATURATION (S_W):	.22
	OIL SATURATION (S_O):	
9c	PRIMARY DRIVE MECHANISM:	solution gas
14e	PRIMARY GAS CAP?:	no
14e	TEMPERATURE (°F):	105 BHT
9c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2370
2	RESERVOIR PRESSURE INITIAL (psi):	3000
2 , 14e	RESERVOIR PRESSURE LATEST (psi):	1100-2500 2938 BHP
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,9c	STOCK TANK OIL GRAVITY (°API):	40-42; 43; 42
9c , 14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}): cp	0.75, 0.46
	MINIMUM MISCIBILITY PRESSURE (MMP): (psia):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	751,685 mbbls*
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	137,750 mbbls

OTHER INFORMATION:

* Volumetric original oil in place, calculated using 6% porosity cutoff yield 1,029,000 mbbls.

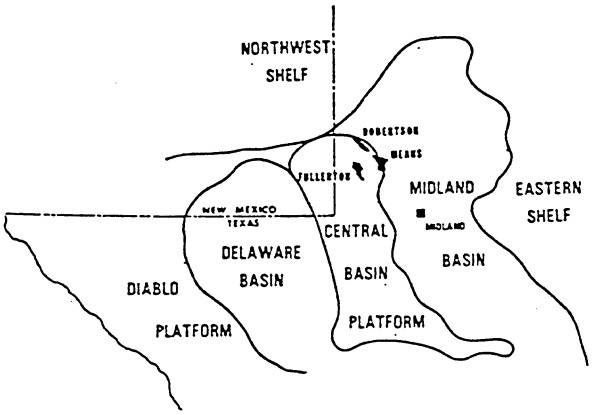
9c Reference: Fullerton, Means and Robertson, Clear Fork fields have similar depositional environments, hence similar reservoir conditions.

ENHANCED AND SECONDARY RECOVERY DATA:

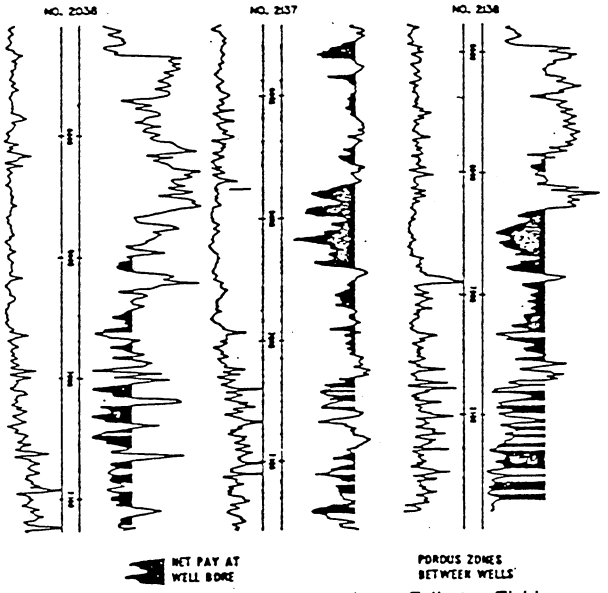
FIELD: Fullerton RESERVOIR: Clear Fork TOTAL NO. PROJECTS: 2 PDS:

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

1976 PROD. (this project): MBBLS	5291	45
1977 PROD. (this project):	5031	41
CUM. PROD. FROM DISC. TO 1/78:	176758	2024
PROJECT NO.	F1231	F4137
LEASE NO.(s):	01770	01769
OPERATOR:	Exxon	Mobile
RESERVOIR:	Clear Fork	Clear Fork
DEPTH PRODUCING ZONE:	7300; 6700	6700
PRODUCTIVE ACREAGE IN RESERVOIR:	34680	28555
ACREAGE IN PROJECT:	29540	640
PORTION OR FIELD WIDE:	FW/P	FW/P
TYPE:	WF/SW, FW	PM/SW, FW
PATTERN:	I	LD
YEAR BEGAN:	2-56	1-75
YEAR TERMINATED OR STATUS:	ICP	ICP-SW; ITD-FW
RESERVOIR PRESSURE INITIAL:	3000	3000
BEG. INJECTION:	1000	1100
LATEST:	2500	----
NUMBER OF WELLS TOTAL:	780	14
PRODUCING WELLS:	290	6
INJECTION WELLS:	105 SW	4
MAXIMUM:	125 FW	----
LATEST:	----	----
SHUT-IN/ABANDONED WELLS:	260	4
SURFACE INJECTION PRESSURE:	1250	1150
EFFECTIVENESS OF INJECTION:	ME	----
OPERATOR PROBLEMS:	PA, IP, EB	CR, EW, EP
ESTIMATED PRODUCTION DUE TO INJ.:		
1977:	5031	41
FROM BEG. INJECTION:	1975	145
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	102400	800
WATER PRODUCTION:		
CURRENT (1977):	10649	315
CUMULATIVE TO 1/78:	124076	2225
CURRENT (1977) INJECTION:	10649SW; 25741 FW	198SW
CUMULATIVE INJECTION:	123030SW; 499624 FW	429SW; 250FW



Permian Basin geological provinces.



North-south cross-section at Fullerton Field.

FROM: George, C.J., and Stiles, L.H., 1978, Improved Techniques for Evaluating Carbonate Waterfloods in West Texas: Journal of Petroleum Technology, November, p. 1547-1554.

Fullerton
"8500"
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Andrews
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Fullerton
1	RESERVOIR	"8500"
1	GEOLOGIC AGE	Devonian
1	AAPG STRATIGRAPHIC AGE CODE	340
1	RESERVOIR LITHOLOGY	Dolomite
1	TRAPPING MECHANISM	Structural, anticline
3,1	DISCOVERY YEAR	1944
1	PROVED ACREAGE	500
1	REGULAR WELL SPACING (acres/well)	40
1,3	RESERVOIR DEPTH	8658
	RESERVOIR THICKNESS	
1	NET PAY	125
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1	FRACTION	.09
	PERMEABILITY	
	RANGE	
1	AVERAGE	1682md
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	53P
1	PRODUCTION 1976 oil (cum)	40,102
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	42,937.5
3	PRODUCTION 1-1-79 to 1-1-80	828.9 mbbls oil; 741.5 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:	Fullerton
1	RESERVOIR:	"8500"
1	PROD. ACRES:	500
1	AVG. THICKNESS (FT.):	125
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.2
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.20
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (^oF):	135
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	4026
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	342
1,17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1382.6 (76); 1383
1,3	STOCK TANK OIL GRAVITY (^oAPI):	43
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1663
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

1 Primary recoverable: 230 bbl/acre-ft

Garza
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	Garza
	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313 (310-PDS)
1	RESERVOIR LITHOLOGY	Dolomite
	TRAPPING MECHANISM	
2,3,1	DISCOVERY YEAR	8-1935; 1926; 1926
2,1	PROVED ACREAGE	9750
	REGULAR WELL SPACING (acres/well)	
2,1	RESERVOIR DEPTH	2900
	RESERVOIR THICKNESS	
2,1	NET PAY	54 avg., 50
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.20, .25
	PERMEABILITY	
2	RANGE	2-41 md
2,1	AVERAGE	8, 27 md
2	HORIZONTAL	8 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Glorieta
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	353P- 57I; 540 (280P-164I-96A)
1	PRODUCTION 1976 oil (cum)	59,759
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	67,099.2
3	PRODUCTION 1-1-79 to 1-1-80	2,646.3 mbbls oil; 285.1 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:	Garza
	RESERVOIR:	San Andres
2,1	PROD. ACRES:	9750
2,1	AVG. THICKNESS (FT.):	54, 50
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.3
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.54
16c	OIL SATURATION (S_O):	.45
1	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (^oF):	90 (GG=.95)
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	778
2,1	RESERVOIR PRESSURE INITIAL (psi):	1000
2	RESERVOIR PRESSURE LATEST (psi):	100-680
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	231.7 (76)
1,2,3	STOCK TANK OIL GRAVITY (^oAPI):	35.4, 35-37, 35.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1142
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 12 SRPs:	337,093 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 12 SRPs:	44,692 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Garza RESERVOIR: San Andres TOTAL NO. PROJECTS: 13

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

1976 PROD. (this project): MBBLS	122	175	410	246	297
1977 PROD. (this project):	175	245	408	237	287
CUM. PROD. FROM DISC. TO 1/78:	5827	11233	10418	5513	7538
PROJECT NO.	F1756	F5882	F1760	F1759	F3723
LEASE NO.(s):	01906, 60197	61155	60611	01898	60713
OPERATOR:	Amer. Petrofina	Amer. Petrofina	G. R. Brown	G.R. Brown	G. R. Brown
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	2800	2885	2770	2800	2800
PRODUCTIVE ACREAGE IN RESERVOIR:	9750	9750	9750	9700	9750
ACREAGE IN PROJECT:	1313	647	1543	652	1245
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, BW	WF/SW	WF/FW	WF/FW	WF/FW
PATTERN:	P	5S	5S	5S	5S
YEAR BEGAN:	9-67	11-67	11-67	2-69	10-71
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1000	1100	1000	1000	1000
BEG. INJECTION:	----	----	80	100	80
LATEST:	100	100	680	756	80
NUMBER OF WELLS TOTAL:	104	42	95	35	102
PRODUCING WELLS:	43	21	38	18	49
INJECTION WELLS:	-	18	33	17	30
MAXIMUM:	2SW	-	-	-	-
LATEST:	22BW	-	-	-	-
SHUT-IN/ABANDONED WELLS:	37	3	24	-	23
SURFACE INJECTION PRESSURE:	1030SW, 1050BW	1100	900	900	900
EFFECTIVENESS OF INJECTION:	-	VE	ME	ME	ME
OPERATOR PROBLEMS:	-	CR, SC	PI	PI	PI
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	145	209	408	237	287
FROM BEG. INJECTION:	829	629	1629	1419	1038
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	8895	2000	6497	3703	5695
WATER PRODUCTION:					
CURRENT (1977):	249	174	356	230	385
CUMULATIVE TO 1/78:	1361	851	1385	1254	1657
CURRENT (1977) INJECTION:	249SW; 1388BW	1521	1526	859	1835
CUMULATIVE INJECTION:	18091	9132	17197	11140	12619

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Garza RESERVOIR: San Andres TOTAL NO. PROJECTS: 13

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

1976 PROD. (this project): MBBLS	193	3	21	4	130
1977 PROD. (this project):	242	7	26	7	168
CUM. PROD. FROM DISC. TO 1/78:	5742	69	599	373	---
PROJECT NO.	F3724	F6964	F1761	F5323	F5883
LEASE NO.(s):	01873	13423	01876	10344	61053
OPERATOR:	G.R. Brown	G.R. Brown	G.R. Brown	G.R. Brown	R.J.Diekemper
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	2800	2800	2900	2915	2900
PRODUCTIVE ACREAGE IN RESERVOIR:	9750	9750	9750	9750	9750
ACREAGE IN PROJECT:	640	120	200	158	980
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/FW	WF/SW	WF/SW, FW	WF/FW
PATTERN:	5S	5S	5S	5S	5S
YEAR BEGAN:	6-74SW; 4-71FW	8-76	6-69	12-72	9-75
YEAR TERMINATED OR STATUS:	SW-ICP,FW-ITD	ICP	ICP	SW-ICP; FW-INS	ICP
RESERVOIR PRESSURE INITIAL:	1000	1000	1000	1000	1000
BEG. INJECTION:	80	100	130	80	75
LATEST:	80	70	130	80	----
NUMBER OF WELLS TOTAL:	43	3	6	11	54
PRODUCING WELLS:	27	2	3	5	39
INJECTION WELLS:	16	1	2	4	11
MAXIMUM:	----	----	----	----	----
LATEST:	----	----	----	-	----
SHUT-IN/ABANDONED WELLS:	0	0	1	2	4
SURFACE INJECTION PRESSURE:	900	900	900	900	800
EFFECTIVENESS OF INJECTION:	ME	ME	ME	ME	ME
OPERATOR PROBLEMS:	PI	PI	PI	PI	----
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	242	7	29	7	----
FROM BEG. INJECTION:	551	9	93	369	----
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	4469	80	300	116	----
WATER PRODUCTION:					
CURRENT (1977):	168	----	12	19	345
CUMULATIVE TO 1/78:	635	----	55	106	5055
CURRENT (1977) INJECTION:	----	58	74	----	----
CUMULATIVE INJECTION:	1273SW; 1952FW	----	882	----	169

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Garza RESERVOIR: San Andres TOTAL NO. PROJECTS: 13 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	3	71	166		
1977 PROD. (this project):	7	33	311		
CUM. PROD. FROM DISC. TO 1/78:	787	698	3323		
PROJECT NO.	F4340	F1764	F1763		
LEASE NO.(s):	01899	11908	01908		
OPERATOR:	Gen. Am.Oil Co.	Sun Oil	Sun Oil		
RESERVOIR:	San Andres	San Andres	San Andres		
DEPTH PRODUCING ZONE:	2828	2810	2875		2900
PRODUCTIVE ACREAGE IN RESERVOIR:	9709	9710	9710		9750
ACREAGE IN PROJECT:	122	72	260		1543
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P		
TYPE:	WF/SW	WF/FW	WF/SW, FW		WF
PATTERN:	5S	M5	MI9		
YEAR BEGAN:	----	11-67	11-67		1967
YEAR TERMINATED OR STATUS:	INS	ICP	ICP		
RESERVOIR PRESSURE INITIAL:	---	1000	1000		1000
BEG. INJECTION:	----	100	100		
LATEST:	100	200	200		
NUMBER OF WELLS TOTAL:	8	9	28		
PRODUCING WELLS:	8	7	20		353
INJECTION WELLS:	---	2	3 SW		57
MAXIMUM:	---	---	3 FW		
LATEST:	---	---	---		
SHUT-IN/ABANDONED WELLS:	---	---	2		
SURFACE INJECTION PRESSURE:	---	1000	1000		
EFFECTIVENESS OF INJECTION:	---	ME	ME		
OPERATOR PROBLEMS:	----	SC	SC		
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---	33	311		
FROM BEG. INJECTION:	---	238	1033		
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	220	1480		
WATER PRODUCTION:					
CURRENT (1977):	2	68	470		
CUMULATIVE TO 1/78:	24	462	2033		
CURRENT (1977) INJECTION:	---	208	538SW; 420FW		
CUMULATIVE INJECTION:	---	1646	4002SW; 2574FW		

Goldsmith
San Andres
Central Basin Platform

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Ector
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Goldsmith
2	RESERVOIR	San Andres
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1	RESERVOIR LITHOLOGY	Dolomite
	TRAPPING MECHANISM	
2, 1	DISCOVERY YEAR	5-1935, 1935
2,1,16c	PROVED ACREAGE	30,000; 960; 14,100
1	REGULAR WELL SPACING (acres/well)	20
2 , 1	RESERVOIR DEPTH	4070-4250; 4300
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	47.5 avg., 120, 75
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.098 avg., .102
	PERMEABILITY	
2	RANGE	1-25 md
2,1 , 14e	AVERAGE	11.7, 20 md , 25 md
2	HORIZONTAL	11.7 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Clear Fork, Devonian, Ellenburger, Fusselman, Grayburg Holt, Penn, Tubb, 5600.
14e	BETC/RI-78/15 list as being most suitable for polymer EOR.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	838P -237I ; 1609 (608P-618I-383A)
1	PRODUCTION 1976 oil (cum)	293,961
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	313,548.2
3	PRODUCTION 1-1-79 to 1-1-80	5,920.8 mbbls oil; 3,975.6 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:	Goldsmith
2,1 , 16c	RESERVOIR:	San Andres
2,1 , 16c	PROD. ACRES:	30,000; 960 ; 14,100
1	AVG. THICKNESS (FT.):	47.5, 120, 75
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.36
1	FORMATION VOLUME FACTOR LATEST (FVF):	1.330 (76)
	WATER SATURATION (S_W):	.143
1	OIL SATURATION (S_O):	
1 , 14e	PRIMARY DRIVE MECHANISM:	depletion
16c, 17 , 14e	PRIMARY GAS CAP?:	yes ,no
16c ,17	TEMPERATURE (°F):	94, 113 , 94 BHT
2,1	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1712, 3114
2	RESERVOIR PRESSURE INITIAL (psi):	1727, 1727
	RESERVOIR PRESSURE LATEST (psi):	350-1700
1, 17	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
2,1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	829.1(76), 829
14e	STOCK TANK OIL GRAVITY (°API):	35-37, 35
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	0.91 cp
2	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1423
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 4 SRPs:	205,929 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 4 SRPs:	33,787 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith 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	388	----	1071	24	392
1977 PROD. (this project):	237	----	1481	22	344
CUM. PROD. FROM DISC. TO 1/78:	8188	693	60466	490	4699
PROJECT NO.	F1240	F1239	F1241	F1242	F1236
LEASE NO.(s):	17736	16038, 17223,18004	017491	18863	17735
OPERATOR:	Amoco	Amoco	Amoco	Amoco	Arco
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4100	4200 & 4500	4200	4200	4070
PRODUCTIVE ACREAGE IN RESERVOIR:	30000	30000	30000	30000	30000
ACREAGE IN PROJECT:	1113	1105	6166	200	5138
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, BW, gas	WF/SW, BW	WF/SW, BW, gas	WF/SW, BW	WF/SW, BW
PATTERN:	LD	I	5LD	LD	LD
YEAR BEGAN:	6-64	1-64	6-63	6-67	4-64
YEAR TERMINATED OR STATUS:	WF-ICP,Gas-IPD	ICP	WF-ICP;Gas-IPD	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1727	1727	1727	1727	1727
BEG. INJECTION:	973	1086	510	900	763
LATEST:	1700	----	350	----	1441
NUMBER OF WELLS TOTAL:	79	11	445	10	290
PRODUCING WELLS:	22	11	153	4	98
INJECTION WELLS:	25 SW	----	117 SW	2 SW	71 SW
MAXIMUM:	25 BW	----	117 BW	2 BW	71 BW
LATEST:	----	----	----	----	----
SHUT-IN/ABANDONED WELLS:	7	----	58	2	50
SURFACE INJECTION PRESSURE:	250 SW; 250 BW	----	225 SW; 225 BW	575 SW; 575 BW	750
EFFECTIVENESS OF INJECTION:	VE	----	VE	----	----
OPERATOR PROBLEMS:	CR,SC	----	CH,SC, CR	CR, SC	----
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	273	----	----	22	344
FROM BEG. INJECTION:	5759	----	----	484	4699
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	3510	----	----	----	10600
WATER PRODUCTION:					
CURRENT (1977):	846	----	6754	135	3087
CUMULATIVE TO 1/78:	5562	383	48213	1014	18410
CURRENT (1977) INJECTION:	703SW; 1737BW	----	5061SW; 8617BW	135SW; 55BW	3087SW;3834BW
CUMULATIVE INJECTION:	4348SW; 23616BW; 2435 gas	368SW; 14203BW	41989SW;20207BW; 38339 gas	985SW; 503BW	22657SW;62288BW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith 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	91	5299			
1977 PROD. (this project):	81	4990			
CUM. PROD. FROM DISC. TO 1/78:	2932	201370			
PROJECT NO.	F1237	F1238			
LEASE NO.(s):	02004, 02005+	02020			
OPERATOR:	Cities Ser.	Gulf Oil			
RESERVOIR:	San Andres	San Andres			
DEPTH PRODUCING ZONE:	4250	4200			4300
PRODUCTIVE ACREAGE IN RESERVOIR:	30000	30700			960
ACREAGE IN PROJECT:	1200	14100			14,100
PORTION OR FIELD WIDE:	FW/P	FW/P			
TYPE:	WF/SW, BW	PM/BW			H_2O flood
PATTERN:	5S	I9			
YEAR BEGAN:	8-61	10-54			1976
YEAR TERMINATED OR STATUS:	ICP	ICP			
RESERVOIR PRESSURE INITIAL:	1727	1712			1727
BEG. INJECTION:	1150	1000			
LATEST:	800	1534			
NUMBER OF WELLS TOTAL:	69	705			
PRODUCING WELLS:	16	304			83B-P
INJECTION WELLS:	20 SW	148			237-I
MAXIMUM:	20 BW	---			
LATEST:	---	---			
SHUT-IN/ABANDONED WELLS:	13	253			
SURFACE INJECTION PRESSURE:	800 SW; 800 BW	350			
EFFECTIVENESS OF INJECTION:	ME	ME			
OPERATOR PROBLEMS:	----	CR,CH,SC,EB			
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	81	---			
FROM BEG. INJECTION:	1965	---			
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	2187	---			
WATER PRODUCTION:					
CURRENT (1977):	296	21989			
CUMULATIVE TO 1/78:	3325	107349			
CURRENT (1977) INJECTION:	296SW; 1704BW	51961			
CUMULATIVE INJECTION:	4459SW; 26170BW	717243			

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Ector
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Goldsmith
1	RESERVOIR	Clear Fork 5600
1	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
1	RESERVOIR LITHOLOGY	Dolomite
	TRAPPING MECHANISM	
2,1	DISCOVERY YEAR	1946, 1947
2,1,16c	PROVED ACREAGE	50,000 &65,000 (+6300'); 30,000; 65,000
1	REGULAR WELL SPACING (acres/well)	40
2, 1	RESERVOIR DEPTH	5600
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	113.5 avg., 100, 32-100
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.116 avg., .15
	PERMEABILITY	
2	RANGE	1-28 md
2,1	AVERAGE	14.4, 28 md
2	HORIZONTAL	14.4 md
	VERTICAL	
3	OTHER INFORMATION	Production from San Andres, Devonian,
14e	BETC/RI-78/15 list as suitable for polymer EOR because it was assumed that polymers more readily available than CO_2	Ellenburger, Fusselman, Holt, Penn, Tubb
	PRODUCTION STATISTICS	
2	(oil in mbbls, gas in mmcf)	1674 (961P-488I-224A)
1	TOTAL NUMBER OF WELLS	831P; 277I
1	PRODUCTION 1976 oil (cum)	189,213
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	55,610.5 Clear Fork; 198,625.9 "5600"
3	PRODUCTION 1-1-79 to 1-1-80	1,417.8 mbbls oil; 3,975.6 mmcf gas;
2	SECONDARY RECOVERY RECORDS?	yes 2,763.3 oil; 5,494.5 mmcf "5600"
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Goldsmith
2,1	RESERVOIR:	Clear Fork "5600"
16c, 2,1	PROD. ACRES:	65000, 50,000, 30,000
2,1, 16c	AVG. THICKNESS (FT.):	113.5, 100, 32-100
1,16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.55, 1.429
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.48 (64)
1, 16c	WATER SATURATION (S_W):	.26, .20-.37
16c	OIL SATURATION (S_O):	.55
1	PRIMARY DRIVE MECHANISM:	depletion
14e	PRIMARY GAS CAP?:	no
17, 14e	TEMPERATURE (°F):	124, 105
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2105
2,1	RESERVOIR PRESSURE INITIAL (psi):	2300-2600; 2330
2	RESERVOIR PRESSURE LATEST (psi):	400-2427
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	7733.2 (76)
2,1	STOCK TANK OIL GRAVITY (°API):	37-41, 38.3
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	1.1 cp
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1547
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 4 SRPs:	294,906 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 5 SRPs:	58,568 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith RESERVOIR: Clear Fork 5600 TOTAL NO. PROJECTS: 10

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

1976 PROD. (this project): MBBLS	676	347	40	246	41
1977 PROD. (this project):	679	336	47	248	79
CUM. PROD. FROM DISC. TO 1/78:	33782	19246	2962	1680	3985
PROJECT NO.	F1244	F1246	F1243	F1245	F5864
LEASE NO.(s):	19815	20543	20639	21193	8-leases
OPERATOR:	Amoco	Arco	Lario Oil & Gas	Phillips Pet.	Phillips Pet.
RESERVOIR:	Clear Fork 5600	Clear Fork 5600	Clear Fork 5600	Clear Fork 5600	Clear Fork 560
DEPTH PRODUCING ZONE:	5600 & 6300	5600 & 6300	5600 & 6300	5450 & 6208	6150
PRODUCTIVE ACREAGE IN RESERVOIR:	16700	65000	65000	50000	17000
ACREAGE IN PROJECT:	7418	6000	800	9200	136
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, BW	WF/SW, BW	WF/SW, BW	WF/SW, BW	WF/SW, BW
PATTERN:	5LD	LD	I	I9	LD
YEAR BEGAN:	2-66	1-68	10-67	6-70	9-73
YEAR TERMINATED OR STATUS:	ICP	ICP	SW-ICP, BW-ITD	ICP	ICP
RESERVOIR PRESSURE INITIAL:	2600	2600	2300	2600	2600
BEG. INJECTION:	900	800	561	16	500
LATEST:	1600	400	----	655	----
NUMBER OF WELLS TOTAL:	293	171	14	181	37
PRODUCING WELLS:	94	115	8	149	15
INJECTION WELLS:	80 SW	3 SW	2	4 SW	12
MAXIMUM:	80 BW	25 BW	----	4 BW	----
LATEST:	----	----	----	----	----
SHUT-IN/ABANDONED WELLS:	39	28	4	24	10
SURFACE INJECTION PRESSURE:	500SW; 500BW	950SW; 950BW	----	600SW; 600BW	320
EFFECTIVENESS OF INJECTION:	ME	ME	NE	UD	----
OPERATOR PROBLEMS:	----	CR,EW,PA,EP	----	----	----
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	----	134	----	----	45
FROM BEG. INJECTION:	----	1248	----	----	57
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	----	----	----	30	----
WATER PRODUCTION:					
CURRENT (1977):	1340	497	170	256	85
CUMULATIVE TO 1/78:	11989	5398	3227	2709	426
CURRENT (1977) INJECTION:	1337SW; 6714BW	497SW; 4137BW	326	234SW; 209BW	1332 BW
CUMULATIVE INJECTION:	12147SW; 74107BW	6412SW; 22486BW	7939	2205SW; 2713BW	6516 BW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith RESERVOIR: Clear Fork 5600 TOTAL NO. PROJECTS: 10
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	2920	395	271	---	---
1977 PROD. (this project):	2655	365	252	---	---
CUM. PROD. FROM DISC. TO 1/78:	95471	13758	24896	---	---
PROJECT NO.	F1247	F1248	F1249	F3399	F3400
LEASE NO.(s):	02290	02309	18713	12482	02100
OPERATOR:	Gulf Oil	Phillips Pet.	Phillips Pet.	Climax Oil	Gulf Oil
RESERVOIR:	Clear Fork 5600	Clear Fork 5600	Clear Fork 5600	Clear Fork 5600	Clear Fork
DEPTH PRODUCING ZONE:	5600	5600	5600	5600	6100
PRODUCTIVE ACREAGE IN RESERVOIR:	30000	30000	50000	17000	14000
ACREAGE IN PROJECT:	15040	2000	8040	160	----
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	PM/BW	WF/SW, BW	WF/SW, BW	WF/SW	WF/BW
PATTERN:	5I9	5S	LD	---	---
YEAR BEGAN:	12-56	9-61	1-65	65	5-63
YEAR TERMINATED OR STATUS:	ICP	SW-ICP, BW-ITD	ICP	IPD-10170	IPD
RESERVOIR PRESSURE INITIAL:	2330	2330	2325	2600	2600
BEG. INJECTION:	730	700	450	160	760
LATEST:	2427	541	1229	----	----
NUMBER OF WELLS TOTAL:	563	50	205 (172)	95	65
PRODUCING WELLS:	346	31	78	61	64
INJECTION WELLS:	189	17	36 SW	28	1
MAXIMUM:	----	----	36 BW	----	----
LATEST:	----	----	----	----	----
SHUT-IN/ABANDONED WELLS:	28	2	55	34	0
SURFACE INJECTION PRESSURE:	700	----	540	----	----
EFFECTIVENESS OF INJECTION:	ME	----	ME	----	----
OPERATOR PROBLEMS:	CR,CH,SC,EB	CR,SC	CH,SC	----	----
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	----	369	252	----	----
FROM BEG. INJECTION:	----	3529	409	----	----
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	----	3500	5000	----	----
WATER PRODUCTION:					
CURRENT (1977):	26336	1759	1144	356	467
CUMULATIVE TO 1/78:	227,515	23051	13382	5843	7006
CURRENT (1977) INJECTION:	45767	2623 SW	1144SW; 917BW	438	202
CUMULATIVE INJECTION:	637708	22903SW;28068BW	13234SW;45483BW	3626	1033

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith RESERVOIR: Clear Fork 5600 TOTAL NO. PROJECTS: 10 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:	5600
DEPTH PRODUCING ZONE:	5600
PRODUCTIVE ACREAGE IN RESERVOIR:	30,000
ACREAGE IN PROJECT:	15,040
PORTION OR FIELD WIDE:	
TYPE:	WF-PM
PATTERN:	
YEAR BEGAN:	1956
YEAR TERMINATED OR STATUS:	
RESERVOIR PRESSURE INITIAL:	2330
BEG. INJECTION:	
LATEST:	
NUMBER OF WELLS TOTAL:	
PRODUCING WELLS:	831
INJECTION WELLS:	277
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:	

Goldsmith, East
San Andres
Central Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Ector
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
13c, 2	FIELD	Goldsmith, East
13c, 2	RESERVOIR	San Andres
8a	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	6-1952, 9-1962
2	PROVED ACREAGE	2760
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	4180, 4224
	RESERVOIR THICKNESS	
2	NET PAY	90
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.078
	PERMEABILITY	
	RANGE	
2	AVERAGE	12 md
2	HORIZONTAL	12 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Lower Clear Fork, Glorieta, Grayburg, Holt, Pennsylvanian
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	65 64P, 1I, 0A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	7,332.7 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	334.2 mbbls oil; 495.2 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:	Goldsmith, East
13c, 2	RESERVOIR:	San Andres
2	PROD. ACRES:	2760
2	AVG. THICKNESS (FT.):	90
	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):	1645
2	RESERVOIR PRESSURE LATEST (psi):	1456
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (^oAPI):	37, 37.2
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	52,690 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	7,499 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith, East 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	278
1977 PROD. (this project):	237
CUM. PROD. FROM DISC. TO 1/78:	6657
PROJECT NO.	F1253
LEASE NO.(s):	21364
OPERATOR:	Sun Oil
RESERVOIR:	San Andres
DEPTH PRODUCING ZONE:	4180
PRODUCTIVE ACREAGE IN RESERVOIR:	2760
ACREAGE IN PROJECT:	2760
PORTION OR FIELD WIDE:	FW
TYPE:	PM/SW
PATTERN:	5S
YEAR BEGAN:	4-70
YEAR TERMINATED OR STATUS:	ICP
RESERVOIR PRESSURE INITIAL:	1645
BEG. INJECTION:	1000
LATEST:	1456
NUMBER OF WELLS TOTAL:	65
PRODUCING WELLS:	64
INJECTION WELLS:	1
MAXIMUM:	---
LATEST:	---
SHUT-IN/ABANDONED WELLS:	0
SURFACE INJECTION PRESSURE:	100
EFFECTIVENESS OF INJECTION:	UD
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):	467
CUMULATIVE TO 1/78:	7006
CURRENT (1977) INJECTION:	202
CUMULATIVE INJECTION:	1033

Goldsmith, East
Holt
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Ector
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
13c, 2	FIELD	Goldsmith, East
13c, 2	RESERVOIR	Holt
	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	7-1954
2	PROVED ACREAGE	2185
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	4950, 4988
	RESERVOIR THICKNESS	
2	NET PAY	48
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.086
	PERMEABILITY	
	RANGE	
2	AVERAGE	1 md
2	HORIZONTAL	1 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Lower Clear Fork, Glorieta, Grayburg, Pennsylvanian, San Andres
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	95 (61P, 28I, 6A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	6,161.7 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	513.1 mbbls oil; 89.5 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:	Goldsmith, East
13c, 2	RESERVOIR:	Holt
2	PROD. ACRES:	2185
2	AVG. THICKNESS (FT.):	48
	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):	1999
2	RESERVOIR PRESSURE LATEST (psi):	213
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	38
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	48,650 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	6,150 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

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

1976 PROD. (this project): MBBLS	195
1977 PROD. (this project):	221
CUM. PROD. FROM DISC. TO 1/78:	5480
PROJECT NO.	F1252
LEASE NO.(s):	20973
OPERATOR:	Sun Oil
RESERVOIR:	Holt
DEPTH PRODUCING ZONE:	4950
PRODUCTIVE ACREAGE IN RESERVOIR:	2185
ACREAGE IN PROJECT:	2185
PORTION OR FIELD WIDE:	FW
TYPE:	WF/SW
PATTERN:	5S
YEAR BEGAN:	12-68
YEAR TERMINATED OR STATUS:	ICP
RESERVOIR PRESSURE INITIAL:	1999
BEG. INJECTION:	213
LATEST:	213
NUMBER OF WELLS TOTAL:	95
PRODUCING WELLS:	61
INJECTION WELLS:	28
MAXIMUM:	---
LATEST:	---
SHUT-IN/ABANDONED WELLS:	6
SURFACE INJECTION PRESSURE:	500
EFFECTIVENESS OF INJECTION:	UD
OPERATOR PROBLEMS:	CR, PA
ESTIMATED PRODUCTION DUE TO INJ.:	
1977:	---
FROM BEG. INJECTION:	---
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---
WATER PRODUCTION:	
CURRENT (1977):	356
CUMULATIVE TO 1/78:	5843
CURRENT (1977) INJECTION:	438
CUMULATIVE INJECTION:	3626

Goldsmith, West
San Andres
Central Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Ector
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
13c, 2	FIELD	Goldsmith, West
2	RESERVOIR	San Andres
8a	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	4-1956, 3-1956
2	PROVED ACREAGE	4800
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	4300, 4280
	RESERVOIR THICKNESS	
2	NET PAY	30
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.06
	PERMEABILITY	
2	RANGE	3-4 md
2	AVERAGE	3.5 md
2	HORIZONTAL	3.5 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Upper Clear Fork, Devonian, Ellenburger, Fusselman, Waddel, Wolfcamp
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	40 (27P, 9I, 4A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	5,476.5 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	86.7 mbbls oil; 347.2 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:	Goldsmith, West
2	RESERVOIR:	San Andres
2	PROD. ACRES:	4800
2	AVG. THICKNESS (FT.):	30
	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):	1742
2	RESERVOIR PRESSURE LATEST (psi):	540
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	34.5, 34
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	10,520 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	1,200 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith, West RESERVOIR: San Andres TOTAL NO. PROJECTS: 2 (1 abandoned) PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	30	---
1977 PROD. (this project):	22	---
CUM. PROD. FROM DISC. TO 1/78:	676	625
PROJECT NO.	F6860	F3707
LEASE NO.(s):	23996	18148, etc.
OPERATOR:	Atlantic Rich	Atlantic Rich
RESERVOIR:	San Andres	San Andres
DEPTH PRODUCING ZONE:	4300	4300
PRODUCTIVE ACREAGE IN RESERVOIR:	4800	4800
ACREAGE IN PROJECT:	840	800
PORTION OR FIELD WIDE:	P	P
TYPE:	WF/SW	WF/SW
PATTERN:	PLD	MP
YEAR BEGAN:	3-71	3-71
YEAR TERMINATED OR STATUS:	ICP	IPD
RESERVOIR PRESSURE INITIAL:	1742	1742
BEG. INJECTION:	300	500
LATEST:	540	540
NUMBER OF WELLS TOTAL:	24	16
PRODUCING WELLS:	11	16
INJECTION WELLS:	9	---
MAXIMUM:	---	---
LATEST:	---	---
SHUT-IN/ABANDONED WELLS:	4	0
SURFACE INJECTION PRESSURE:	500	---
EFFECTIVENESS OF INJECTION:	ME	---
OPERATOR PROBLEMS:	---	---
ESTIMATED PRODUCTION DUE TO INJ.:		
1977:	12	---
FROM BEG. INJECTION:	162	---
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	300	0
WATER PRODUCTION:		
CURRENT (1977):	16	---
CUMULATIVE TO 1/78:	172	145
CURRENT (1977) INJECTION:	649	---
CUMULATIVE INJECTION:	3492	2350

Goldsmith, West
Clear Fork, Up.
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Ector
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
13c, 2	FIELD	Goldsmith, West
2	RESERVOIR	Clear Fork, Up.
8a	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	12-1955, 1-1956
2	PROVED ACREAGE	4480 (4200 + 280)
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	4200-5650 w/4925 avg.; 5640
	RESERVOIR THICKNESS	
2	NET PAY	35
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.091
	PERMEABILITY	
2	RANGE	1-2 md
2	AVERAGE	1.5 md
2	HORIZONTAL	1.5 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Devonian, Ellenburger, Fusselman, San Andres, Waddell, Wolfcamp
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	128 (86P, 16I, 26A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	6,973.7 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	192.3 mbbls oil; 778.9 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		
	FIELD:	Goldsmith, West
2	RESERVOIR:	Clear Fork, Up.
2	PROD. ACRES:	65000, 4320
2	AVG. THICKNESS (FT.):	35
	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):	2300
2	RESERVOIR PRESSURE LATEST (psi):	500-1100
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 3	STOCK TANK OIL GRAVITY (^oAPI):	36-38, 37
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	96,500 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	10,481 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith, West RESERVOIR: Clear Fork, Up. TOTAL NO. PROJECTS: 2 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	---	186			
1977 PROD. (this project):	---	167			
CUM. PROD. FROM DISC. TO 1/78:	180	11017			
PROJECT NO.	F3706	F1257			
LEASE NO.(s):	10578	20888			
OPERATOR:	Adobe	Cities Ser.			
RESERVOIR:	Clear Fork, Up	Clear Fork, Up			
DEPTH PRODUCING ZONE:	5630	4200 & 5650			
PRODUCTIVE ACREAGE IN RESERVOIR:	4320	65,000			
ACREAGE IN PROJECT:	280	4200			
PORTION OR FIELD WIDE:	P	P			
TYPE:	WF/SW	WF/SW, BW			
PATTERN:	SW	5S			
YEAR BEGAN:	9-71	4-69			
YEAR TERMINATED OR STATUS:	ITD	ICP			
RESERVOIR PRESSURE INITIAL:	2300	2300			
BEG. INJECTION:	400	860			
LATEST:	500	1100			
NUMBER OF WELLS TOTAL:	1	127			
PRODUCING WELLS:	1	85			
INJECTION WELLS:	---	8 SW			
MAXIMUM:	---	8 SW			
LATEST:	---	---			
SHUT-IN/ABANDONED WELLS:	0	26			
SURFACE INJECTION PRESSURE:	---	800			
EFFECTIVENESS OF INJECTION:	---	NE			
OPERATOR PROBLEMS:	---	---			
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---	---			
FROM BEG. INJECTION:	---	---			
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	0	---			
WATER PRODUCTION:					
CURRENT (1977):	---	340			
CUMULATIVE TO 1/78:	145	3952			
CURRENT (1977) INJECTION:	---	340SW, 880BW			
CUMULATIVE INJECTION:	78	3042SW, 9369BW			

Goldsmith, West
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
13c,2,1	FIELD	Goldsmith, West
2,1	RESERVOIR	Ellenburger
1	GEOLOGIC AGE	Ordovician Middle
1	AAPG STRATIGRAPHIC AGE CODE	364
1	RESERVOIR LITHOLOGY	Dolomite
	TRAPPING MECHANISM	
2,1,3	DISCOVERY YEAR	11-1954, 1954, 11-1954
2,1	PROVED ACREAGE	450, 480
1	REGULAR WELL SPACING (acres/well)	40
2,1,3	RESERVOIR DEPTH	9500, 9428, 9428
	RESERVOIR THICKNESS	
2,1	NET PAY	100, 81
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.04
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	12 md
2	HORIZONTAL	12 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Upper Clear Fork, Devonian, Fusselman, San Andres, Waddel, Wolfcamp
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2,1	TOTAL NUMBER OF WELLS	3P; 2P, 204I
1	PRODUCTION 1976 oil (cum)	3501
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	3,657.7 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	55.3 mbbls oil; 32.4 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:	Goldsmith, West
2,1	RESERVOIR:	Ellenburger
2,1	PROD. ACRES:	450, 480
2,1	AVG. THICKNESS (FT.):	100, 81
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.3
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.25
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	water drive
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2,1	RESERVOIR PRESSURE INITIAL (psi):	3020
2	RESERVOIR PRESSURE LATEST (psi):	2465
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	776.7 (76)
2,1,3	STOCK TANK OIL GRAVITY (°API):	44
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	9000 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR ___ SRPs:	no estimate

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith, West 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	---				
1977 PROD. (this project):	---				
CUM. PROD. FROM DISC. TO 1/78:	341				
PROJECT NO.	F1258				
LEASE NO.(s):	10894				
OPERATOR:	Atlantic Rich				
RESERVOIR:	Ellenburger				Ellenburger
DEPTH PRODUCING ZONE:	9500				9428
PRODUCTIVE ACREAGE IN RESERVOIR:	450				480
ACREAGE IN PROJECT:	70				70
PORTION OR FIELD WIDE:	P				
TYPE:	PM/SW				PM
PATTERN:	LD				
YEAR BEGAN:	9-67				1967
YEAR TERMINATED OR STATUS:	ITD				
RESERVOIR PRESSURE INITIAL:	3020				3020
BEG. INJECTION:	2500				
LATEST:	2465				
NUMBER OF WELLS TOTAL:	3				
PRODUCING WELLS:	3				2
INJECTION WELLS:	---				204
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	0				
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:	0				
WATER PRODUCTION:					
CURRENT (1977):	---				
CUMULATIVE TO 1/78:	14				
CURRENT (1977) INJECTION:	---				
CUMULATIVE INJECTION:	415				

Goldsmith, North
San Andres, Con.
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Ector & Andrews
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
13c, 2	FIELD	Goldsmith, North
2	RESERVOIR	San Andres, Con.
8a	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	5-1935, 4-1950
2	PROVED ACREAGE	30,000, 8670
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	4100-4500 w/4300 avg.; 4500
	RESERVOIR THICKNESS	
2	NET PAY	38-60 w/49 avg.
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.075 - .09 w/.08 avg.
	PERMEABILITY	
2	RANGE	8-20 md
2	AVERAGE	14 md
2	HORIZONTAL	14 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Devonian, Ellenburger, Silurian
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	47 (29P, 11I, 7A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	11,431.9 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	538.2 mbbls oil; 2,920.1 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:	Goldsmith, North
2	RESERVOIR:	San Andres, Con.
2	PROD. ACRES:	30000, 8670
2	AVG. THICKNESS (FT.):	49
	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):	1710-1727
2	RESERVOIR PRESSURE LATEST (psi):	2500
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 3	STOCK TANK OIL GRAVITY (°API):	32-38, 34.6
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 3 SRPs:	32,271 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 3 SRPs:	4,463 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith, North 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	61	35	19		
1977 PROD. (this project):	51	28	15		
CUM. PROD. FROM DISC. TO 1/78:	815	2353	406		
PROJECT NO.	F5279	F4214	F6106		
LEASE NO.(s):	19299	22681	18604		
OPERATOR:	Amoco	Atlantic Rich.	Sun Oil		
RESERVOIR:	San Andres Con	San Andres Con.	San Andres Con.		
DEPTH PRODUCING ZONE:	4100	4250	4500		
PRODUCTIVE ACREAGE IN RESERVOIR:	30000	8670	30000		
ACREAGE IN PROJECT:	180	1423	643		
PORTION OR FIELD WIDE:	P	P	P		
TYPE:	WF/SW, BW	WF/SW	WF/SW		
PATTERN:	P	9S	SW		
YEAR BEGAN:	---	6-73	3-75		
YEAR TERMINATED OR STATUS:	SW-ICP; BW-ITD	ICP	ICP		
RESERVOIR PRESSURE INITIAL:	1727	1710	---		
BEG. INJECTION:	510	400	400		
LATEST:	---	2500	---		
NUMBER OF WELLS TOTAL:	10	31	6		
PRODUCING WELLS:	8	16	5		
INJECTION WELLS:	1 SW	8	1		
MAXIMUM:	1 BW	---	---		
LATEST:	---	---	---		
SHUT-IN/ABANDONED WELLS:	0	7	0		
SURFACE INJECTION PRESSURE:	100	1000	400		
EFFECTIVENESS OF INJECTION:	UD	UD	UD		
OPERATOR PROBLEMS:	---	CH	CR, PA		
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	32	3	---		
FROM BEG. INJECTION:	469	6	---		
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	611	1400	---		
WATER PRODUCTION:					
CURRENT (1977):	119	79	3		
CUMULATIVE TO 1/78:	457	245	107		
CURRENT (1977) INJECTION:	123SW; 0 BW	1483	12		
CUMULATIVE INJECTION:	552SW; 170BW	6408	40		

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Ector
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
13c,2	FIELD	Goldsmith, North
2	RESERVOIR	Devonian
8a	GEOLOGIC AGE	Devonian, Lower
1	AAPG STRATIGRAPHIC AGE CODE	347
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	4-46
2	PROVED ACREAGE	1050
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	8000, 7900, 7900
	RESERVOIR THICKNESS	
2	NET PAY	25-50 w/37.5 avg.
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.18 - .222 w/.20 avg.
	PERMEABILITY	
2	RANGE	18-29 md
2	AVERAGE	23.5 md
2	HORIZONTAL	23.5 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Ellenburger, San Andres, Silurian
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	48 (25P, 23I, 0A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	6,785.8 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	277.4 mbbls oil; 209.4 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:	Goldsmith, North
2	RESERVOIR:	Devonian
2	PROD. ACRES:	1050
2	AVG. THICKNESS (FT.):	37.5
	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):	3261
2	RESERVOIR PRESSURE LATEST (psi):	1064-1133
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 3	STOCK TANK OIL GRAVITY (^oAPI):	39
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	1875 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	5200 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Goldsmith, North RESERVOIR: Devonian TOTAL NO. PROJECTS: 2 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	336	26
1977 PROD. (this project):	317	21
CUM. PROD. FROM DISC. TO 1/78:	6334	213
PROJECT NO.	F1255	F1254
LEASE NO.(s):	20194	17687
OPERATOR:	Amoco	Atlantic Rich.
RESERVOIR:	Devonian	Devonian
DEPTH PRODUCING ZONE:	8000	7900
PRODUCTIVE ACREAGE IN RESERVOIR:	1050	1050
ACREAGE IN PROJECT:	950	120
PORTION OR FIELD WIDE:	FW/P	FW/P
TYPE:	WF/SW, BW	PM/SW
PATTERN:	LD	LD
YEAR BEGAN:	4-67	7-67
YEAR TERMINATED OR STATUS:	ICP	ICP
RESERVOIR PRESSURE INITIAL:	3261	3261
BEG. INJECTION:	1200	1200
LATEST:	1133	1064
NUMBER OF WELLS TOTAL:	46	2
PRODUCING WELLS:	24	1
INJECTION WELLS:	11 SW	1
MAXIMUM:	11 BW	1
LATEST:	---	---
SHUT-IN/ABANDONED WELLS:	0	0
SURFACE INJECTION PRESSURE:	1600	1300
EFFECTIVENESS OF INJECTION:	ME	---
OPERATOR PROBLEMS:	---	---
ESTIMATED PRODUCTION DUE TO INJ.:		
1977:	---	16
FROM BEG. INJECTION:	---	67
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	70
WATER PRODUCTION:		
CURRENT (1977):	630	10
CUMULATIVE TO 1/78:	2034	55
CURRENT (1977) INJECTION:	367SW; 701BW	34
CUMULATIVE INJECTION:	1906SW; 13301BW	592

Good, S.E.
Fusselman
Midland Basin

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Borden
1	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Good, Southeast
1	RESERVOIR	Fusselman
5,1	GEOLOGIC AGE	Silurian
1	AAPG STRATIGRAPHIC AGE CODE	354
5b,1	RESERVOIR LITHOLOGY	Dolomite, "sucrosic" with scattered vugs and fractures; dolomite-limestone.
5b, 1	TRAPPING MECHANISM	Stratigraphic trap; productive limits on west flank controlled by the original oil-water content; productive limit on east caused by an erosional nonconformity.
5b, 1	DISCOVERY YEAR	1958
5b,1,16c	PROVED ACREAGE	3500, 760, 3800
5b, 1	REGULAR WELL SPACING (acres/well)	80
5b,3,1	RESERVOIR DEPTH	9716-9736; 9692;9692
	RESERVOIR THICKNESS	
5b, 1	NET PAY	30, 20
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
5b	TYPE	IC, V, F
5b, 1	FRACTION	.055, .06
	PERMEABILITY	
	RANGE	
5b, 1	AVERAGE	78, 85md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from Canyon Reef (8123)
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	13P
1	PRODUCTION 1976 oil (cum)	8041
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	8,293.2
3	PRODUCTION 1-1-79 to 1-1-80	86.0 mbbls oil; 95.6 mmcf gas
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5b	STRUCTURE CONTOUR?	yes
5b	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

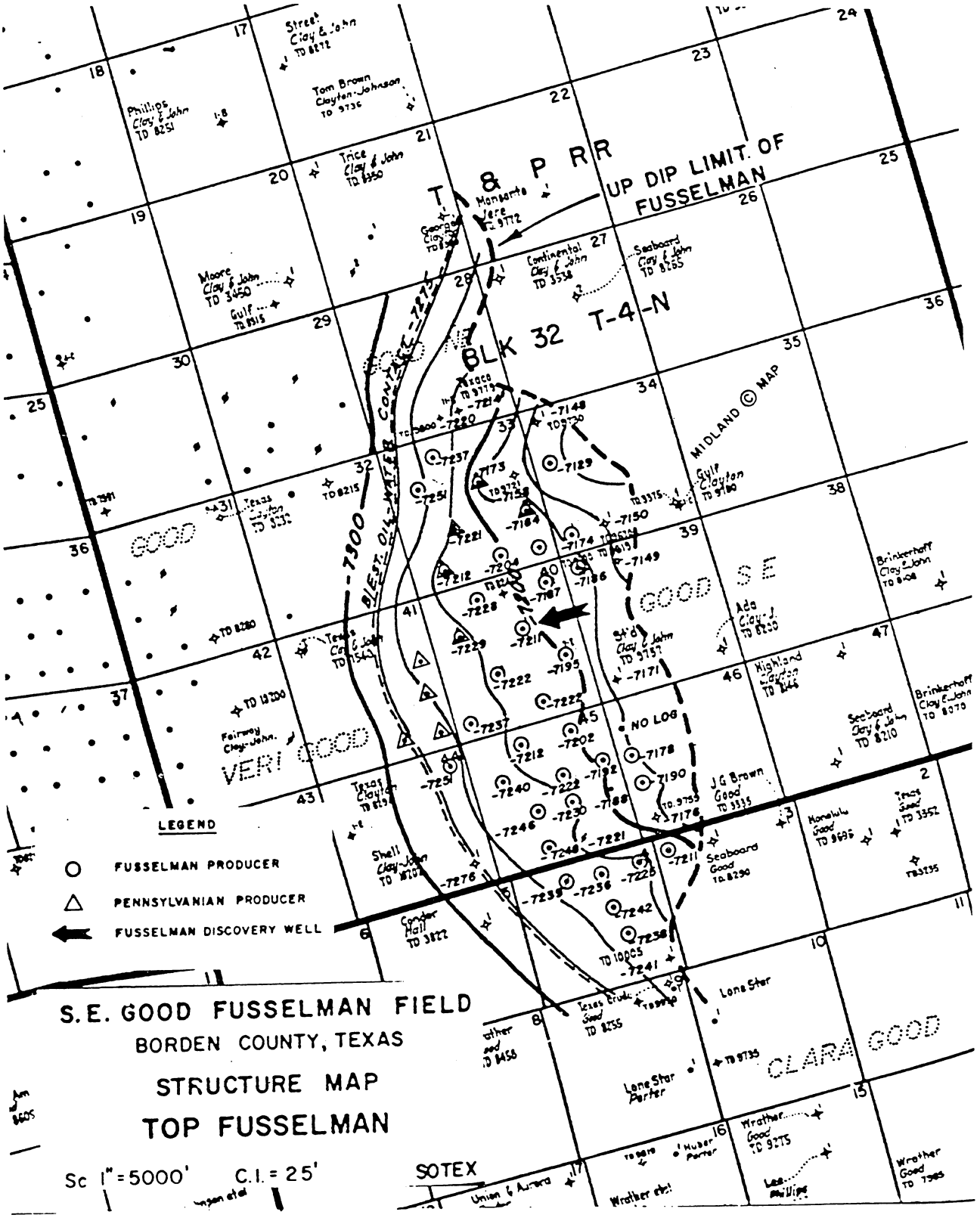
RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Good, Southeast
5b, 1	RESERVOIR:	Fusselman
5b,1,16c	PROD. ACRES:	3500, 760, 3800
5b, 1	AVG. THICKNESS (FT.):	30,20
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.37
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.35
	OIL SATURATION (S_O):	
5b, 1	PRIMARY DRIVE MECHANISM:	water drive
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	167
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1401
5b, 1	RESERVOIR PRESSURE INITIAL (psi):	4418
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	458
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	481 (76)
5b, 3, 1	STOCK TANK OIL GRAVITY (°API):	43.0
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	2055
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

1 Primary recoverables (1969): 11,000,000 bbl
105 bbl/acre
65 bbl/acre-ft.

1 Resistivity = .145 OHM-meters



FROM: Williams, J.R., 1969, S.E. GOOD (FUSSELMAN) in OIL & GAS FIELDS IN WEST TEXAS - SYMPOSIUM: West Texas Geological Society, Publication No. 69-57. Source 5b.

TYPICAL LOG

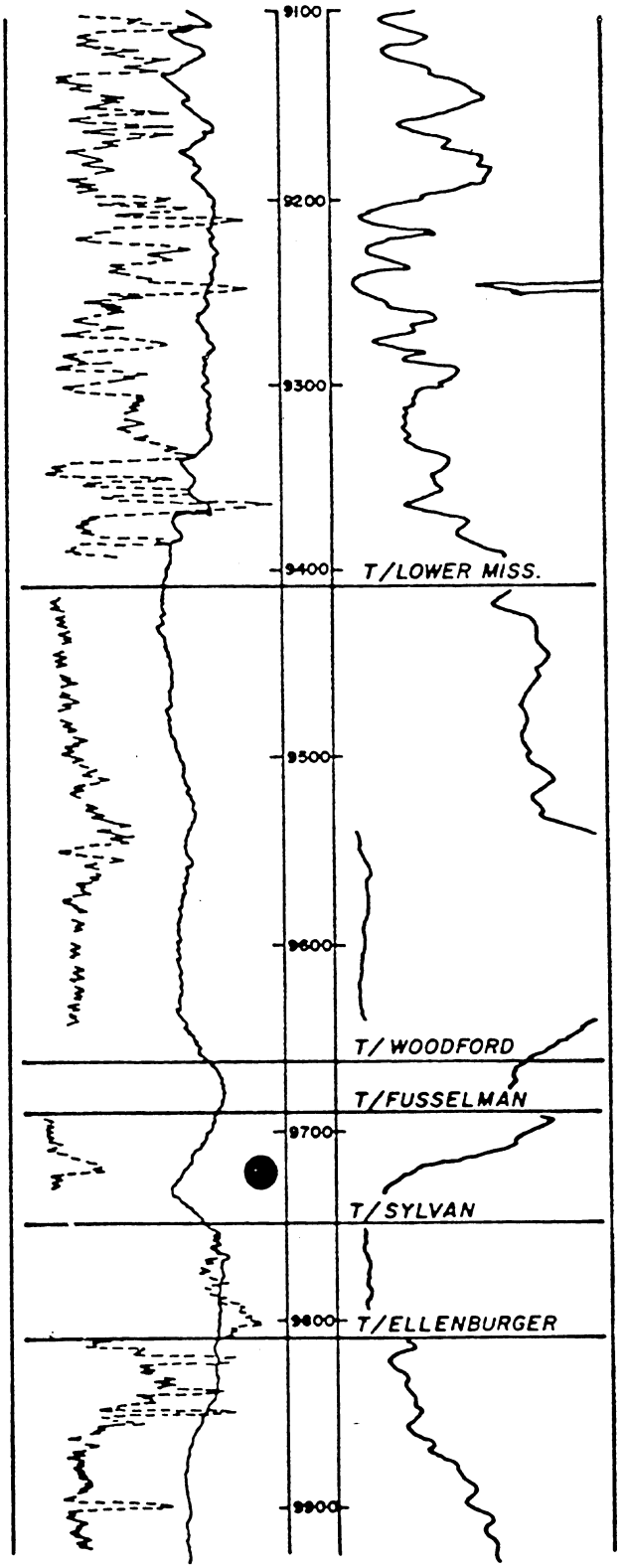
CHEYENNE OIL CO.

CLAYTON JOHNSON No. 1

SEC. 40 BLK. 32 T-4-N

T&P SURVEY

BORDEN CO., TEXAS



FROM: Williams, J. R., 1969, S. E. GOOD (FUSSELMAN) in OIL & GAS FIELDS IN WEST TEXAS - SYMPOSIUM: West Texas Geological Society, Publication No. 69-57. Source 5b.

G-M-K
San Andres
Midland Basin

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Gaines
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	Midland Basin
2	FIELD	G-M-K
2	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
5a	RESERVOIR LITHOLOGY	Dolomite, small to medium crystalline; vuggy.
5a	TRAPPING MECHANISM	Anticline with porosity and permeability limiting production on flanks.
2,5a	DISCOVERY YEAR	5-1957
2,5a	PROVED ACREAGE	1280
5a	REGULAR WELL SPACING (acres/well)	40
2,5a,3	RESERVOIR DEPTH	5550; 5467-71 and 5514-84; 5598
	RESERVOIR THICKNESS	
2,5a,16c	NET PAY	86, 74, 86
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
5a	TYPE	IC, V
5a, 2	FRACTION	.096; .112
	PERMEABILITY	
	RANGE	
2,5a	AVERAGE	3 md
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
5a, 2	TOTAL NUMBER OF WELLS	37; 52(23P-26I-3A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	9,478.6
3	PRODUCTION 1-1-79 to 1-1-80	457.9 mbbls oil; 115.7 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

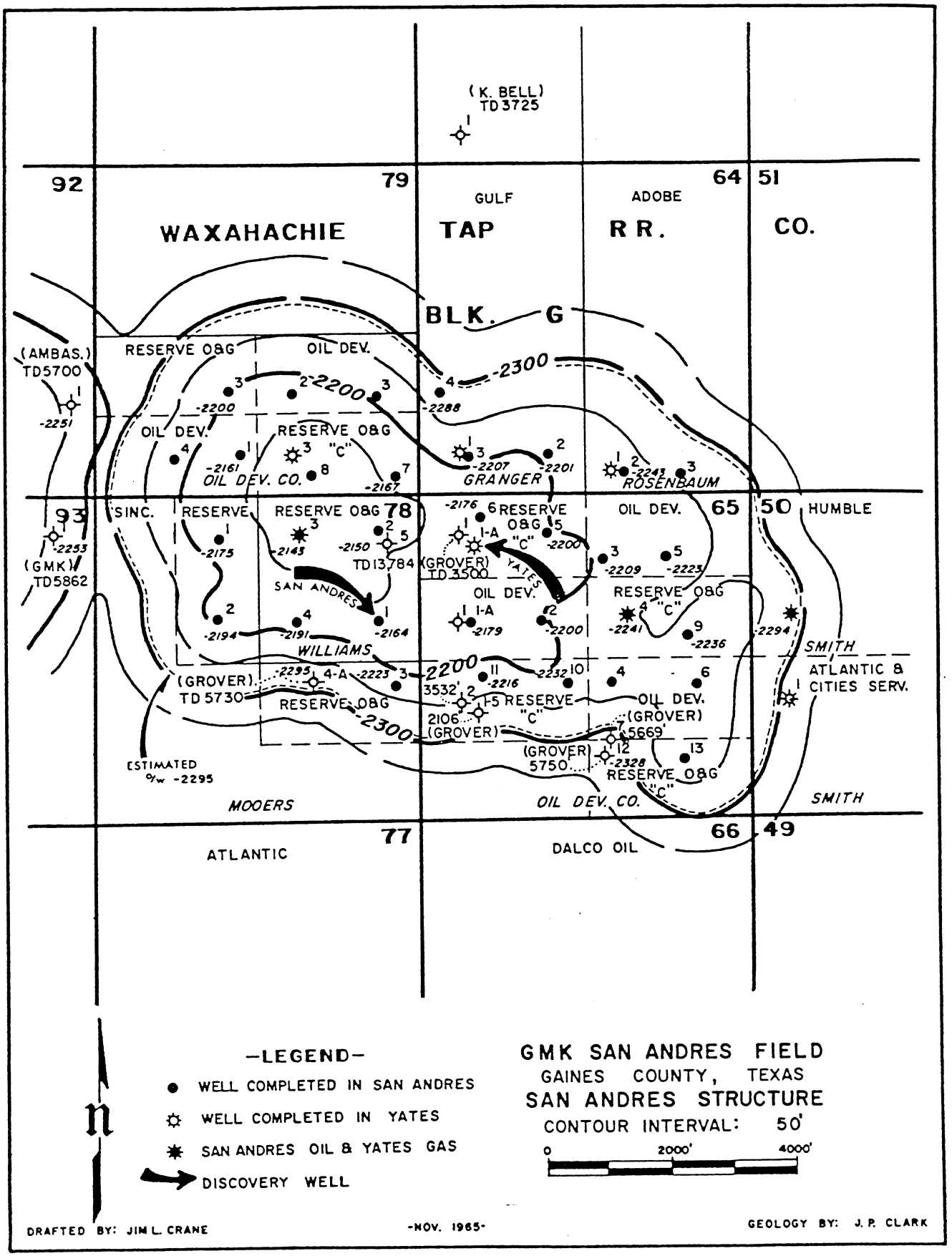
DATA SOURCE CODE		
	FIELD:	G-M-K
2	RESERVOIR:	San Andres
2 , 5a	PROD. ACRES:	1280
2 , 5A,16c	AVG. THICKNESS (FT.):	86, 74, 86
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.18
	FORMATION VOLUME FACTOR LATEST (FVF):	
16c	WATER SATURATION (S_W):	.427
	OIL SATURATION (S_O):	
5a	PRIMARY DRIVE MECHANISM:	solution gas
	PRIMARY GAS CAP?:	
17	TEMPERATURE (^oF):	108
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1015
2, 5a	RESERVOIR PRESSURE INITIAL (psi):	2044, 2040
2	RESERVOIR PRESSURE LATEST (psi):	1177
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,5a,3	STOCK TANK OIL GRAVITY (^oAPI):	34, 32, 36
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1360
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	47,242 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	6,520 mbbls

OTHER INFORMATION:

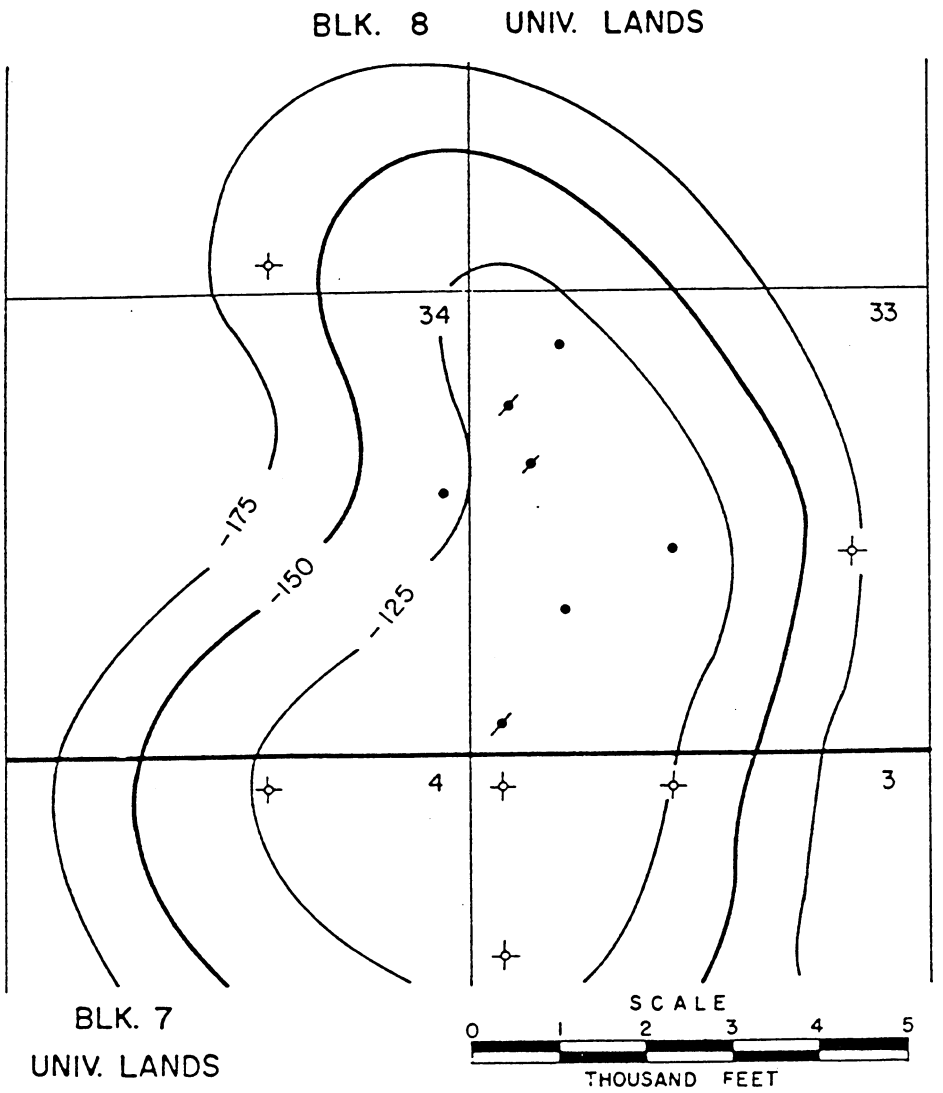
ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: G-M-K 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	605
1977 PROD. (this project):	563
CUM. PROD. FROM DISC. TO 1/78:	8470
PROJECT NO.	F1755
LEASE NO.(s):	60346
OPERATOR:	Reserve Oil
RESERVOIR:	San Andres
DEPTH PRODUCING ZONE:	5550
PRODUCTIVE ACREAGE IN RESERVOIR:	1273
ACREAGE IN PROJECT:	1164
PORTION OR FIELD WIDE:	FW
TYPE:	PM/SW,BW,FW
PATTERN:	MP
YEAR BEGAN:	8-68SW, BW;1-69FW
YEAR TERMINATED OR STATUS:	SW,FW,ICP;BW,IPD
RESERVOIR PRESSURE INITIAL:	2044
BEG. INJECTION:	650
LATEST:	1177
NUMBER OF WELLS TOTAL:	52
PRODUCING WELLS:	23
INJECTION WELLS:	13 SW
MAXIMUM:	13 FW
LATEST:	-
SHUT-IN/ABANDONED WELLS:	3
SURFACE INJECTION PRESSURE:	1610 SW, FW
EFFECTIVENESS OF INJECTION:	VE
OPERATOR PROBLEMS:	PI
ESTIMATED PRODUCTION DUE TO INJ.:	
1977:	395
FROM BEG. INJECTION:	3245
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	10,000
WATER PRODUCTION:	
CURRENT (1977):	525
CUMULATIVE TO 1/78:	3167
CURRENT (1977) INJECTION:	525SW; 876FW
CUMULATIVE INJECTION:	5258SW; 705BW;11441FW



FROM: Clark, J.P., 1966, GMK SAN ANDRES in OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM: West Texas Geological Society, Publication no. 66-52. Source 5a.



GRAYSON FIELD

REAGAN CO., TEXAS

TOP OF GRAYBURG LIMESTONE

(approx. 40' above pay zone)

CONTOURS: ERVIN C. PHILPY

Drafting: H. Garrett

FROM: Clark, J.P., 1966, GMK San Andres in OIL & GAS FIELDS IN WEST TEXAS - SYMPOSIUM: West Texas Geological Society, Publication No. 66-52. Source 5a.

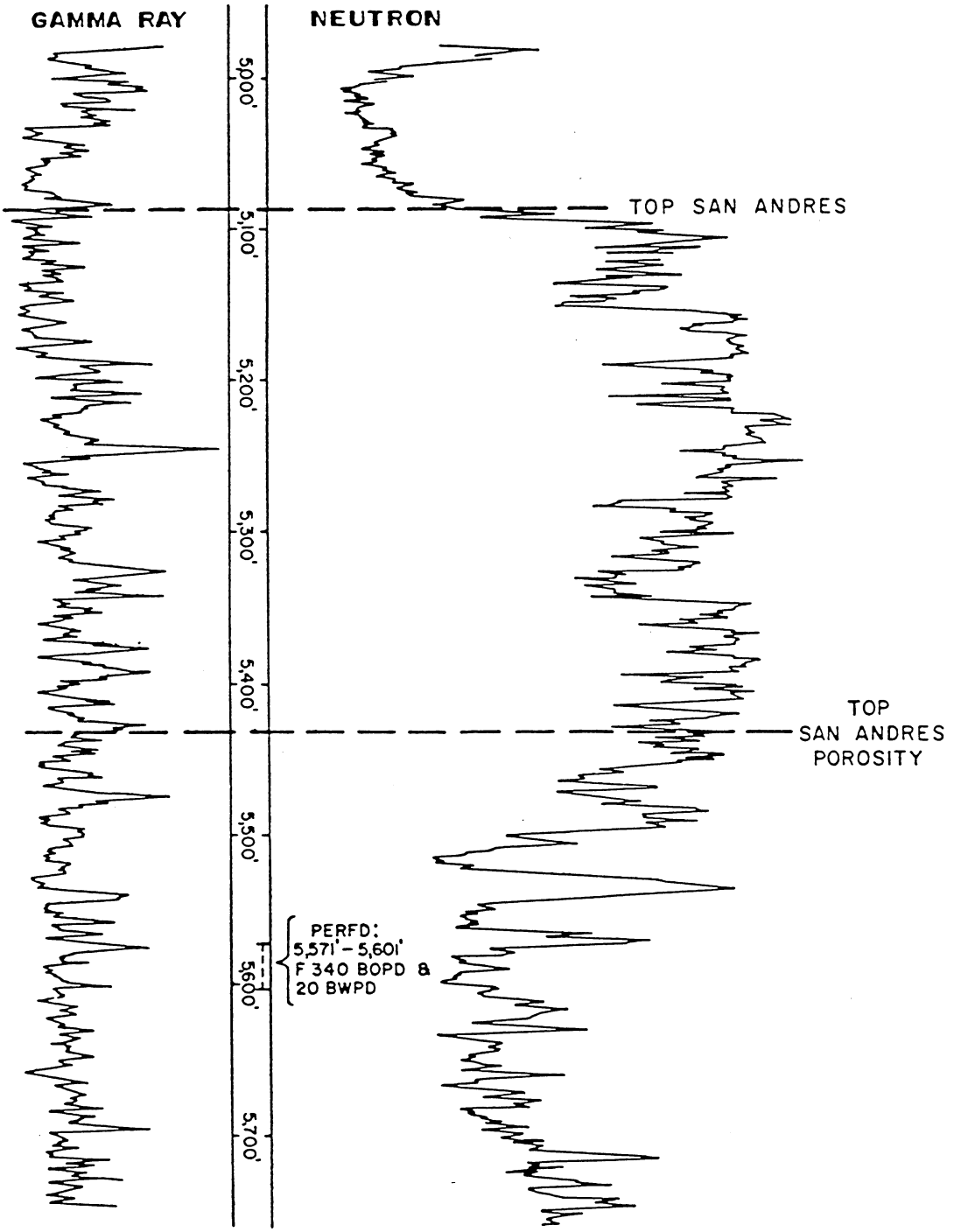
TYPICAL LOG

G.M.K. #3 WILLIAMS

G.M.K. FIELD

GAINES COUNTY, TEXAS

SCALE 1 in.=100ft.



FROM: Clark, J.P., 1966, GMK SAN ANDRES in OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM: West Texas Geological Society, Publ. No. 66-52. Source 5a.

