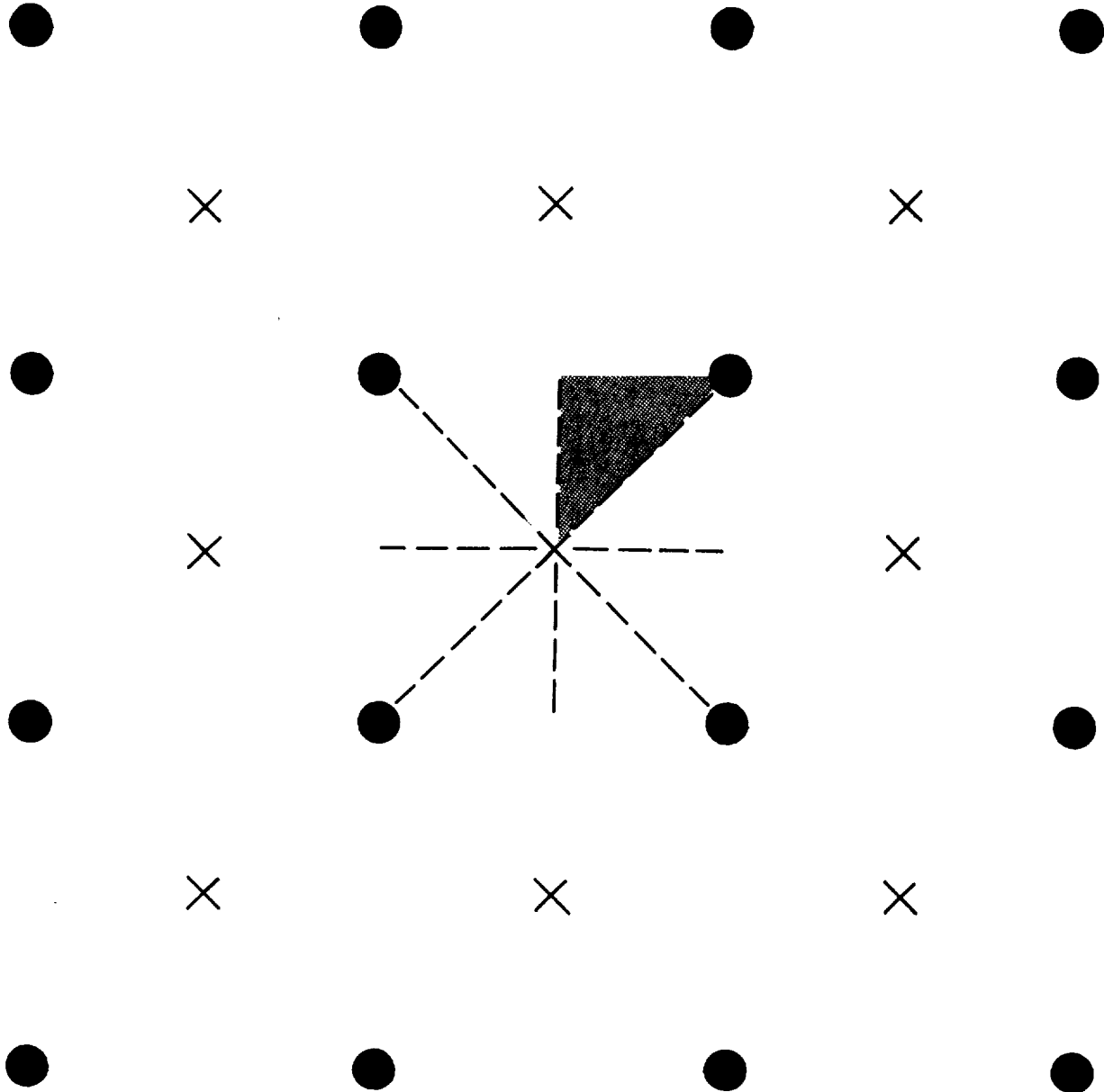
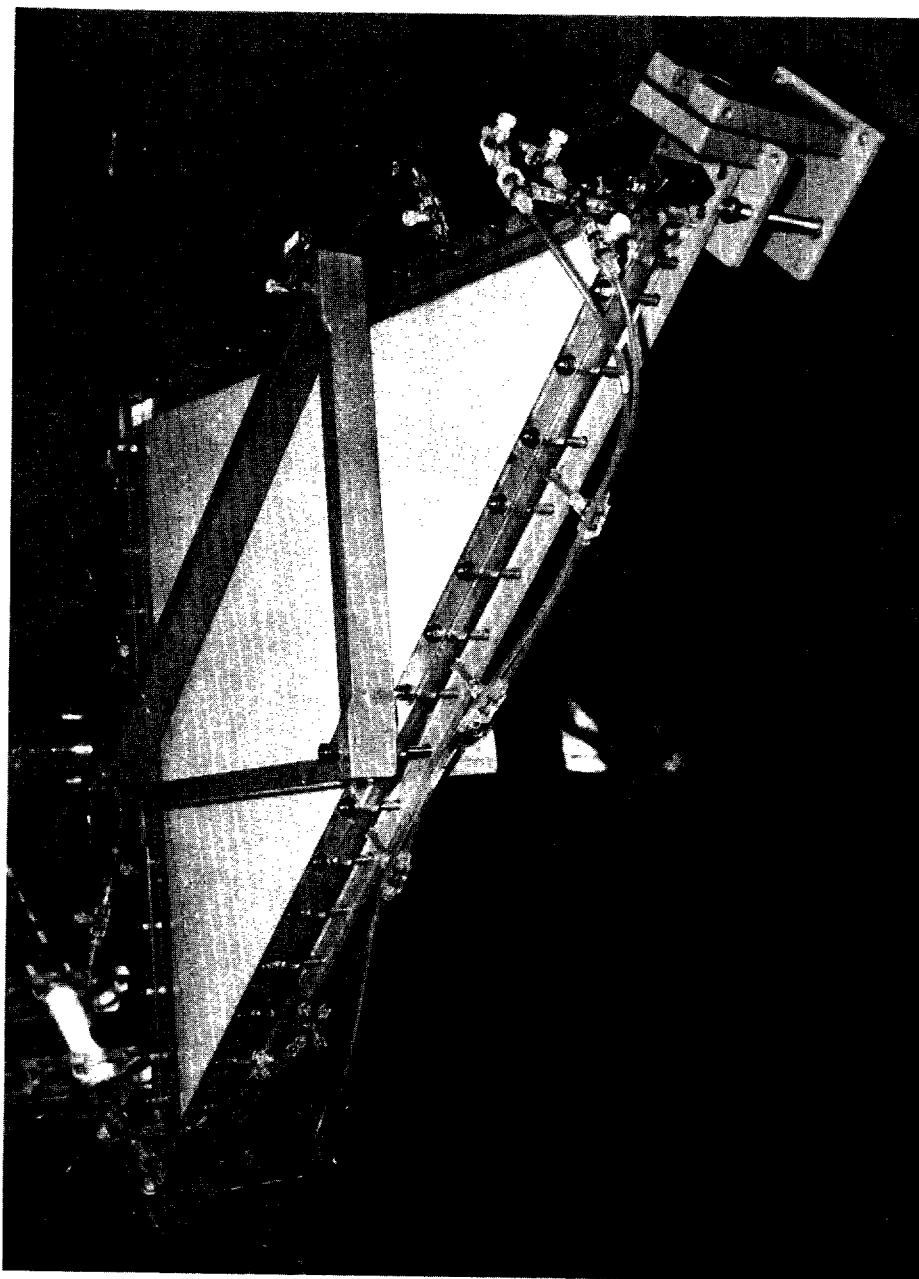


TYPICAL 5 SPOT PATTERN

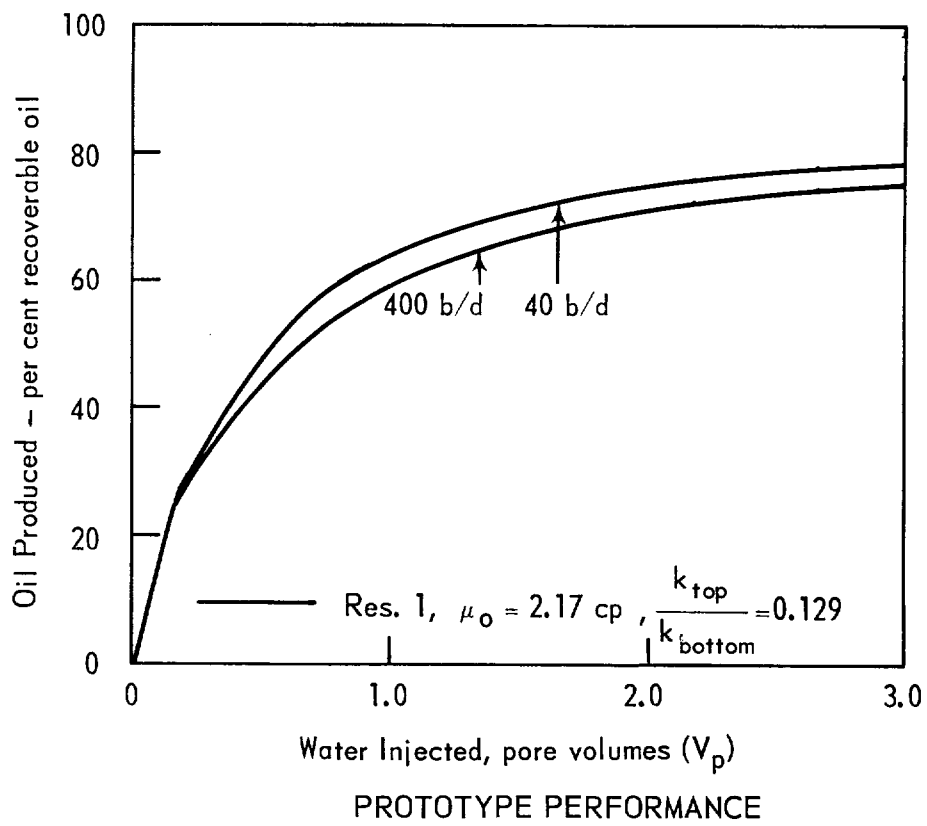


BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Humble EXHIBIT No. 2
CASE 1787

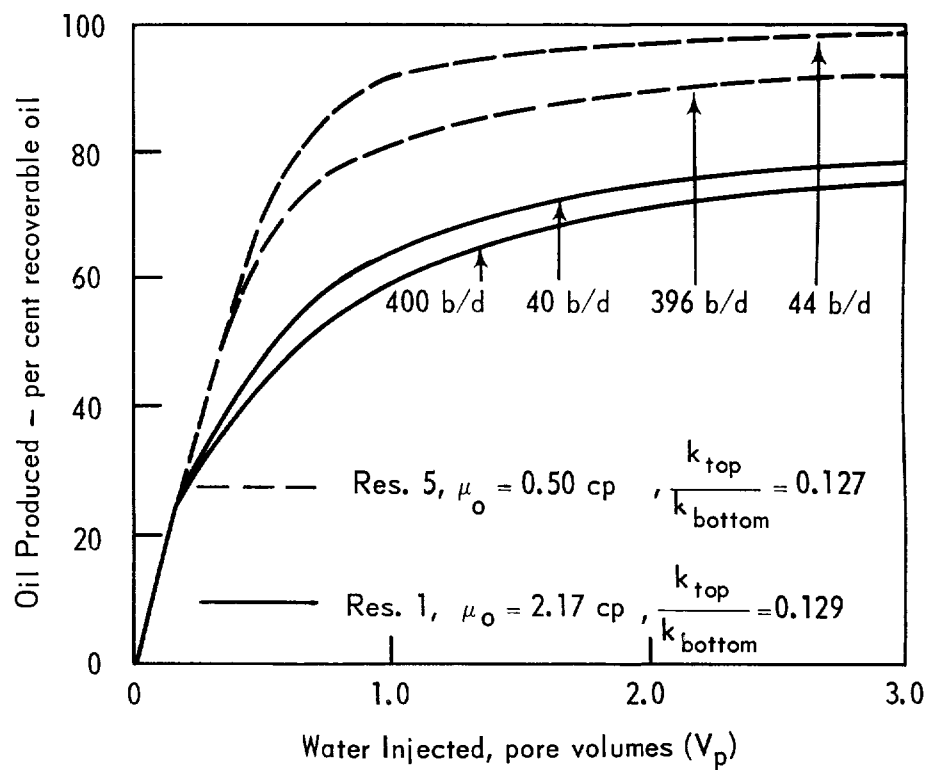


STRATIFIED 5-SPOT MODEL

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Humble EXHIBIT No. 3
CASE 1787



BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Humble EXHIBIT No. 4
CASE 1787



PROTOTYPE PERFORMANCE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Humble EXHIBIT No. 5
CASE 1787



1,000,000

100,000

10,000

1,000

INJECTION

PROPOSED ALLOWABLE

PRODUCTION

A M J J A S O N D J F M A M J J A S O N D J F M A M J J A

1957

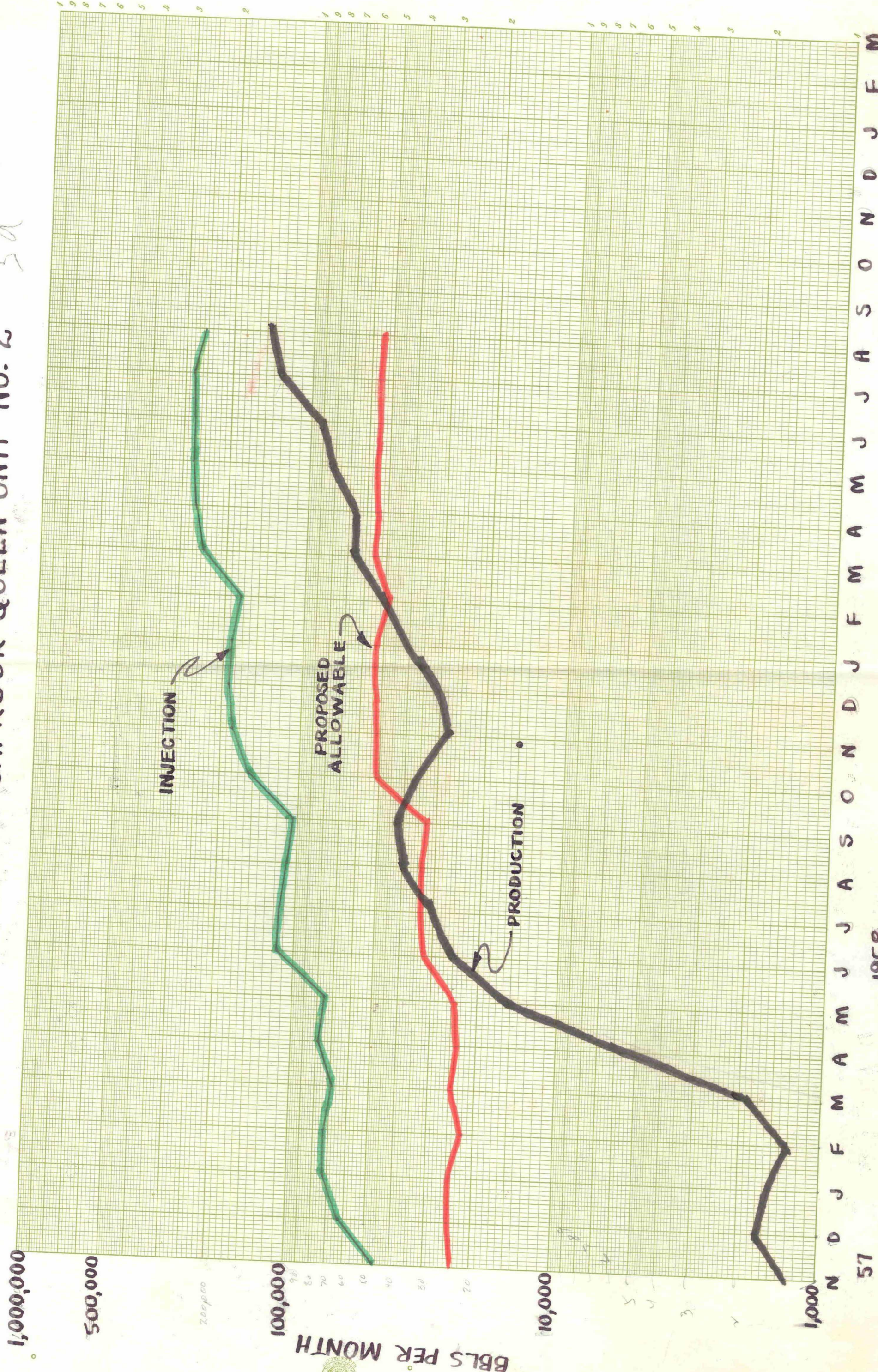
1958

5a 1959

NORTH CAPROCK QUEEN UNIT NO. 1

NORTH CAPROCK QUEEN UNIT NO. 2

5d



HIGH LONESOME POOL

59

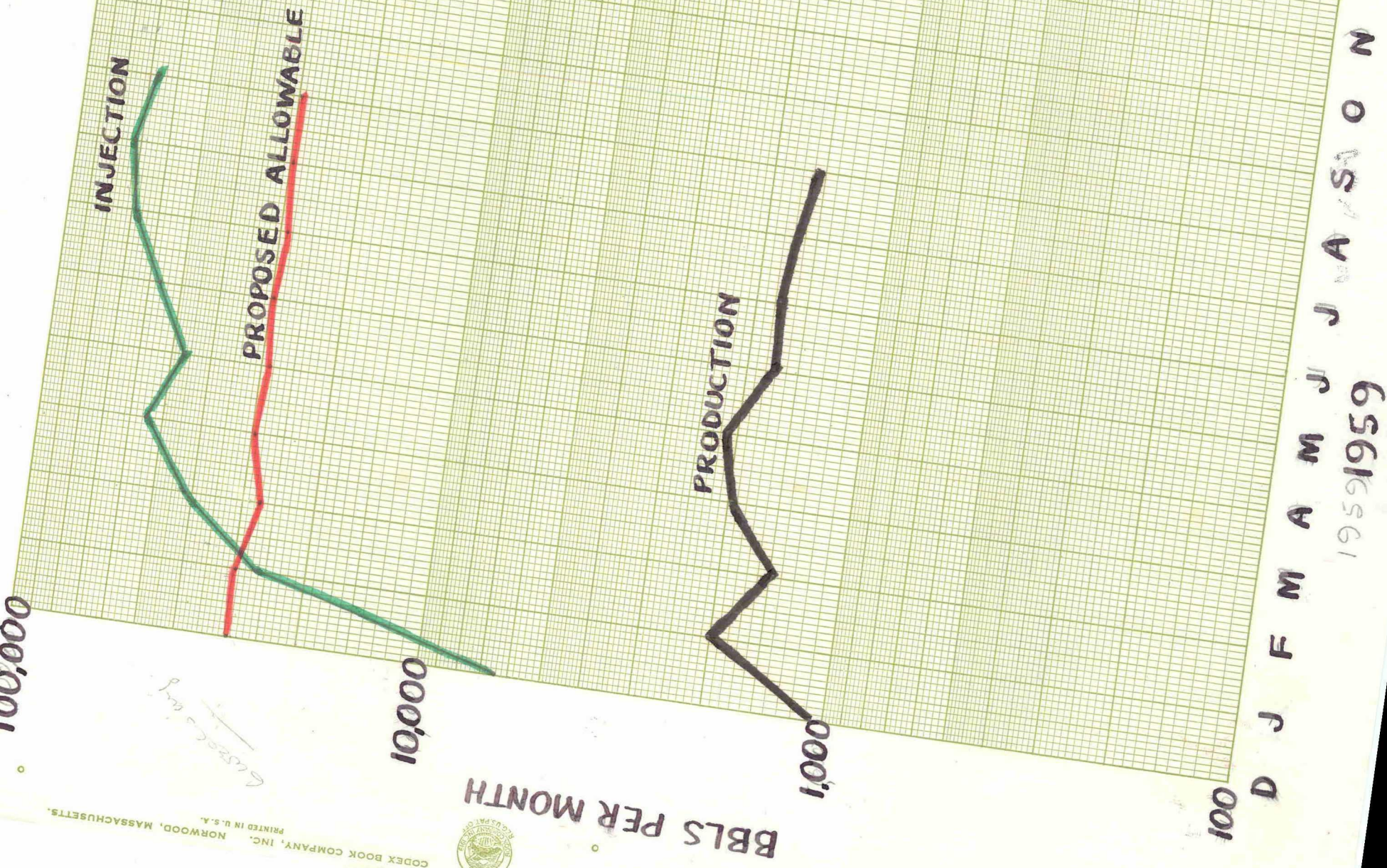


BEFORE THE
CIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
CASE 17829 EXHIBIT No. 5-9