Halff
Grayburg
Reagan Uplift in
Midland Basin

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Crockett
2	REGULATORY DISTRICT	7C
	BASIN	Permian
15	SUB-BASIN	Reagan Uplift in Midland Basin
2	FIELD	Halff
2,5a	RESERVOIR	Grayburg, Lower Grayburg
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
5a	RESERVOIR LITHOLOGY	46 ft. of brown sandstone, dolomitic sandstone, anhydrite sandstone
5a	TRAPPING MECHANISM	Stratigraphic & structural; porosity and permeability developed along structural nosing.
2,5a	DISCOVERY YEAR	1951
2,5a,16c	PROVED ACREAGE	2900, 1600, 3000
5a	REGULAR WELL SPACING (acres/well)	20
2,5a,3	RESERVOIR DEPTH	2000, 1820, 1680
	RESERVOIR THICKNESS	
2,5a,16c	NET PAY	20, 46, 16.5
5a	GROSS	164
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2, 5a	FRACTION	.158, .145
	PERMEABILITY	
	RANGE	
2, 5a	AVERAGE	1, 2.5 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Minor production from Halff (1400)
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	180 (52P-82I-46A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	3,007.6
3	PRODUCTION 1-1-79 to 1-1-80	86.5 mbbls oil; 3.2 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

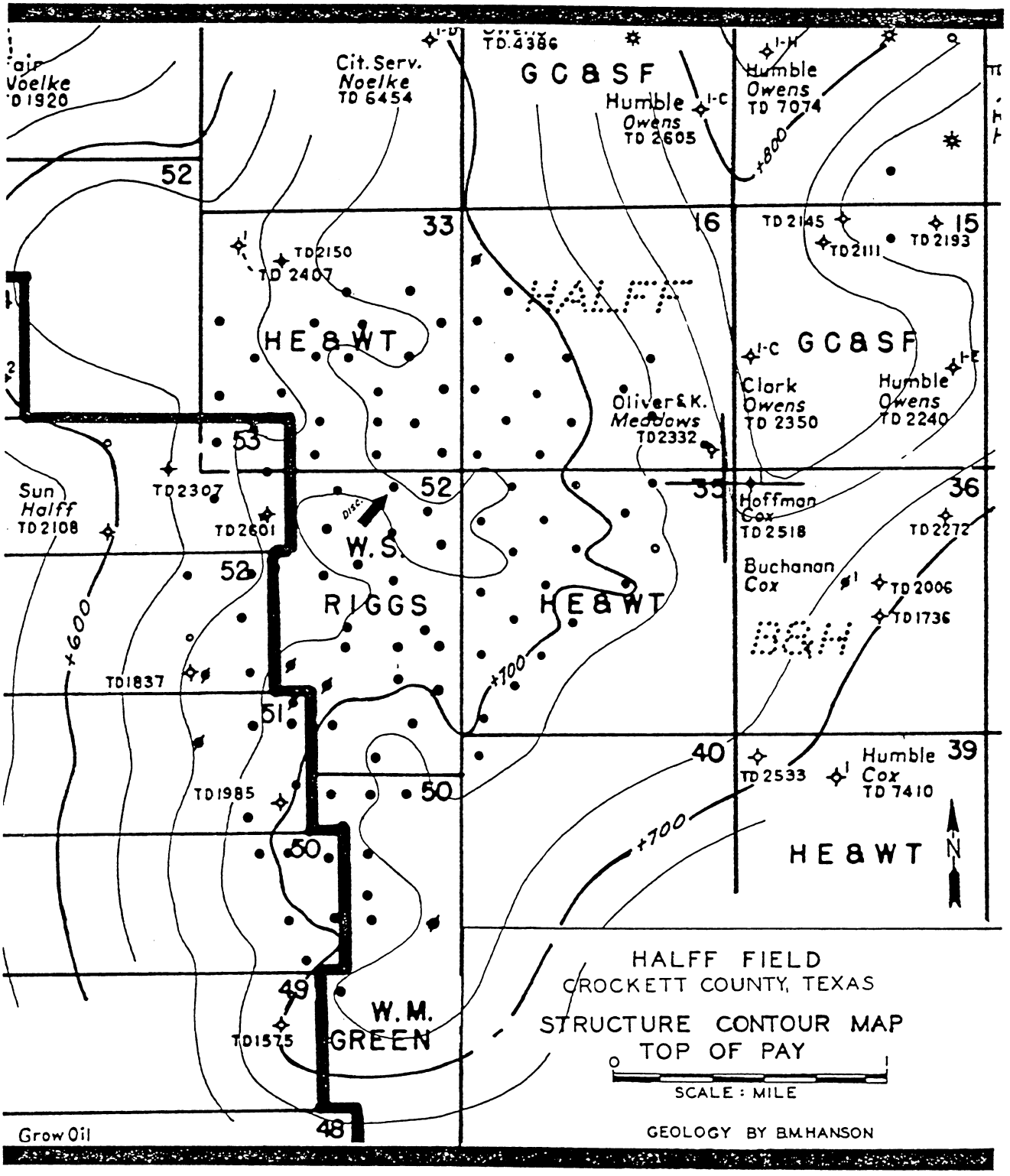
DATA SOURCE CODE		
	FIELD:	Halff
2, 5a	RESERVOIR:	Grayburg
2, 5a, 16C	PROD. ACRES:	2900, 1600, 3000
5a, 2, 16c	AVG. THICKNESS (FT.):	46, 20, 16.5
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.06
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.01 (73)
16c	WATER SATURATION (S_W):	.43
16c	OIL SATURATION (S_O):	.48
5a	PRIMARY DRIVE MECHANISM:	solution gas
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	615
2, 5a	RESERVOIR PRESSURE INITIAL (psi):	640, 1680
2	RESERVOIR PRESSURE LATEST (psi):	165
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 5a, 3	STOCK TANK OIL GRAVITY (°API):	31, 32, 32
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	641
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	29,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	1,500 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

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

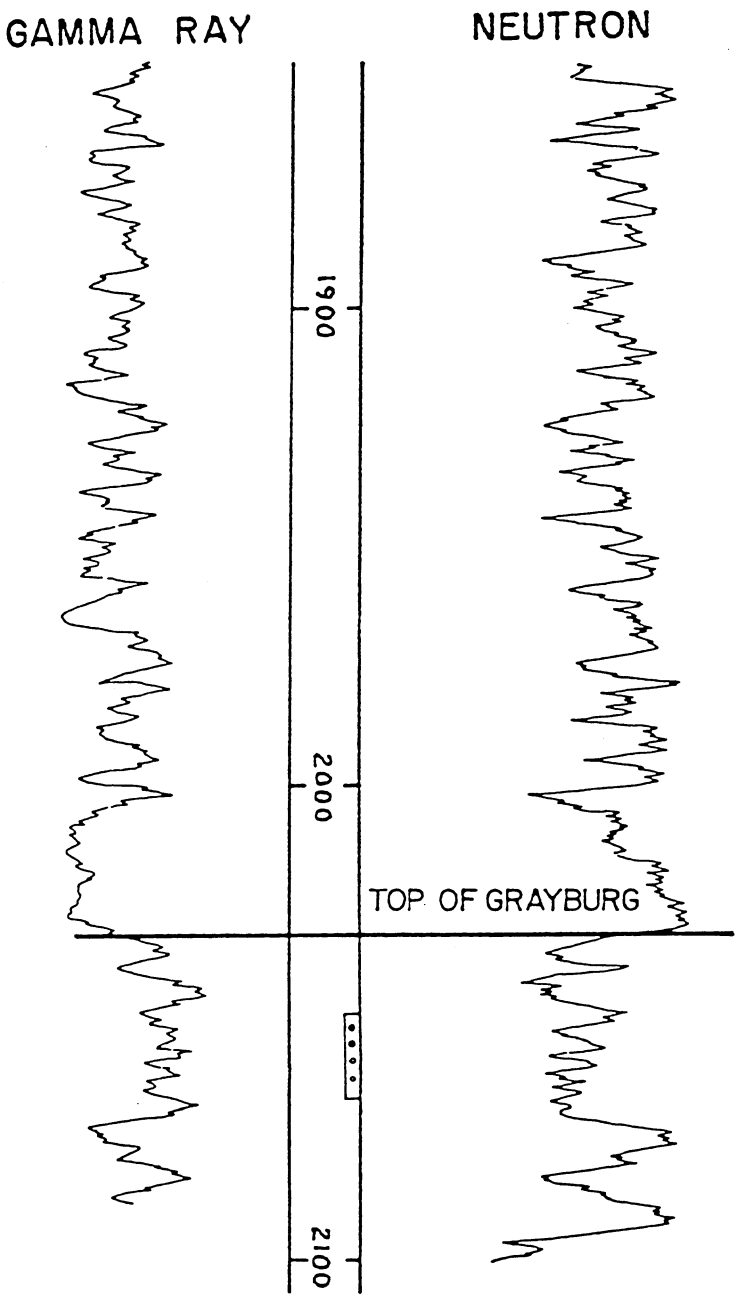
1976 PROD. (this project): MBBLS	95
1977 PROD. (this project):	92
CUM. PROD. FROM DISC. TO 1/78:	2812
PROJECT NO.	F1024
LEASE NO.(s):	04709
OPERATOR:	Stoddard, J.B.
RESERVOIR:	Grayburg
DEPTH PRODUCING ZONE:	2000
PRODUCTIVE ACREAGE IN RESERVOIR:	2900
ACREAGE IN PROJECT:	2000
PORTION OR FIELD WIDE:	FW
TYPE:	WF/SW, BW
PATTERN:	5S
YEAR BEGAN:	11-66
YEAR TERMINATED OR STATUS:	ICP
RESERVOIR PRESSURE INITIAL:	640
BEG. INJECTION:	100
LATEST:	165
NUMBER OF WELLS TOTAL:	180
PRODUCING WELLS:	52
INJECTION WELLS:	41SW
MAXIMUM:	41BW
LATEST:	----
SHUT-IN/ABANDONED WELLS:	46
SURFACE INJECTION PRESSURE:	1120
EFFECTIVENESS OF INJECTION:	ME
OPERATOR PROBLEMS:	EP, PI, CR, CH
ESTIMATED PRODUCTION DUE TO INJ.:	
1977:	70
FROM BEG. INJECTION:	986
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	1500
WATER PRODUCTION:	
CURRENT (1977):	----
CUMULATIVE TO 1/78:	2624
CURRENT (1977) INJECTION:	458SW; 682BW
CUMULATIVE INJECTION:	4952SW; 4670BW



FROM: Hanson, Bernold M., 1966, HALFF in OIL & GAS IN WEST TEXAS SYMPOSIUM: West Texas Geological Society, Publication No. 66-52, Source 6a.

TYPICAL LOG

HALFF FIELD



FROM: Hanson, Bernold M., 1966, HALFF in OIL & GAS IN WEST TEXAS SYMPOSIUM: West Texas Geological Society, Publication No. 66-52, Source 6a.

Harper
San Andres
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Ector
2	REGULATORY DISTRICT	8
2	BASIN	Permian
2	SUB-BASIN	Central Basin Platform
14c,2	FIELD	Harper
14c,2	RESERVOIR	San Andres
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
12c	RESERVOIR LITHOLOGY	Dolomite - tan, medium crystalline
12c	TRAPPING MECHANISM	Updip decrease of porosity on a structural nose
2,3	DISCOVERY YEAR	12-1933
2,12c	PROVED ACREAGE	12360 (5160 in SRP); 3800
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	4050-4300; 4300
	RESERVOIR THICKNESS	
2,12c	NET PAY	39, 25
12c	GROSS	180
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.10
	PERMEABILITY	
	RANGE	
2	AVERAGE	4 md
2	HORIZONTAL	4 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Connell, Devonian, Ellenburger, Fusselman, Strawn
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	326(243P, 36I, 47SI)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	38,945.2 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	527.7 mbbls oil; 489.6 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:	Harper
2	RESERVOIR:	San Andres
2	PROD. ACRES:	12360
2	AVG. THICKNESS (FT.):	39
	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?:	no
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	1490-1600
2	RESERVOIR PRESSURE LATEST (psi):	100-946
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,12	STOCK TANK OIL GRAVITY (°API):	35-37, 37, 36
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
	ESTIMATED ORIGINAL OIL IN PLACE FOR 3 SRPs:	109,000 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 3 SRPs:	9,400 mbbls

OTHER INFORMATION:

12c Reference: Forward, Fred, 1952, Harper Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Economic Geology, Pub. No. 5716, August 1957

ENHANCED AND SECONDARY RECOVERY DATA:

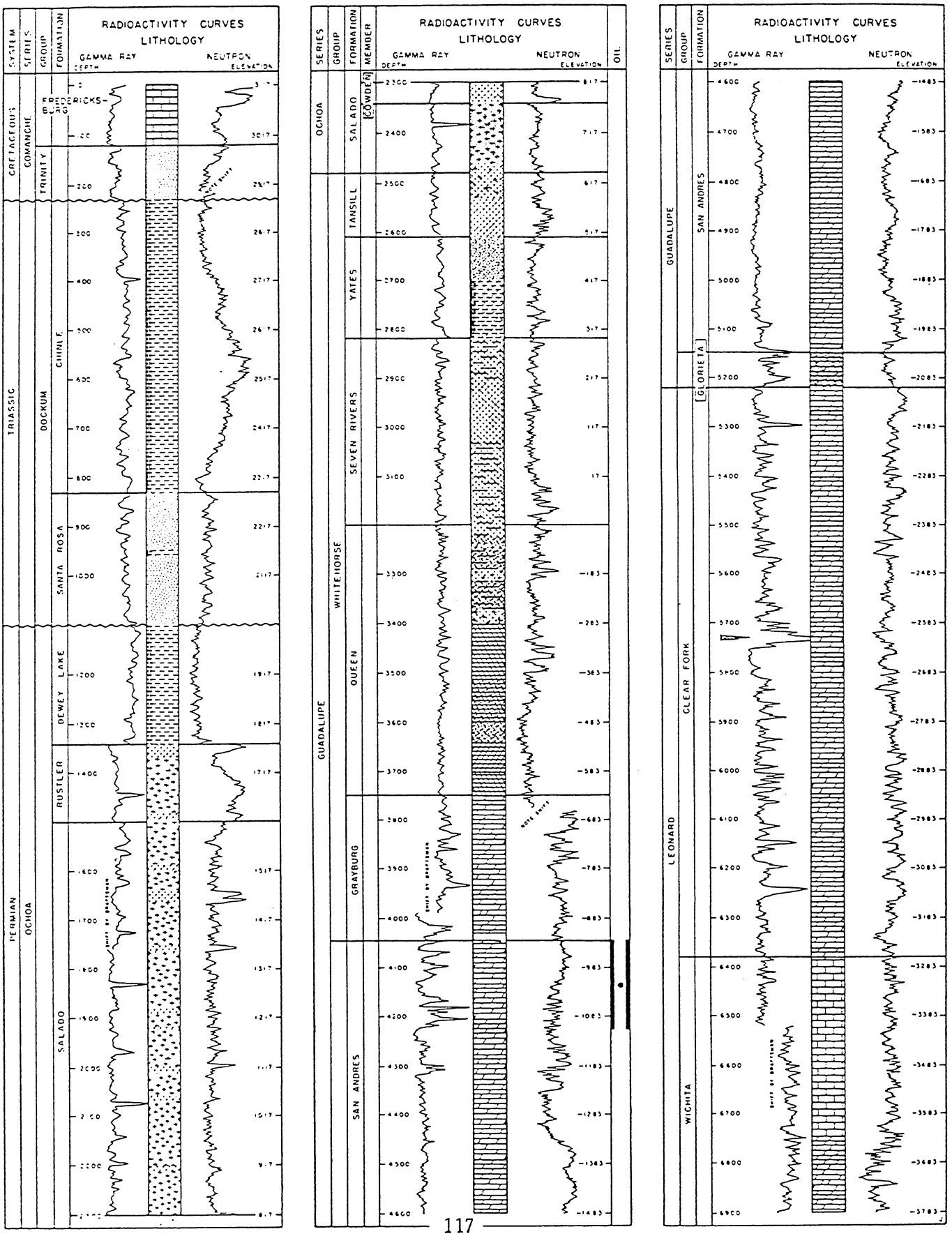
FIELD: Harper RESERVOIR: San Andres TOTAL NO. PROJECTS: 4 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	36	237	18	43
1977 PROD. (this project):	30	244	15	425
CUM. PROD. FROM DISC. TO 1/78:	1372	272	1176	3993
PROJECT NO.	F4287	F1271	F1272	F1273
LEASE NO.(s):	11169	19904	09424, 09554, 09761	02470, 71, 72, 73
OPERATOR:	East Land Oil	Shell Oil	Texaco	Walsh & Watts
RESERVOIR:	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4050	4300-4100	4300	4050
PRODUCTIVE ACREAGE IN RESERVOIR:	11500	12360	4211	11840
ACREAGE IN PROJECT:	520	4240	320	80
PORTION OR FIELD WIDE:	P	P	P	P
TYPE:	WF/SW, BW	WF/BW	WF/SW	WF/SW
PATTERN:	ID	9S	SW	5S
YEAR BEGAN:	9-68	3-66	2-66	1961
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1600	1450	1490	1566
BEG. INJECTION:	700	500	---	100
LATEST:	946	200	878	---
NUMBER OF WELLS TOTAL:	28	240	17	41
PRODUCING WELLS:	25	174	8	36
INJECTION WELLS:	2-SW, BW	29	1	4
MAXIMUM:	---	---	---	---
LATEST:	---	---	---	---
SHUT-IN/ABANDONED WELLS:	1	37	8	1
SURFACE INJECTION PRESSURE:	700	475	650	400
EFFECTIVENESS OF INJECTION:	UD	ME	---	ME
OPERATOR PROBLEMS:	IP	EB,CH,EW	---	---
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	30	244	---	20
FROM BEG. INJECTION:	71	9272	---	116
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	310	9825	---	300
WATER PRODUCTION:				
CURRENT (1977):	62	939	3	289
CUMULATIVE TO 1/78:	679	6020	3255	1286
CURRENT (1977) INJECTION:	42SW, 328BW	3551	408	289
CUMULATIVE INJECTION:	416SW, 787BW	33099	4139	1923

FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECON. GEOL. PUB. 57 August, 1957.

138 HARPER FIELD, Ector County, Texas Source 12c.

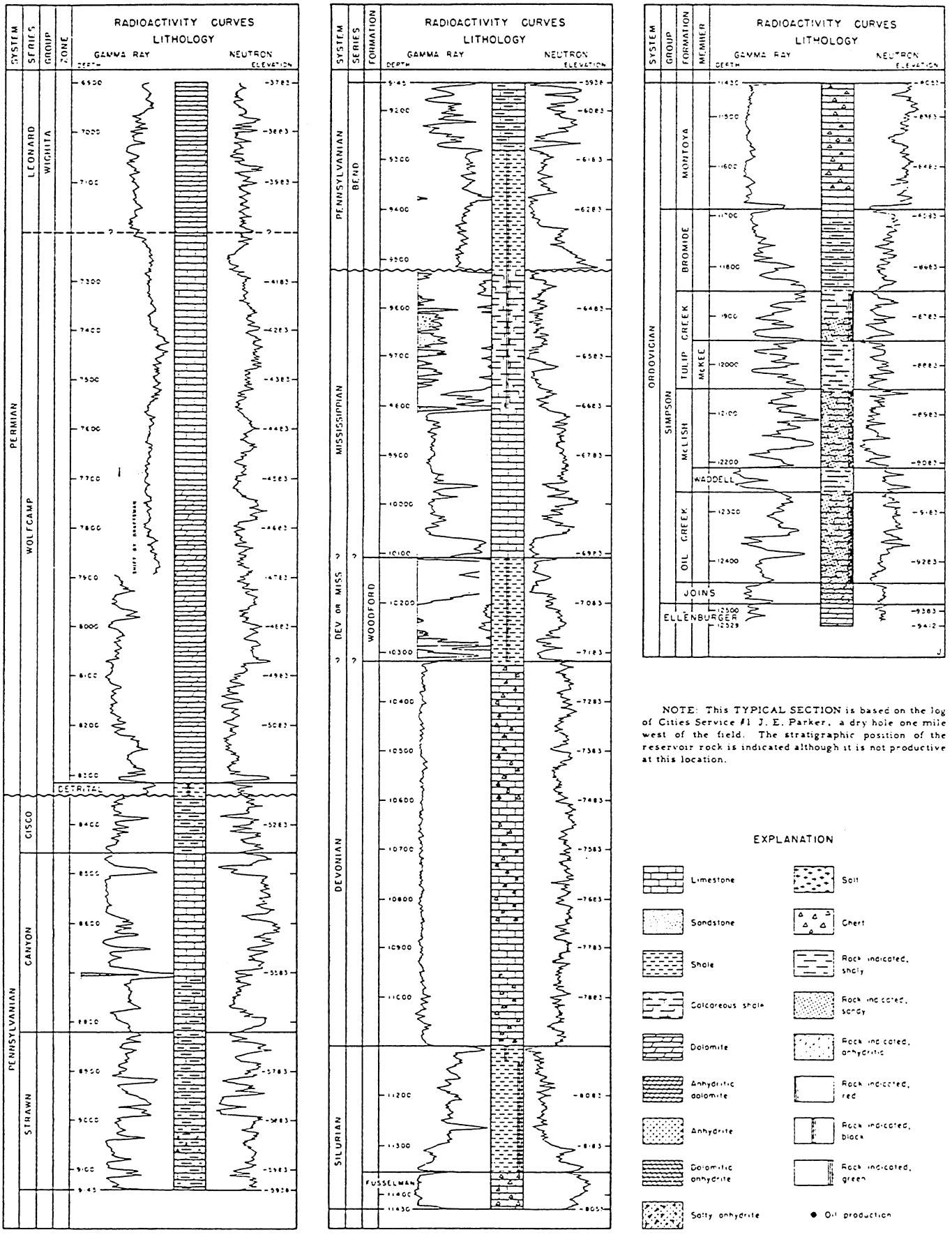
TYPICAL SECTION OF ROCKS PENETRATED



HARPER FIELD, Ector County, Texas

From: Source 12c

TYPICAL SECTION OF ROCKS PENETRATED



NOTE: This TYPICAL SECTION is based on the log of Cities Service #1 J. E. Parker, a dry hole one mile west of the field. The stratigraphic position of the reservoir rock is indicated although it is not productive at this location.

EXPLANATION

- Limestone
- Sandstone
- Shale
- Calcareous shale
- Dolomite
- Anhydritic dolomite
- Anhydrite
- Dolomitic anhydrite
- Salty anhydrite
- Salt
- Chert
- Rock indicated, shaly
- Rock indicated, sandy
- Rock indicated, anhydritic
- Rock indicated, red
- Rock indicated, black
- Rock indicated, green
- Oil production

HARPER FIELD, Ector County, Texas

FROM: SOURCE 12c

CHARACTER OF OIL

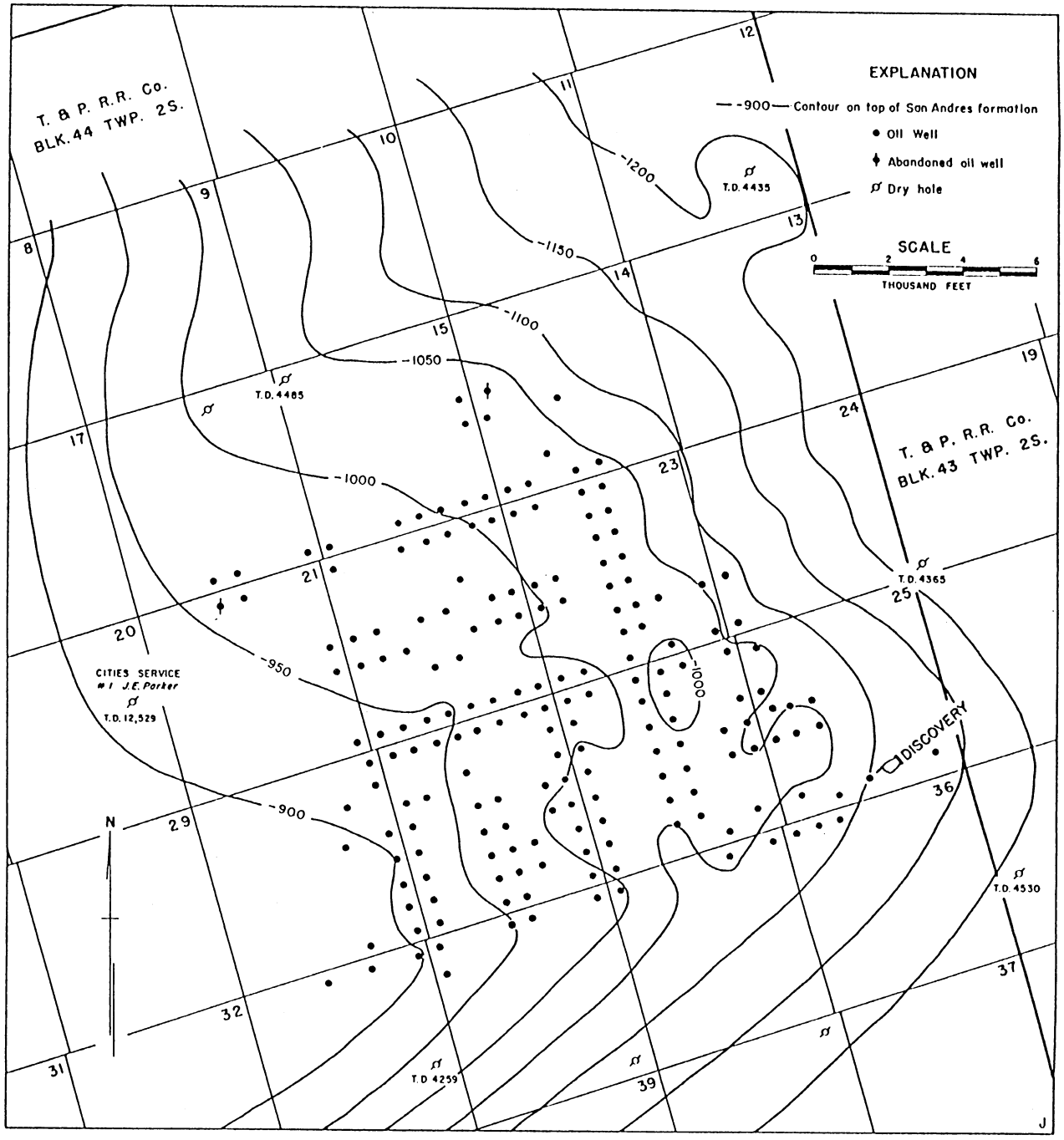
San Andres:
Gravity, A.P.I.: 36° Sulphur: 1.2%

For analyses see:
Railroad Commission of Texas
Analyses of Texas Crude Oils (1940), pp. 32, 63.
U.S. Bureau of Mines Lab.ref.No. 38307 39258
Tabulated Analyses of Texas Crude Oils. T.P. 607 (1939), Group 2, Item 48
Analyses of Crude Oils from Some Fields of Texas. R.I. 3699 (1943), Item 41
Analyses of Crude Oils from Some West Texas Fields. R.I. 3744 (1944), Page 15

DEVELOPMENT AND PRODUCTION HISTORY

Year	NUMBER OF WELLS Completed	Producing at end of year Flow.	Pump.	OIL PRODUCTION (barrels) Yearly	Cumulative
1933	1		1	6,585	6,585
1934	0		1	24,796	31,381
1935	1		2	33,469	64,850
1936	1	1	2	35,187	100,037
1937	40	?	?	320,070	420,107
1938	134	137	40	2,735,074	3,155,181
1939	1	112	66	1,939,452	5,094,633
1940	6	84	100	1,249,456	6,344,089
1941	0	84	100	1,031,969	7,376,058
1942	0	23	161	603,263	7,979,321
1943	0	22	162	525,442	8,504,763
1944	0	20	164	596,934	9,101,697
1945	0	7	177	472,659	9,574,356
1946	0	11	170	394,281	9,968,637
1947	2	3	181	344,955	10,313,592
1948	0	3	180	316,427	10,630,019
1949	0	3	180	280,151	10,910,170
1950	0	3	181	255,317	11,165,487
1951	0	0	181	230,240	11,395,727
The following data added by amendment.					
1952	0	3	176	212,996	11,608,723
1953	0	3	176	202,160	11,810,883
1954	?	?	?	235,208	12,046,091

HYDRAULIC FRACTURING: Edwin McGhee reports on page 76 of the Oil & Gas Journal of February 7, 1955, that the reservoir rock in 25 wells had been treated by hydraulic fracturing. "In August 1954, when the first well was treated, average production in the field was about 3 bbl. per day. After treatment, the wells have been coming in at as much as 140 bbl. of oil per day. They settle down after several months at rates as high as 70 to 80 bbl. per day."



Harper
Devonian
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Ector
2	REGULATORY DISTRICT	8
2	BASIN	Permian
2	SUB-BASIN	Central Basin Platform
14c, 2	FIELD	Harper
14c, 2	RESERVOIR	Devonian
5	GEOLOGIC AGE	Devonian
1	AAPG STRATIGRAPHIC AGE CODE	340
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	12-1962
2	PROVED ACREAGE	3070
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	10100, 10005
	RESERVOIR THICKNESS	
2	NET PAY	70
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.088
	PERMEABILITY	
	RANGE	
2	AVERAGE	1 md
2	HORIZONTAL	1 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Connell, Devonian, Ellenburger, Fusselman, Strawn
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	35(19P, 5I, 11SI)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	6,837.3 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	337.8 mmbls oil; 1,876.3 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:	Harper
2	RESERVOIR:	Devonian
2	PROD. ACRES:	3070
2	AVG. THICKNESS (FT.):	70
	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):	4462
2	RESERVOIR PRESSURE LATEST (psi):	4160
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	42, 48
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	47,000 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	5,000 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Harper 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	379
1977 PROD. (this project):	396
CUM. PROD. FROM DISC. TO 1/78:	6372 mbbls oil; 24876 mmcf gas
PROJECT NO.	F1274
LEASE NO.(s):	20609
OPERATOR:	Cities Service
RESERVOIR:	Devonian
DEPTH PRODUCING ZONE:	10100
PRODUCTIVE ACREAGE IN RESERVOIR:	3070
ACREAGE IN PROJECT:	2890
PORTION OR FIELD WIDE:	FW
TYPE:	PM/Gas
PATTERN:	I9
YEAR BEGAN:	2-68
YEAR TERMINATED OR STATUS:	ICP
RESERVOIR PRESSURE INITIAL:	4462
BEG. INJECTION:	2688
LATEST:	4160
NUMBER OF WELLS TOTAL:	35
PRODUCING WELLS:	19
INJECTION WELLS:	5
MAXIMUM:	---
LATEST:	---
SHUT-IN/ABANDONED WELLS:	11
SURFACE INJECTION PRESSURE:	---
EFFECTIVENESS OF INJECTION:	ME
OPERATOR PROBLEMS:	---
ESTIMATED PRODUCTION DUE TO INJ.:	
1977:	314
FROM BEG. INJECTION:	3107
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	4000
WATER PRODUCTION:	
CURRENT (1977):	87
CUMULATIVE TO 1/78:	457
CURRENT (1977) INJECTION:	1603 gas
CUMULATIVE INJECTION:	43447 gas

Harris
Glorieta
Central Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Gaines & Andrews
2	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
2	FIELD	Harris
2	RESERVOIR	Glorieta-San Angelo
5	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
12c,8	RESERVOIR LITHOLOGY	San Angelo-finely crystalline to finely granular dolomite with minor anhydrite and fine-grained sand.
12c	TRAPPING MECHANISM	Anticlinal folding with porosity pinchout.
2-12c	DISCOVERY YEAR	1949
2,12c	PROVED ACREAGE	5200, 2480
	REGULAR WELL SPACING (acres/well)	
2,3,12c	RESERVOIR DEPTH	5900, 5965, 5962-5980
	RESERVOIR THICKNESS	
2,16c,12c	NET PAY	60 avg., 35, 6-55
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.09
	PERMEABILITY	
2	RANGE	6-19 md
2	AVERAGE	12.5 md
2	HORIZONTAL	12.5 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Queen
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2, 12c	TOTAL NUMBER OF WELLS	229 (69P-114I-46A); 67P
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	30,573.8
3	PRODUCTION 1-1-79 to 1-1-80	2,784.8 mbbls oil; 440.9 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		
2	FIELD:	Harris
2	RESERVOIR:	Glorieta
2, 12c	PROD. ACRES:	5200, 2480
2, 16c, 12c	AVG. THICKNESS (FT.):	60.5, 35, 6-55
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.1107
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	102 - 140
16c, 12c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	355, 340
2, 12c	RESERVOIR PRESSURE INITIAL (psi):	2400
2	RESERVOIR PRESSURE LATEST (psi):	289
12c	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	159
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,12c	STOCK TANK OIL GRAVITY (°API):	30.7; 31.9; 31
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1548
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	N/A
	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	N/A

OTHER INFORMATION:

12c Reference: Williford, J. L., 1954, Harris Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas Bureau of Economic Geology, Pub. No. 5716, p. 141-143.

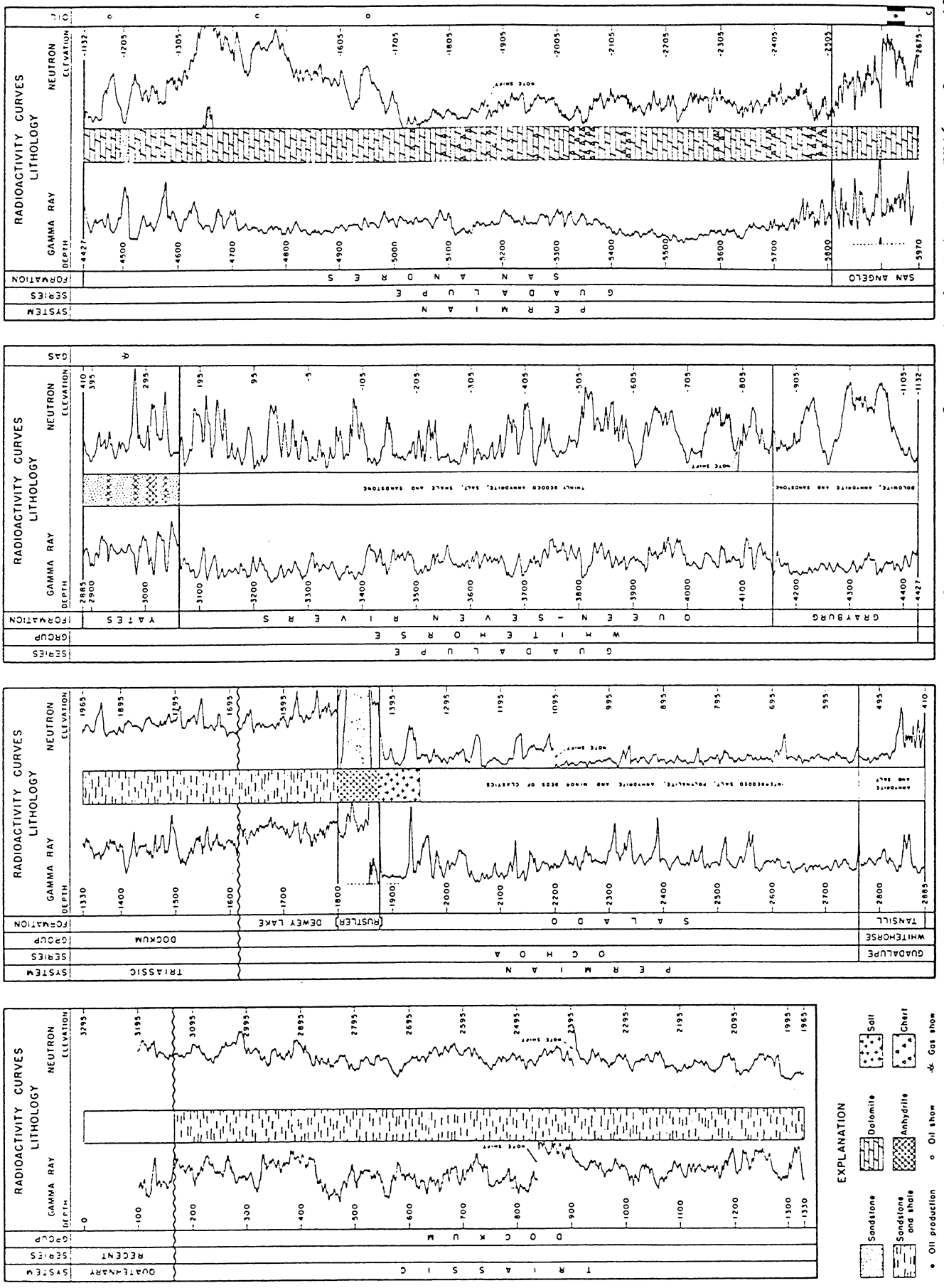
ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Harris RESERVOIR: Glorieta-San Angelo TOTAL NO. PROJECTS: 2 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	669	1039			
1977 PROD. (this project):	638	913			
CUM. PROD. FROM DISC. TO 1/78:	8779	19466			
PROJECT NO.	F3726	F3727			
LEASE NO.(s):	60711	02492, 61365			
OPERATOR:	Coastal States	Texaco			
RESERVOIR:	Glorieta	Glorieta			
DEPTH PRODUCING ZONE:	5920	5875			
PRODUCTIVE ACREAGE IN RESERVOIR:	5200	5000			
ACREAGE IN PROJECT:	2120	1140			
PORTION OR FIELD WIDE:	FW/P	FW/P			
TYPE:	WF/SW, FW	WF/SW, FW			
PATTERN:	5S	5S			
YEAR BEGAN:	6-71	8-64SW; 5-72FW			
YEAR TERMINATED OR STATUS:	SW-ICP;FW-INS	ICP			
RESERVOIR PRESSURE INITIAL:	2400	2400			
BEG. INJECTION:	289	300			
LATEST:	289	----			
NUMBER OF WELLS TOTAL:	51	178			
PRODUCING WELLS:	22	47			
INJECTION WELLS:	20	47 SW			
MAXIMUM:	---	47 FW			
LATEST:	---	-			
SHUT-IN/ABANDONED WELLS:	9	37			
SURFACE INJECTION PRESSURE:	---	920			
EFFECTIVENESS OF INJECTION:	ME	VE			
OPERATOR PROBLEMS:	---	---			
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	638	---			
FROM BEG. INJECTION:	3463	---			
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	4900	---			
WATER PRODUCTION:					
CURRENT (1977):	675	401			
CUMULATIVE TO 1/78:	2362	1587			
CURRENT (1977) INJECTION:	675	401SW; 5841FW			
CUMULATIVE INJECTION:	2553SW; 11813FW	1376SW; 11279FW			

HARRIS FIELD, Gaines and Andrews Counties, Texas

TYPICAL SECTION OF ROCKS PENETRATED



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

CHARACTER OF OIL and RESERVOIR DATA

Pressure at -2,650 ft. at discovery date, approx.	2,400 psi.
Gravity of oil, A.P.I. @ 60°F.	31°
Saturation pressure	340 psi.
Solution gas-oil ratio	159 cf/bbl.

WATER PRODUCTION

San Angelo: Some water has been produced but the quantity has not been enough to be of importance.

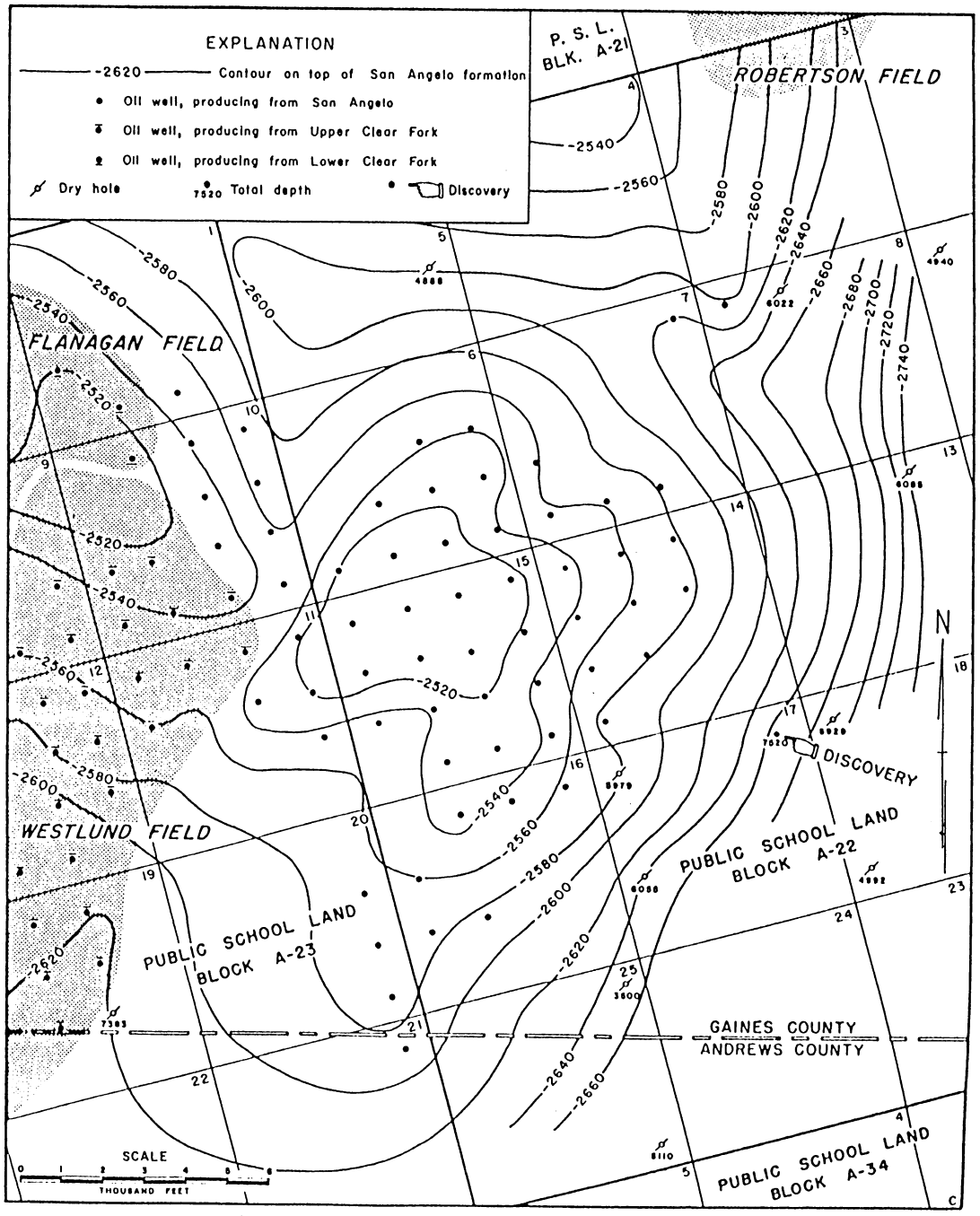
ACID TREATMENT

San Angelo: While the normal treatment is with 4,000 to 6,000 gallons of acid, the quantities have ranged from 500 to 11,500 gallons.

PRODUCTION HISTORY

Year	WELLS PRODUCING at end of year		OIL PRODUCTION (barrels)	
	Flowing	Pumping	Yearly	Cumulative
1949	0	1	2,340	2,340
1950	1	2	38,466	40,806
1951	0	14	172,658	213,464
1952	1	27	450,741	664,205
1953	0	52	610,291	1,274,496
1954*	0	61	580,8xx	1,855,3xx
1955*	0	67	581,5xx	2,436,8xx

*1954 and 1955 data added by amendment.



FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: Univ. of Texas, Bureau of Econ. Geol. Pub. No. 5716. HARRIS FIELD, Gaines and Andrews Counties, Texas Source 12c.

Hitchland
4640 Collier
Anadarko

DATA SOURCE CODE		
	STATE	Texas
1, 2	COUNTY	Hansford
1, 2	REGULATORY DISTRICT	10
1	BASIN	Anadarko
1	SUB-BASIN	Anadarko
1,2	FIELD	Hitchland
1,2	RESERVOIR	4640 Collier
1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	322
1	RESERVOIR LITHOLOGY	Limestone
1	TRAPPING MECHANISM	Stratigraphic; lateral change in porosity and permeability; monocline.
2,1	DISCOVERY YEAR	1-1954; 1954
2,1	PROVED ACREAGE	13110, 13110
1	REGULAR WELL SPACING (acres/well)	40
2,1	RESERVOIR DEPTH	4640, 4639
	RESERVOIR THICKNESS	
2	NET PAY	8
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
1	TYPE	intergranular
2,1	FRACTION	.170, .09
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	100, 100 md
2	HORIZONTAL	100 md
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	24P-6I; 8(5P-2I-1A)
1	PRODUCTION 1976 oil (cum)	3397
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	3,499.5
3	PRODUCTION 1-1-79 to 1-1-80	29.9 mbbls oil; 111.4 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:	Hitchland
2, 1	RESERVOIR:	4640 Collier
2,1	PROD. ACRES:	13110, 13110
2	AVG. THICKNESS (FT.):	8
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.330
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	gas cap, water drive
1	PRIMARY GAS CAP?:	yes
17	TEMPERATURE (°F):	125 (GG=1.1)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	13894
2,1	RESERVOIR PRESSURE INITIAL (psi):	1325, 1325
2	RESERVOIR PRESSURE LATEST (psi):	200
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	600
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	6656.3 (76); 6656
2,3,1	STOCK TANK OIL GRAVITY (°API):	43.0, 44.7, 44.7
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1534
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	3220 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	652 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Hitchland RESERVOIR: 4640 Collier 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.	F3036				
LEASE NO.(s):	01563				
OPERATOR:	Hitchland				
RESERVOIR:	4640 Collier				4640
DEPTH PRODUCING ZONE:	4640				4639
PRODUCTIVE ACREAGE IN RESERVOIR:	13110				13110
ACREAGE IN PROJECT:	475				475
PORTION OR FIELD WIDE:	P				
TYPE:	WF/SW, FW				H_2O flood
PATTERN:	I				
YEAR BEGAN:	5-69				
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	1325				1325
BEG. INJECTION:	200				
LATEST:	200				
NUMBER OF WELLS TOTAL:	8				
PRODUCING WELLS:	5				24
INJECTION WELLS:	1 SW				6
MAXIMUM:	1 FW				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	1				
SURFACE INJECTION PRESSURE:	---				
EFFECTIVENESS OF INJECTION:	NE				
OPERATOR PROBLEMS:	CH, EW				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	0				
FROM BEG. INJECTION:	3				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	4				
WATER PRODUCTION:					
CURRENT (1977):	21				
CUMULATIVE TO 1/78:	333				
CURRENT (1977) INJECTION:	21SW; 28FW				
CUMULATIVE INJECTION:	326SW; 1658FW				

H-J
Strawn
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Tom Green (M)
1	REGULATORY DISTRICT	7C
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	H-J
1	RESERVOIR	Strawn
1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	325
1	RESERVOIR LITHOLOGY	Limestone
	TRAPPING MECHANISM	
3,1	DISCOVERY YEAR	3-54; 1954
1, 16c	PROVED ACREAGE	580, 3500
1	REGULAR WELL SPACING (acres/well)	80
3,1	RESERVOIR DEPTH	5502
	RESERVOIR THICKNESS	
1,16c	NET PAY	10,30
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1	FRACTION	.01
	PERMEABILITY	
	RANGE	
1	AVERAGE	139 md
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	34P
1	PRODUCTION 1976 oil (cum)	17,110
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	20,995.6
3	PRODUCTION 1-1-79 to 1-1-80	1,241.4 mbbls oil; 1,939.9 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:	H-J
1	RESERVOIR:	Strawn
1,16c	PROD. ACRES:	580, 3500
1,16c	AVG. THICKNESS (FT.):	10, 30
1, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.47, 1.35
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.26 (73)
1,16c	WATER SATURATION (S_W):	.12, .28
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	water drive
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	142
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2229
1	RESERVOIR PRESSURE INITIAL (psi):	725
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	504
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1064.1 (76)
3, 1	STOCK TANK OIL GRAVITY (°API):	41
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1757
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

1 Primary recoverable: 100 bbl/acre-ft.

Howard-Glasscock
Grayburg-San Andres
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Howard-Glasscock
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
7, 2	FIELD	Howard-Glasscock
2,7	RESERVOIR	Grayburg-San Andres
8a	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
5a	RESERVOIR LITHOLOGY	Fine crystalline dolomite with anhydrite and shale streaks
5a	TRAPPING MECHANISM	East-west trending anticline
2,3	DISCOVERY YEAR	1925
2	PROVED ACREAGE	280-21160
5a	REGULAR WELL SPACING (acres/well)	10
2,3	RESERVOIR DEPTH	1298-2470 w/2066 avg., 3200
	RESERVOIR THICKNESS	
2, 5a	NET PAY	43-140 w/76 avg.; 80
5a	GROSS	885
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,5a	FRACTION	.07 - .15 w/.122 avg.; .105
	PERMEABILITY	
2	RANGE	1-170 md
2, 5a	AVERAGE	24.5 md, 5
2	HORIZONTAL	24.5 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Middle Clear Fork, Glorieta, Wolfcamp
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2, 5a	TOTAL NUMBER OF WELLS	440 (302P, 87I, 51A); 767
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	325,221.5 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	5,242.4 mbbls oil; 1,192.3 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:	Howard-Glasscock
7, 2	RESERVOIR:	Grayburg-San Andres
2	PROD. ACRES:	21160
2	AVG. THICKNESS (FT.):	43-140 w/76 avg.
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
5a	WATER SATURATION (S_W):	.40
	OIL SATURATION (S_O):	
5a	PRIMARY DRIVE MECHANISM:	partial water & solution gas
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	250-1500
2	RESERVOIR PRESSURE LATEST (psi):	50-250
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,5a	STOCK TANK OIL GRAVITY (°API):	26-32, 26, 31.7
5a	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	12.8 cp
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 12 SRPs:	337,789 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 12 SRPs:	64,082 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Howard-Glasscock RESERVOIR: Grayburg-San Andres TOTAL NO. PROJECTS: 12

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

1976 PROD. (this project): MBBLS	15	63	33	17	169
1977 PROD. (this project):	13	61	40	46	154
CUM. PROD. FROM DISC. TO 1/78:	292	6791	1862	175	4652
PROJECT NO.	F1287	F3192	F6958	F6740	F1309
LEASE NO.(s):	027951 02796	02791	02774	02805	02790
OPERATOR:	Gas Prod. Ent.	Marathon	Mobil	Samedan Oil	Sun Oil
RESERVOIR:	San Andres	San Andres	San Andres	San Andres Dolo.	San Andres dolo
DEPTH PRODUCING ZONE:	1350 & 2100	2250	2125	2162	1298
PRODUCTIVE ACREAGE IN RESERVOIR:	15620	280	1000	15600	1723
ACREAGE IN PROJECT:	240	280	160	400	80
PORTION OR FIELD WIDE:	P	P	P	P	P
TYPE:	WF/FW	WF/SW	WF/SW	WF/SW, FW	WF/SW
PATTERN:	I	SW	SW	MLD	5S
YEAR BEGAN:	2-69	8-74	1-77	---	3-52
YEAR TERMINATED OR STATUS:	ITD/1-74	ITD	ICP	INS	ICP
RESERVOIR PRESSURE INITIAL:	250	---	1100	330	---
BEG. INJECTION:	150	---	300	50	50
LATEST:	100	---	---	50	---
NUMBER OF WELLS TOTAL:	10	20	17	32	17
PRODUCING WELLS:	10	18	16	21	7
INJECTION WELLS:	0	0	1	0	1
MAXIMUM:	---	---	---	---	---
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	0	2	0	11	9
SURFACE INJECTION PRESSURE:	---	40	300	---	320
EFFECTIVENESS OF INJECTION:	UD	UD	ME	UD	UD
OPERATOR PROBLEMS:	CR, SC	CR	---	---	CR, SC
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---	---	---	---	154
FROM BEG. INJECTION:	---	---	---	---	3052
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	0	---	---	2800
WATER PRODUCTION:					
CURRENT (1977):	41	785	200	214	2147
CUMULATIVE TO 1/78:	190	11318	2508	439	6931
CURRENT (1977) INJECTION:	---	24	187	---	1275
CUMULATIVE INJECTION:	686	140	187	---	27403

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Howard-Glasscock RESERVOIR: Grayburg-San Andres TOTAL NO. PROJECTS: 12
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	9	209	155	70	16
1977 PROD. (this project):	12	177	112	68	29
CUM. PROD. FROM DISC. TO 1/78:	973	17472	5767	5548	617
PROJECT NO.	F5500	F4252	F5286	F1291	F4257
LEASE NO.(s):	02772, etc.	02706	02690, etc.	02699	02682
OPERATOR:	Am. Petrofina	Continental	Continental	Continental	Donovan Invst.
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	2200	2100	2250	2470	2200
PRODUCTIVE ACREAGE IN RESERVOIR:	21160	---	17424	17424	18000
ACREAGE IN PROJECT:	260	640	680	320	160
PORTION OR FIELD WIDE:	P	--- P	P	P	P
TYPE:	WF/SW, FW	WF/SW	WF/SW	WF/SW	WF/SW
PATTERN:	I	I	I9	I	P
YEAR BEGAN:	10-73	1-75	3-73	12-61	10-74
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1000	---	1000	---	---
BEG. INJECTION:	50	100	900	900	100
LATEST:	---	---	250	---	100
NUMBER OF WELLS TOTAL:	24	49	58	39	7
PRODUCING WELLS:	18	40	43	22	6
INJECTION WELLS:	2 SW	9	15	6	1
MAXIMUM:	4 PWW	---	---	---	---
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	0	0	0	11	0
SURFACE INJECTION PRESSURE:	720SW; 895PWW	480	470	200	550
EFFECTIVENESS OF INJECTION:	ME	---	VE	ME	UD
OPERATOR PROBLEMS:	CR, CH	CR,CH,EW,EB	CR,CH,SC,EB	CR, SC	CR, SF
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	5	133	110	35	---
FROM BEG. INJECTION:	17	311	396	161	---
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	400	531	2521	1614	---
WATER PRODUCTION:					
CURRENT (1977):	231	1341	1014	1055	84
CUMULATIVE TO 1/78:	3015	13367	6034	6177	643
CURRENT (1977) INJECTION:	382SW; 793PWW	1232	1621	124	138
CUMULATIVE INJECTION:	1454SW; 3295PWW	3305	7816	5861	745

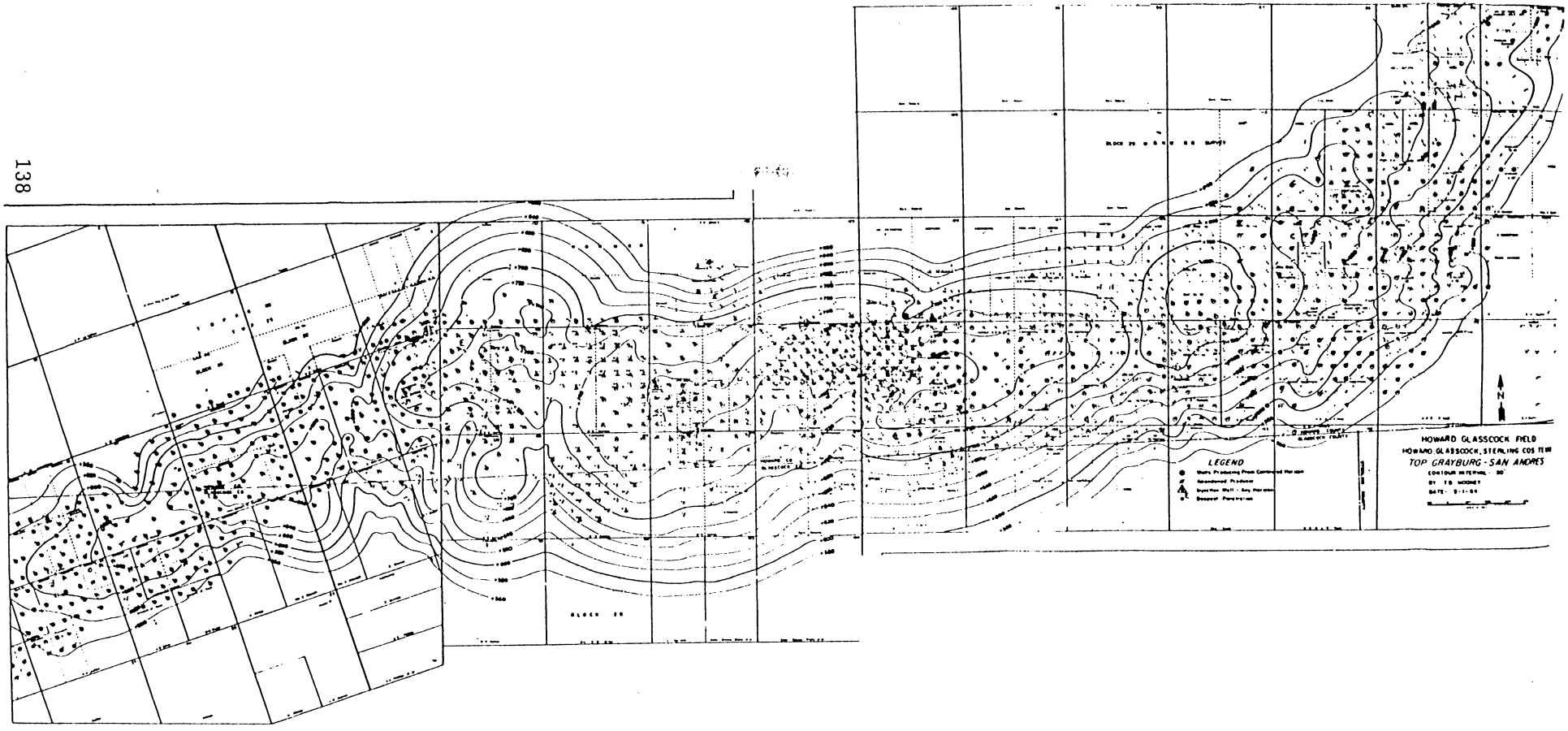
ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Howard-Glasscock RESERVOIR: Grayburg-San Andres TOTAL NO. PROJECTS: 12 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	619	30
1977 PROD. (this project):	611	26
CUM. PROD. FROM DISC. TO 1/78:	34963	709
PROJECT NO.	F5289	F1318
LEASE NO.(s):	22575	02834
OPERATOR:	Sun Oil	Wood, McShane & Thams
RESERVOIR:	Grayburg-San An.	Seven Rivers, Queen, San An.
DEPTH PRODUCING ZONE:	2150	2200
PRODUCTIVE ACREAGE IN RESERVOIR:	14000	4000
ACREAGE IN PROJECT:	1680	30
PORTION OR FIELD WIDE:	P	P
TYPE:	WF/SW, BW	WF/SW, BW
PATTERN:	MI9	I5
YEAR BEGAN:	9-72	3-69
YEAR TERMINATED OR STATUS:	SW-ICP; BW-INS	SW-ITD; BW-ICP
RESERVOIR PRESSURE INITIAL:	330	1500
BEG. INJECTION:	50	100
LATEST:	---	---
NUMBER OF WELLS TOTAL:	150	17
PRODUCING WELLS:	87	14
INJECTION WELLS:	45	0 SW
MAXIMUM:	---	3 BW
LATEST:	---	---
SHUT-IN/ABANDONED WELLS:	18	0
SURFACE INJECTION PRESSURE:	460	900
EFFECTIVENESS OF INJECTION:	---	ME
OPERATOR PROBLEMS:	CR,EW,EB	CR
ESTIMATED PRODUCTION DUE TO INJ.:		
1977:	611	26
FROM BEG. INJECTION:	1935	469
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	24000	443
WATER PRODUCTION:		
CURRENT (1977):	14897	241
CUMULATIVE TO 1/78:	56330	2164
CURRENT (1977) INJECTION:	15445	0SW; 229BW
CUMULATIVE INJECTION:	64356SW; 3587BW	1116SW; 2069BW

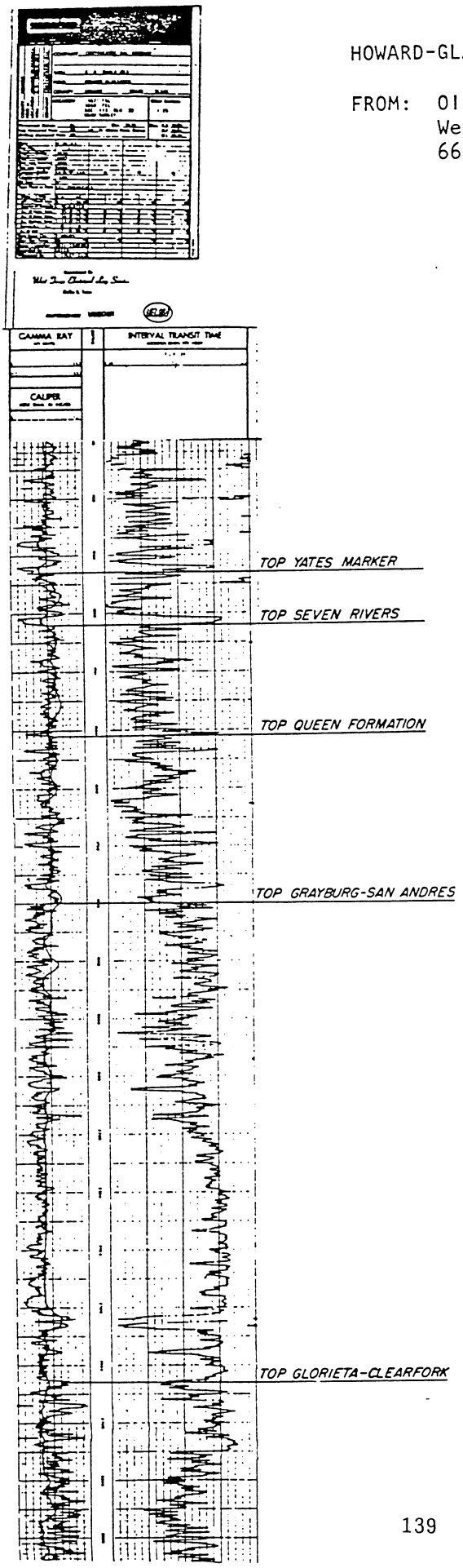
HOWARD-GLASSCOCK

FROM: OIL & GAS FIELDS IN WEST TEXAS - A SYMPOSIUM, West Texas Geological Society Pub. No. 66-52, 1966. Source 5a.



HOWARD-GLASSCOCK

FROM: OIL & FIELDS IN WEST TEXAS - A SYMPOSIUM, West Texas Geological Society, Pub. No. 66-52, 1966. Source 5a



Hobbs
Grayburg-San Andres
Central Basin Platform

DATA SOURCE CODE		
	STATE	New Mexico
6a	COUNTY	Lea
	REGULATORY DISTRICT	
6a	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
6a	FIELD	Hobbs
6a	RESERVOIR	Grayburg - San Andres
6	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
6a,7,14e	RESERVOIR LITHOLOGY	Very porous white limestone containing cavernous porosity on the west of the structure; - sandy dolmite alternating with dolomitic sandstone; carbonate
6a	TRAPPING MECHANISM	Anticlinal trap
6a	DISCOVERY YEAR	6-13-28
17	PROVED ACREAGE	12,160
	REGULAR WELL SPACING (acres/well)	
6a	RESERVOIR DEPTH	3700
	RESERVOIR THICKNESS	
	NET PAY	
6a	GROSS	400+
	NET/GROSS RATIO	
	POROSITY	
6a	TYPE	I, V
6a	FRACTION	.15
	PERMEABILITY	
	RANGE	
	AVERAGE	
6a,14e	HORIZONTAL	50
6a	VERTICAL	NA
14e	OTHER INFORMATION	BETC/RI-78/15 list as not suitable for surfactant, polymer or carbon dioxide EOR due to water drive and gas cap.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS	374 Total, 251 Pump, 62 Flow, 36 Inj., 25 Shut-In
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	242420
	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:	Hobbs
6a	RESERVOIR:	Grayburg-San Andres
17	PROD. ACRES:	12,160
6a	AVG. THICKNESS (FT.):	400+
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
6a	WATER SATURATION (S_W):	.15
	OIL SATURATION (S_O):	
14e, 6a	PRIMARY DRIVE MECHANISM:	Water Drive
14e	PRIMARY GAS CAP?:	Yes
6a, 17, 14e	TEMPERATURE (°F):	125, 115 (GG=1.0), 100
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
6a	RESERVOIR PRESSURE INITIAL (psi):	1525
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
6a	STOCK TANK OIL GRAVITY (°API):	34
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	8 cp
17	MINIMUM MISCIBILITY PRESSURE (MMP): (PSIA)	1454
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

WATER ANALYSIS RECORD

FIELD: Hobbs
RESERVOIR: Grayburg-San Andres
TOTAL NO. PROJECTS:
DATA SOURCE:

TOTAL SOLIDS (ppm):	21,566
NA	7,352
Ca	411
Mg	179
Fe	
SO_4	699
Cl	10,800
CO_2	
HCO_3	2,125
OH	
H_2S	

RESISTIVITY: 0.33 ohm-meters @ 125° F

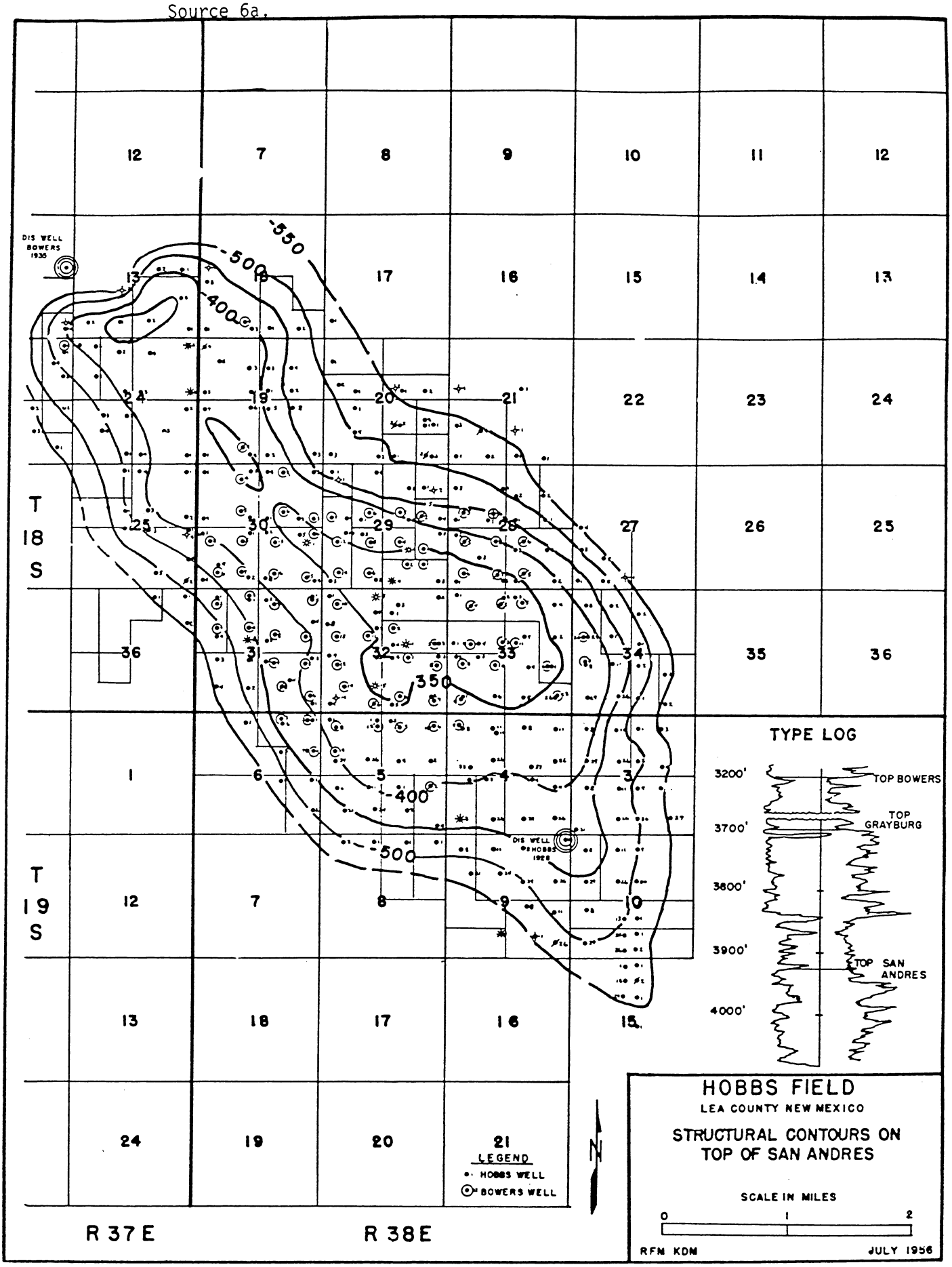
SPECIFIC GRAVITY:

1.05

OTHER WATER QUALITY DATA:

Gasisour H_2S - 1%

FROM: McPeters, K.D., and Kelly, J.M., 1956, HOBBS (GRAYBURG-SAN ANDRES) in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO: Roswell Geological Society Symposium - 1956. Source 6a.



Hobbs
Blinebry-Yeso
Central Basin Platform

DATA SOURCE CODE		
1, 6d	STATE	New Mexico
1	COUNTY	Lea
	REGULATORY DISTRICT	Southeast
1, 6d	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1, 6d	FIELD	Hobbs
6d, 1	RESERVOIR	Blinebry-Yeso
1, 6	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
1, 6d	RESERVOIR LITHOLOGY	Fine crystalline to granular dolomite with anhydrite nodules and gypsum inclusion. Many vertical plates of weakness and some fracturing. Fair to good intergranular
1,6d,7	TRAPPING MECHANISM	solution and vuggy porosity.
	Anticlinal Trap	
1, 6d	DISCOVERY YEAR	11-1-68
1, 6d	PROVED ACREAGE	1600
1, 6d	REGULAR WELL SPACING (acres/well)	40
	RESERVOIR DEPTH	5870 (-2221 datum)
	RESERVOIR THICKNESS	
6d	NET PAY	67
6d	GROSS	178
	NET/GROSS RATIO	
	POROSITY	
6d, 1	TYPE	IC-V-F; IG-V
6d	FRACTION	.05 - .20
	PERMEABILITY	
1, 6d	RANGE	5-28 md
	AVERAGE	
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	26 Total, 23 pump, 2 flow, 1 shut-in; 26P, 2 Shut-in
1	PRODUCTION 1977 oil (cum)	4356
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	4807 (Blinebry)
	PRODUCTION 1-1-79 to 1-1-80	
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6d	STRUCTURE CONTOUR?	yes
6d	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Hobbs
1, 6d	RESERVOIR:	Blinebry
1, 1, d	PROD. ACRES:	1600
6d	AVG. THICKNESS (FT.):	67
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
6d, 1	WATER SATURATION (S_W):	.20 - .42
6d, 1	OIL SATURATION (S_O):	.06 - .20
1, 6d	PRIMARY DRIVE MECHANISM:	Gas solution and partial water drive
	PRIMARY GAS CAP?:	
6d,1,17	TEMPERATURE (°F):	107 (GG=.56)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	3717
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
1, 6d	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	29.5
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1111
1, 6d	STOCK TANK OIL GRAVITY (°API):	37.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (PSIG)	1343
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

WATER ANALYSIS RECORD

FIELD: Hobbs RESERVOIR: Blinebry TOTAL NO. PROJECTS:
DATA SOURCE:

6d TOTAL SOLIDS (ppm):

	NA	51,560
	Ca	1,100
	Mg	800
	Fe	
	SO_4	2,040
	Cl	82,715
	CO_2 or HCO_3	820
	OH	
	H_2S	

1,6d RESISTIVITY: 0.176 ohm-meters @ 72° F

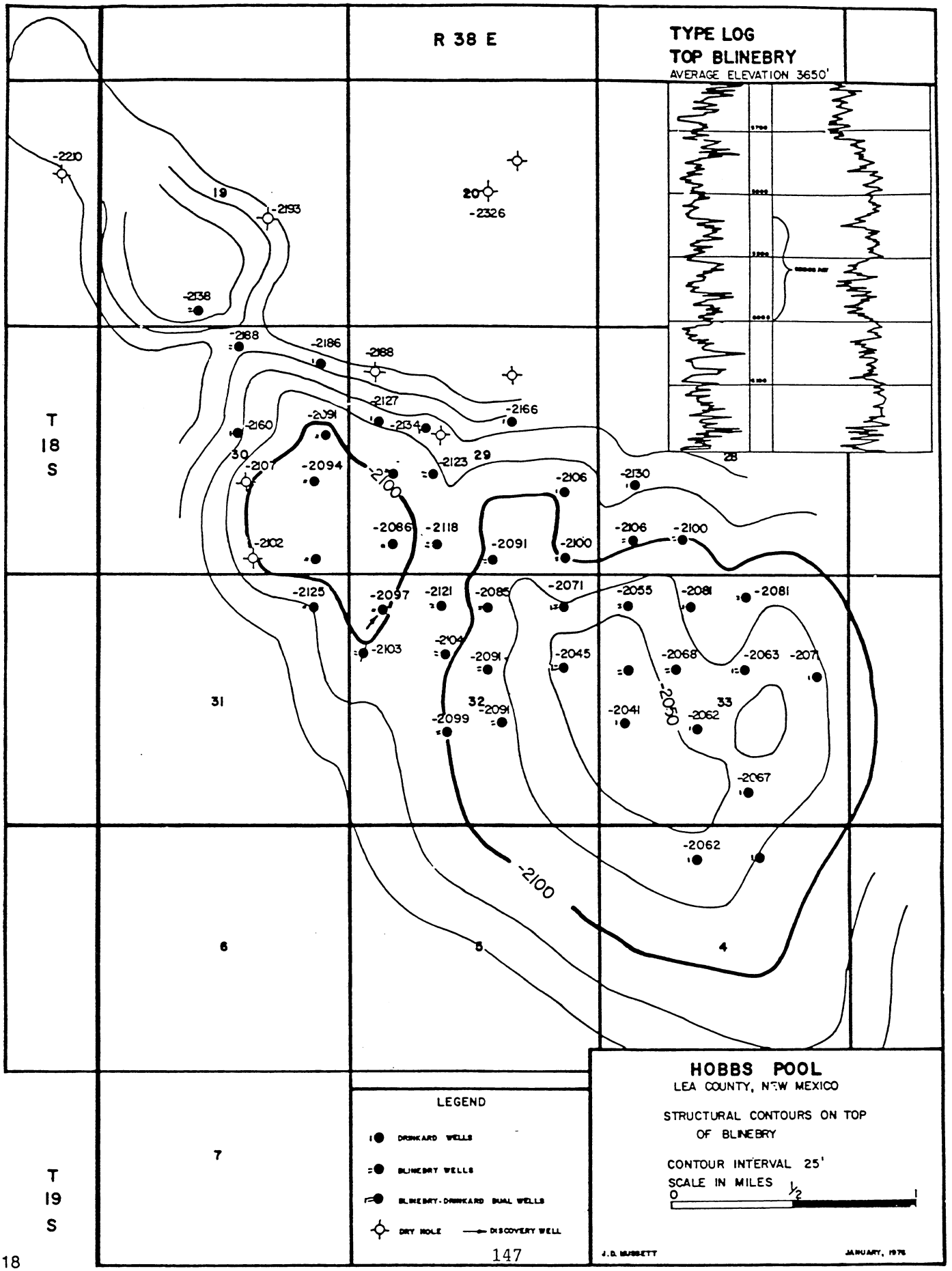
SPECIFIC GRAVITY:

1,6d 1.102 @ 68° F

OTHER WATER QUALITY DATA:

FROM: Foltz, G.A., and Siruta, W.A., 1977, HOBBS BLINEBRY in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO: ROSWELL GEOLOGICAL SOCIETY SYMPOSIUM

Source 6d



Huntley
"3400"
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
	COUNTY	Garza
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
	FIELD	Huntley
3	RESERVOIR	"3400"
	GEOLOGIC AGE	Guadalupian
	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
3	DISCOVERY YEAR	1954
	PROVED ACREAGE	
	REGULAR WELL SPACING (acres/well)	
	RESERVOIR DEPTH	
	RESERVOIR THICKNESS	
	NET PAY	
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
	FRACTION	
	PERMEABILITY	
	RANGE	
	AVERAGE	
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	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)	6,570.5
3	PRODUCTION 1-1-79 to 1-1-80	239.4 mbbls oil; 22,168 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:	Huntley
3	RESERVOIR:	3400
	PROD. ACRES:	
	AVG. THICKNESS (FT.):	
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.1
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.05 (71)
16c	WATER SATURATION (S_W):	.20-.45
16c	OIL SATURATION (S_O):	.70
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	86
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	781
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
3	GAS OIL RATIO LATEST (GOR) (cf/bbl):	37
	STOCK TANK OIL GRAVITY (°API):	
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1087
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

Huntley
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	Huntley
1	RESERVOIR	Glorieta
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1	RESERVOIR LITHOLOGY	Dolomite
	TRAPPING MECHANISM	
3,1	DISCOVERY YEAR	6-54; 1954
	PROVED ACREAGE	
1	REGULAR WELL SPACING (acres/well)	20
3,1	RESERVOIR DEPTH	3966
	RESERVOIR THICKNESS	
1	NET PAY	7
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1	FRACTION	.16
	PERMEABILITY	
	RANGE	
1	AVERAGE	81 md
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	39 P
1	PRODUCTION 1976 oil (cum)	6051
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	6,340.5
3	PRODUCTION 1-1-79 to 1-1-80	89.2 mbbls oil; 9.5 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:	Huntley
1	RESERVOIR:	Glorieta
	PROD. ACRES:	
1	AVG. THICKNESS (FT.):	7
	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):	112
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	965
	RESERVOIR PRESSURE INITIAL (psi):	
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	85.9 (76)
3,1	STOCK TANK OIL GRAVITY (°API):	37.2
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1405
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

Huntley, East
San Andres
EASTERN SHELF

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Garza
2	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	EASTERN SHELF
2	FIELD	Huntley, East
2	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2	DISCOVERY YEAR	12-56
2	PROVED ACREAGE	850
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	3180, 3138
	RESERVOIR THICKNESS	
2,16c	NET PAY	26
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.16
	PERMEABILITY	
	RANGE	
2	AVERAGE	5 md
2	HORIZONTAL	5 md
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	48 (32P-13I-3A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	4,159.9
3	PRODUCTION 1-1-79 to 1-1-80	375.6 mbbls oil; 32.7 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		
	FIELD:	Huntley, East
2	RESERVOIR:	San Andres
2	PROD. ACRES:	850
2, 16c	AVG. THICKNESS (FT.):	26
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.15
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.05 (73)
16c	WATER SATURATION (S_W):	.40
16c	OIL SATURATION (S_O):	.48
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	104
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	480
2	RESERVOIR PRESSURE INITIAL (psi):	1200
2	RESERVOIR PRESSURE LATEST (psi):	100
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	33.0, 34.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1318
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Huntley, East 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	156
1977 PROD. (this project):	447
CUM. PROD. FROM DISC. TO 1/78:	3119
PROJECT NO.	F5885
LEASE NO.(s):	60957
OPERATOR:	Continental Oil
RESERVOIR:	San Andres
DEPTH PRODUCING ZONE:	3180
PRODUCTIVE ACREAGE IN RESERVOIR:	850
ACREAGE IN PROJECT:	780
PORTION OR FIELD WIDE:	FW
TYPE:	WF/BW
PATTERN:	----
YEAR BEGAN:	4-74
YEAR TERMINATED OR STATUS:	ICP
RESERVOIR PRESSURE INITIAL:	1200
BEG. INJECTION:	100
LATEST:	100
NUMBER OF WELLS TOTAL:	48
PRODUCING WELLS:	32
INJECTION WELLS:	13
MAXIMUM:	---
LATEST:	---
SHUT-IN/ABANDONED WELLS:	3
SURFACE INJECTION PRESSURE:	421
EFFECTIVENESS OF INJECTION:	VE
OPERATOR PROBLEMS:	---
ESTIMATED PRODUCTION DUE TO INJ.:	
1977:	446
FROM BEG. INJECTION:	660
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---
WATER PRODUCTION:	
CURRENT (1977):	810
CUMULATIVE TO 1/78:	1208
CURRENT (1977) INJECTION:	2615
CUMULATIVE INJECTION:	8863

Hutex
Devonian
Midland Basin

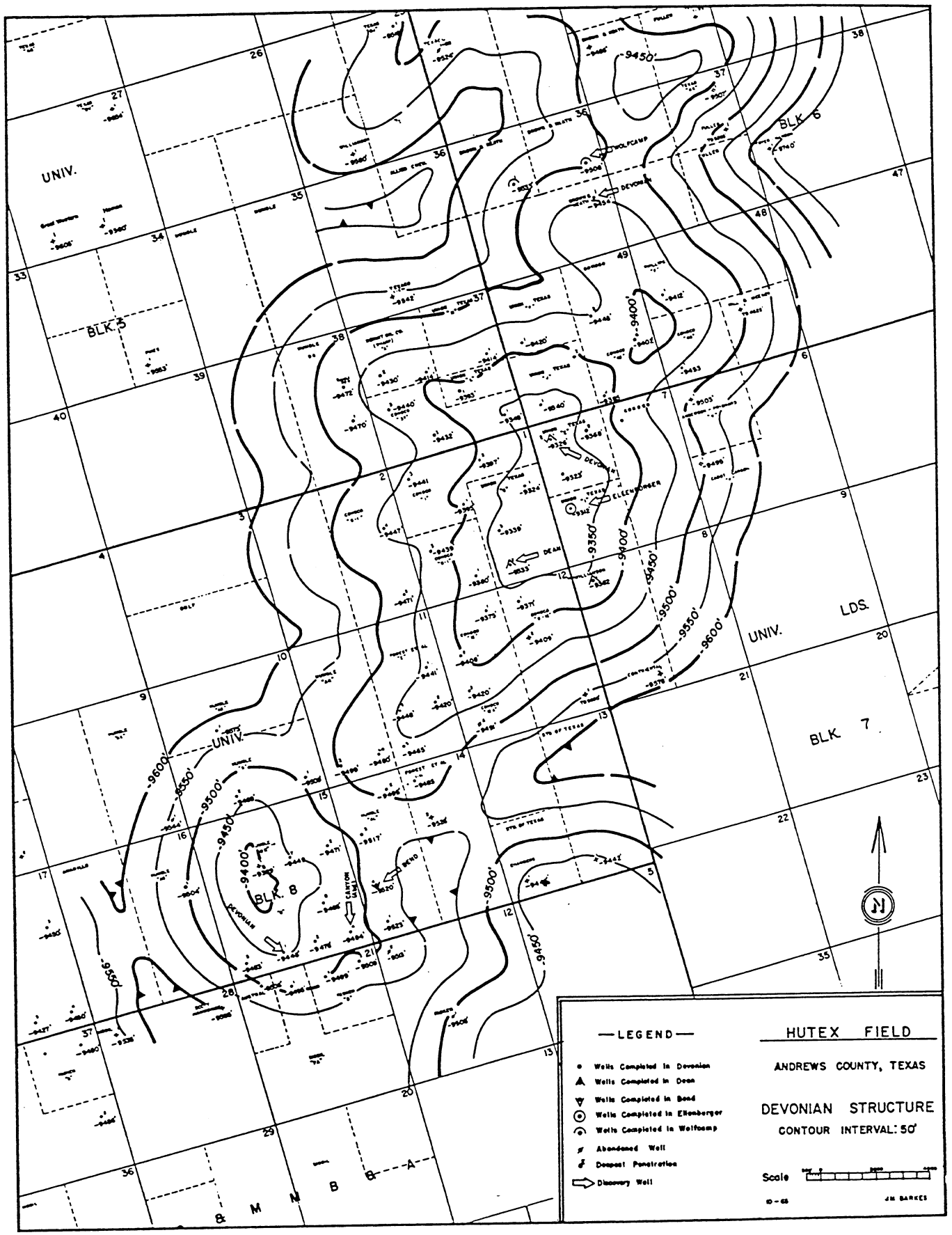
DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Andrews
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Hutex
1	RESERVOIR	Devonian
1	GEOLOGIC AGE	Devonian
1	AAPG STRATIGRAPHIC AGE CODE	340
5b, 1	RESERVOIR LITHOLOGY	Dolomite to limestone; pressure buildup test shows good communication in dolomite section little to none in limestone; limestone; dolomite.
1	TRAPPING MECHANISM	Anticline
3,5b,1	DISCOVERY YEAR	2-53
5b	PROVED ACREAGE	4480
1	REGULAR WELL SPACING (acres/well)	80
5b,3,1	RESERVOIR DEPTH	12,509-12,531; 12,509; 12,509
	RESERVOIR THICKNESS	
5b, 1	NET PAY	60, 22
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	IC
5b, 1	FRACTION	.04 in N, .07 in S; .04 to .07
	PERMEABILITY	
1	RANGE	12 to 76 md
5b	AVERAGE	44 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from Bend, Canyon, Dean
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	44 P
1	PRODUCTION 1976 oil (cum)	31,015
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	33,687.4
3	PRODUCTION 1-1-79 to 1-1-80	791.4 mbbls oil; 46.3 mmcf gas
	SECONDARY RECOVERY RECORDS?	No
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5b	STRUCTURE CONTOUR?	yes
5b	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Hutex
5b, 1	RESERVOIR:	Devonian
5b	PROD. ACRES:	4480
5b, 1	AVG. THICKNESS (FT.):	60, 22
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
5b	WATER SATURATION (S_W):	.34
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion water drive
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	162
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	457
5b, 1	RESERVOIR PRESSURE INITIAL (psi):	5400
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	29
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	103 (76), 103
5b,3,1	STOCK TANK OIL GRAVITY (°API):	34, 44, 44
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):(psia)	1990
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

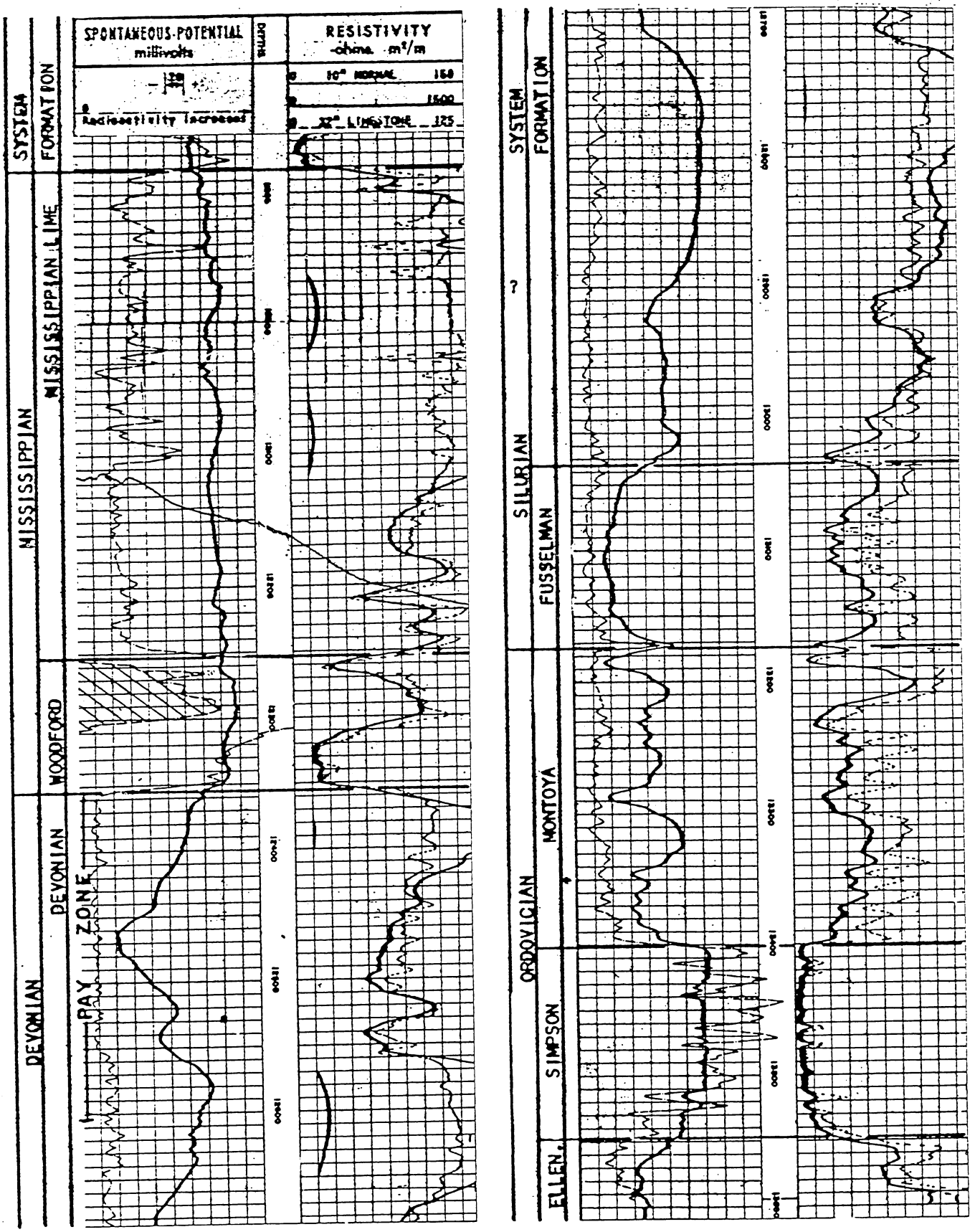
OTHER INFORMATION:

1 Primary recoverable: 25,400,000 bbl (1966)



FROM: Barkes, J.M., 1966, HUTEX DEVONIAN in OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM: West Texas Geological Society Publication No. 66-52., Source 5a.

TYPICAL LOG SECTION - HUTEX FIELD



FROM: Barkes, J.M., 1966, HUTEX DEVONIAN in OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM: West Texas Geological Society Publication No. 66-52, Source 5a.

I.A.B.
Menielle-Penn
Eastern Shelf

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Coke
1	REGULATORY DISTRICT	7C
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	I.A.B.
1	RESERVOIR	Menielle-Pennsylvanian
1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	320
5a, 1	RESERVOIR LITHOLOGY	Sand (Menielle in N.E. I.A.B. described as "buff-light gray, fine-medium grained, sub-angular, sub-rounded, quartz sand");limestone.
	TRAPPING MECHANISM	
2,1	DISCOVERY YEAR	8-1957; 1957
16c,2,1	PROVED ACREAGE	4903
1	REGULAR WELL SPACING (acres/well)	80
2,3,1	RESERVOIR DEPTH	5500, 5250, 5250
	RESERVOIR THICKNESS	
16c,2,1	NET PAY	45, 45, 46
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.056, .08
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	31 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from Harris Sand, Penn, Penn 4920, Penn 5070.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	25P - 17I; 72(44P-11I-17A)
1	PRODUCTION 1976 oil (cum)	16,320
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	17,596.8
3	PRODUCTION 1-1-79 to 1-1-80	494.7 mbbls oil; 703.3 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:	I.A.B.
2,1	RESERVOIR:	Menielle-Penn
2,1,16c	PROD. ACRES:	4903
2,1,16c	AVG. THICKNESS (FT.):	45, 46, 45
1, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.825, 1.86
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.521 (72)
1, 16c	WATER SATURATION (S_W):	.28,.25
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion
1	PRIMARY GAS CAP?:	yes
17	TEMPERATURE (°F):	134 (GG=1.15)
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2525
2,1	RESERVOIR PRESSURE INITIAL (psi):	2510
2	RESERVOIR PRESSURE LATEST (psi):	2700
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,1	STOCK TANK OIL GRAVITY (°API):	44.2, 44.4, 44.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1646
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	47,683 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	7,062 mbbls

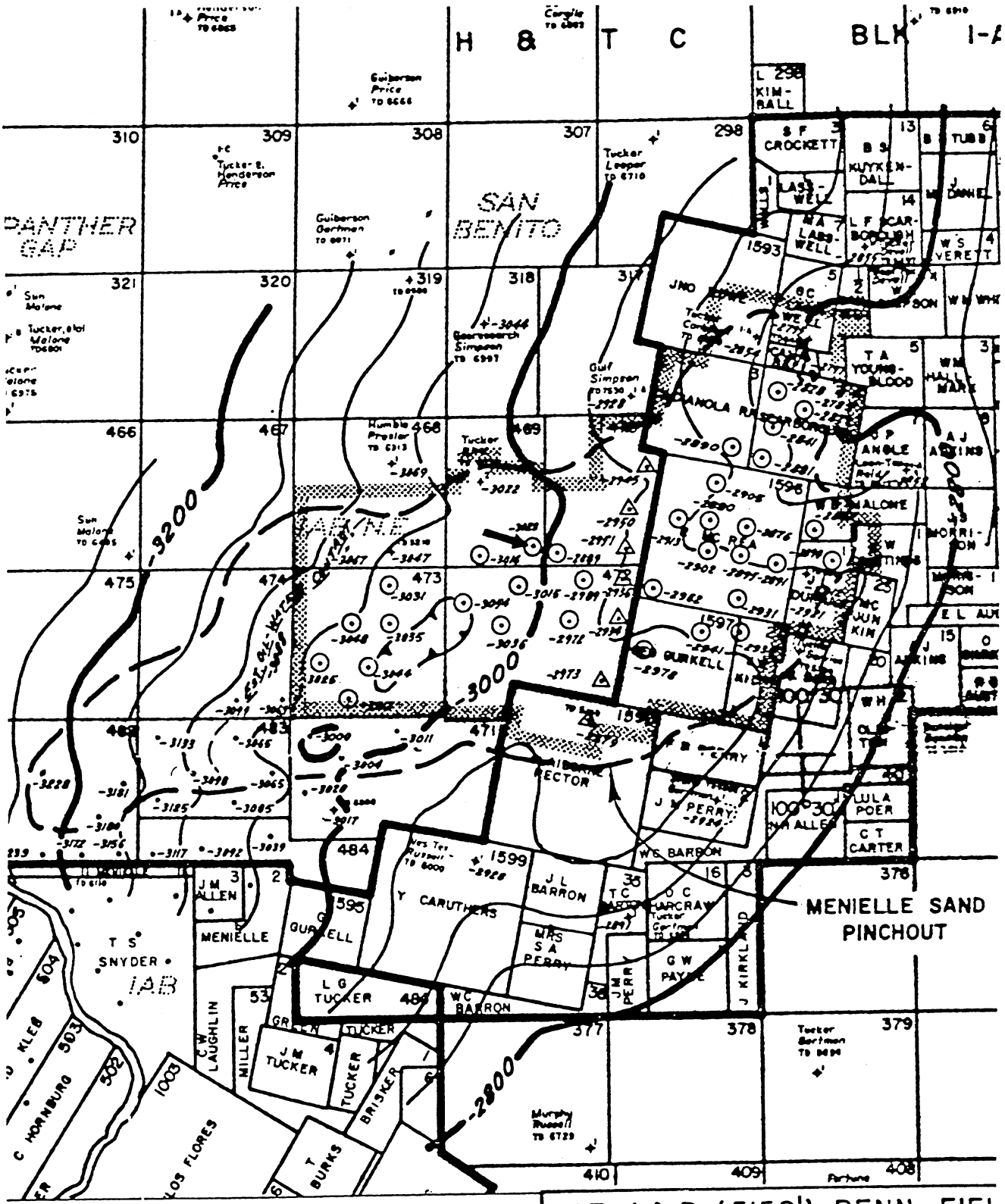
OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: I.A.B. RESERVOIR: Menielle-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	349				
1977 PROD. (this project):	336				
CUM. PROD. FROM DISC. TO 1/78:	12999				
PROJECT NO.	F1026				
LEASE NO.(s):	03910				
OPERATOR:	Exxon				
RESERVOIR:	Menielle				Menielle-Penn
DEPTH PRODUCING ZONE:	5500				5250
PRODUCTIVE ACREAGE IN RESERVOIR:	4903				4903
ACREAGE IN PROJECT:	4903				4903
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW, BW, FW				PM
PATTERN:	LD				
YEAR BEGAN:	12-62SW,FW;1-69BW				1962
YEAR TERMINATED OR STATUS:	ICP SW; IPD-BW, FW				
RESERVOIR PRESSURE INITIAL:	2510				2510
BEG. INJECTION:	1919				
LATEST:	2700				
NUMBER OF WELLS TOTAL:	72				
PRODUCING WELLS:	44				25
INJECTION WELLS:	11				17
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	17				
SURFACE INJECTION PRESSURE:	2150				
EFFECTIVENESS OF INJECTION:	---				
OPERATOR PROBLEMS:	CR,IP,EP,PI				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	336				
FROM BEG. INJECTION:	6565				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	9961				
WATER PRODUCTION:					
CURRENT (1977):	1273				
CUMULATIVE TO 1/78:	13262				
CURRENT (1977) INJECTION:	1273SW; 2785FW				
CUMULATIVE INJECTION:	11,154SW; 18,228BW; 40,453FW				

FROM: OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM, 1966: West Texas Geological Society.



N.E. I.A.B. (5150') PENN. FIEL

COKE COUNTY, TEXAS

STRUCTURE MAP

TOP MENIELLE SAND

(AND SAND EQUIVALENT)

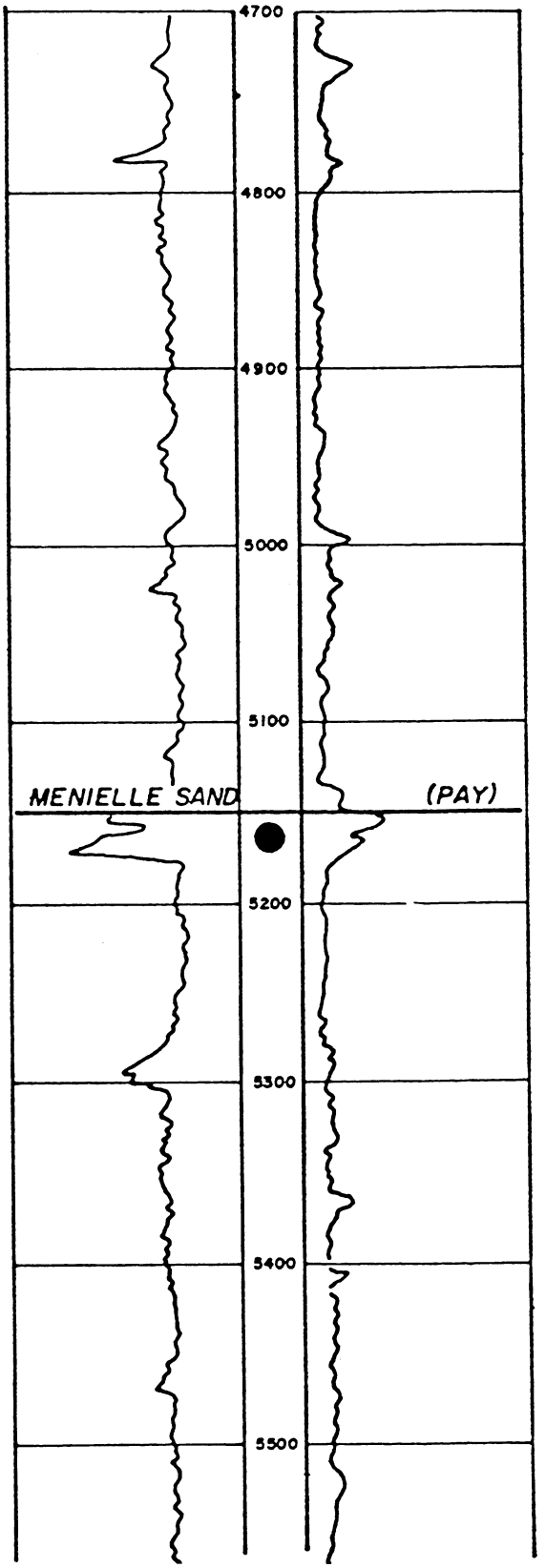
C.I. = 50'

Scale: 1" = 5000'

TYPICAL ELECTRIC LOG SECTION

N.E. I.A.B. (5150') PENN. FIELD

SCALE: 1" = 100'



FROM: OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM: West Texas Geological Society Publication No. 66-52, 1966, Source 5a.

Iatan East
Clear Fork
Eastern Shelf

DATA SOURCE CODE		
14e	STATE----------	Texas
2	COUNTY----------	Howard
	REGULATORY DISTRICT----------	8
2	BASIN----------	Permian
15	SUB-BASIN----------	Eastern Shelf
14c	FIELD----------	Iatan East
14e	RESERVOIR----------	Clear Fork - Howard
5	GEOLOGIC AGE----------	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE----------	318
	RESERVOIR LITHOLOGY----------	
	TRAPPING MECHANISM----------	
2,3	DISCOVERY YEAR----------	1925, 1926
2	PROVED ACREAGE----------	17000
	REGULAR WELL SPACING (acres/well)-----	
2,3	RESERVOIR DEPTH----------	2400-3000 in field; 2700
	RESERVOIR THICKNESS	
2	NET PAY----------	63 avg. (17 SRP's)
	GROSS----------	
	NET/GROSS RATIO----------	
	POROSITY	
	TYPE----------	
2	FRACTION----------	.12 avg.
	PERMEABILITY	
	RANGE----------	
2,14e	AVERAGE----------	2.5 md, 4
2	HORIZONTAL----------	2.5 md
	VERTICAL----------	
14e	OTHER INFORMATION----------	Rated as suitable for CO2 enhanced oil recovery in BETC/RI-78/5 because of proximity to carbon dioxide in Val Verde basin.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS----------	925 (635P-223I-67SI)
	PRODUCTION 1976 oil (cum)----------	
	PRODUCTION 1977 oil (cum)----------	
	PRODUCTION 1978 oil (cum)----------	
3	PRODUCTION 1979 oil (cum)----------	107,268.7 mbbls
3	PRODUCTION 1-1-79 to 1-1-80----------	4,229.1 mbbls oil; 334.2 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:	Iatan East
2	RESERVOIR:	Clear Fork
2	PROD. ACRES:	17000
	AVG. THICKNESS (FT.):	63 avg.
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
14e	PRIMARY GAS CAP?:	no
14e	TEMPERATURE (°F):	100
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2, 14e	RESERVOIR PRESSURE INITIAL (psi):	950-2000, 950
2	RESERVOIR PRESSURE LATEST (psi):	140-200
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,14e	STOCK TANK OIL GRAVITY (°API):	28-32, 29, 30
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	2.0 cp
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 13 SRPs:	272,210 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 14 SRPs:	48,747 mbbls

OTHER INFORMATION:

14e Reference: Energy Information Administration, Evaluation of Target Oil in the 50 Major Oil Fields of the Permian Basin for Enhanced Oil Recovery, BETC/RI-78/15, October, 1978.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Iatan, East RESERVOIR: Clear Fork - Howard TOTAL NO. PROJECTS: 18
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	150	191	37	1017	88
1977 PROD. (this project):	161	156	37	1039	70
CUM. PROD. FROM DISC. TO 1/78:	5161	3591	1753	22380	866
PROJECT NO.	F1333	F1332	F1324	F1325	F3718
LEASE NO.(s):	02912,14,15,16,17,22574	02913	16702	02870,02901-7	16625
OPERATOR:	Amoco	Amoco	Ashland	Arco	Bizzell
RESERVOIR:	Howard	Howard	Howard	Howard	Howard
DEPTH PRODUCING ZONE:	2600	2700	2800	2500	2700
PRODUCTIVE ACREAGE IN RESERVOIR:	6800	10200	10800	6800	---
ACREAGE IN PROJECT:	640	160	400	1660	1060
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF,SW,BW,FW	WF/SW
PATTERN:	I	SLD	P	MLD	I
YEAR BEGAN:	9-69	11-66	8-62	9-52 SW	1-63
YEAR TERMINATED OR STATUS:	ICP-SW, ITD, FW	ICP-SW, ITD, FW	ICP-SW, ITD, FW	ICP-SW,BW;ITDFW	ICP
RESERVOIR PRESSURE INITIAL:	800	800	950	1000	---
BEG. INJECTION:	100	80	---	50	---
LATEST:	260	260	---	500	---
NUMBER OF WELLS TOTAL:	51	25	24	223	30
PRODUCING WELLS:	36	14	17	134	28
INJECTION WELLS:	15	8	7	82	2
MAXIMUM:	---	---	---	---	---
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	0	3	0	7	0
SURFACE INJECTION PRESSURE:	---	340	---	600	370
EFFECTIVENESS OF INJECTION:	---	---	---	ME	---
OPERATOR PROBLEMS:	---	---	---	CR,CH,EW,SC	---
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---	---	26	935	---
FROM BEG. INJECTION:	---	---	538	11386	---
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	---	340	20000	---
WATER PRODUCTION:					
CURRENT (1977):	884	679	297	5301	130
CUMULATIVE TO 1/78:	5694	5810	2841	38940	1332
CURRENT (1977) INJECTION:	635	313	849SW, 76FW	5301SW, 5564BW	130
CUMULATIVE INJECTION:	5022SW, 160FW	2549SW, 392FW	12452SW, 2567FW	38792SW, 24652BW, 38262FW	1232

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Iatan, East RESERVOIR: Clear Fork-Howard TOTAL NO. PROJECTS: 18
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	333	43	135	7	239
1977 PROD. (this project):	426	54	115	6	214
CUM. PROD. FROM DISC. TO 1/78:	14605	1388	5131	130	1520
PROJECT NO.	F1326	F1327	F1329	F1328	F5920
LEASE NO.(s):	02908 - 02911	02869,02923,21311	02892-02895	19144	08419-23117
OPERATOR:	Chevron	Gas Prod.	Gulf Oil	Guthrie Oper.	Mabee Pet.
RESERVOIR:	Howard	Howard	Howard	Howard	Howard
DEPTH PRODUCING ZONE:	2700	2600	2600	2700	2400
PRODUCTIVE ACREAGE IN RESERVOIR:	6800	680	17000	16800	3840
ACREAGE IN PROJECT:	2100	320	140	600	2800
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW	WF/SW, FW	PM/SW	WF/SW, FW
PATTERN:	I	MLD	I	SW	I
YEAR BEGAN:	3-62	11-65	1960	6-1966	10-68
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	950	---	900	950	1000
BEG. INJECTION:	300	100	100	200	---
LATEST:	134	820	---	200	---
NUMBER OF WELLS TOTAL:	102	32	34	7	69
PRODUCING WELLS:	67	25	25	6	58
INJECTION WELLS:	24	5	7	1	3 SW
MAXIMUM:	---	---	---	---	8FW
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	11	2	2	0	0
SURFACE INJECTION PRESSURE:	481	500	600	300	700
EFFECTIVENESS OF INJECTION:	ME	ME	VE	NE	ME
OPERATOR PROBLEMS:	EP	---	---	CH	---
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	426	54	115	---	96
FROM BEG. INJECTION:	7255	543	2340	---	118
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	8650	800	3200	---	990
WATER PRODUCTION:					
CURRENT (1977):	1470	173	855	3	386
CUMULATIVE TO 1/78:	29723	1184	10370	105	1677
CURRENT (1977) INJECTION:	2813	367	938SW, 548FW	3	386SW, 1145FW
CUMULATIVE INJECTION:	81818	8184	12260SW, 1411FW	14	1325SW, 2005FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Iatan, East RESERVOIR: Clear Fork-Howard TOTAL NO. PROJECTS: 18
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	438	88	176	74	502
1977 PROD. (this project):	402	109	151	70	583
CUM. PROD. FROM DISC. TO 1/78:	10372	795	4022	1461	7450
PROJECT NO.	F3225	F5046	F1331	F1334	F1330
LEASE NO.(s):	02890	02891,41607,47389	02898,02899,02900	02896,02897	02863
OPERATOR:	Mobil	Mobil	Northwest Oil	Phillips	Sayers Oper.
RESERVOIR:	Howard	Howard	Howard	Howard	Howard
DEPTH PRODUCING ZONE:	2600	2600	3000	3059	2800
PRODUCTIVE ACREAGE IN RESERVOIR:	3840	840	6800	6800	6800
ACREAGE IN PROJECT:	2800	840	400	240	560
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, BW	WF/SW; Gas	WF/SW, FW	WF/FW	WF/SW
PATTERN:	LD	I	9S	P	P
YEAR BEGAN:	3-62	3-72	10-68SW;3-62FW	3-59 FW	7-66
YEAR TERMINATED OR STATUS:	ICP	SW-ICP; Gas-INS	ICP-SW; ITD-FW	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1000	1000	950	1820	2000
BEG. INJECTION:	---	---	100	800	400
LATEST:	---	---	---	---	---
NUMBER OF WELLS TOTAL:	97	34	41	20	64
PRODUCING WELLS:	79	30	32	16	51
INJECTION WELLS:	15	4	5	4	13
MAXIMUM:	---	---	---	---	---
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	3	0	4	0	0
SURFACE INJECTION PRESSURE:	600	575	910	800	400
EFFECTIVENESS OF INJECTION:	ME	ME	ME	ME	VE
OPERATOR PROBLEMS:	---	CR,CH	CR,CH,EW,IP	---	---
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	402	109	45	70	578
FROM BEG. INJECTION:	4754	356	3139	857	2682
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	3280	2027	---	907	4000
WATER PRODUCTION:					
CURRENT (1977):	945	290	834	53	1518
CUMULATIVE TO 1/78:	9819	907	8433	1131	5557
CURRENT (1977) INJECTION:	119SW, 3155FW	484	897	53	1518
CUMULATIVE INJECTION:	17059SW, 16347FW	2870	5715SW, 6466FW	1131	6776

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Iatan, East RESERVOIR: Clear Fork-Howard TOTAL NO. PROJECTS: 18 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	13	8	311		
1977 PROD. (this project):	11	9	326		
CUM. PROD. FROM DISC. TO 1/78:	617	18	10745		
PROJECT NO.	F1337	F6697	F1338		
LEASE NO.(s):	02871	17052	02872-02886		
OPERATOR:	Sun Oil	Texaco	Walsh & Watts		
RESERVOIR:	Howard	Howard-Clear Fork	Howard		
DEPTH PRODUCING ZONE:	2550	2700	2600		
PRODUCTIVE ACREAGE IN RESERVOIR:	6800	---	6800		
ACREAGE IN PROJECT:	140	---	2370		
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P		
TYPE:	WF/SW	WF/SW	WF/SW, FW		
PATTERN:	P	---	5S		
YEAR BEGAN:	6-65	---	1959		
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP		
RESERVOIR PRESSURE INITIAL:	1050	---	1050		
BEG. INJECTION:	100	---	---		
LATEST:	---	---	---		
NUMBER OF WELLS TOTAL:	12	10	217		
PRODUCING WELLS:	9	5	170		
INJECTION WELLS:	2	1	8 SW		
MAXIMUM:	---	---	9 FW		
LATEST:	---	---	---		
SHUT-IN/ABANDONED WELLS:	1	4	30		
SURFACE INJECTION PRESSURE:	620	400	665SW, 705FW		
EFFECTIVENESS OF INJECTION:	UD	---	ME		
OPERATOR PROBLEMS:	CH, SC	---	---		
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	11	---	212		
FROM BEG. INJECTION:	263	---	1685		
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	312	---	7000		
WATER PRODUCTION:					
CURRENT (1977):	286	21	1074		
CUMULATIVE TO 1/78:	4001	31	8352		
CURRENT (1977) INJECTION:	625	21	1074SW, 2026FW		
CUMULATIVE INJECTION:	2995	---	8428SW, 17595FW		

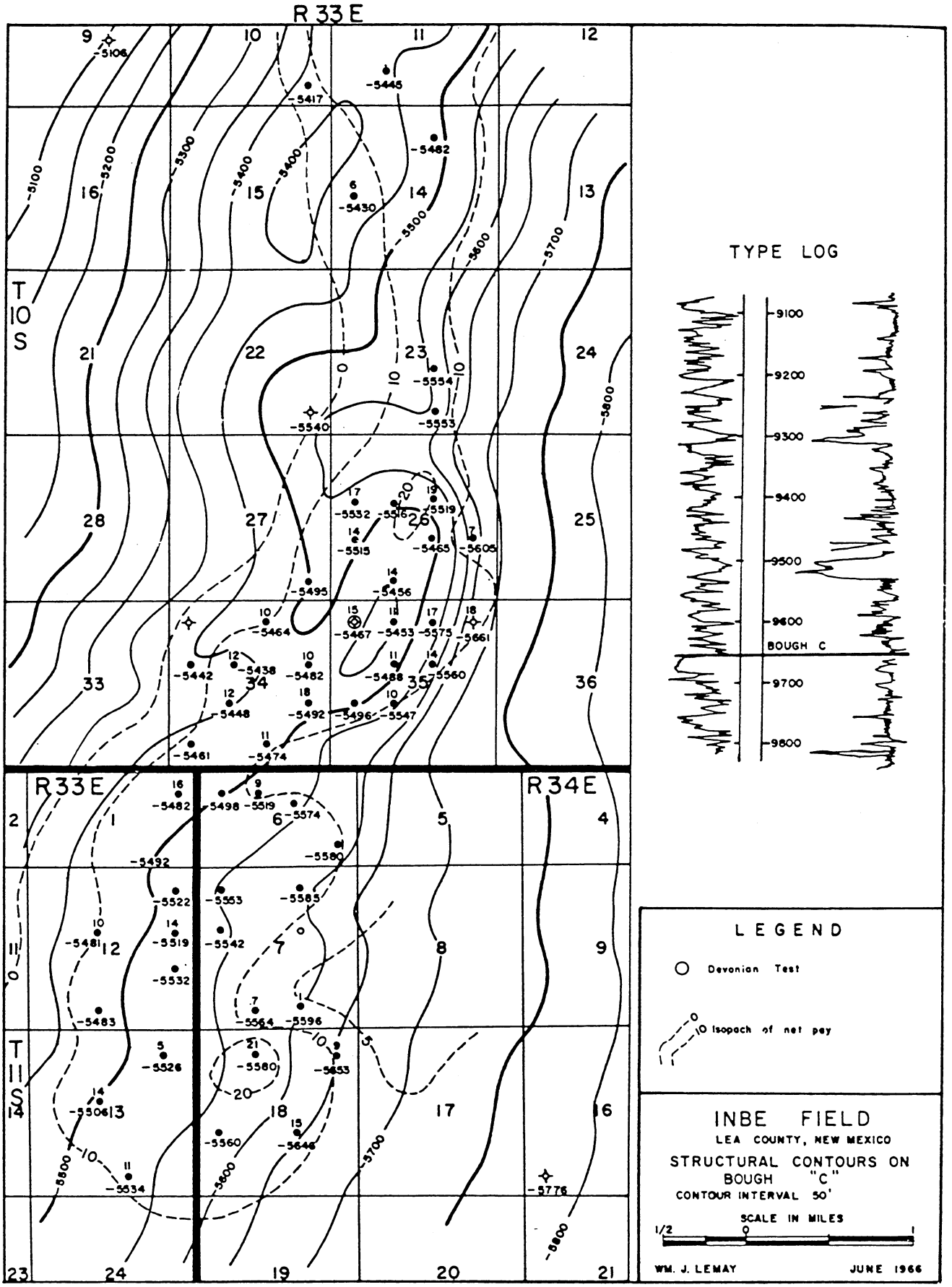
Inbe
Pennsylvania
Tatum Basin

DATA SOURCE CODE		
1, 6c	STATE	New Mexico
1	COUNTY	Lea
	REGULATORY DISTRICT	Southeast
1, 6c	BASIN	Permian
15	SUB-BASIN	Tatum Basin
1, 6c	FIELD	Inbe
1, 6c	RESERVOIR	Pennsylvanian
6	GEOLOGIC AGE	Cisco
1	AAPG STRATIGRAPHIC AGE CODE	322
1, 6c	RESERVOIR LITHOLOGY	Fine crystalline limestone with vugs and intecrystalline porosity, vertical fracturing is common.
1, 6c	TRAPPING MECHANISM	Nose and lateral change in porosity and permeability.
1, 6c	DISCOVERY YEAR	3-29-62
6c, 1	PROVED ACREAGE	4000; 11040
1, 6c	REGULAR WELL SPACING (acres/well)	80
6c, 1	RESERVOIR DEPTH	9658 (-5456 datum); 9862
1	RESERVOIR THICKNESS	11'
	NET PAY	
6c	GROSS	27
	NET/GROSS RATIO	
	POROSITY	
1, 6c	TYPE	IC-V; IC-V-F
1, 6c	FRACTION	.06
	PERMEABILITY	
	RANGE	
1, 6c	AVERAGE	104
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	24 Total, 18 Pump, 2 Flow, 4 Shut-in; 21 Producing, 120 Shut-In.
1	PRODUCTION 1977 oil (cum)	15932
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	16040
	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:	Inbe
1, 6c	RESERVOIR:	Permian - Pennsylvanian
6c, 1	PROD. ACRES:	4000; 11040
1	AVG. THICKNESS (FT.):	11
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
1, 6c	OIL SATURATION (S_O):	.38
1, 6c	PRIMARY DRIVE MECHANISM:	Waterdrive
	PRIMARY GAS CAP?:	
1,6c,17	TEMPERATURE (°F):	143 (GG=.7)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	11845
1, 6c	RESERVOIR PRESSURE INITIAL (psi):	3473
	RESERVOIR PRESSURE LATEST (psi):	
1, 6c	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	1250
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	5124
1, 6c	STOCK TANK OIL GRAVITY (°API):	44; 47
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (PSIA)	1757
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:



FROM: Lemay, W.J., 1967, INBE PENNSYLVANIAN in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO: Roswell Geological Society Symposium - 1967, Source 6c.

Jameson
Penn Reef
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Coke
2	REGULATORY DISTRICT	7C
	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
7	FIELD	Jameson
7,2	RESERVOIR	Upper Penn Reef Limestone, Penn Reef
	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	322
7	RESERVOIR LITHOLOGY	Reef limestone
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	12-1946
2	PROVED ACREAGE	6000
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	6600, 6350
	RESERVOIR THICKNESS	
2	NET PAY	71
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.083
	PERMEABILITY	
	RANGE	
2	AVERAGE	2 md
2	HORIZONTAL	2 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Caddo and Strawn
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	147 (57P, 21I, 69A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	39,778.5 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	518.2 mbbls oil; 2,810.1 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:	Jameson
2,7	RESERVOIR:	Penn Reef
2	PROD. ACRES:	6000
2	AVG. THICKNESS (FT.):	71
	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):	2745
2	RESERVOIR PRESSURE LATEST (psi):	1921
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (^oAPI):	46
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	112,750 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	33,000 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Jameson RESERVOIR: Penn 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	820
1977 PROD. (this project):	685
CUM. PROD. FROM DISC. TO 1/78:	40311
PROJECT NO.	F1028
LEASE NO.(s):	00621
OPERATOR:	Sun Oil
RESERVOIR:	Penn Reef
DEPTH PRODUCING ZONE:	6600
PRODUCTIVE ACREAGE IN RESERVOIR:	6000
ACREAGE IN PROJECT:	5894
PORTION OR FIELD WIDE:	FW
TYPE:	WF/SW, BW
PATTERN:	I9
YEAR BEGAN:	SW/7-52; BW/6-63
YEAR TERMINATED OR STATUS:	ICP
RESERVOIR PRESSURE INITIAL:	2745
BEG. INJECTION:	1550
LATEST:	1921
NUMBER OF WELLS TOTAL:	147
PRODUCING WELLS:	57
INJECTION WELLS:	17 SW
MAXIMUM:	4 BW
LATEST:	---
SHUT-IN/ABANDONED WELLS:	69
SURFACE INJECTION PRESSURE:	SW/1800; BW/1050
EFFECTIVENESS OF INJECTION:	ME
OPERATOR PROBLEMS:	IP
ESTIMATED PRODUCTION DUE TO INJ.:	
1977:	1003
FROM BEG. INJECTION:	7200
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	11000
WATER PRODUCTION:	
CURRENT (1977):	9537
CUMULATIVE TO 1/78:	86820
CURRENT (1977) INJECTION:	9478SW; 1197BW
CUMULATIVE INJECTION:	91065SW; 79365BW

Jameson
Strawn
Eastern Shelf

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Coke
2	REGULATORY DISTRICT	7C
	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
14c	FIELD	Jameson
14c, 2	RESERVOIR	Strawn Penn, Strawn
	GEOLOGIC AGE	Pennsylvanian Strawn
1	AAPG STRATIGRAPHIC AGE CODE	325
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	5-1949, 11-1952
2	PROVED ACREAGE	13,000 to 29,200 estimates, however only 10,535 in SRPs.
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	3925-6600 w/5745 avg.; 5800
	RESERVOIR THICKNESS	
2	NET PAY	19-130 w/57 avg.
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.112-.120 w/.116 avg.
	PERMEABILITY	
2	RANGE	1-4 md
2	AVERAGE	2.5 md
2	HORIZONTAL	2.5 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Caddo
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	116 (80P, 1I, 35A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	35,798.2 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	492.9 mbbls oil; 3,919.1 mmcf gas
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Jameson
2, 14c	RESERVOIR:	Strawn Penn
2	PROD. ACRES:	2e,200
2	AVG. THICKNESS (FT.):	57
	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):	2650-2715
2	RESERVOIR PRESSURE LATEST (psi):	600-1000
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	47.8
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 3 SRPs:	41,755 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	4,598 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Jameson RESERVOIR: Strawn TOTAL NO. PROJECTS: 4 (3 abandoned) PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	---	5	---	---
1977 PROD. (this project):	---	8	---	---
CUM. PROD. FROM DISC. TO 1/78:	4301	1154	1625	21,457
PROJECT NO.	F1030	F1032	F1029	F1033
LEASE NO.(s):	00713	00665, 00666	03760	00716, etc.
OPERATOR:	Energy Reserves	Pet. Corp.	Mobil	Sun Oil
RESERVOIR:	Strawn	Strawn	Strawn	Strawn
DEPTH PRODUCING ZONE:	6250	3925 & 5950	6000	6600
PRODUCTIVE ACREAGE IN RESERVOIR:	29,200	27,500	13,000	---
ACREAGE IN PROJECT:	4679	320	1205	4331
PORTION OR FIELD WIDE:	P	P	P	P
TYPE:	WF/SW, FW	WF/SW	WF/SW, BW	WF/BW
PATTERN:	5S	I	P	P
YEAR BEGAN:	9-60	5-65	5-62	8-65
YEAR TERMINATED OR STATUS:	ITD	ICP	IPD/12-70	IPD/11-72
RESERVOIR PRESSURE INITIAL:	2700	2650	2700	2715
BEG. INJECTION:	---	---	700	800
LATEST:	600	---	1000	---
NUMBER OF WELLS TOTAL:	44	8	30	34
PRODUCING WELLS:	44	4	14	18
INJECTION WELLS:	---	1	---	---
MAXIMUM:				
LATEST:				
SHUT-IN/ABANDONED WELLS:	---	3	16	16
SURFACE INJECTION PRESSURE:	---	1300	---	---
EFFECTIVENESS OF INJECTION:	---	ME	---	---
OPERATOR PROBLEMS:	---	SC, EP	CR, SC, EP	EB, EP
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	---	2	---	---
FROM BEG. INJECTION:	---	236	---	---
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	451	---	---
WATER PRODUCTION:				
CURRENT (1977):	---	37	---	---
CUMULATIVE TO 1/78:	---	576	449	147
CURRENT (1977) INJECTION:	---	37	---	---
CUMULATIVE INJECTION:	21138	804	12993SW; 7538BW	21457

Johnson
Grayburg
Central Basin Platform

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Ector
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Johnson
2	RESERVOIR	Grayburg
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313 (310-PDS)
12c,1	RESERVOIR LITHOLOGY	Dolomite, finely crystalline, aphanitic and oolitic; dolomite.
12c	TRAPPING MECHANISM	Stratigraphic; porosity pinchout
2,1	DISCOVERY YEAR	1934
16c,2,1	PROVED ACREAGE	8000, 7500, 440
1	REGULAR WELL SPACING (acres/well)	40
2,3,1	RESERVOIR DEPTH	4100-4200, 4200, 4200
	RESERVOIR THICKNESS	
1,2,12c	NET PAY	75, 55.8 avg., 70
12c	GROSS	260 max.
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.068 avg., .10
	PERMEABILITY	
2	RANGE	2-5 md
2,1	AVERAGE	2.5, 5 md
2	HORIZONTAL	2.5 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Glorieta, Holt, Penn.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	91P - 50I; 215 (87P-77I-51A)
1	PRODUCTION 1976 oil (cum)	19,155
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	21,914.7
3	PRODUCTION 1-1-79 to 1-1-80	894.1 mbbls oil; 391.7 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:	Johnson
2	RESERVOIR:	Grayburg
2,1, 16c	PROD. ACRES:	7500, 440, 8
2,1, 12c	AVG. THICKNESS (FT.):	55,8, 75, 70
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
16c	WATER SATURATION (S_W):	.20
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	gravity
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	112
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	3213
2,1	RESERVOIR PRESSURE INITIAL (psi):	1600 avg., 1595
2	RESERVOIR PRESSURE LATEST (psi):	900-1853
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	878.3 (76); 878
1,2,3,12c	STOCK TANK OIL GRAVITY (°API):	36, 36, 36, 33-36.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):(psia)	1409
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 5 SRPs:	72,123 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 5 SRPs:	12,682 mbbls

OTHER INFORMATION:

12c Reference: Young, Addison and Vaughn, J. C., 1954, Addis-Johnson Foster-South Cowden field in Occurrence of Oil and Gas in West Texas; Univ. of Texas, Bureau of Economic Geology, Pub. No. 5716, p. 17-20.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Johnson RESERVOIR: Grayburg TOTAL NO. PROJECTS: 5

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

1976 PROD. (this project): MBBLS	291	125	---	---	221
1977 PROD. (this project):	292	213	---	---	285
CUM. PROD. FROM DISC. TO 1/78:	685	2372	---	---	12464
PROJECT NO.	F7171	F1340	F6689	F6690	F1341
LEASE NO.(s):	23320	18883	24371	24176	15427
OPERATOR:	Arco	Arco	Arco	Arco	Cities Ser.
RESERVOIR:	Grayburg	Grayburg	Grayburg	Grayburg	Grayburg-San An
DEPTH PRODUCING ZONE:	4100	4200	4200	4200	4150
PRODUCTIVE ACREAGE IN RESERVOIR:	7500	7500	7500	7500	6800
ACREAGE IN PROJECT:	640	840	160	160	3720
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW	WF/SW, FW	WF/SW	WF/SW	WF/SW,BW,FW
PATTERN:	5S	P	5S	5S	5S
YEAR BEGAN:	8-77	8-63	11-77	11-77	6-61
YEAR TERMINATED OR STATUS:	ICP	ICP-SW;ITD-FW	ICP	ICP	ICP-SW,BW;IPDFW
RESERVOIR PRESSURE INITIAL:	1600	1595	1595	1595	1595
BEG. INJECTION:	1200	374	1880	1880	450
LATEST:	1187	1567	1853	1710	900
NUMBER OF WELLS TOTAL:	25	29	4	6	151
PRODUCING WELLS:	15	19	3	4	46
INJECTION WELLS:	10	10	1	2	27 SW
MAXIMUM:	---	---	---	---	27 BW
LATEST:	----	---	---	---	---
SHUT-IN/ABANDONED WELLS:	0	0	0	0	51
SURFACE INJECTION PRESSURE:	1020	900	800	800	750
EFFECTIVENESS OF INJECTION:	UD	ME	UD	UD	VE
OPERATOR PROBLEMS:	PI, CR	---	---	---	---
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---	80	---	---	285
FROM BEG. INJECTION:	---	649	---	---	3014
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	2500	---	---	4600
WATER PRODUCTION:					
CURRENT (1977):	272	325	---	---	654
CUMULATIVE TO 1/78:	622	4400	---	---	7799
CURRENT (1977) INJECTION:	296	1101 SW	21	54	654SW;2174BW
CUMULATIVE INJECTION:	296	5202SW; 15090BW	21	54	10027SW;34521BW 16313FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Johnson RESERVOIR: Grayburg TOTAL NO. PROJECTS: 5 PDS:

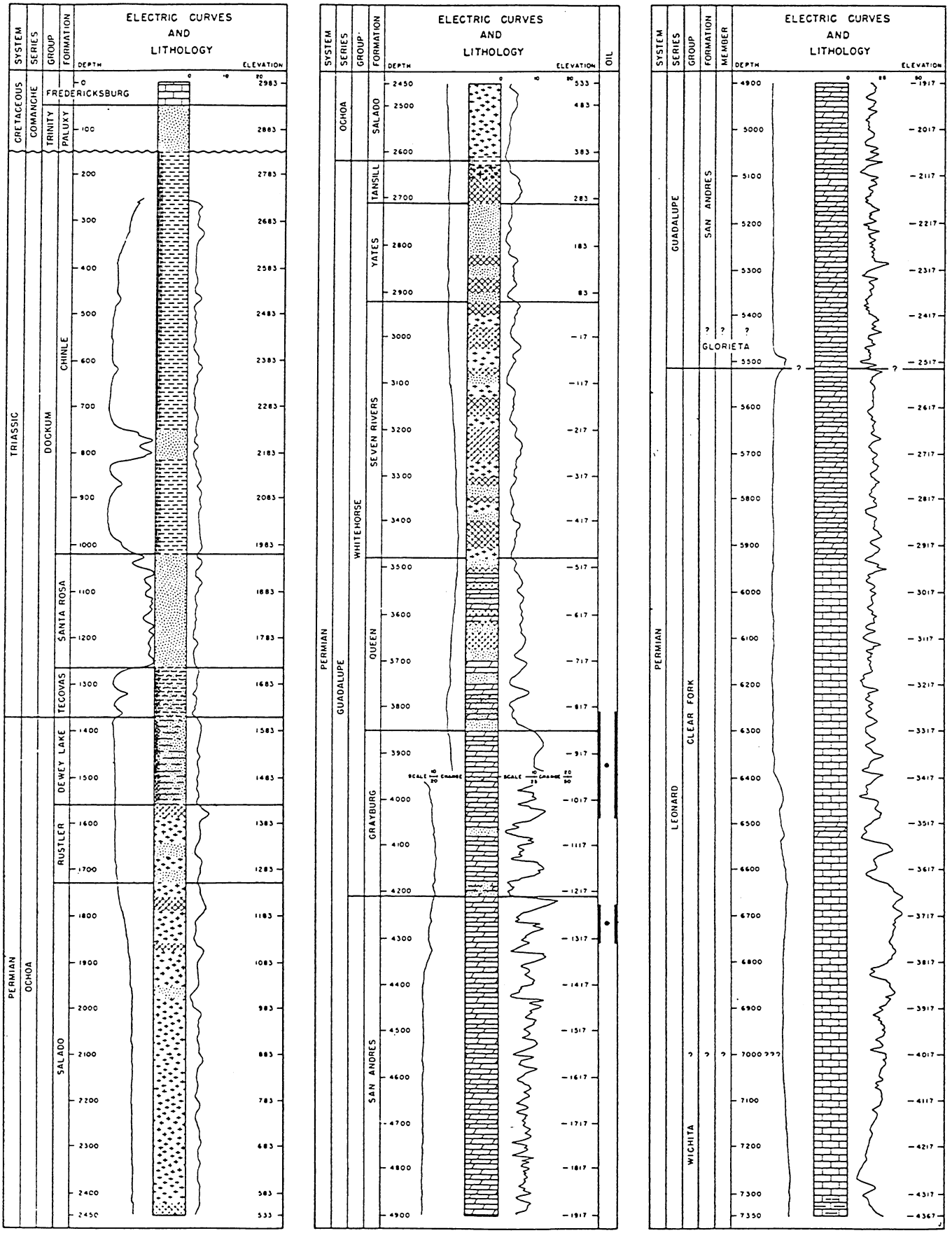
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	
1977 PROD. (this project):	
CUM. PROD. FROM DISC. TO 1/78:	
PROJECT NO.	
LEASE NO.(s):	
OPERATOR:	
RESERVOIR:	
DEPTH PRODUCING ZONE:	4200
PRODUCTIVE ACREAGE IN RESERVOIR:	440
ACREAGE IN PROJECT:	3720
PORTION OR FIELD WIDE:	
TYPE:	WF
PATTERN:	
YEAR BEGAN:	1961
YEAR TERMINATED OR STATUS:	
RESERVOIR PRESSURE INITIAL:	1595
BEG. INJECTION:	
LATEST:	
NUMBER OF WELLS TOTAL:	
PRODUCING WELLS:	91
INJECTION WELLS:	50
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:	

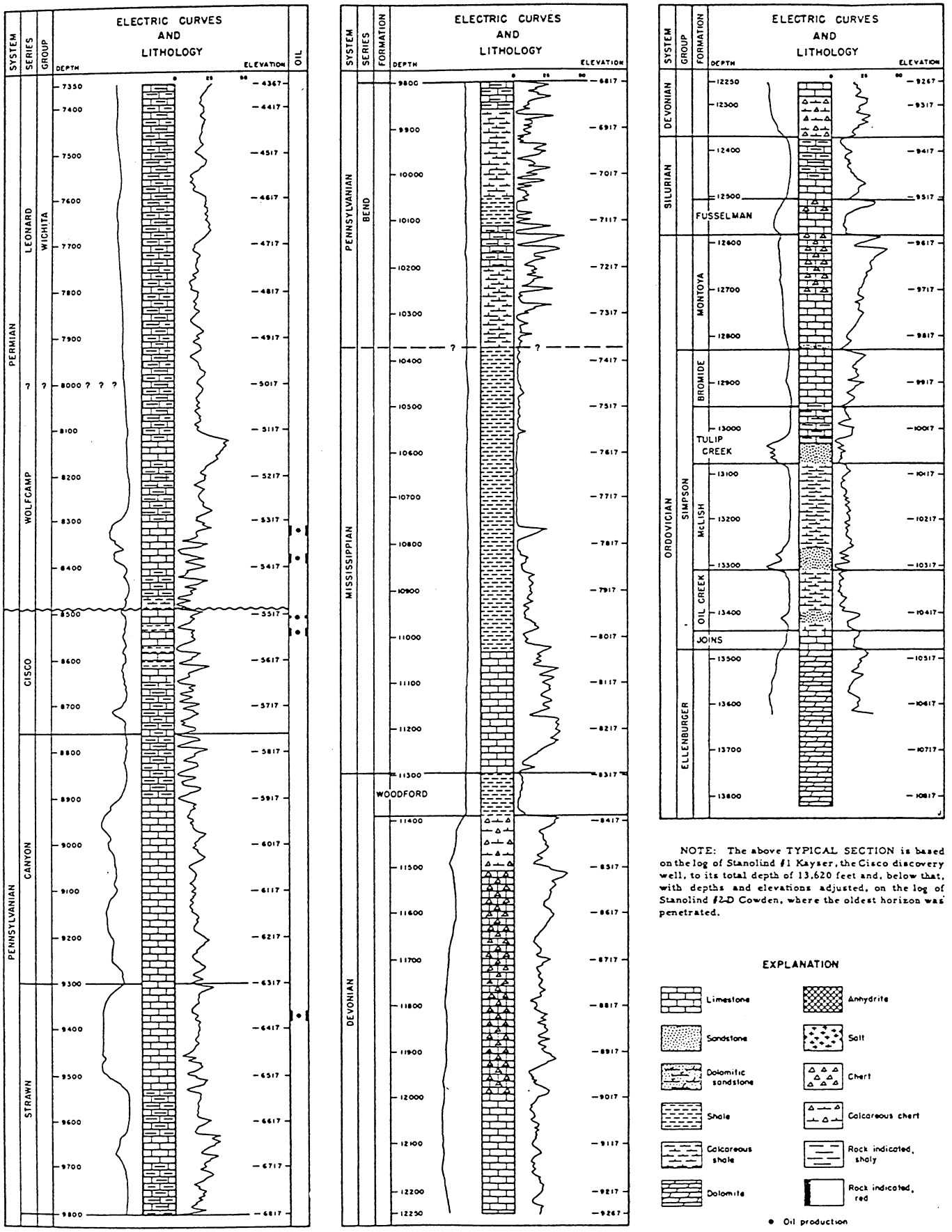
FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: Univ. of Texas, Bureau of Econ. Geol. Pub. 5716.
Source 12c.

18 ADDIS-JOHNSON-FOSTER-SOUTH COWDEN FIELD, Ector County, Texas

TYPICAL SECTION OF ROCKS PENETRATED



TYPICAL SECTION OF ROCKS PENETRATED

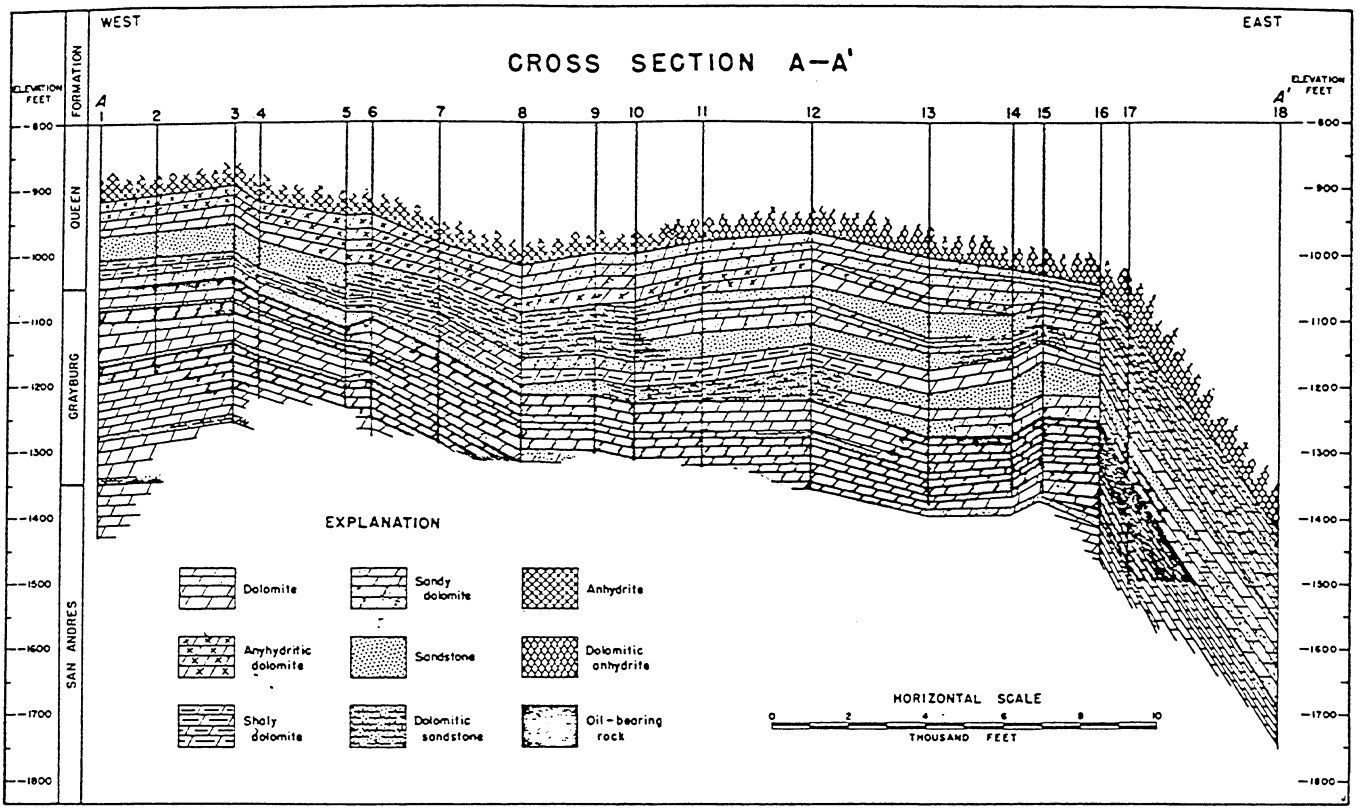


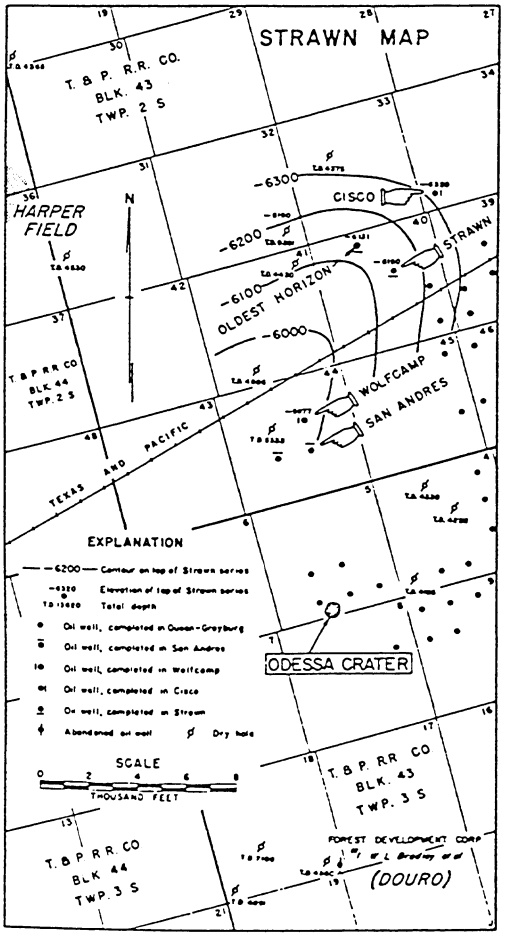
NOTE: The above TYPICAL SECTION is based on the log of Stanolind #1 Kayser, the Cisco discovery well, to its total depth of 13,620 feet and, below that, with depths and elevations adjusted, on the log of Stanolind #2-D Cowden, where the oldest horizon was penetrated.

EXPLANATION

- Limestone
- Sandstone
- Dolomitic sandstone
- Shale
- Calcareous shale
- Dolomite
- Anhydrite
- Salt
- Chert
- Calcareous chert
- Rock indicated, shaly
- Rock indicated, red
- Oil production

ADDIS-JOHNSON-FOSTER-SOUTH COWDEN FIELD, Ector County, Texas





THICKNESSES OF RESERVOIR ROCKS

	Feet		
	Min.	Max.	Avg.
Queen-Grayburg:			
From top to bottom	10	260	95
Net productive	10	200	70
San Andres: (2 wells)			
From top to bottom	65	65	65
Net productive	40	40	40
Wolfcamp: (1 well)			
From top to bottom	110	110	110
Net productive	40	40	40
Cisco: (1 well)			
From top to bottom	50	50	50
Net productive	20	20	20
Strawn: (2 wells)			
From top to bottom	20	20	20
Net productive	20	20	20

ELEVATION AND RELIEF OF PRODUCTIVE ZONES

	Elevation of oil, feet		Known relief
	Top	Bottom	
Queen-Grayburg*	-900	-1,170 to 1,850±	*
San Andres (2 wells)	-1,199	-1,264	65
Wolfcamp (1 well)	-5,167	-5,277	110
Cisco (1 well)	-5,517	-5,567	50
Strawn (2 wells)	-6,190	-6,216	26

*Queen-Grayburg: Elevation of top of gas, -794 ft.; elevation of bottom of gas, -900 ft.; relief of gas column, 106 ft. The water table is not horizontal. Water has been found at various elevations up to as high as -1,170 feet and oil has been found as low as about -1,850 feet, but it is unlikely that there is a continuous oil-water contact through such range of elevation. The base of the oil corresponds roughly to structure.

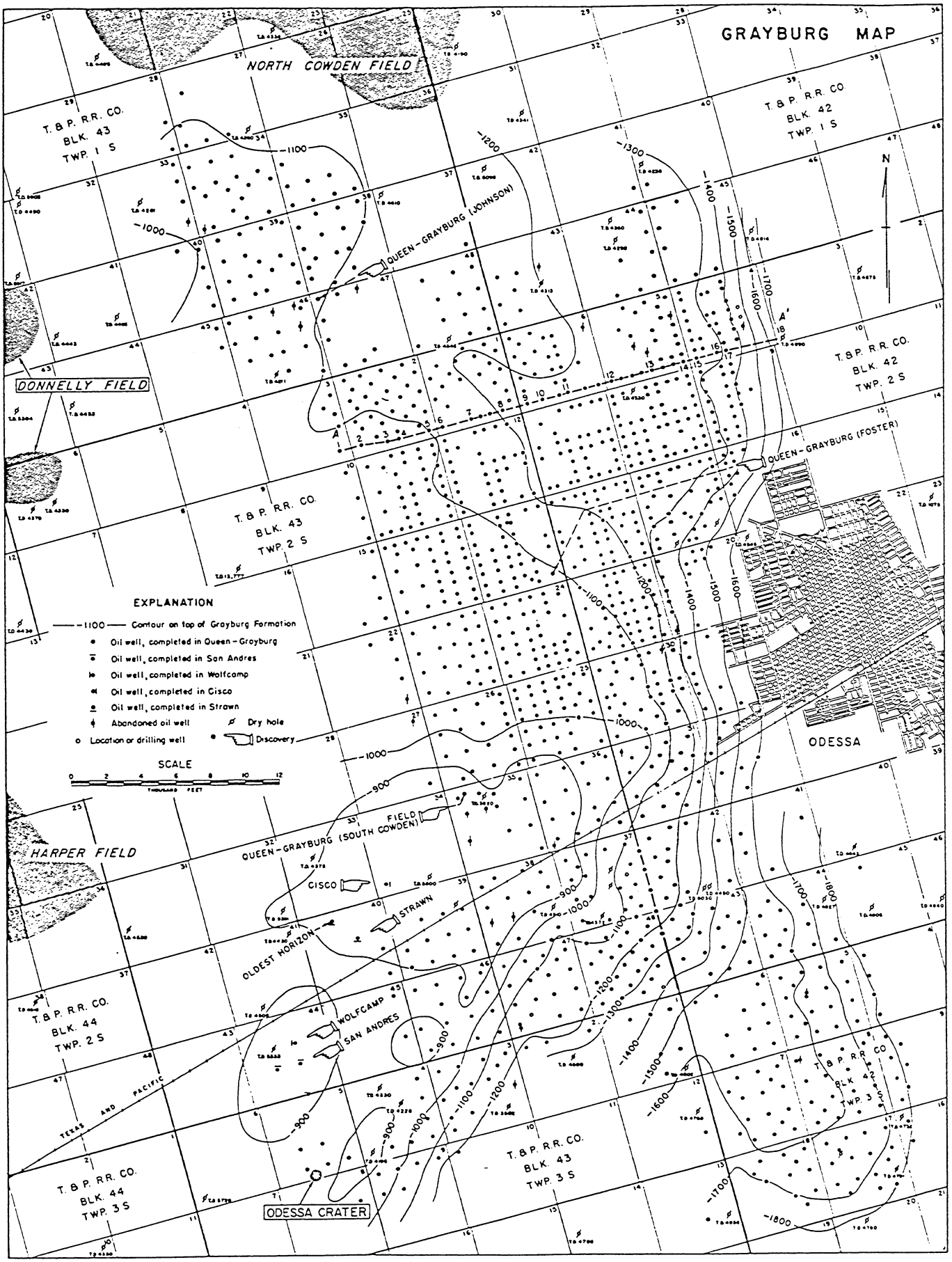
CHARACTER OF OIL

	Queen-Grayburg*	San Andres	Wolfcamp	Cisco	Strawn
Gravity, A.P.I. @ 60° F.	33° - 36.4°	32.8°	34.4°	33°	39° - 41°

*Queen-Grayburg: Color, greenish black; sulphur, 1.07 - 1.38%; viscosity, Saybolt universal @ 100° F., 41 - 46 sec.; base, intermediate. For analyses see:

Railroad Commission of Texas		Foster	Johnson	South Cowden
Analyses of Texas Crude Oils (1940), pp.		32 and 63	33 and 64	
U. S. Bureau of Mines	**Lab. ref. No.**	**40009**	**41240**	**34004**
Tabulated Analyses of Texas Crude Oils T. P. 607 (1939)	Item			1, Group 2
Analyses of Crude Oils from Some Fields of Texas. R. I. 3699 (1943)	Item	34	35	
Analyses of Crude Oils from Some West Texas Fields. R. I. 3744 (1944)	Page	10	11	
Analyses of Crude Oils from 283 Important Oil Fields of the United States R. I. 4289 (1948)	Item	204		198

20 ADDIS-JOHNSON-FOSTER-SOUTH COWDEN FIELD, Ector County, Texas



Jordan
San Andres
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Crane (M)
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Jordon
2	RESERVOIR	San Andres
5,1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1	RESERVOIR LITHOLOGY	Limestone
1	TRAPPING MECHANISM	Structural, anticline
2,1	DISCOVERY YEAR	1937
2,1,16c	PROVED ACREAGE	25400 (3400+3700); 160; 11520
1	REGULAR WELL SPACING (acres/well)	20
2,3,1	RESERVOIR DEPTH	3400-3700; 3700; 3700
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	53 avg., 150, 100
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
1	TYPE	V, IC
2,1	FRACTION	.136 avg., .17
	PERMEABILITY	
2	RANGE	1-20 md
2,1, 14e	AVERAGE	13.5, 20 md, 20 md
2	HORIZONTAL	13.5 md
	VERTICAL	
14e	OTHER INFORMATION	BETC/RI-78/15 list as not being suitable for surfactant, polymer or carbon dioxide EOR because of gas cap.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	267P; 432 (266P-133I-33A)
1	PRODUCTION 1976 oil (cum)	67,825
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	74,007
3	PRODUCTION 1-1-79 to 1-1-80	1,947.1 mbbls oil; 628.7 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		
	FIELD:	Jordan
2	RESERVOIR:	San Andres
2,1,16c	PROD. ACRES:	25400, 160, 11520
2,1,16c	AVG. THICKNESS (FT.):	53, 150, 100
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.2
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.15 (75)
1	WATER SATURATION (S_W):	.30
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion
14e	PRIMARY GAS CAP?:	yes
16c, 14e	TEMPERATURE (°F):	85, 85 BHT
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1135
2,1, 14e	RESERVOIR PRESSURE INITIAL (psi):	1550
2	RESERVOIR PRESSURE LATEST (psi):	500-835
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
1,2,3	STOCK TANK OIL GRAVITY (°API):	36
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	1.11cp
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1079
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 3 SRPs:	225,183 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 3 SRPs:	44,986 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Jordan 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	280	---	356		
1977 PROD. (this project):	300	1378	489		
CUM. PROD. FROM DISC. TO 1/78:	11342	45650	---		
PROJECT NO.	F1343	F1344	F1345		
LEASE NO.(s):	20650	19955	21216		
OPERATOR:	Arco	Shell	Texaco		
RESERVOIR:	San Andres	San Andres	San Andres		
DEPTH PRODUCING ZONE:	3500	3400 & 3700	3700		3700
PRODUCTIVE ACREAGE IN RESERVOIR:	6540	25400	65400		160
ACREAGE IN PROJECT:	212	3650	1535		3820
PORTION OR FIELD WIDE:	P	P	P		
TYPE:	WF/SW, BW	WF/SW, BW	PM/SW, BW		WF, PM
PATTERN:	P	MI9	P		
YEAR BEGAN:	10-67	3-66	7-70		1966
YEAR TERMINATED OR STATUS:	SW-ICP; BW-ITD	ICP	ICP		
RESERVOIR PRESSURE INITIAL:	1550	1550	1550		1550
BEG. INJECTION:	300	400	---		
LATEST:	600	500	835		
NUMBER OF WELLS TOTAL:	58	272	102		
PRODUCING WELLS:	37	148	81		267
INJECTION WELLS:	11 SW	51 SW	10 SW		
MAXIMUM:	---	51 BW	10 BW		
LATEST:	---	---	---		
SHUT-IN/ABANDONED WELLS:	10	22	1		
SURFACE INJECTION PRESSURE:	1250	1000	1100		
EFFECTIVENESS OF INJECTION:	ME	---	VE		
OPERATOR PROBLEMS:	CR	CH,SC,PA	SC,EB		
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	265	1216	---		
FROM BEG. INJECTION:	1120	9925	---		
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	3049	24500	---		
WATER PRODUCTION:					
CURRENT (1977):	3623	7115	1709		
CUMULATIVE TO 1/78:	16344	47897	6965		
CURRENT (1977) INJECTION:	3576	7050SW; 9812BW	1709SW; 2646BW		
CUMULATIVE INJECTION:	16408SW; 5548BW	47350SW;71481BW	4987SW; 23402BW		

Justis
Ellenburger
Central Basin Platform

DATA SOURCE CODE		
	STATE	New Mexico
6b	COUNTY	Lea
	REGULATORY DISTRICT	
	BASIN	Permian
15,7	SUB-BASIN	Central Basin Platform
7,6b	FIELD	Justis
7,6b	RESERVOIR	Ellenburger
6b	GEOLOGIC AGE	Ordovician Lower
1	AAPG STRATIGRAPHIC AGE CODE	367
6b	RESERVOIR LITHOLOGY	Tan to brown dolomite, fine to medium crystalline with solution and vuggy porosity extensively fractured.
7,6b	TRAPPING MECHANISM	Elongate north-south anticline, about three miles long by one mile long.
18	DISCOVERY YEAR	8-1957
6b	PROVED ACREAGE	~1280
18	REGULAR WELL SPACING (acres/well)	40
6b	RESERVOIR DEPTH	7700
	RESERVOIR THICKNESS	
6b	NET PAY	85
6b	GROSS	190
	NET/GROSS RATIO	
	POROSITY	
6b	TYPE	IC, V, F
6b	FRACTION	.025
	PERMEABILITY	
	RANGE	
6b	AVERAGE	matrix perm. low but perm. in fracture interval high
6b	HORIZONTAL	2 md
6b	VERTICAL	.5 md
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS	7P
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	7257
18	PRODUCTION 1-1-79 to 1-1-80	44 mbbls oil; 112 mmcf gas; 548 mbbls water
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6b	STRUCTURE CONTOUR?	yes
6b	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Justis
7, 6b	RESERVOIR:	Ellenburger
	PROD. ACRES:	
	AVG. THICKNESS (FT.):	
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
6b	WATER SATURATION (S_W):	.45
6b	OIL SATURATION (S_O):	.12
6b	PRIMARY DRIVE MECHANISM:	combination solution gas & water
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
6b	RESERVOIR PRESSURE INITIAL (psi):	3319
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
6b	STOCK TANK OIL GRAVITY (°API):	39.4
	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:

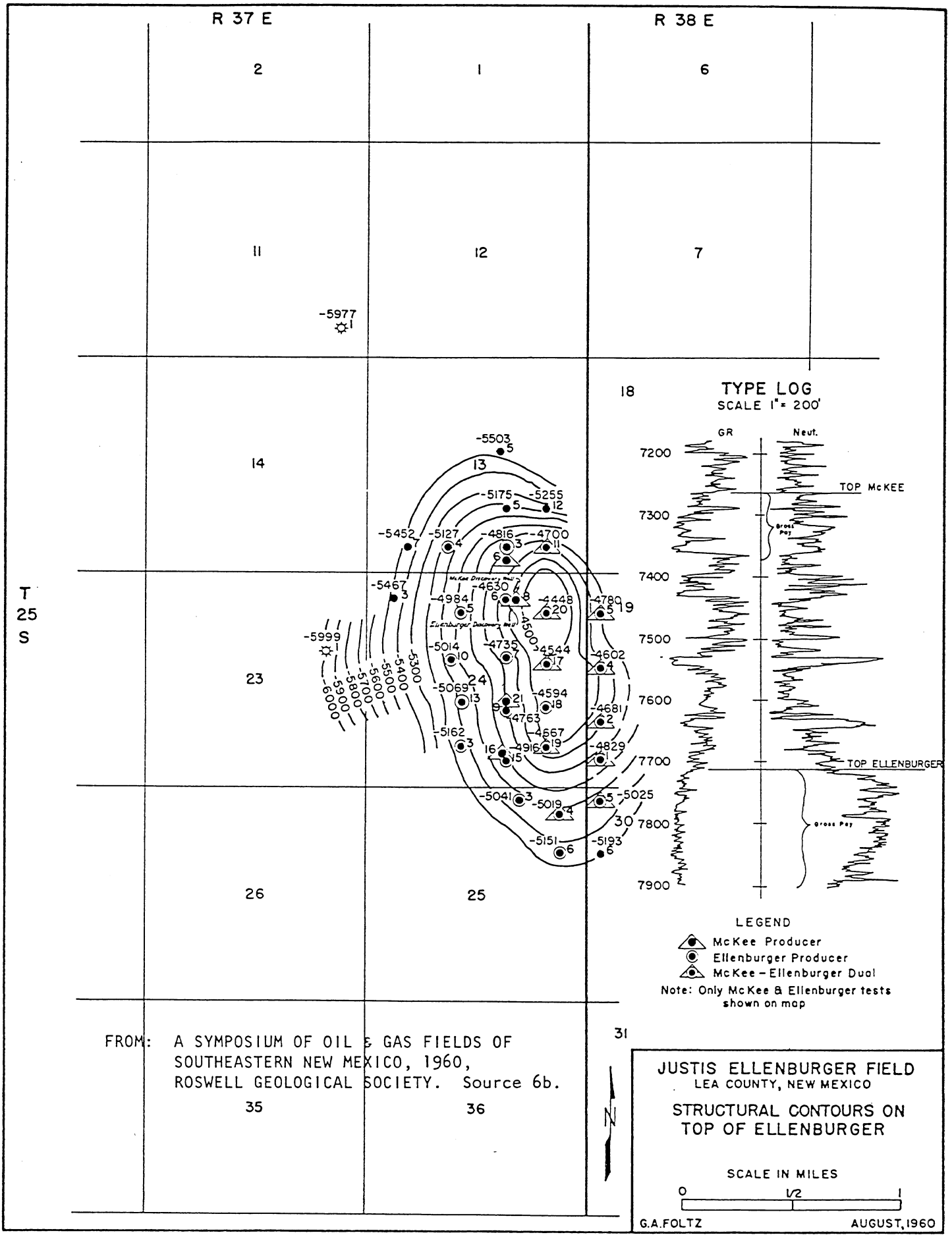
WATER ANALYSIS RECORD

FIELD: Justis RESERVOIR: Ellenburger TOTAL NO. PROJECTS:
DATA SOURCE:

TOTAL SOLIDS (ppm):	95,980
NA	30,000
Ca	5,400
Mg	1,700
Fe	
SO_4	1,880
Cl	57.000
CO_2	
HCO_3	
OH	
H_2S	

RESISTIVITY: .058
SPECIFIC GRAVITY:

OTHER WATER QUALITY DATA:



FROM: A SYMPOSIUM OF OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO, 1960, ROSWELL GEOLOGICAL SOCIETY. Source 6b.