J J A S O N D J J A S O N D J J A S O N D J J A S O
1955 1956 1957 1958 1959

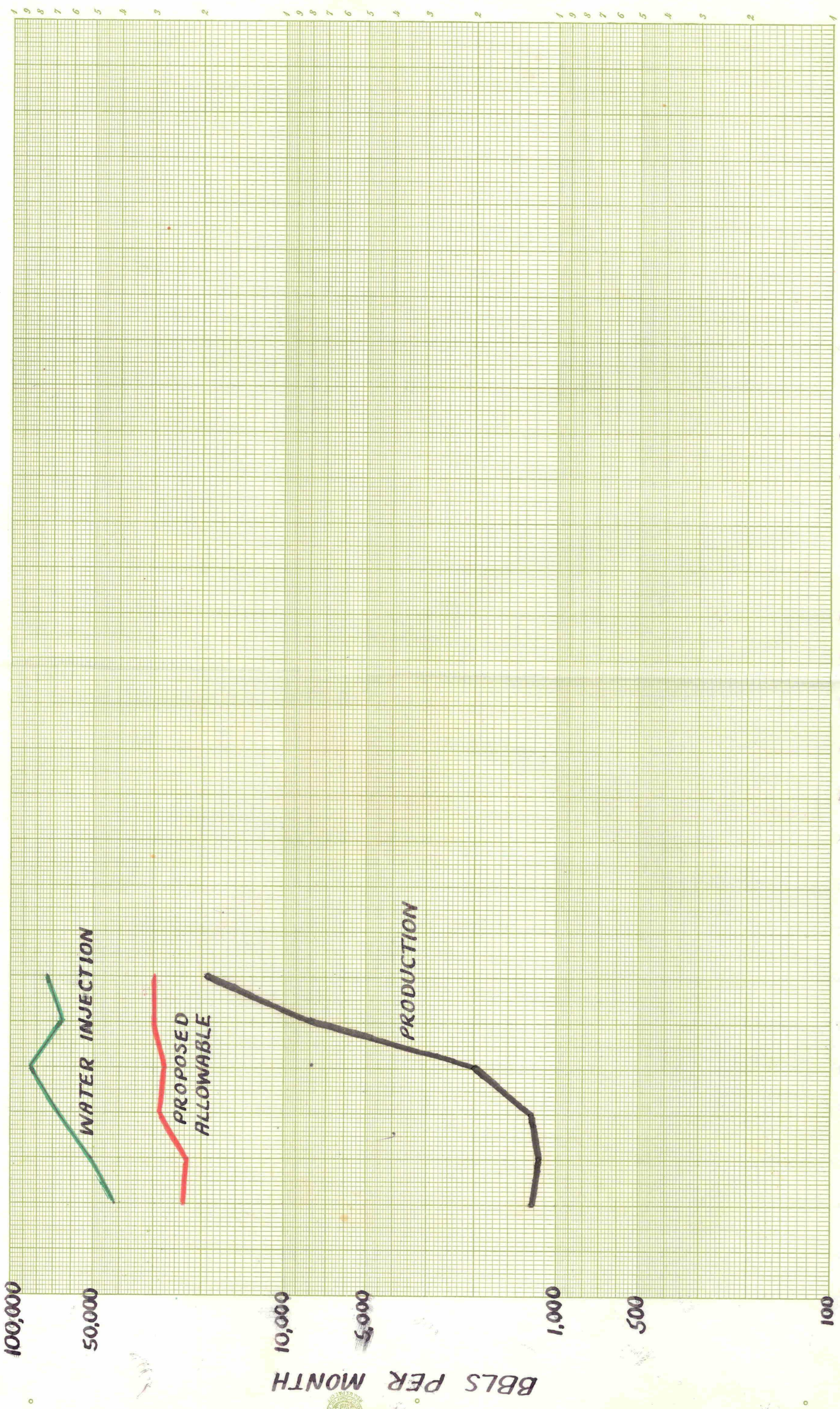
VACUUM POOL

50



NORTH CENTRAL CAPROCK QUEEN

52

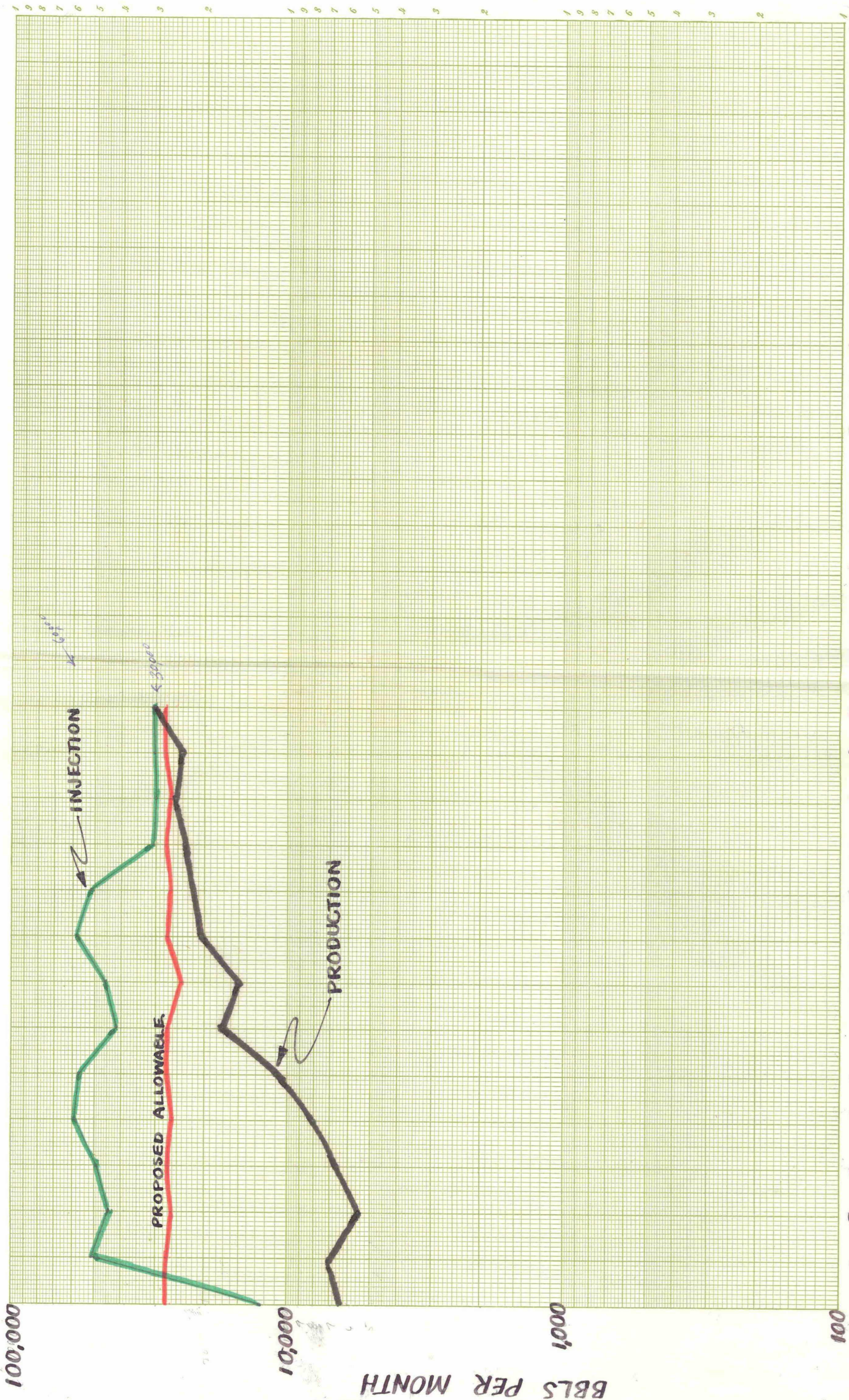


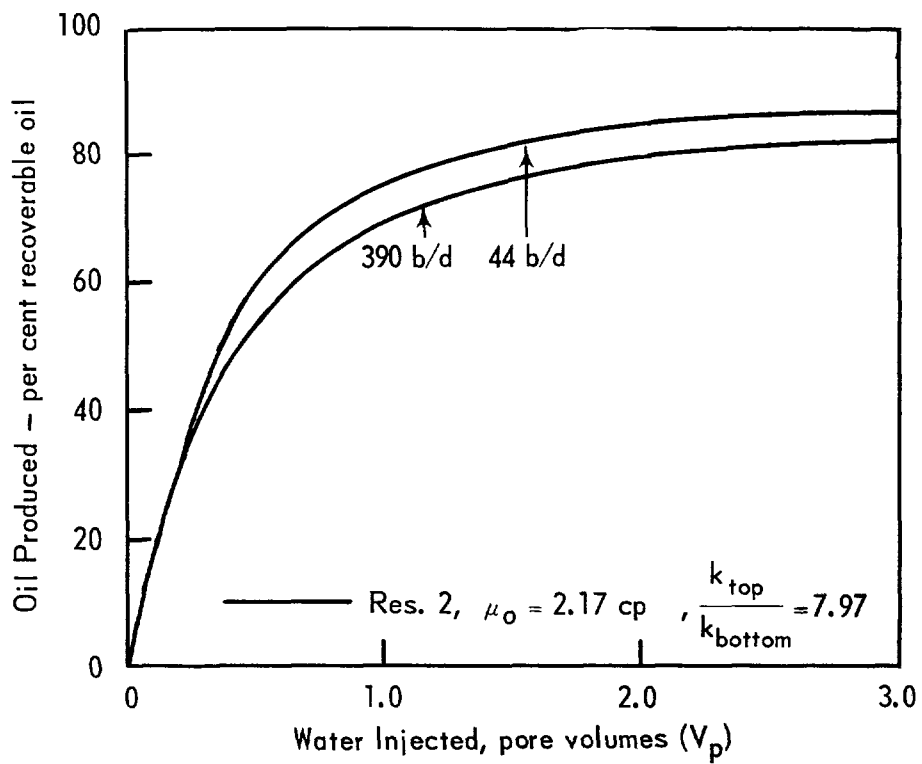
J F M A M J J A S O N D J F M A M J J A S O N D
1959 1960

DRICKEY-QUEEN UNIT AREA

5f

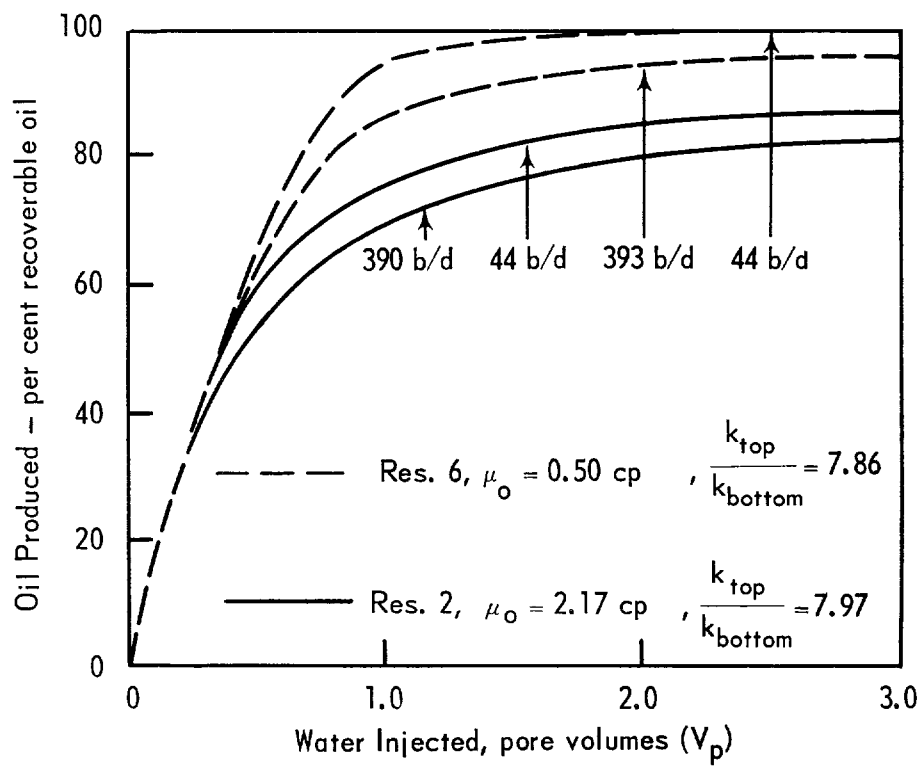
47058





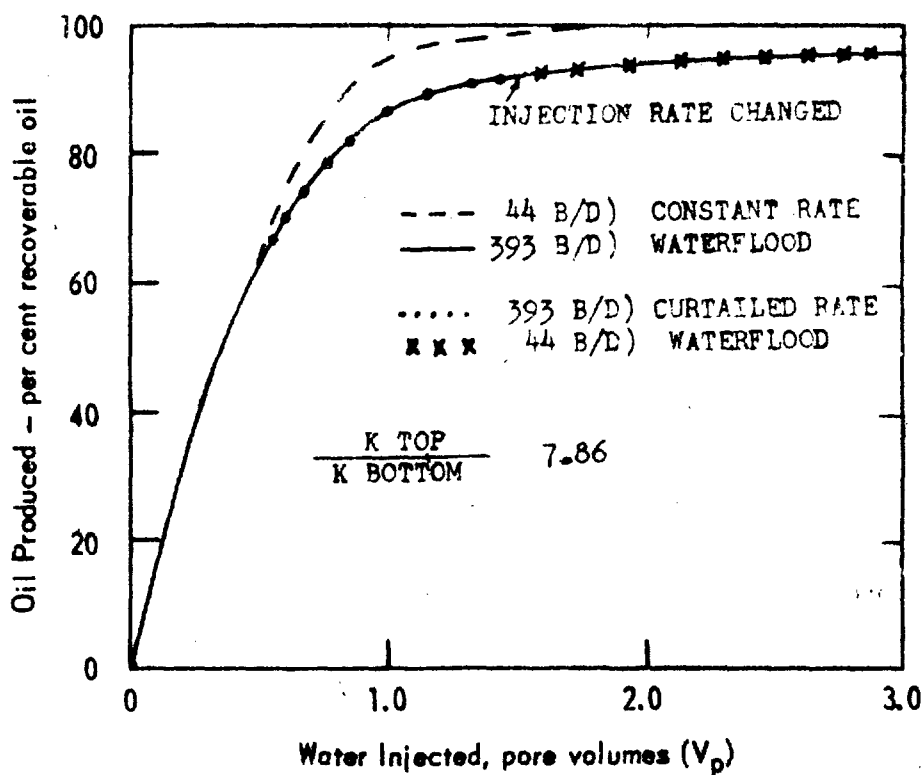
PROTOTYPE PERFORMANCE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Amable EXHIBIT No. 6
CASE 1787



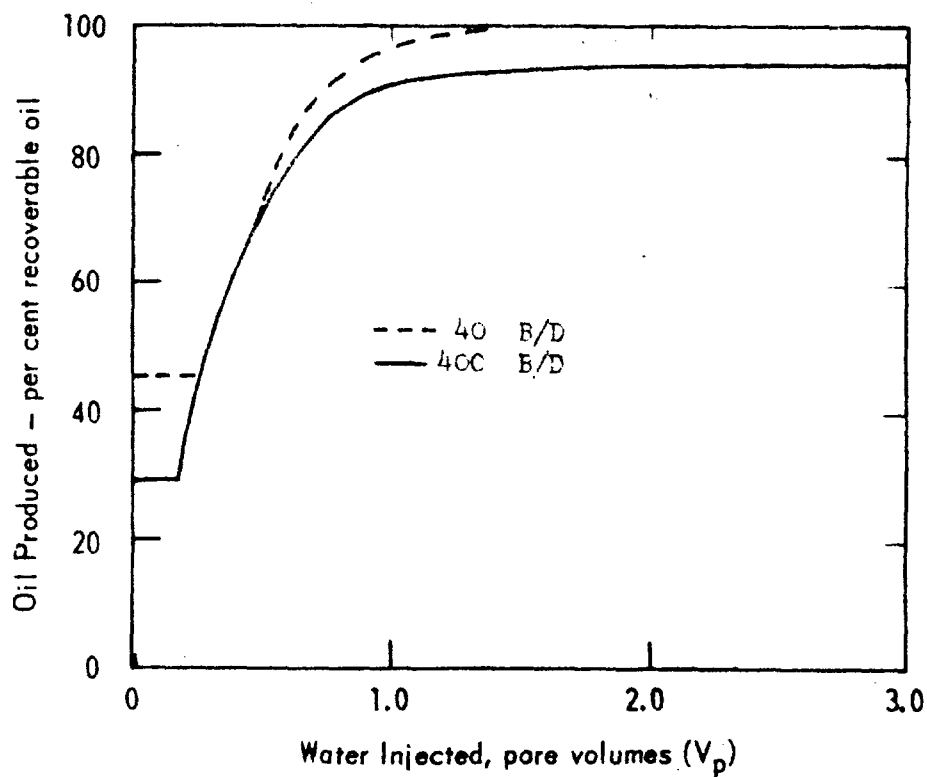
PROTOTYPE PERFORMANCE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. 7
CASE 7787



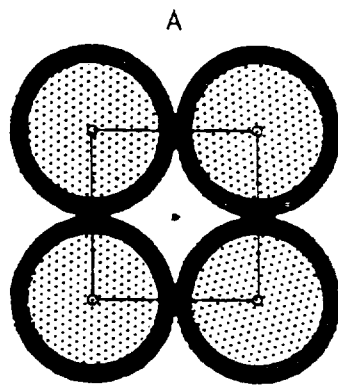
PROTOTYPE PERFORMANCE
EFFECT OF CURTAILMENT

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. 8
CASE 787

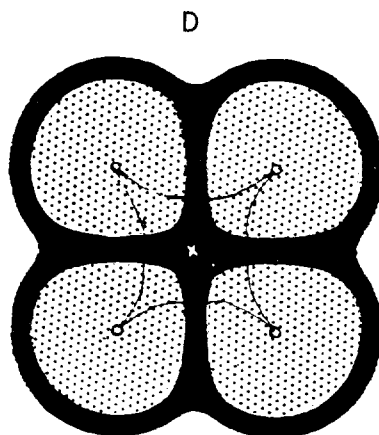
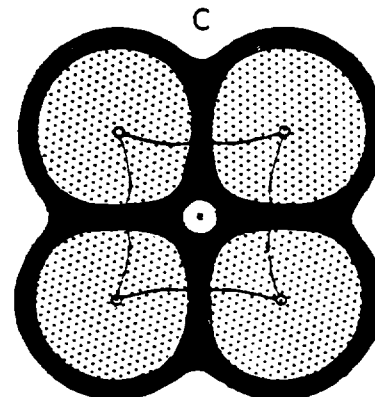
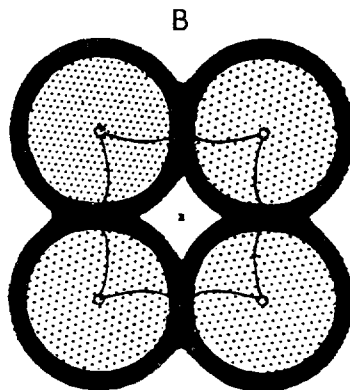


PROTOTYPE PERFORMANCE
WITH INITIAL GAS SATURATION

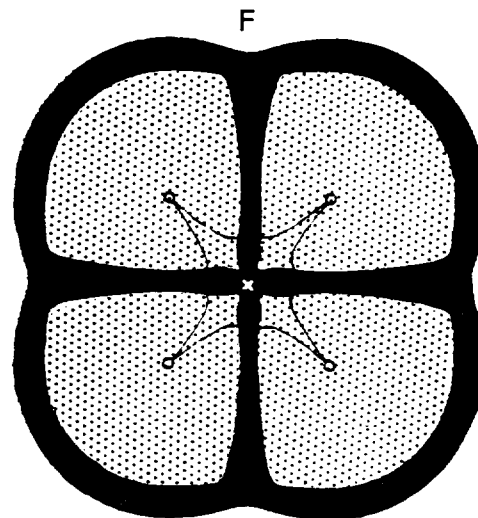
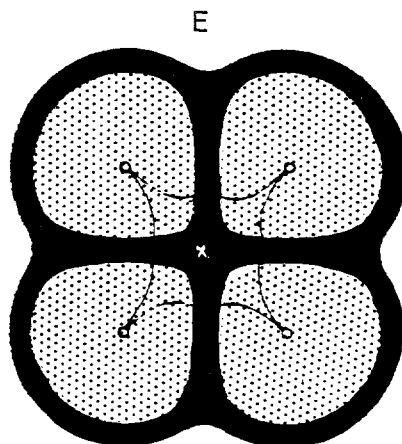
BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Humble EXHIBIT No. 9
CASE 7787



OIL BANK
INTERFERENCE



MOMENT OF FIRST
OIL PRODUCTION

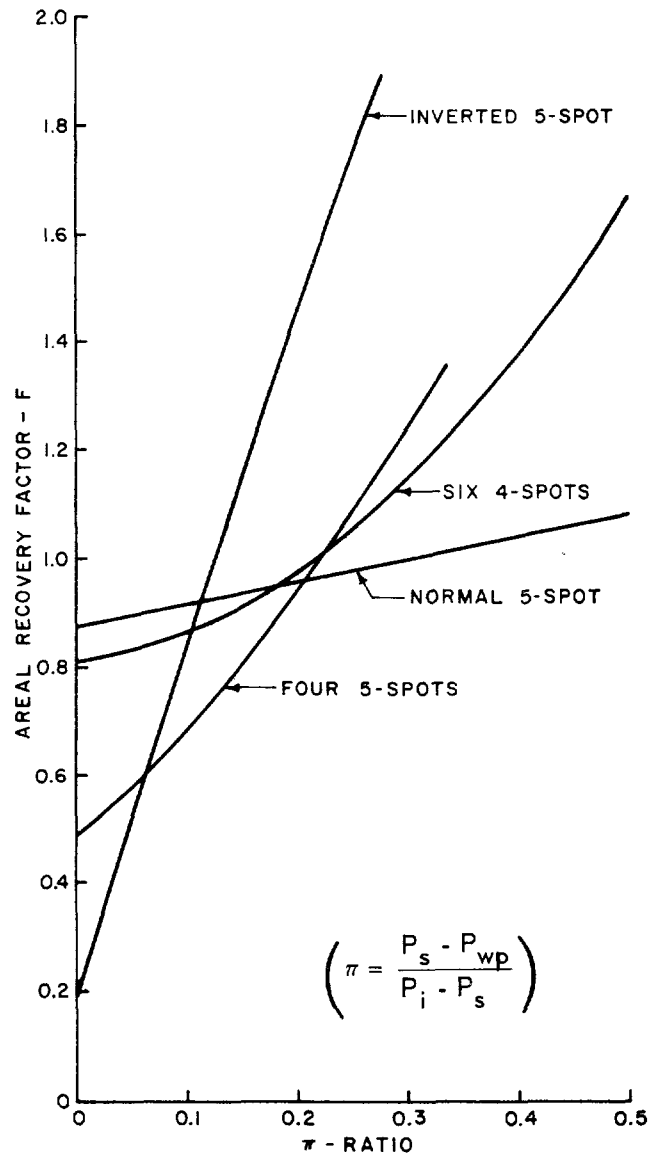


X - PRODUCERS
o - INJECTORS

 OIL BANK
 GAS REGION
 WATER BANK

Fluid migration out of a five-spot in a pressure-depleted, dissolved gas drive reservoir.
(After Fischer and Matthews)