Kelly-Snyder
Canyon Reef
Eastern Shelf

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Scurry
1	REGULATORY DISTRICT	8A
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	Kelly-Snyder
	RESERVOIR	Canyon Reef
1	GEOLOGIC AGE	Pennsylvanian Missouri
1	AAPG STRATIGRAPHIC AGE CODE	323
5a, 1	RESERVOIR LITHOLOGY	Limestone reef mound encased in shale. Reef developed along basinward edge of Horseshoe platform; shale, limestone.
5a, 1	TRAPPING MECHANISM	Stratigraphic - reef mound encased in shale with majority of topographic closure due to reef growth; bioherm (reef).
2,5b,1	DISCOVERY YEAR	9-1948; 11-1948; 1948
2,5a,9a,1,16c	PROVED ACREAGE	52000; 51000; 49835; 100; 52925
5b, 1	REGULAR WELL SPACING (acres/well)	40
2,3,5b,9a,1	RESERVOIR DEPTH	6700; 6795; 6333; 6700; 6795
	RESERVOIR THICKNESS	
1,2,5a,9a,16c	NET PAY	220, 137 avg, range 44-268; 233, 139,268
5a,9a,9c,9c2	GROSS	800; 213; 213; 268
	NET/GROSS RATIO	
	POROSITY	
5a	TYPE	IC, V
2,5a,9a-c	FRACTION	.091; .079; .076; .696
	PERMEABILITY	
2	RANGE	20-42 md
1,2,5a	AVERAGE	15, 31, 15 md
2	HORIZONTAL	31 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Cisco Sandstone; Clear Fork, Lower; Wichita Albany
14e	BETC/RI-78/15 list as being suitable for carbon dioxide flood, since carbon dioxide flood is currently in operation.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1,5b,9a2	TOTAL NUMBER OF WELLS	772; 568; 1256 initial+603 P+342 SI + 319I present *
1	PRODUCTION 1976 oil (cum)	882,627
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	1,020,650.9 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	36,845.9 mbbls oil; 55,777.5 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5a	STRUCTURE CONTOUR?	yes
5a	LOGS?	yes
	STRUCTURE SECTION?	
9a	ENGINEERING REPORTS?	yes
	CORE DESCRIPTIONS?	

* 1593 (683P-569I-341A)

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Kelly Snyder
	RESERVOIR:	Canyon Reef
16c,5a,1,2,9a	PROD. ACRES:	52925, 51000, 100, 52000, 49835
5a,1,2,9a,16c	AVG. THICKNESS (FT.):	233, 220; 137; 139,268
9a,1,16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.510; 1.55; 1.53
9a, 16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.527; 1.49 (76)
16c,5a,9a,1	WATER SATURATION (S_w):	.219-.40; .28; .219-.282
16c, 9a	OIL SATURATION (S_o):	.64(71); .609 present
1,5a	PRIMARY DRIVE MECHANISM:	depletion, solution gas
14e	PRIMARY GAS CAP?:	no
9a,16c, 14e	TEMPERATURE (°F):	130, 130 BHT
9a,16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1820, 1835
1,2,9a	RESERVOIR PRESSURE INITIAL (psi):	3122; 2550-3122; 3137
2, 9a	RESERVOIR PRESSURE LATEST (psi):	2100-2829; 2315
9a	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	951
9a, 1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1010, 1513(76)
1,2,3,9a	STOCK TANK OIL GRAVITY (°API):	43; 41-43; 43; 42
9a	OIL VISCOSITIES (μ_{oi}/μ_{ob}): cp	.425 initial; .40 present
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1602
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	2,123,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	502,735 mbbls

OTHER INFORMATION:

9a Est. original oil in place at 2,113,019 mbbls.
Water salinity initial 100,000 to 150,000 ppm and 50,000 to 80,000 present.
Above 9a values for SACROC unit area which approximates 98% of Kelly Snyder Field. Centerline waterflood area approximates 42% of unit total volume. CO_2 WAG flood remaining 58%. Two CO_2 WAG patterns are pilots in waterflood area.

5a, 9a, 9c 2: References:

5a: Vest, E.L., Jr., 1966, Kelly-Snyder Canyon Reef in Oil and Gas Fields of West Texas-A Symposium: West Texas Geological Society, Publ. No. 66-52, p.215-218.

9a: Dicharry, R.M., 1975, Kelly Snyder Field, Chevron Oil Co., Western Division: Improved Oil Recovery Field Reports, Society of Petroleum Engineers, V. 1, No. 1, June, p.71-80.

9c: Dicharry, R.M., Perryman, T.L., and Ronquille, J.D., 1973, Evaluation and Design of a CO_2 Miscible Flood Project-SACROC Unit, Kelly Snyder field, Jour. of Petroleum Technology, November, p.1309-1318.

9c2: Kane, A.V., 1979, Performance Review of a Large Scale CO_2 WAG Enhanced Recovery Project, SACROC Unit-Kelly Snyder Field: Journal of Petroleum Tech., February, p.217-231.

1 Primary recoverable: (1966)

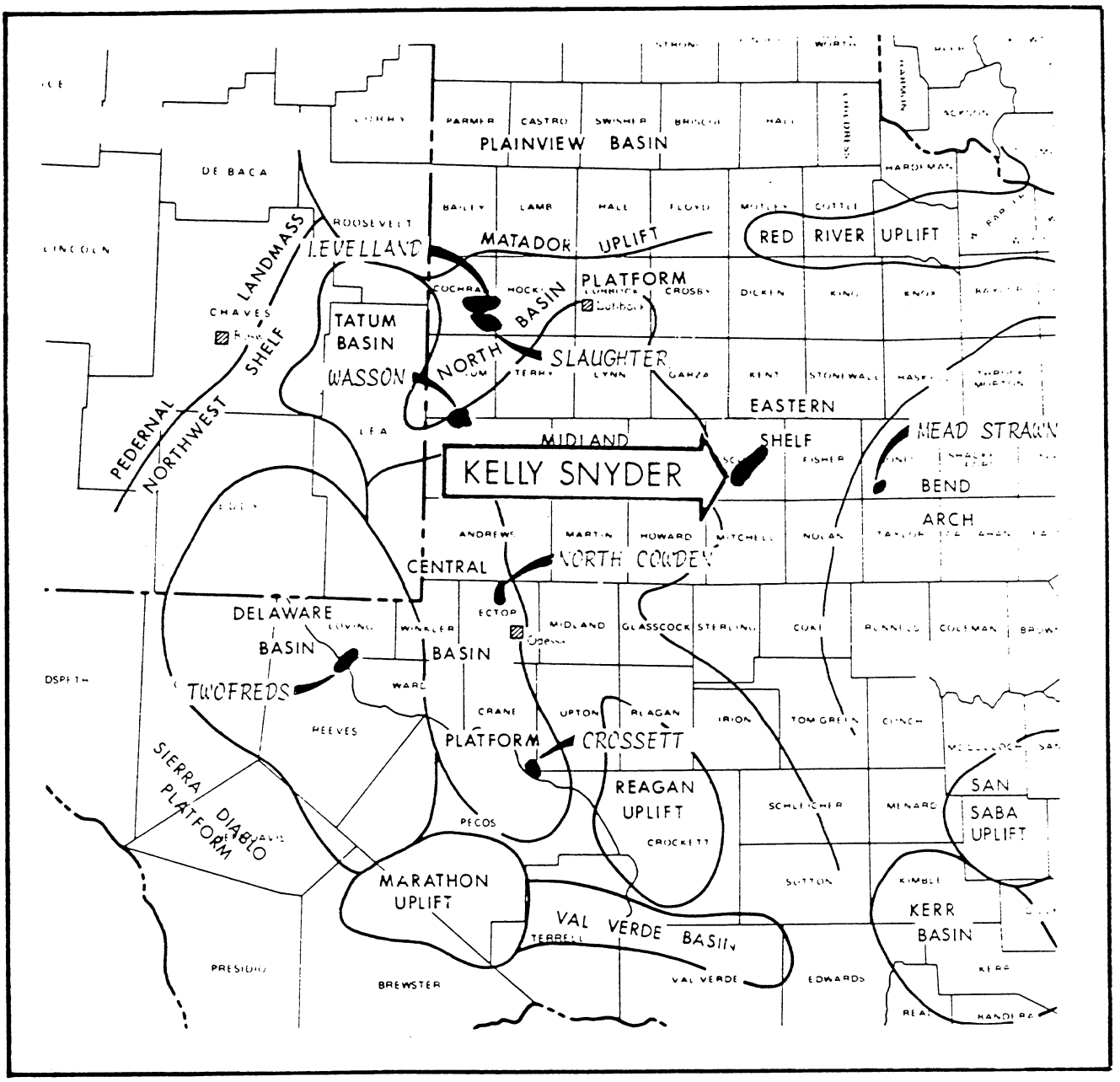
1,188,300,000 bbl
23,300 bbl/acre
100 bbl/acre-ft

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Kelly-Snyder RESERVOIR: Canyon Reef TOTAL NO. PROJECTS: 4 PDS:

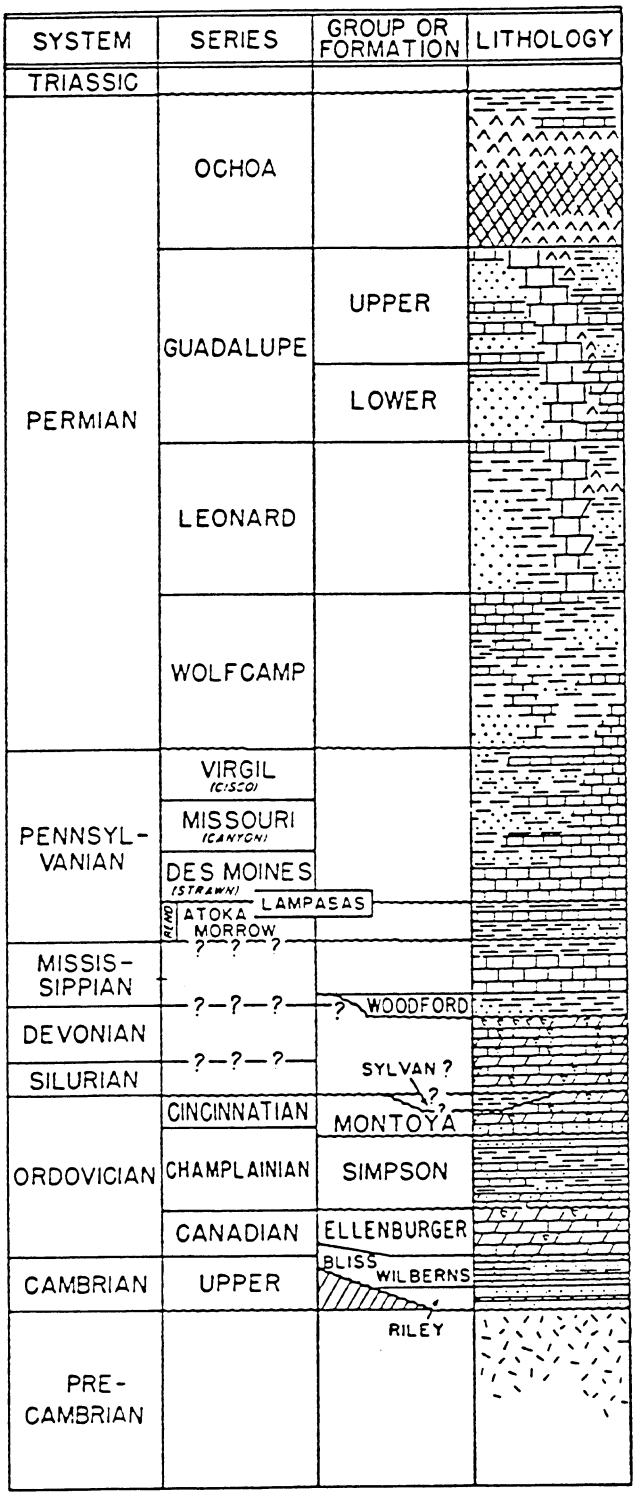
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	65429	356	135	---
1977 PROD. (this project):	55090	261	115	---
CUM. PROD. FROM DISC. TO 1/78:	936740	6352	1786	1889
PROJECT NO.	F1774	F1775	F6142	F1776
LEASE NO.(s):	03137	03138	03140	03139
OPERATOR:	Chevron	Sun Oil	Texaco	Texaco
RESERVOIR:	Canyon Reef	Canyon Reef	Canyon Reef	Canyon Reef
DEPTH PRODUCING ZONE:	6260 Cisco;6700CR	6700	6880	6795
PRODUCTIVE ACREAGE IN RESERVOIR:	52059	40000	---	580
ACREAGE IN PROJECT:	49860	500	160	580
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	MD/SW, FW, CO_2	PM/SW	PM/BW	WF/FW
PATTERN:	MI9	MI9	P	P
YEAR BEGAN:	9-54WF; 1-72CO2	2-65	4-76	10-59
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	3122	3120	2550	3112
BEG. INJECTION:	1546	2407	2550	1000
LATEST:	2829	2100	---	---
NUMBER OF WELLS TOTAL:	1560	15	4	14
PRODUCING WELLS:	659	7	3	---
INJECTION WELLS:	260SW	3	1	---
MAXIMUM:	260FW	---	---	---
LATEST:	45CO2	---	---	---
SHUT-IN/ABANDONED WELLS:	336	5	0	0
SURFACE INJECTION PRESSURE:	1630	1500	2250	---
EFFECTIVENESS OF INJECTION:	VE	ME	---	---
OPERATOR PROBLEMS:	CR,EW	CR	---	---
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	48213	261	---	38
FROM BEG. INJECTION:	490,990	3561	---	72
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	690,686	981	---	---
WATER PRODUCTION:				
CURRENT (1977):	138,551	2444	340	46
CUMULATIVE TO 1/78:	520,190	11159	521	615
CURRENT (1977) INJECTION:	165,942SW;58,721FW;58770CO2	2444	532	139SW;4FW
CUMULATIVE INJECTION:	760,653SW; 1,048,502FW 345,755 CO_2	10645	---	998SW; 3872FW



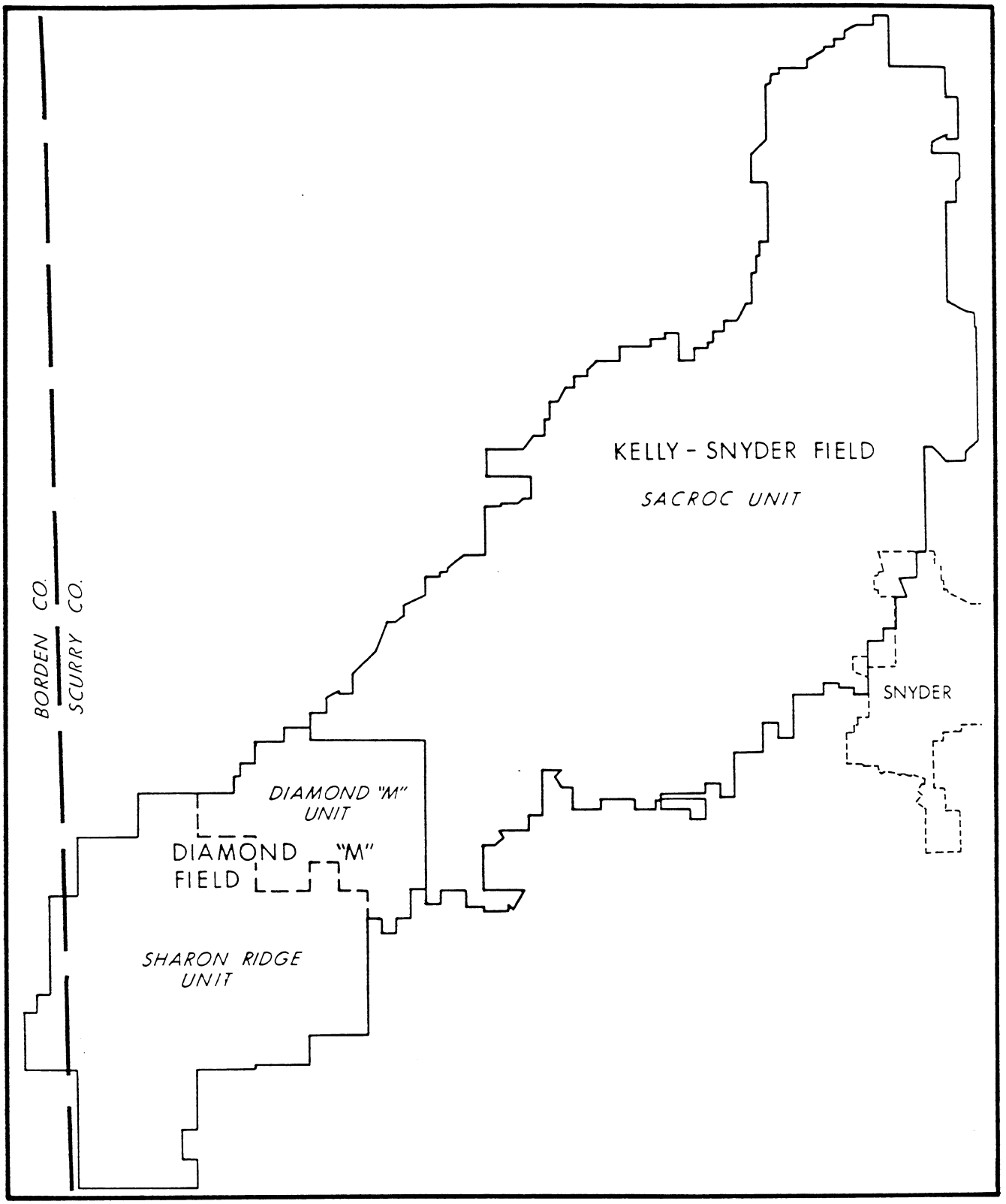
GRUY FEDERAL, INC.

INDEX MAP
KELLY SNYDER FIELD AND OTHER CO_2 PROJECT FIELDS IN WEST TEXAS



KELLY SNYDER PRODUCTION

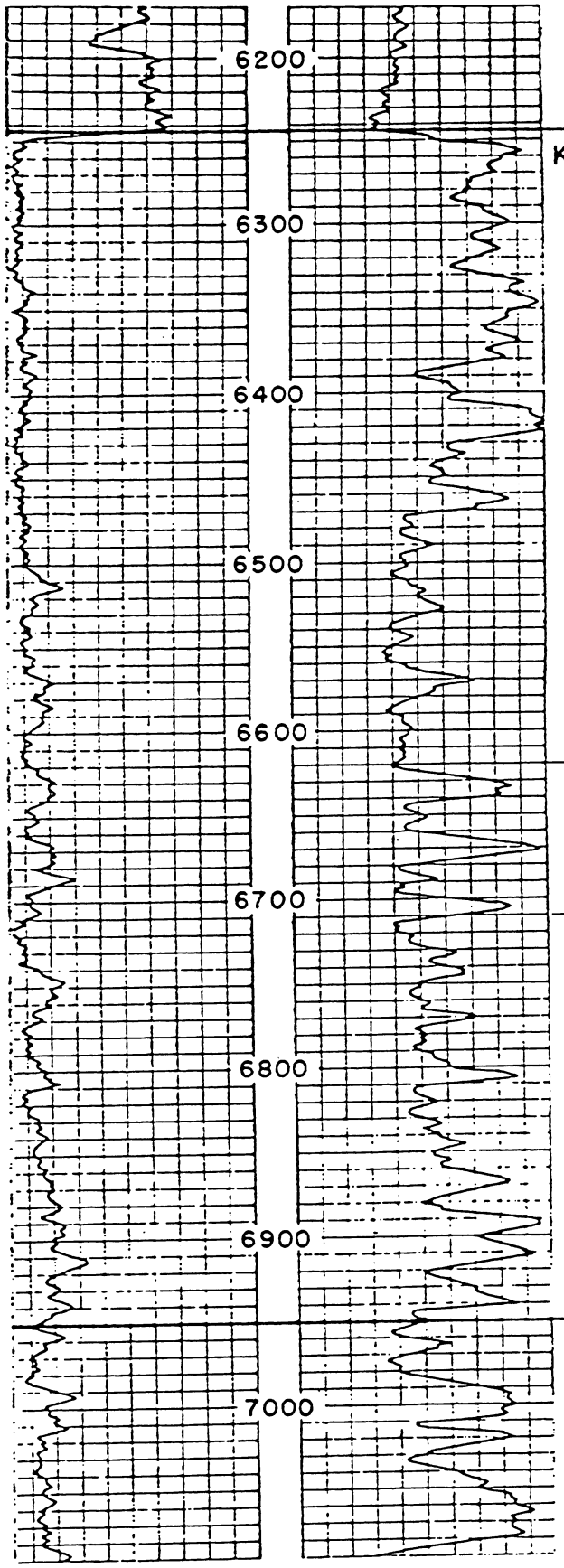
GENERALIZED STRATIGRAPHIC COLUMN
WEST TEXAS PERMIAN BASIN



SCURRY CANYON FIELD AREA
SCURRY CO., TEXAS

TYPICAL LOG
SACROC UNIT NO. 17-5
SCURRY COUNTY, TEXAS

FROM: Improved Oil-Recovery Field Reports, Society of Petroleum Engineers, v. 1, n.1, 1975, p. 71-80. Source 9a



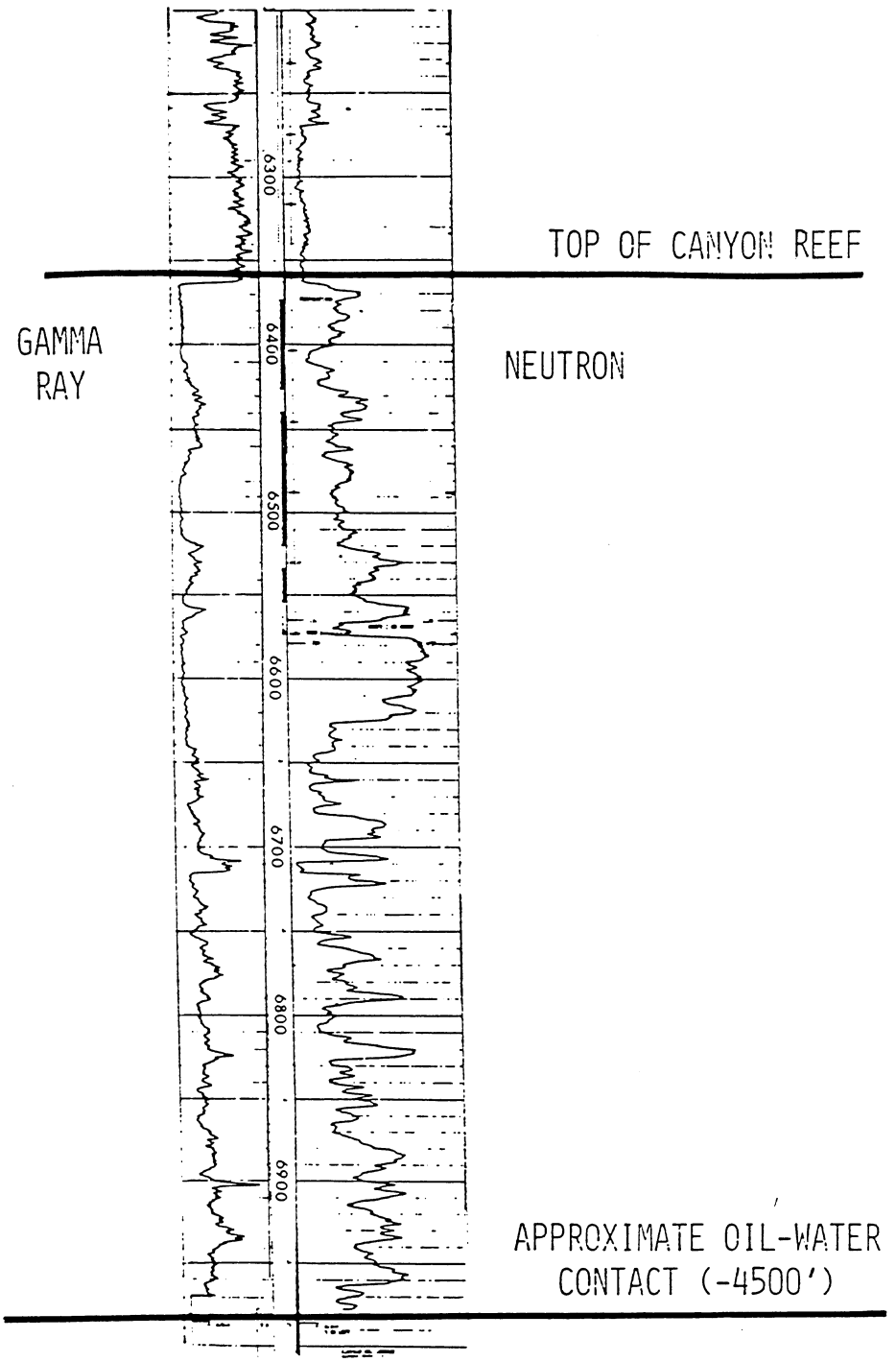
TOP OF SACROC UNIT,
KELLY-SNYDER FIELD PAY

UPPER ZONE: PRESENT IN THE CRESTAL WELLS IN NORTHERN PORTION OF FIELD. CONTAINS THE BEST DEVELOPED POROSITY AND IS COMMONLY MASSIVE.

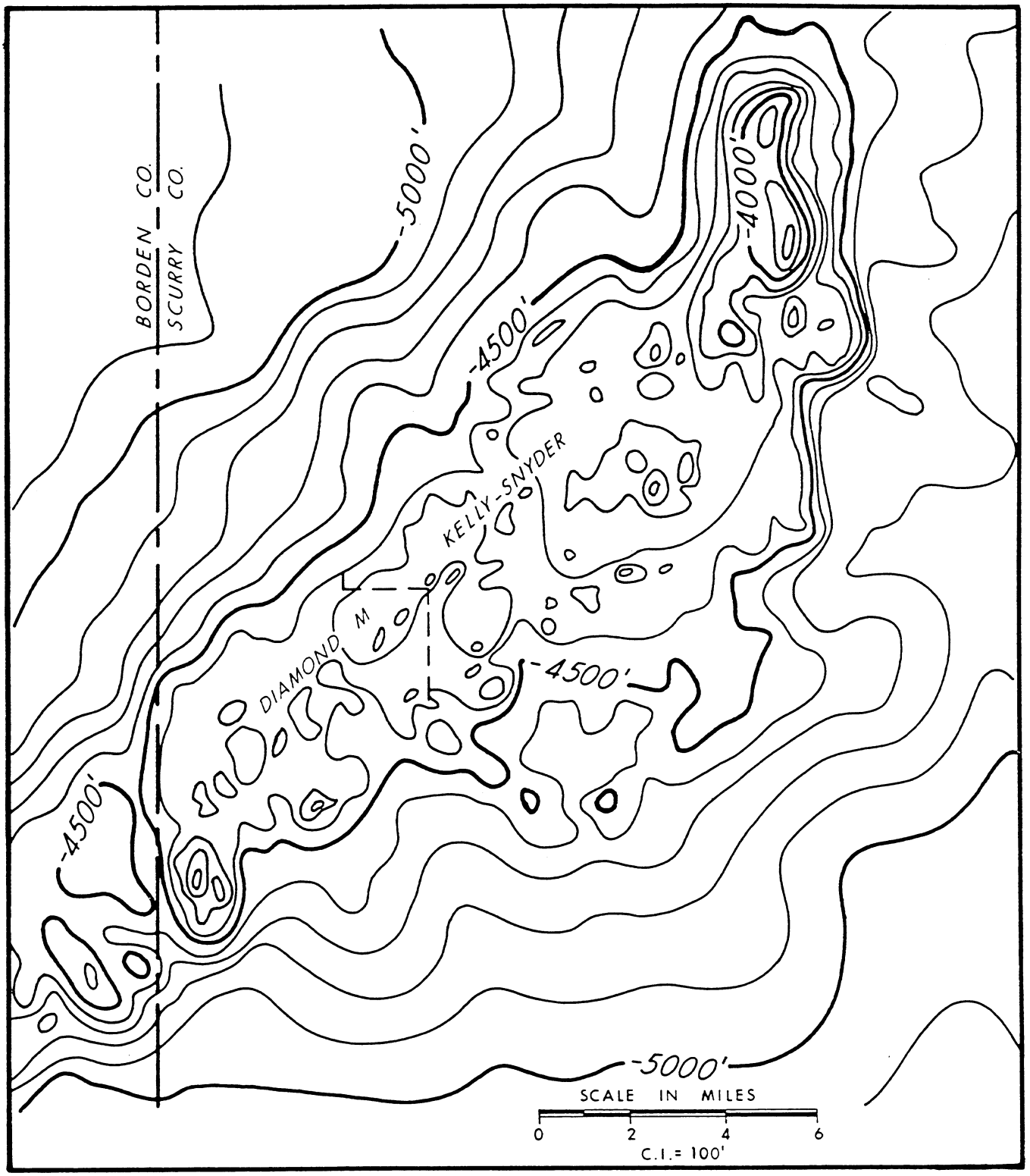
MIDDLE ZONE: POORLY DEVELOPED WITH DISCONTINUOUS POROSITY.

LOWER ZONE: WELL STRATIFIED ESPECIALLY IN THE CRESTAL WELLS IN THE CENTRAL AND NORTHERN PORTION OF THE FIELD. STRATIFICATION DETERIORATES IN THE FLANK WELLS AND IN SOUTHERN PORTION OF FIELD.

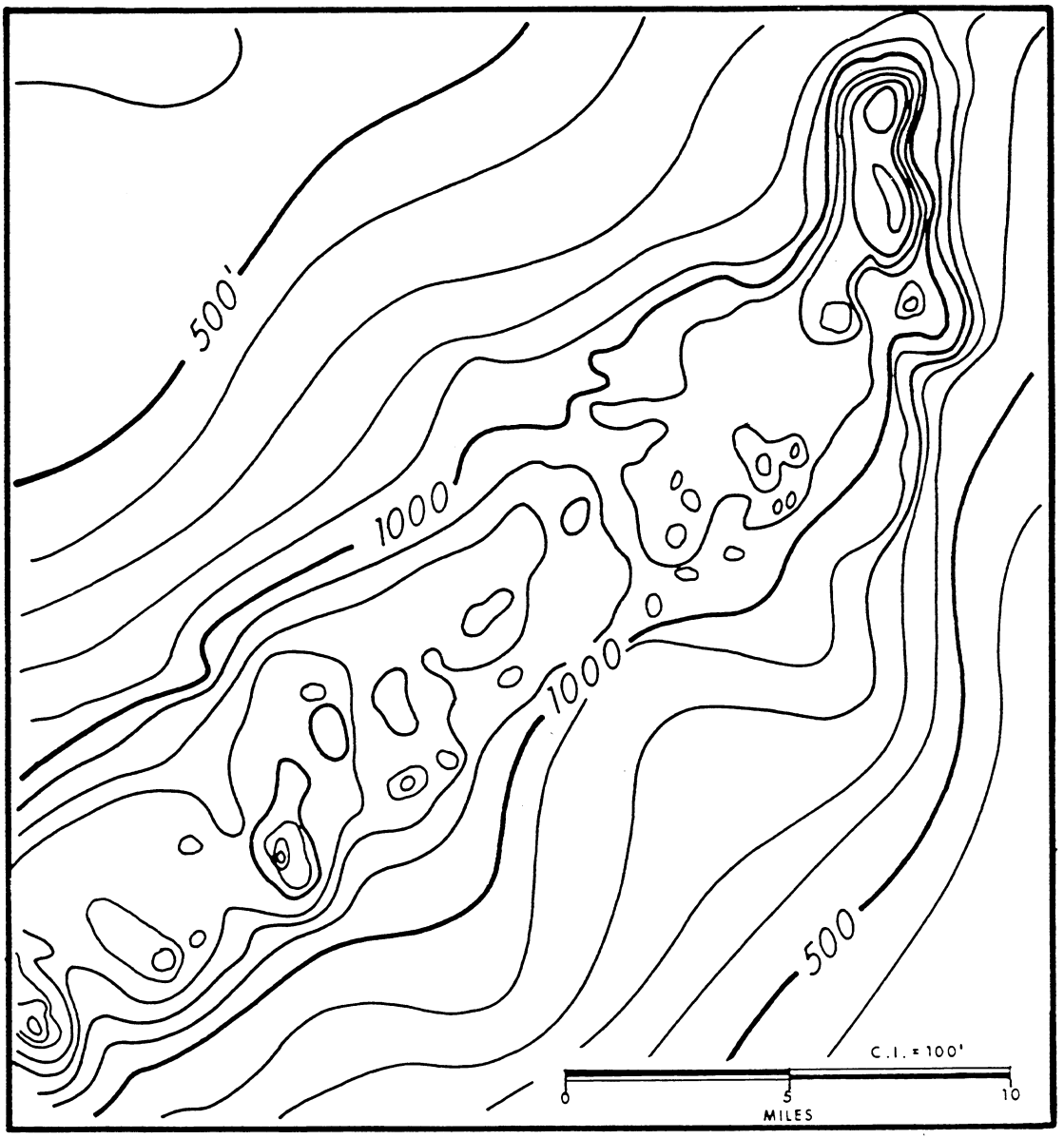
CONTOURED OIL-WATER CONTACT



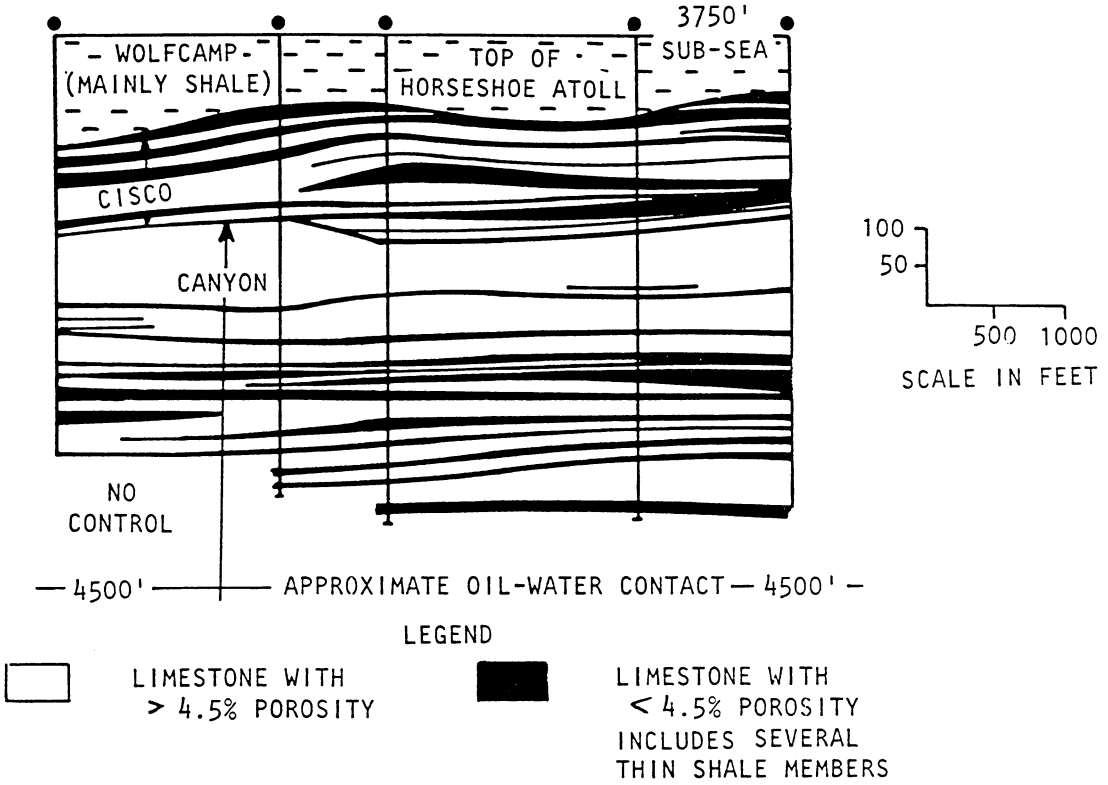
TYPICAL LOG FROM CRESTAL REEF LOCATION
KELLY SNYDER FIELD (SACROC UNIT)
SCURRY COUNTY, TEXAS



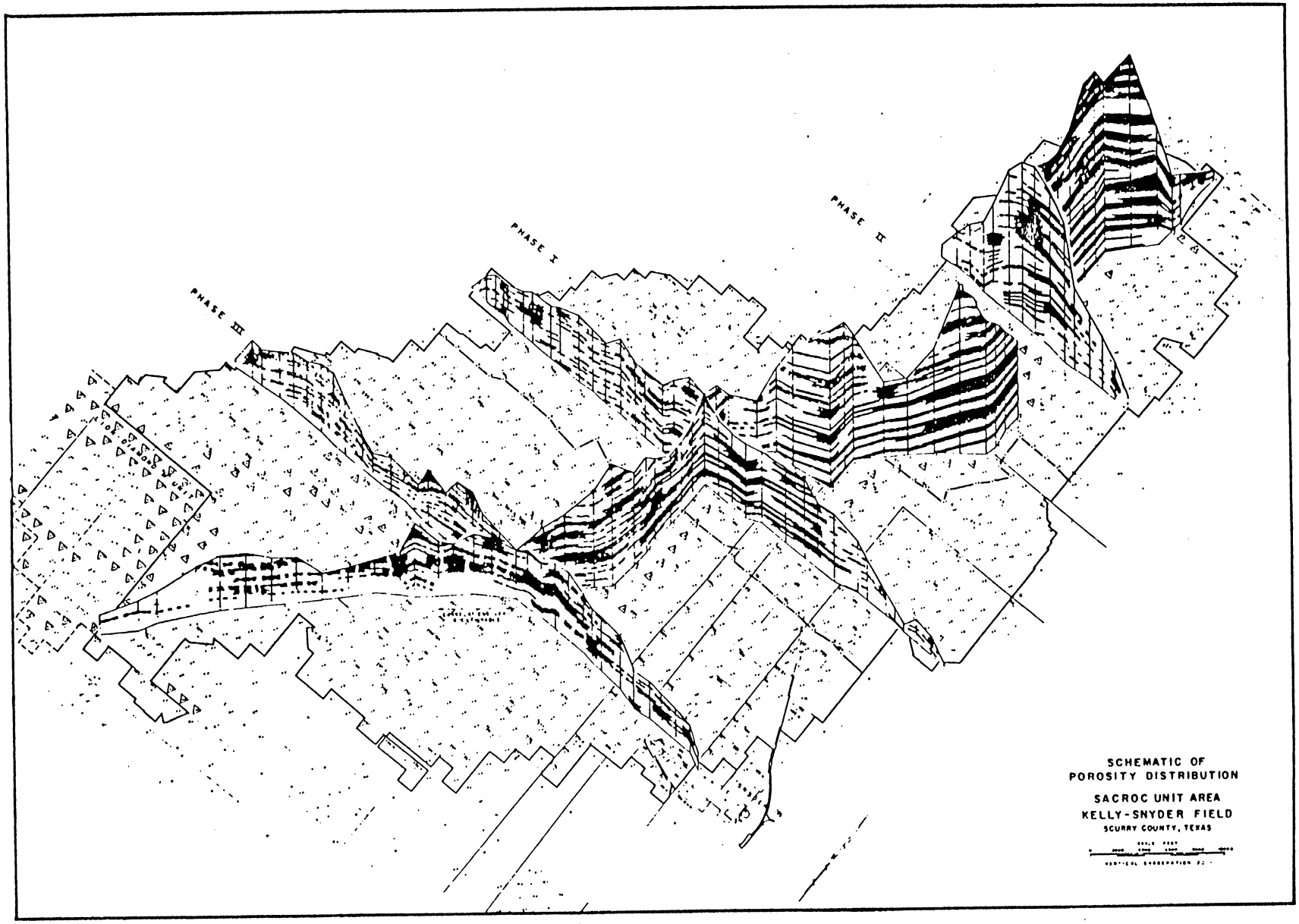
STRUCTURE MAP TOP OF HORSESHOE REEF COMPLEX
KELLY SNYDER FIELD (SACROC UNIT)
SCURRY COUNTY, TEXAS



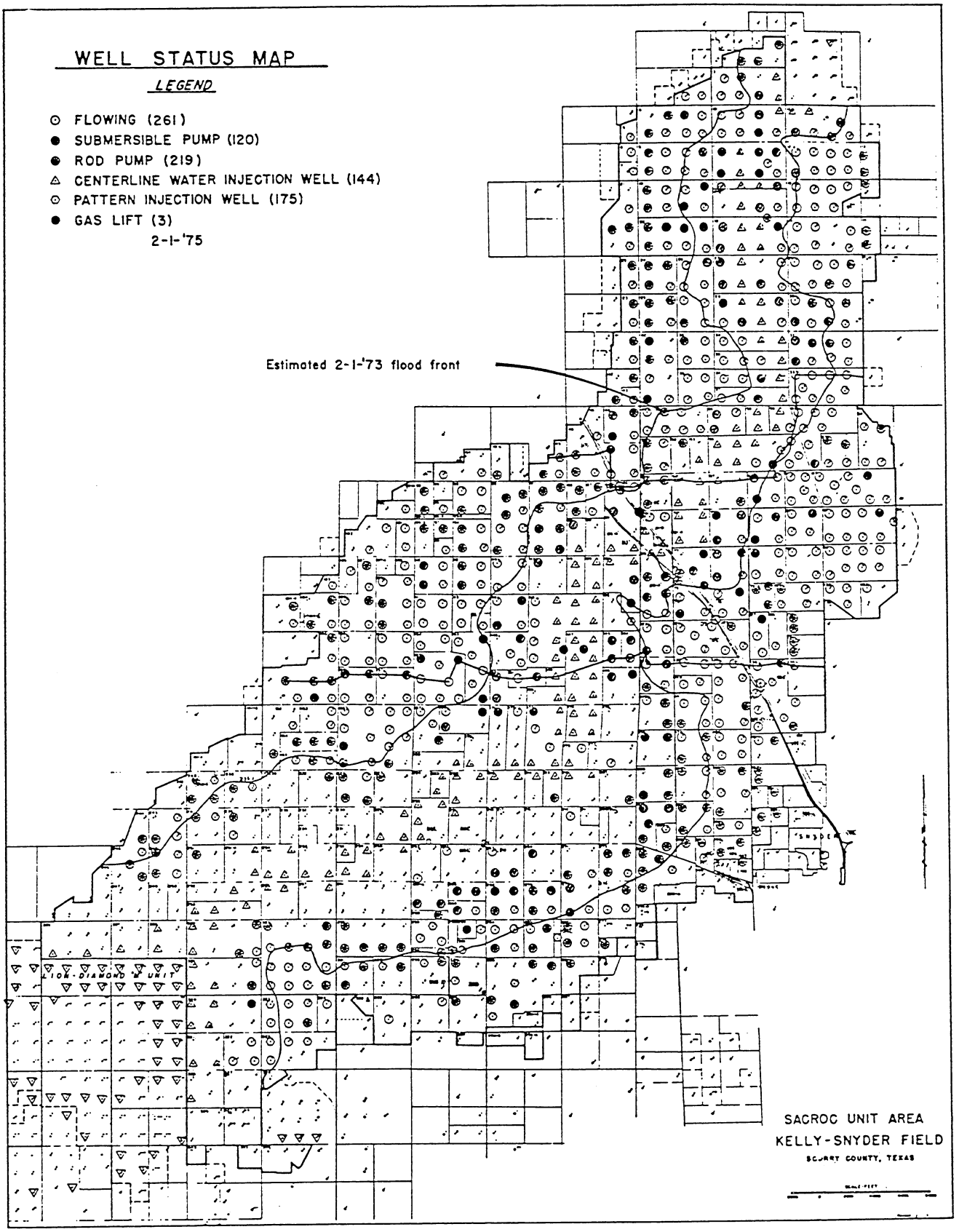
ISOPACH OF REEF COMPLEX
KELLY SNYDER FIELD (SACROC UNIT)
SCURRY COUNTY, TEXAS



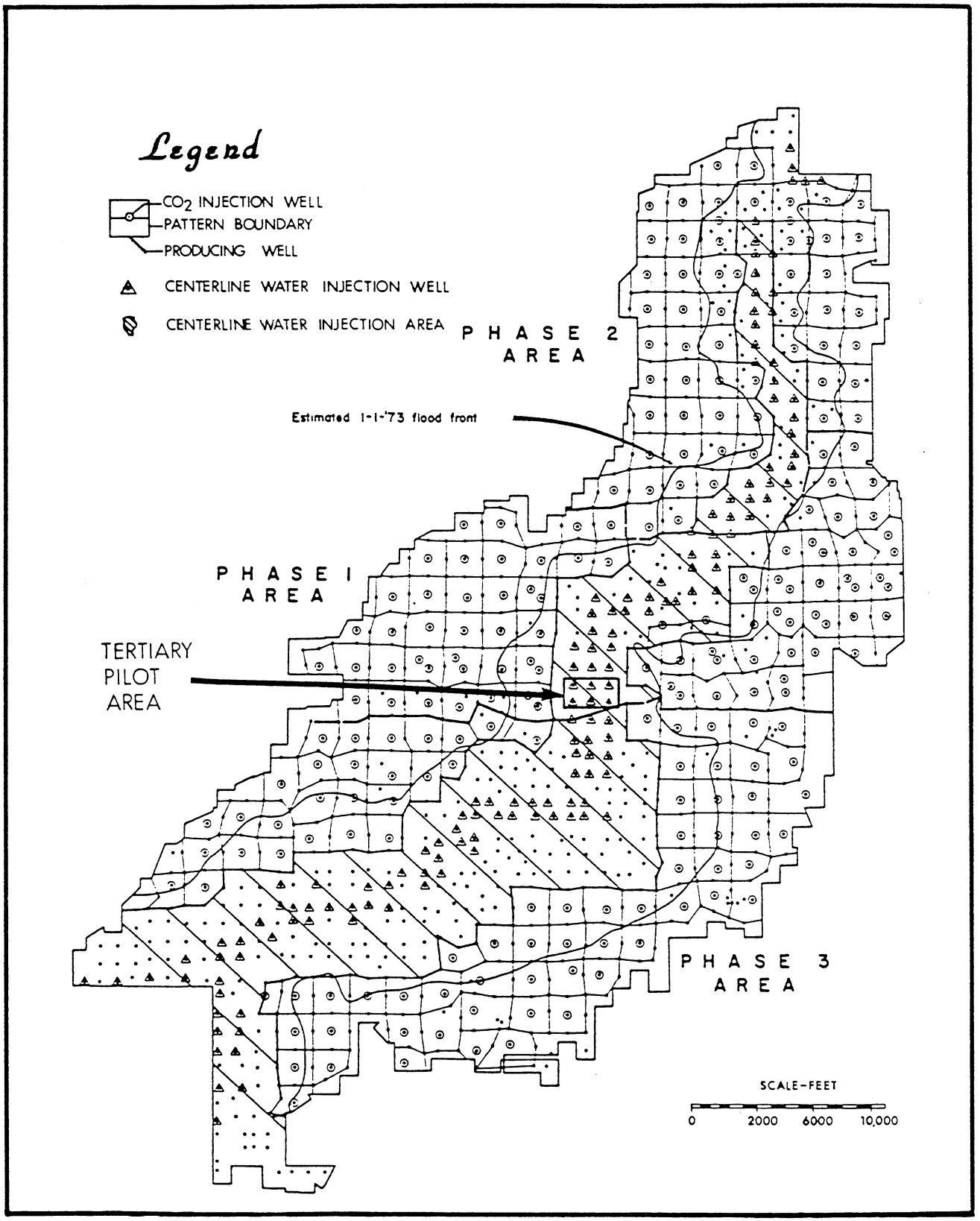
TYPICAL POROSITY LAYERING
(KELLY SNYDER FIELD (SACROC UNIT)
SCURRY COUNTY, TEXAS



FROM: Improved Oil-Recovery Field Reports, Society of Petroleum Engineers, v. 1, no. 1, 1975, p. 71-80. Source 9a.

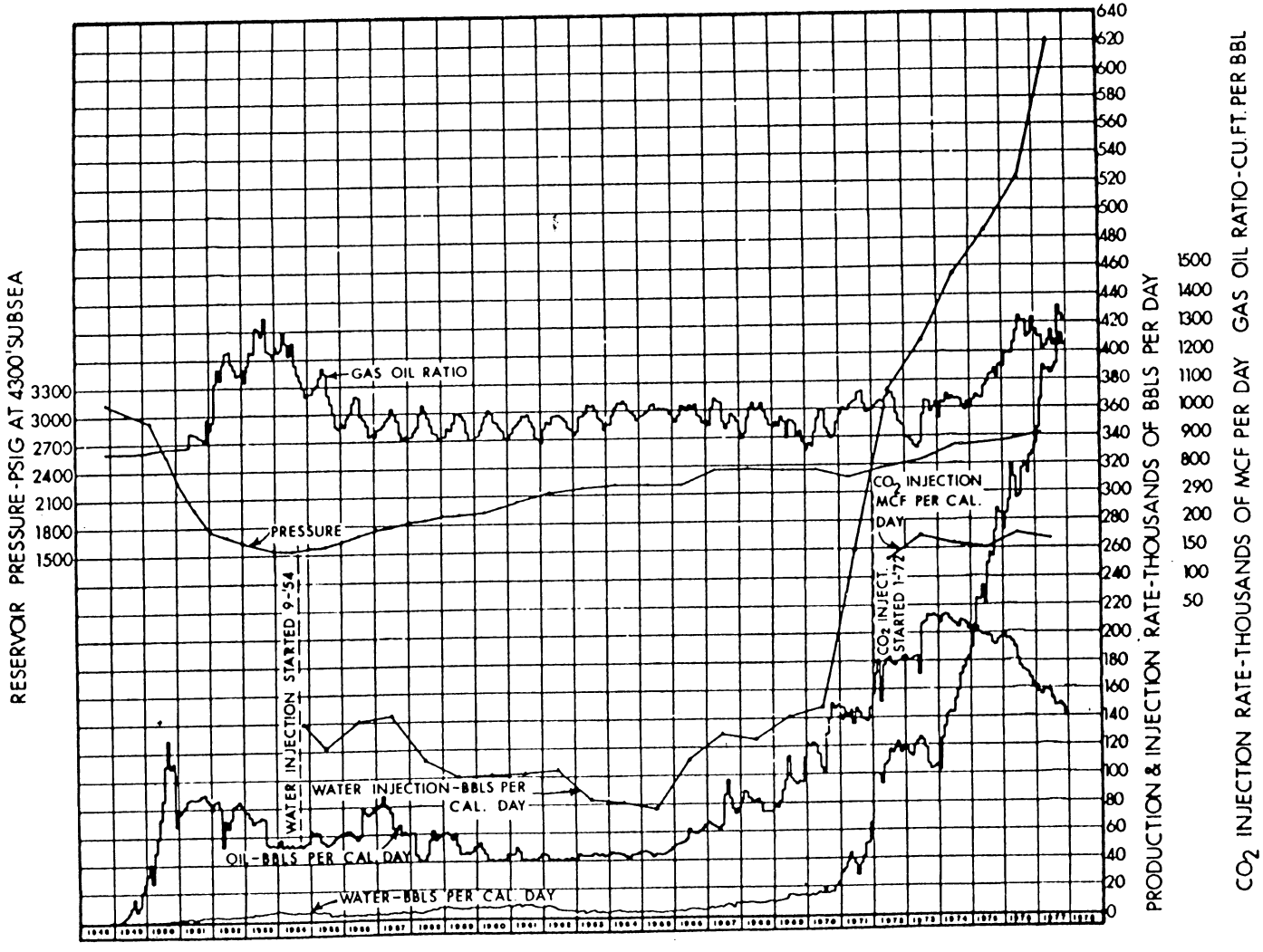


FROM: Improved Oil-Recovery Field Reports, Society of Petroleum Engineers, v. 1., n. 1, 1975, p. 71-80. Source 9a.

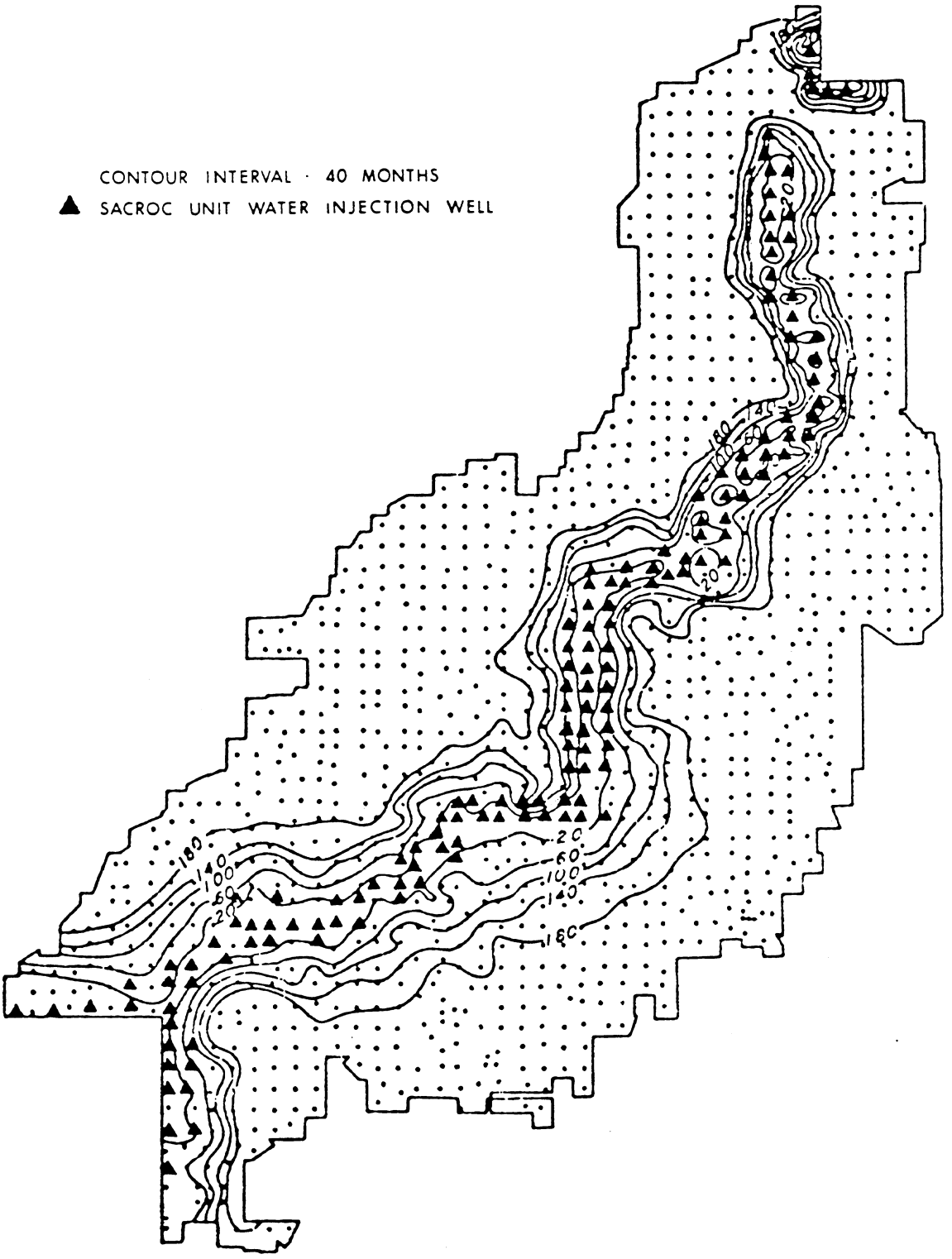


FROM: Task 1, Vol. 2, Gruy Federal, Inc.

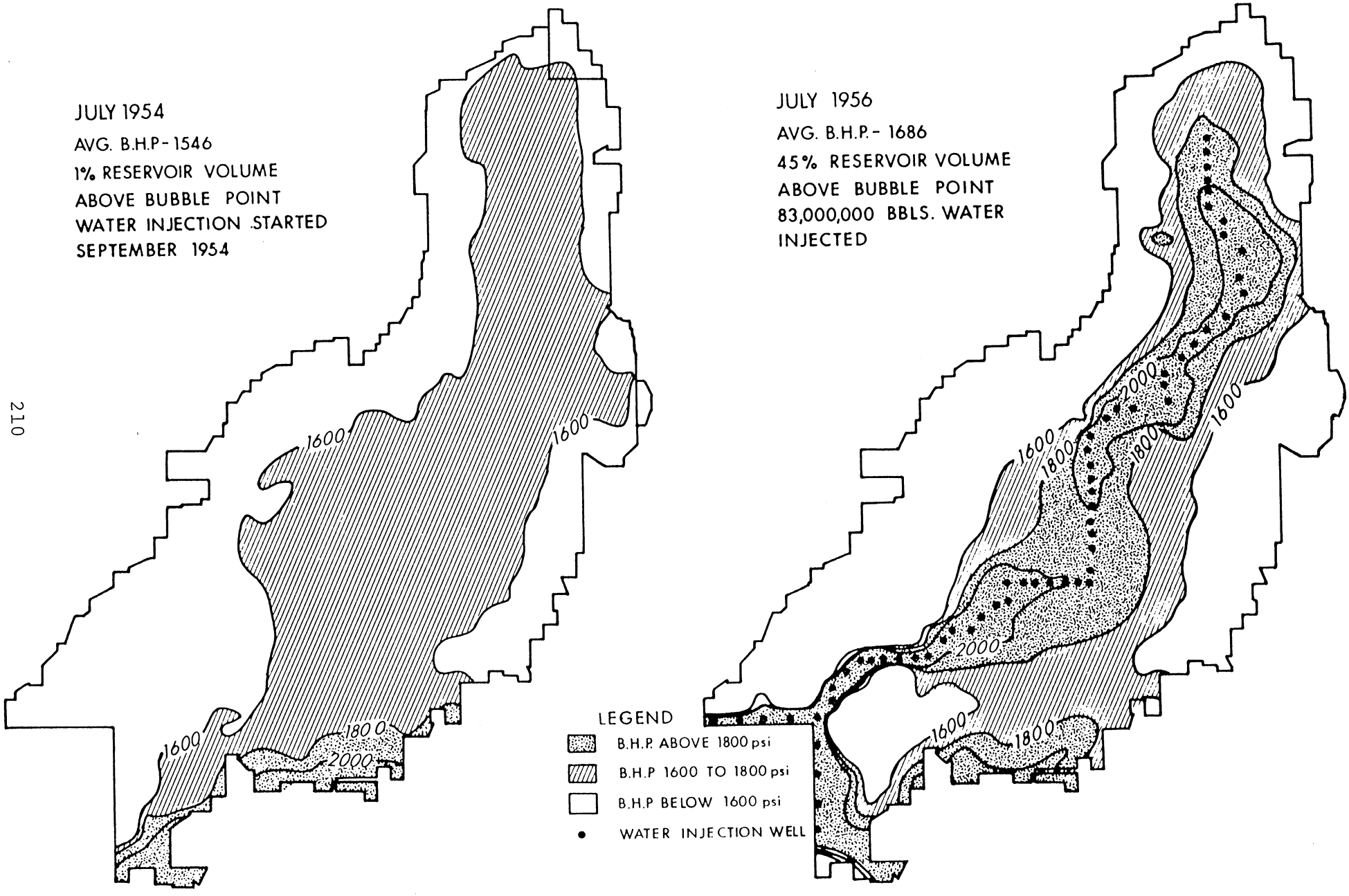
MAP OF SACROC UNIT AREA.



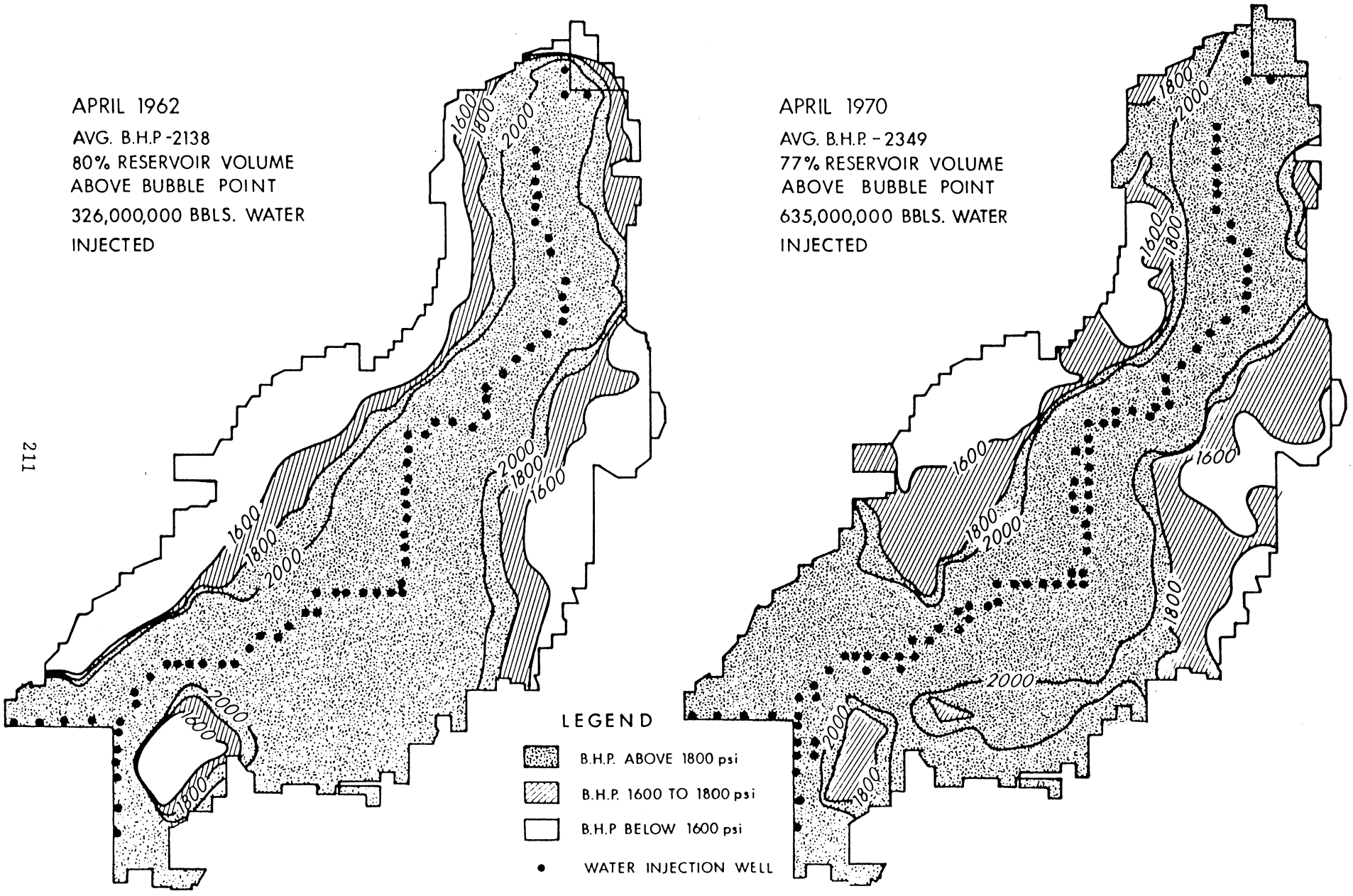
KELLY SNYDER FIELD PERFORMANCE SUMMARY.



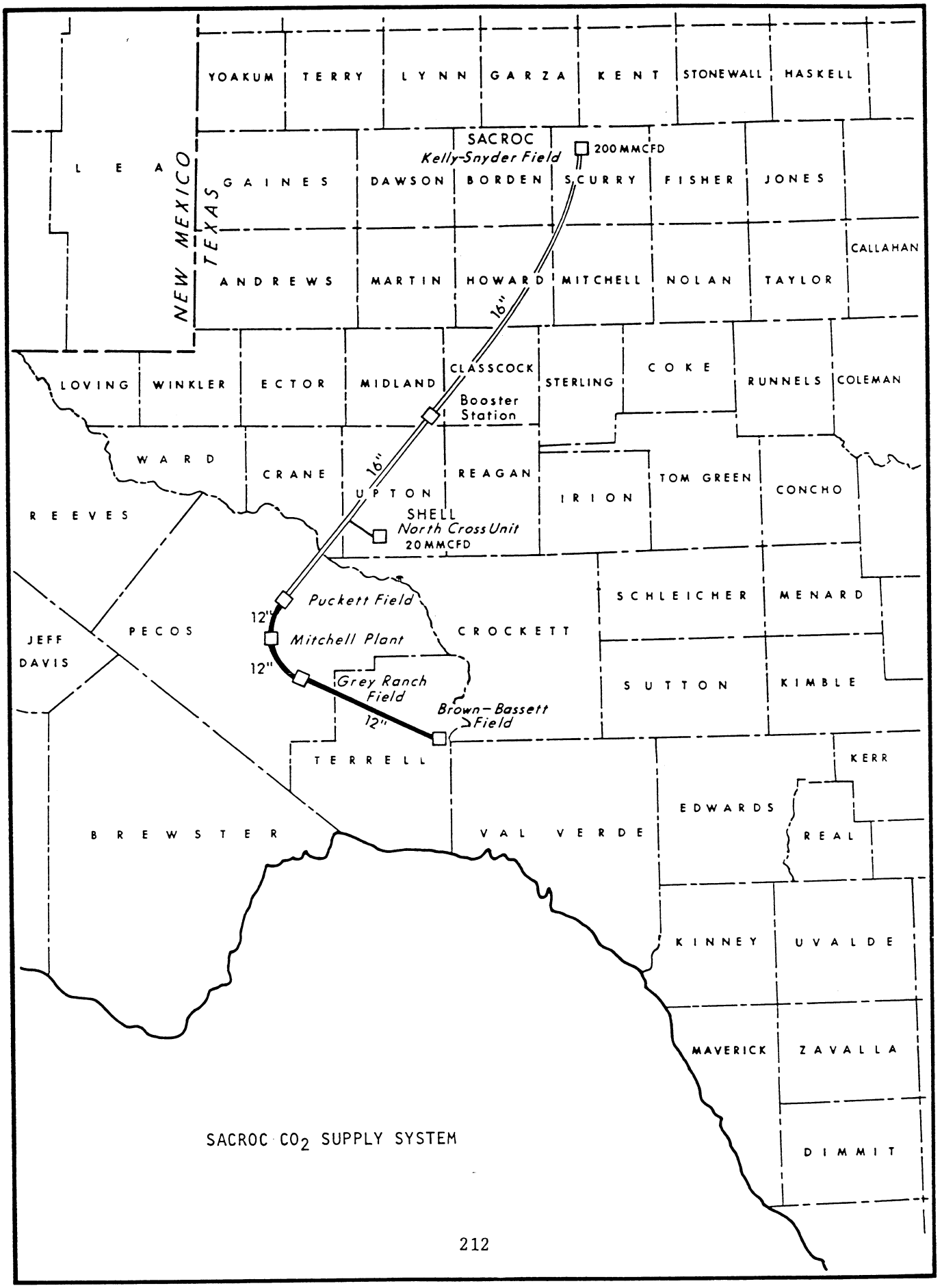
FRONTAL ADVANCE OF CENTERLINE WATER INJECTION,
SACROC UNIT AREA, KELLY-SNYDER FIELD.