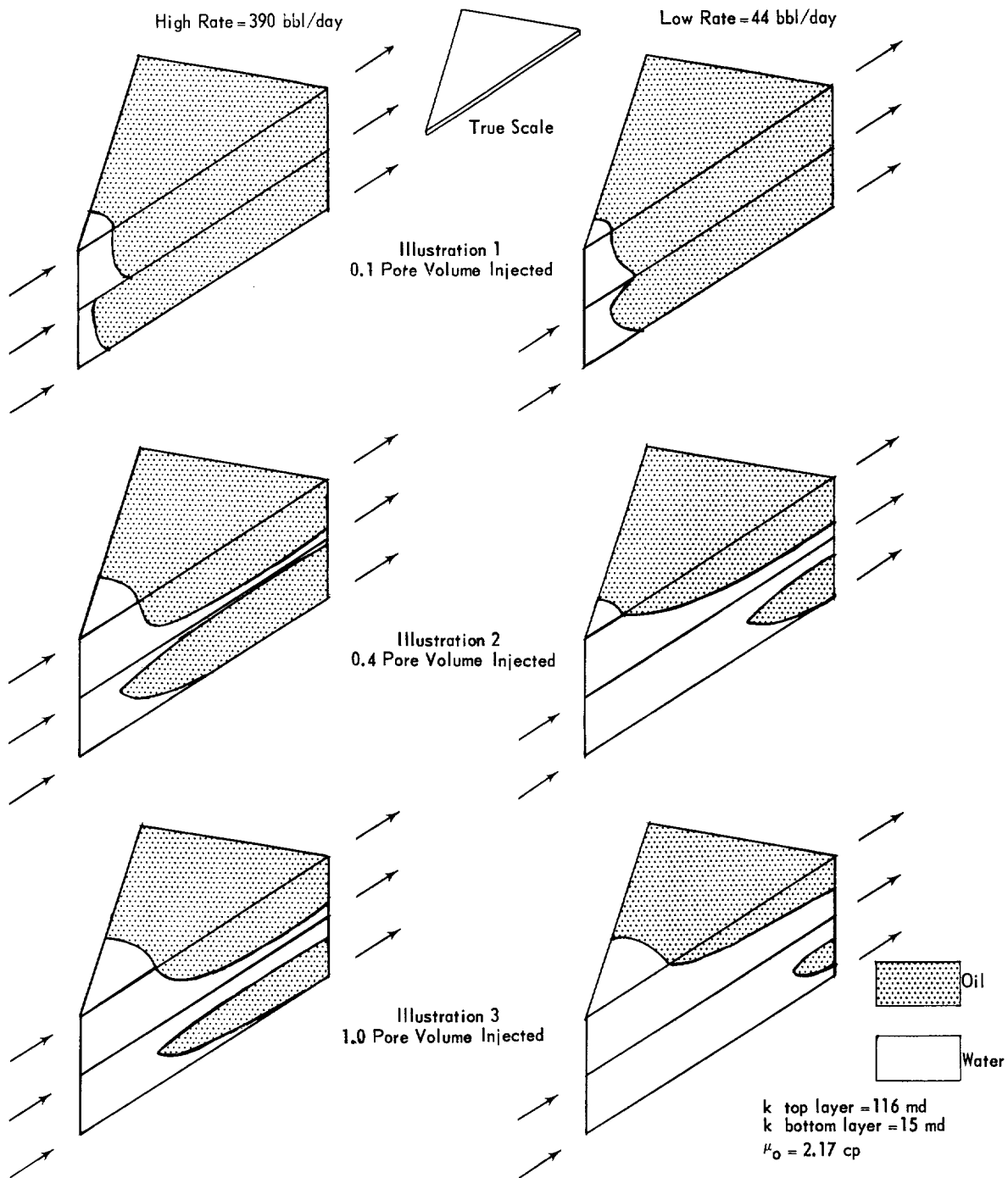
BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
Humble EXHIBIT No. 10
CASE 1787



EFFECT OF OPERATING CONDITIONS
ON AREAL RECOVERY FACTOR

(After Dalton, Rapoport, and Carpenter-AIME
10-59)

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. 11
CASE 7787



OBSERVED FLOOD FRONTS - RESERVOIR 2

BEFORE THE
 OIL CONSERVATION COMMISSION
 SANTA FE, NEW MEXICO
 Exhibit No. 12
 CASE 1787

HUMBLE WATERFLOOD PROJECTS INJECTION RATE DATA

BEFORE THE
OIL CONSERVATION COMMISSION
SAN ANTONIO, TEXAS
EXHIBIT No. 13
CASE 1787

DESIGNATION OF FLOOD	TYPE OF FLOOD	ACRES	INJECTION RATE, BPD	AVERAGE INJECTION RATE, BPD/AC-FT	DAILY OIL PROD., BBL
----------------------	---------------	-------	---------------------	-----------------------------------	----------------------

NOT PRORATED

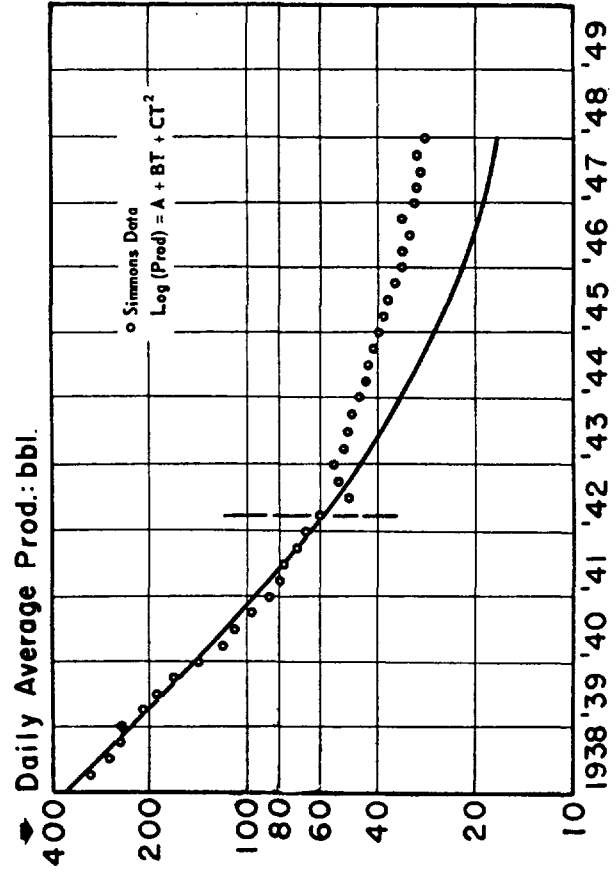
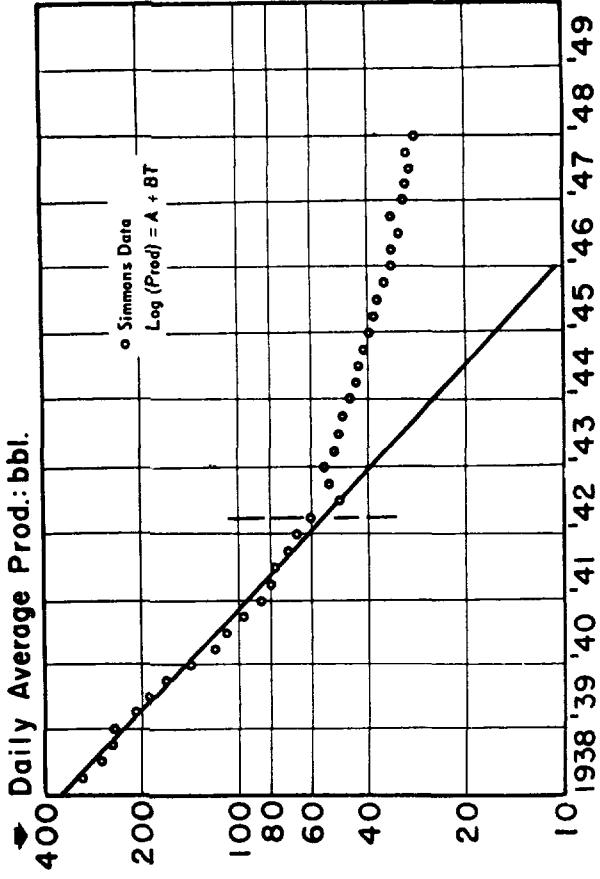
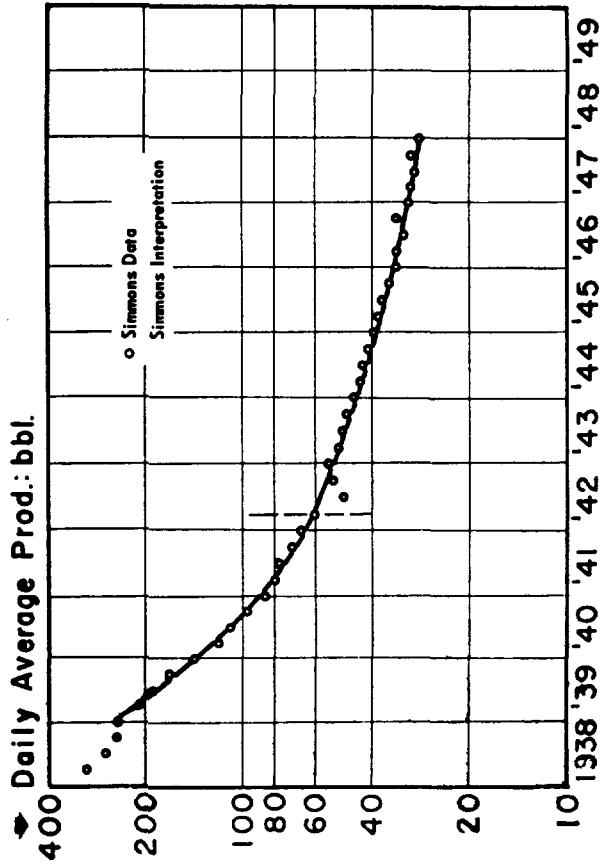
COLORADO, EXTENSION AREA FLOOD	PATTERN	627	3925	1.01	322
COLORADO, LINE DRIVE FLOOD	LINE DRIVE	450	2123	0.74	460
HOWARD GLASSCOCK, SETTLES LEASE	PATTERN	20	170	0.39	108
KERMIT, COLBY "A" LEASE	PATTERN	300	3061	0.17	253
KERMIT, COLBY "C" LEASE	PATTERN	180	2279	0.49	112
KERMIT, HOWE LEASE	PATTERN	240	2136	0.18	270
KERMIT, MCCUTCHEEN LEASE	PATTERN	100	1014	1.13	134
KERMIT, WALTON "D" LEASE	PATTERN	730	4136	0.20	560
NORTH WARD - ESTES, RICHTER LEASE	PATTERN	240	757	0.08	309
NORTH WARD - ESTES, STATE UNIV. "F"	PATTERN	350	3861	0.34	573
SOUTH SEVENTY SIX, W.F. OIL UNIT I	PATTERN	150	1340	1.79	42

SUBJECT TO PWT - EXEMPT FROM S-D

COATES RANCH	PATTERN	220	400	0.25	100
SOUTH LIBERTY, BALDWIN	LINE DRIVE	70	70	0.04	85
THROCKMORTON COUNTY 1700-FEET	PERIPHERAL	90	500	0.23	52

SUBJECT TO PWT & S-D

COLMENA, DCRC "L" LEASE	PATTERN	128	2083	1.35	276
CHARLOTTE PILOT	PATTERN	40	750	1.04	8
DORWARD, SAN ANGELO PILOT	PATTERN	40	1950	1.52	187
LOMA NOVIA, NORTH END	PATTERN	320	3448	0.69	490
RACCOON BEND, GRAWUNDER	LINE DRIVE	755	3980	0.14	141
RACCOON BEND, GUTOWSKI	LINE DRIVE	1050	2748	0.07	102



BEFORE THE
 OIL COMMISSION
 SANTA FE, NEW MEXICO
 CASE 1787
 EXHIBIT No. 14

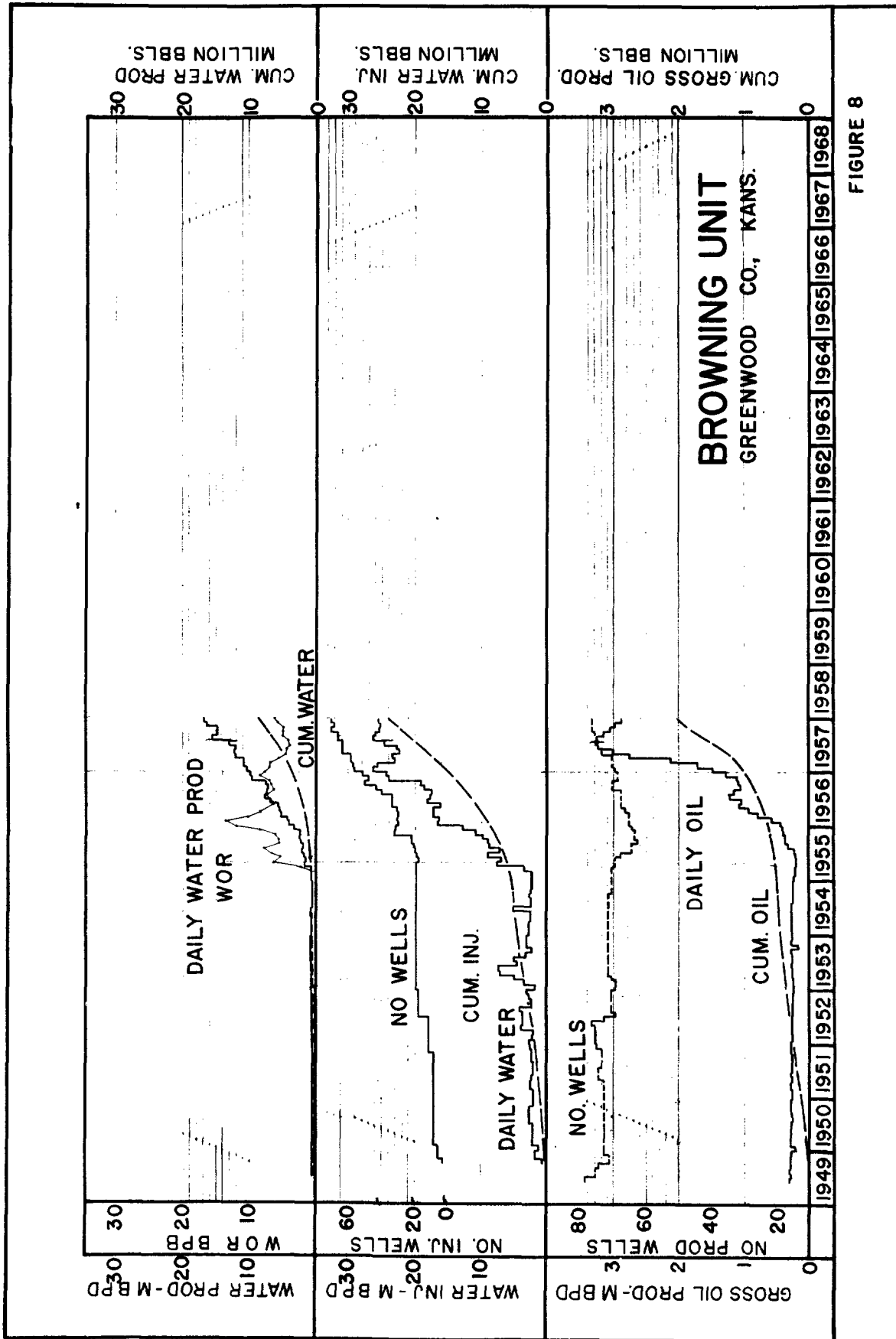
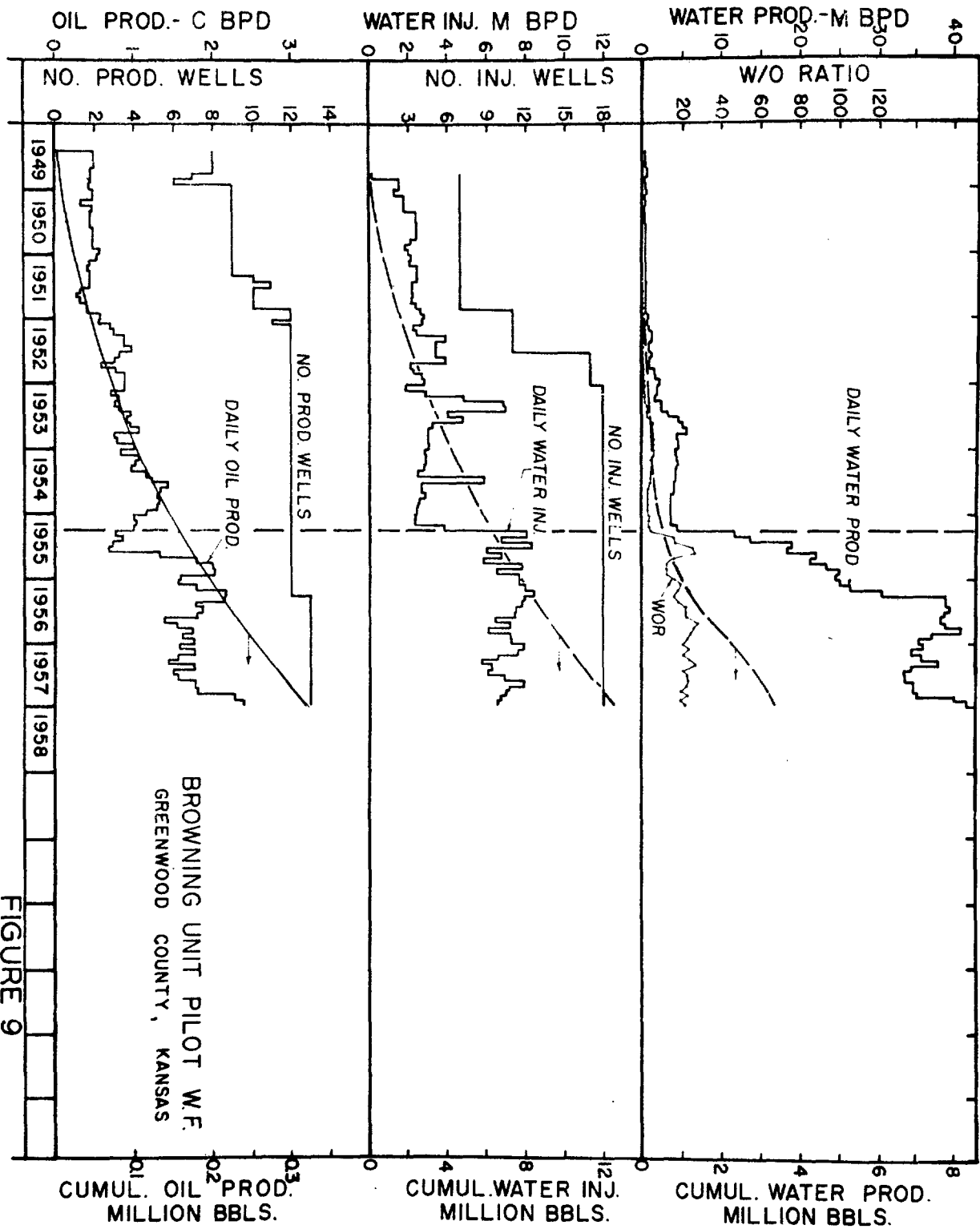
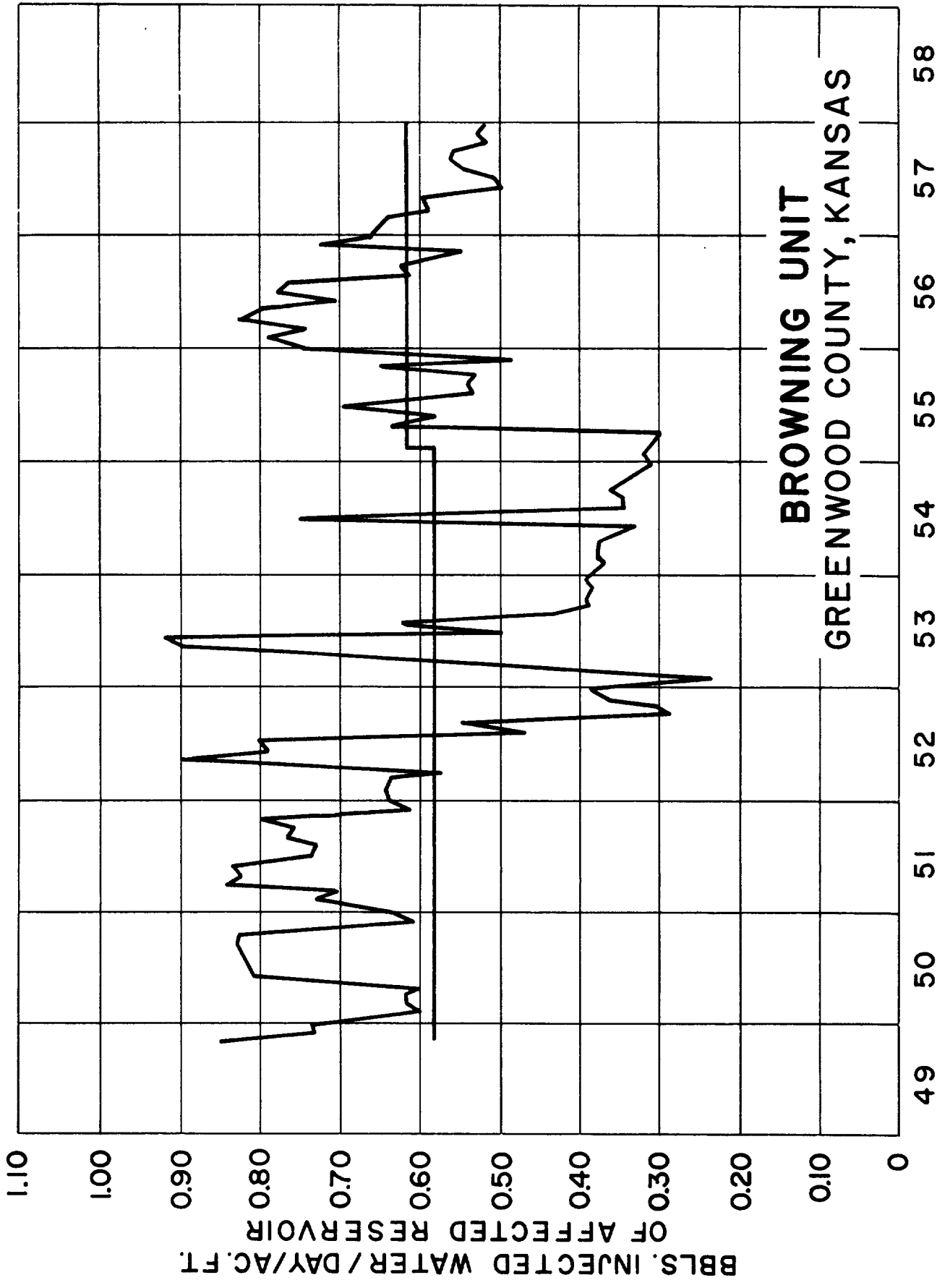


FIGURE 8

BEFORE THE
OIL COURT
SANTA FE, NEW MEXICO
EXHIBIT NO. 1772
CASE



CASE 1787
 EXHIBIT NO. 6
 FILED 1958
 BY 11/10/58
 11/10/58



BEFORE THE
 OIL CONS. KVATION COMMISSION
 SANTA FE, NEW MEXICO
 OCT. 5, 1959
 HUMBLE OIL & REF. CO.
 CASE 1787
 EXHIBIT No. 17



RADIOACTIVITY LOG

WELEX JET SERVICES, Inc.

LICENSED BY: WELL SURVEYS, INC.

FILE NO.

Location of Well	COMPANY F. KIRK JOHNSON WELL O. CLAPP # 3-A FIELD KERMIT COUNTY WINKLER STATE TEXAS LOCATION 330' FSL & 400' FEL NE 1/4 SEC. 26 BLK. 26 PSL SURV. (70' W. OF PLUGGED & ABANDONED WELL #3)	COUNTY WINKLER STATE TEXAS LOCATION 330' FSL 400' FEL NE 1/4 SEC. 26 BLK. 26 PSL SURV. (70' W. OF PLUGGED & ABANDONED WELL #3)	FIELD KERMIT WELL O. CLAPP # 3-A COMPANY F. KIRK JOHNSON
LOG MEAS. FROM 9.70' ABV. BRADEN HD ELEV. 2869.60			
DRLG. MEAS. FROM SAME ELEV.			
PERM. DATUM SAME ELEV.			

TYPE OF LOG	GAMMA RAY	NEUTRON		
RUN NO.	1	1		
DATE	8-15-54	8-15-54		
JOB NO.	148-178	338-681		
TOTAL DEPTH (DRILLER)	3108	3108		
EFFECTIVE DEPTH (DRILLER)	3108	3108		
TOTAL DEPTH (R/A LOG)	3107	3107		
TOP OF LOGGED INTERVAL	SURF.	SURF.		
BOTTOM OF LOGGED INTERVAL	3096	3105		
TYPE OF FLUID IN HOLE	DRY	DRY		
FLUID LEVEL				
MAXIMUM RECORDED TEMPERATURE		600 N		
NEUTRON SOURCE STRENGTH & TYPE		3.75		
SOURCE SPACING—IN.		9.1		
LENGTH OF MEASURING DEVICE—IN.	30	3-5/8		
O.D. OF INSTRUMENT—IN.	3-5/8	2.5		
TIME CONSTANT—SECONDS	2.5	20-40		
LOGGING SPEED FT./MIN.	20-40	275		
STATISTICAL VARIATION—IN.				
SENSITIVITY REFERENCE	274			
RECORDED BY	TAYLOR			
WITNESSED BY	EMANUEL			

CASING RECORD				OPEN HOLE RECORD			
SIZE—IN.	WT.—LB.	INTERVAL	R/A DEPTH	BIT SIZE—IN.	INTERVAL		
8-5/8	24	SURF. TO 146		11	SURF. TO 146		
5-1/2	14	SURF. TO 273 1/2	2733	7-7/8	146 TO 273 1/2		
		TO		4-3/4	273 1/2 TO 3108		
		TO			TO		
		TO			TO		

BROWNING UNIT

WATERFLOOD RECOVERY AS OF 1-1-58

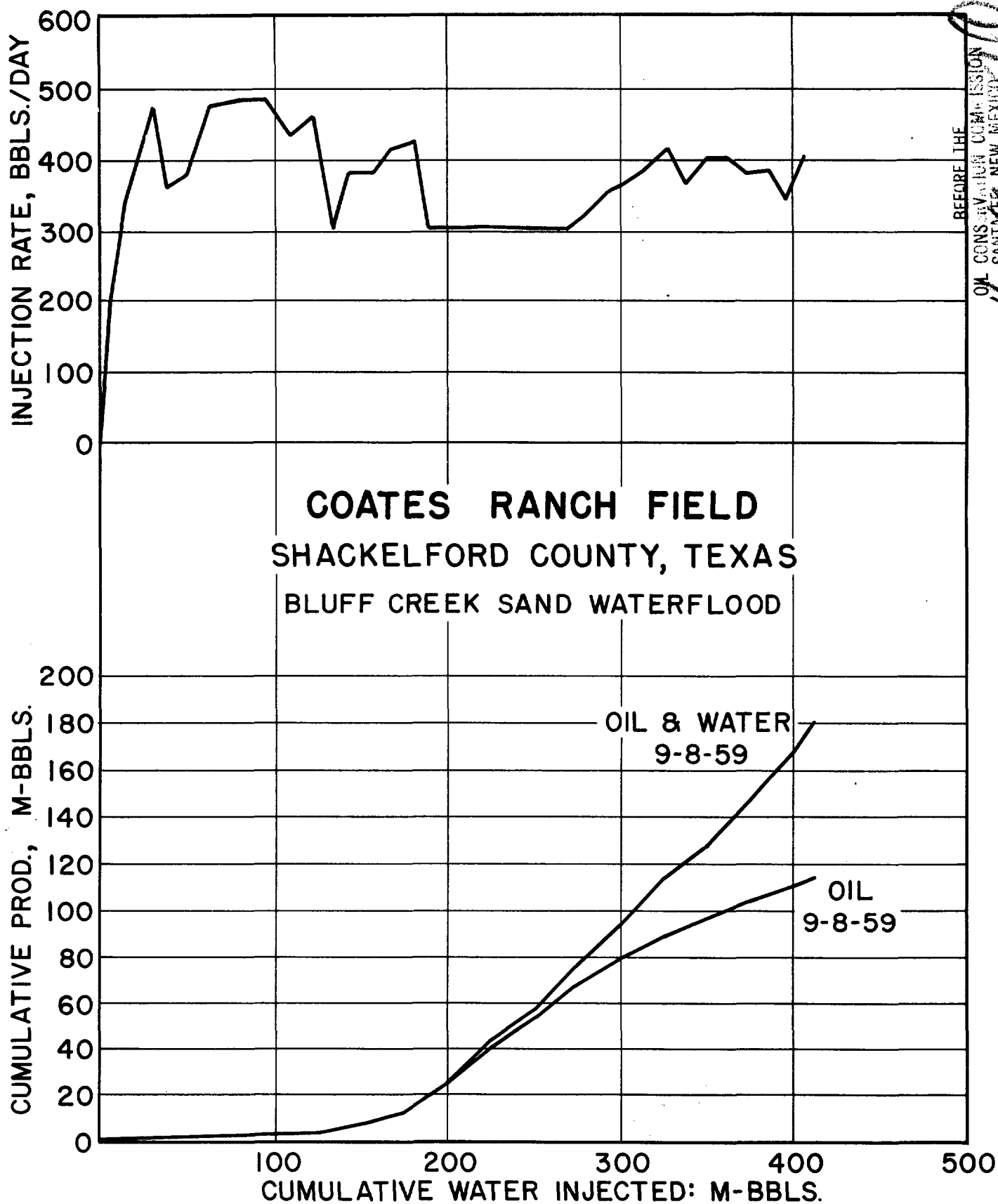
PILOT AREA 39.9 B/AC. FT.

OUTSIDE PILOT AREA 31.9 B/AC. FT.

San Antonio, New Mexico
CASE 1287 EXHIBIT No. 1

HUMBLE OIL & REF. CO.

OCT. 2, 1959



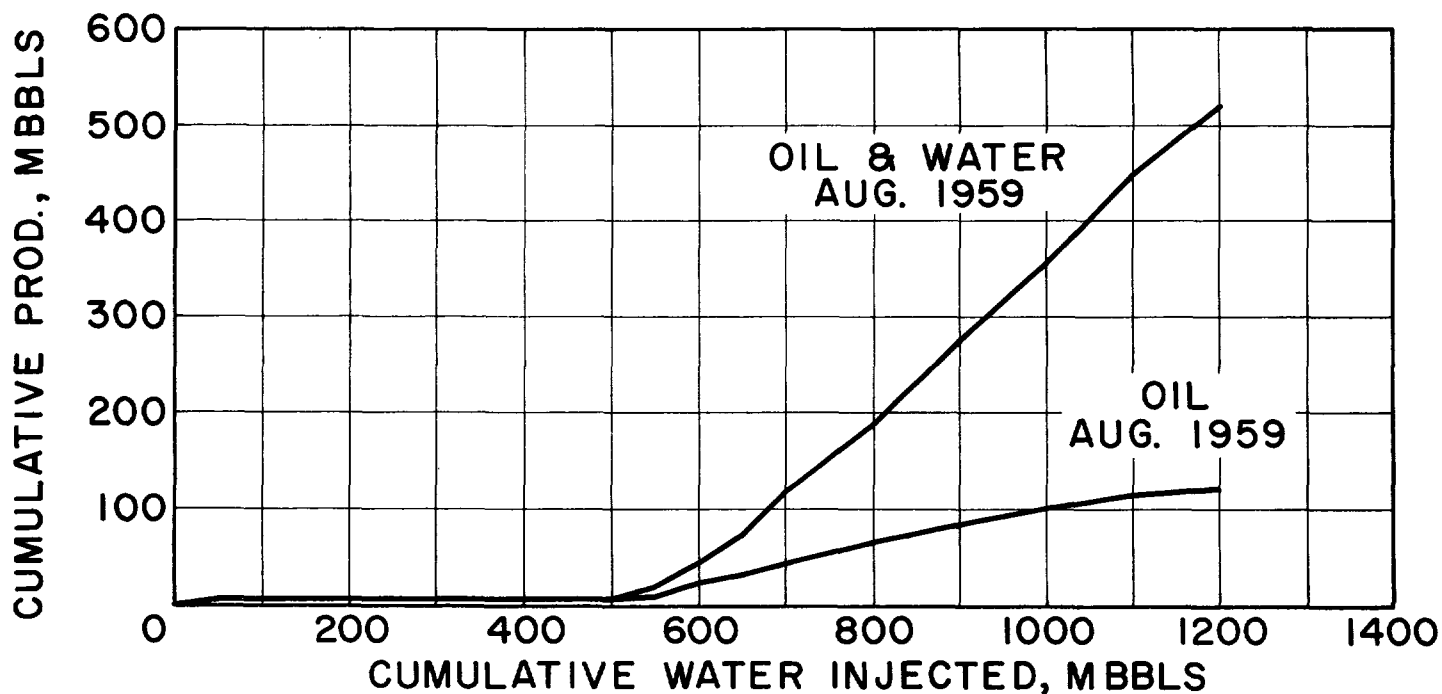
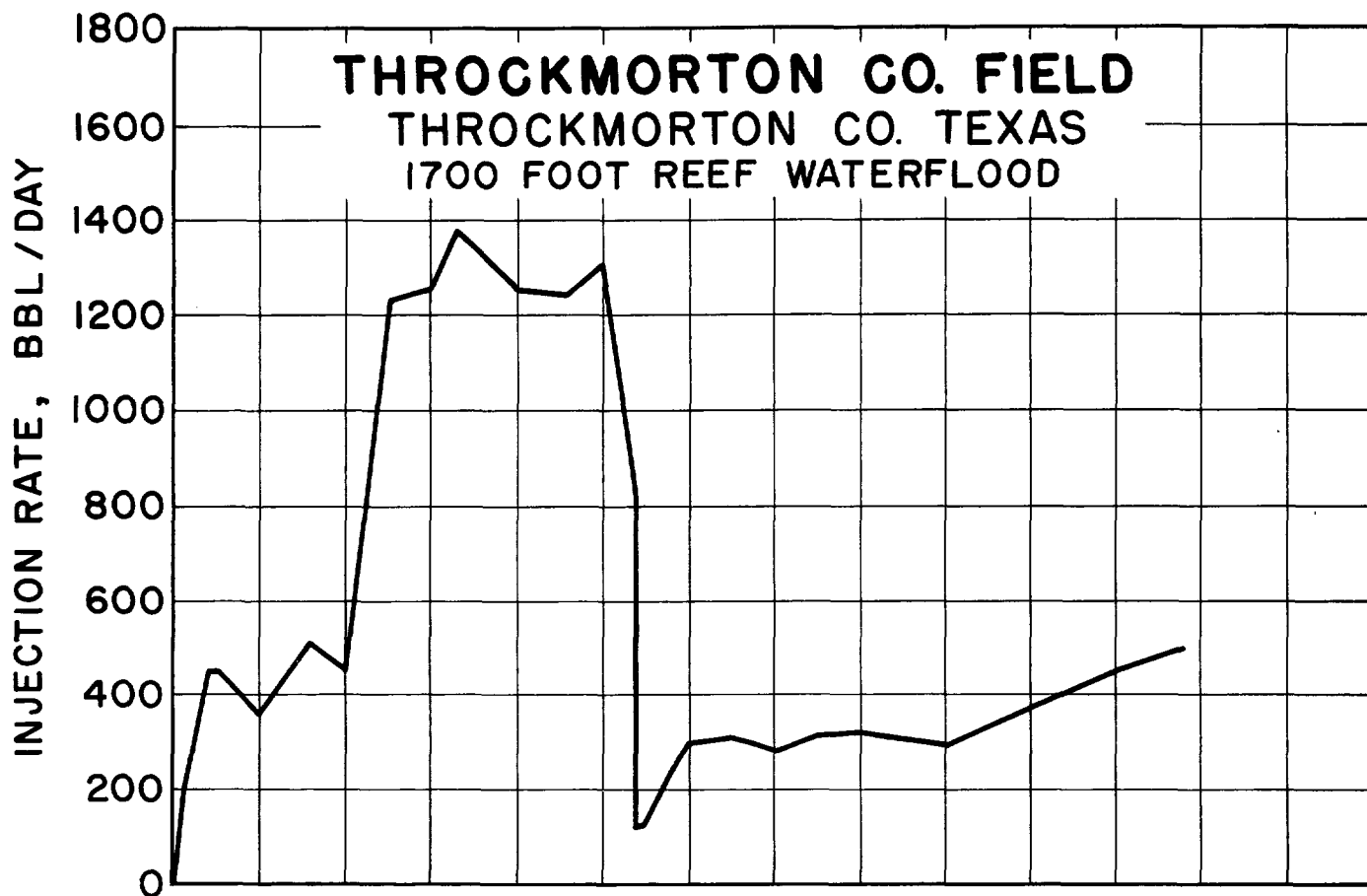
HUMBLE OIL & REF. CO.
OCT. 2, 1959

BEFORE THE

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

EXHIBIT No. 1

CASE



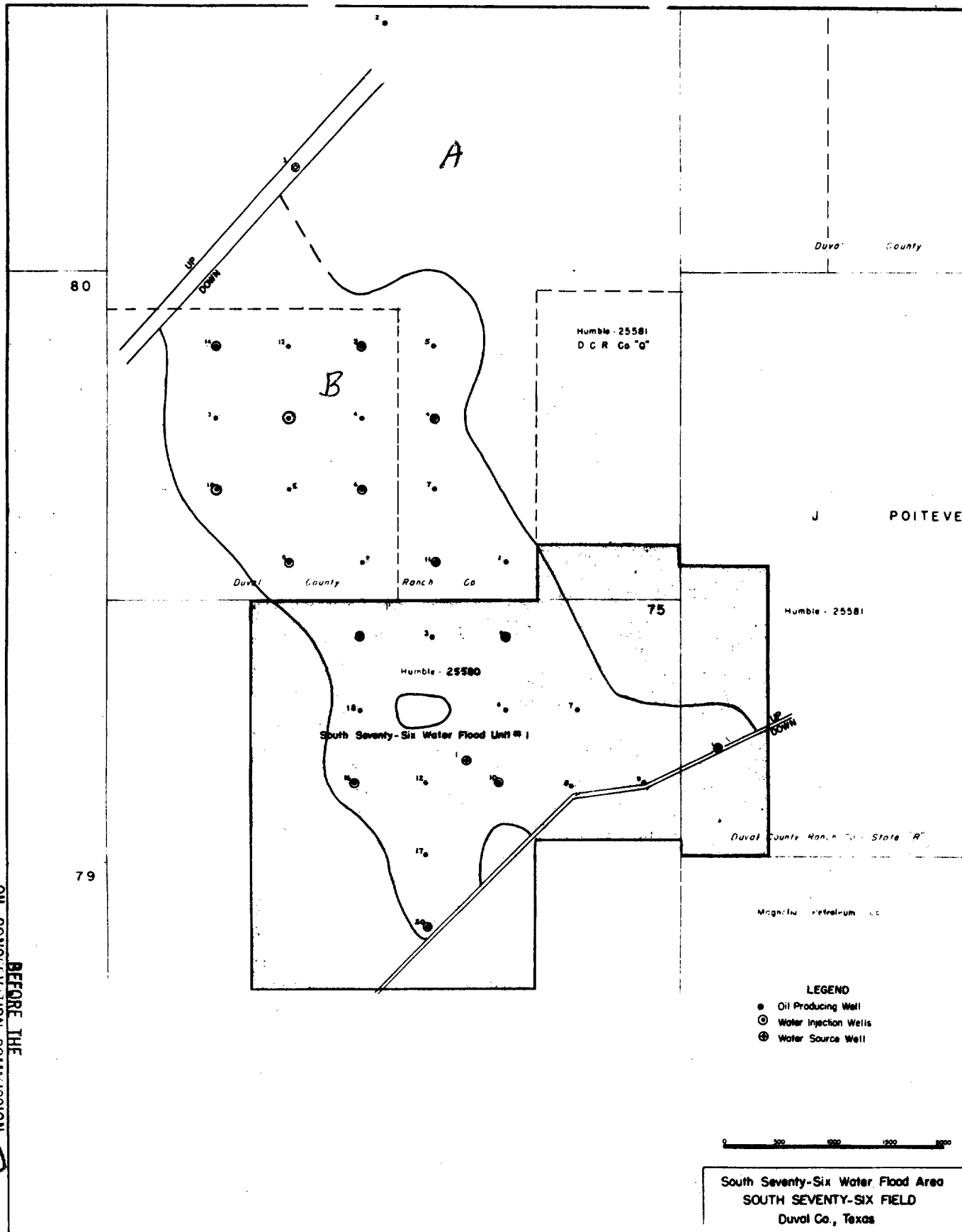
HUMBLE OIL & REF. CO.
 OCT. 1, 1959

BEFORE THE
 OIL CONSERVATION COMMISSION
 SANTA FE, NEW MEXICO

EXHIBIT No. 21
 CASE 1787

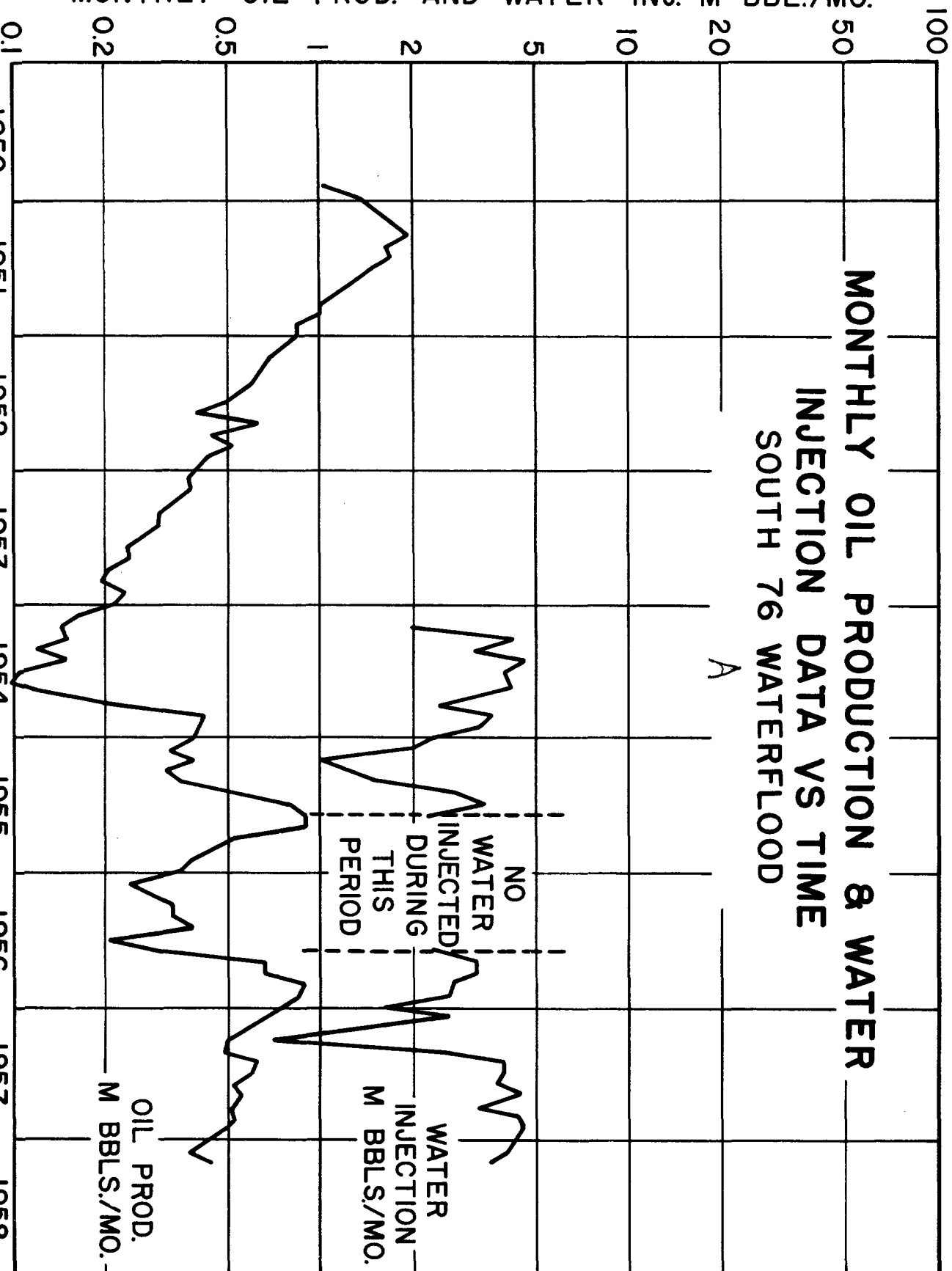
CASE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT NO. 100



MONTHLY OIL PRODUCTION & WATER INJECTION DATA VS TIME SOUTH 76 WATERFLOOD

MONTHLY OIL PROD. AND WATER INJ. M BBL./MO.