GENERALIZATION BOTTOM HOLE PRESSURE MAPS



GENERALIZATION BOTTOM HOLE PRESSURE MAPS



SACROC CO_2 SUPPLY SYSTEM

Kemitz
Lower Wolfcamp
Northwest Shelf

DATA SOURCE CODE		
1, 6b	STATE	New Mexico
1	COUNTY	Lea
	REGULATORY DISTRICT	Southeast
1, 6b	BASIN	Permian
15	SUB-BASIN	Northwest Shelf
1, 6b	FIELD	Kemitz
1, 6b	RESERVOIR	Lower Wolfcamp
1, 6b	GEOLOGIC AGE	Wolfcamp
1, 6b	AAPG STRATIGRAPHIC AGE CODE	319
6b, 1	RESERVOIR LITHOLOGY	Light to Dark Gray reefoid limestone; limestone
1, 6b	TRAPPING MECHANISM	Stratigraphic trap
1, 6b	DISCOVERY YEAR	12-1956
1	PROVED ACREAGE	1320
6b	REGULAR WELL SPACING (acres/well)	80
6b,1	RESERVOIR DEPTH	10,700; 10,742
	RESERVOIR THICKNESS	
1	NET PAY	38 feet avg.
6b	GROSS	100 feet
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
6b, 1	FRACTION	.093
	PERMEABILITY	
	RANGE	
	AVERAGE	
6b, 1	HORIZONTAL	8.8 md
	VERTICAL	
6b	OTHER INFORMATION	(Kemitz Penn-Abandoned; Kemitz L. Wolfcamp, East, 4 pump wells; Kemitz Upper Wolfcamp South, 1 well)
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	45 Total, 6 Pump, 5 Flow, 5 Inj., 23 GL, 6 Shut-In; 38P, 3 shut-in.
1	PRODUCTION 1977 oil (cum)	14759
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	14943
	PRODUCTION 1-1-79 to 1-1-80	
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6b	STRUCTURE CONTOUR?	yes
6b	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Kemitz
6b	RESERVOIR:	Lower Wolfcamp
1	PROD. ACRES:	1320
1	AVG. THICKNESS (FT.):	38'
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.80
	FORMATION VOLUME FACTOR LATEST (FVF):	
1, 6b	WATER SATURATION (S_W):	.25
1, 6b	OIL SATURATION (S_O):	0.73
1, 6b	PRIMARY DRIVE MECHANISM:	Solution gas
	PRIMARY GAS CAP?:	
1, 17	TEMPERATURE (°F):	158 (GG=.78)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	14508
1, 6b	RESERVOIR PRESSURE INITIAL (psi):	3788
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	1623
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	5294
1, 6b	STOCK TANK OIL GRAVITY (°API):	39
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP):	1961
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

WATER ANALYSIS RECORD

FIELD: Kemnitz RESERVOIR: Lower Wolfcamp TOTAL NO. PROJECTS:

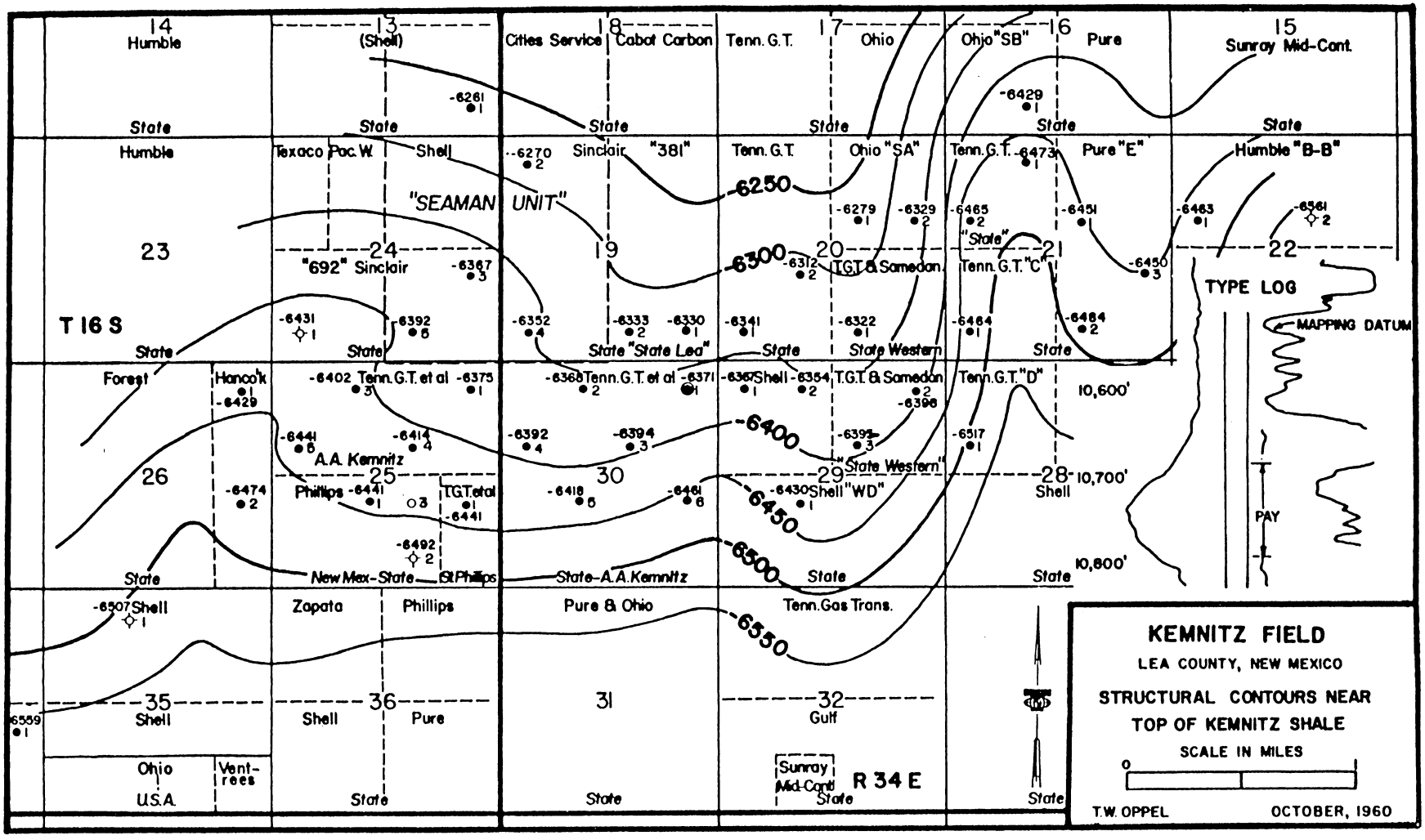
DATA SOURCE:

	6b
TOTAL SOLIDS (ppm):	82192
NA	24700
Ca	5500
Mg	90
Fe	
SO_4	737
Cl	49500
CO_2	
HCO_3	8500
OH	
H_2S	

RESISTIVITY:

SPECIFIC GRAVITY:

OTHER WATER QUALITY DATA:



FROM: Oppel, T.W., 1960, KEMNITZ in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO: Roswell Geological Society Symposium - 1960.

Source 6b

Ketchum Mt.
Clear Fork
Midland Basin

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Irion
1	REGULATORY DISTRICT	7C
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Ketchum Mt.
1, 2	RESERVOIR	Clear Fork
1	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
1	RESERVOIR LITHOLOGY	Limestone
	TRAPPING MECHANISM	
2,1	DISCOVERY YEAR	7-1955; 1955
2,1,16c	PROVED ACREAGE	2800; 96; 2720
1	REGULAR WELL SPACING (acres/well)	80
2,3,1	RESERVOIR DEPTH	400-4350; 4548; 4548
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	12, 10, 13
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.13, .09
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	13, 22 md
2	HORIZONTAL	13 md
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	25P - 5I; 39 (21P-14I-4A)
1	PRODUCTION 1976 oil (cum)	2159
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	2,381.1
3	PRODUCTION 1-1-79 to 1-1-80	67.7 mbbls oil; 103.2 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:	Ketchum Mt.
2,1	RESERVOIR:	Clear Fork
2,1,16c	PROD. ACRES:	2800, 96, 2720
2,1, 16c	AVG. THICKNESS (FT.):	12, 10, 13
1, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.418; 1.437
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.262(75)
1, 16c	WATER SATURATION (S_W):	.30, .18-.33
16c	OIL SATURATION (S_O):	.432(75)
1	PRIMARY DRIVE MECHANISM:	depletion
	PRIMARY GAS CAP?:	
1, 16c	TEMPERATURE (°F):	110, 117
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1720
2,1	RESERVOIR PRESSURE INITIAL (psi):	1700 avg., 141
2	RESERVOIR PRESSURE LATEST (psi):	445
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	2009.2 (76)
2,3,1	STOCK TANK OIL GRAVITY (°API):	38.5, 36.4, 36.4
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1469
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 3 SRPs:	16,386 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 3 SRPs:	2,445 mbbls

	OTHER INFORMATION:
1	primary recovery factor: .85
16c	OOIP: 14,400,000 bbl

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Ketchum Mt. RESERVOIR: Clear Fork TOTAL NO. PROJECTS: 3 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	60	---	---		
1977 PROD. (this project):	79	---	---		
CUM. PROD. FROM DISC. TO 1/78:	2235	134	39		
PROJECT NO.	F6225	F1035	F1036		
LEASE NO.(s):	06725	02823	03554		
OPERATOR:	Arco	Arco	Arco		
RESERVOIR:	Clear Fork	Clear Fork	Clear Fork		Clear Fork
DEPTH PRODUCING ZONE:					4548
PRODUCTIVE ACREAGE IN RESERVOIR:	2800	2720	2720		96
ACREAGE IN PROJECT:	2800	2040	2040		2040
PORTION OR FIELD WIDE:	FW	FW	FW		
TYPE:	WF/SW, BW	PM/Gas	PM/Gas		WF/PM
PATTERN:	I	SW	SW		
YEAR BEGAN:	2-63SW; 9-75BW	2-63	2-63		1963
YEAR TERMINATED OR STATUS:	ICP	IPD 11-72	IPD 11-72		
RESERVOIR PRESSURE INITIAL:	1705	1695	1695		141
BEG. INJECTION:	465	1300	1300		
LATEST:	445	---	---		
NUMBER OF WELLS TOTAL:	39	1	1		
PRODUCING WELLS:	21	1	1		25
INJECTION WELLS:	2 SW	---	---		5
MAXIMUM:	12 BW	---	---		
LATEST:	---	---	---		
SHUT-IN/ABANDONED WELLS:	4	---	---		
SURFACE INJECTION PRESSURE:	100	---	---		
EFFECTIVENESS OF INJECTION:	UD	---	---		
OPERATOR PROBLEMS:	PI	---	---		
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---	---	---		
FROM BEG. INJECTION:	---	---	---		
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	---	---		
WATER PRODUCTION:					
CURRENT (1977):	33	---	---		
CUMULATIVE TO 1/78:	310	---	---		
CURRENT (1977) INJECTION:	33SW; 1577BW	---	---		
CUMULATIVE INJECTION:	93SW; 1838BW	---	---		

Keystone
Holt
Central Basin Platform

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Winkler
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Keystone
1, 2	RESERVOIR	Holt *
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313

*KEYSTONE-ELLENBURGER NOT LISTED BY PDS SORT BUT CONSIDERED BY 14e for EOR

12c, 1 RESERVOIR LITHOLOGY: Sand, dolomite and sandy dolomite. most oil yield comes from dolomite portion of reservoir; dolomite.

12c,1 TRAPPING MECHANISM: Anticlinal folding; structural plus stratigraphic - anticline plus regional facies change.

2,3,1	DISCOVERY YEAR	9-43; 9-43; 1943
2,1,16c	PROVED ACREAGE	4560; 480; 6200
1	REGULAR WELL SPACING (acres/well)	40
2,3,1	RESERVOIR DEPTH	4700, 4800, 4800
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	52.5 avg., 50, 45
12c, 16c	GROSS	58 avg., 290
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.75, .18
	PERMEABILITY	
	RANGE	
	AVERAGE	
2,1	HORIZONTAL	58 md
	VERTICAL	
3	OTHER INFORMATION	Major production from Ellenburger, Clear Fork, Colby, Devonian, Lime, San Andres, Silurian, Waddel, Wolfcamp.
14e	BETC/RI-78/15 list Keystone-Ellenburger as unsuitable for EOR because of natural water drive, gas cap and fractured.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	115P - 18I; 120 (93P-25I-2A)
1	PRODUCTION 1976 oil (cum)	32,325
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	39,542.2
3	PRODUCTION 1-1-79 to 1-1-80	663.4 mbbls oil; 5252.6 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:	Keystone
2,1, 16c	RESERVOIR:	Holt
2,1, 16c	PROD. ACRES:	4550, 480, 6200
1	AVG. THICKNESS (FT.):	52.5, 50, 45
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.49
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.2(69)
	WATER SATURATION (S_W):	.25-.40
1	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	depletion
16c	PRIMARY GAS CAP?:	yes
16c	TEMPERATURE (°F):	94
2,1	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2160
2	RESERVOIR PRESSURE INITIAL (psi):	2160, 4283
1	RESERVOIR PRESSURE LATEST (psi):	497-615
2,3,1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	9567.1(76)
17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	40, 39.9, 39.9
	STOCK TANK OIL GRAVITY (°API):	
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1174
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

12c Chloride content of water: 81,600 ppm

1 primary recoverable: 115 bbl/acre-ft

12c Reference: Osborne, W. C., 1955, Keystone Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Economic Geology, Publ. No. 5716, p.156-171.

ENHANCED AND SECONDARY RECOVERY DATA:

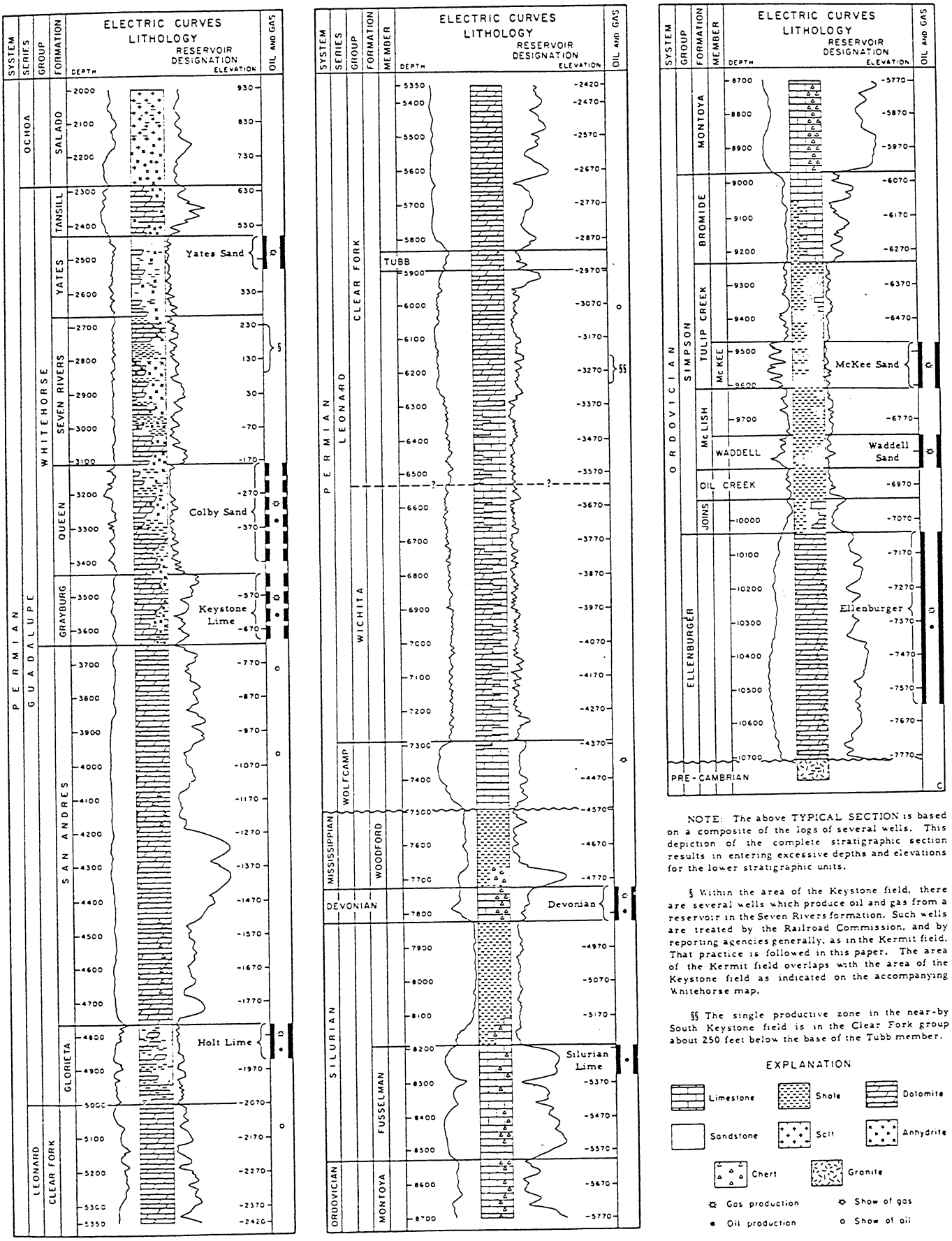
FIELD: Keystone RESERVOIR: Holt TOTAL NO. PROJECTS: 2 PDS:

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

1976 PROD. (this project): MBBLS	3	969			
1977 PROD. (this project):	3	796			
CUM. PROD. FROM DISC. TO 1/78:	8461	35728			
PROJECT NO.	F1431	F1432			
LEASE NO.(s):	03384	20730			
OPERATOR:	Gulf Oil	Gulf Oil			
RESERVOIR:	Holt	Holt			Holt
DEPTH PRODUCING ZONE:	4700	4700			4800
PRODUCTIVE ACREAGE IN RESERVOIR:	4650	4500			480
ACREAGE IN PROJECT:	1550	4500			1550
PORTION OR FIELD WIDE:	FW	FW			
TYPE:	WF/BW	WF/BW			WF
PATTERN:	P	5S			
YEAR BEGAN:	10-61	10-68			1961
YEAR TERMINATED OR STATUS:	ITD	ICP			
RESERVOIR PRESSURE INITIAL:	2160	2160			4283
BEG. INJECTION:	500	1050			
LATEST:	497	615			
NUMBER OF WELLS TOTAL:	3	117			
PRODUCING WELLS:	1	92			115
INJECTION WELLS:	0	25			18
MAXIMUM:	---	---			
LATEST:	---	---			
SHUT-IN/ABANDONED WELLS:	2	0			
SURFACE INJECTION PRESSURE:	---	500			
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):	0	1645			
CUMULATIVE TO 1/78:	21	14952			
CURRENT (1977) INJECTION:	0	4705			
CUMULATIVE INJECTION:	2562	44478			

FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECON. GEOL. PUB.57
August, 1957. KEYSTONE FIELD, Winkler County, Texas Source 12c. 159

TYPICAL SECTION OF ROCKS PENETRATED



NOTE: The above TYPICAL SECTION is based on a composite of the logs of several wells. This depiction of the complete stratigraphic section results in entering excessive depths and elevations for the lower stratigraphic units.

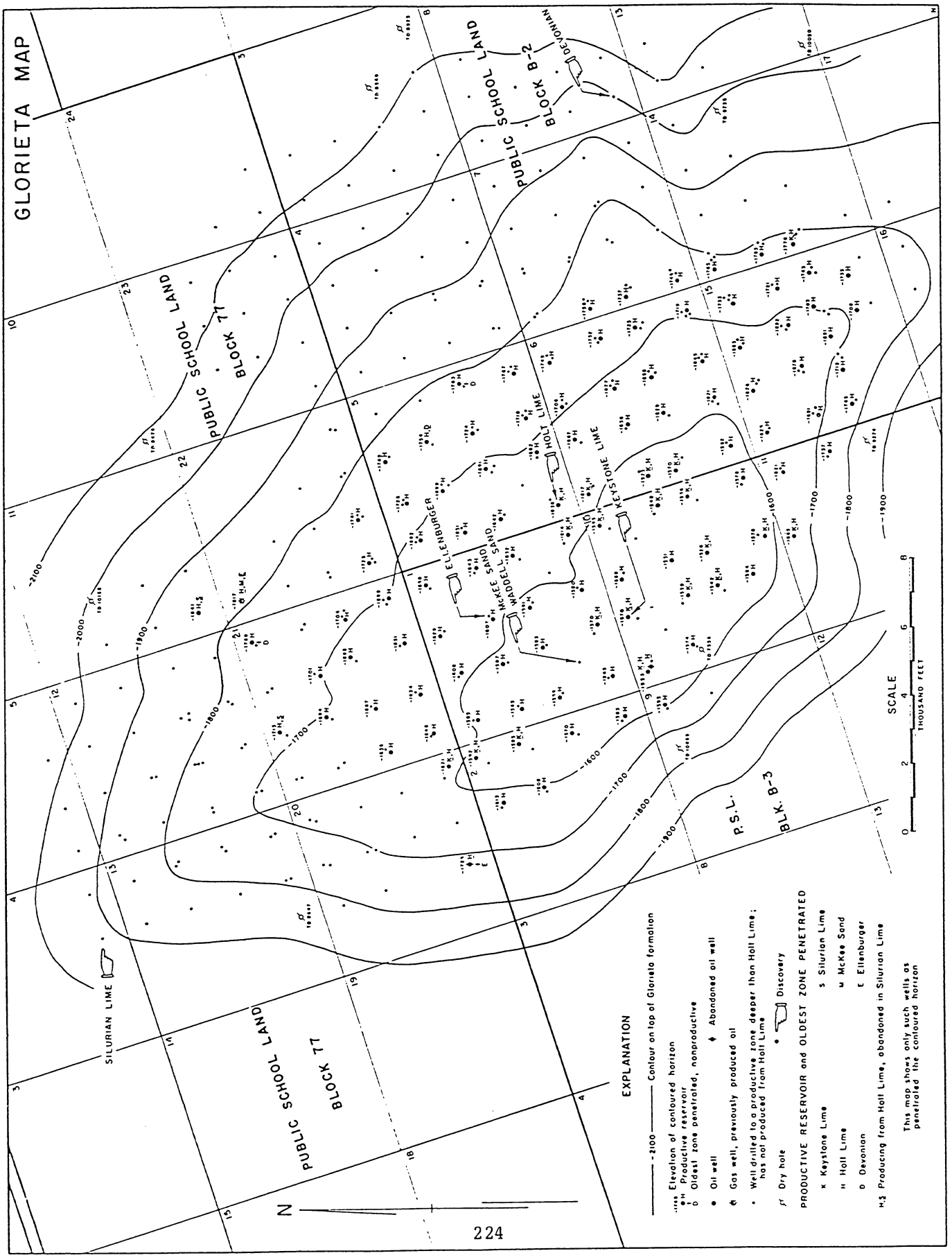
§ Within the area of the Keystone field, there are several wells which produce oil and gas from a reservoir in the Seven Rivers formation. Such wells are treated by the Railroad Commission, and by reporting agencies generally, as in the Kermit field. That practice is followed in this paper. The area of the Kermit field overlaps with the area of the Keystone field as indicated on the accompanying Whitehorse map.

§§ The single productive zone in the near-by South Keystone field is in the Clear Fork group about 250 feet below the base of the Tubb member.

EXPLANATION

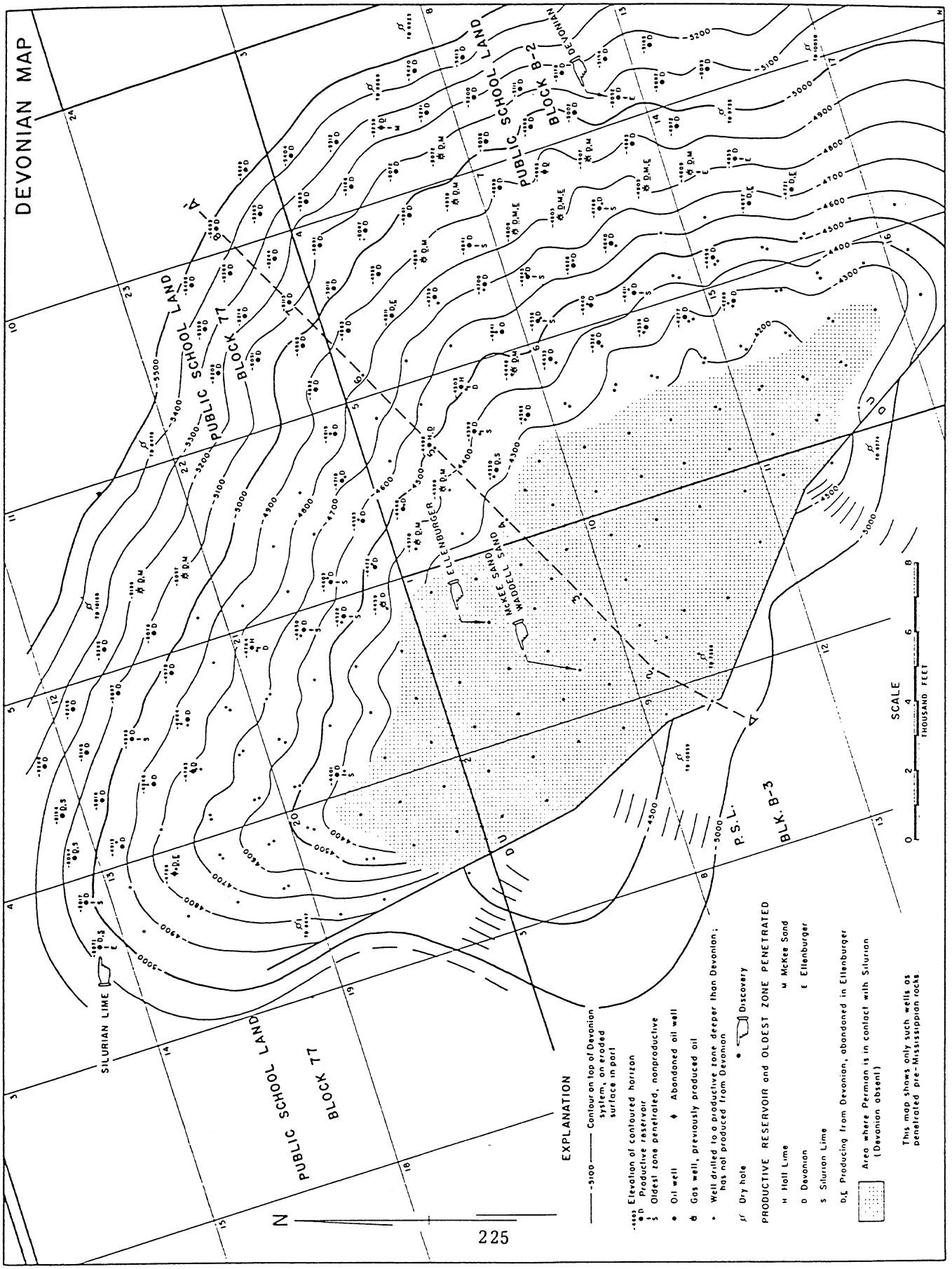
Limestone
Shale
Dolomite
Sandstone
Salt
Anhydrite
Chert
Granite
Gas production
Show of gas
Oil production
Show of oil

KEYSTONE FIELD, Winkler County, Texas



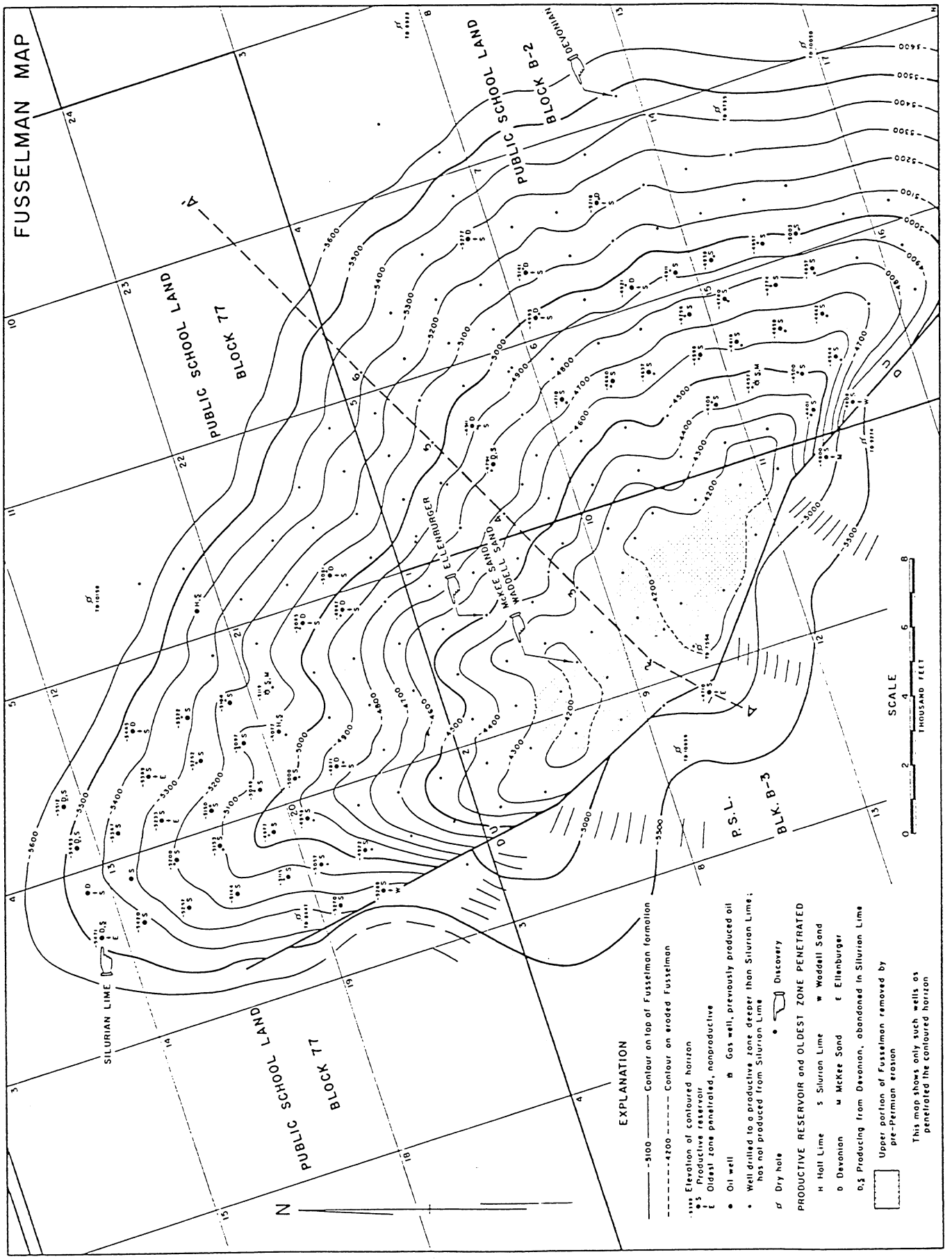
KEYSTONE FIELD, Winkler County, Texas

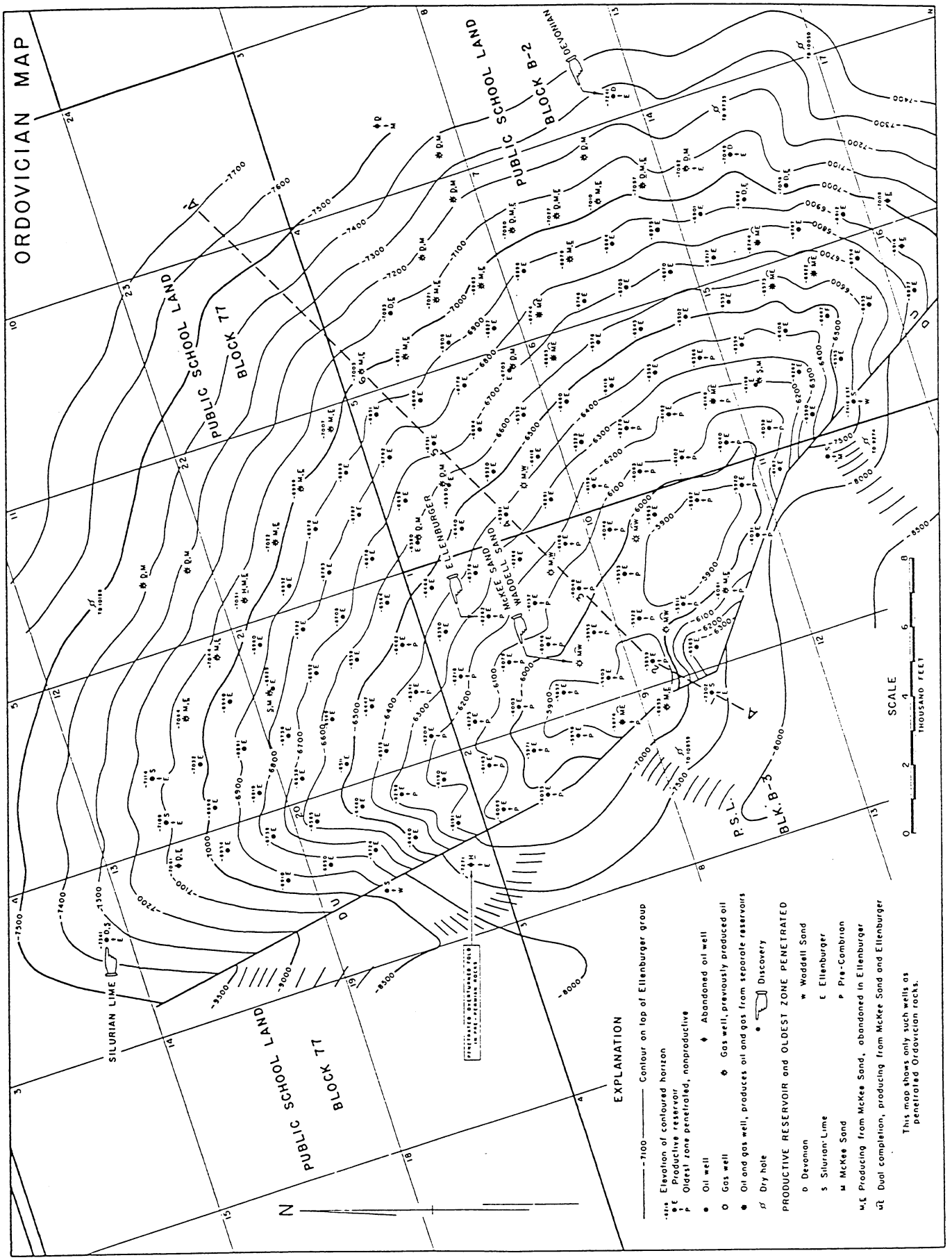
Source 12c.



KEYSTONE FIELD, Winkler County, Texas

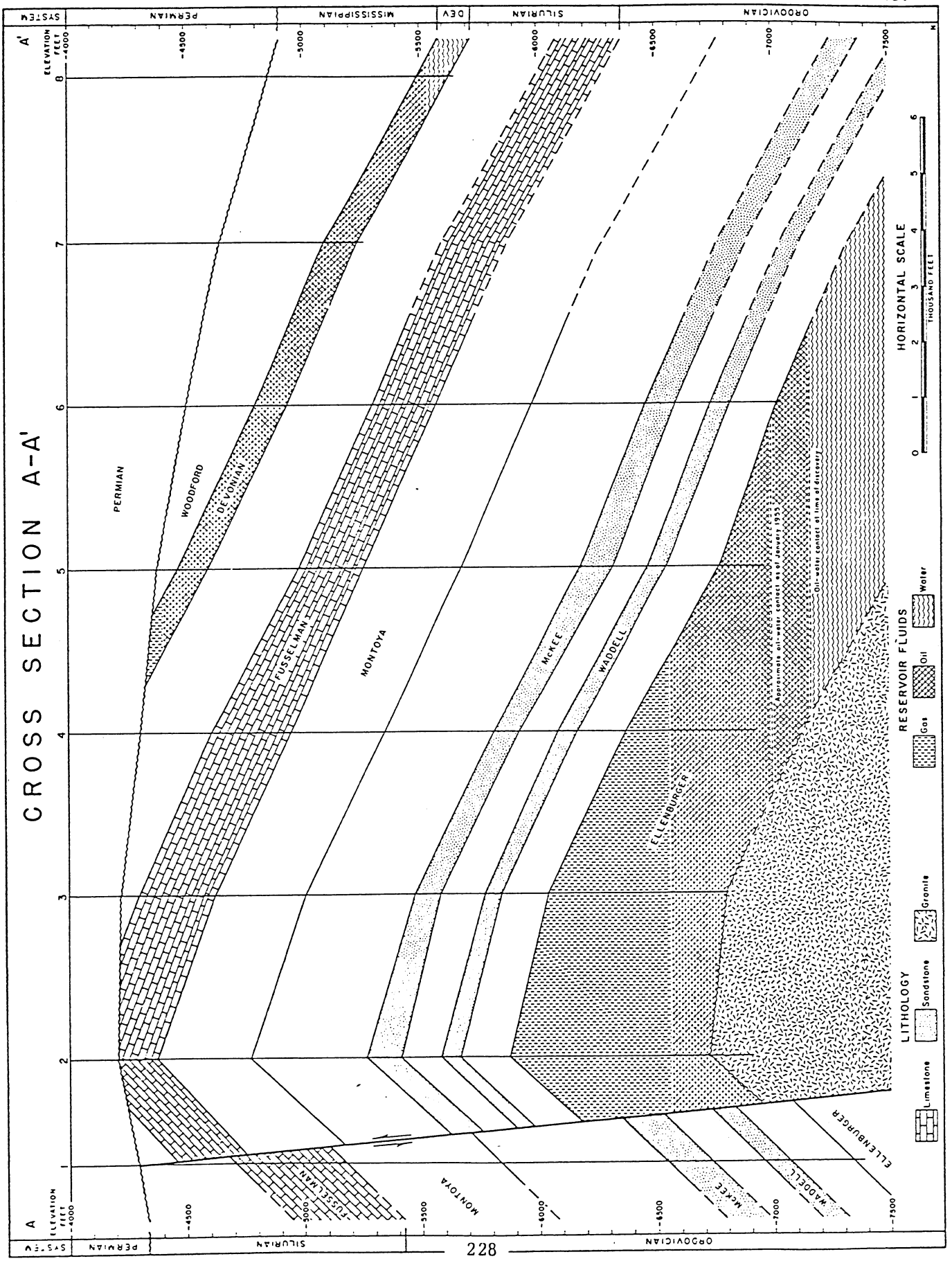
Source 12c.




ORDOVICIAN MAP
PUBLIC SCHOOL LAND
BLOCK 77
PUBLIC SCHOOL LAND
BLOCK B-2
DEVONIAN
ELLENBURGER
McKEE SAND
WADDELL SAND
SILURIAN LIME
P.S.L.
BLK. B-3
SCALE
THOUSAND FEET
EXPLANATION
Contour on top of Ellenburger group
Elevation of contoured horizon
Productive reservoir
Oldest zone penetrated, nonproductive
Oil well
Gas well
Oil and gas well, produces oil and gas from separate reservoirs
Dry hole
Abandoned oil well
Gas well, previously produced oil
Discovery
PRODUCTIVE RESERVOIR and OLDEST ZONE PENETRATED
D Devonian
S Silurian Lime
M McKee Sand
W Waddell Sand
E Ellenburger
P Pre-Cambrian
M,E Producing from McKee Sand, abandoned in Ellenburger
ME Dual completion, producing from McKee Sand and Ellenburger
This map shows only such wells as penetrated Ordovician rocks.

KEYSTONE FIELD, Winkler County, Texas

Source 12c.



DATA SOURCE CODE		
	STATE	Texas
	COUNTY	Winkler
	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
	FIELD	Keystone
2	RESERVOIR	Silurian
	GEOLOGIC AGE	Silurian
1	AAPG STRATIGRAPHIC AGE CODE	350
12c	RESERVOIR LITHOLOGY	Coarsely crystalline limestone with minor chert and shale partings. Porosity variable.
12c	TRAPPING MECHANISM	Anticlinal folding with termination of reservoir by faulting and erosional truncation sealed by overlying relatively impervious beds.
2,3	DISCOVERY YEAR	3-1947; 5-1955
2,16c	PROVED ACREAGE	4480
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	8100, 8500
	RESERVOIR THICKNESS	
2,16c	NET PAY	80, 320
12c	GROSS	175 avg.
	NET/GROSS RATIO	
	POROSITY	
12c	TYPE	IC, V to cavernous, F
2	FRACTION	.06
	PERMEABILITY	
	RANGE	
2	AVERAGE	4 md
2	HORIZONTAL	4 md
	VERTICAL	
12c	OTHER INFORMATION	Other producing reservoirs include Yates Sand, Colby Sand, Keystone Lime, Holt Lime, Devonian, McKee Sand, Waddell Sand, Ellenburger.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	42 (27P-10I-5A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	25,199.4
3	PRODUCTION 1-1-79 to 1-1-80	556.5 mbbls oil; 1,185.6 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes-see Keystone-Holt
12c	LOGS?	yes-see Keystone-Holt
12c	STRUCTURE SECTION?	yes-see Keystone-Holt
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Keystone
2	RESERVOIR:	Silurian
2, 16c	PROD. ACRES:	4480
2, 16c	AVG. THICKNESS (FT.):	80, 320
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.61
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.29 (76)
16c	WATER SATURATION (S_W):	.10-.30
16c	OIL SATURATION (S_O):	.531 (76)
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	125
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	3377
2	RESERVOIR PRESSURE INITIAL (psi):	3377
2	RESERVOIR PRESSURE LATEST (psi):	1541
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3	STOCK TANK OIL GRAVITY (°API):	39, 31
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1588
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

12 c Reference: Osborne, W. C., 1955, Keystone Field in Occurrence of Oil and Gas in West Texas; Univ. of Texas, Bureau of Economic Geology, Publ. No. 5716, p.156-171.

ENHANCED AND SECONDARY RECOVERY DATA:

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

1976 PROD. (this project): MBBLS	226
1977 PROD. (this project):	194
CUM. PROD. FROM DISC. TO 1/78:	728
PROJECT NO.	F3929
LEASE NO.(s):	23371
OPERATOR:	Gulf Oil
RESERVOIR:	Silurian
DEPTH PRODUCING ZONE:	8100
PRODUCTIVE ACREAGE IN RESERVOIR:	4480
ACREAGE IN PROJECT:	3080
PORTION OR FIELD WIDE:	FW
TYPE:	WF/BW
PATTERN:	P
YEAR BEGAN:	---
YEAR TERMINATED OR STATUS:	ICP
RESERVOIR PRESSURE INITIAL:	3377
BEG. INJECTION:	1053
LATEST:	1541
NUMBER OF WELLS TOTAL:	42
PRODUCING WELLS:	27
INJECTION WELLS:	10
MAXIMUM:	---
LATEST:	---
SHUT-IN/ABANDONED WELLS:	5
SURFACE INJECTION PRESSURE:	1300
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):	120
CUMULATIVE TO 1/78:	322
CURRENT (1977) INJECTION:	1100
CUMULATIVE INJECTION:	2274

Landon
San Andres
North Basin Platform

DATA SOURCE CODE		
	STATE	Texas
	COUNTY	Yoakum (M)
	REGULATORY DISTRICT	8A
	BASIN	Permian
15	SUB-BASIN	North Basin Platform
	FIELD	Landon
2	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
5b	RESERVOIR LITHOLOGY	Anhydritic, cherty, crystalline dolomite
5b	TRAPPING MECHANISM	Anticline; vertical variation in porosity also controls trapping conditions.
2,5b	DISCOVERY YEAR	7-1945
2,5b,16c	PROVED ACREAGE	960, 980, 1440
5b	REGULAR WELL SPACING (acres/well)	40
2,5b	RESERVOIR DEPTH	5050-5100
	RESERVOIR THICKNESS	
2,5b	NET PAY	~50
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
5b	TYPE	IC
2,5b	FRACTION	.12
	PERMEABILITY	
2,5b	RANGE	11-20 md
2,5b	AVERAGE	15 md
2,5b	HORIZONTAL	15 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Bend, Devonian, Strawn
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	45 (20P-17I-8A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	5525.3
3	PRODUCTION 1-1-79 to 1-1-80	84.8 mbbls oil; 5.9 mmcf gas
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:	Landon
2	RESERVOIR:	San Andres
2, 5b, 16c	PROD. ACRES:	960, 800, 1440
2, 5b	AVG. THICKNESS (FT.):	50
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
16c	OIL SATURATION (S_O):	.82
5b	PRIMARY DRIVE MECHANISM:	solution gas
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	110
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1329
2, 5b	RESERVOIR PRESSURE INITIAL (psi):	1758
2	RESERVOIR PRESSURE LATEST (psi):	520-570
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 5b	STOCK TANK OIL GRAVITY (°API):	32, 30
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1440
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	no estimate
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	no estimate

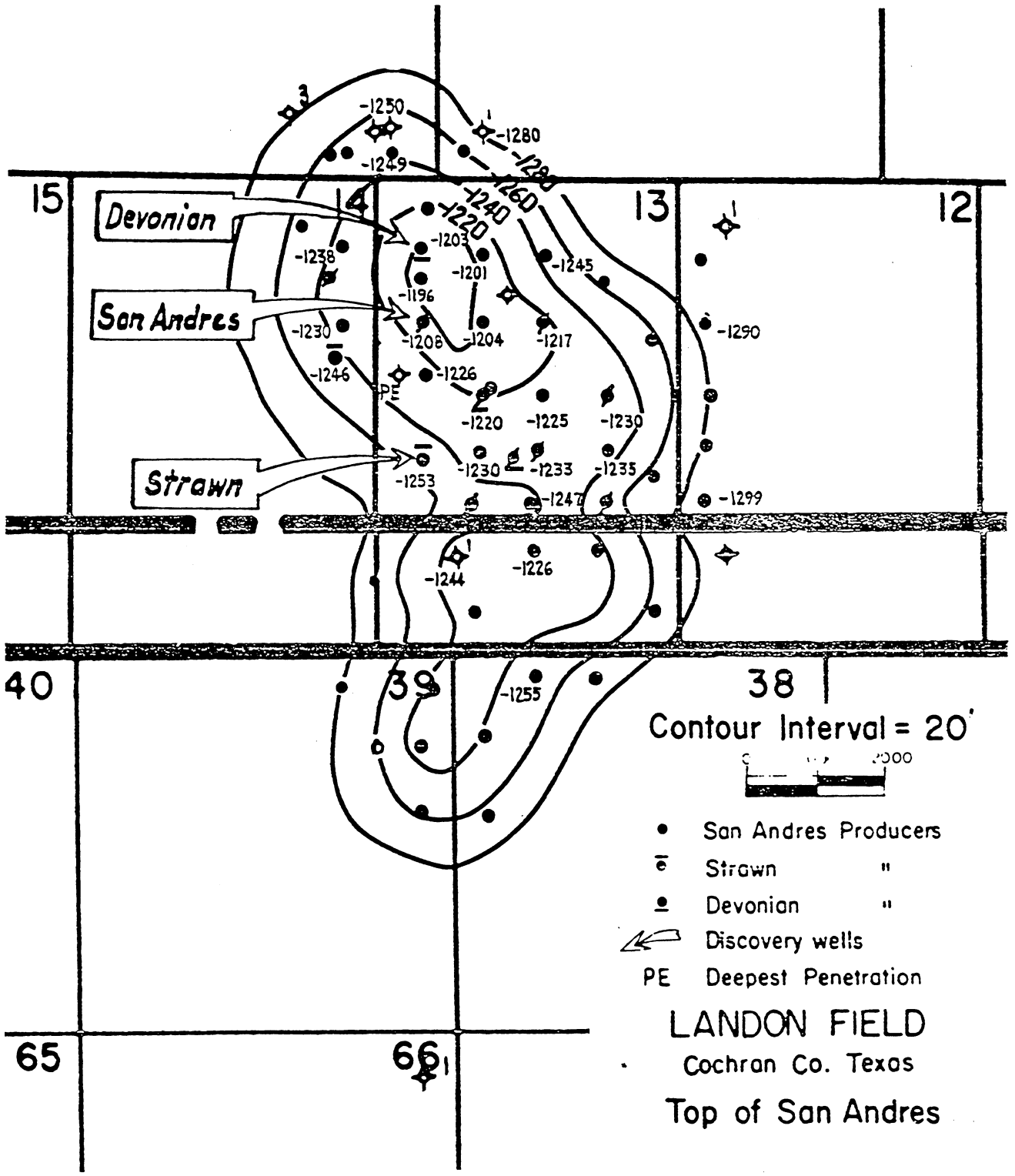
OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

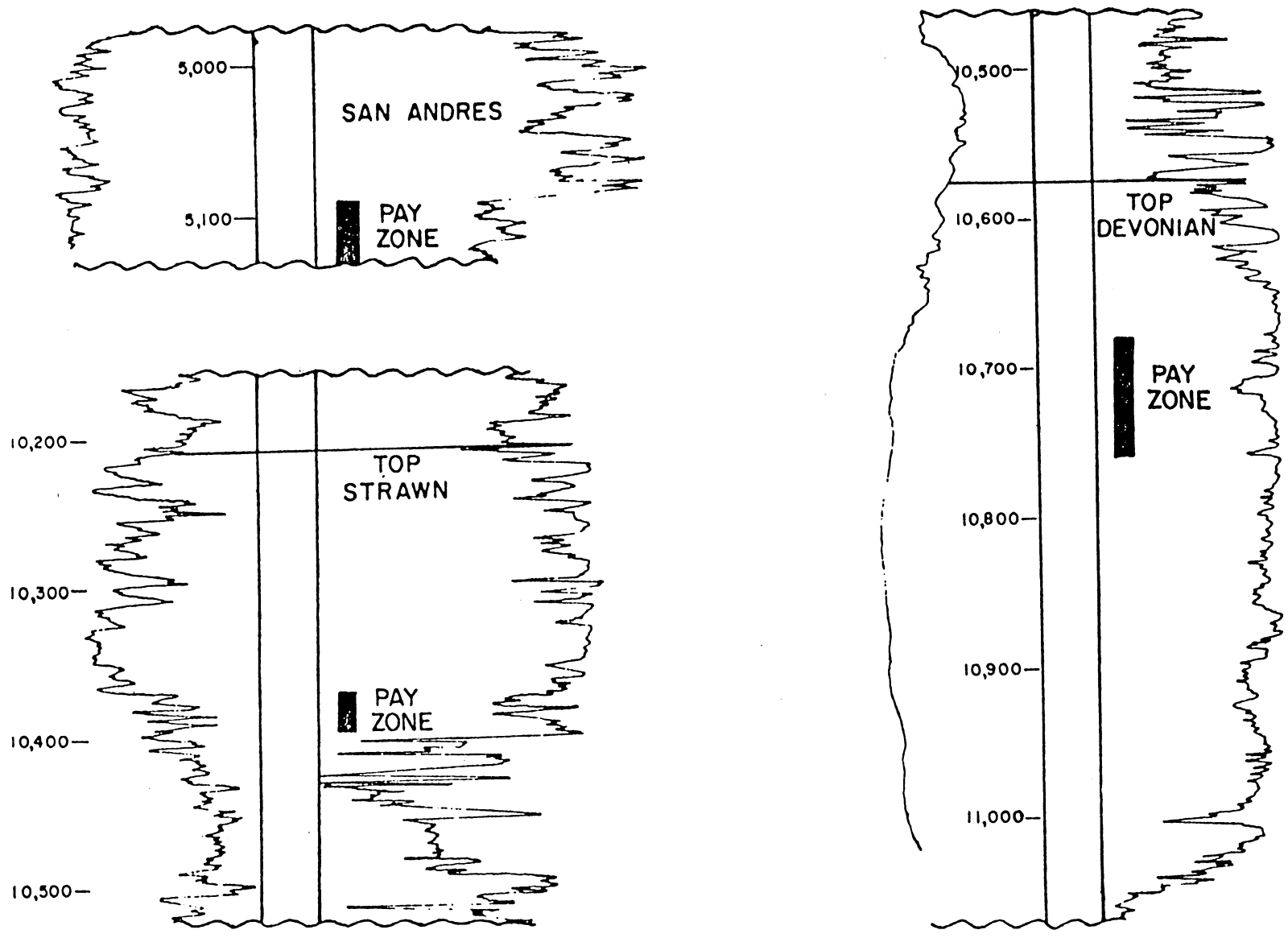
FIELD: Landon RESERVOIR: San Andres TOTAL NO. PROJECTS: 2 PDS:

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

1976 PROD. (this project): MBBLS	90	14
1977 PROD. (this project):	91	12
CUM. PROD. FROM DISC. TO 1/78:	5000	163
PROJECT NO.	F1782	F1781
LEASE NO.(s):	16737	03434
OPERATOR:	Amoco	Amoco
RESERVOIR:	San Andres	San Andres
DEPTH PRODUCING ZONE:	5050	5100
PRODUCTIVE ACREAGE IN RESERVOIR:	960	960
ACREAGE IN PROJECT:	820	40
PORTION OR FIELD WIDE:	FW	FW
TYPE:	WF/SW, BW	WF/SW, BW
PATTERN:	5S	5S
YEAR BEGAN:	8-62	6-68
YEAR TERMINATED OR STATUS:	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1758	1758
BEG. INJECTION:	200	650
LATEST:	520	570
NUMBER OF WELLS TOTAL:	42	3
PRODUCING WELLS:	19	1
INJECTION WELLS:	15	1SW
MAXIMUM:	---	1BW
LATEST:	---	---
SHUT-IN/ABANDONED WELLS:	8	0
SURFACE INJECTION PRESSURE:	1400	1400
EFFECTIVENESS OF INJECTION:	ME	ME
OPERATOR PROBLEMS:	SC, CR	SC, CR
ESTIMATED PRODUCTION DUE TO INJ.:		
1977:	91	12
FROM BEG. INJECTION:	2290	119
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	---
WATER PRODUCTION:		
CURRENT (1977):	725	26
CUMULATIVE TO 1/78:	12662	248
CURRENT (1977) INJECTION:	1463	28
CUMULATIVE INJECTION:	21648SW; 16071BW	301



FROM: OIL & GAS FIELDS IN WEST TEXAS SYMPOSIUM: WEST TEXAS GEOLOGICAL SOCIETY PUBLICATION NO. 69-57., 1969. Source 5b.



FROM: OIL & GAS IN WEST TEXAS SYMPOSIUM: WEST TEXAS GEOLOGICAL SOCIETY PUBLICATION NO. 69-57, 1969. Source 5b.

Lawson
San Andres
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Ector
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Lawson
1, 2	RESERVOIR	San Andres
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1	RESERVOIR LITHOLOGY	Limestone
	TRAPPING MECHANISM	
2,3,1	DISCOVERY YEAR	2-1950; 1950
2,1,16c	PROVED ACREAGE	4800, 360, 4800
1	REGULAR WELL SPACING (acres/well)	40
2,3,1	RESERVOIR DEPTH	4200-80; 4320; 4320
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	33, 20, 25-33
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.10
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	6.5, .6 md
2	HORIZONTAL	6.5 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Simpson
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	110P - 12I; 49 (23P-12I-14A)
1	PRODUCTION 1976 oil (cum)	12,337
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	13,275.8
3	PRODUCTION 1-1-79 to 1-1-80	278.8 mbbls oil; 539.5 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		
2,1	FIELD:	Lawson
2,1,16c	RESERVOIR:	San Andres
2,1,16c	PROD. ACRES:	4800, 360, 4800
16c	AVG. THICKNESS (FT.):	33, 20, 25-33
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.06
1, 16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.12 (74)
16c	WATER SATURATION (S_W):	.35, .33-.35
1	OIL SATURATION (S_O):	.568
	PRIMARY DRIVE MECHANISM:	depletion
16c	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	110
2,1	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1760
	RESERVOIR PRESSURE INITIAL (psi):	1569
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
2,3,1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1884.8 (76)
	STOCK TANK OIL GRAVITY (°API):	36-37.5; 37.9; 37.9
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):(psia)	1377
	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: Lawson 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	191	---			
1977 PROD. (this project):	158	---			
CUM. PROD. FROM DISC. TO 1/78:	1102	10 abd.			
PROJECT NO.	F1437	F3411			
LEASE NO.(s):	03441	20455			
OPERATOR:	Gulf Oil	Arco			
RESERVOIR:	San Andres	San Andres			San Andres
DEPTH PRODUCING ZONE:	4280	4200			4320
PRODUCTIVE ACREAGE IN RESERVOIR:	4720	4800			360
ACREAGE IN PROJECT:	1760	160			1760
PORTION OR FIELD WIDE:	P	P			
TYPE:	PM/BW	PM/SW			WF/PM
PATTERN:	5S	---			
YEAR BEGAN:	12-63	10-67			1963
YEAR TERMINATED OR STATUS:	ICP	IPD			
RESERVOIR PRESSURE INITIAL:	1569	---			1569
BEG. INJECTION:	1311	---			
LATEST:	---	---			
NUMBER OF WELLS TOTAL:	49	---			
PRODUCING WELLS:	23	---			110
INJECTION WELLS:	12	---			12
MAXIMUM:	---	---			
LATEST:	---	---			
SHUT-IN/ABANDONED WELLS:	14	---			
SURFACE INJECTION PRESSURE:	600	---			
EFFECTIVENESS OF INJECTION:	ME	---			
OPERATOR PROBLEMS:	CH	---			
ESTIMATED PRODUCTION DUE TO INJ.:	---	---			
1977:	---	---			
FROM BEG. INJECTION:	---	---			
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	---			
WATER PRODUCTION:					
CURRENT (1977):	845	---			
CUMULATIVE TO 1/78:	7059	---			
CURRENT (1977) INJECTION:	3226	---			
CUMULATIVE INJECTION:	35003	---			

Lea
San Andres
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
	COUNTY	Crane
	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
	FIELD	Lea
2	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	5-1955
2	PROVED ACREAGE	3000
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	2925, 3075
	RESERVOIR THICKNESS	
16c	NET PAY	29-79
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.09
	PERMEABILITY	
	RANGE	
2	AVERAGE	2 md
2	HORIZONTAL	2 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Clear Fork, Connel, Ellenburger, McKee, Penn, Penn Detrital, Tubb.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	45 (33P-9I-3A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	4,378.0
3	PRODUCTION 1-1-79 to 1-1-80	578.9 mbbls oil; 582.2 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:	Lea
2	RESERVOIR:	San Andres
16c	PROD. ACRES:	3000
16c	AVG. THICKNESS (FT.):	29-79
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.12
16c	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	.24-.35
	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	
16c	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	88
2	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1200
	RESERVOIR PRESSURE INITIAL (psi):	1399
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
2, 3	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
	STOCK TANK OIL GRAVITY (°API):	29.0, 38.1
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
	MINIMUM MISCIBILITY PRESSURE (MMP):(psia)	1107
	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: Lea 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	81
1977 PROD. (this project):	80
CUM. PROD. FROM DISC. TO 1/78:	1290
PROJECT NO.	F1439
LEASE NO.(s):	09558
OPERATOR:	Gulf Oil
RESERVOIR:	San Andres
DEPTH PRODUCING ZONE:	2925
PRODUCTIVE ACREAGE IN RESERVOIR:	3000
ACREAGE IN PROJECT:	3000
PORTION OR FIELD WIDE:	FW
TYPE:	WF/BW
PATTERN:	P5
YEAR BEGAN:	2-65
YEAR TERMINATED OR STATUS:	ICP
RESERVOIR PRESSURE INITIAL:	1399
BEG. INJECTION:	---
LATEST:	---
NUMBER OF WELLS TOTAL:	45
PRODUCING WELLS:	33
INJECTION WELLS:	9
MAXIMUM:	---
LATEST:	---
SHUT-IN/ABANDONED WELLS:	3
SURFACE INJECTION PRESSURE:	1400
EFFECTIVENESS OF INJECTION:	ME
OPERATOR PROBLEMS:	PA,IP,PI,CH
ESTIMATED PRODUCTION DUE TO INJ.:	
1977:	---
FROM BEG. INJECTION:	---
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---
WATER PRODUCTION:	
CURRENT (1977):	10
CUMULATIVE TO 1/78:	168
CURRENT (1977) INJECTION:	1198
CUMULATIVE INJECTION:	16265

Lea
Ellenburger
Central Basin Platform

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Crane
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Lea
5a, 1	RESERVOIR	Ellenburger
1	GEOLOGIC AGE	Ordovician
1	AAPG STRATIGRAPHIC AGE CODE	367
5a,1	RESERVOIR LITHOLOGY	Limestone dolomite - fractured dolomite with vugular porosity; dolomite.
5a, 1	TRAPPING MECHANISM	Convex folding - reservoir limits established to the south and east by faults and to the north and west by the oil-water contact; anticline fault.
5a,3,1	DISCOVERY YEAR	6-1953; 1953
5a,1,16c	PROVED ACREAGE	2066, 50, 2066
5a, 1	REGULAR WELL SPACING (acres/well)	80
5a,3,1	RESERVOIR DEPTH	8165-8200 and 8225-8270; 8165; 8165
	RESERVOIR THICKNESS	
5a,1,16c	NET PAY	115, 40, 35-45
5a	GROSS	202
	NET/GROSS RATIO	
	POROSITY	
5a, 1	TYPE	V, F
5a, 1	FRACTION	.018
	PERMEABILITY	
	RANGE	
5a	AVERAGE	"very high"
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from Clear Fork, Connel McKee, Penn, Penn Detrital, San Andres, Tubb.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	22P
1	PRODUCTION 1976 oil (cum)	18,794
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	19,332.3
3	PRODUCTION 1-1-79 to 1-1-80	149.5 mbbls oil; 54.7 mmcf gas
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5a	STRUCTURE CONTOUR?	yes
5a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

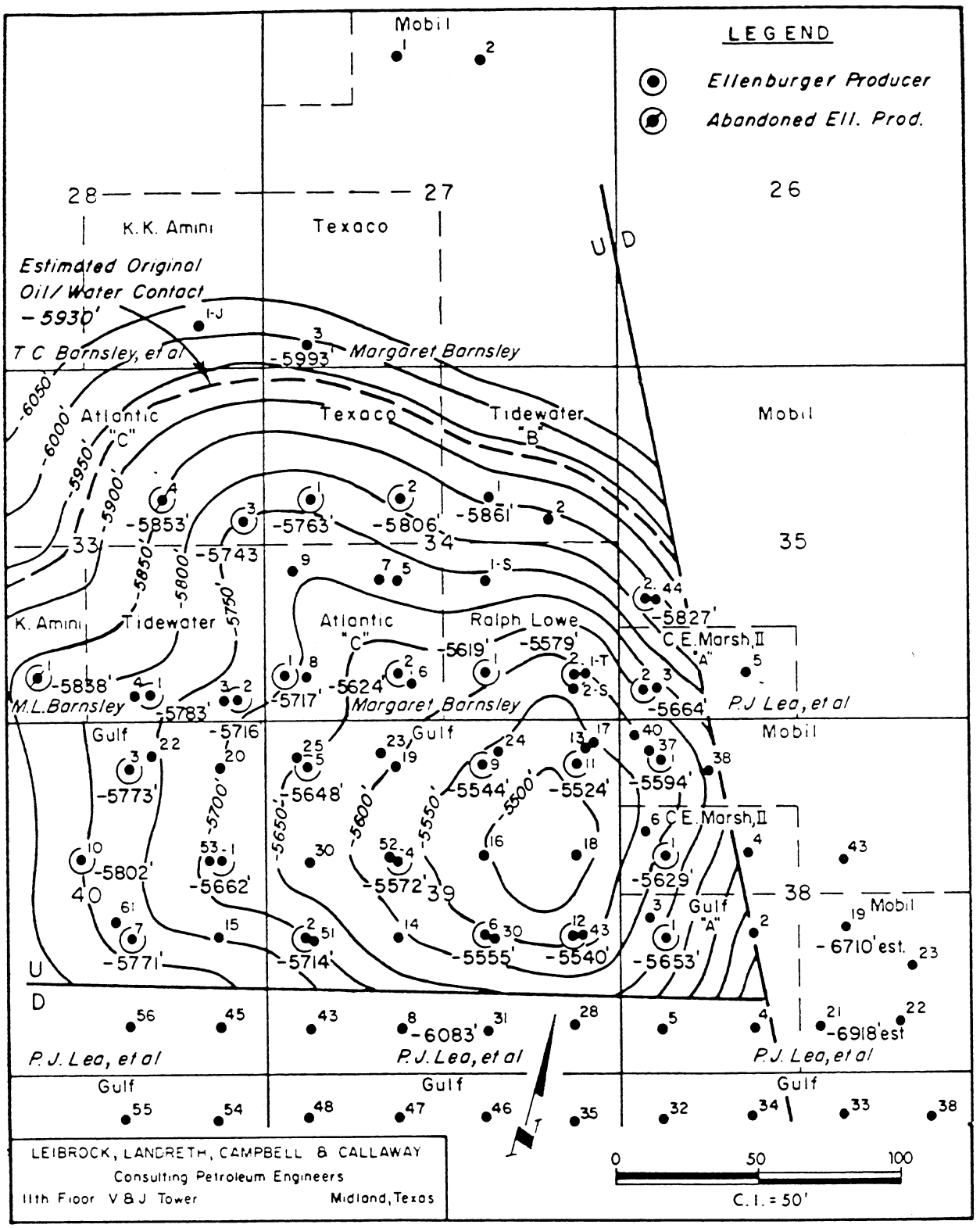
RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Lea
5a,1	RESERVOIR:	Ellenburger
5a, 1, 16c	PROD. ACRES:	2066, 50, 2066
5a, 1, 16c	AVG. THICKNESS (FT.):	115, 40, 35-45
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	water drive
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	139
5a, 16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	750
5a, 1	RESERVOIR PRESSURE INITIAL (psi):	3730
	RESERVOIR PRESSURE LATEST (psi):	
5a, 1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	367
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	669.2 (76)
5a, 3, 1	STOCK TANK OIL GRAVITY (°API):	43, 42.1, 42.1
5a	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	0.62 cp
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1716
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

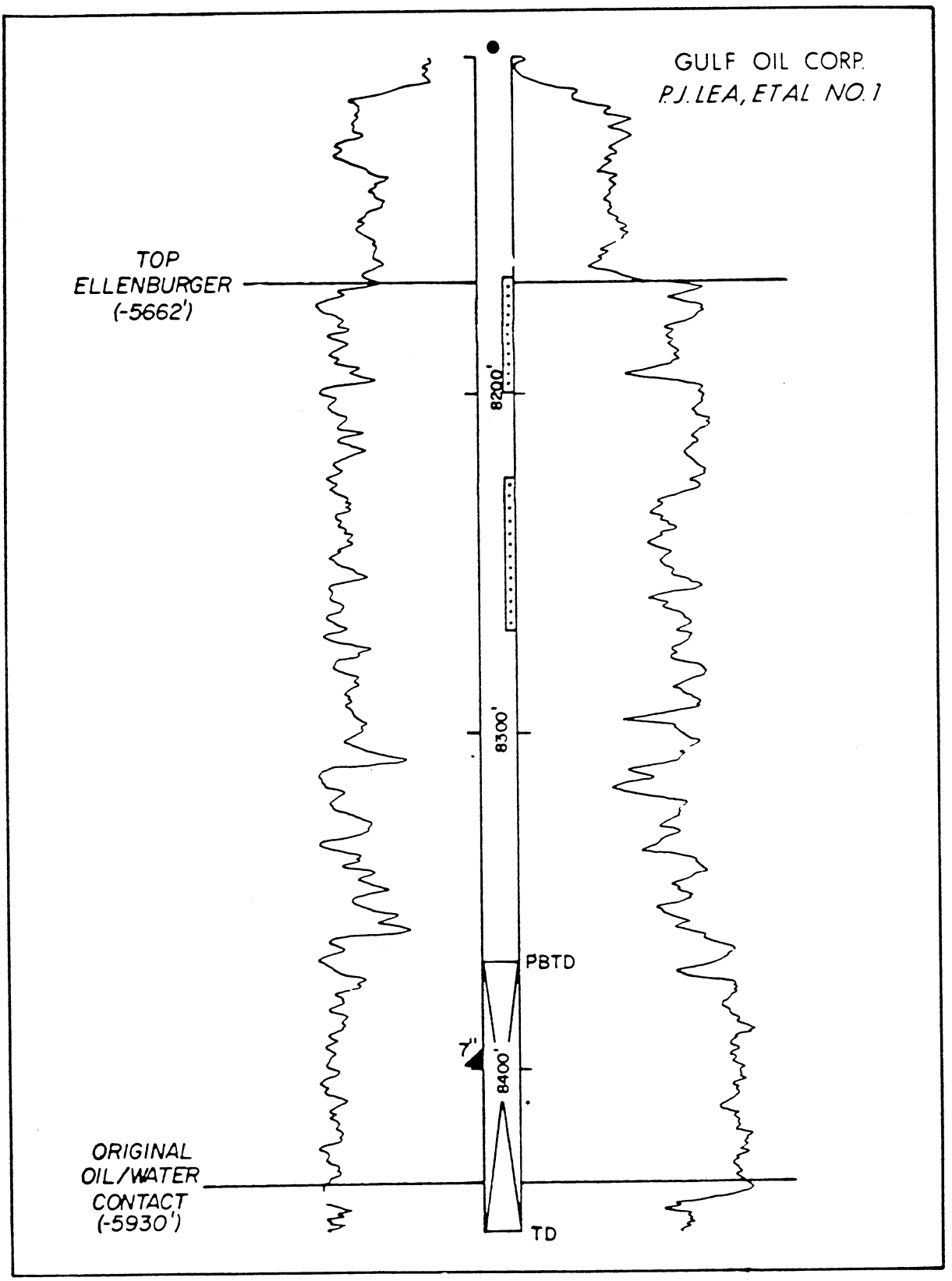
5a Produced water "salty sulphur water"

1 Primary recoverable (1966):
20,900,000 bbl
69 bbl/acre-ft



STRUCTURE TOP OF ELLENBURGER,
LEA FIELD, CRANE COUNTY, TEXAS

FROM: Fikes, J.C., 1969, Lea Ellenburger in Oil & Gas Fields in West Texas: West Texas Geological Society Pub. No. 69-57, p. 226-229.



TYPE LOG OF ELLENBURGER,
LEA FIELD, CRANE COUNTY, TEXAS

FROM: Fikes, J.C., 1969, Lea Elllenburger in Oil & Gas Fields in West Texas: West Texas Geological Society Pub. No. 69-57, p. 226-229.

Lea
Devonian
Central Basin Platform

DATA SOURCE CODE		
	STATE	New Mexico
6b, 1	COUNTY	Lea
1	REGULATORY DISTRICT	Southeast
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
14c,1	FIELD	Lea
14c,6c,1	RESERVOIR	Devonian
6c,1	GEOLOGIC AGE	Devonian
1	AAPG STRATIGRAPHIC AGE CODE	340
6c,1	RESERVOIR LITHOLOGY	Dolomite, fine-medium crystalline, sucrosic tan-gray; dolomite.
1	TRAPPING MECHANISM	Structural closure
18,1	DISCOVERY YEAR	9-60, 1960
6c, 1	PROVED ACREAGE	1440
18,6c	REGULAR WELL SPACING (acres/well)	160
6c,1	RESERVOIR DEPTH	14,350; 14,347-14,489
	RESERVOIR THICKNESS	
6c,1	NET PAY	124
6c	GROSS	215
	NET/GROSS RATIO	
	POROSITY	
6c	TYPE	IC
6c,1	FRACTION	.065
	PERMEABILITY	
	RANGE	
6c,1	AVERAGE	50 md
	HORIZONTAL	
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18,1	TOTAL NUMBER OF WELLS	9 (7P, 2A); 8 (7P,1A)
	PRODUCTION 1976 oil (cum)	
1	PRODUCTION 1977 oil (cum)	5916
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	6120
18	PRODUCTION 1-1-79 to 1-1-80	103 mbbls oil; 39 mmcf gas; 2820 mbbls water
	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		
14c,6c,1	FIELD:	Lea
6c,1	RESERVOIR:	Devonian
6c, 1	PROD. ACRES:	1440
	AVG. THICKNESS (FT.):	124
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
6c, 1	WATER SATURATION (S_W):	.25
6c, 1	OIL SATURATION (S_O):	.12
6c, 1	PRIMARY DRIVE MECHANISM:	strong water drive
	PRIMARY GAS CAP?:	
6c, 1	TEMPERATURE (^oF):	200
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
6c,1	RESERVOIR PRESSURE INITIAL (psi):	6046
	RESERVOIR PRESSURE LATEST (psi):	
6c,1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	321
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
1	STOCK TANK OIL GRAVITY (^oAPI):	56
	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:

1 H_2O resistivity = .156 ohm-meters @ 84^oF

WATER ANALYSIS RECORD

FIELD: Lea RESERVOIR: Devonian TOTAL NO. PROJECTS:

DATA SOURCE: PDS-OILY

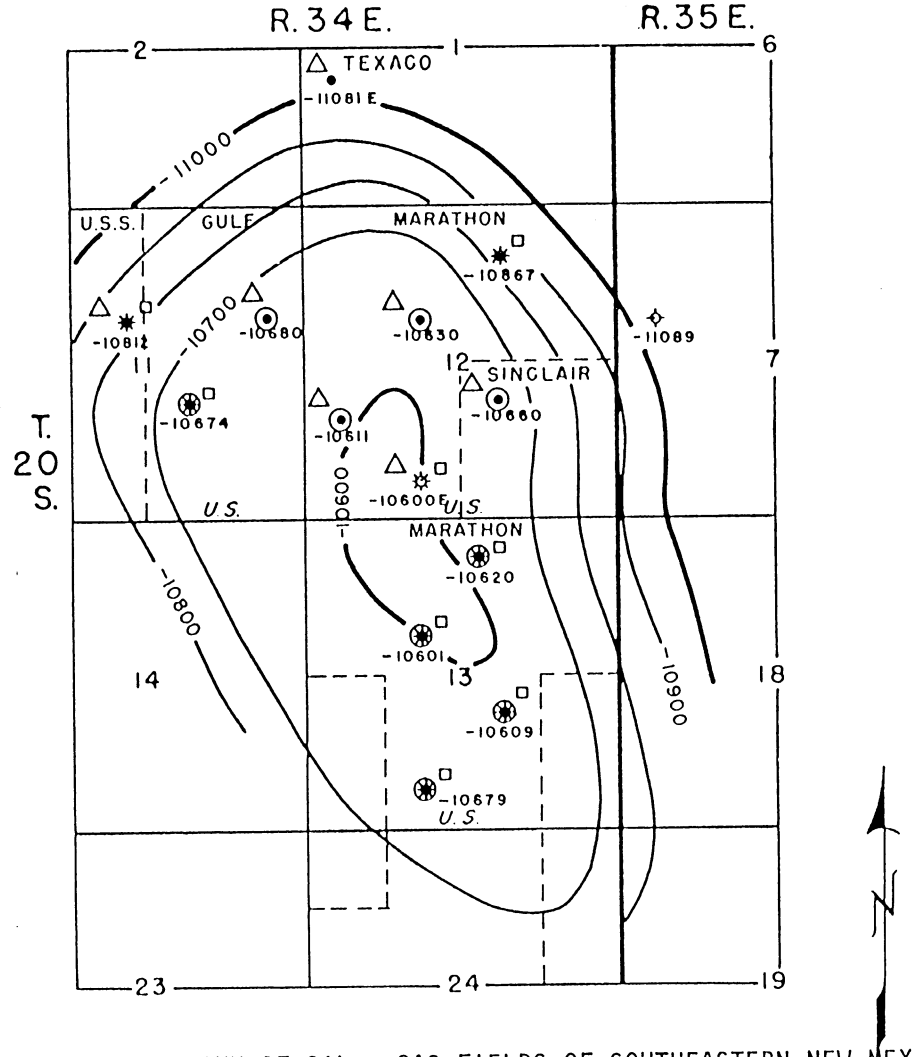
TOTAL SOLIDS (ppm):

NA	10,023
Ca	1,520
Mg	282
Fe	nil
SO_4	950
Cl	18,200
CO_2	183
HCO_3	
OH	
H_2S	

RESISTIVITY: .156 ohm-meters @ 84°F

SPECIFIC GRAVITY: 1.027 @ 68°F

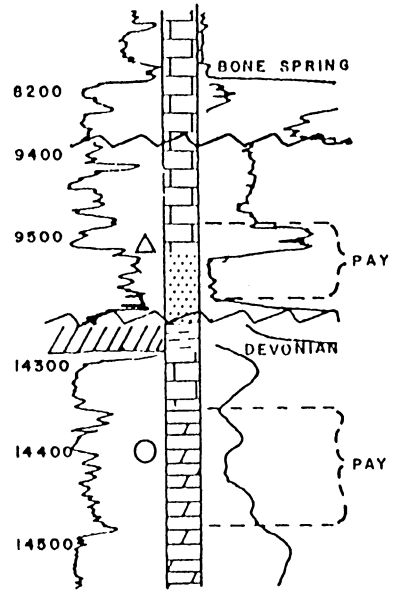
OTHER WATER QUALITY DATA:



TYPE LOG

ELEVATION 3675

SCALE 1" = 200'



LEGEND

- BONE SPRING OIL
- MORROW GAS/COND.
- DEVONIAN OIL

LEA FIELD

LEA COUNTY, NEW MEXICO

STRUCTURAL CONTOURS ON TOP OF DEVONIAN

SCALE IN MILES

0 1

MARATHON OIL CO SEPT 1966

FROM: A SYMPOSIUM OF OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO, 1967, ROSWELL GEOLOGICAL SOCIETY, Source 6d.