A

NO
WATER
INJECTED
DURING
THIS
PERIOD

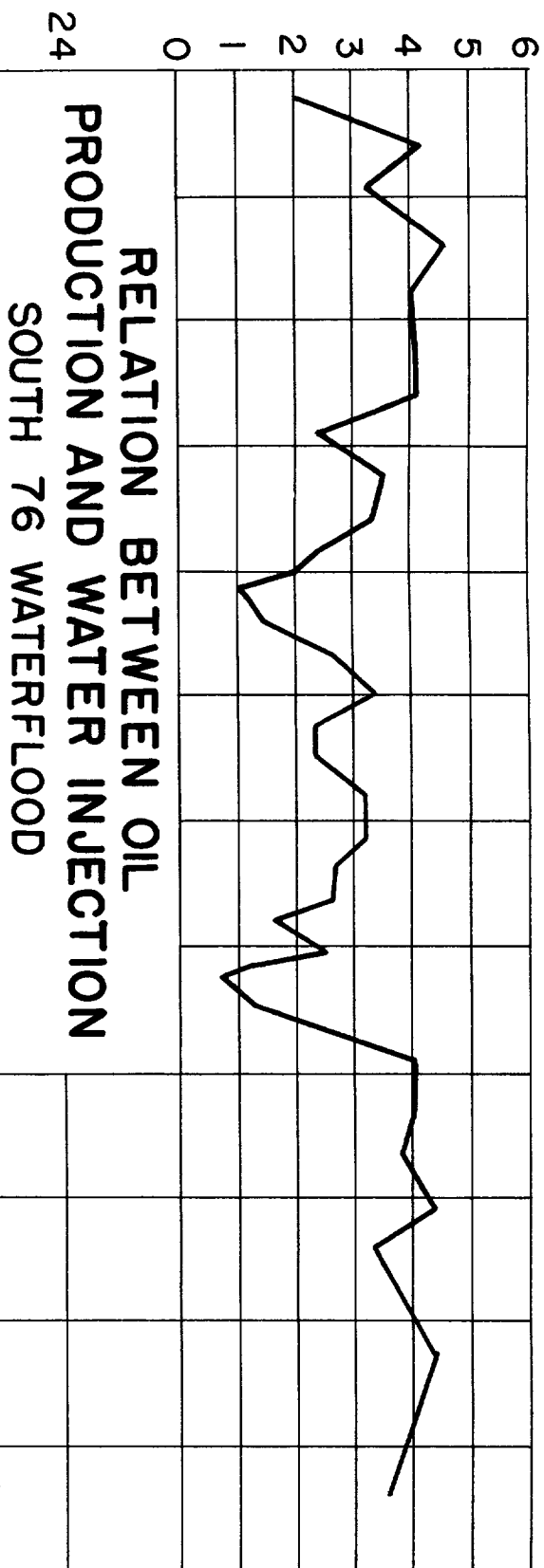
WATER
INJECTION
M BBL./MO.

OIL PROD.
M BBL./MO.

YEARS

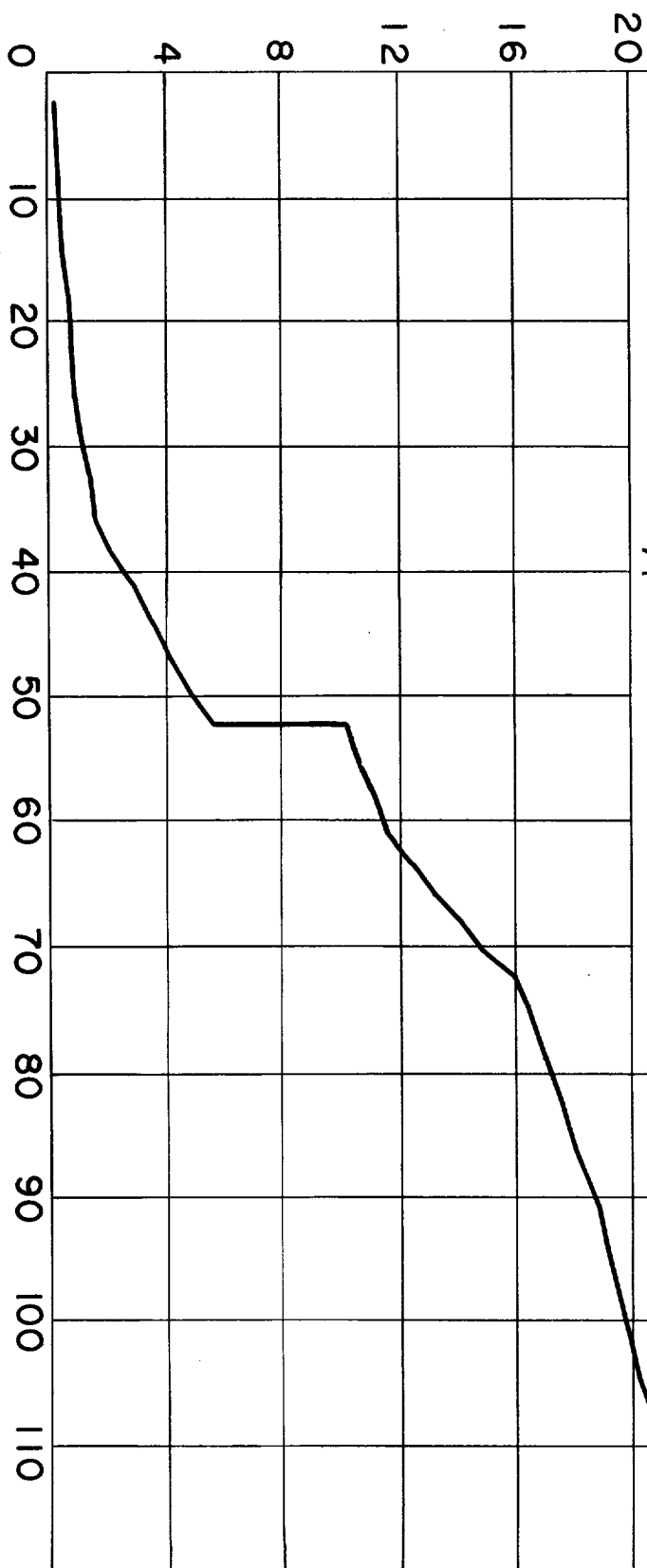
CUMULATIVE OIL PRODUCTION
M BBLs.

WATER INJECTION RATE
M BBLs./MO.



RELATION BETWEEN OIL
PRODUCTION AND WATER INJECTION
SOUTH 76 WATERFLOOD

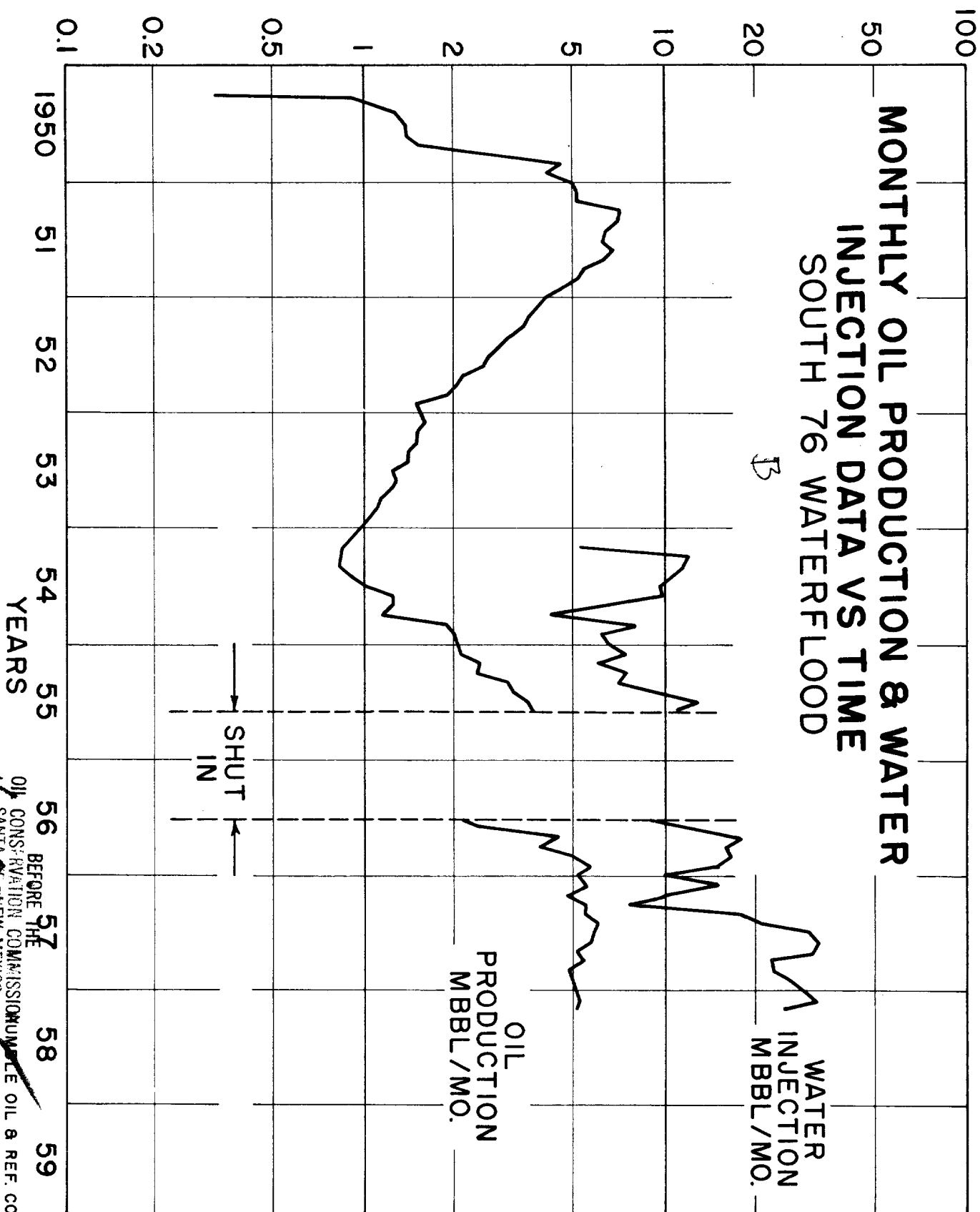
A



CUMULATIVE WATER INJECTED M BBLs.

OFFICERS OF THE COURT, NEW MEXICO
SANTA FE, NEW MEXICO
HUMBLE OIL & REF. CO.
OCT. 1, 1959
CASE NO. 1787-5
EXHIBIT NO. 1787-5

MONTHLY OIL PRODUCTION & WATER INJECTION, MBBL/MO.



OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
OCT. 1, 1959

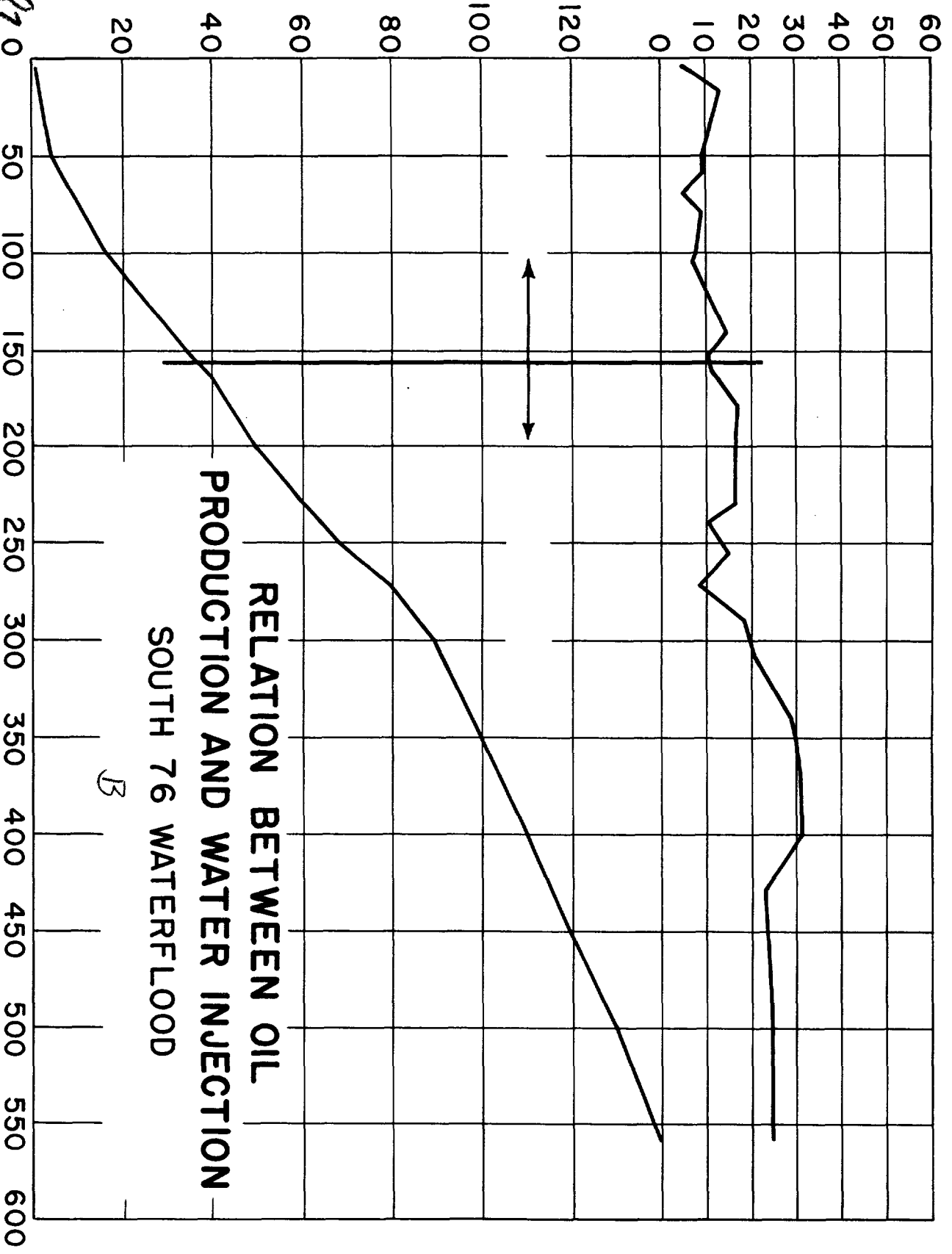
EXHIBIT No. 25

CASE 1789

Case 1787
 Humble Co 24

CUMULATIVE OIL PRODUCTION
 M BBLs.

WATER INJECTION RATE
 M BBLs./MO.



RELATION BETWEEN OIL
 PRODUCTION AND WATER INJECTION
 SOUTH 76 WATERFLOOD

B

CUMULATIVE WATER INJECTED: M BBLs.



Core 1787

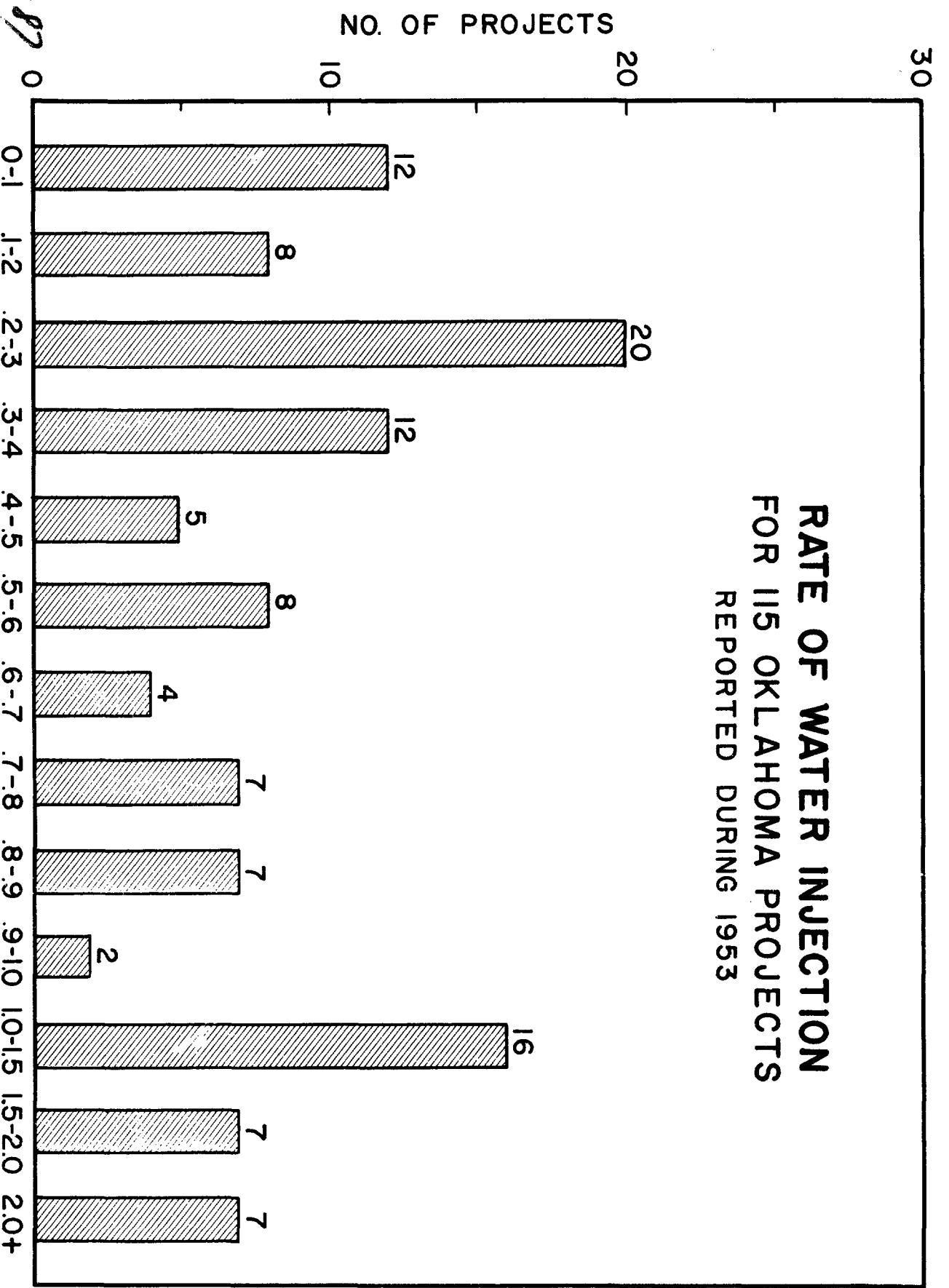
Humble Co 27

CUMULATIVE WATER INJECTED: M BBL.

HUMBLE OIL & REF. CO.

SEPT. 30, 1959

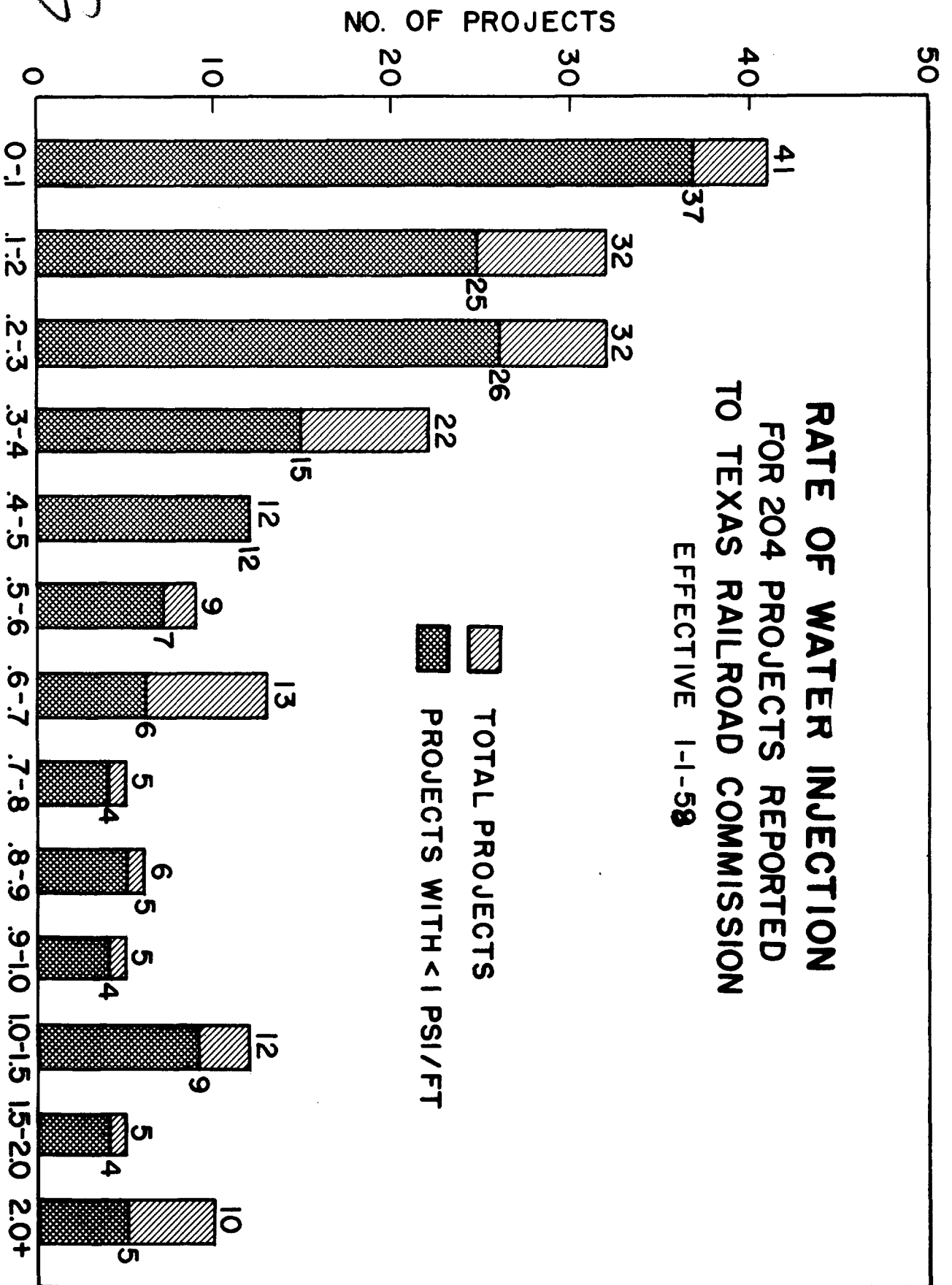
RATE OF WATER INJECTION FOR 115 OKLAHOMA PROJECTS REPORTED DURING 1953



INJECTION RATE - BBL./DAY/AC. FT.

Doc 1787
Humble & 28

RATE OF WATER INJECTION FOR 204 PROJECTS REPORTED TO TEXAS RAILROAD COMMISSION EFFECTIVE 1-1-58



INJECTION RATE - BBL./DAY/AC.FT.

TOTAL PROJECTS
 PROJECTS WITH < 1 PSI/FT

Case
1787
Humble Ex 29

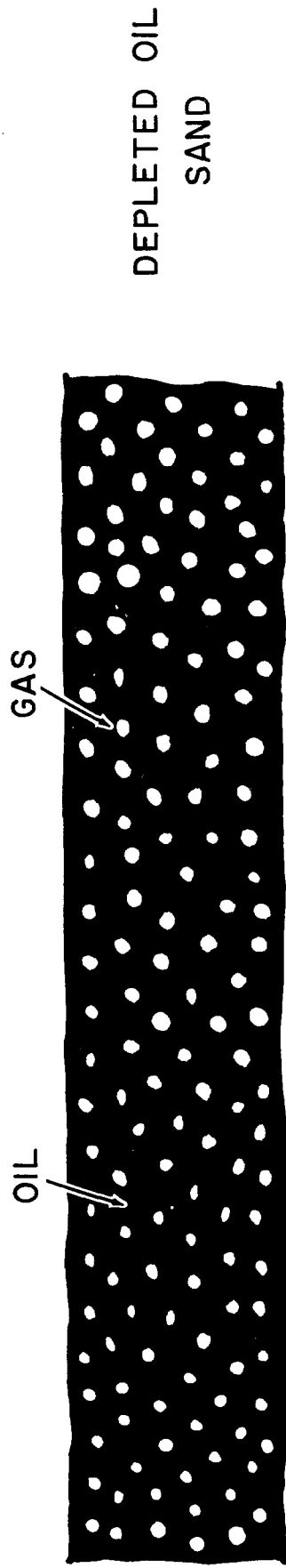
INJECTION RATES
SOUTHEAST NEW MEXICO

<u>Pool</u>	<u>Injection Rate, B/D/AcFt</u>
Artesia	0.38
Caprock-Queen	
Graridge	0.39
Ambassador	0.47
Cities Service	0.52
Great Western	0.37
Corbin - Queen	0.20
Grayburg - Jackson	0.29
High Lonesome	0.05
Langlie-Mattix	0.21
Loco Hills	0.38
Maljamar	0.04
Red Lake - Grayburg	0.14
Russell - Yates	0.26
Shugart, No.	0.13
Square Lake	0.09
Vacuum	0.08

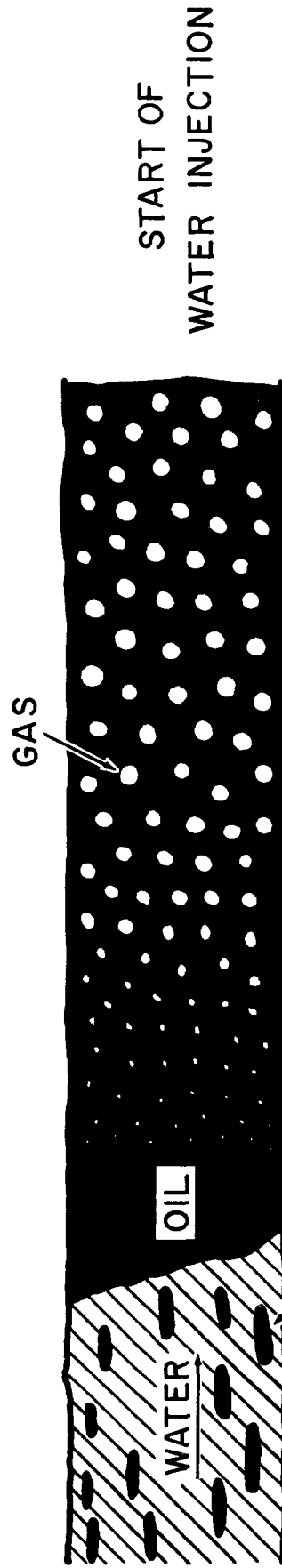
HUMBLE OIL & REFINING COMPANY EXHIBIT

*Core 1787
Humble Ex 30*

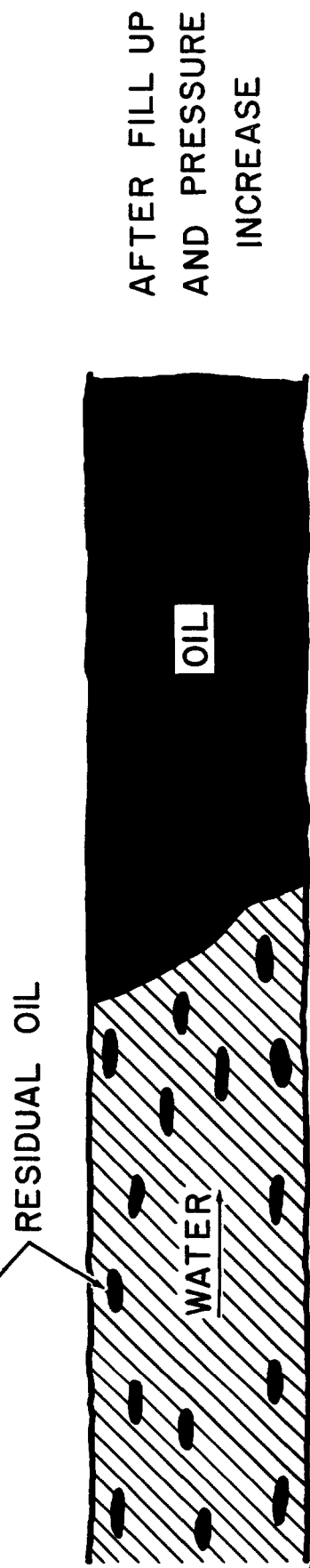
WATER DISPLACEMENT IN AN OIL SAND CONTAINING GAS SATURATION



DEPLETED OIL
SAND



START OF
WATER INJECTION



AFTER FILL UP
AND PRESSURE
INCREASE

Core 1787
Humble Co. 31

LARGE PRESSURE MAINTENANCE PROJECTS

FIELD	WATER INJECTED BBL./D	INJECTION RATE BBL./D/AC.FT.	OIL PRODUCTION BBL./D
ADAIR WOLFCAMP	9900	.04	3092
COGDELL	43400	.03	13973
DIAMOND "M"			
LION UNIT	22200	.03	3826
SHARON RIDGE UNIT	40100	.03	12871
EAST TEXAS	473300	.11	130314
KELLY-SNYDER, SACROC UNIT	107000	.01	58353
SALT CREEK	13700	.01	9169
TODD, CRINOIDAL	2500	.01	1800

Page 1287
Humble Ex 32

INDUSTRY EXPLORATORY DRILLING EXPERIENCE YEAR 1958

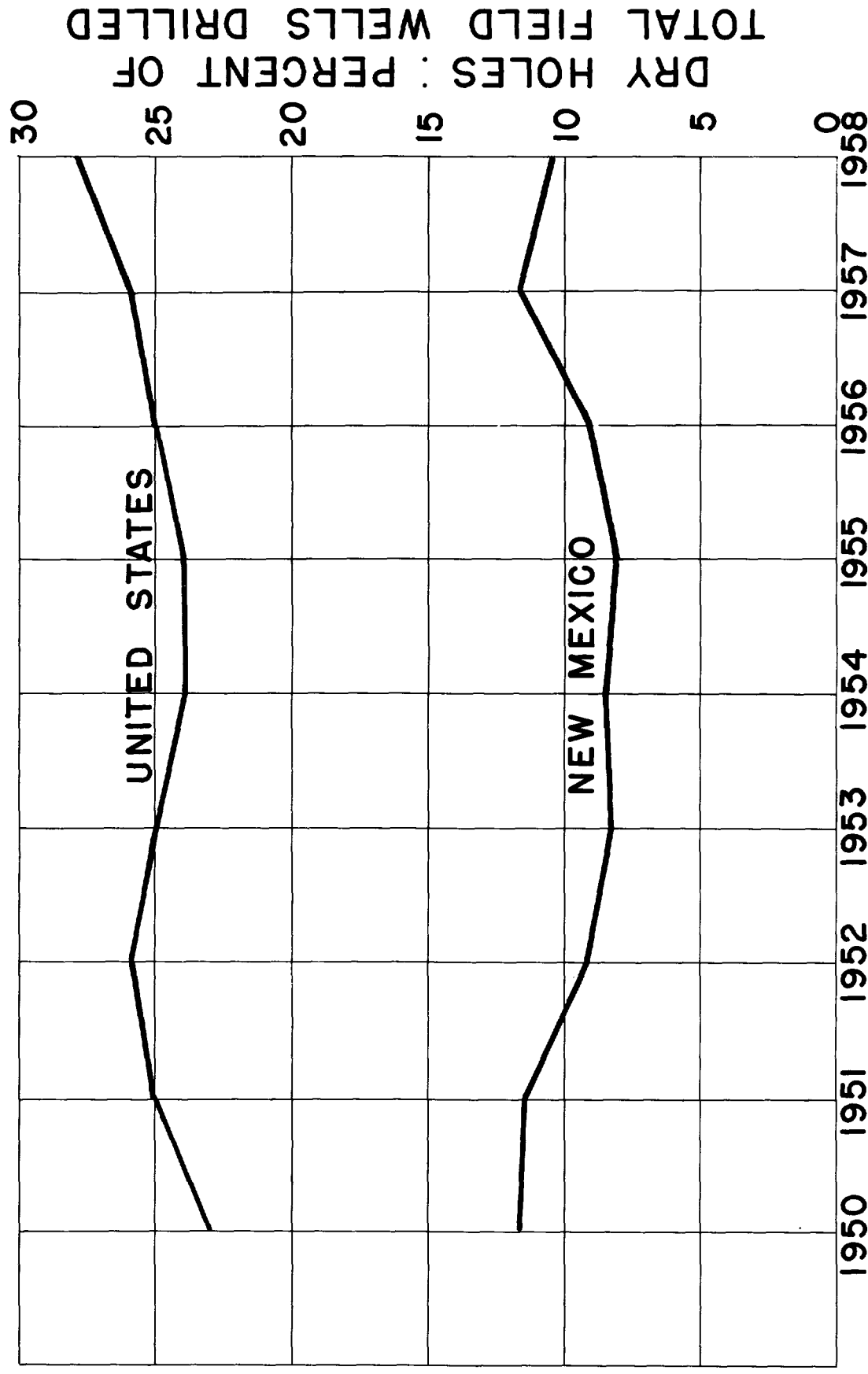
(FROM AAPG JUNE 1959 BULLETIN)

	TOTAL EXPLORATORY WELLS <u>DRILLED</u>	EXPLOR- ATORY DRY <u>HOLES</u>	DRY EXPLORATORY HOLES <u>PERCENT OF TOTAL</u>
UNITED STATES	13,199	10,632	81
NEW MEXICO	325	235	72

Cover 1787
Humble & Co. 33

INDUSTRY FIELD WELL EXPERIENCE

(OIL & GAS JOURNAL - UNITED STATES)
(COMPANY RECORDS - NEW MEXICO)



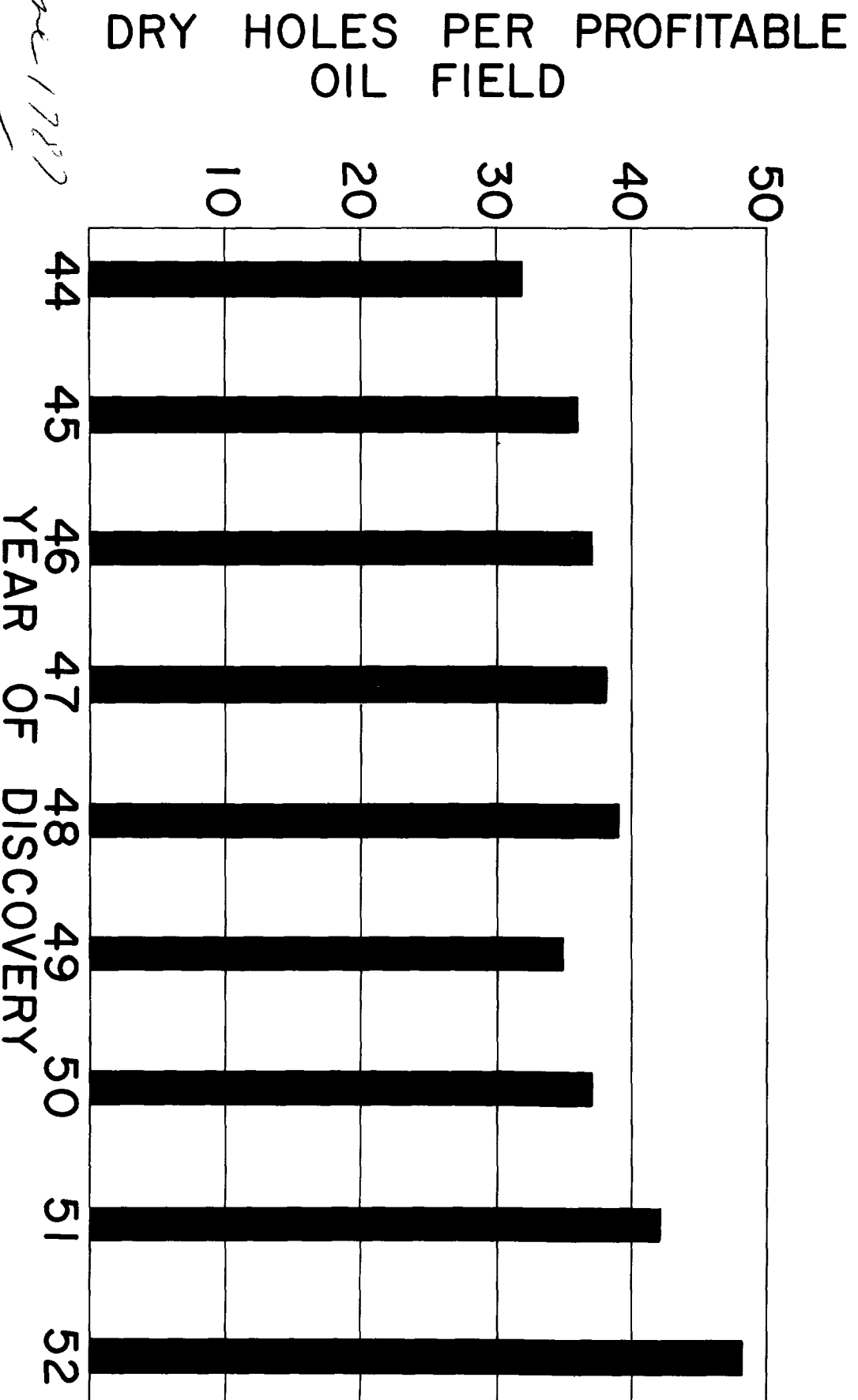
Case 1787

Humble Ed. 3X

HUMBLE OIL & REFINING CO. EXHIBIT —

DRY WILDCATS DRILLED FOR EACH PROFITABLE OIL FIELD DISCOVERY

(JUNE 1959 BULLETIN OF THE AAPG)

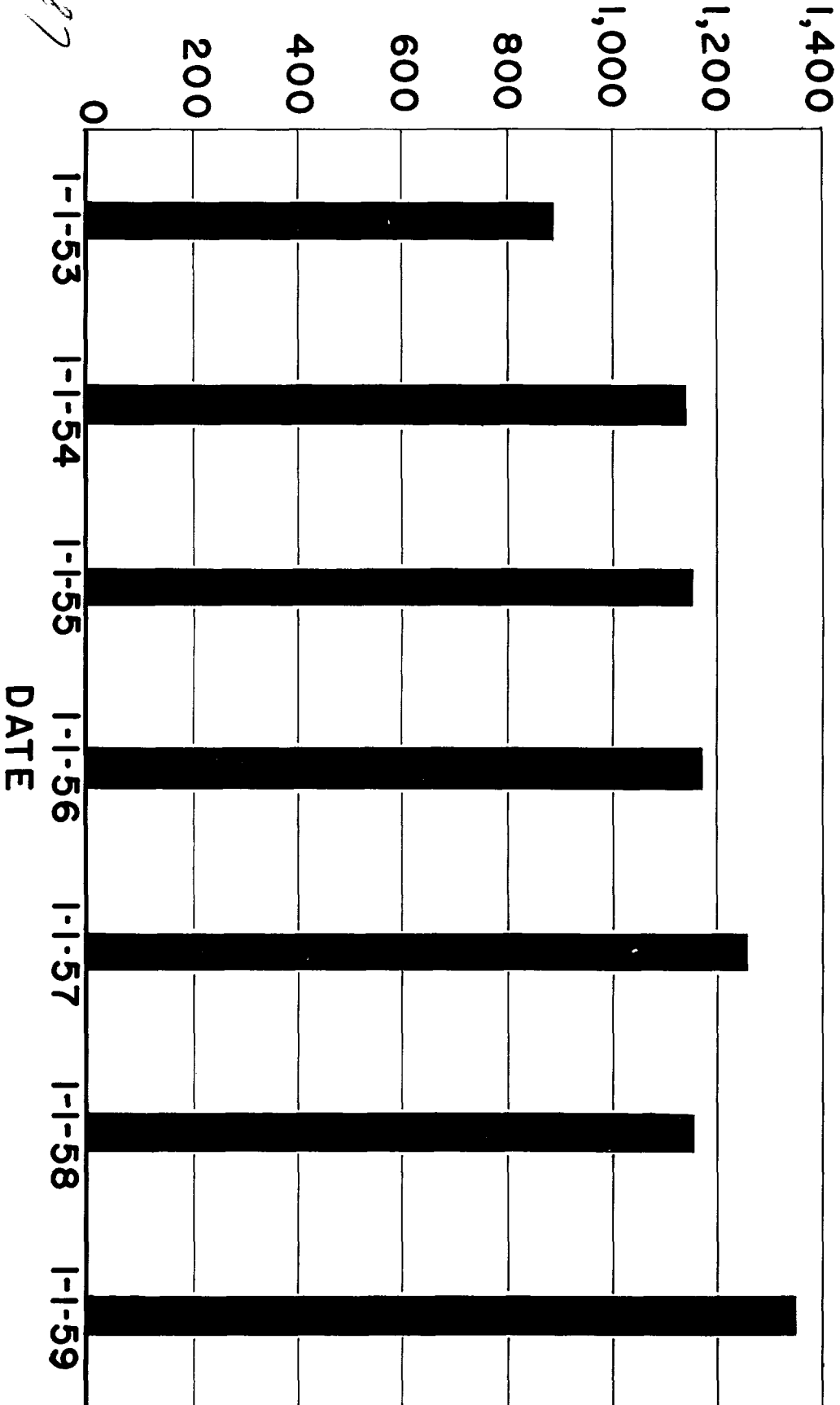


June 1959

44 35

Humble

PROVEN LIQUID HYDROCARBON RESERVES STATE OF NEW MEXICO (RESERVE COMMITTEE OF THE API & AGA)



HUMBLE OIL & REFINING CO. EXHIBIT —

Date 1-7-87

By 36

J. H. Hinkle

DEVELOPMENT COSTS FOR PRIMARY PRODUCTION TYPICAL NEW MEXICO FIELDS

	<u>DEPTH</u>	<u>INVESTMENT FOR WELL DRILLING & LSE. FACILITIES</u>
		<u>\$/ACRE</u>
AREA A	3900	1038
AREA B	4200	1259
AREA C	6200	2238

Case 1787

Humble

Ex 37

HUMBLE OIL & REFINING CO. EXHIBIT—

CONVERSION COSTS TO CONDUCT PRESSURE MAINTENANCE AND SECONDARY RECOVERY PROJECTS

	<u>YEAR INITIATED</u>	<u>NUMBER OF WELLS PRODUCING</u>	<u>INJECTION</u>	<u>PROJECT ACREAGE</u>	<u>CONVERSION COSTS:\$/ACRE</u>
PRESSURE MAINTENANCE PROJECTS					
UNIT A	1955	305	39	14,760	122
UNIT B	1954	1188	66	49,706	127
UNIT C	1955	329	48	15,172	180
UNIT D	1956	58	6	2,844	140