Levelland
San Andres
North Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Cochran-Hockley
1	REGULATORY DISTRICT	8A
1	BASIN	Permian
2	SUB-BASIN	North Basin Platform
15, 1	FIELD	Levelland
2	RESERVOIR	San Andres
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
9a, 1	RESERVOIR LITHOLOGY	Dolomite, crystalline and anhydritic; limestone.
5a	TRAPPING MECHANISM	Structural and stratigraphic combination
1,2,9c	DISCOVERY YEAR	1945, 2-1945, 1946
2,1,16c	PROVED ACREAGE	86560 avg.. (varies from 72000-9700);
1	REGULAR WELL SPACING (acres/well)	43 750; 90000
2,3,9c,1	RESERVOIR DEPTH	4675-4927; 4927; 4900; 4927
	RESERVOIR THICKNESS	
1,2,9a,9c,16c	NET PAY	180; 40.6 avg.; 103; 100; 10-125
9a, 9c	GROSS	175,250
	NET/GROSS RATIO	
	POROSITY	
9a	TYPE	IC, V
2, 9c, 1	FRACTION	.110 avg., .102, .11
	PERMEABILITY	
2	RANGE	1-5 md
2, 9c, 1	AVERAGE	2.3; 2.1; 3 md
2	HORIZONTAL	2.3 md
	VERTICAL	
3	OTHER INFORMATION	Other reservoirs include Abo, Cisco Lime, Clear Fork, Strawn, Wichita-Albany
14e	Rated in BETC/RI- 78/15 as most suitable for carbon dioxide EOR.	
	PRODUCTION STATISTICS	
	(oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	1769P - 433I; 3105 (1470P-1400I-235A)
	PRODUCTION 1976 oil (cum)	
1	PRODUCTION 1977 oil (cum)	275,470
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	312,239.7
3	PRODUCTION 1-1-79 to 1-1-80	18,722.2 mbbls oil; 10,017.3 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
9a, 9c	LOGS?	yes
	STRUCTURE SECTION?	
9a, 9c	ENGINEERING REPORTS?	yes
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2	FIELD:	Levelland
2,1, 16c	RESERVOIR:	San Andres
16c,2,1,9a,9c	PROD. ACRES:	86560, 750, 90000
9a, 1, 16c	AVG. THICKNESS (FT.):	10-125, 40.6, 180,103,100
9a, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.209, 1.21, 1.209
16c, 1,9c,9a	FORMATION VOLUME FACTOR LATEST (FVF):	1.140, 1.159(75)
16c, 9a	WATER SATURATION (S_W):	.30; .15; .234; .336/.626
1, 9c	OIL SATURATION (S_O):	.55(76); .664/.288
	PRIMARY DRIVE MECHANISM:	depletion; solution gas
9a	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	105
2,9a,1	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2,9c, 9a	RESERVOIR PRESSURE INITIAL (psi):	1200-1710; 1700; 1700
9a	RESERVOIR PRESSURE LATEST (psi):	100-1000,925(77), 1450
17,9a,1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	425
1,2,3,9c	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1616, 300, 1616.3(77)
9c, 9a	STOCK TANK OIL GRAVITY (°API):	29;28.5-32.9; 29; 30
17, 9c	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	1.9; 1.728/1.825
2	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1388, 1100
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 30 SRPs:	892,074 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 27 SRPs:	139,169 mbbls

OTHER INFORMATION:

9a Water salinity: 256,000 ppm initial
120,000 ppm present

1 Primary recoverable: 78 bbl/acre-ft.

9a Reference: Smith, L. R., 1975, Levelland Field, Levelland Unit, Amoco Production Co.: Improved Oil Recovery Field Reports, Society of Petroleum Engineers, V.1, N.2, September, p.267-276.

9c Reference: Brannan, G., and Whitington, H. M., Jr., 1977, Enriched Gas Miscible Flooding: A Case History of the Levelland Unit Secondary Miscible Project: Jour. Pet. Tech., August, p. 919-924.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Levelland RESERVOIR: San Andres TOTAL NO. PROJECTS: 33 (1-78)
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	---	18	168	1	260
1977 PROD. (this project):	7989	18	172	1	326
CUM. PROD. FROM DISC. TO 1/78:	111657	744559	2465	96	5996
PROJECT NO.	F1792	F5510	F1793	F1795	F1787
LEASE NO.(s):	03780	03674	18451	03672	60232
OPERATOR:	Amoco	Amoco	Amoco	Amoco	Depco
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4750	4751	4775	4927	4850
PRODUCTIVE ACREAGE IN RESERVOIR:	88660	82500	88660	88660	89700
ACREAGE IN PROJECT:	16209	---	1986	177	1179
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE: WF/SW,FW; PM/Gas, CO2	WF/SW, FW	WF/SW, FW	WF/FW	WF/SW, FW	
PATTERN:	5S	5S	5S	SW	SLD
YEAR BEGAN:	10-64WF; 3-71CO2	1-73	8-64	6-69	4-63
YEAR TERMINATED OR STATUS: ICP-WF; IPD-gas; INS-CO2	SW-INS;FW-ICP	SW-IPD; FW-ICP	ICP	ICP	
RESERVOIR PRESSURE INITIAL:	1690	1690	1690	1690	1690
BEG. INJECTION:	1250	900	500	1000	---
LATEST:	1000	---	674	900	---
NUMBER OF WELLS TOTAL:	693	4	61	2	98
PRODUCING WELLS:	373	2	24	1	58
INJECTION WELLS:	184FW	2	21	1	2 SW
MAXIMUM:	133SW	---	---	---	38FW
LATEST:	0 Gas	---	---	---	---
SHUT-IN/ABANDONED WELLS:	3	0	16	0	0
SURFACE INJECTION PRESSURE:	850	1000	1100	1000	2000
EFFECTIVENESS OF INJECTION: ME-WF, NE-gas;UD-CO2	---	---	---		ME
OPERATOR PROBLEMS:	CR,SC,PA,EB	CR	CR,PA	CR	---
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---	---	---	---	326
FROM BEG. INJECTION:	---	---	---	---	1472
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	---	---	---	---
WATER PRODUCTION:					
CURRENT (1977):	9371	19	381	33	262
CUMULATIVE TO 1/78:	44180	270	3171	135	1371
CURRENT (1977) INJECTION: 9752SW;	13558 FW; 0 gas	65 FW	591 FW	14 SW	262SW; 1492 FW
CUMULATIVE INJECTION:	49023 SW; 195469 FW; 26594 gas	419 FW	920SW; 5726 FW	106 SW	19355SW;19277FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Levelland RESERVOIR: San Andres TOTAL NO. PROJECTS: 33

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

1976 PROD. (this project): MBBLS	334	256	209	25	31
1977 PROD. (this project):	345	262	220	66	31
CUM. PROD. FROM DISC. TO 1/78:	5740	2998	3826	2803	647
PROJECT NO.	F1801	F1802	F1803	F5889	F1804
LEASE NO.(s):	19452	60294	14567	61133	03542,03749,14924
OPERATOR:	Sun Oil	Texaco	Texaco	Texas City	Texas City
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4925	4800	4800	4912	5000
PRODUCTIVE ACREAGE IN RESERVOIR:	91080	87890	87890	88600	35000
ACREAGE IN PROJECT:	3149	1233	3638	1418	1300
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW
PATTERN:	5S	5S	5S	M5	M5
YEAR BEGAN:	5-65	6-68	12-68	8-75	3-61
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1700	1650	1690	1700	1710
BEG. INJECTION:	400	650	700	---	---
LATEST:	400	---	---	---	---
NUMBER OF WELLS TOTAL:	126	53	58	46	20
PRODUCING WELLS:	64	25	38	17	11
INJECTION WELLS:	31SW	14SW	6 SW	17FW	1 SW
MAXIMUM:	31FW	14FW	13 FW	2SW	7 FW
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	0	0	1	10	1
SURFACE INJECTION PRESSURE:	1800	1560	1500	1400	1700
EFFECTIVENESS OF INJECTION:	VE	ME	ME	---	---
OPERATOR PROBLEMS:	---	---	---	---	---
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	272	---	---	---	---
FROM BEG. INJECTION:	1390	---	---	---	---
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	2840	---	---	---	---
WATER PRODUCTION:					
CURRENT (1977):	367	925	707	105	29
CUMULATIVE TO 1/78:	2339	3424	3199	390	211
CURRENT (1977) INJECTION:	367SW; 2646FW	925SW; 1372FW	707SW; 1172 FW	105SW; 1422FW	29SW; 133FW
CUMULATIVE INJECTION:	2339SW;25608FW	2339SW;25608 FW	3450SW; 14548FW	222SW;3693FW	1472SW;1722FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: RESERVOIR: TOTAL NO. PROJECTS:

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

1976 PROD. (this project): MBBLS	76	385	38	169	22
1977 PROD. (this project):	75	433	37	168	16
CUM. PROD. FROM DISC. TO 1/78:	4382	10618	622	5128	643
PROJECT NO.	F3731	F1796	F1788	F1789	F1790
LEASE NO.(s):	60732	60436	03632	16877	03686
OPERATOR:	Getty	Getty	Great Western	Great Western	Gulf Oil
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4865	4927	5000	5050	4900
PRODUCTIVE ACREAGE IN RESERVOIR:	88660	87000	90000	87970	85000
ACREAGE IN PROJECT:	4508	7038	134	4140	296
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/FW	WF/SW, FW
PATTERN:	5S	SLD	5S	5S	5S
YEAR BEGAN:	1-72	7-69	10-74	12-62	1-64
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1500	1350	1690	1700	1690
BEG. INJECTION:	706	150	400	200	375
LATEST:	706	300	---	---	---
NUMBER OF WELLS TOTAL:	167	193	6	117	8
PRODUCING WELLS:	46	93	3	54	3
INJECTION WELLS:	47SW	47SW	2	37	2SW
MAXIMUM:	47FW	47FW	---	---	2FW
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	27	6	1	26	1
SURFACE INJECTION PRESSURE:	2100	2100	1300	2250	2200
EFFECTIVENESS OF INJECTION:	UD	ME	VE	ME	VE
OPERATOR PROBLEMS:	CR,EW,SC,PA	SC,EP	---	CH	---
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	53	433	37	168	16
FROM BEG. INJECTION:	200	1880	186	1318	251
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	3375	5900	495	2000	350
WATER PRODUCTION:					
CURRENT (1977):	348	626	23	352	44
CUMULATIVE TO 1/78:	4121	14378	74	2035	251
CURRENT (1977) INJECTION:	348SW; 4302FW	626SW; 5652FW	43	812	44SW; 105FW
CUMULATIVE INJECTION:	1474SW; 18500FW	14333SW; 29435FW	104SW; 7381FW	16107	251SW; 3195FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Levelland RESERVOIR: San Andres TOTAL NO. PROJECTS: 33
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	11	684	55	264	149
1977 PROD. (this project):	12	741	71	303	194
CUM. PROD. FROM DISC. TO 1/78:	744	21438	2088	12155	2188
PROJECT NO.	F1785	F4482	F1791	F1794	F1797
LEASE NO.(s):	03894	60557	03692	60190	03565
OPERATOR:	Layton Ent.	Mobile Oil	Monsanto	Santa Fe	Sun Oil
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	5000	4750-4800	4950	4850	4850
PRODUCTIVE ACREAGE IN RESERVOIR:	700	97000	87000	88660	84500
ACREAGE IN PROJECT:	400	11250	1785	7720	267
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW
PATTERN:	I	LD	5S	5S	I
YEAR BEGAN:	10-60	12-69	10-57	8-64	4-66
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1200	1710	1200	1690	1710
BEG. INJECTION:	---	250	500	400	885
LATEST:	---	250	---	---	885
NUMBER OF WELLS TOTAL:	14	436	51	235	25
PRODUCING WELLS:	12	186	30	107	8
INJECTION WELLS:	2	100SW	2 SW	9 SW	8SW
MAXIMUM:	---	100FW	8 FW	67 FW	8FW
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	0	50	11	52	1
SURFACE INJECTION PRESSURE:	1000	1775	2000	1500	950
EFFECTIVENESS OF INJECTION:	---	ME	ME	---	VE
OPERATOR PROBLEMS:	CR,PA	EB,PI,SC,	CR,CH,SC,SF	EB	IP,SC
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	12	742	71	223	125
FROM BEG. INJECTION:	137	2068	512	555	206
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	19000	1100	8100	1750	1750
WATER PRODUCTION:					
CURRENT (1977):	55	1507	144	458	402
CUMULATIVE TO 1/78:	164	4903	1969	2862	1008
CURRENT (1977) INJECTION:	54	1507SW; 7679FW	144SW; 219FW	458SW; 2260 FW	402SW; 402FW
CUMULATIVE INJECTION:	447	4898SW; 63090FW	1592SW; 5821FW	2862SW; 16651FW	3781SW; 2020FW

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Levelland RESERVOIR: San Andres TOTAL NO. PROJECTS: 33

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

1976 PROD. (this project): MBBLS	85	139	72	31	35
1977 PROD. (this project):	77	173	73	30	41
CUM. PROD. FROM DISC. TO 1/78:	809	1699	798	1404	820
PROJECT NO.	F1798	F1799	F1800	F3730	F7198
LEASE NO.(s):	03566	03796	03569	60439	03568
OPERATOR:	Sun Oil	Sun Oil	Sun Oil	Sun Oil	Sun Oil
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4850	4850	4850	4850	4850
PRODUCTIVE ACREAGE IN RESERVOIR:	84500	84500	84500	75000	84500
ACREAGE IN PROJECT:	133	268	134	500	186
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW
PATTERN:	I	I	I	I	5S
YEAR BEGAN:	5-66	7-66	5-66	5-73	10-77
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1690	1690	1690	1500	1600
BEG. INJECTION:	307	800	223	100	200
LATEST:	307	800	223	100	---
NUMBER OF WELLS TOTAL:	12	24	12	50	16
PRODUCING WELLS:	4	8	4	18	8
INJECTION WELLS:	4SW	8SW	4SW	16SW	4FW
MAXIMUM:	4FW	8FW	4FW	16FW	4FW
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	0	0	0	0	0
SURFACE INJECTION PRESSURE:	950	950	950	950	950
EFFECTIVENESS OF INJECTION:	VE	VE	VE	UD	UD
OPERATOR PROBLEMS:	IP, SC	IP, SC	SC, IP	SC, IP	---
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	57	136	43	1	---
FROM BEG. INJECTION:	151	276	139	2	---
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	595	1000	450	20	---
WATER PRODUCTION:					
CURRENT (1977):	194	194	462	207	116
CUMULATIVE TO 1/78:	636	636	1215	491	537
CURRENT (1977) INJECTION:	194SW; 75FW	194SW; 75FW	462SW; 237FW	207SW; 38FW	116SW; 420FW
CUMULATIVE INJECTION:	615SW; 1374FW	6155SW; 1375FW	1116SW; 4049FW	491SW; 1711FW	383SW

ENHANCED AND SECONDARY RECOVERY DATA:

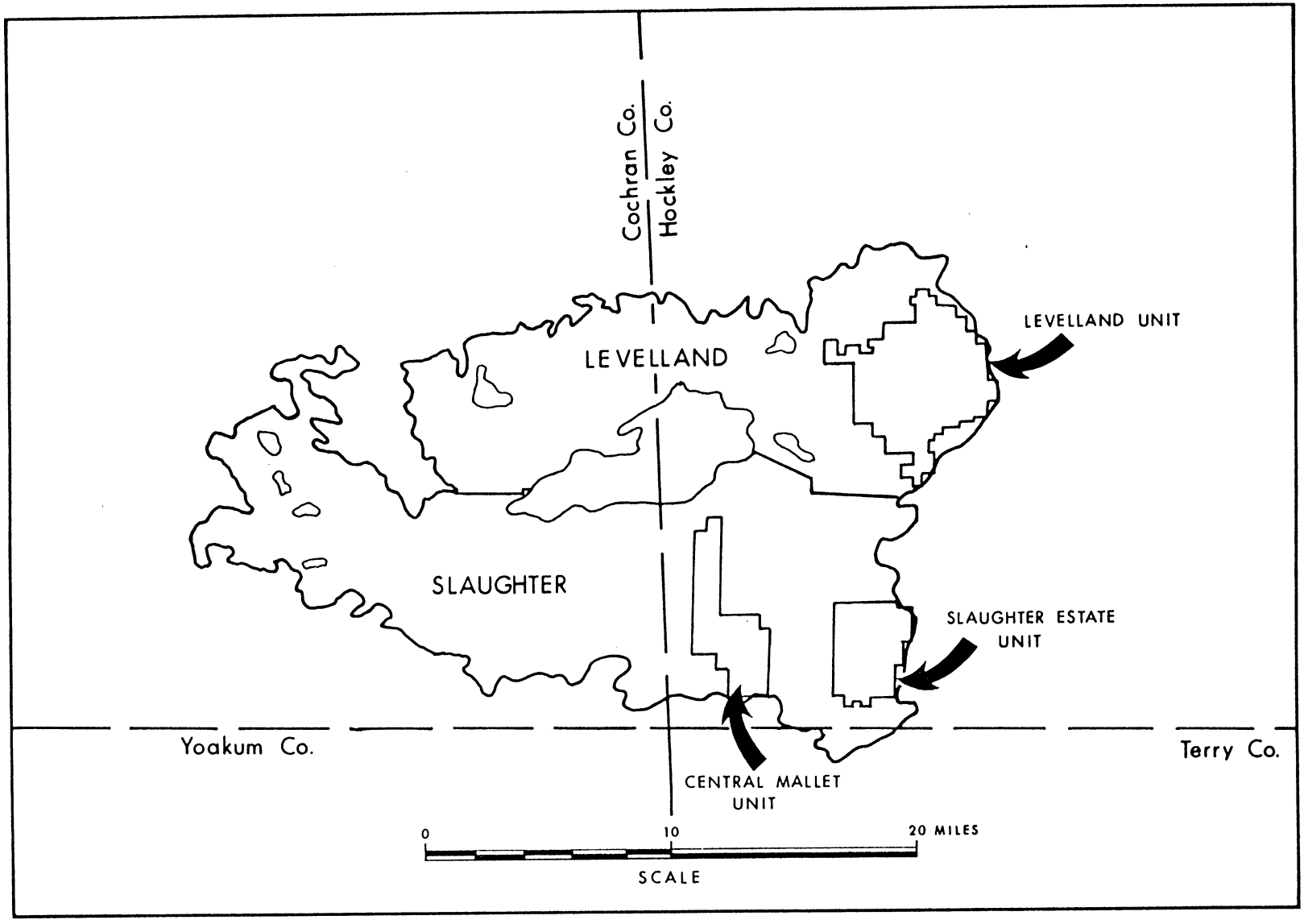
FIELD: Levelland RESERVOIR: San Andres TOTAL NO. PROJECTS: 33
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	69	1802	1515	8	31
1977 PROD. (this project):	92	1989	1846	13	29
CUM. PROD. FROM DISC. TO 1/78:	3182	24551	25096	219	767
PROJECT NO.	F7462	F1805	F1807	F1806	F1808
LEASE NO.(s):	61137	60298	18515	03853	60448
OPERATOR:	Texas Pacific	Texas Pacific	Texas Pacific	Texas Pacific	Union Tex.Pet.
RESERVOIR:	San Andres	San Andres	San Andres	San Andres	San Andres
DEPTH PRODUCING ZONE:	4675	4750	4800	4900	4900
PRODUCTIVE ACREAGE IN RESERVOIR:	679	84500	84500	88660	85000
ACREAGE IN PROJECT:	679	5321	5458	177	722
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW	WF/SW, FW
PATTERN:	5S	5SL	5S	5S	M5
YEAR BEGAN:	4-76	6-68	10-64	4-67	5-69
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	1710	1710	1710	1710	1690
BEG. INJECTION:	100	100	---	---	100
LATEST:	197	---	---	382	---
NUMBER OF WELLS TOTAL:	40	231	214	6	17
PRODUCING WELLS:	13	107	114	4	8
INJECTION WELLS:	5 SW	18 SW	32 SW	1SW	4 SW
MAXIMUM:	22 FW	82 FW	68 FW	1FW	4FW
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	0	24	0	0	1
SURFACE INJECTION PRESSURE:	---	---	---	---	1780
EFFECTIVENESS OF INJECTION:	ME	ME	ME	ME	ME
OPERATOR PROBLEMS:	---	---	---	---	---
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	---	1989	1846	13	22
FROM BEG. INJECTION:	---	8858	9612	75	120
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	24000	20555	144	47
WATER PRODUCTION:					
CURRENT (1977):	51	2445	2174	6	56
CUMULATIVE TO 1/78:	177	10102	14091	24	280
CURRENT (1977) INJECTION:	51SW; 1296BW	2445SW; 5503FW	2174SW; 5371FW	6SW; 29FW	249FW
CUMULATIVE INJECTION:	103SW; 2275BW	10137SW; 42293FW	13536SW; 49529FW	24SW; 361FW	2446 FW

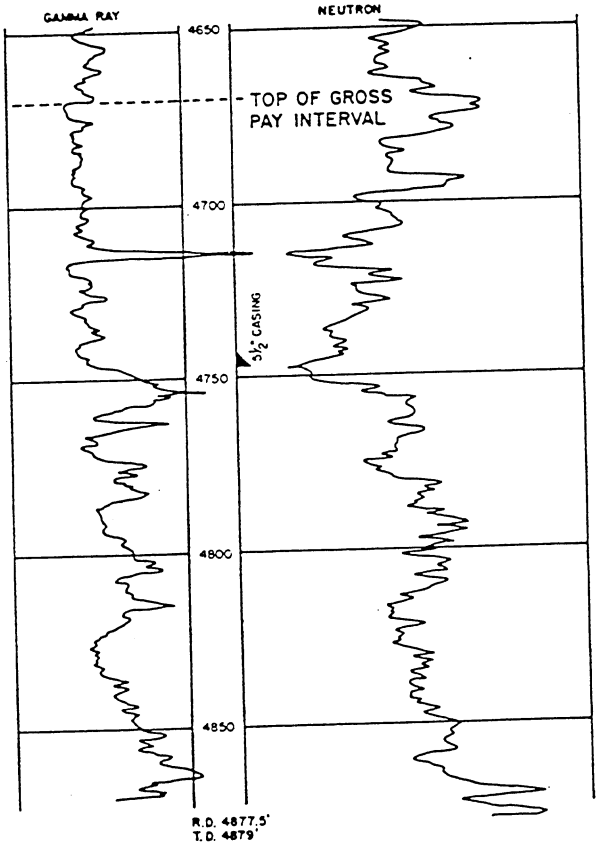
ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Levelland RESERVOIR: San Andres TOTAL NO. PROJECTS: 33 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

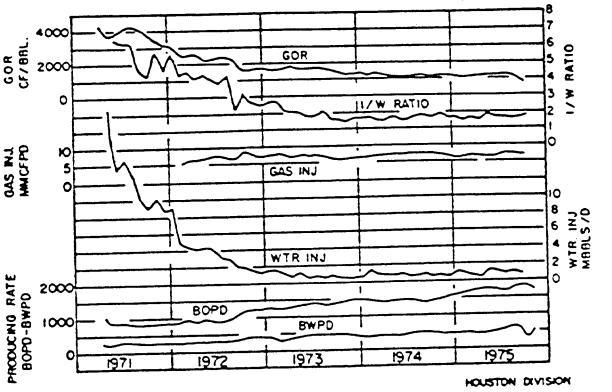
1976 PROD. (this project): MBBLS	148	6	---		
1977 PROD. (this project):	202	6	2		
CUM. PROD. FROM DISC. TO 1/78:	3813	145	267		
PROJECT NO.	F1809	F1810	F5329		
LEASE NO.(s):	03529	03896	03577		
OPERATOR:	Union Tex. Pet	United Co.	White		
RESERVOIR:	San Andres	San Andres	San Andres		
DEPTH PRODUCING ZONE:	4900	4900	4910		4927
PRODUCTIVE ACREAGE IN RESERVOIR:	85000	72000	89700		750
ACREAGE IN PROJECT:	1036	1150	335		16209
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P		
TYPE:	WF/SW, FW	WF/SW	WF/SW, FW		WF
PATTERN:	5S	SW	SLD		
YEAR BEGAN:	12-63	63	6-73		1965
YEAR TERMINATED OR STATUS:	ICP	ICP	SW-ICP; FW-INS		
RESERVOIR PRESSURE INITIAL:	1690	1400	1690		1700
BEG. INJECTION:	580	---	---		
LATEST:	---	---	---		
NUMBER OF WELLS TOTAL:	55	5	7		
PRODUCING WELLS:	21	4	2		1769
INJECTION WELLS:	17SW	1	1		433
MAXIMUM:	17FW	---	---		
LATEST:	---	---	---		
SHUT-IN/ABANDONED WELLS:	0	0	4		
SURFACE INJECTION PRESSURE:	1650	---	900		
EFFECTIVENESS OF INJECTION:	ME	---	NE		
OPERATOR PROBLEMS:	SC, IP	---	PA		
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	152	2	---		
FROM BEG. INJECTION:	1454	16	---		
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	2571	---	---		
WATER PRODUCTION:					
CURRENT (1977):	154	15	3		
CUMULATIVE TO 1/78:	789	86	36		
CURRENT (1977) INJECTION:	580 FW	15	3		
CUMULATIVE INJECTION:	13052 FW	566	36SW; 471FW		



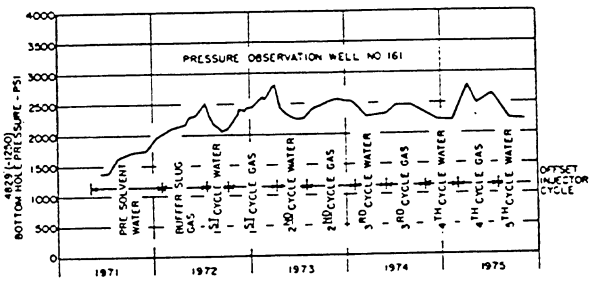
CO_2 PROJECTS IN LEVELLAND/SLAUGHTER FIELDS



Typical log from Levelland Unit.



Levelland Unit Phase 1 hydrocarbon miscible-flood project performance.



Pressure plot.

FROM: Brannan, G., and Whitington, H.J., Jr., 1977, Enriched-Gas Miscible Flooding: A Case History of the Levelland Unit Secondary Miscible Project; Journal of Petroleum Technology, August, p. 919-924. Source 9c.

Loco Hills
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	Loco Hills
1,6a	RESERVOIR	Grayburg-San Andres formations
6	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1,6a	RESERVOIR LITHOLOGY	Grayburg sands (3) are fine to medium grained sandstone with calcareous matrix. San Andres dolomite produces in western portion of field; sandstone and dolomite.
6a,1	TRAPPING MECHANISM	Stratigraphic; lateral change in porosity and permeability.
1, 6a	DISCOVERY YEAR	2-1939
1	PROVED ACREAGE	11,960
	REGULAR WELL SPACING (acres/well)	
6a	RESERVOIR DEPTH	8600'Grayburg- 8950'San Andres
1	RESERVOIR THICKNESS	65'
	NET PAY	
6a	GROSS	Grayburg - 350; San Andres - ?
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
6a, 1	FRACTION	.20
	PERMEABILITY	
	RANGE	
1	AVERAGE	49.9 md
6a	HORIZONTAL	49.9 md (Grayburg)
	VERTICAL	
6a	OTHER INFORMATION	Discovery well - Yates et al #1 Yates
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18, 1	TOTAL NUMBER OF WELLS	372 Total, 186 pump, 3 flow, 139 inject., 44 shut-in; 204P, 51 shut-in
1	PRODUCTION 1977 oil (cum)	42,374
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	43,103
	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		
6a	FIELD:	Loco Hills
1	RESERVOIR:	Grayburg-San Andres
1	PROD. ACRES:	11960
	AVG. THICKNESS (FT.):	65
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
1, 6a	WATER SATURATION (S_W):	.15 - .25
1, 6a	OIL SATURATION (S_O):	.80
6a, 1	PRIMARY DRIVE MECHANISM:	solution gas
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	(GG=1.2)
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
	RESERVOIR PRESSURE INITIAL (psi):	
1, 6a	RESERVOIR PRESSURE LATEST (psi):	1000
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	254 (for Queen & Grayburg
1,6a	STOCK TANK OIL GRAVITY (°API):	36.5
	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:

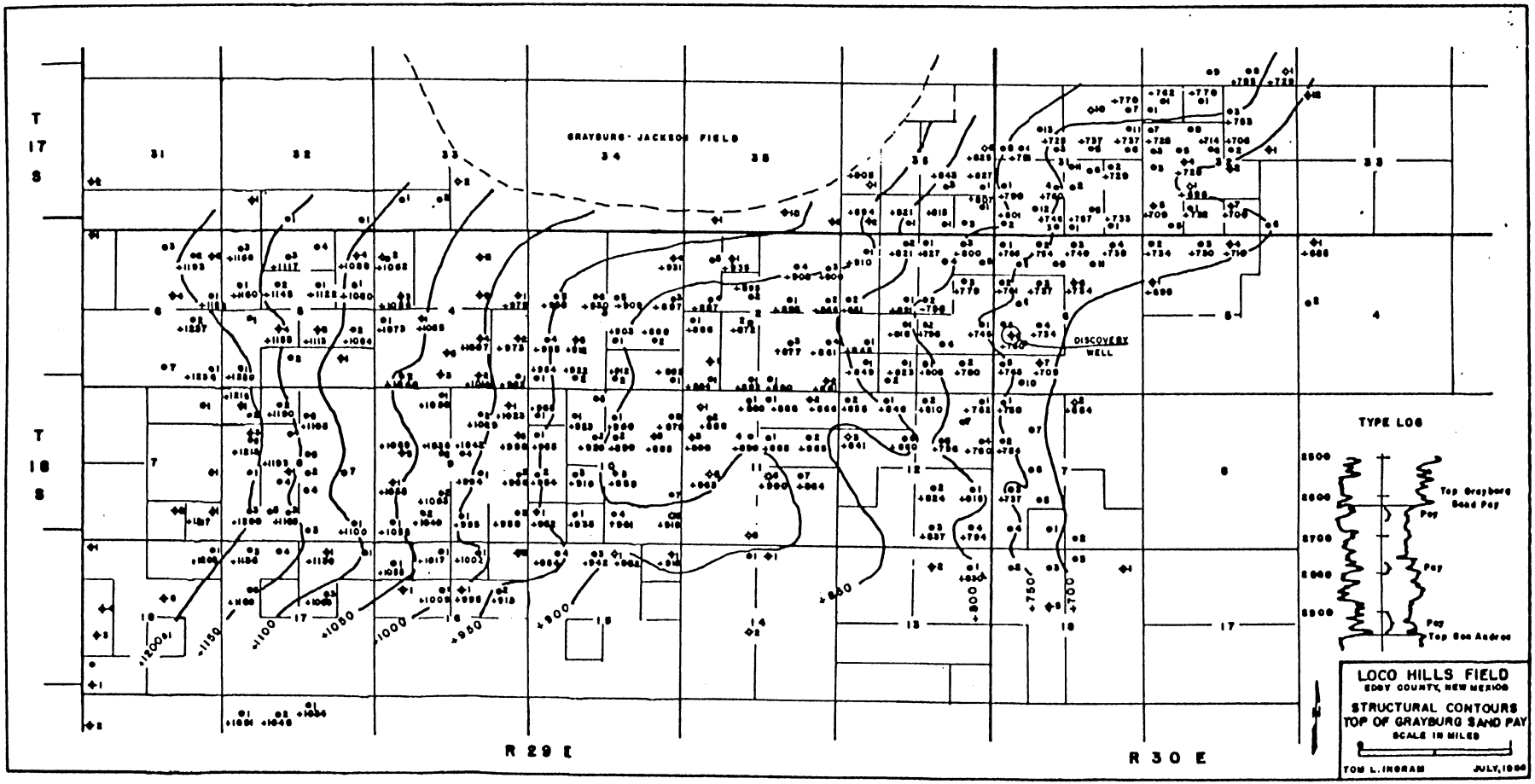
WATER ANALYSIS RECORD

FIELD: Loco Hills RESERVOIR: Grayburg and San Andres TOTAL NO. PROJECTS:
DATA SOURCE: 6a, 1

TOTAL SOLIDS (ppm):
NA
Ca
Mg
Fe
SO_4
Cl
CO_2
HCO_3
OH
H_2S

RESISTIVITY: .043 ohm-meters @ 88^oF
SPECIFIC GRAVITY:

OTHER WATER QUALITY DATA:



FROM: Ingram, T.L., 1956, LOCO HILLS (GRAYBURG-SAN ANDRES) in OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO: Roswell Geological Society Symposium - 1956, Source 6a.

Lovington
San Andres
San Simon Channel
of Tatum Basin

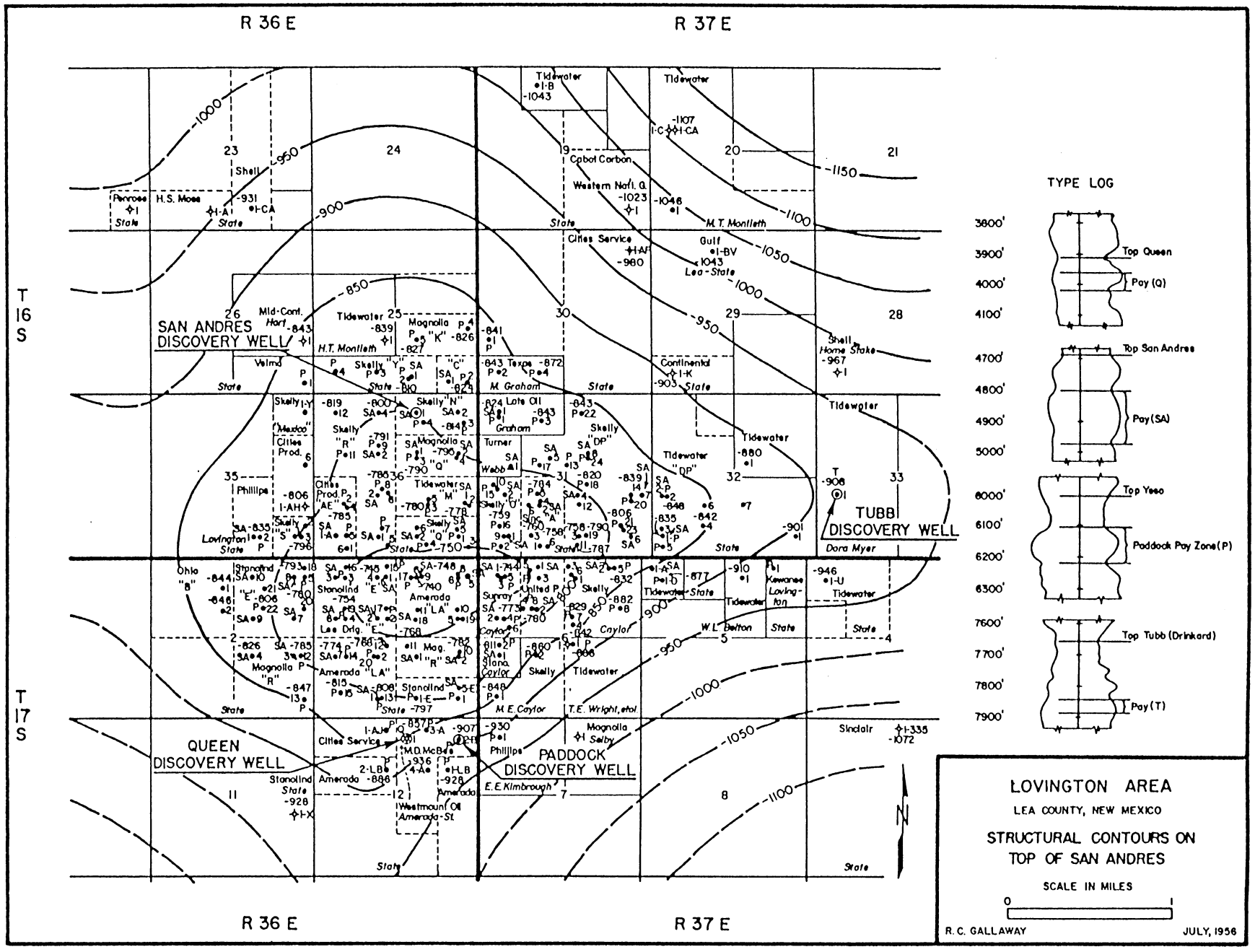
DATA SOURCE CODE		
6a	STATE	New Mexico
1	COUNTY	Lea
	REGULATORY DISTRICT	Southeast
13c	BASIN	Permian
15	SUB-BASIN	San Simon Channel of Tatum Basin
13c,6a	FIELD	Lovington
13c,6a	RESERVOIR	San Andres
6a	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
6a,13c	RESERVOIR LITHOLOGY	Finely crystalline to medium sucrosic dolomite, pinpoint and small vuggy porosity; limestone.
6a	TRAPPING MECHANISM	Closed anticline
18,6a	DISCOVERY YEAR	1-1939
17	PROVED ACREAGE	7040
18	REGULAR WELL SPACING (acres/well)	40
6a,13c	RESERVOIR DEPTH	4595, 4600
	RESERVOIR THICKNESS	
6a,13c	NET PAY	40, 50
6a	GROSS	150
	NET/GROSS RATIO	
	POROSITY	
6a	TYPE	pinpoint, V
	FRACTION	
	PERMEABILITY	
	RANGE	
	AVERAGE	
	HORIZONTAL	
	VERTICAL	
13c	OTHER INFORMATION	Recommended for CO_2 and polymer flood in GURC Report 153.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS	56 (38P, 18I, 0A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	12,270
18	PRODUCTION 1-1-79 to 1-1-80	137 mbbls oil; 42 mmcf gas; 918 mbbls water
	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:	Lovington
13c, 6a	RESERVOIR:	San Andres
17	PROD. ACRES:	7040
6a, 13c	AVG. THICKNESS (FT.):	40, 50
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
6a	PRIMARY DRIVE MECHANISM:	water drive
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
6a	RESERVOIR PRESSURE INITIAL (psi):	1800
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
6a, 13c	STOCK TANK OIL GRAVITY (°API):	33
	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 CO_2 polymer flood



FROM: A SYMPOSIUM OF OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO, 1956, Roswell Geological Society. Source 6a.

DATA SOURCE CODE		
6a	STATE----------	New Mexico
1	COUNTY----------	Lea
	REGULATORY DISTRICT----------	Southeast
13c	BASIN----------	Permian
15	SUB-BASIN----------	San Simon Channel
13c,6a	FIELD----------	Lovington
13c,6a	RESERVOIR----------	Paddock
6a	GEOLOGIC AGE----------	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE----------	318
6a,13c	RESERVOIR LITHOLOGY----------	Finely crystalline to finely sucrosic sandy dolomite with thin lenticular beds of sandstone and limestone.
6a	TRAPPING MECHANISM----------	Closed anticline
18	DISCOVERY YEAR----------	8-1952
17	PROVED ACREAGE----------	4480 +
18	REGULAR WELL SPACING (acres/well)-----	40
6a,13c	RESERVOIR DEPTH----------	6150, 6156
	RESERVOIR THICKNESS	
6a,13c	NET PAY----------	5-70, 25
6a	GROSS----------	100
	NET/GROSS RATIO----------	
	POROSITY	
6a	TYPE----------	IC
	FRACTION----------	
	PERMEABILITY	
	RANGE----------	
	AVERAGE----------	
	HORIZONTAL----------	
	VERTICAL----------	
13c	OTHER INFORMATION----------	Recommended for CO_2 and polymer flood in GURC Report 153.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS----------	112 (73P, 38I, 1A)
	PRODUCTION 1976 oil (cum)----------	
	PRODUCTION 1977 oil (cum)----------	
	PRODUCTION 1978 oil (cum)----------	
18	PRODUCTION 1979 oil (cum)----------	12,692
18	PRODUCTION 1-1-79 to 1-1-80----------	280 mbbls oil; 148 mmcf gas; 1309 mbbls water
	SECONDARY RECOVERY RECORDS?----------	
	WATER ANALYSIS RECORDS?----------	
	OTHER DATA	
	STRUCTURE CONTOUR?----------	
	LOGS?----------	
	STRUCTURE SECTION?----------	
	ENGINEERING REPORTS?----------	
	CORE DESCRIPTIONS?----------	

RESERVOIR DATA

DATA SOURCE CODE		
13c,6a	FIELD:	Lovington
17	RESERVOIR:	Paddock
6a, 13c	PROD. ACRES:	4480+
	AVG. THICKNESS (FT.):	5-70, 25
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
6a	PRIMARY DRIVE MECHANISM:	water drive
	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):	
6a, 13c	STOCK TANK OIL GRAVITY (^oAPI):	33
	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 CO_2, polymer flood

Lovington
Abo
San Simon Channel
of Tatum Basin

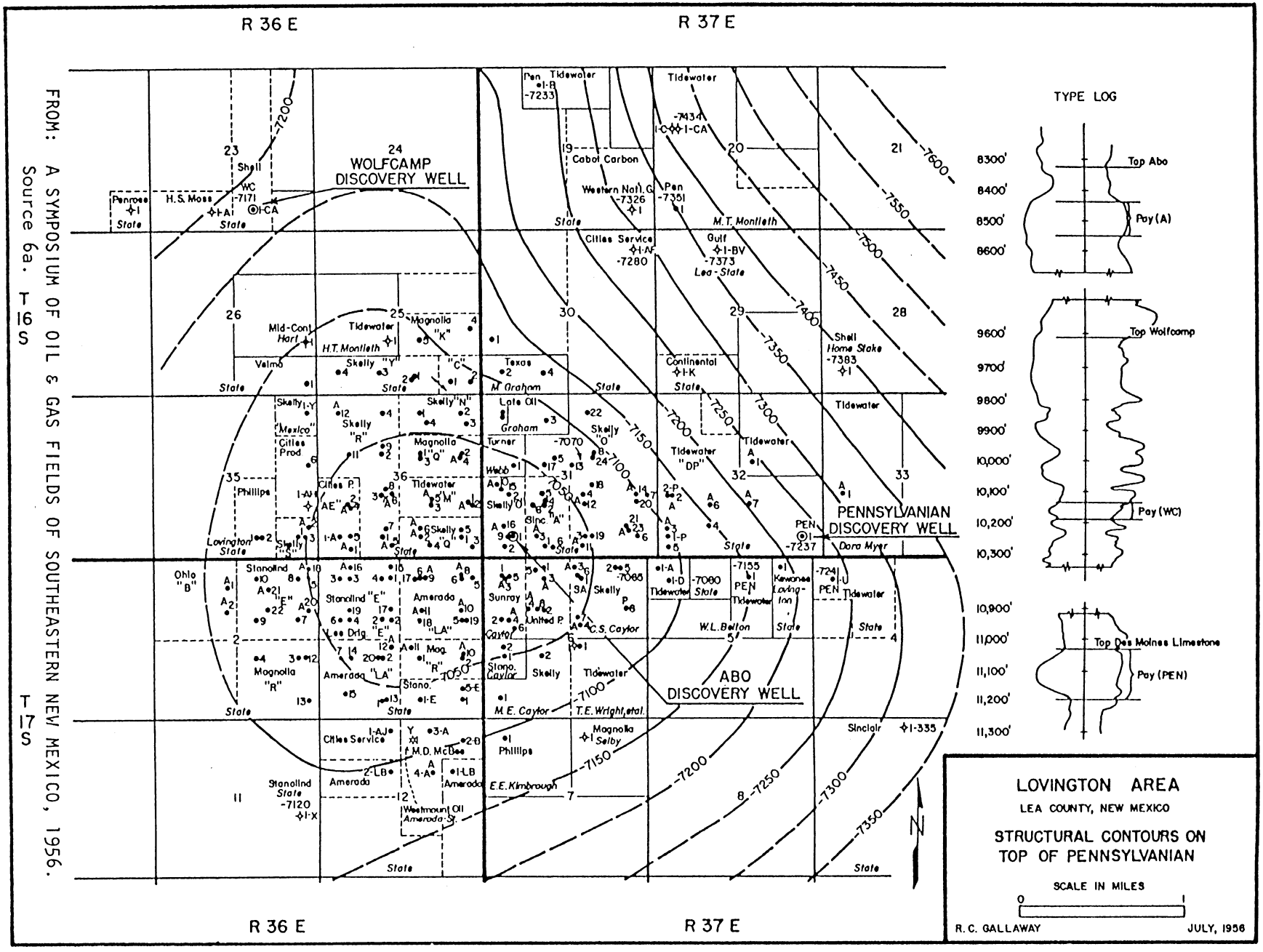
DATA SOURCE CODE		
	STATE	New Mexico
6a	COUNTY	Lea
1	REGULATORY DISTRICT	Southeast
	BASIN	Permian
15	SUB-BASIN	San Simon Channel
13c,6a,13b	FIELD	Lovington
13c,6a,13b	RESERVOIR	Abo
6a	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
6a,13c	RESERVOIR LITHOLOGY	Gray-white to light brown dolomite, fine to medium sucrosic; limestone.
6a	TRAPPING MECHANISM	Closed anticline
18,6a,13b	DISCOVERY YEAR	3-52, 12-51, 1951
6a,17	PROVED ACREAGE	~1280,4480
18	REGULAR WELL SPACING (acres/well)	40
6a,13c,13b	RESERVOIR DEPTH	8340-8430, 8117, 8117
	RESERVOIR THICKNESS	
6a,13c	NET PAY	20-150, 125
6a	GROSS	200
	NET/GROSS RATIO	
	POROSITY	
6a	TYPE	Pinpoint to small vugs
13b	FRACTION	.08
	PERMEABILITY	
	RANGE	
13b	AVERAGE	medium
	HORIZONTAL	
	VERTICAL	
13c	OTHER INFORMATION	Recommended for CO_2 and polymer flood in GURC Report 153.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS	37 (34P, 3A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	29,648
18	PRODUCTION 1-1-79 to 1-1-80	480 mbbls oil; 304 mmcf gas; 3939 mbbls water
	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		
13c, 6a	FIELD:	Lovington
6a	RESERVOIR:	Abo
6a,13c	PROD. ACRES:	1280
	AVG. THICKNESS (FT.):	20-150, 125
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
6a	PRIMARY DRIVE MECHANISM:	water drive
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
6a	RESERVOIR PRESSURE INITIAL (psi):	3248
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
6a,13c,13b	STOCK TANK OIL GRAVITY (°API):	39
	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 CO_2 polymer flood



FROM: A SYMPOSIUM OF OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO, 1956.
Source 6a.

Lovington
Devonian
San Simon Channel
of Tatum Basin

DATA SOURCE CODE		
	STATE	New Mexico
	COUNTY	Lea
	REGULATORY DISTRICT	Southeast
	BASIN	Permian
15	SUB-BASIN	San Simon Channel
13c,13b	FIELD	Lovington
13c,13b	RESERVOIR	Devonian
	GEOLOGIC AGE	Devonian
1	AAPG STRATIGRAPHIC AGE CODE	340
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
18,13b	DISCOVERY YEAR	3-69, 1968
	PROVED ACREAGE	
18	REGULAR WELL SPACING (acres/well)	80
13c, 13b	RESERVOIR DEPTH	11476
	RESERVOIR THICKNESS	
13c,13b	NET PAY	44
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
	FRACTION	
	PERMEABILITY	
	RANGE	
13c,13b	AVERAGE	44 md
	HORIZONTAL	
	VERTICAL	
13c	OTHER INFORMATION	Recommended for surfactant, CO_2, and polymer flood in GURC Report 153.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS	3P
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	1227
18	PRODUCTION 1-1-79 to 1-1-80	50 mbbls oil; 7 mmcf gas; 157 mbbls wtr.
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
	STRUCTURE CONTOUR?	
	LOGS?	
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
13c,13b	FIELD:	Lovington
	RESERVOIR:	Devonian
	PROD. ACRES:	
13c, 13b	AVG. THICKNESS (FT.):	44
	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):	49
	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

Lovington, West
San Andres
Northwest Shelf

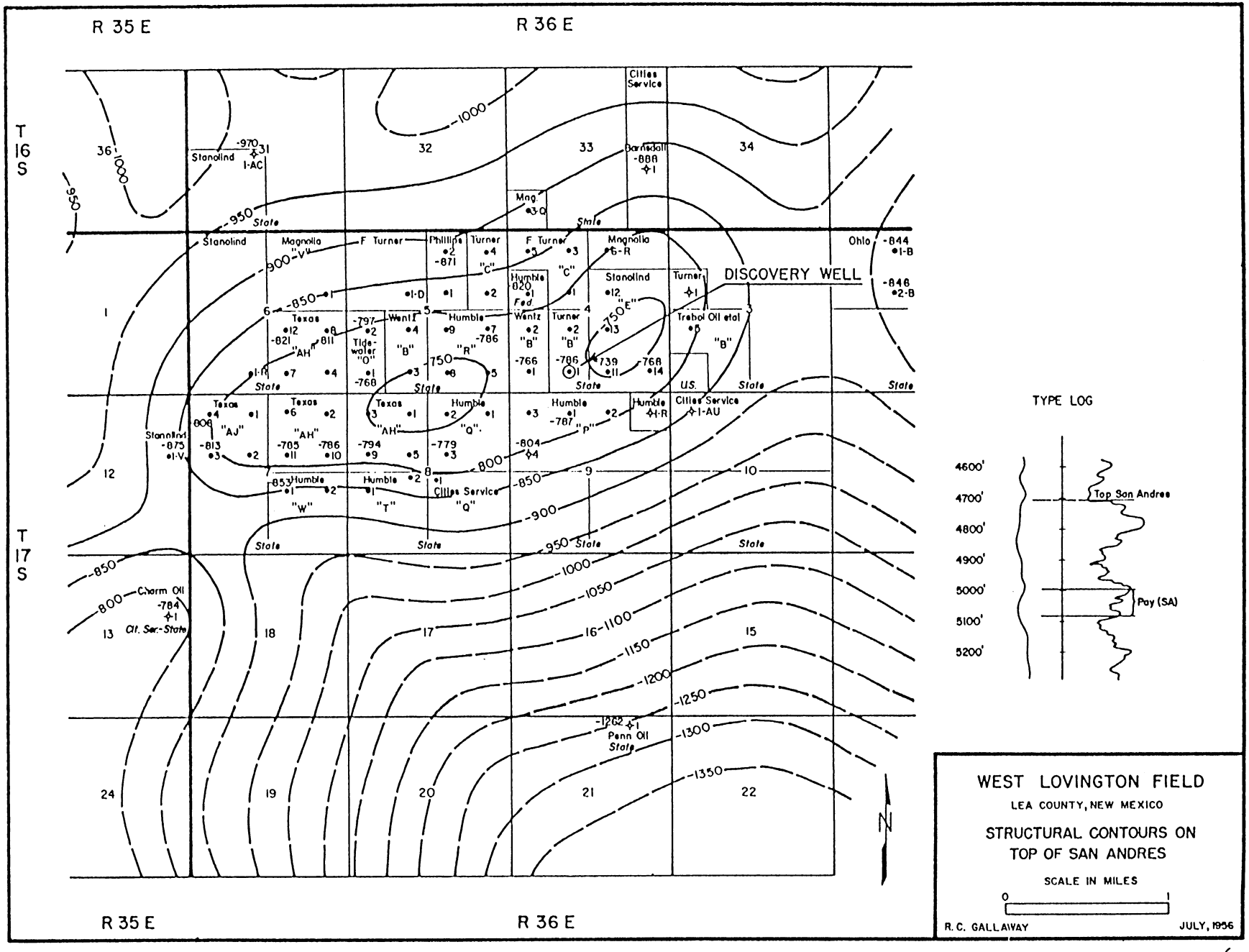
DATA SOURCE CODE		
6a	STATE	New Mexico
	COUNTY	Lea
	REGULATORY DISTRICT	Southeast
13c	BASIN	Permian
15	SUB-BASIN	Northwest Shelf
13c, 6a	FIELD	Lovington, West
13c, 6a	RESERVOIR	San Andres
6a	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
6a,13c	RESERVOIR LITHOLOGY	Finely crystalline to finely sucrosic dolomite, pinpoint to small vuggy porosity; limestone.
6a	TRAPPING MECHANISM	Closed anticline
18	DISCOVERY YEAR	6-44
17	PROVED ACREAGE	3200+
18	REGULAR WELL SPACING (acres/well)	40
13c	RESERVOIR DEPTH	4700
	RESERVOIR THICKNESS	
6a,13c	NET PAY	10-40, 50
6a	GROSS	80
	NET/GROSS RATIO	
	POROSITY	
6a	TYPE	Pinpoint, V
	FRACTION	
	PERMEABILITY	
	RANGE	
	AVERAGE	
	HORIZONTAL	
	VERTICAL	
13c	OTHER INFORMATION	Recommended for CO_2 and polymer flood in GURC Report 153.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS	59 (30P, 25I, 4A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	10,759
18	PRODUCTION 1-1-79 to 1-1-80	159 mbbls oil; 9 mmcf gas; 1301 mbbls water
	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		
13c,6a	FIELD:	Lovington, West
17	RESERVOIR:	San Andres
6a,13c	PROD. ACRES:	3200+
	AVG. THICKNESS (FT.):	10-40, 50
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
6a	PRIMARY DRIVE MECHANISM:	water drive
	PRIMARY GAS CAP?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
6a	RESERVOIR PRESSURE INITIAL (psi):	1800
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
6a,13c	STOCK TANK OIL GRAVITY (°API):	36
	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 CO_2, polymer flood



FROM: A SYMPOSIUM OF OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO, 1956, Roswell Geological Society. Source 6a.

Lusk
Strawn
Northwest Shelf

DATA SOURCE CODE		
7,6c	STATE---------- COUNTY----------	New Mexico Eddy, Lea
18	REGULATORY DISTRICT----------	Southeast
	BASIN----------	Permian
15,7	SUB-BASIN----------	Northwest shelf
14c, 7	FIELD----------	Lusk
14c,7	RESERVOIR----------	Strawn
6c	GEOLOGIC AGE----------	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE----------	325
7,6c	RESERVOIR LITHOLOGY----------	Crystalline, highly fossiliferous limestone vugs, small solution cavities, highly effective fracture system.
7,6c	TRAPPING MECHANISM----------	New trending anticline with long spur extending north - diminutive in porosity & permeability on N-W flanks; NW-SE trending anticline w/oil-water contact E,S,& SW--stratisstructural.
18,7	DISCOVERY YEAR----------	1-61, 1960
6c	PROVED ACREAGE----------	10,240
18,6c	REGULAR WELL SPACING (acres/well)-----	160
7,6c	RESERVOIR DEPTH----------	11000, 11168
	RESERVOIR THICKNESS	
6c	NET PAY----------	38
6c	GROSS----------	120
	NET/GROSS RATIO----------	
	POROSITY	
7,6c	TYPE----------	IC, V, highly F
6c	FRACTION----------	.0485
	PERMEABILITY	
	RANGE----------	
6c	AVERAGE----------	21.6 md
	HORIZONTAL----------	
	VERTICAL----------	
	OTHER INFORMATION----------	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS----------	38 (25P, 13A)
	PRODUCTION 1976 oil (cum)----------	
	PRODUCTION 1977 oil (cum)----------	
	PRODUCTION 1978 oil (cum)----------	
18	PRODUCTION 1979 oil (cum)----------	18,916
18	PRODUCTION 1-1-79 to 1-1-80----------	84 mbbls oil; 528 mmcf gas; 101 mbbls water
	SECONDARY RECOVERY RECORDS?----------	
	WATER ANALYSIS RECORDS?----------	
	OTHER DATA	
6c, 7	STRUCTURE CONTOUR?----------	yes
6c	LOGS?----------	yes
	STRUCTURE SECTION?----------	
	ENGINEERING REPORTS?----------	
	CORE DESCRIPTIONS?----------	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Lusk
14c,7,6c	RESERVOIR:	Strawn
6c	PROD. ACRES:	10240
6c	AVG. THICKNESS (FT.):	38
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
6c	WATER SATURATION (S_W):	.304
6c	OIL SATURATION (S_O):	0..412
6c	PRIMARY DRIVE MECHANISM:	solution gas
	PRIMARY GAS CAP?:	
6c	TEMPERATURE (°F):	160
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
6c	RESERVOIR PRESSURE INITIAL (psi):	5862
	RESERVOIR PRESSURE LATEST (psi):	
6c	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	2640 discovery, 2359 in
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
6c	STOCK TANK OIL GRAVITY (°API):	46
	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:

WATER ANALYSIS RECORD

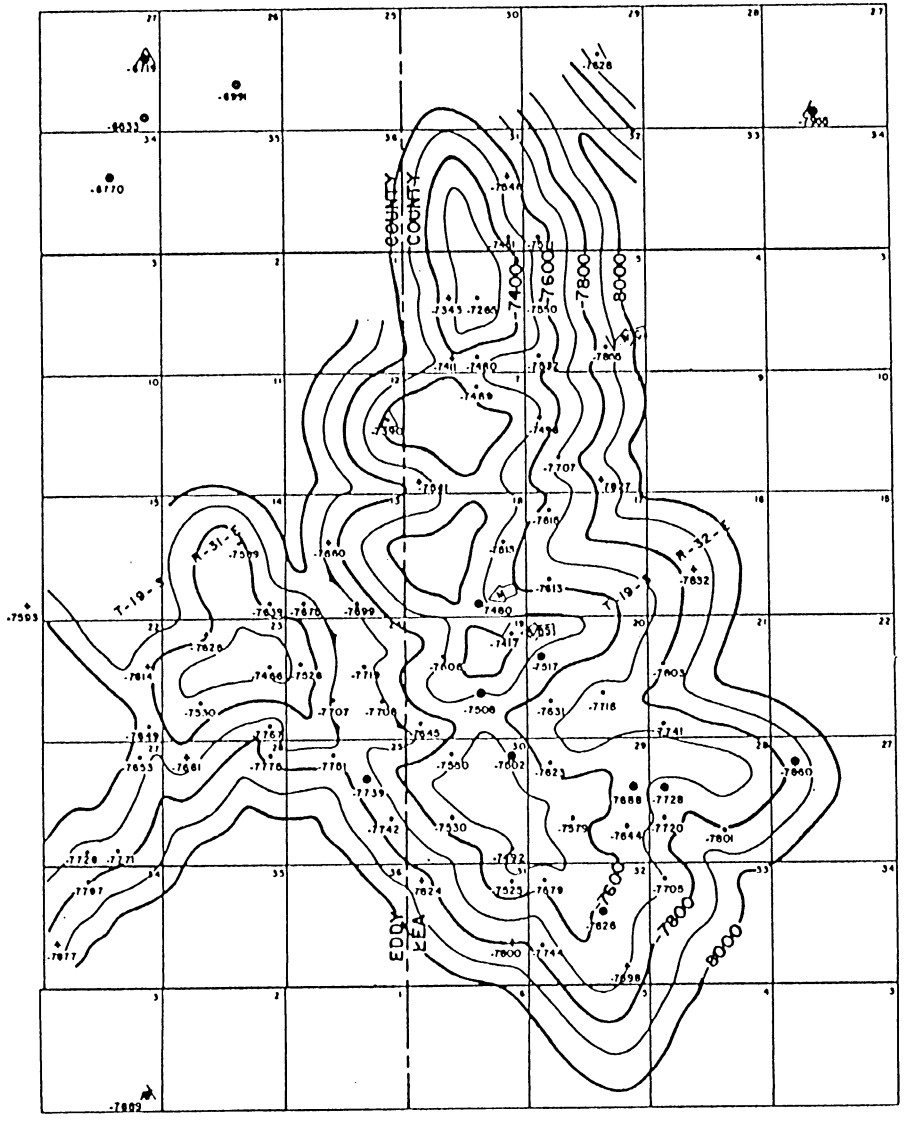
FIELD: Lusk RESERVOIR: Strawn TOTAL NO. PROJECTS:
DATA SOURCE:

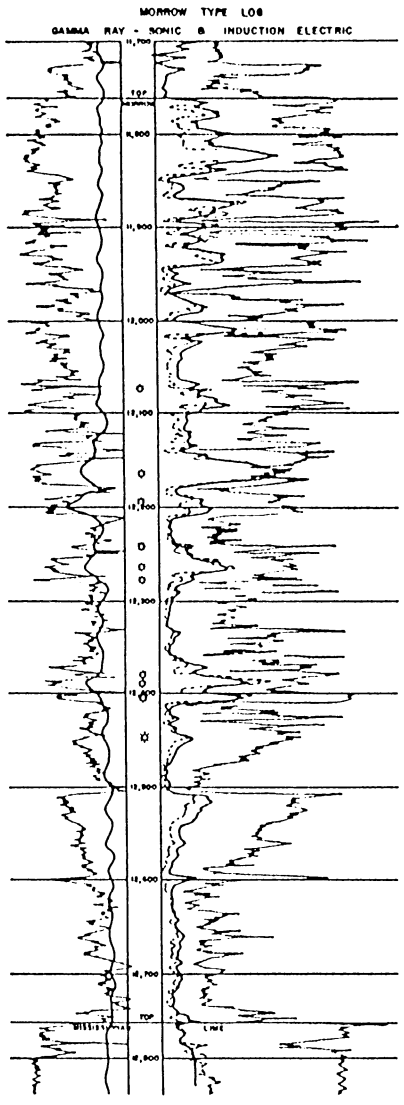
TOTAL SOLIDS (ppm):

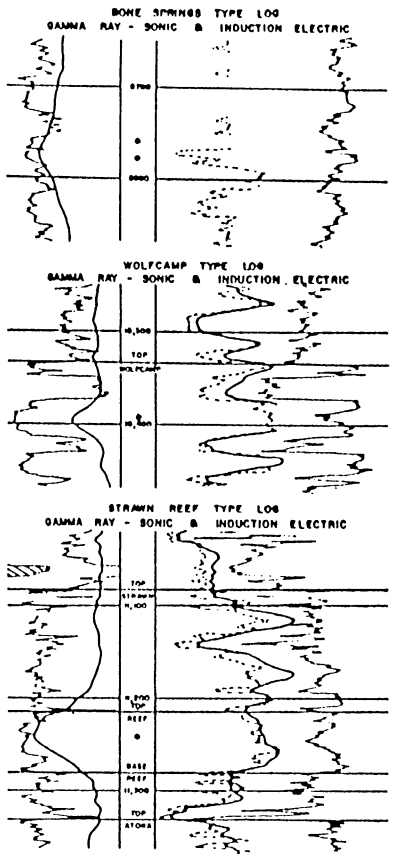
NA	38,200
Ca	9,580
Mg	1,979
Fe	
SO_4	226
Cl	81,200
CO_2	
HCO_3	
OH	
H_2S	

RESISTIVITY: .029 @ 160°F
SPECIFIC GRAVITY: 1.105 @ 75°F

OTHER WATER QUALITY DATA:







N

LEGEND

- STRAWN
- MORROW
- MORROW & STRAWN
- WOLFCAMP
- BONE SPRINGS & STRAWN
- BONE SPRINGS & WOLFCAMP
- WOLFCAMP & MORROW
- BONE SPRINGS & MORROW
- BONE SPRINGS, WOLFCAMP & STRAWN
- DISCOVERY WELL

YATES PRODUCERS NOT SHOWN ON STRAWN MAPS

LUSK FIELD

EDDY & LEA COUNTY, NEW MEXICO

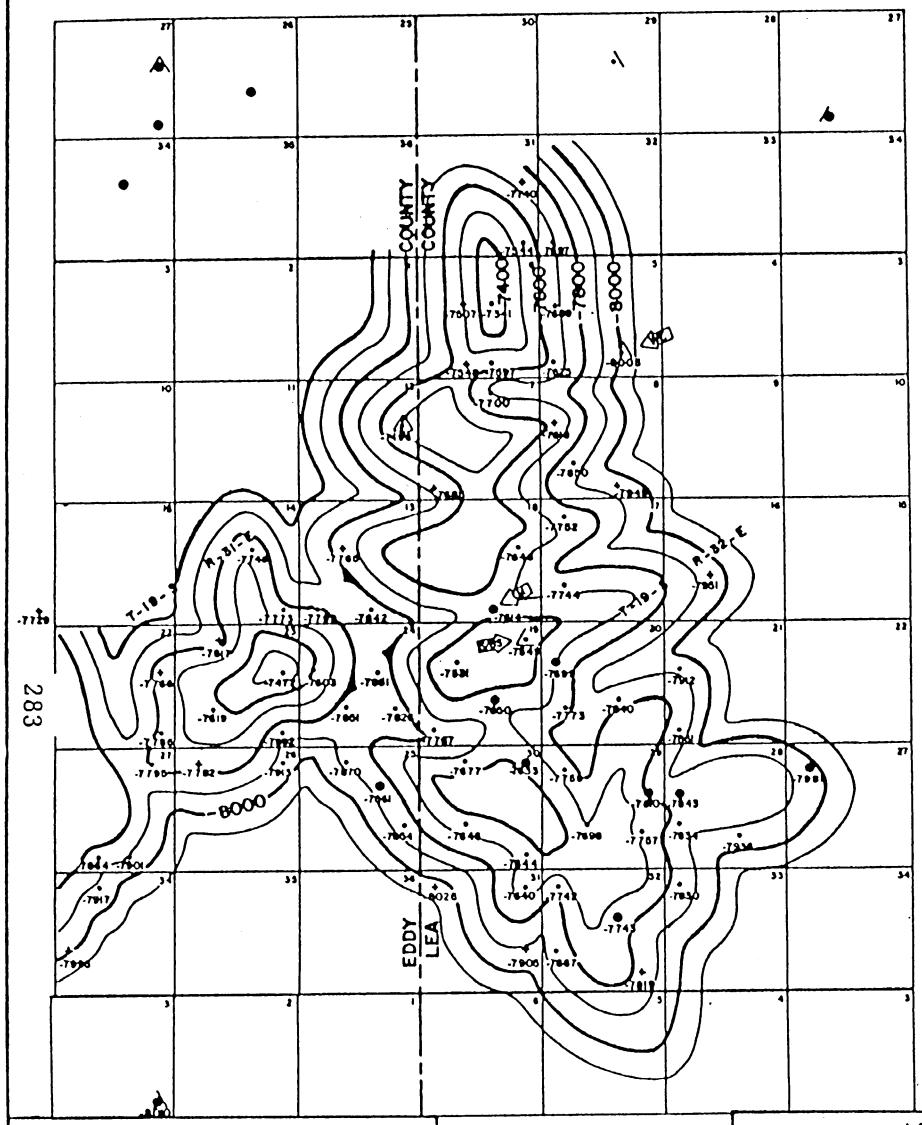
STRUCTURAL CONTOURS ON TOP OF STRAWN LIMESTONE

SCALE IN MILES

0 1

D. E. THORNTON & H. H. GASTON, JR. MAY, 1966

FROM: A SYMPOSIUM OF OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO, 1967, ROSWELL GEOLOGICAL SOCIETY. Source 6c.



LUSK FIELD

EDDY & LEA COUNTY, NEW MEXICO

STRUCTURAL CONTOURS ON
TOP OF STRAWN POROSITY

SCALE IN MILES

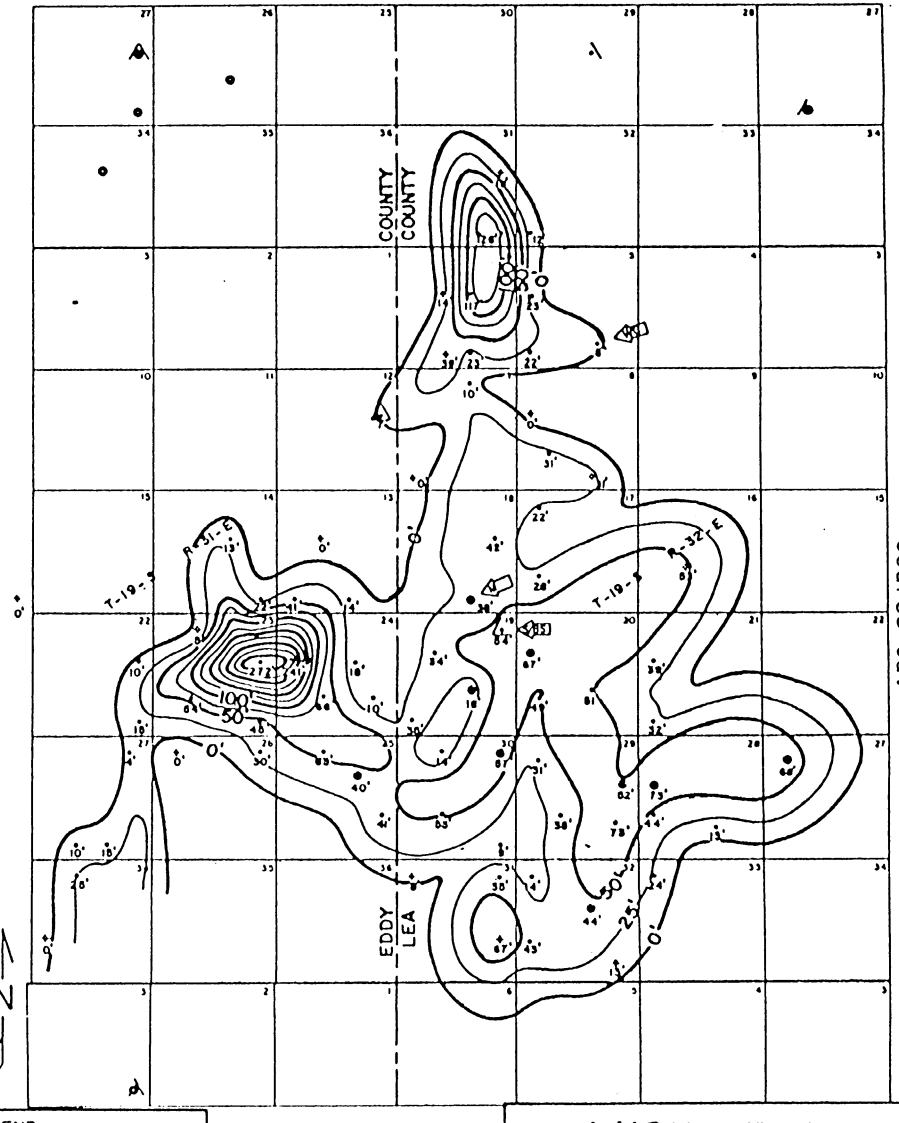
0 1

D.E. THORNTON & H.H. GASTON, JR. MAY, 1966

LEGEND

- STRAWN
- MORROW
- MORROW & STRAWN
- WOLFCAMP
- BONE SPRINGS & STRAWN
- BONE SPRINGS & WOLFCAMP
- WOLFCAMP & MORROW
- BONE SPRINGS & MORROW
- BONE SPRINGS, WOLFCAMP & STRAWN
- DISCOVERY WELL

YATES PRODUCERS NOT SHOWN ON STRAWN MAPS



LUSK FIELD

EDDY & LEA COUNTY, NEW MEXICO

ISOPACH OF
GROSS STRAWN POROSITY

SCALE IN MILES

0 1

D.E. THORNTON & H.H. GASTON, JR. MAY, 1966

283

Source 6a.