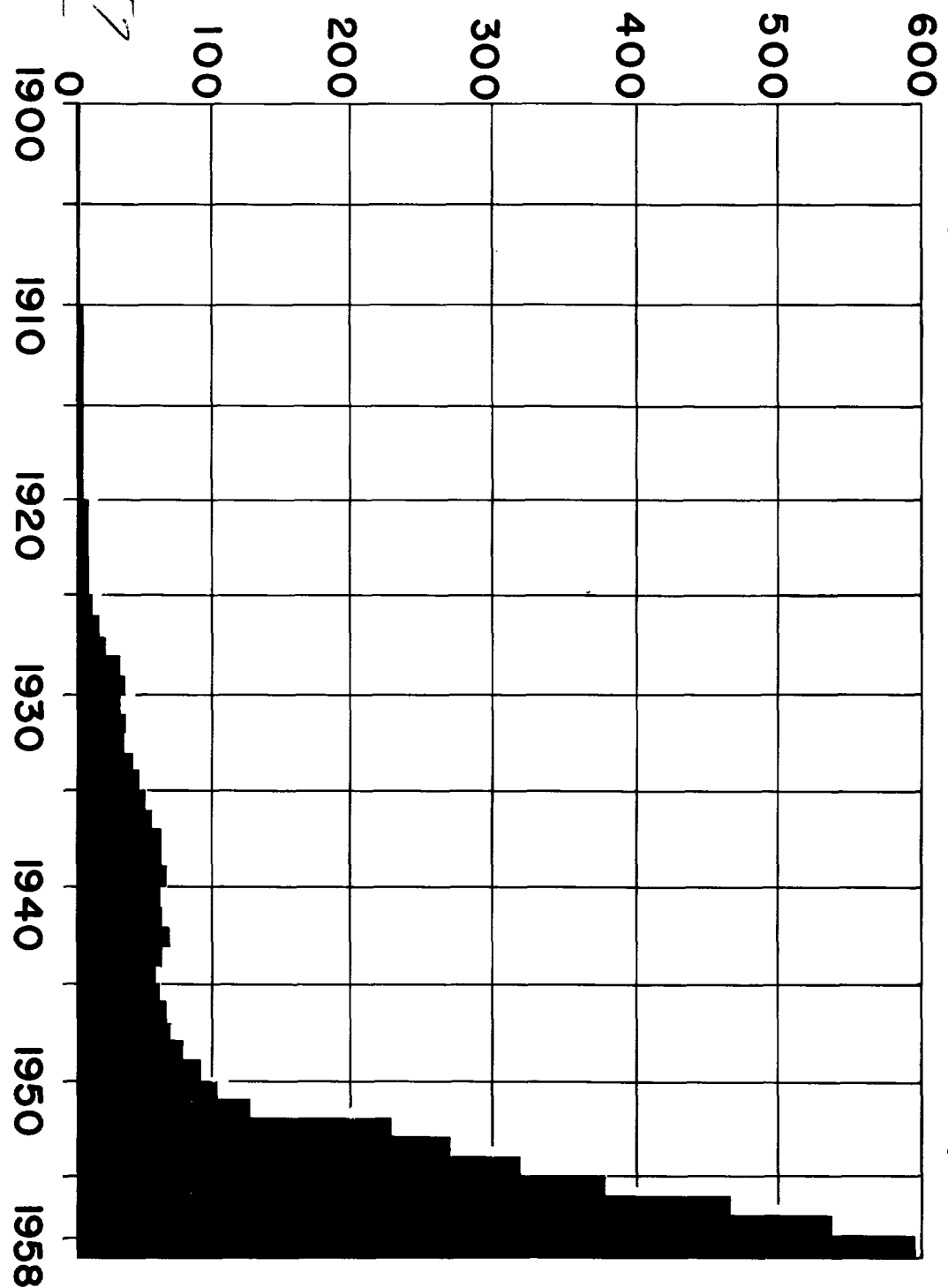
FIVE-SPOT WATERFLOOD

FLOOD A	1955	18	17	350	746
FLOOD B	1944	16	13	320	102
FLOOD C	1949	12	12	240	571
FLOOD D	Planning Stage	84	98	10,433	248
FLOOD E	Planning Stage	148	77	23,568	107
FLOOD F	1957	22	22	1760	400*

CONVERSION COSTS INCLUDE DEVELOPING SOURCE OF INJECTION WATER, INSTALLATION OF WATER INJECTION FACILITIES, AND PERFORMING NECESSARY WORKOVERS TO INITIATE THE PROJECT.

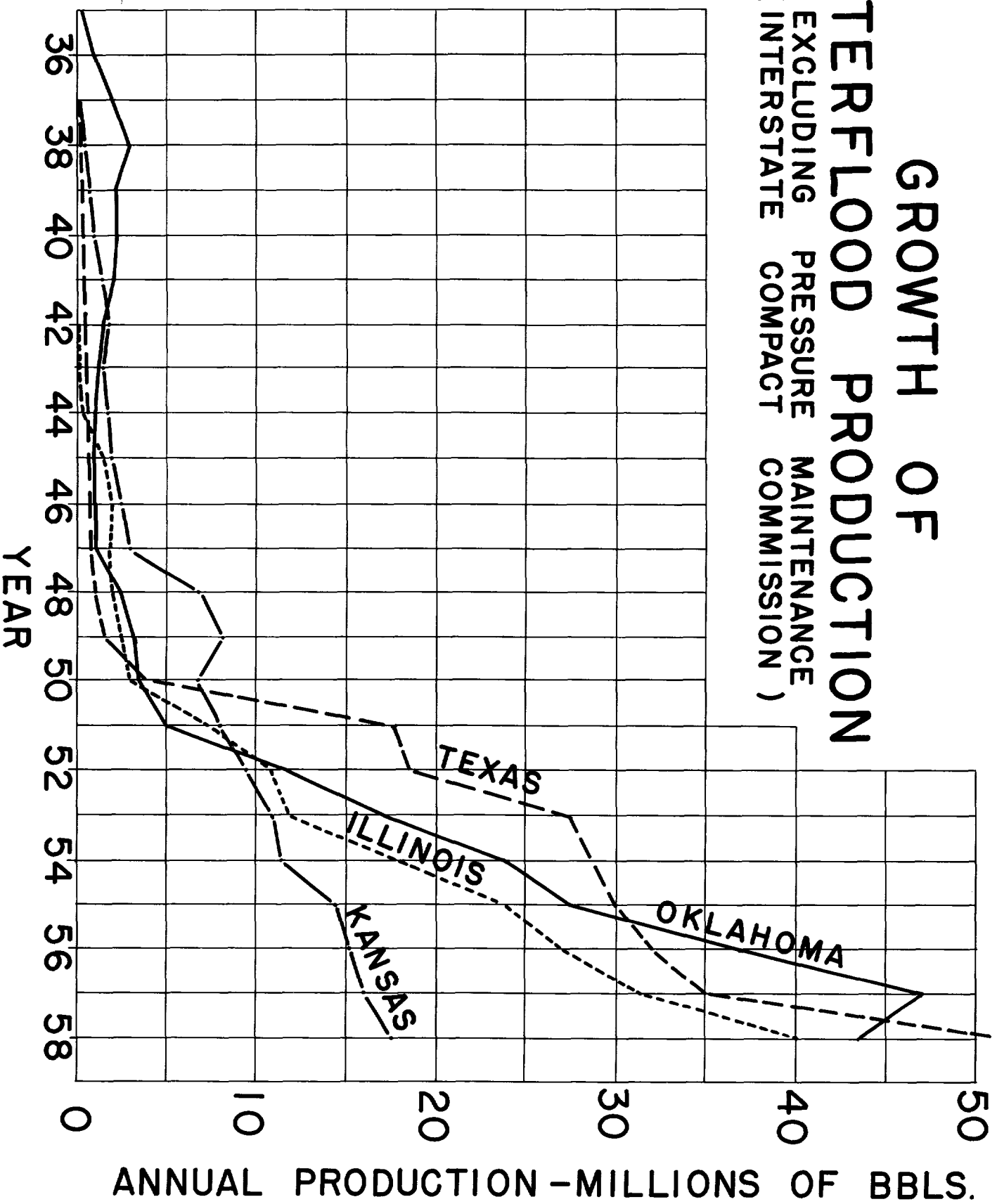
*DEVELOPMENT COST

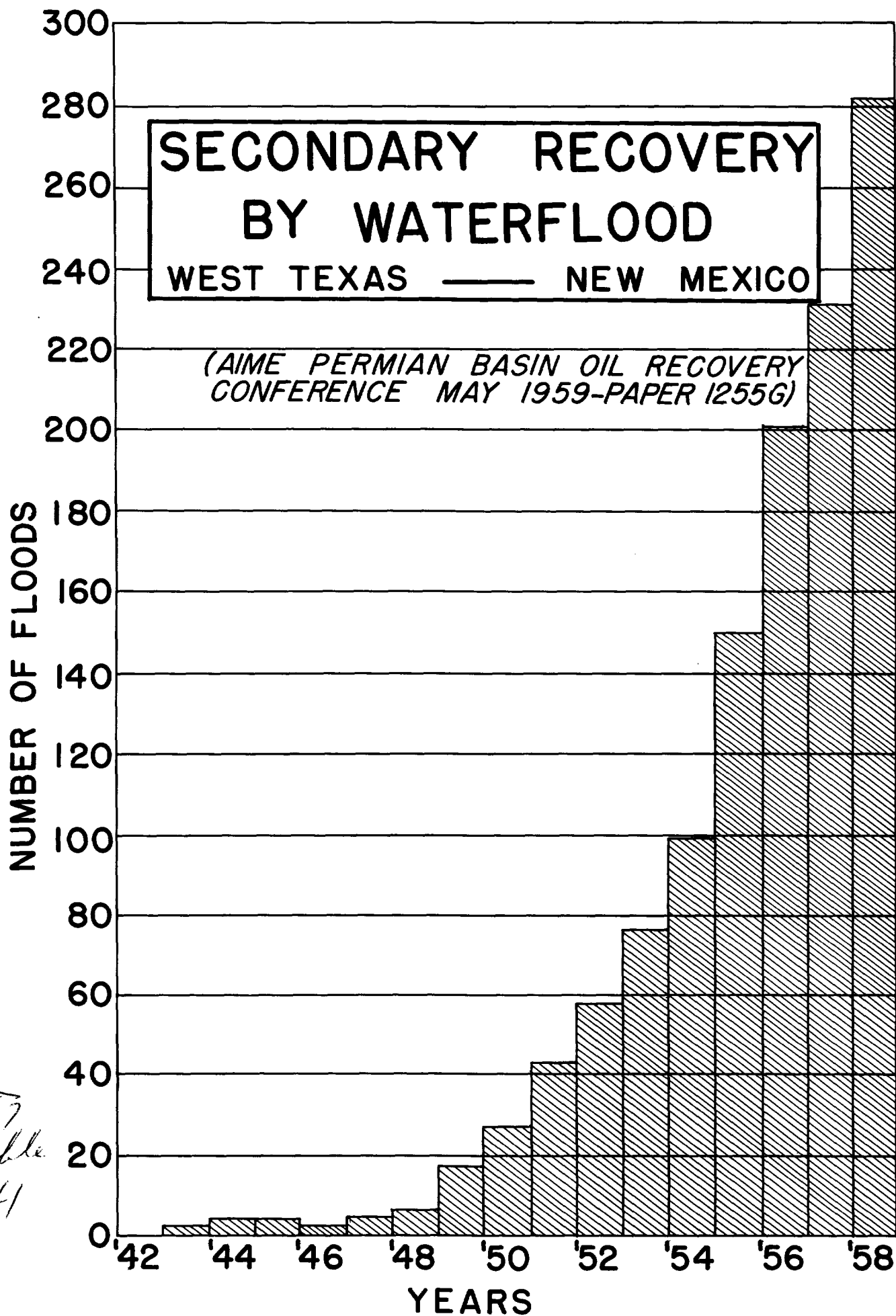
UNITED STATES SECONDARY RECOVERY WATERFLOOD PRODUCTION (INTERSTATE COMPACT COMMISSION)



Done 1787
Humble
Ex 39

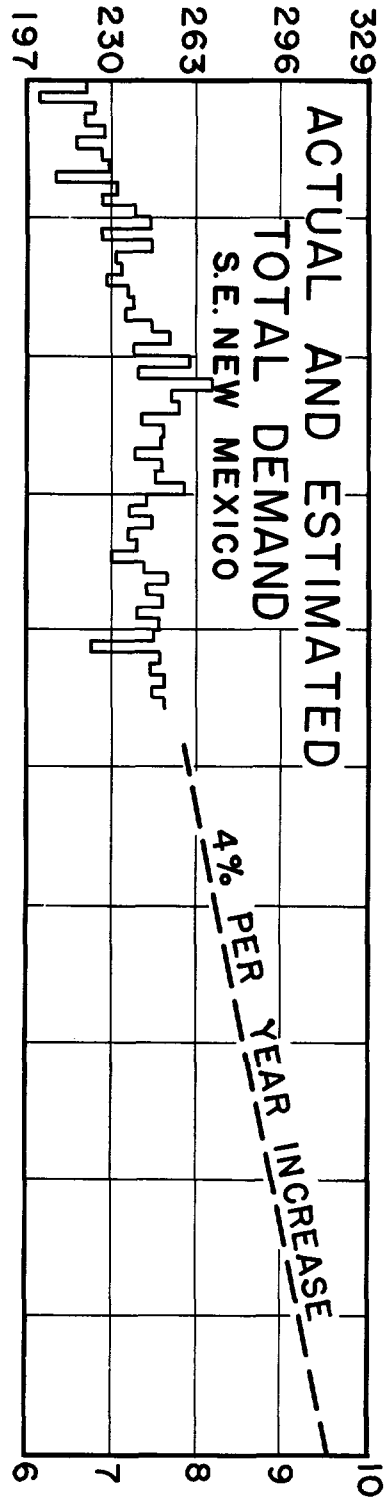
GROWTH OF WATERFLOOD PRODUCTION (EXCLUDING PRESSURE MAINTENANCE INTERSTATE COMPACT COMMISSION)





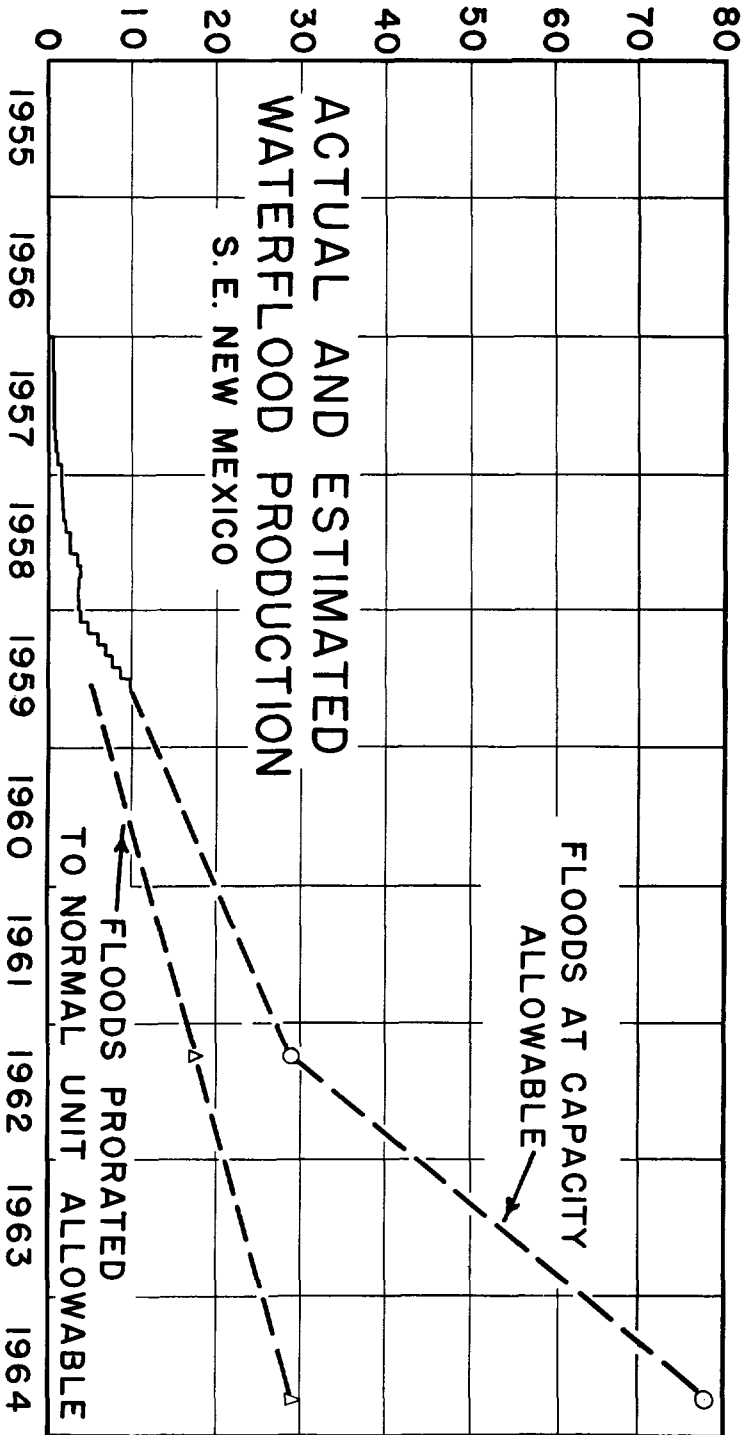
Base
1787
floods
Eq 41

ACTUAL AND ESTIMATED
PRODUCTION: M BBLS/DAY



ACTUAL AND ESTIMATED
PRODUCTION: MM BBLS./MONTH

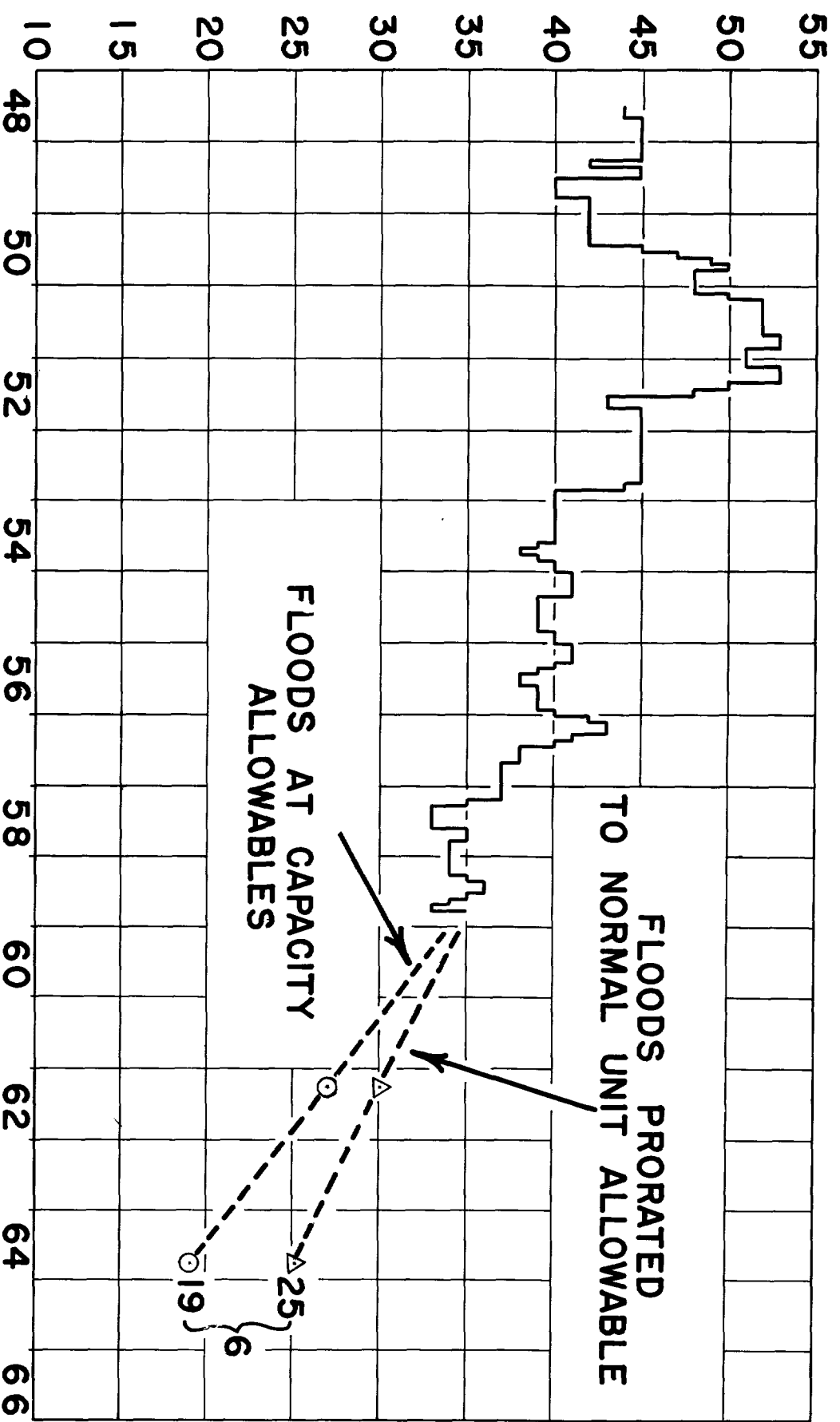
OIL PRODUCTION DUE
TO WATERFLOODS:
M BBLS/DAY



Case 1787
Humble
et al No. 42

COMPARISONS OF S.E. NEW MEXICO NORMAL UNIT ALLOWABLES UNDER CAPACITY OR PRORATED WATERFLOODING

UNIT ALLOWABLE : BBLs. / DAY



*Done
1287
Humble 6443*

CONCLUSIONS

1. FUTURE WATERFLOODING IN NEW MEXICO

Prospects Bright.