Luther, S.E.
Silurian-Devonian
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Howard
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Luther, S.E.
1, 2	RESERVOIR	Silurian-Devonian
1	GEOLOGIC AGE	Devonian
1	AAPG STRATIGRAPHIC AGE CODE	340
1	RESERVOIR LITHOLOGY	Dolomite; fine to medium crystalline sucrosic dolomite with excellent inter-crystalline porosity; dolomite.
1	TRAPPING MECHANISM	Structural
2,5a,1	DISCOVERY YEAR	9-1953; 1953
16c,2,5a	PROVED ACREAGE	3600, 3500, 3600, 560
1	REGULAR WELL SPACING (acres/well)	80
5a,3,1	RESERVOIR DEPTH	9855-9880; 9855; 9855
	RESERVOIR THICKNESS	
2,5a,1,16c	NET PAY	25, 25, 25, 8-65
5a	GROSS	65
	NET/GROSS RATIO	
	POROSITY	
5a	TYPE	IC
2,5a,1	FRACTION	.127; .150; .146
	PERMEABILITY	
	RANGE	
2,5a,1	AVERAGE	16 md
2	HORIZONTAL	16 md
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	38P- 7I; 38 (19P-10I-9A)
1	PRODUCTION 1976 oil (cum)	16,926
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	18,346.4
3	PRODUCTION 1-1-79 to 1-1-80	463.8 mbbls oil; 613.3 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		
2,1	FIELD:	Luther, S.E.
5a,2,1, 16c	RESERVOIR:	Silurian-Devonian
2,5a,1, 16c	PROD. ACRES:	3600, 3500, 560, 3600
16c	AVG. THICKNESS (FT.):	25, 25, 25, 8-65
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.63
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.52(76)
16c	WATER SATURATION (S_W):	.20-.30
16c	OIL SATURATION (S_O):	.59
1,5a	PRIMARY DRIVE MECHANISM:	depletion, solution drive
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	168
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	2460
2,5a,1	RESERVOIR PRESSURE INITIAL (psi):	4246
2	RESERVOIR PRESSURE LATEST (psi):	746
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	2022.2
1,2,5a,3	STOCK TANK OIL GRAVITY (°API):	43.5
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	2065
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	31,200 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	10,196 mbbls

OTHER INFORMATION:

1 Primary recoverable (1966):

13,000,000 bbl
200 bbl/acre-ft.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Luther, S.E. RESERVOIR: Silurian-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	404				
1977 PROD. (this project):	356				
CUM. PROD. FROM DISC. TO 1/78:	11544				
PROJECT NO.	F1448				
LEASE NO.(s):	20583				
OPERATOR:	Enserch Exp.				
RESERVOIR:	Fusselman				Silurian-Dev.
DEPTH PRODUCING ZONE:	9855				9855
PRODUCTIVE ACREAGE IN RESERVOIR:	3500				560
ACREAGE IN PROJECT:	2873				2700
PORTION OR FIELD WIDE:	FW				
TYPE:	PM/SW				WF-PM
PATTERN:	P				
YEAR BEGAN:	4-69				1969
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	4246				4246
BEG. INJECTION:	906				
LATEST:	746				
NUMBER OF WELLS TOTAL:	38				
PRODUCING WELLS:	19				38
INJECTION WELLS:	10				7
MAXIMUM:	---				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	9				
SURFACE INJECTION PRESSURE:	1347				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	CH, EB				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	282				
FROM BEG. INJECTION:	1941				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	5922				17,500 bbls
WATER PRODUCTION:					
CURRENT (1977):	179				
CUMULATIVE TO 1/78:	2656				
CURRENT (1977) INJECTION:	1461				
CUMULATIVE INJECTION:	18209				

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

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

TYPICAL LOG OF PAY AND ADJACENT SECTION

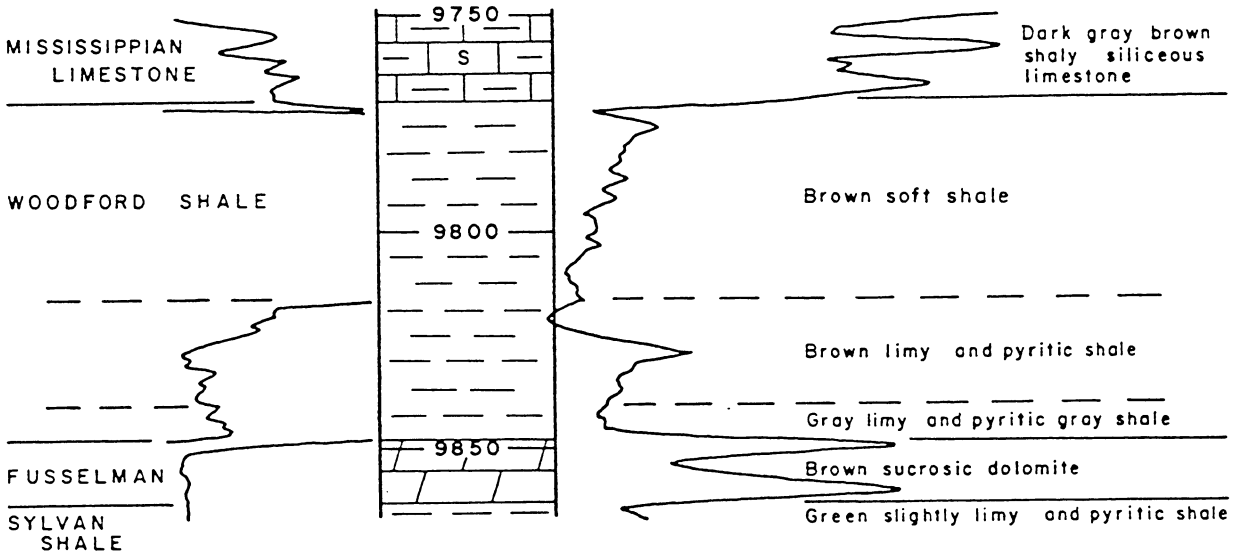
GAMMA - NEUTRON AND LITHOLOGY

SOUTHEAST LUTHER SILURO-DEVONIAN FIELD

HOWARD COUNTY, TEXAS

SCALE: 1" = 40'

Feb. 15, 1966 H. N. Frenzel



Mabee
San Andres
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
2	COUNTY	Andrews
2	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Midland Basin
13c,2	FIELD	Mabee
13c,2	RESERVOIR	4640 San Andres
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2,3	DISCOVERY YEAR	10-1943
2	PROVED ACREAGE	13500
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	4700, 4704
	RESERVOIR THICKNESS	
2	NET PAY	4
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.11
	PERMEABILITY	
	RANGE	
2	AVERAGE	4 md
2	HORIZONTAL	4 md
	VERTICAL	
3	OTHER INFORMATION	Other production from Clear Fork, Dean, Strawn
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	434 (344P, 90I)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	59,604.9 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	3,818.4 mbbls oil; 983.3 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:	Mabee
2	RESERVOIR:	San Andres
2	PROD. ACRES:	13500
2	AVG. THICKNESS (FT.):	4
	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):	1950
2	RESERVOIR PRESSURE LATEST (psi):	510
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 3	STOCK TANK OIL GRAVITY (^oAPI):	31
	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: Mabee 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	2820
1977 PROD. (this project):	3119
CUM. PROD. FROM DISC. TO 1/78:	10890
PROJECT NO.	F1450
LEASE NO.(s):	04010
OPERATOR:	Texaco
RESERVOIR:	San Andres
DEPTH PRODUCING ZONE:	4700
PRODUCTIVE ACREAGE IN RESERVOIR:	13500
ACREAGE IN PROJECT:	760
PORTION OR FIELD WIDE:	P
TYPE:	WF/SW, BW
PATTERN:	5S
YEAR BEGAN:	4-65
YEAR TERMINATED OR STATUS:	ICP-SW; ITD-BW
RESERVOIR PRESSURE INITIAL:	1950
BEG. INJECTION:	825
LATEST:	510
NUMBER OF WELLS TOTAL:	434
PRODUCING WELLS:	344
INJECTION WELLS:	90
MAXIMUM:	---
LATEST:	---
SHUT-IN/ABANDONED WELLS:	0
SURFACE INJECTION PRESSURE:	500
EFFECTIVENESS OF INJECTION:	VE
OPERATOR PROBLEMS:	---
ESTIMATED PRODUCTION DUE TO INJ.:	
1977:	---
FROM BEG. INJECTION:	---
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---
WATER PRODUCTION:	
CURRENT (1977):	6733
CUMULATIVE TO 1/78:	14327
CURRENT (1977) INJECTION:	15044
CUMULATIVE INJECTION:	42009 SW, 4389 BW

Magutex
Devonian
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Andrews
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Magutex
1, 5a	RESERVOIR	Devonian
1	GEOLOGIC AGE	Devonian
1	AAPG STRATIGRAPHIC AGE CODE	340
1, 5a	RESERVOIR LITHOLOGY	Dolomite and limestone--vuggy
5a, 1	TRAPPING MECHANISM	Structural 'fold', water downdip
	limiting productive factor; structural.	
1,5a,3	DISCOVERY YEAR	1953; 11-1952; 4-1953
5a,1,16c	PROVED ACREAGE	5760, 960, 5760
5a,1	REGULAR WELL SPACING (acres/well)	80
5a,3,1	RESERVOIR DEPTH	12490-12520; 12504; 12504
	RESERVOIR THICKNESS	
5a,1	NET PAY	40, 54
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
5a,1	TYPE	V
5a,1	FRACTION	.065; .06-.07 w/.06 avg.
	PERMEABILITY	
	RANGE	
5a,1	AVERAGE	41 md
	HORIZONTAL	
	VERTICAL	
5a,3	OTHER INFORMATION	Production from Queen SS and Ellenburger, Mississippian, Queen, Strawn, Wolfcamp.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1	TOTAL NUMBER OF WELLS	58P
1	PRODUCTION 1976 oil (cum)	36,132
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	38,833
3	PRODUCTION 1-1-79 to 1-1-80	775.5 mbbls oil; 401.5 mmcf gas
	SECONDARY RECOVERY RECORDS?	no
	WATER ANALYSIS RECORDS?	no
	OTHER DATA	
5a	STRUCTURE CONTOUR?	yes
5a	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

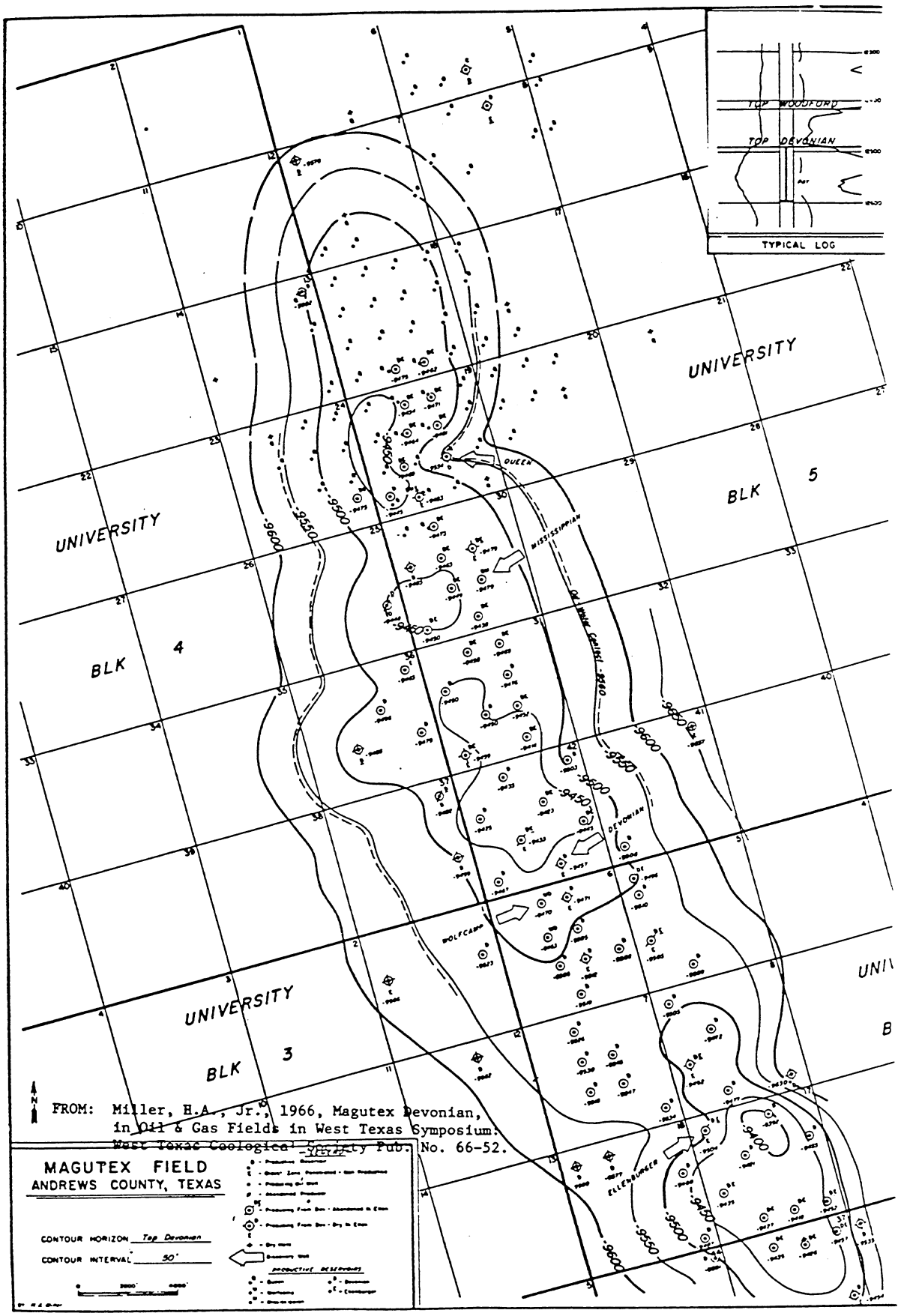
DATA SOURCE CODE		
	FIELD:	Magutex
5a,1	RESERVOIR:	Devonian
5a,1,16c	PROD. ACRES:	5760, 960, 5760
5a,1	AVG. THICKNESS (FT.):	40,54
1	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.41
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.52 (54)
1	WATER SATURATION (S_W):	.20
	OIL SATURATION (S_O):	
1,5a	PRIMARY DRIVE MECHANISM:	water drive
	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	187
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1537
1,5a	RESERVOIR PRESSURE INITIAL (psi):	5350
	RESERVOIR PRESSURE LATEST (psi):	
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	4620
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	589.4 (76)
5a,3,1	STOCK TANK OIL GRAVITY (°API):	46, 43.2, 43.2
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	2299
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

2 Two secondary recovery (waterflood) projects in the Queen Sand.

1 Primary recoverable (1966):

46,000,000 bbl
79 bbl/acre-ft.



FROM: Miller, H.A., Jr., 1966, Magutex Devonian, in Oil & Gas Fields in West Texas Symposium: West Texas Geological Society Pub. No. 66-52.

Maljamar
Grayburg-San Andres
Northwest Shelf

DATA SOURCE CODE		
	STATE	New Mexico
1,6a	COUNTY	Lea and Eddy
1	REGULATORY DISTRICT	Southeast
1, 6a	BASIN	Permian
15	SUB-BASIN	Northwest Shelf
1,6a	FIELD	Maljamar
1,6a	RESERVOIR	Grayburg and San Andres
1,6	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
6a,1	RESERVOIR LITHOLOGY	Zones of alternating sands, dolomitic sands and dolomite, zones 3-6 dolomite ss, zone 7 dolomite, zone 8 "Lovington" sand, zone 9 dolomite; sandstone, dolomite.
1,6a	TRAPPING MECHANISM	Stratigraphic trap.
1,6a	DISCOVERY YEAR	7-16-26
1,16c	PROVED ACREAGE	320, 2300
	REGULAR WELL SPACING (acres/well)	
6a,1	RESERVOIR DEPTH	~4050; 3960
1	RESERVOIR THICKNESS	50' avg.
	NET PAY	
6a	GROSS	Zone 3 - 35'; zone 4 - 35'; zone 5 - 45'; zone 6 - 90'; zone 7 - 55'; zone 8 - 45'; zone 9 - 100'.
	NET/GROSS RATIO	
	POROSITY	
6a	TYPE	Intergranular and intercrystalline
6a,1	FRACTION	.116
	PERMEABILITY	
	RANGE	
1	AVERAGE	47 md
6a	HORIZONTAL	47 md
	VERTICAL	
14e	OTHER INFORMATION	BETC/RI-78/15 list Maljamar-Grayburg as most suitable for carbon dioxide EOR because close to CO_2 source.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS	786 Total, 455 pump, 10 flow, 266 inject 55 shut-in; 507P, 7 shut-in, 41 inject.
1	PRODUCTION 1977 oil (cum)	858
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	121,282
	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		
6a	FIELD:	Maljamar
	RESERVOIR:	Grayburg-San Andres
1, 16c	PROD. ACRES:	320, 2300
1	AVG. THICKNESS (FT.):	50
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
6a, 1	WATER SATURATION (S_W):	.166
6a, 1	OIL SATURATION (S_O):	.20
1,6a	PRIMARY DRIVE MECHANISM:	solution gas
14e	PRIMARY GAS CAP?:	no
17 , 14e	TEMPERATURE (°F):	114 (GG=1.0), 80BHT
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1776
6a,1	RESERVOIR PRESSURE INITIAL (psi):	1350
	RESERVOIR PRESSURE LATEST (psi):	
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	446
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
6a,1	STOCK TANK OIL GRAVITY (°API):	37
14e	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	8 cp
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1430
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	

OTHER INFORMATION:

WATER ANALYSIS RECORD

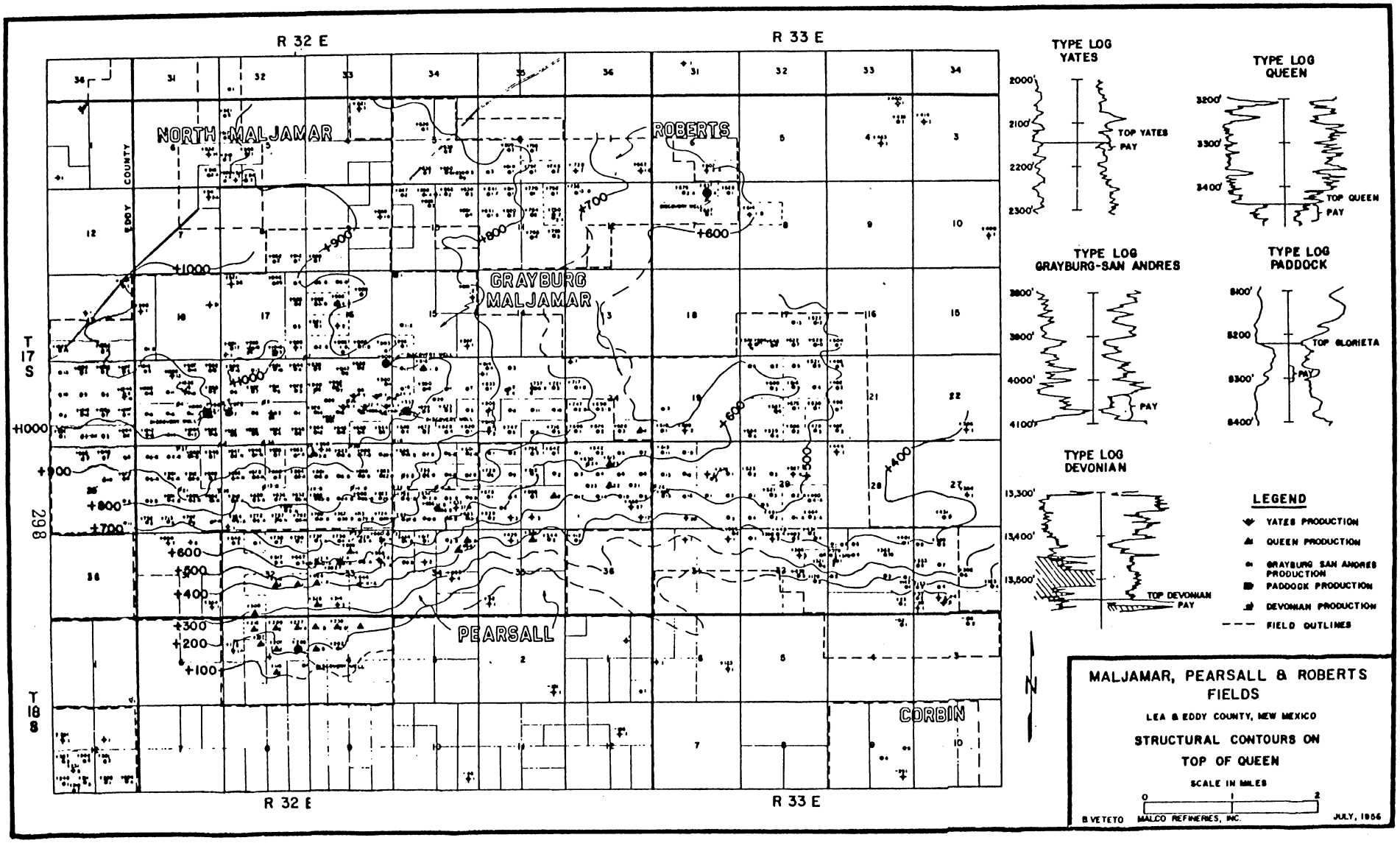
FIELD: Maljamar RESERVOIR: Grayburg-San Andres TOTAL NO. PROJECTS:
DATA SOURCE: 1

TOTAL SOLIDS (ppm):

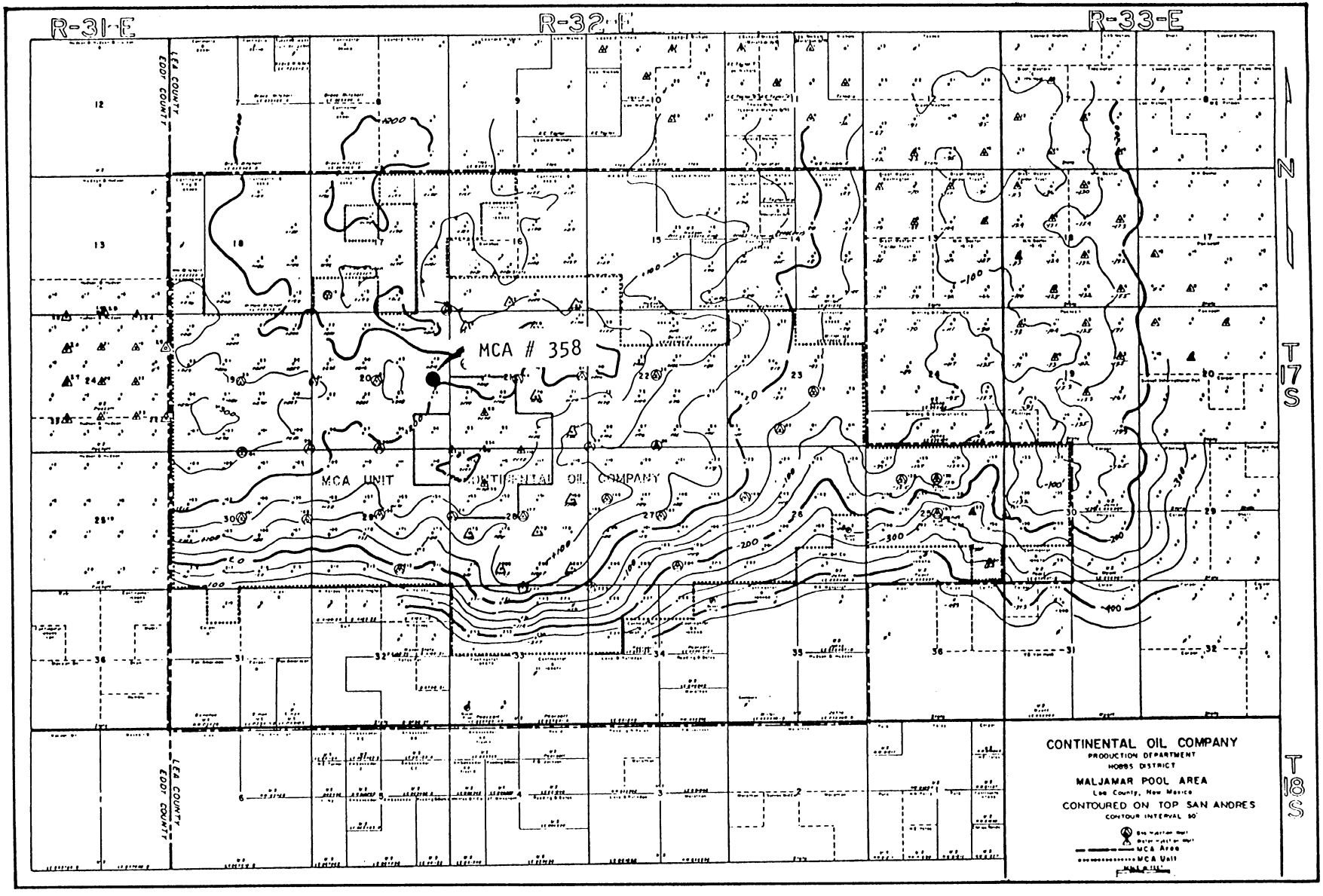
NA	
Ca	2,480
Mg	1,370
Fe	trace
SO_4	heavy
Cl	127,300
CO_2	
HCO_3	710
OH	
H_2S	

RESISTIVITY:
SPECIFIC GRAVITY:

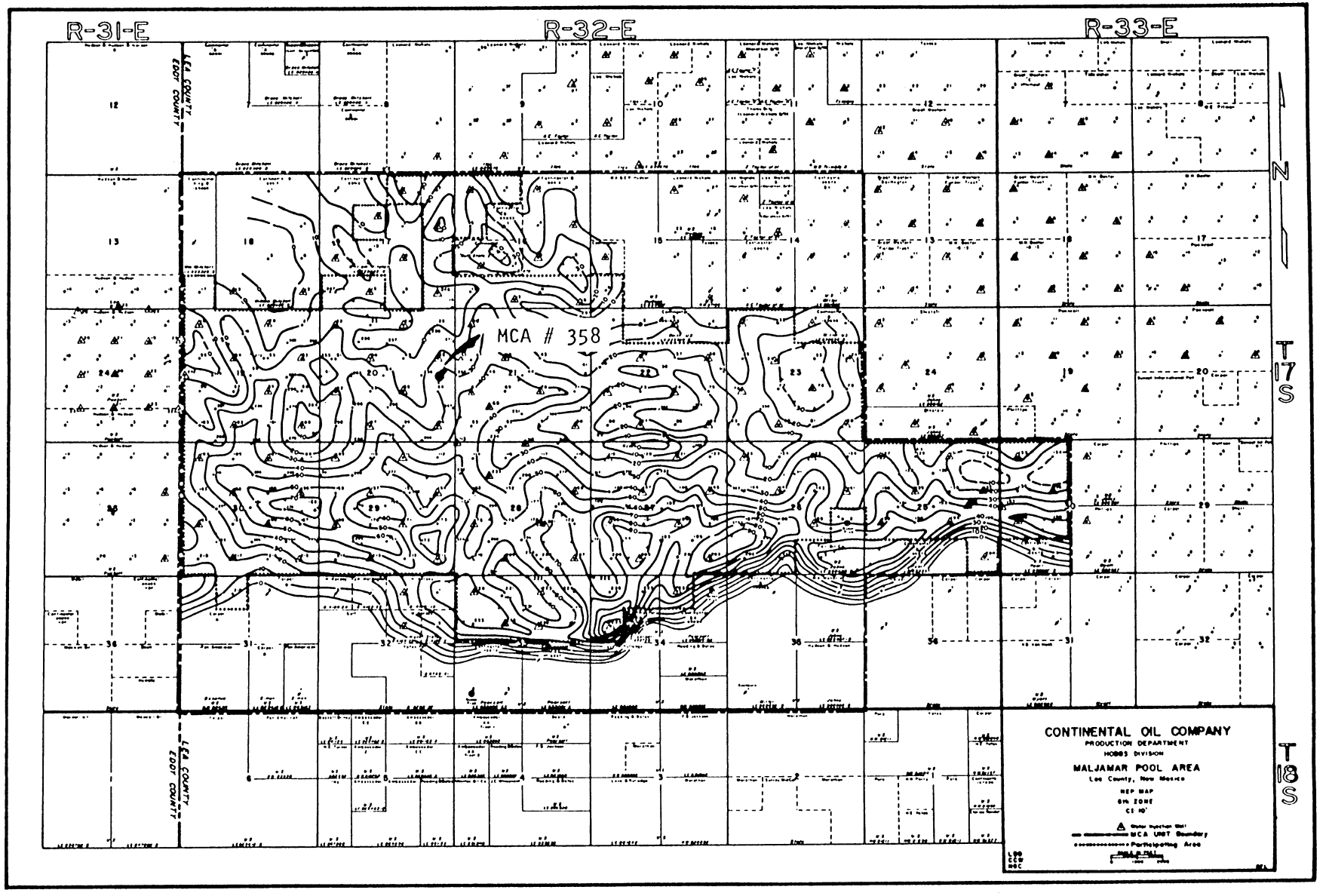
OTHER WATER QUALITY DATA:



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



STRUCTURE MAP OF MALJAMAR FIELD
DRAWN ON TOP OF SAN ANDRES



STRUCTURE MAP OF MALJAMAR FIELD
COMBINED WITH SAN ANDRES PAY

McCamey
Grayburg
Central Basin Platform

DATA SOURCE CODE		
2	STATE	Texas
2	COUNTY	Upton
2	REGULATORY DISTRICT	7C
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
14c	FIELD	McCamey
14c, 2	RESERVOIR	Grayburg
8a	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
12c	RESERVOIR LITHOLOGY	Upper--finely crystalline dolomite,10-20 ft. thick; Middle--fine to med. grained well cement sandstone, calcareous and argillaceous sandstone & bentonite shale 100' thick; Lower--dolomite, approx.45'th
12c	TRAPPING MECHANISM	Anticlinal folding
2, 3	DISCOVERY YEAR	1-1925; 1925
2,12c	PROVED ACREAGE	14000, 20000
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	2200, 2100
	RESERVOIR THICKNESS	
2	NET PAY	75
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
12c,14e	TYPE	IC, F
2	FRACTION	.14
	PERMEABILITY	
	RANGE	
2, 14e	AVERAGE	18 md, 79
2	HORIZONTAL	18 md
	VERTICAL	
3 ,14e	OTHER INFORMATION	Other production from Ellenburger, Silurian. Rated as not suitable for EOR methods considered in BETC/RI-78/15.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	13P
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	127,844.9 mbbls
3	PRODUCTION 1-1-79 to 1-1-80	684.3 mbbls oil; 6.3 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:	McCamey
14c, 2	RESERVOIR:	Grayburg
2	PROD. ACRES:	14000
2	AVG. THICKNESS (FT.):	75
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
	WATER SATURATION (S_W):	
	OIL SATURATION (S_O):	
12c,14e	PRIMARY DRIVE MECHANISM:	solution gas, H_2 drive
12c,14e	PRIMARY GAS CAP?:	no, yes
14c	TEMPERATURE (°F):	112
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2, 14e	RESERVOIR PRESSURE INITIAL (psi):	900, 1600
2	RESERVOIR PRESSURE LATEST (psi):	300
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2,3,12c,14e	STOCK TANK OIL GRAVITY (°API):	29.6, 26, 28, 26
14c	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	1.2 cp
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	133,875 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	1,575 mbbls

OTHER INFORMATION:

12c Reference: Hughes, E. S., 1954, McCamey Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Econ. Geol., Pub. No. 5716, August 1957.

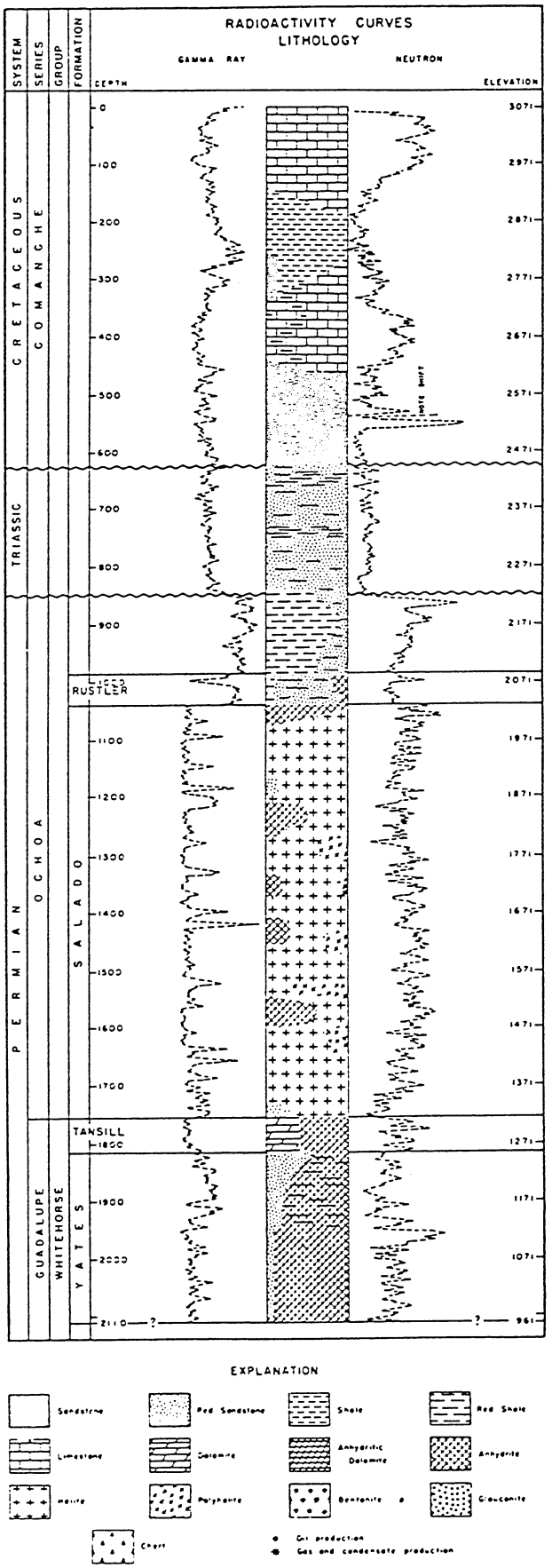
ENHANCED AND SECONDARY RECOVERY DATA:

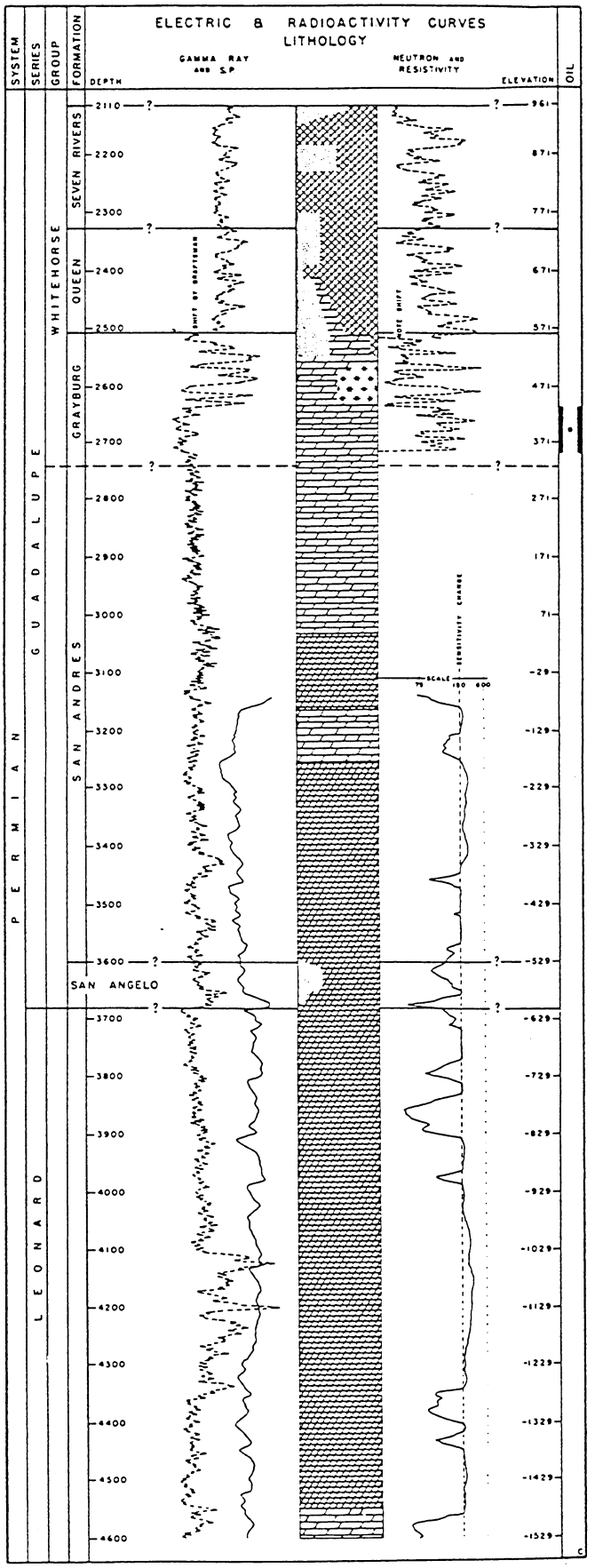
FIELD: McCamey RESERVOIR: Grayburg TOTAL NO. PROJECTS: 1 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	6
1977 PROD. (this project):	6
CUM. PROD. FROM DISC. TO 1/78:	1000
PROJECT NO.	F1042
LEASE NO.(s):	00906, etc.
OPERATOR:	Latch
RESERVOIR:	Grayburg
DEPTH PRODUCING ZONE:	2200
PRODUCTIVE ACREAGE IN RESERVOIR:	14000
ACREAGE IN PROJECT:	320
PORTION OR FIELD WIDE:	P
TYPE:	WF/SW
PATTERN:	5S
YEAR BEGAN:	1962
YEAR TERMINATED OR STATUS:	ICP
RESERVOIR PRESSURE INITIAL:	900
BEG. INJECTION:	350
LATEST:	300
NUMBER OF WELLS TOTAL:	13
PRODUCING WELLS:	13
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:	0
WATER PRODUCTION:	
CURRENT (1977):	24
CUMULATIVE TO 1/78:	1731
CURRENT (1977) INJECTION:	24
CUMULATIVE INJECTION:	2138

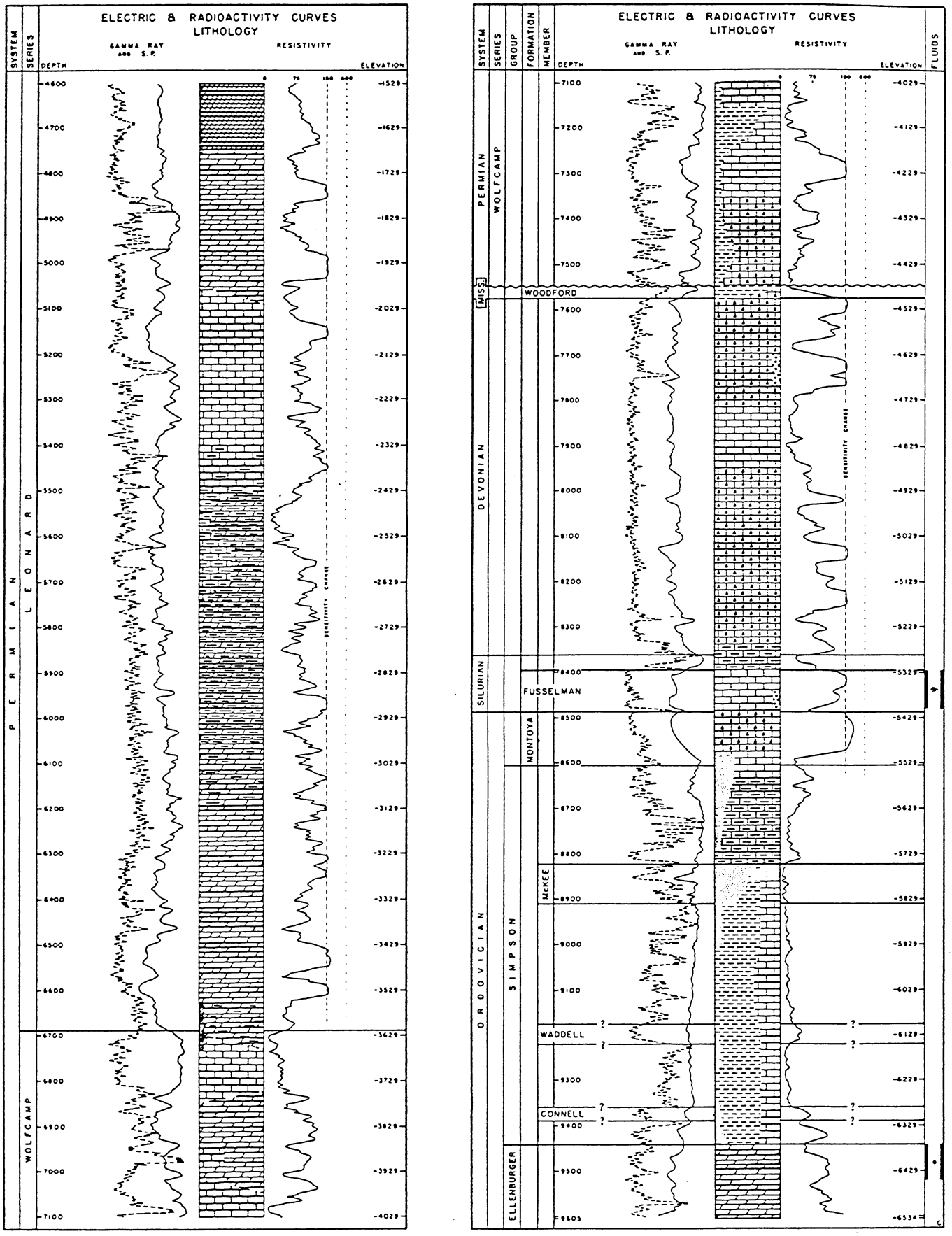
FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECON. GEOL.
196 Pub. No. 5716. McCAMEY FIELD, Upton and Crane Counties, Texas August, 1957
Source 12c,

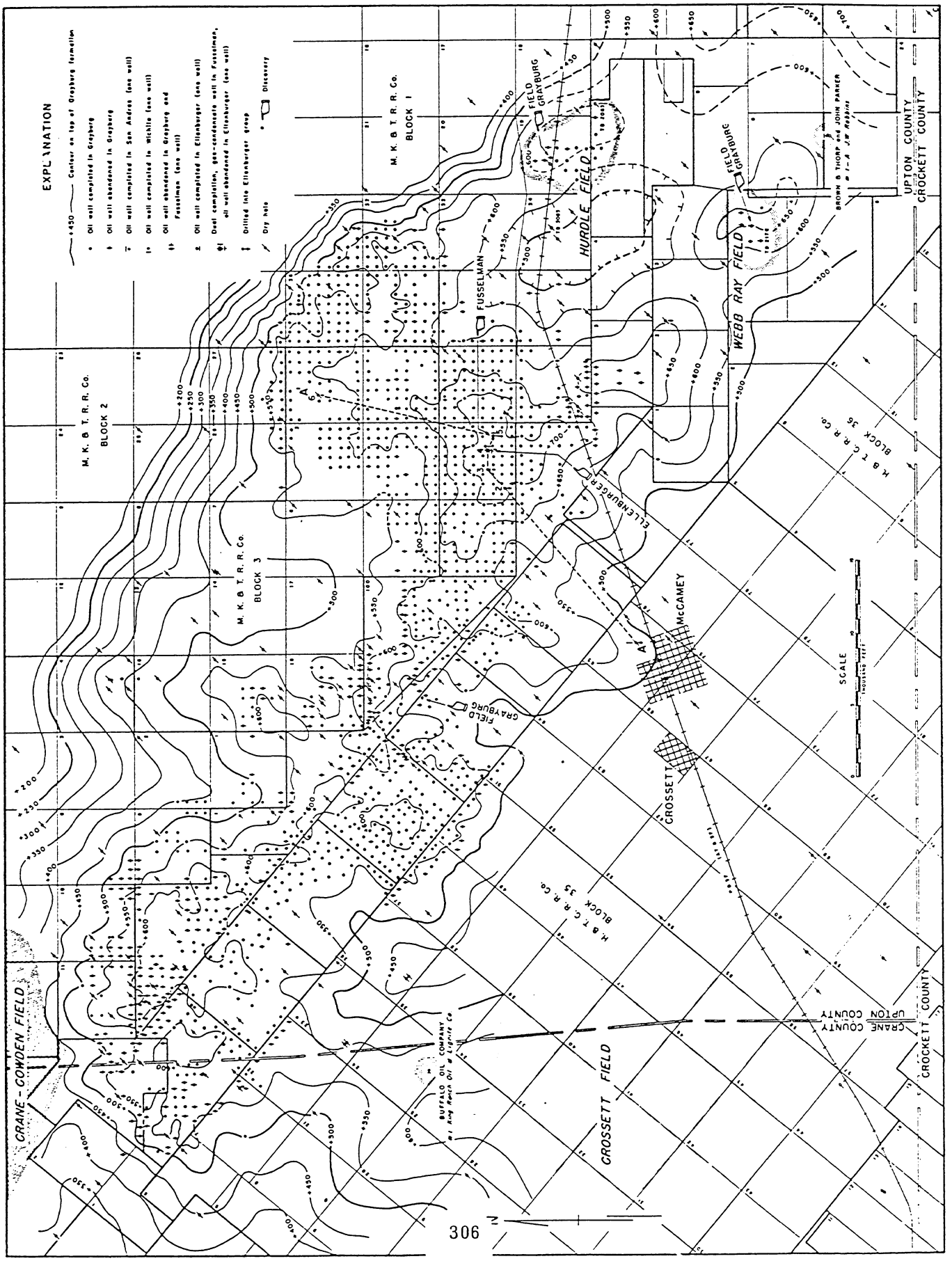
TYPICAL SECTION OF ROCKS PENETRATED





TYPICAL SECTION OF ROCKS PENETRATED




EXPLANATION
Contour on top of Grayburg formation
Oil well completed in Grayburg
Oil well abandoned in Grayburg
Oil well completed in San Andres (one well)
Oil well completed in Wichita (one well)
Oil well abandoned in Grayburg and Fusselman (one well)
Oil well completed in Ellenburger (one well)
Dual completion, gas-condensate well in Fusselman, oil well abandoned in Ellenburger (one well)
Drilled into Ellenburger group
Dry hole
Discovery
M. K. & T. R. R. Co. BLOCK 1
M. K. & T. R. R. Co. BLOCK 2
M. K. & T. R. R. Co. BLOCK 3
FUSSELMAN
FIELD GRAYBURG
HURDLE FIELD
WEBB RAY FIELD
FIELD GRAYBURG
BROWN & THORP and JOHN PARKER
UPTON COUNTY
CROCKETT COUNTY
ELLENBURGER
McCAMEY
A
A'
SCALE
FIELD GRAYBURG
CROSSETT
H & T C R R Co BLOCK 35
H & T C R R Co BLOCK 33
CRANE COUNTY
UPTON COUNTY
CROCKETT COUNTY
CRANE-COWDEN FIELD
CROSSETT FIELD
BUFFALO OIL COMPANY
N
306

McFarland
Queen
Central Basin Platform

DATA SOURCE CODE		
	STATE----------	Texas
	COUNTY----------	Andrews
	REGULATORY DISTRICT----------	8
	BASIN----------	Permian
15	SUB-BASIN----------	Central Basin Platform
	FIELD----------	McFarland
2	RESERVOIR----------	Queen
	GEOLOGIC AGE----------	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE----------	313
8a	RESERVOIR LITHOLOGY----------	Sandy Shaley dolmite and sandstone
	TRAPPING MECHANISM----------	
2, 3	DISCOVERY YEAR----------	5-1955
2, 16c	PROVED ACREAGE----------	15300
	REGULAR WELL SPACING (acres/well)-----	
2, 3	RESERVOIR DEPTH----------	4600--4900, 4790
	RESERVOIR THICKNESS	
2, 16c	NET PAY----------	16 avg, 7-23
	GROSS----------	
	NET/GROSS RATIO----------	
	POROSITY	
	TYPE----------	
2	FRACTION----------	.12 avg
	PERMEABILITY	
2	RANGE----------	3-24 md
2	AVERAGE----------	12.3 md
2	HORIZONTAL----------	12.3 md
	VERTICAL----------	
3	OTHER INFORMATION----------	Production from Carbonate reservoirs include Ellenburger, Grayburg, Pennsylvanian, Wolfcamp
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS----------	386 (124P-195I-67A)
	PRODUCTION 1976 oil (cum)----------	
	PRODUCTION 1977 oil (cum)----------	
	PRODUCTION 1978 oil (cum)----------	
3	PRODUCTION 1979 oil (cum)----------	34,680.5
3	PRODUCTION 1-1-79 to 1-1-80----------	538.9 mbbls, 121.9 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		
	FIELD:	McFardland
2	RESERVOIR:	Queen
2, 16c	PROD. ACRES:	15300
2, 16c	AVG. THICKNESS (FT.):	16, 7-23
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.25
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.15 (74)
16c	WATER SATURATION (S_W):	.25-.45
16c	OIL SATURATION (S_O):	.52 (76)
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	108
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1300
2	RESERVOIR PRESSURE INITIAL (psi):	1950-2250
2	RESERVOIR PRESSURE LATEST (psi):	400-2100
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
2, 3	STOCK TANK OIL GRAVITY (°API):	30.2 - 36, 32.6
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1374
	ESTIMATED ORIGINAL OIL IN PLACE FOR 9 SRPs:	105,249 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 9 SRPs:	12,027 mbbls

OTHER INFORMATION:

16c Oil Saturation: .51 (59)
.49 (62)
.60 (63)
.56 (64)
.57 (67)
.54 (69)
.32 (74)
.52 (75)
.52 (76)

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: McFardland RESERVOIR: Queen TOTAL NO. PROJECTS: 10 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS		47	122	112	6
1977 PROD. (this project):		56	102	99	5
CUM. PROD. FROM DISC. TO 1/78:		3061	7576	1769	156
PROJECT NO.	F1476	F1466	F1473	F1471	F1472
LEASE NO.(s):	14563	18926	16497, 18035	20536	13434, 13435
OPERATOR:	AMOCO	ARCO	EXXON	FASKEN	HANLEY
RESERVOIR:	QUEEN	QUEEN	QUEEN	QUEEN	QUEEN
DEPTH PRODUCING ZONE:	4600	4790	4800	4950-4850	4790
PRODUCTIVE ACREAGE IN RESERVOIR:	15000	12800	15300	12000	15300
ACREAGE IN PROJECT:	1880	1200	4621	927	160
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, BW	WF/SW, BW	WF/FW	WF/SW, BW	PM/BW
PATTERN:	I	5S	5S	MLD	SW
YEAR BEGAN:	9-61	11-64	12-61	7-76	9-65
YEAR TERMINATED OR STATUS:	I C P	I C P	I C P	I C P	I C P
RESERVOIR PRESSURE INITIAL:	2250	2010	2225	1900	2255
BEG. INJECTION:	500	200	400	1000	-
LATEST:	1800	2000	1500	2100	-
NUMBER OF WELLS TOTAL:	38	31	82	29	4
PRODUCING WELLS:	15	9	27	16	3
INJECTION WELLS:	6SW	10 SW	42	2 SW	1
MAXIMUM:	6BW	10 BW	-	6 BW	-
LATEST:	-	-	-	-	-
SHUT-IN/ABANDONED WELLS:	11	2	13	5	0
SURFACE INJECTION PRESSURE:	1429	2500	1700	2000	1550
EFFECTIVENESS OF INJECTION:	ME	VE	VE	ME	ME
OPERATOR PROBLEMS:	CR, SC, PA, IP	EP	CR, SC, PA	BT, CH, SC, PA	IP
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	60	56	102	98	5
FROM BEG. INJECTION:	1458	1860	4176	758	66
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	1980	1400	4429	2157	73
WATER PRODUCTION:					
CURRENT (1977):	71	508	344	153	19
CUMULATIVE TO 1/78:	849	2865	6591	1760	225
CURRENT (1977) INJECTION:	71 SW, 170 BW	508SW, 215BW	1400 FW	153 SW, 350 BW	117
CUMULATIVE INJECTION:	849 SW, 9185 BW	2865 SW, 6639 BW	3349 FW	1660 SW, 3717 BW	1470

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: McFardland RESERVOIR: Queen TOTAL NO. PROJECTS: 10 PDS:

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

1976 PROD. (this project): MBBLS	1	213	4	121	15
1977 PROD. (this project):	1	174	4	106	15
CUM. PROD. FROM DISC. TO 1/78:	59	7179	163	5271	966
PROJECT NO.	F1475	F1474	F6938	F1477	F1479
LEASE NO.(s):	09930	18514	13754	18959	19886
OPERATOR:	MOBILE	MOBILE	P & W OIL Co	SUPERIOR OIL	TEXACO
RESERVOIR:	QUEEN	QUEEN	QUEEN	QUEEN	QUEEN
DEPTH PRODUCING ZONE:	4800-4650	4650	4850	4700	4800
PRODUCTIVE ACREAGE IN RESERVOIR:	160	3299	12000	15000	--
ACREAGE IN PROJECT:	60	2600	160	1567	640
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, BW, FW	WF/SW, BW, FW	WF/SW.	WF/SW, BW	WF/SW, BW
PATTERN:	I	MI9	--	5S	5S
YEAR BEGAN:	9-64	9-64	9-64	5-76	4-65
YEAR TERMINATED OR STATUS:	I C P	I C P	I C P	I C P	I C P
RESERVOIR PRESSURE INITIAL:	1950	1950	1900	2010	2250
BEG. INJECTION:	250	250	300	100	450
LATEST:	--	--	400	--	--
NUMBER OF WELLS TOTAL:	9	113	4	66	10
PRODUCING WELLS:	1	30	3	17	3
INJECTION WELLS:	2SW	25	1	14SW	2SW
MAXIMUM:	2BW	25BW	--	14BW	--
LATEST:	2FW	25FW	--	--	--
SHUT-IN/ABANDONED WELLS:	2	8	0	21	5
SURFACE INJECTION PRESSURE:	2500	2500	1800	1750	1600
EFFECTIVENESS OF INJECTION:	ME	VE	--	VE	VE
OPERATOR PROBLEMS:	SC, PA	PA, PI, SC	SC, SF	--	SC
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	1	174	--	105	--
FROM BEG. INJECTION:	19	4252	--	3326	--
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	60	4530	--	3600	--
WATER PRODUCTION:					
CURRENT (1977):	3	582	--	648	13
CUMULATIVE TO 1/78:	51	7893		5724	71
CURRENT (1977) INJECTION:	3SW,152BW,621FW	582SW,1338BW,845FW	38	5095SW, 164 BW	58
CUMULATIVE INJECTION:	51SW,1852BW,492FW	7893SW,20464BW 59181FW	--	5179SW, 6325BW	601SW,2624BW

McElroy
Grayburg-San Andres
Central Basin Platform

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Crane (M)
1	REGULATORY DISTRICT	8
2,1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	McElroy
1	RESERVOIR	Grayburg-San Andres
5,1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
12c, 1	RESERVOIR LITHOLOGY	Sandy, anhydritic, bentonitic, shaly dolomite--oil and gas yields from thin oolitic zones; dolomite.
12c, 1	TRAPPING MECHANISM	Anticlinal folding influenced by variations in porosity and permeability; structural, anticline.
2,3,12c,1	DISCOVERY YEAR	4-1926; 1941; 1926; 1926 disc.-1941 con.
1,2,12c,16	PROVED ACREAGE	190, 30000, 21000, 30000
1	REGULAR WELL SPACING (acres/well)	10
2,3,1	RESERVOIR DEPTH	3000, 2900, 2900
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	129.2, 150, 100-150
12c	GROSS	225 avg.
	NET/GROSS RATIO	
	POROSITY	
12c, 1	TYPE	primary & secondary oolitic & inter-crystalline; V; IC
2,1	FRACTION ~~124 avg 16~~	
	PERMEABILITY	
	RANGE	
2,1,14e	AVERAGE	10.5 avg., .18 md , 50
2	HORIZONTAL	10.5 md
	VERTICAL	
12c	OTHER INFORMATION	May be continuous with Dune Field
14e	BETC/RI-78/15 recommends as most suitable for polymer EOR.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	1331P -374I; 2614 (1834P-686I-94A)
	PRODUCTION 1976 oil (cum)	
1	PRODUCTION 1977 oil (cum)	348,067
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	373,438.2
3	PRODUCTION 1-1-79 to 1-1-80	12,337.3 mbbls oil; 2,644.7 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
12c	WATER ANALYSIS RECORDS?	yes
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2,1	FIELD:	McElroy
12c,2,1,16c	RESERVOIR:	Grayburg-San Andres
2,1,16c	PROD. ACRES:	21000, 30000, 190, 30000
1, 16c	AVG. THICKNESS (FT.):	129.2, 150, 100-150
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.147, 1.15
1, 16c	FORMATION VOLUME FACTOR LATEST (FVF):	
16c	WATER SATURATION (S_W):	.20, .30
12c	OIL SATURATION (S_O):	.60 (76)
14e	PRIMARY DRIVE MECHANISM:	depletion
17, 14e	PRIMARY GAS CAP?:	no
16c	TEMPERATURE (°F):	97, 86
2, 1, 14e	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	755
2	RESERVOIR PRESSURE INITIAL (psi):	755-1300, 755, 755
	RESERVOIR PRESSURE LATEST (psi):	197-382
1, 17	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1,2,3,12c	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1169.5(77), 1170
14e	STOCK TANK OIL GRAVITY (°API):	30, 30-32, 30, 31-33
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	2.6 cp
2	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1249
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 4 SRPs:	824,197 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 4 SRPs:	160,563 mbbls

OTHER INFORMATION:

1 Primary recoverable: 110 bbl/acre-ft.

12c Reference: McInnis, A. B., and Hartman, F. H., 1955, McElroy Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Economic Geology, Publ. No. 5716, p.203-206.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: McElroy RESERVOIR: Grayburg-San Andres TOTAL NO. PROJECTS: 6
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	3569	10	8711	153	140
1977 PROD. (this project):	4114	24	8430	188	216
CUM. PROD. FROM DISC. TO 1/78:	153095	---	265279	5124	4825
PROJECT NO.	F1459	F5024	F1460	F1368	F1462
LEASE NO.(s):	20377	20693	04157 (+3)	04201 (+2)	18960
OPERATOR:	Getty	Getty	Getty	Kirby Pet.	Shell
RESERVOIR:	Grayburg-San An.	Grayburg-San An.	Grayburg-San An.	Grayburg-San An.	Grayburg-San An
DEPTH PRODUCING ZONE:	3000	3000	3000	3758	2900
PRODUCTIVE ACREAGE IN RESERVOIR:	30000	30000	30000	30000	30000
ACREAGE IN PROJECT:	11612	120	18240	640	520
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/BW	WF/BW	WF/BW	WF/SW	WF/BW
PATTERN:	M5	5S	5I9	P	MLD
YEAR BEGAN:	4-68	9-71	9-62	9-70	4-65
YEAR TERMINATED OR STATUS:	ICP	ICP	ICP	ICP	ICP
RESERVOIR PRESSURE INITIAL:	755	757	1300	755	755
BEG. INJECTION:	100	100	---	---	100
LATEST:	197	---	---	382	---
NUMBER OF WELLS TOTAL:	891	10	1569?	39	54
PRODUCING WELLS:	474	7	1267	30	31
INJECTION WELLS:	330	3	302	9	16
MAXIMUM:	---	---	---	---	---
LATEST:	---	---	---	---	---
SHUT-IN/ABANDONED WELLS:	87	0	0	0	7
SURFACE INJECTION PRESSURE:	1350	1325	---	900	---
EFFECTIVENESS OF INJECTION:	ME	ME	VE	---	ME
OPERATOR PROBLEMS:	CR, CH, PI	CR, PI	CR, CH, PI	CR	EB
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	2508	15	---	140	216
FROM BEG. INJECTION:	8746	34	---	537	1026
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	162300	300	---	4290	1670
WATER PRODUCTION:					
CURRENT (1977):	25196	23	20740	433	284
CUMULATIVE TO 1/78:	118325	34	111260	4705	1355
CURRENT (1977) INJECTION:	36802	99	29127	1113	89
CUMULATIVE INJECTION:	230562	697	465753	95073	6167

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: McElroy RESERVOIR: Grayburg-San Andres TOTAL NO. PROJECTS: 6 PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	95				
1977 PROD. (this project):	93				
CUM. PROD. FROM DISC. TO 1/78:	3005				
PROJECT NO.	F1462				
LEASE NO.(s):	20273				
OPERATOR:	Texas Pac.				
RESERVOIR:	Grayburg-San An.				Grayburg
DEPTH PRODUCING ZONE:	3200				2900
PRODUCTIVE ACREAGE IN RESERVOIR:	30000				190
ACREAGE IN PROJECT:	1080				13778
PORTION OR FIELD WIDE:	FW/P				
TYPE:	WF/SW, FW				WF
PATTERN:	5S				
YEAR BEGAN:	9-71				1947
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	1300				755
BEG. INJECTION:	50				
LATEST:	---				
NUMBER OF WELLS TOTAL:	51				
PRODUCING WELLS:	25				1331
INJECTION WELLS:	13SW				374
MAXIMUM:	13FW				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	0				
SURFACE INJECTION PRESSURE:	1429				
EFFECTIVENESS OF INJECTION:	ME				
OPERATOR PROBLEMS:	IP				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	93				
FROM BEG. INJECTION:	1164				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	1642				
WATER PRODUCTION:					
CURRENT (1977):	83				
CUMULATIVE TO 1/78:	860				
CURRENT (1977) INJECTION:	83SW; 236FW				
CUMULATIVE INJECTION:	85SW; 5838FW				

WATER ANALYSIS RECORD

FIELD: McElroy RESERVOIR: Grayburg TOTAL NO. PROJECTS:
DATA SOURCE: 12c

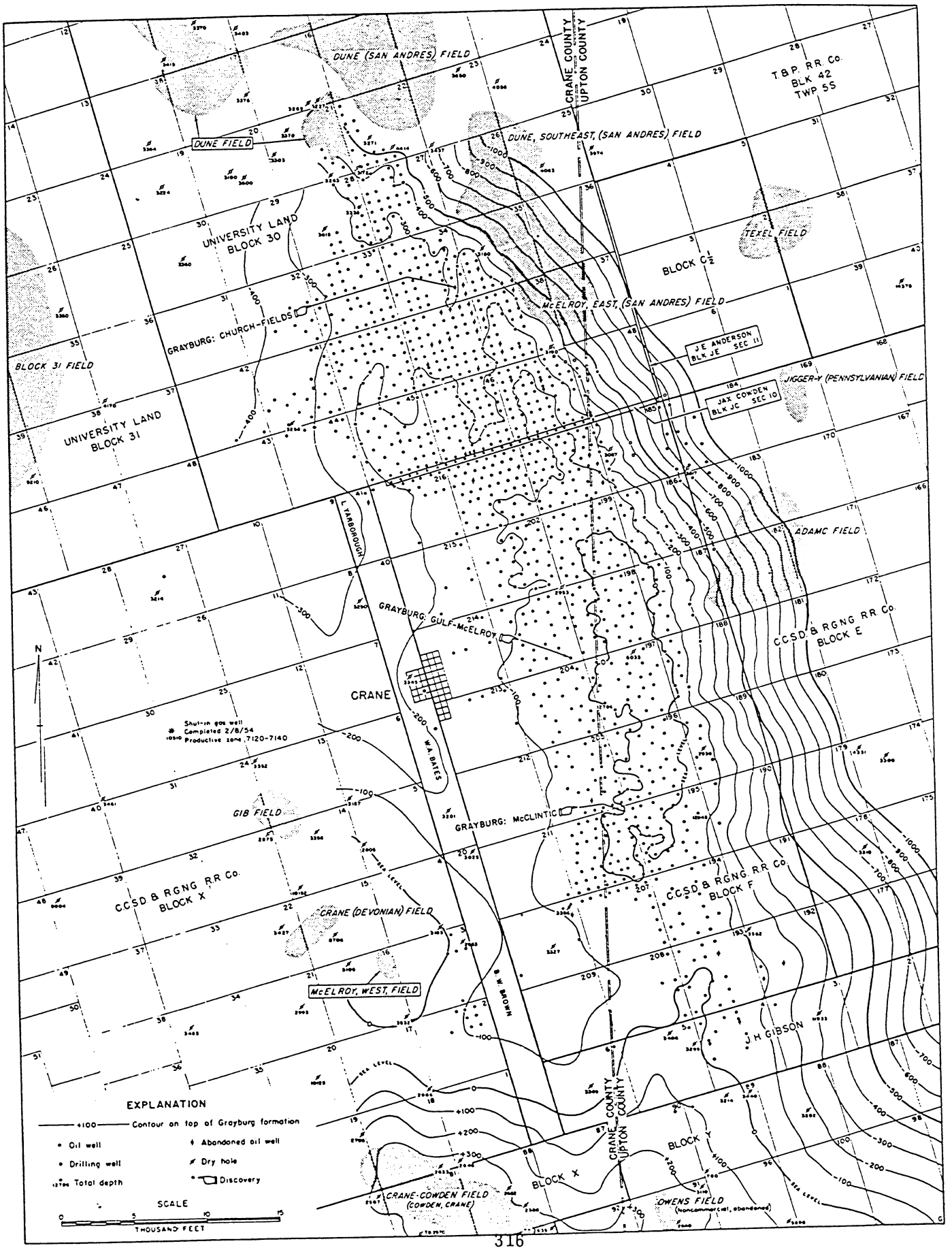
TOTAL SOLIDS (ppm):	21,735
NA	5,985
Ca	1,160
Mg	273
Fe	
SO_4	3,100
Cl	8,865
CO_2	
HCO_3	1,598
OH	0
H_2S	754

RESISTIVITY: 0.412 ohm @ 24°C
SPECIFIC GRAVITY: 1.0133 ph: 6.98
salinity: Primary 76.42%, secondary 15.88%
alkalinity: primary

OTHER WATER QUALITY DATA:

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

McELROY FIELD, Crane and Upton Counties, Texas



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

McELROY FIELD, Crane and Upton Counties, Texas

NATURE OF TRAP

Grayburg: The trap is due primarily to anticlinal folding. Variation in degree of porosity and permeability has functioned as a secondary trap-forming factor.

THICKNESSES OF RESERVOIR ROCK

Grayburg:	Feet		
	Min.	Max.	Avg.
Top to bottom	100	400	225

Data are not available for determining net thicknesses of productive rock.

ELEVATION AND RELIEF OF PRODUCTIVE ZONE

Grayburg:	Feet
No free gas cap	
Elev. of top of oil	-198
Elev. of bottom of oil, approx.	-600
Relief, approx.	402

The above figures represent conditions at time of discovery.

CHARACTER OF GAS

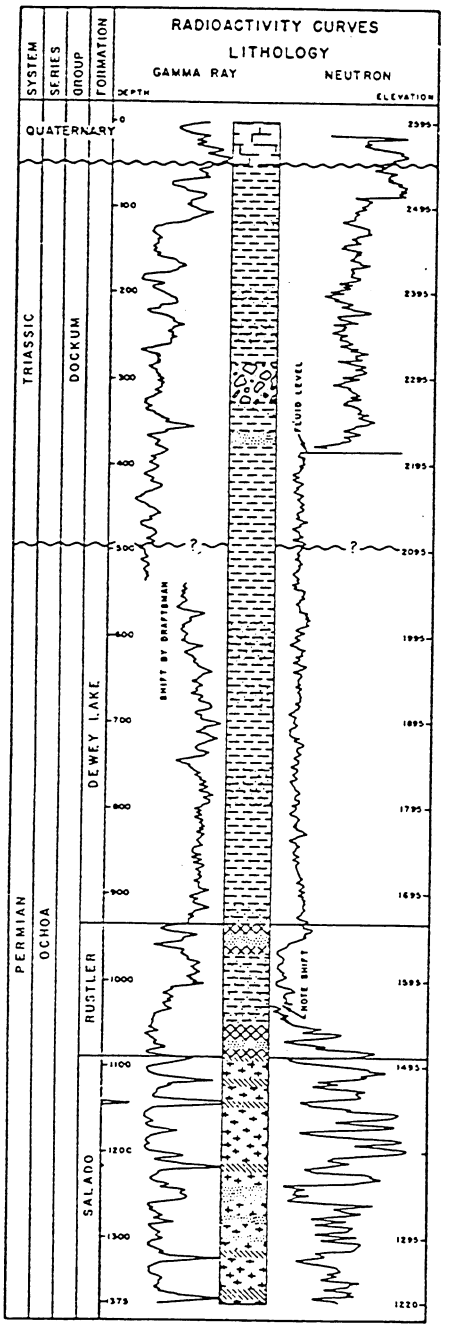
Component	Mol. %
Hydrogen sulphide	21.6
Methane	34.5
Ethane	26.55
Propane	12.97
Butane	3.41
Pentane	.70
Hexane	.20
	99.93

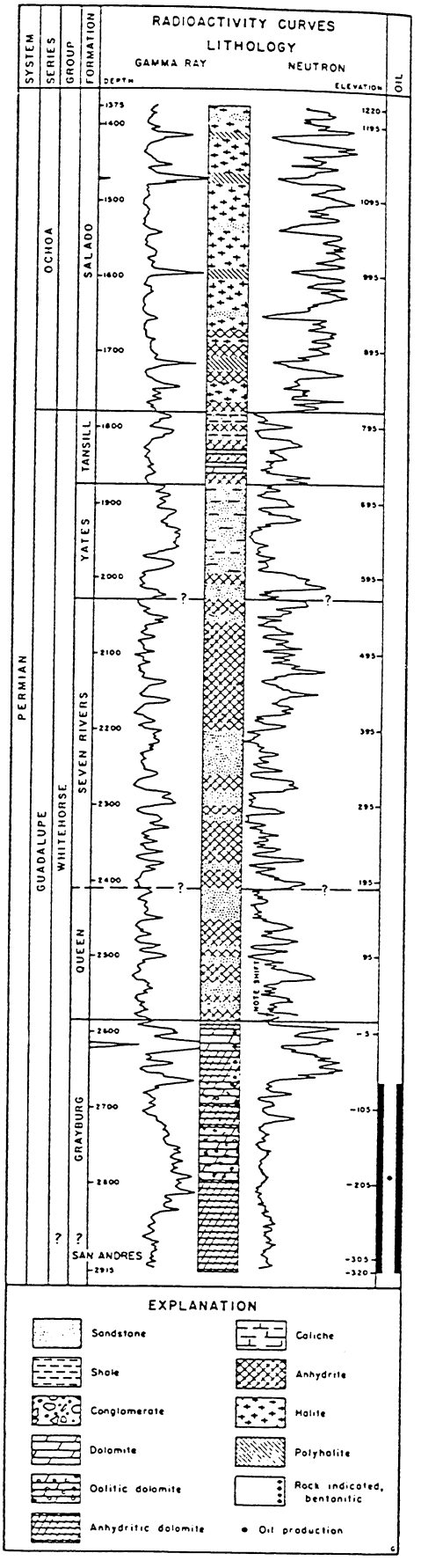
CHARACTER OF OIL

Gravity, A.P.I. @60°F.: 31 - 33°
Sulphur: 2.5% Base: Intermediate
Color: Greenish- and brownish-black

Component	Mol. %
Hydrogen sulphide	5.99
Methane	8.95
Ethane	6.92
Propane	5.67
Butane	4.37
Pentane	3.74
Hexane	4.49
Heptane and heavier	60.34
	100.50

TYPICAL SECTION OF ROCKS PENETRATED





For other analyses see:

Railroad Commission of Texas
Analyses of Texas Crude Oils (1940), pp. 32 and 62.

U. S. Bureau of Mines	Lab. ref. No.	27860	27861	27862	30343	43112
Analyses of Crude Oils from the West Texas District. R. I. 2549 (1927)	Page	11	12	13		
Tabulated Analyses of Texas Crude Oils. R. I. 3252 (1934)	Group 2, Item	19	46	47	20	
Petroleum Engineering Report, Big Spring Field and Other Fields in West Texas and Southeastern New Mexico. R. I. 3316 (1936)	Page		144			
Tabulated Analyses of Texas Crude Oils. T. P. 607 (1939)	Group 2, Item	37	38	39	40	
Analyses of Crude Oils from Some West Texas Fields. R. I. 3744 (1944)	Page					24
Analyses of Crude Oils from 283 Important Oil Fields of the United States. R. I. 4289 (1946)	Item					232

Means
San Andres
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
	COUNTY	Andrews
3	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
	FIELD	Means
	RESERVOIR	San Andres
5	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
9c	RESERVOIR LITHOLOGY	Dolmite, see source 9c1 and 9c2 with discussion.
$9c_1$	TRAPPING MECHANISM	Field is divided into two anticlines trending generally north and south, separated by a dense saddle.
$2,3,9c_1$	DISCOVERY YEAR	1934, 1934
$2,9c_2$	PROVED ACREAGE	18,500; 15,723
	REGULAR WELL SPACING (acres/well)	
$2,3,9c_2$	RESERVOIR DEPTH	4500, 4400, 4400
$9c_1$	unitized: 1963	
	RESERVOIR THICKNESS	
2	NET PAY	57.5 avg.
$9c_2$	GROSS	300
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
$9c_1,9c_2$	FRACTION	.077, .09
	PERMEABILITY	
	RANGE	
$9c_1,9c_2$	AVERAGE	29, 20 md
	HORIZONTAL	
	VERTICAL	
3	OTHER INFORMATION	Other production from Devonian, Queen Sand, Yates and overlying Grayburg.
14e	BETC/RI-78/15 recommends as most suitable for polymer EOR because polymers will be more readily available than carbon dioxide.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	550 (287P-219I-44A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	129,997.7
3	PRODUCTION 1-1-79 to 1-1-80	5, 161.3 mbbls; 1,201.3 mmcf
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
$9c_1$	STRUCTURE CONTOUR?	yes
$9c_1$	LOGS?	yes
$9c_1, 9c_2$	STRUCTURE SECTION?	yes
$9c_2$	ENGINEERING REPORTS?	yes
$9c_2$	CORE DESCRIPTIONS?	yes

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Means
	RESERVOIR:	San Andres
2, $9c_2$	PROD. ACRES:	18,500; 15,723
2	AVG. THICKNESS (FT.):	57.5 avg.
$9c_2$	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.04
	FORMATION VOLUME FACTOR LATEST (FVF):	
$9c_1$, $9c_2$	WATER SATURATION (S_W):	.35, .22
	OIL SATURATION (S_O):	
$9c_2$	PRIMARY DRIVE MECHANISM:	Fluid expansion with
	PRIMARY GAS CAP?:	weak waterdrive
$9c_1$	TEMPERATURE (°F):	99
$9c_1$, $9c_2$	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	310
$9c_1$, $9c_2$	RESERVOIR PRESSURE INITIAL (psi):	1800, 1850
$9c_1$, 2	RESERVOIR PRESSURE LATEST (psi):	1150, 1850-1945
$9c_1$	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	1100
$9c_1$	GAS OIL RATIO LATEST (GOR) (cf/bbl):	350
3, $9c_2$	STOCK TANK OIL GRAVITY (°API):	29.29
$9c_1$, $9c_2$	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	6 (unusual)
	MINIMUM MISCIBILITY PRESSURE (MMP):	
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	448,700 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	73,500 mbbls
	Original Primary	
	OTHER INFORMATION:	

References

$9c_1$ Barbe, J.A., 1971, Evaluation and Modification of the Means San Andres Unit Waterflood: Journal of Petroleum Technology, December, p.1421-1427.

$9c_2$ George, C.J., and Stiles, L.H., 1978, Improved Techniques for Evaluating Carbonate Waterfloods in West Texas: Journal of Petroleum Technology, November, p.1547-1554.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Means 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	5278	188			
1977 PROD. (this project):	5656	211			
CUM. PROD. FROM DISC. TO 1/78:	110181	8446			
PROJECT NO.	F 1481	F 1482			
LEASE NO.(s):	17503	18729			
OPERATOR:	Exxon	Thompson, J.			
RESERVOIR:	San Andres	Grayburg-San Andres			
DEPTH PRODUCING ZONE:	4500	3800			
PRODUCTIVE ACREAGE IN RESERVOIR:	18500	14328			
ACREAGE IN PROJECT:	16216	4320			
PORTION OR FIELD WIDE:	FW/P	FW/P			
TYPE:	WF/SW, BW, FW	WF/SW			
PATTERN:	I	5S			
YEAR BEGAN:	3-63	2-65			
YEAR TERMINATED OR STATUS:	I CP SW, I PD BW	I C P			
RESERVOIR PRESSURE INITIAL:	1850	1850			
BEG. INJECTION:	950	150			
LATEST:	1945	1850			
NUMBER OF WELLS TOTAL:	424	126			
PRODUCING WELLS:	214	73			
INJECTION WELLS:	97SW	25			
MAXIMUM:	97FW	-			
LATEST:		-			
SHUT-IN/ABANDONED WELLS:	16	28			
SURFACE INJECTION PRESSURE:	1400	1600			
EFFECTIVENESS OF INJECTION:	VE	-			
OPERATOR PROBLEMS:	CR, EW, SC, PA	CR, SC, PA			
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	5656	211			
FROM BEG. INJECTION:	45160	1262			
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	55000	5000			
WATER PRODUCTION:					
CURRENT (1977):	9513	836			
CUMULATIVE TO 1/78:	66919	5334			
CURRENT (1977) INJECTION:	11487 SW, 13237FW	2223			
CUMULATIVE INJECTION:	105074SW, 10688BW 101347FW	20659			

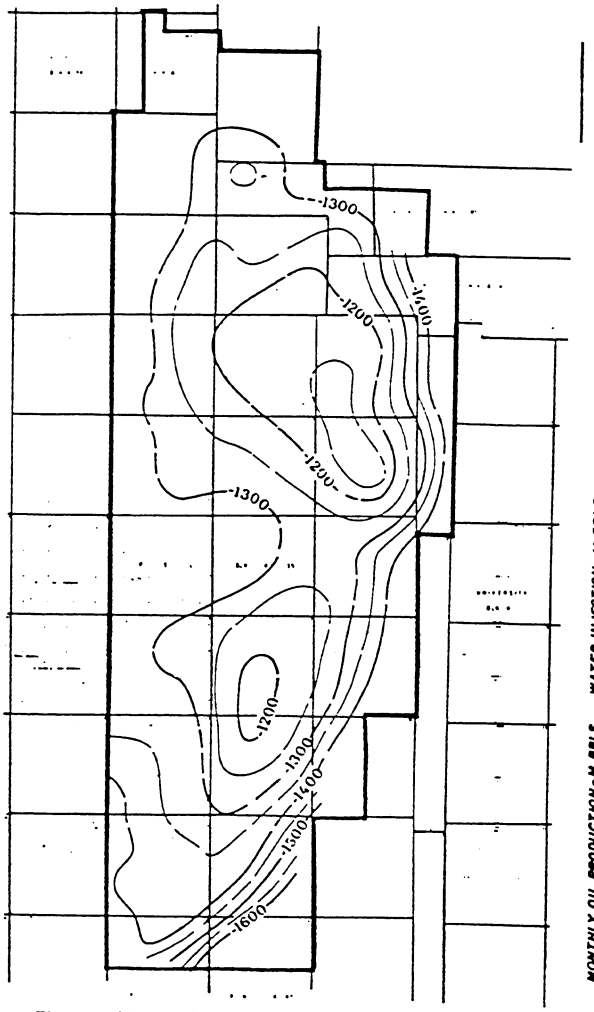


Fig. —Means San Andres Unit structure map, top of the San Andres.

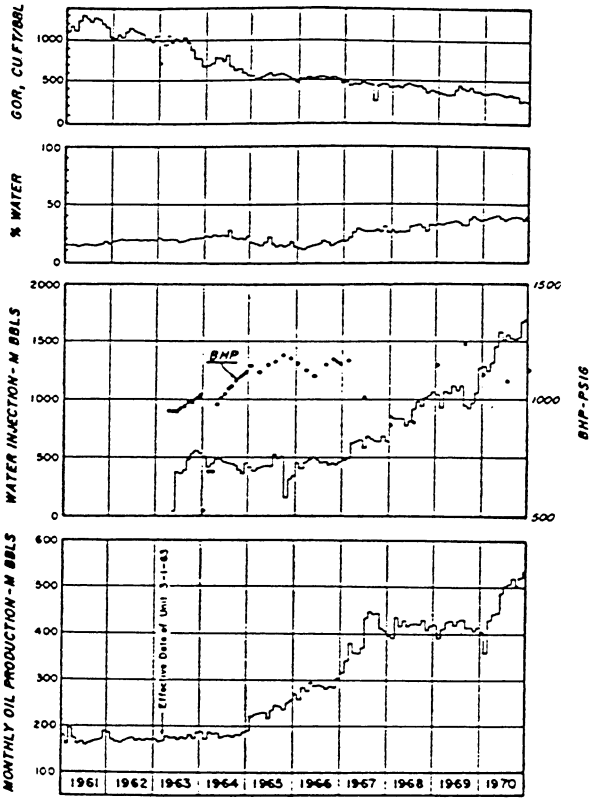


Fig. —Means San Andres Unit reservoir datagraph.

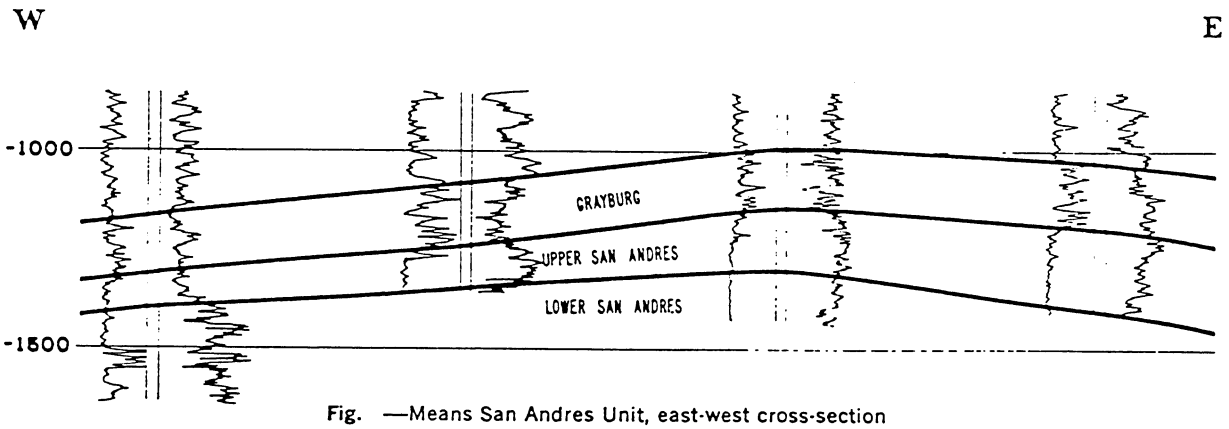


Fig. —Means San Andres Unit, east-west cross-section

FROM: Barbe, J.A., 1971, Evaluation and Modification of the Means San Andres Unit Waterflood: Journal of Petroleum Technology, December, p. 1421-1427.

These reservoirs are characterized by numerous porosity stringers within a gross, vertical, carbonate section that may be several hundred feet thick. These carbonates were deposited as limestone in a shallow shelf environment and most of the limestone later became dolomitized. Sediments of the Means and Robertson fields were deposited along the shelf margin, while those of the Fullerton area were deposited farther along the shelf, away from the margin. The reservoirs exhibit a complex interfingering of various carbonate facies types. Many sea transgressions and regressions during deposition show rapid lithologic changes in the vertical section at any given place, and are responsible for the highly stratified reservoirs. Although some structural closure exists, most hydrocarbon trapping is controlled by lateral and vertical limits of porosity and permeability.

The schematic block diagram of the Means Field (Fig.) illustrates the complex relationship of the various facies types typical of these fields. Deposition here was in an intertidal-lagoon-bank sequence. The best porosity generally is in the oolitic facies, which was deposited in shallow water and formed an offshore bank protecting the lagoon from waves. A skeletal facies was deposited in front of the oolite bank and also has good porosity, mainly secondary porosity formed by leaching of the skeletal material. The lagoonal facies has lesser porosity and is characterized by numerous thin porosity zones interbedded with shales and carbonate muds. Shelfward from the lagoonal facies is the intertidal facies, composed of anhydrite and micritic dolomite with little or no porosity. This diagram is generalized but helps to explain some problems in waterflooding from injectors to producers in this type of reservoir.

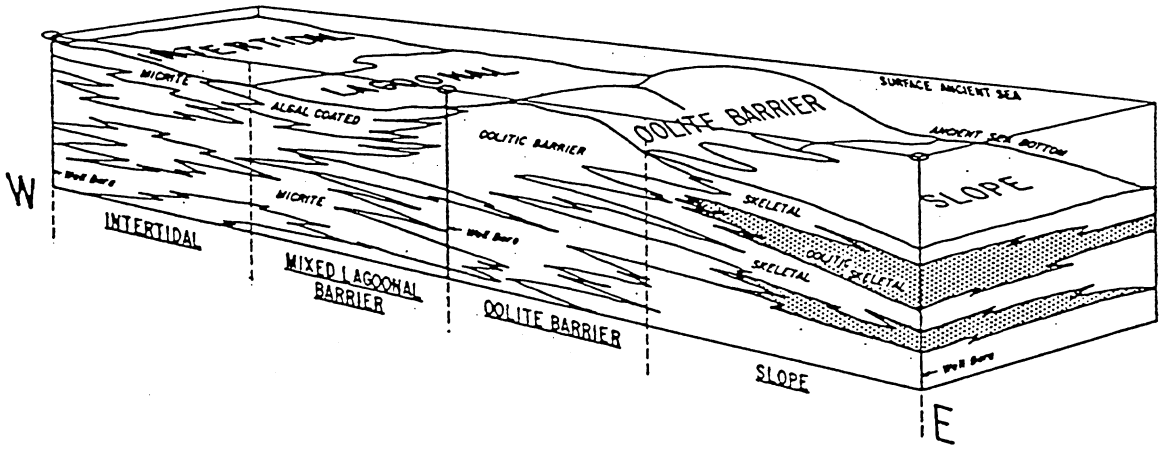
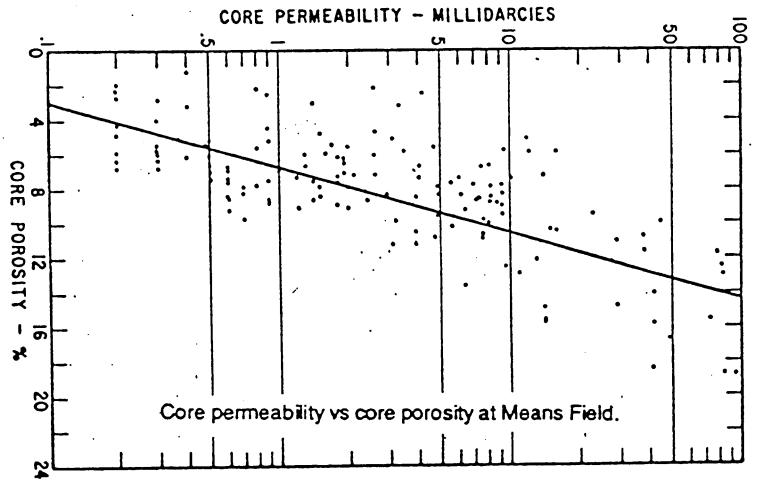


Fig. —Means Field (San Andres) schematic.



Core permeability vs core porosity at Means Field.

FROM: George, C.J., and Stiles, L.H., 1978, Improved Techniques for Evaluating Carbonate Waterfloods in West Texas: Journal of Petroleum Technology, November, p. 1547-1554.

Midland Farms
Grayburg
Midland Basin

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Andrews
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Midland
1	FIELD	Midland Farms
2	RESERVOIR	Grayburg
1	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
1	RESERVOIR LITHOLOGY	Dolmite
1	TRAPPING MECHANISM	Structural - Anticline Dome
2, 1	DISCOVERY YEAR	6-1944, 1945
2, 16c	PROVED ACREAGE	16300, 16189
1	REGULAR WELL SPACING (acres/well)	40
1,2,3,14e	RESERVOIR DEPTH	4800
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	56, 80, 100-200
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2, 1	FRACTION	.15, .116
	PERMEABILITY	
	RANGE	
2, 1, 14e	AVERAGE	61, 62md , 61 md
2	HORIZONTAL	61md
	VERTICAL	
2, 3	OTHER INFORMATION	Other production from Ellenburger, Fusselman, Straw, Wolfcamp
14e	BEG/RI-78/15 list as not suitable for EOR because of fractures.	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	250P; 430 (250P-110I-70A)
1	PRODUCTION 1976 oil (cum)	106, 161
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	113, 924.2
3	PRODUCTION 1-1-79 to 1-1-80	2,512.6 mbbls, 929.8 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:	Midland Farms
2	RESERVOIR:	Grayburg
2, 16c	PROD. ACRES:	16300, 16189
2, 1, 16c	AVG. THICKNESS (FT.):	56, 80, 100-200
1, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.13, 1.097
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.20
	OIL SATURATION (S_O):	
1, 14e	PRIMARY DRIVE MECHANISM:	Depletion, weak H_2O
14e	PRIMARY GAS CAP?:	no
16c, 14e	TEMPERATURE (°F):	102, 152 BHT
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	576
2, 14e	RESERVOIR PRESSURE INITIAL (psi):	1975
2	RESERVOIR PRESSURE LATEST (psi):	235
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	160
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
1,2,3	STOCK TANK OIL GRAVITY (°API):	46, 30, 46
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1248
	ESTIMATED ORIGINAL OIL IN PLACE FOR ___SRPs:	No Estimates
	ESTIMATED PRIMARY OIL RECOVERED FOR ___SRPs:	No Estimates

OTHER INFORMATION:

1 Primary recoverable: 95 bbl/acre-ft.

ENHANCED AND SECONDARY RECOVERY DATA:

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

1976 PROD. (this project): MBBLS	2556
1977 PROD. (this project):	2391
CUM. PROD. FROM DISC. TO 1/78:	108552
PROJECT NO.	F1488
LEASE NO.(s):	15874
OPERATOR:	Amoco
RESERVOIR:	Grayburg
DEPTH PRODUCING ZONE:	4800
PRODUCTIVE ACREAGE IN RESERVOIR:	16300
ACREAGE IN PROJECT:	1630
PORTION OR FIELD WIDE:	FW
TYPE:	WF/SW, BW
PATTERN:	-
YEAR BEGAN:	4-61
YEAR TERMINATED OR STATUS:	I C P
RESERVOIR PRESSURE INITIAL:	1975
BEG. INJECTION:	480
LATEST:	235
NUMBER OF WELLS TOTAL:	430
PRODUCING WELLS:	250
INJECTION WELLS:	55SW
MAXIMUM:	55BW
LATEST:	-
SHUT-IN/ABANDONED WELLS:	70
SURFACE INJECTION PRESSURE:	-
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):	12705
CUMULATIVE TO 1/78:	156650
CURRENT (1977) INJECTION:	12382SW,789BW
CUMULATIVE INJECTION:	125434SW,53247BW

Milnesand
San Andres
Tatum Basin

DATA SOURCE CODE		
	STATE	New Mexico
6b, 6c	COUNTY	Roosevelt
18	REGULATORY DISTRICT	Southeast
13c	BASIN	Permian
15	SUB-BASIN	Tatum Basin
14c,6b,6c	FIELD	Milnesand
14c,6b,6c	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
6b,6c,13c	RESERVOIR LITHOLOGY	Dolomite, fine to medium crystalline, pinpoint to vuggy porosity; limestone
6c	TRAPPING MECHANISM	Stratigraphic porosity & permeability pinchout updip across slight structural nosing.
18	DISCOVERY YEAR	9-58
6c	PROVED ACREAGE	5880
18,6c	REGULAR WELL SPACING (acres/well)	40
13c	RESERVOIR DEPTH	4554
	RESERVOIR THICKNESS	
6c,13c	NET PAY	40, 48
6c	GROSS	100
	NET/GROSS RATIO	
	POROSITY	
6b,6c	TYPE	pinpoint, V
6b,6c	FRACTION	.06, .08
	PERMEABILITY	
	RANGE	
	AVERAGE	
6b, 6c	HORIZONTAL	.4 md, .01 md
	VERTICAL	
13c	OTHER INFORMATION	Recommended for polymer flood in GURC Report 153.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS	146 (92P, 37I, 17A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	8782
18	PRODUCTION 1-1-79 to 1-1-80	241 mbbls oil; 94 mmcf gas; 1555 mbbls water
	SECONDARY RECOVERY RECORDS?	
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
6c	STRUCTURE CONTOUR?	yes
6c	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

DATA SOURCE CODE		
	STATE	New Mexico
6b, 6c	COUNTY	Roosevelt
18	REGULATORY DISTRICT	Southeast
13c	BASIN	Permian
15	SUB-BASIN	Tatum Basin
14c,6b,6c	FIELD	Milnesand
14c,6b,6c	RESERVOIR	San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
6b,6c,13c	RESERVOIR LITHOLOGY	Dolomite, fine to medium crystalline, pinpoint to vuggy porosity; limestone
6c	TRAPPING MECHANISM	Stratigraphic porosity & permeability pinchout updip across slight structural nosing.
18	DISCOVERY YEAR	9-58
6c	PROVED ACREAGE	5880
18,6c	REGULAR WELL SPACING (acres/well)	40
13c	RESERVOIR DEPTH	4554
	RESERVOIR THICKNESS	
6c,13c	NET PAY	40, 48
6c	GROSS	100
	NET/GROSS RATIO	
	POROSITY	
6b,6c	TYPE	pinpoint, V
6b,6c	FRACTION	.06, .08
	PERMEABILITY	
	RANGE	
	AVERAGE	
6b, 6c	HORIZONTAL	.4 md, .01 md
	VERTICAL	
13c	OTHER INFORMATION	Recommended for polymer flood in GURC Report 153.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
18	TOTAL NUMBER OF WELLS	146 (92P, 37I, 17A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
18	PRODUCTION 1979 oil (cum)	8782
18	PRODUCTION 1-1-79 to 1-1-80	241 mbbls oil; 94 mmcf gas; 1555 mbbls water
	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:	Milnesand
14c,6b,6c	RESERVOIR:	San Andres
6c	PROD. ACRES:	5880
6c,13c	AVG. THICKNESS (FT.):	40, 48
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
6b,6c	WATER SATURATION (S_W):	.60-.65, .35
6b,6c	OIL SATURATION (S_O):	.137, .15
6b,6c	PRIMARY DRIVE MECHANISM:	solution gas with partial water drive
	PRIMARY GAS CAP?:	
6c	TEMPERATURE (°F):	90
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
6c	RESERVOIR PRESSURE INITIAL (psi):	1100
	RESERVOIR PRESSURE LATEST (psi):	
6c	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	300:1
	GAS OIL RATIO LATEST (GOR) (cf/bbl):	
13c,6c	STOCK TANK OIL GRAVITY (°API):	28-30
	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 polymer flood

WATER ANALYSIS RECORD

FIELD: Milnesand RESERVOIR: San Andres TOTAL NO. PROJECTS:

DATA SOURCE:

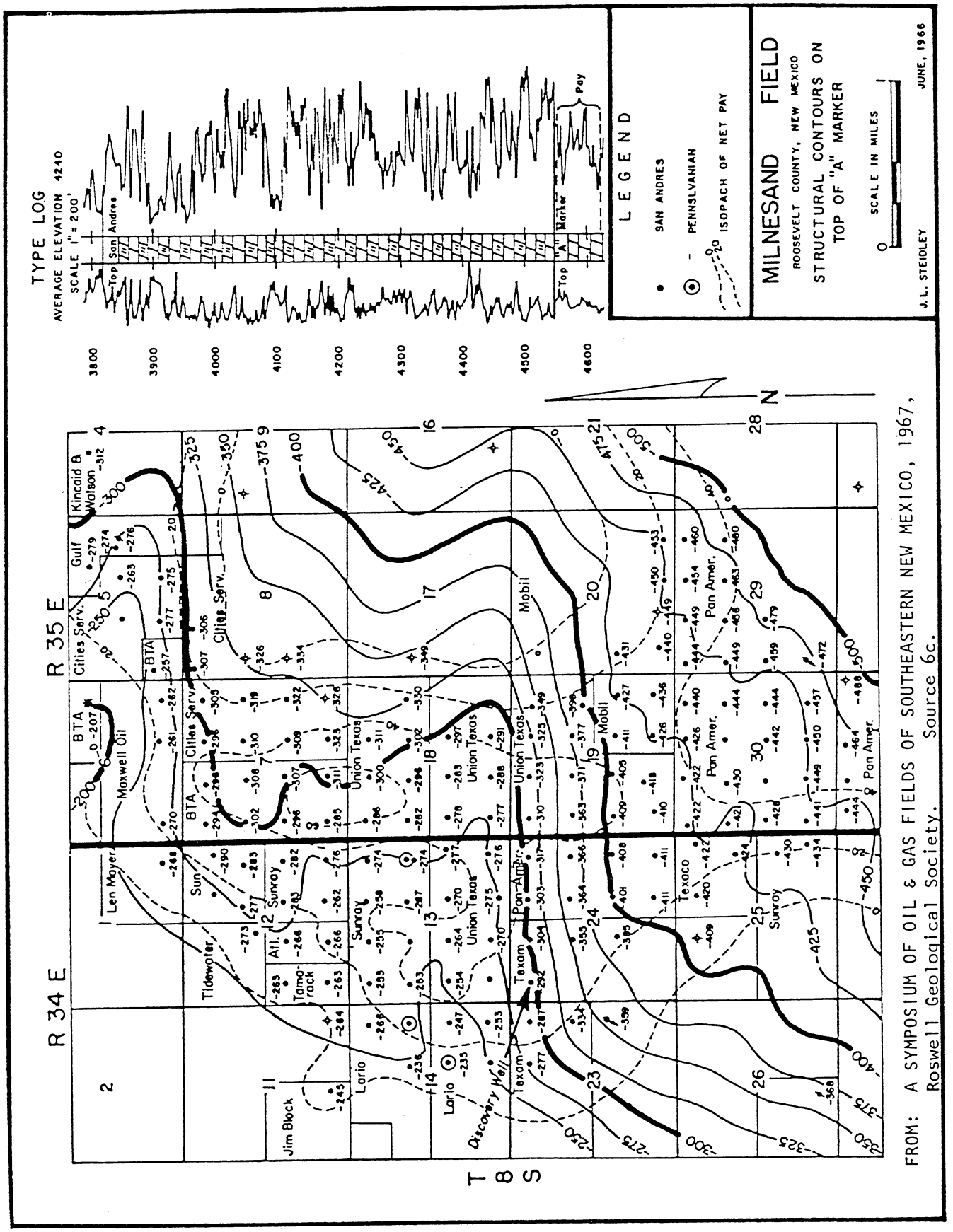
TOTAL SOLIDS (ppm):

NA	66,100
Ca	16,500
Mg	6,300
Fe	trace
SO_4	1,200
Cl	149,200
CO_2	
HCO_3	
OH	
H_2S	

RESISTIVITY: .068

SPECIFIC GRAVITY: 1.165

OTHER WATER QUALITY DATA:



FROM: A SYMPOSIUM OF OIL & GAS FIELDS OF SOUTHEASTERN NEW MEXICO, 1967, Roswell Geological Society. Source 6c.

Monahans
Clear Fork
Central Basin Platform

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Ward (M)
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Central Basin Platform
1	FIELD	Monahans
1, 2	RESERVOIR	Clear Fork
5, 1	GEOLOGIC AGE	Leonardian
1	AAPG STRATIGRAPHIC AGE CODE	318
12c, 1	RESERVOIR LITHOLOGY	Limestone, fine-grained, compact dolomite; dolomite
12c	TRAPPING MECHANISM	Anticline with porosity and permeability pinchout.
1,2,3	DISCOVERY YEAR	1945, 8-1945, 7-1945
2,1,16c	PROVED ACREAGE	4800, 2720, 40
	REGULAR WELL SPACING (acres/well)	
1,2,3	RESERVOIR DEPTH	4750
	RESERVOIR THICKNESS	
2,1,16c	NET PAY	48, 150, 48-75
12c	GROSS	245
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.107, .13
	PERMEABILITY	
	RANGE	
2,1	AVERAGE	2, 100 md
2	HORIZONTAL	2 md
	VERTICAL	
	OTHER INFORMATION	Other production from Devonian, Ellenburger, Fusselman, Mississippian, Tubb, Queen Sand, Waddel, Wolfcamp,
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	64P -19I; 106 (72P-34I-0A)
1	PRODUCTION 1976 oil (cum)	7377
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	8,677.8
3	PRODUCTION 1-1-79 to 1-1-80	381.8 mbbls oil; 1,097,4 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
12c	STRUCTURE CONTOUR?	yes
12c	LOGS?	yes
9	STRUCTURE SECTION?	yes
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
	FIELD:	Monahans
2,1	RESERVOIR:	Clear Fork
2,1	PROD. ACRES:	4800, 2720
2,1	AVG. THICKNESS (FT.):	48, 150
1, 16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.424, 1.464
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.41 (67)
1	WATER SATURATION (S_W):	.25
16c	OIL SATURATION (S_O):	.60 (67)
1	PRIMARY DRIVE MECHANISM:	depletion
1, 12c	PRIMARY GAS CAP?:	yes, no, gas separate zone
16c	TEMPERATURE (°F):	90
16c	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1656
2,1	RESERVOIR PRESSURE INITIAL (psi):	2200
2	RESERVOIR PRESSURE LATEST (psi):	1600
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1630 (76)
1,2,3,12c	STOCK TANK OIL GRAVITY (°API):	37, 37, 37, 36
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1136
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 1 SRPs:	50,000 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 1 SRPs:	5,960 mbbls

OTHER INFORMATION:

12c References: Cooper, C. G., and Ferris, B. J., 1953, Monahans Field in Occurrence of Oil and Gas in West Texas: Univ. of Texas, Bureau of Economic Geology, Publ. No. 5716, p. 218-221.

9 Dowling, P. L., 1970, Application of Carbonate Environmental Concepts to Secondary Recovery Projects: SPE Paper 2987, presented at the SPE-AIME 45th Annual Fall Meeting, Houston, Oct. 4-7.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Monahans 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	424				
1977 PROD. (this project):	440				
CUM. PROD. FROM DISC. TO 1/78:	8092				
PROJECT NO.	F1493				
LEASE NO.(s):	04403				
OPERATOR:	Shell Oil				
RESERVOIR:	Clear Fork				Clear Fork
DEPTH PRODUCING ZONE:	4750				4750
PRODUCTIVE ACREAGE IN RESERVOIR:	4800				2720
ACREAGE IN PROJECT:	4800				2720
PORTION OR FIELD WIDE:	FW				
TYPE:	WF/SW; BW				WF
PATTERN:	P				
YEAR BEGAN:	11-59				1959
YEAR TERMINATED OR STATUS:	ICP				
RESERVOIR PRESSURE INITIAL:	2200				2200
BEG. INJECTION:	400				
LATEST:	1600				
NUMBER OF WELLS TOTAL:	106				
PRODUCING WELLS:	72				64
INJECTION WELLS:	17SW				19
MAXIMUM:	17SW				
LATEST:	---				
SHUT-IN/ABANDONED WELLS:	0				
SURFACE INJECTION PRESSURE:	1200				
EFFECTIVENESS OF INJECTION:	---				
OPERATOR PROBLEMS:	SC, PA				
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	110				
FROM BEG. INJECTION:	1350				
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	3060				
WATER PRODUCTION:					
CURRENT (1977):	938				
CUMULATIVE TO 1/78:	5248				
CURRENT (1977) INJECTION:	2687				
CUMULATIVE INJECTION:	42244				

WATER ANALYSIS RECORD

FIELD: Monahans RESERVOIR: Clear Fork TOTAL NO. PROJECTS:

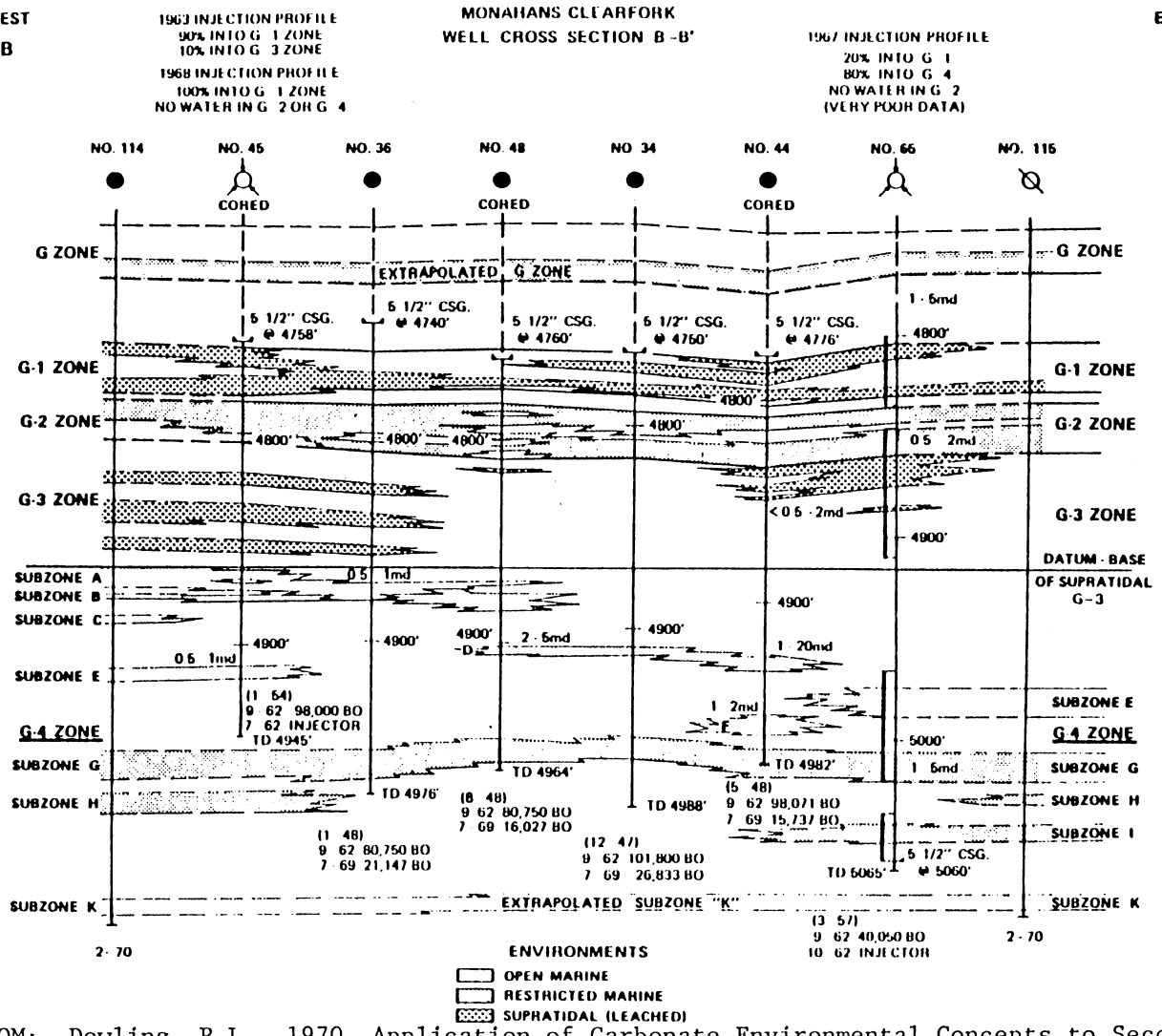
DATA SOURCE: 12c

TOTAL SOLIDS (mg/l):	142,817
NA	45,192
Ca	7,746
Mg	1,472
Fe	
SO_4	2,807
Cl	85,564
CO_2	0
HCO_3	36
OH	
H_2S	

RESISTIVITY:

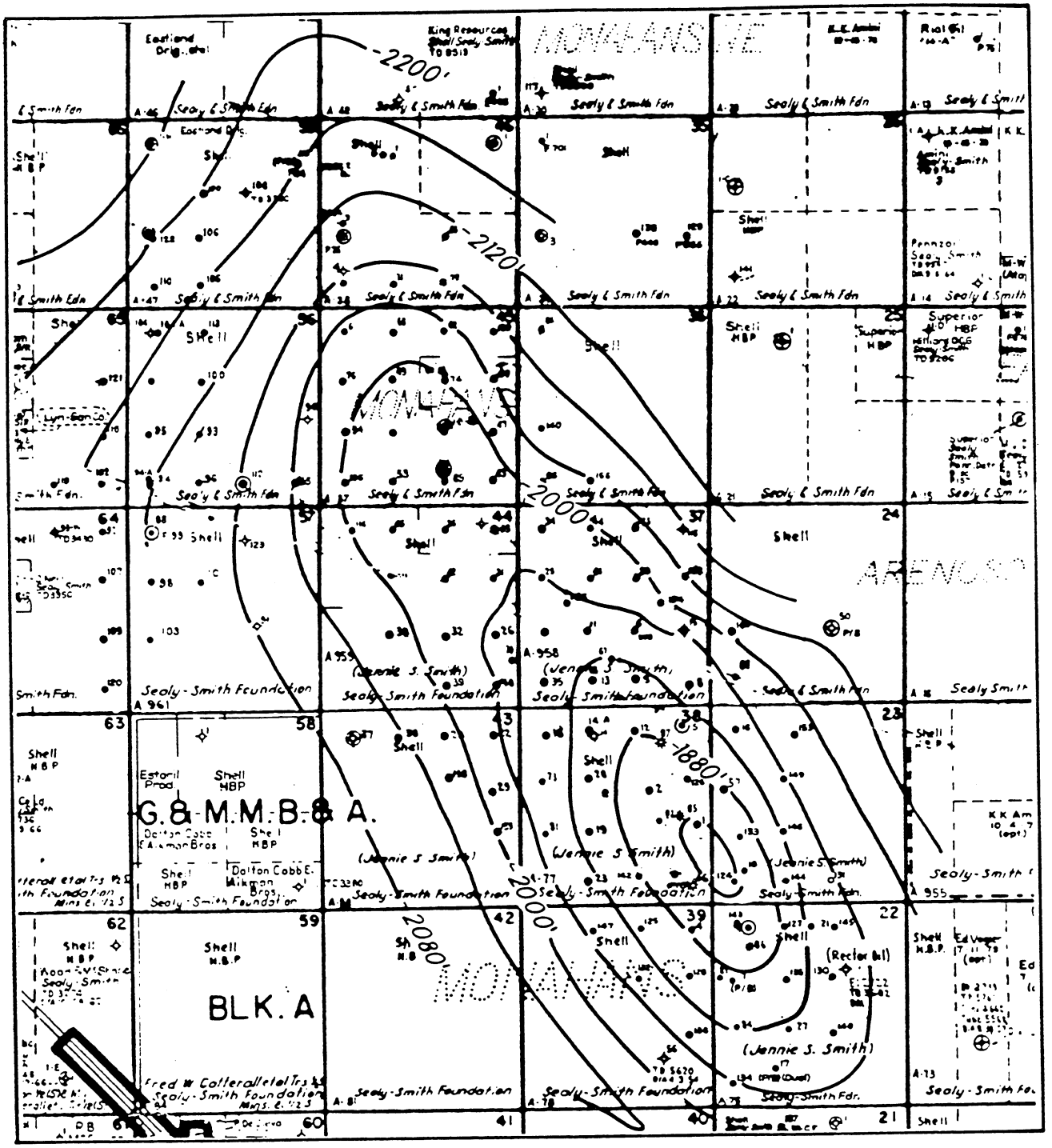
SPECIFIC GRAVITY:

OTHER WATER QUALITY DATA:



FROM: Dowling, P.L., 1970, Application of Carbonate Environmental Concepts to Secondary Recovery Projects: Society of Petroleum Engineers Paper 2987, presented at the SPE-AIME 45th Annual Fall Meeting, Houston, October 4-7.

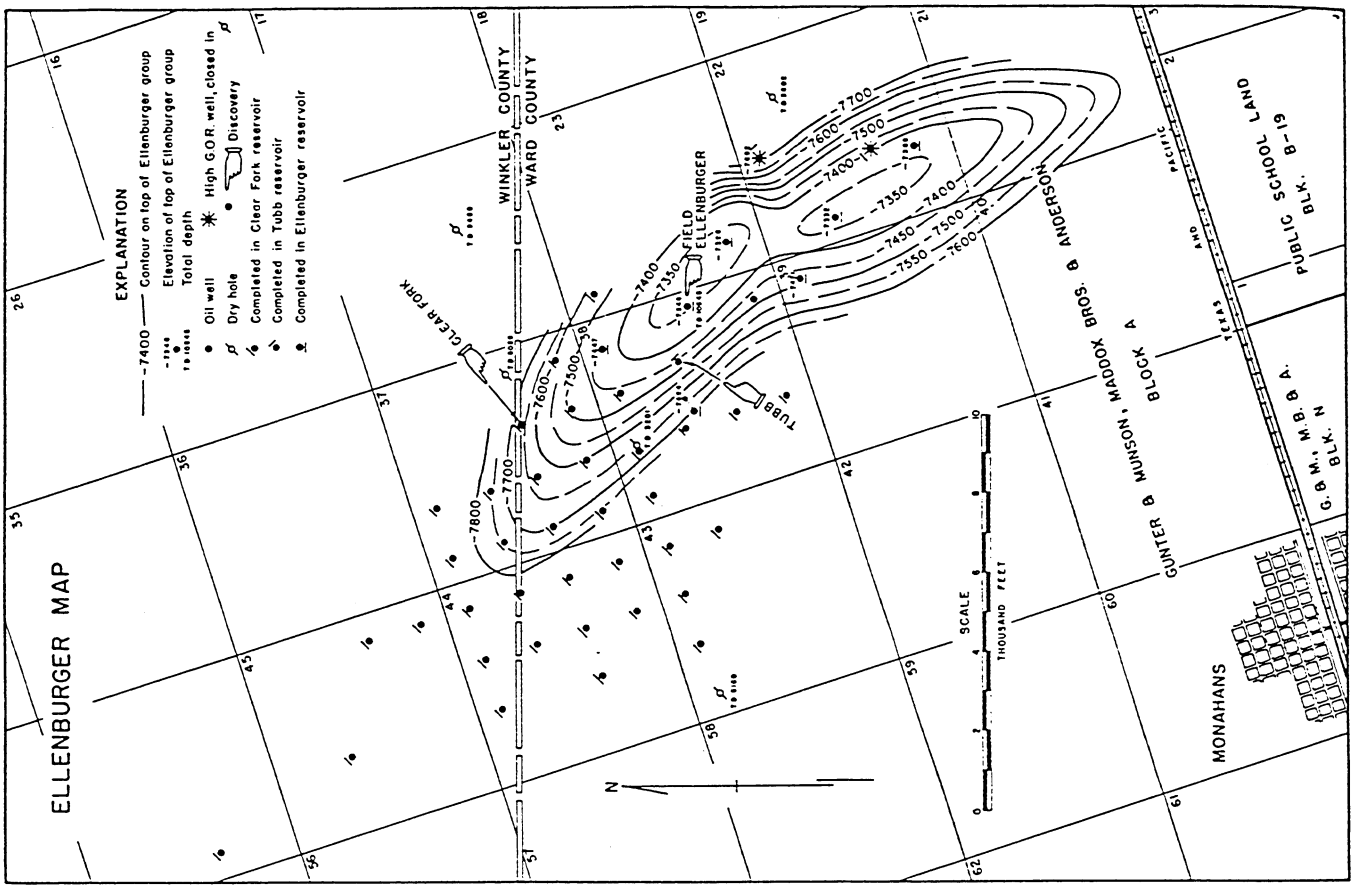
NET PAY CROSS SECTION OF
MONAHANS CLEARFORK FIELD

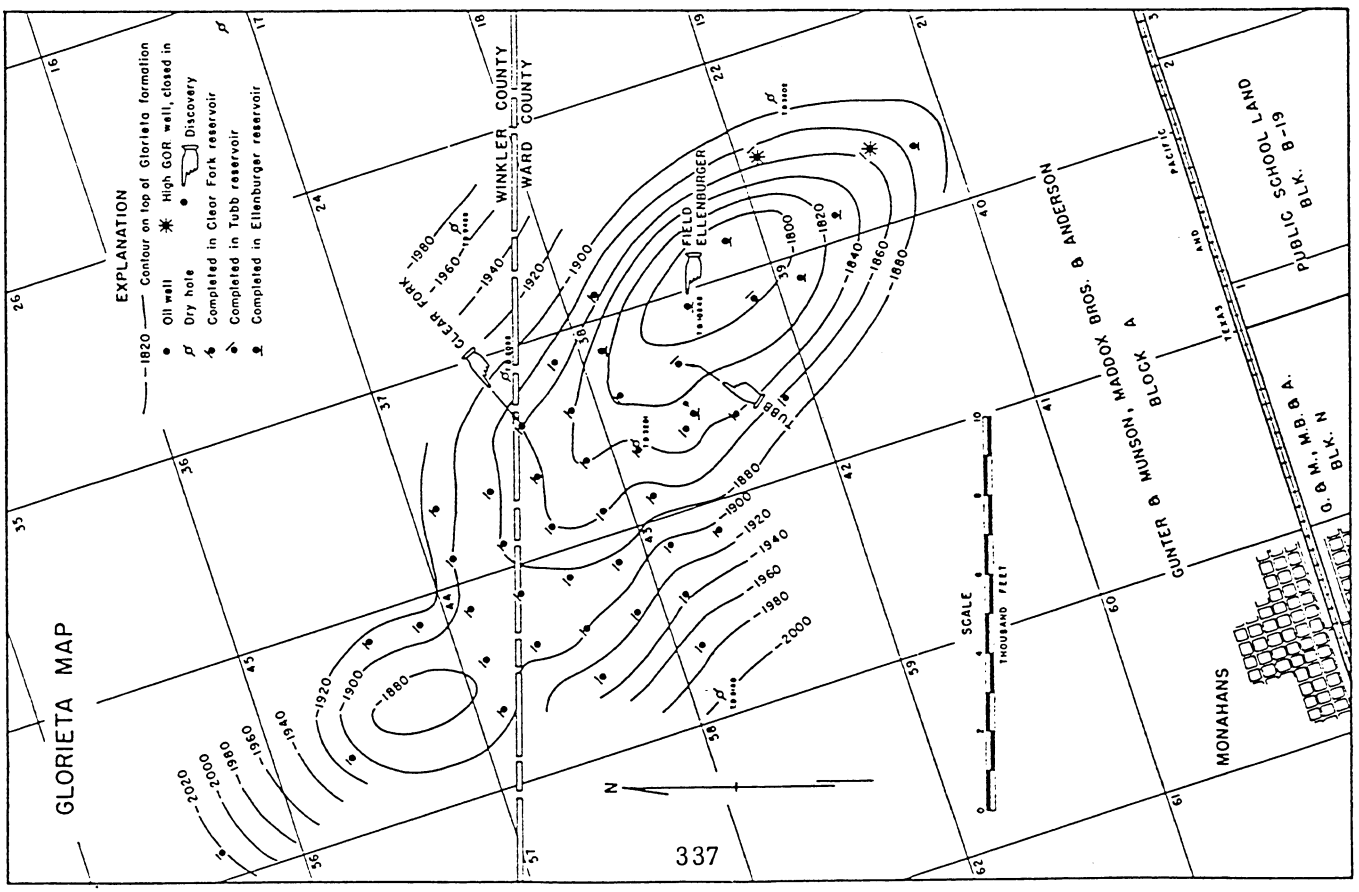


STRUCTURE MAP OF MONAHANS CLEARFORK FIELD DRAWN ON
THE TOP OF THE G-3 SUPRATIDAL SEDIMENTS

MONAHANS FIELD, Ward and Winkler Counties, Texas

Source 12c.

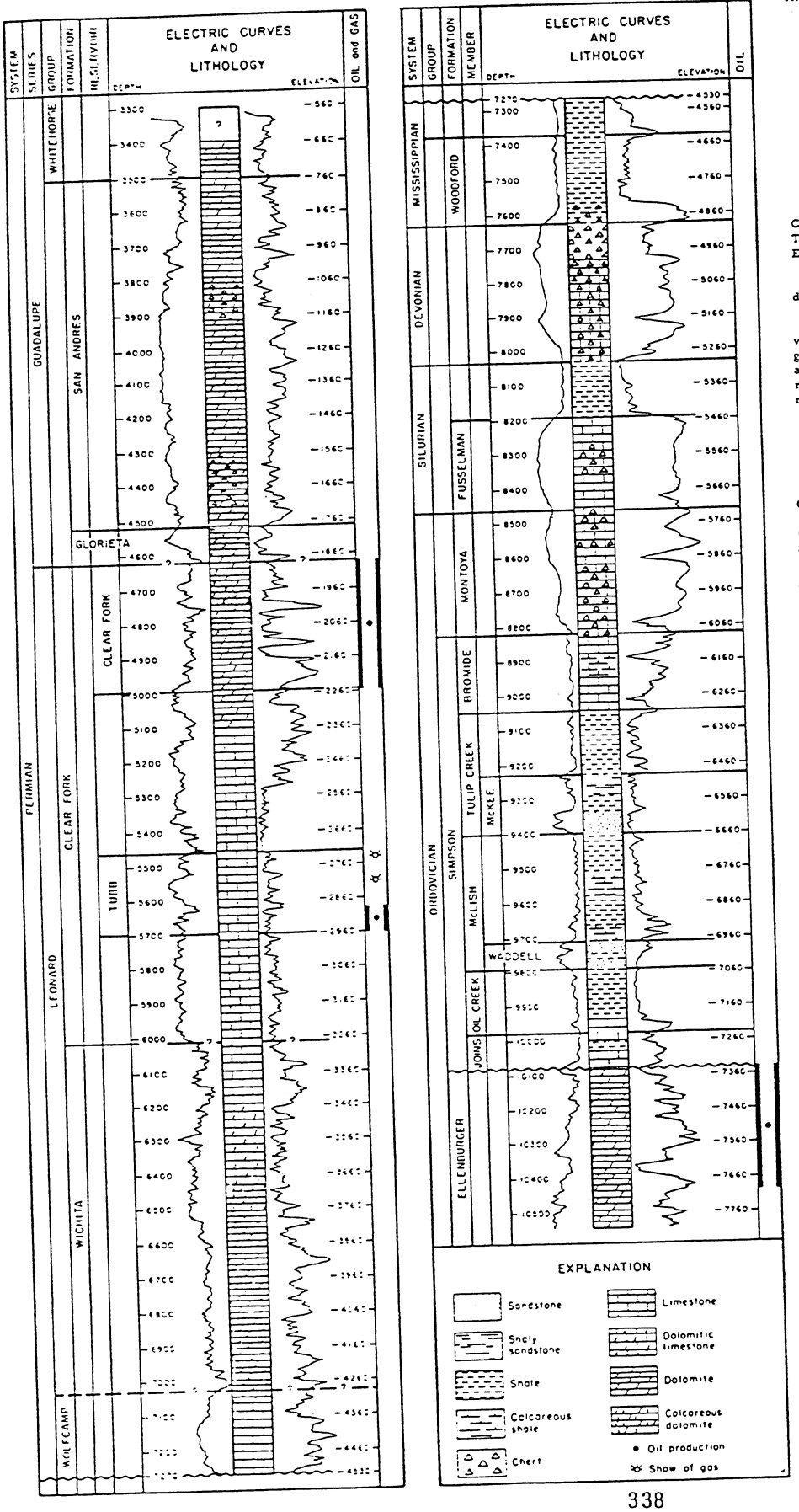




FROM: OCCURRENCE OF OIL & GAS IN WEST TEXAS: UNIV. OF TEXAS, BUREAU OF ECON. GEOL.
PUBL. NO. 5716, Source 12c

MONAHANS FIELD, Ward and Winkler Counties, Texas

TYPICAL SECTION OF ROCKS PENETRATED



ELEVATION OF SURFACE

At well locations: Highest, 2,753 ft.; lowest, 2,680 ft.

SURFACE FORMATION

Pleistocene and Recent alluvium and sand dunes.

ELEVATION AND RELIEF OF PRODUCTIVE ZONES

	Elevation, feet		Relief feet
	Top of oil	Bottom of oil	
Clear Fork	-1,957	-2,150 to -2,180	193 to 223
Tubb	-2,807	-2,932	125
Ellenburger	-7,326	-7,700	374

The above data represent conditions at respective discovery dates.

There is no free gas cap in any of the oil reservoirs. In two wells near the apex of the anticline, free gas was found in a locally porous zone about 50 feet above the Tubb productive reservoir. The gas-bearing rock appears to be separated from the oil-bearing rock by impervious beds.

CHARACTER OF OIL

	Clear Fork	Tubb	Ellenburger
Gravity, A.P.I. @ 60° F.	36.0°	35.7°	46.9°
Color	Green	Lt. green	Lt. green
Sulphur, by weight	1.6%	0.8%	0.17%

For analysis of sample from Ellenburger see:
U. S. Bureau of Mines Lab. ref. No. 46079
Analyses of Crude Oils from Some West Texas Fields
R. I. 4959 (1953) Item 40

WATER PRODUCTION

Clear Fork: Only occasional, very small amounts of water have been produced from the reservoir.

Tubb: The discovery well started making water in February 1945, after having produced 31,500 barrels of oil since its completion on November 11, 1942. The only other well which has ever produced from this reservoir has been shut down since 1949 because of high gas-oil ratio.

Year	No. of wells producing water		WATER PRODUCTION (barrels)	
	Tubb	Ellenburger	Tubb	Ellenburger
1944		1		26,299
1945	1	2	1,075	26,259
1946	1	2	1,353	33,420
1947	1	5	1,952	86,392
1948	2	5	2,886	254,290
1949	2	5	3,627	119,218
1950	2	5	2,284	239,950
1951	1	4	2,446	457,695
1952	1	5	1,403	221,274
1953	1	4	6,150	222,422

WATER ANALYSES

Constituent	Milligrams per liter		
	Clear Fork	Tubb	Ellenburger
Calcium	7,746	5,741	3,375
Magnesium	1,472	692	516
Sodium	45,192	60,440	29,843
Bicarbonate	36	395	1,236
Carbonate	0	0	0
Sulphate	2,807	1,371	2,454
Chloride	85,564	104,168	50,960
Totals	142,817	172,807	88,384

DATA SOURCE CODE		
	STATE	Texas
	COUNTY	Howard
	REGULATORY DISTRICT	8
	BASIN	Permian
15	SUB-BASIN	Midland Basin
	FIELD	Moore
2	RESERVOIR	Grayburg-San Andres
	GEOLOGIC AGE	Guadalupian
1	AAPG STRATIGRAPHIC AGE CODE	313
	RESERVOIR LITHOLOGY	
	TRAPPING MECHANISM	
2, 3	DISCOVERY YEAR	5/6-1927; 1937
2,16c	PROVED ACREAGE	5200
	REGULAR WELL SPACING (acres/well)	
2,3	RESERVOIR DEPTH	3065-3125; 3200
	RESERVOIR THICKNESS	
2	NET PAY	14.5 avg.
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2	FRACTION	.09 avg.
	PERMEABILITY	
2	RANGE	2-11 md
2	AVERAGE	8 md
2	HORIZONTAL	8 md
	VERTICAL	
	OTHER INFORMATION	
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
2	TOTAL NUMBER OF WELLS	60 (59P-1I-0A)
	PRODUCTION 1976 oil (cum)	
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	8815.8
3	PRODUCTION 1-1-79 to 1-1-80	223.1 mbbls oil; 1.3 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:	Moore
2	RESERVOIR:	Grayburg-San Andres
2, 16c	PROD. ACRES:	5200
2	AVG. THICKNESS (FT.):	14.5
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
16c	FORMATION VOLUME FACTOR LATEST (FVF):	1.07 (76)
16c	WATER SATURATION (S_W):	.30
16c	OIL SATURATION (S_O):	.666 (76)
	PRIMARY DRIVE MECHANISM:	
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	104
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	1500
	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):	27-30, 31
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1331
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	16,100 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	2,921 mbbls

OTHER INFORMATION:

16c Oil Saturation: .53 (64)
.53 (68)
.50 (72)
.666 (76)

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Moore RESERVOIR: Grayburg-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	16	2	---		
1977 PROD. (this project):	13	2	---		
CUM. PROD. FROM DISC. TO 1/78:	1435	27	1309		
PROJECT NO.	F1501	F5298	F1499		
LEASE NO.(s):	20544	09100	08721, 09269		
OPERATOR:	Mallard Explor.	McFadden Oil	Amer. Petrofina		
RESERVOIR:	San Andres	Grayburg-San An.	Grayburg-San An.		
DEPTH PRODUCING ZONE:	3125	3065	4000		
PRODUCTIVE ACREAGE IN RESERVOIR:	5200	160	680		
ACREAGE IN PROJECT:	800	63	680		
PORTION OR FIELD WIDE:	P	P	P		
TYPE:	WF/BW	WF/SW	WF/SW		
PATTERN:	I	---	5S		
YEAR BEGAN:	7-67	7-63	12-63		
YEAR TERMINATED OR STATUS:	ICP	ITD 1-73	ITD 7-73		
RESERVOIR PRESSURE INITIAL:	1500	---	---		
BEG. INJECTION:	200	---	680		
LATEST:	---	---	---		
NUMBER OF WELLS TOTAL:	32	5	23		
PRODUCING WELLS:	31	5	23		
INJECTION WELLS:	1	0	0		
MAXIMUM:	---	---	---		
LATEST:	---	---	---		
SHUT-IN/ABANDONED WELLS:	0	0	0		
SURFACE INJECTION PRESSURE:	---	---	---		
EFFECTIVENESS OF INJECTION:	UD	---	---		
OPERATOR PROBLEMS:	CR, PA	---	CR, IP		
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	13	---	---		
FROM BEG. INJECTION:	252	---	---		
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	1000	---	---		
WATER PRODUCTION:					
CURRENT (1977):	3	0	---		
CUMULATIVE TO 1/78:	562	22	175		
CURRENT (1977) INJECTION:	2	0	---		
CUMULATIVE INJECTION:	526	0	8923		

Neill, South
Odom Lime
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Fisher
1	REGULATORY DISTRICT	7B
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	Neill, South
1, 2	RESERVOIR	Odom Lime
5, 1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	325
5g	RESERVOIR LITHOLOGY	Vugular limestone
5g	TRAPPING MECHANISM	Combination structural-stratigraphic
5g,2,3,1	DISCOVERY YEAR	8-1955; 9-1973; 1-9171; 1971
2,5g	PROVED ACREAGE	5000, 8975
1, 5g	REGULAR WELL SPACING (acres/well)	80
1,2,3,5g	RESERVOIR DEPTH	5696, 5700, 5696, 5698-5710
	RESERVOIR THICKNESS	
1,2,5g	NET PAY	16, 10, 12
5g	GROSS	30
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2, 5g	FRACTION	.08
	PERMEABILITY	
	RANGE	
5g	AVERAGE	22, 5 md
2	HORIZONTAL	22 md
	VERTICAL	
	OTHER INFORMATION	Discovery well: Gilchrist Drilling Co. E.J.P. Neill Dalton Moore No. 1
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 5g,2	TOTAL NUMBER OF WELLS	65, 68, 1
1	PRODUCTION 1976 oil (cum)	5687
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	6,988.1
3	PRODUCTION 1-1-79 to 1-1-80	284.9 mbbls oil; 590.2 mmcf gas
2	SECONDARY RECOVERY RECORDS?	yes abandoned project
	WATER ANALYSIS RECORDS?	
	OTHER DATA	
5g	STRUCTURE CONTOUR?	yes
5g	LOGS?	yes
	STRUCTURE SECTION?	
	ENGINEERING REPORTS?	
	CORE DESCRIPTIONS?	

RESERVOIR DATA

DATA SOURCE CODE		
2,1	FIELD:	Neill,South
2 , 5g	RESERVOIR:	Odom Lime
2, 1, 5g	PROD. ACRES:	5000, 8975
	AVG. THICKNESS (FT.):	10, 16, 12
	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?:	
	TEMPERATURE (°F):	
	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	
2	RESERVOIR PRESSURE INITIAL (psi):	2340
2	RESERVOIR PRESSURE LATEST (psi):	1370
5g	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	1100
1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	685.2 (76)
1,2,3,5g	STOCK TANK OIL GRAVITY (°API):	44
	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

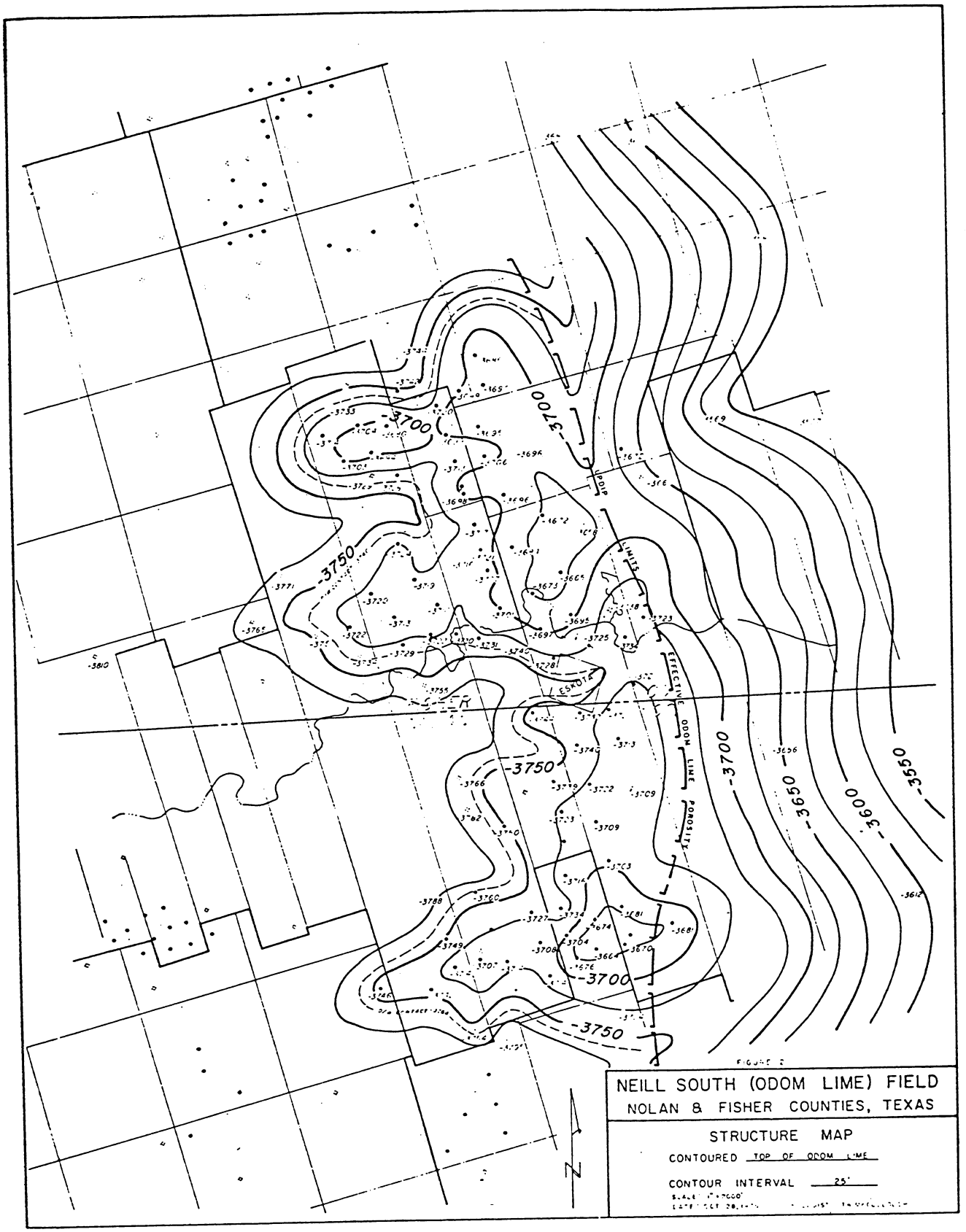
OTHER INFORMATION:

5g Water Data: 68,000 to 96,000 ppm dissolved solids RW -.037

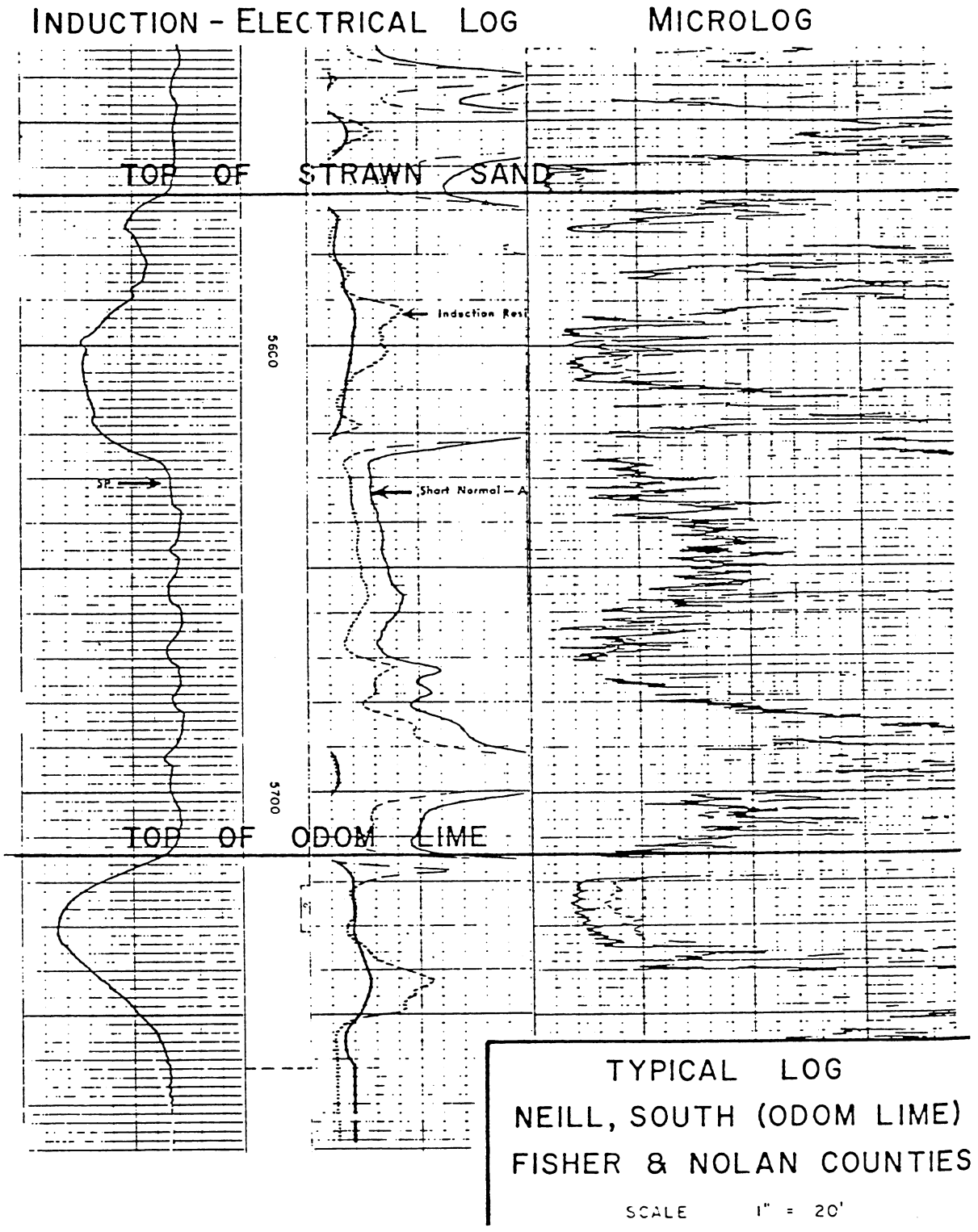
ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Neill, South RESERVOIR: Odom Lime-Penn. 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.	F5910
LEASE NO.(s):	12140
OPERATOR:	Burns
RESERVOIR:	Odom Lime
DEPTH PRODUCING ZONE:	5700
PRODUCTIVE ACREAGE IN RESERVOIR:	5000
ACREAGE IN PROJECT:	100
PORTION OR FIELD WIDE:	P
TYPE:	PM/SW
PATTERN:	SW
YEAR BEGAN:	---
YEAR TERMINATED OR STATUS:	IPD 5-74
RESERVOIR PRESSURE INITIAL:	2340
BEG. INJECTION:	1500
LATEST:	1370
NUMBER OF WELLS TOTAL:	1
PRODUCING WELLS:	1
INJECTION WELLS:	0
MAXIMUM:	---
LATEST:	---
SHUT-IN/ABANDONED WELLS:	0
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:	22
CURRENT (1977) INJECTION:	---
CUMULATIVE INJECTION:	57



FROM: ABILENE GEOLOGICAL SOCIETY, GEOLOGICAL CONTRIBUTIONS 1976. Source 5g.



FROM: ABILENE GEOLOGICAL SOCIETY, GEOLOGICAL CONTRIBUTIONS, 1976, Source 5g.

Nena Lucia
Strawn Reef
Eastern Shelf

DATA SOURCE CODE		
	STATE	Texas
1	COUNTY	Nolan
1	REGULATORY DISTRICT	7B
1	BASIN	Permian
15	SUB-BASIN	Eastern Shelf
1	FIELD	Nena Lucia
1, 2	RESERVOIR	Strawn Reef
1	GEOLOGIC AGE	Pennsylvanian
1	AAPG STRATIGRAPHIC AGE CODE	325
1	RESERVOIR LITHOLOGY	Reef Limestone
	TRAPPING MECHANISM	
2,3,1	DISCOVERY YEAR	3/7-1955, 1955
1,2	PROVED ACREAGE	14650
1	REGULAR WELL SPACING (acres/well)	40
2,3,1	RESERVOIR DEPTH	6884
	RESERVOIR THICKNESS	
2,1	NET PAY	52.5, 21
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
2,1	FRACTION	.07, .05
	PERMEABILITY	
2	RANGE	3-7 md
2,1	AVERAGE	5, 6 md
2	HORIZONTAL	5 md
	VERTICAL	
	OTHER INFORMATION	Other Production from Caddo, Ellenburger, Odom Line, Wolfcamp sands.
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	150P - 61I; 330 (89P-77I-164A)
1	PRODUCTION 1976 oil (cum)	29, 073
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	30,689.2
3	PRODUCTION 1-1-79 to 1-1-80	480.9 mmbls, 944.1 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:	Nena Lucia
2, 1	RESERVOIR:	Strawn
2, 1	PROD. ACRES:	14650
2, 1	AVG. THICKNESS (FT.):	52.5, 21
	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	
	FORMATION VOLUME FACTOR LATEST (FVF):	
1	WATER SATURATION (S_W):	.35
	OIL SATURATION (S_O):	
1	PRIMARY DRIVE MECHANISM:	Depletion Water Drive
	PRIMARY GAS CAP?:	
17	TEMPERATURE (°F):	153 (GG=1.15)
17	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	3458
1, 2	RESERVOIR PRESSURE INITIAL (psi):	2860
2	RESERVOIR PRESSURE LATEST (psi):	1590
	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	
1, 17	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1181 (76), 1181
1, 2, 3	STOCK TANK OIL GRAVITY (°API):	45, 46.2, 45
	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
17	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1876
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	119,146 mbbls
2	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	15,200 mbbls

OTHER INFORMATION:

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Nena Lucia RESERVOIR: Nolan TOTAL NO. PROJECTS: 2 PM-WF/GAS PDS:
DATA SOURCE: "Secondary and Enhanced Recovery Operations in Texas to 1978", Texas Railroad Commission

1976 PROD. (this project): MBBLS	203	424			
1977 PROD. (this project):	246	344			
CUM. PROD. FROM DISC. TO 1/78:	11628	18355			
PROJECT NO.	F0821	F0822			
LEASE NO.(s):	08749	08844			
OPERATOR:	GETTY OIL	SUN OIL			
RESERVOIR:	Strawn Reef	Strawn Reef			Strawn Reef
DEPTH PRODUCING ZONE:	6884	6884			6884
PRODUCTIVE ACREAGE IN RESERVOIR:	--	14650			14650
ACREAGE IN PROJECT:	5200	8800			8800
PORTION OR FIELD WIDE:	FW/P	FW/P			
TYPE:	PM/SW,FW/GAS	PM/SW, FW, GAS			WF/PM
PATTERN:	MLD	I9			
YEAR BEGAN:	9-62	7-63			1962
YEAR TERMINATED OR STATUS:	WFICP,GASITD	WF-ICP,GAS-ITD			
RESERVOIR PRESSURE INITIAL:	2860	2860			2860
BEG. INJECTION:	2000	1950			
LATEST:	1590	1600			
NUMBER OF WELLS TOTAL:	128	202			
PRODUCING WELLS:	56	33			150
INJECTION WELLS:	205W	14SW			61
MAXIMUM:	29FW	14FW			
LATEST:	--	--			
SHUT-IN/ABANDONED WELLS:	23	141			
SURFACE INJECTION PRESSURE:	2000	2025			
EFFECTIVENESS OF INJECTION:	ME	ME			
OPERATOR PROBLEMS:	IP,EP,PI,CR	PA,CH,SC			
ESTIMATED PRODUCTION DUE TO INJ.:					
1977:	246	344			
FROM BEG. INJECTION:	6826	10139			
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	6079	10500			
WATER PRODUCTION:					
CURRENT (1977):	1818	2202			
CUMULATIVE TO 1/78:	16077	23238			
CURRENT (1977) INJECTION:	1818SW,2700FW	2202SW,3272FW			
~~CUMULATIVE INJECTION:~~	13125SW,55565FW	23238SW,72534FW			
	19475GAS	28276GAS			

Nolley
Wolfcamp
Midland Basin

DATA SOURCE CODE		
1	STATE	Texas
1	COUNTY	Andrews
1	REGULATORY DISTRICT	8
1	BASIN	Permian
15	SUB-BASIN	Midland Basin
1	FIELD	Nolley
1, 2	RESERVOIR	Wolfcamp
1	GEOLOGIC AGE	Wolfcamp
1	AAPG STRATIGRAPHIC AGE CODE	319
1	RESERVOIR LITHOLOGY	Limestone
1	TRAPPING MECHANISM	Stratigraphic Plus Structural - Bioherm (Reef)
2, 1	DISCOVERY YEAR	8-1951, 1951
2, 1, 16c	PROVED ACREAGE	4476, 320, 2320
1	REGULAR WELL SPACING (acres/well)	40
2, 1	RESERVOIR DEPTH	9000-9227, 9227
	RESERVOIR THICKNESS	
2, 1	NET PAY	59.75 avg, 73
	GROSS	
	NET/GROSS RATIO	
	POROSITY	
	TYPE	
1, 2	FRACTION	.07; .092-.104
	PERMEABILITY	
	RANGE	
2, 1	AVERAGE	20, 53 md
2	HORIZONTAL	20 md
	VERTICAL	
3	OTHER INFORMATION	Other Production from Canyon, Clear Fork, Lower Devonian, Ellenburger, Penn, Queen Sand, Wichita-Albany, Wolfcamp
	PRODUCTION STATISTICS (oil in mbbls, gas in mmcf)	
1, 2	TOTAL NUMBER OF WELLS	59P; 69 (36P-19I-5A)
1	PRODUCTION 1976 oil (cum)	19,433
	PRODUCTION 1977 oil (cum)	
	PRODUCTION 1978 oil (cum)	
3	PRODUCTION 1979 oil (cum)	20,942.5
3	PRODUCTION 1-1-79 to 1-1-80	424.9 mbbls, 159.1 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		
2,1	FIELD:	Nolley
2,1,16c	RESERVOIR:	Wolfcamp
2,1	PROD. ACRES:	4476, 320, 2320
1, 16c	AVG. THICKNESS (FT.):	59.75, 73
16c	FORMATION VOLUME FACTOR INITIAL (FVF/INT):	1.22, 1.221
1	FORMATION VOLUME FACTOR LATEST (FVF):	1.27(74)
	WATER SATURATION (S_W):	.20
1	OIL SATURATION (S_O):	
	PRIMARY DRIVE MECHANISM:	depletion
16c	PRIMARY GAS CAP?:	
16c	TEMPERATURE (°F):	130
2	SATURATION PRESSURE/BUBBLE POINT PRESSURE (psi)	1385
2	RESERVOIR PRESSURE INITIAL (psi):	4103-4476
1	RESERVOIR PRESSURE LATEST (psi):	1100
1	GAS OIL RATIO INITIAL (GOR/INT) (cf/bbl):	589
2, 1	GAS OIL RATIO LATEST (GOR) (cf/bbl):	1090.4(76)
	STOCK TANK OIL GRAVITY (°API):	36, 39.2
17	OIL VISCOSITIES (μ_{oi}/μ_{ob}):	
2	MINIMUM MISCIBILITY PRESSURE (MMP): (psia)	1617
2	ESTIMATED ORIGINAL OIL IN PLACE FOR 2 SRPs:	77,025 mbbls
	ESTIMATED PRIMARY OIL RECOVERED FOR 2 SRPs:	19,777 mbbls

OTHER INFORMATION:

1 Primary recoverable: 61 bbl/acre-ft.

ENHANCED AND SECONDARY RECOVERY DATA:

FIELD: Nolley RESERVOIR: Wolfcamp TOTAL NO. PROJECTS: 4 PDS:

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

1976 PROD. (this project): MBBLS	331	128	---	---
1977 PROD. (this project):	303	102	---	---
CUM. PROD. FROM DISC. TO 1/78:	13623	2192	971	---
PROJECT NO.	F6228	F4353	F4352	F5927
LEASE NO.(s):	23777	04533	08331	04536
OPERATOR:	Mobile	Mobile	Mobile	Texaco
RESERVOIR:	Wolfcamp	Wolfcamp	Wolfcamp	Wolfcamp
DEPTH PRODUCING ZONE:	9227	9500	9020	9000
PRODUCTIVE ACREAGE IN RESERVOIR:	58000	4476	4476	4476
ACREAGE IN PROJECT:	2913	492	305	984
PORTION OR FIELD WIDE:	FW/P	FW/P	FW/P	FW/P
TYPE:	WF/SW, FW	WF/SW	WF/SW	WF/SW
PATTERN:	I9	P	P	---
YEAR BEGAN:	7-76	9-70	5-76	1-74
YEAR TERMINATED OR STATUS:	ICP	ICP	IPD	IPD
RESERVOIR PRESSURE INITIAL:	4103	4103	4476	4476
BEG. INJECTION:	1100	---	---	700
LATEST:	775	1125	2083	---
NUMBER OF WELLS TOTAL:	51	7	2	9
PRODUCING WELLS:	28	6	2	---
INJECTION WELLS:	9SW	1	---	---
MAXIMUM:	9SW	---	---	---
LATEST:	---	---	---	---
SHUT-IN/ABANDONED WELLS:	5	0	---	---
SURFACE INJECTION PRESSURE:	1000	1800	---	---
EFFECTIVENESS OF INJECTION:	UD	VE	---	---
OPERATOR PROBLEMS:				
ESTIMATED PRODUCTION DUE TO INJ.:				
1977:	---	56	---	---
FROM BEG. INJECTION:	---	653	---	---
EST. INCREASE IN ULTIMATE PROD. DUE TO INJECTION:	---	1527	---	---
WATER PRODUCTION:				
CURRENT (1977):	371	45	---	---
CUMULATIVE TO 1/78:	4397	372	---	270
CURRENT (1977) INJECTION:	371SW; 2192FW	433	---	---
CUMULATIVE INJECTION:	---	3963	---	2175

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