2. RISK IN WATERFLOODING

Less Than Industry Drilling Experiences.

3. WATERFLOODING INVESTMENT

Less Than General Industry Requirements.

4. PROFIT IN WATERFLOODING

Under Regulated Allowables, Profitability Several Fold Greater Than For Primary Drilling.

5. WATERFLOOD OIL EFFECT ON ALLOWABLES 5 YEARS HENCE

6 Bbl. Estimated Difference In Southeast New Mexico Normal Unit Allowable Depending On Whether Flood Oil Production Prorated Or Allowed At Capacity.

6. PRORATION OF WATERFLOOD ALLOWABLES

Is Sound Conservation Practice
Permits Attractive Profit
Places Flood Oil In Uniform Market Position
Prevents Preferential Treatment To Waterflood Operation.

7. HOW DO WE SPLIT THE POT?

Same Consistent General Bases Of Proration & Assignment Of Allowables For Primary, Secondary, Pressure Maintenance Production. Limited Exceptions To Initial Pilot Operations.

*Case 1761
Sample 8/44*

HUMBLE OIL & REFINING COMPANY EXHIBIT _____

PROZ

1911-1912: *Die Kunst der Kunst* (1911)
1913-1914: *Die Kunst der Kunst* (1913)

1915-1916: *Die Kunst der Kunst* (1915)
1917-1918: *Die Kunst der Kunst* (1917)

1919-1920: *Die Kunst der Kunst* (1919)
1921-1922: *Die Kunst der Kunst* (1921)

1923-1924: *Die Kunst der Kunst* (1923)
1925-1926: *Die Kunst der Kunst* (1925)
1927-1928: *Die Kunst der Kunst* (1927)

1929-1930: *Die Kunst der Kunst* (1929)
1931-1932: *Die Kunst der Kunst* (1931)
1933-1934: *Die Kunst der Kunst* (1933)
1935-1936: *Die Kunst der Kunst* (1935)

1937-1938: *Die Kunst der Kunst* (1937)
1939-1940: *Die Kunst der Kunst* (1939)
1941-1942: *Die Kunst der Kunst* (1941)
1943-1944: *Die Kunst der Kunst* (1943)

1945-1946: *Die Kunst der Kunst* (1945)
1947-1948: *Die Kunst der Kunst* (1947)
1949-1950: *Die Kunst der Kunst* (1949)
1951-1952: *Die Kunst der Kunst* (1951)

HUMBLE OIL & REFINING COMPANY
RULE 701 (PROPOSED)

A. Permit for Injection Required

The injection of gas, liquefied petroleum gas, air, water, or any other medium into any reservoir for the purpose of maintaining reservoir pressure or for the purpose of secondary recovery or the injection of water into any formation for the purpose of water disposal shall be permitted only by order of the Commission after notice and hearing, unless otherwise provided herein or unless previously provided for in special rules governing a specific pool.

B. Method of Making Application

Application for hearing to obtain authority for the injection of gas, liquefied petroleum gas, air, water, or any other medium into any formation for any reason shall include the following:

1. A plat showing the location of the proposed injection (well(s) and the location of all other wells within a radius of two miles of said proposed injection well(s), and the formation from which said wells are producing or have produced. The plat shall also indicate the lessees, if any there be, within said two-mile radius.
2. A log of the proposed injection well(s) if same is available.
3. A description of the proposed injection well(s) casing program.
4. Such other pertinent information as the name and depth of the zone or formation into which injection will be made, the kind of fluid to be injected, the anticipated amounts to be injected, and the source of said injection fluid.

Denise
Case 1787

Humble Ex 45

C. Salt Water Disposal Wells (Copy of Rule 701-C now in effect)

The Secretary-Director of the Oil Conservation Commission shall have authority to grant an exception to the requirements of Rule 701 (a) above for water disposal wells only, without notice and hearing when the waters to be disposed of are mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use, and when said waters are to be disposed of into a formation of greater than Triassic age (Lea County only) which is non-productive of oil and/or gas within a radius of two miles from the proposed injection well, providing that any water occurring naturally within said disposal formation is mineralized to such a degree as to be unfit for domestic, stock, irrigation and/or other general use.

Same To obtain such administrative approval, operator shall submit in triplicate to the Commission at Santa Fe Commission form entitled, "Application to Dispose of Salt Water by Injection Into a Porous Formation Not Productive of Oil or Gas," together with evidence that a copy of said application was sent to the State Engineer's Office, Box 1079, Santa Fe, New Mexico, as well as to all offset operators and the surface owner of the land upon which the well is located.

If no objection is received within 15 days from the date of receipt of the application, the Secretary-Director is satisfied that all of the requirements above have been complied with and that the well is to be cased and cemented in such a manner that there will be no danger to oil, gas, or fresh water reservoirs, an administrative order approving the disposal well may be issued. In the event that the application is not granted administratively, it shall be set for public hearing.

The Commission may dispense with the 15-day waiting period if waivers of objection are received from all offset operators and the surface owner, and no objection is made by the State Engineering Office.

The first part of the paper discusses the importance of the study and the objectives of the research. It also mentions the scope of the study and the limitations of the study.

The second part of the paper discusses the methodology used in the study. It mentions the data sources and the data collection methods used in the study.

The third part of the paper discusses the results of the study. It mentions the findings of the study and the conclusions drawn from the study.

The fourth part of the paper discusses the implications of the study. It mentions the practical implications of the study and the theoretical implications of the study.

The fifth part of the paper discusses the limitations of the study. It mentions the limitations of the study and the areas for future research.

The sixth part of the paper discusses the conclusion of the study. It mentions the conclusion of the study and the overall findings of the study.

The seventh part of the paper discusses the references of the study. It mentions the references used in the study and the sources of the study.

The eighth part of the paper discusses the appendix of the study. It mentions the appendix of the study and the additional information provided in the study.

The ninth part of the paper discusses the bibliography of the study. It mentions the bibliography of the study and the list of references used in the study.

The tenth part of the paper discusses the index of the study. It mentions the index of the study and the list of topics covered in the study.

The eleventh part of the paper discusses the glossary of the study. It mentions the glossary of the study and the list of terms used in the study.

The twelfth part of the paper discusses the list of figures of the study. It mentions the list of figures of the study and the list of tables used in the study.

The thirteenth part of the paper discusses the list of tables of the study. It mentions the list of tables of the study and the list of figures used in the study.

The fourteenth part of the paper discusses the list of appendices of the study. It mentions the list of appendices of the study and the list of references used in the study.

D. Project Area Defined

The project area shall comprise the proration units upon which injection wells are located plus all contiguous proration units which are substantially or totally enclosed by injection wells and which have producing wells completed on them.

In the following cases, the project area shall be limited to a reasonable number of proration units as determined by the Oil Conservation Commission on the basis of evidence submitted at hearing before the Commission:

1. Peripheral injection projects where certain proration units with producing wells on them may be substantially or totally enclosed by injection wells but are not contiguous with the tracts on which the injection wells are located.
2. Projects of the line-drive type where the injection wells do not enclose contiguous proration units which have producing wells completed on them.
3. Projects having injection patterns not covered by the above definitions.

E. Injection projects shall be expanded and additional wells placed on injection only upon authority from the Commission after notice and hearing or by administrative procedure in accordance with the following:

In order for a well to be added to a project by administrative approval for conversion to injection, it must be established to the satisfaction of the Secretary-Director of the Commission, that the proposed injection well is located on an injection pattern which will result in a thorough and efficient sweep of oil by the injected fluid in the project area being enlarged and also in conformance with the pattern used in other project areas in the pool.

Figure 1 consists of three maps labeled (a), (b), and (c). Map (a) shows the location of the study area within the Iberian Peninsula, with a scale bar from 0 to 100 km. Map (b) shows the location of the study area within the Iberian Peninsula, with a scale bar from 0 to 100 km. Map (c) shows the location of the study area within the Iberian Peninsula, with a scale bar from 0 to 100 km.

To obtain administrative approval for the conversion of any well to injection, applicant shall submit to the Commission in triplicate a request for such administrative approval, setting forth therein all the facts pertinent to the need for conversion of additional wells to injection, and attaching thereto Commission Form C-116, showing production tests of the affected well or wells both before and after stimulated by the flood. Applicant shall also attach plats of the project area and immediate surrounding area, indicating thereon the owner of each lease and the location of all injection wells and producing wells, and shall submit evidence that a copy of the application to convert additional wells to injection has been sent to each operator offsetting the proposed injection well and to the State Engineer.

The Secretary-Director may, if in his opinion there is need for conversion of additional wells to injection, authorize such conversion without notice and hearing, provided that no offset operator nor the State Engineer objects to the proposed conversion within fifteen (15) days. The Secretary-Director may grant immediate approval of the proposed conversion upon receipt of waivers of objection from all operators offsetting the proposed injection well and from the State Engineer.

F. Project Allowable

The allowable assigned to projects designed for the purpose of secondary recovery or for the purpose of pressure maintenance in reservoirs shall be determined as follows:

1. The initial project allowable prior to the demonstration of any effect

from injection shall be the sum of the current allowables of wells in the project area, as defined in 701.D and 701.E above, including allowables from wells placed on injection. Such allowables from injection wells may be

transferred to any well or wells in the project area capable of producing the additional allowable.

2. Upon demonstration of the effect of injection through evidence submitted to the Secretary-Director, the project allowable may be assigned equal to producing capacity as it increases but the allowable shall be limited to a maximum allowable equal to the number of proration units in the project area times the Normal Unit Allowable times the proportional factor for the pool.
3. The project area allowable may be produced from any well or wells in the project area in any proportion but shall not exceed the maximum set out in 701.F.2 above with the following exception:

In order to permit rapid evaluation of the effectiveness of injection and the feasibility of entering into a secondary recovery or pressure maintenance project, the initial pilot project in any pool may be granted a temporary allowable in excess of the number of proration units in the project area times the Normal Unit Allowable times the proportional factor for the pool for only such a period of time as is deemed necessary by the Oil Conservation Commission to permit adequate evaluation of the project.

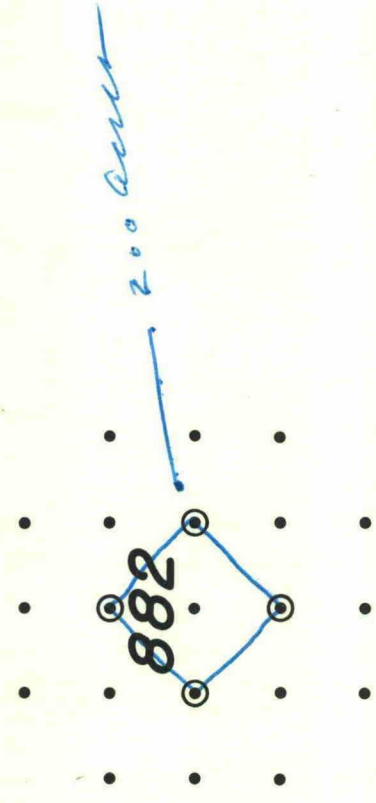
No definition of water level or ~~boundary~~ ^{measure} ---
Maintenance project

NMOCC FLOOD ALLOWABLE PROPOSAL

40-ACRE WELL SPACING

5-SPOT FLOOD

S.E. NEW MEXICO



21 WELLS X 40 AC/WELL=840 ACRES.
 21 WELLS X 42 BBLS./WELL = 882 BBL. ALLOWABLE.
 ALLOWABLE PER PROJECT ACRE = 1.05 BBLS.

Case 1787
Humble Ex. 46

NMOCC FLOOD ALLOWABLE PROPOSAL

10-ACRE WELL SPACING

5-SPOT FLOOD

S. E. NEW MEXICO

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.	<u>5/8</u>	.
.	⊙	⊙
.	.	⊙
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21 WELLS X 10 AC/WELL = 210 ACRES
 8 WELLS X 42 BBLS/WELL = 336 BBLS.
 13 WELLS X 14 BBLS/WELL = 182 BBLS.

518 BBL. ALLOWABLE.

ALLOWABLE PER PROJECT ACRE = 2.47 BBLS.

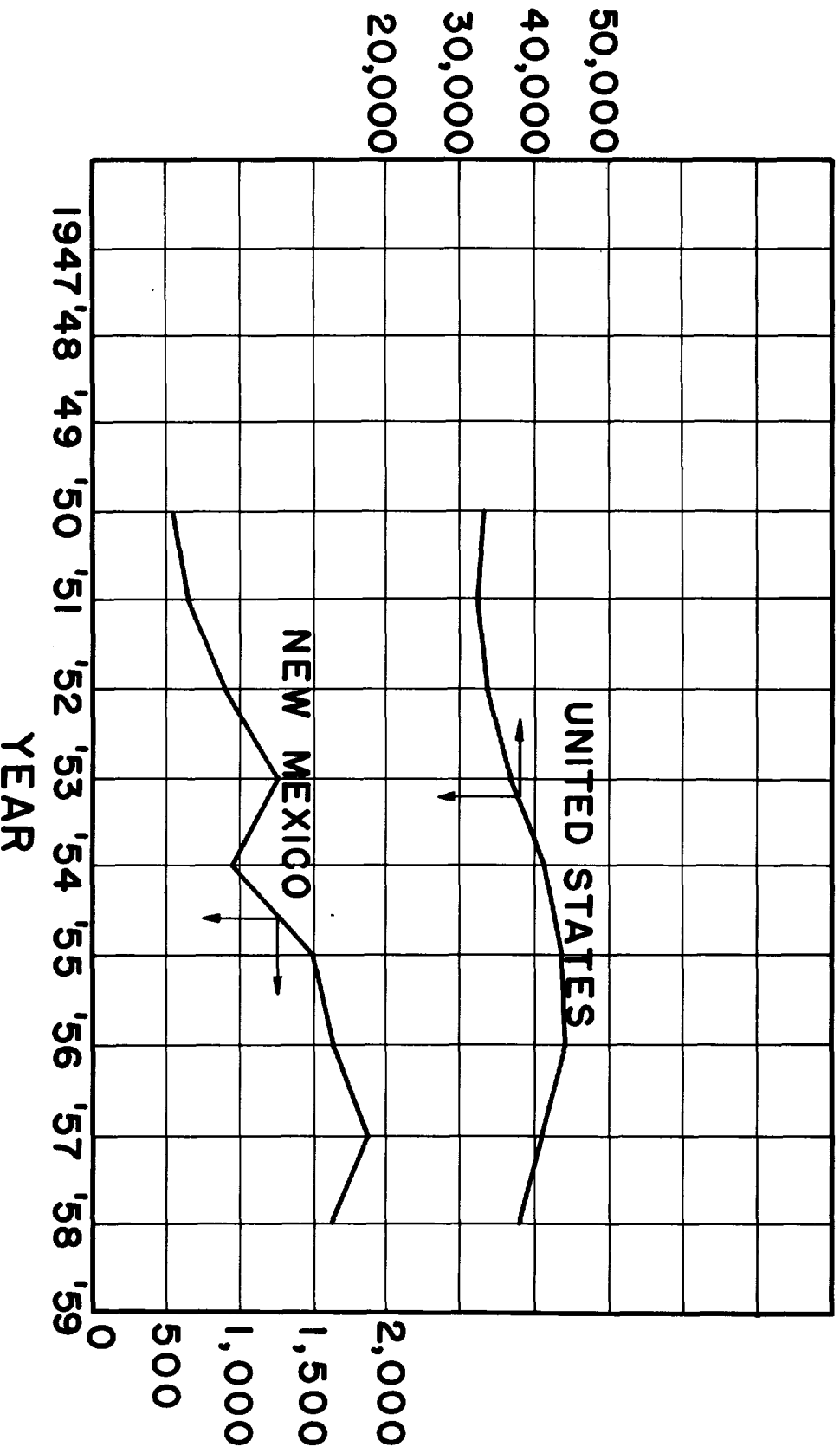
*Done 12/27
 Humble et al*

HUMBLE OIL & REFINING CO. EXHIBIT—

ANNUAL FIELD WELL DRILLING UNITED STATES

NEW MEXICO

(OIL & GAS JOURNAL - UNITED STATES)
(COMPANY RECORDS - NEW MEXICO)



FIELD WELLS COMPLETED ANNUALLY
UNITED STATES

FIELD WELLS COMPLETED ANNUALLY
NEW MEXICO

*Case 1787
Humble Ex 42*

IN THE MATTER OF THE APPLICATION OF NADEL AND
GUSMAN FOR PERMISSION TO WATERFLOOD THE MISSISSIPPI
CHAT FORMATION UNDERLYING THE SOUTHEAST QUARTER (SE/4)
OF SECTION 19, TOWNSHIP 25N, RANGE 9E, OSAGE COUNTY,
OKLAHOMA.

CASE CD NO. 12,236

ORDER NO. 40099

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 25th day of June, 1939, at 10 o'clock a. m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

Jack Campbell, Attorney, appeared for the applicant, Nadel and Gusman; and Ferrill R. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Sellers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the cause and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

FINDINGS

1. That this is an application of Nadel and Gusman for permission and authority to operate a waterflood in the Mississippi Chat underlying the SE/4 of Section 19, Township 25 North, Range 9 East, Osage County, Oklahoma.

2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.

3. That the applicant is the owner and operator of an oil and gas lease on the above described land on which 10 wells have heretofore been completed in the Mississippi Chat found at the approximate depth of 2,275 feet and five of these wells are producing an average of approximately 8 barrels of oil per day.

4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all wells are or will be cased into the sand and cemented.

5. That it is possible that some restriction will have to be made on the amount of oil that can be produced from waterflood projects in this state, and the operator of this waterflood should take notice of this condition at this time, and conduct the operation of this waterflood in such a manner that compliance can be made with any order of the Commission placing a restriction on the amount of oil that can be produced from this waterflood project.

6. That in the interest of securing the greatest ultimate recovery of oil from the peak, the prevention of waste and the protection of correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that Nadel and Gusman be and it is hereby permitted and authorized to operate a waterflood in the Mississippi Chat underlying the SE/4 of Section 19, Township 25 North, Range 9 East, Osage County, Oklahoma.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 25th day of June, 1939.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
Ray C. Jones, Chairman

Wilburn Cartwright
Wilburn Cartwright, Vice-Chairman

ATTEST:

Harold Freeman
Harold Freeman, Commissioner

Carl B. Mitchell
Secretary

in

ILLEGIBLE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
CASE EXHIBIT No. 49

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

CASE

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF UNITED PRODUCING)
 COMPANY, INC., FOR PERMISSION TO INSTITUTE A WATER)
 FLOOD SECONDARY RECOVERY PROGRAM IN THE PERU SAND)
 UNDERLYING LOTS 2, 3, 4 AND 5, LYING NORTH OF THE)
 CIMARRON RIVER IN SECTION 12, TOWNSHIP 18 NORTH,)
 RANGE 4 EAST; AND THE SW/4 OF SECTION 7, TOWNSHIP)
 18 NORTH, RANGE 5 EAST, PAYNE COUNTY, OKLAHOMA.)

CAUSE CD NO. 12,255

ORDER NO. 40100

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 25th day of June, 1959, at 10 o'clock a. m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

Geo. Gysel, Attorney, appeared for the applicant, United Producing Company, Inc.; and Ferrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Sollars, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the cause and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

FINDINGS

1. That this is an application of United Producing Company, Inc., for permission and authority to operate a waterflood in the Peru Sand underlying Lots 2, 3, 4 and 5, lying North of the Cimarron River in Section 12, Township 18 North, Range 4 East, and the SW/4 of Section 7, Township 18 North, Range 5 East, Payne County, Oklahoma.
2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.
3. That the applicant is the owner and operator of oil and gas leases on the above described land on which six wells are completed in the Peru Sand found at the approximate depth of 2,500 feet and are producing a total of approximately 15 barrels of oil per day.
4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all wells are or will be completed by setting casing into or through the sand and cementing the same.
5. That it is possible that some restriction will have to be made on the amount of oil that can be produced from waterflood projects in this state, and the operator of this waterflood should take notice of this condition at this time, and conduct the operation of this waterflood in such a manner that compliance can be made with any order of the Commission placing a restriction on the amount of oil that can be produced from this waterflood project.
6. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that United Producing Company, Inc., be and it is hereby permitted and authorized to operate a waterflood in the Peru Sand underlying Lots 2, 3, 4 and 5, lying North of the Cimarron River in Section 12, Township 18 North, Range 4 East, and the SW/4 of Section 7, Township 18 North, Range 5 East, Payne County, Oklahoma.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 25th day of June, 1959.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
 Ray C. Jones, Chairman

Wilburn Cartwright
 Wilburn Cartwright, Vice-Chairman

Harold Freeman
 Harold Freeman, Commissioner

ATTEST:

Carl B. Whitcomb
 Secretary

In

ILLEGIBLE

BEFORE THE
 OIL CONSERVATION COMMISSION
 SANTA FE, NEW MEXICO
 EXHIBIT No. 1

CASE

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF GENERAL AMERICAN
OIL COMPANY OF TEXAS, A CORPORATION, FOR AUTHORITY TO
CONDUCT WATERFLOOD OPERATIONS IN THE FERTS SAND, CONSON
SOURCE OF SUPPLY UNDERLYING THE NE 1/4 OF SECTION 13, AND
LOTS 1, 2, 3 AND 4 AND THE SW 1/4 SW 1/4, TOGETHER WITH ALL
ACCRETIONS AND RIPARIAN RIGHTS TO THE CENTER OF THE
GIMARRON RIVER IN SECTION 12, ALL IN TOWNSHIP 18 NORTH,
RANGE 4 EAST, MAYNE COUNTY, OKLAHOMA.

CAUSE NO. 12,260

ORDER NO. 40101

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 25th day of June, 1939, at 10 o'clock a. m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

Jack High, Attorney, appeared for the applicant, General American Oil Company of Texas; Geo. Gayal, Attorney, appeared for United Producing Company, Inc.; and Ferrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Soliers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the cause and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

FINDINGS

1. That this is an application of General American Oil Company of Texas for permission and authority to operate a waterflood in the Fert's Sand underlying the NE 1/4 of Section 13, and Lots 1, 2, 3 and 4 and the SW 1/4 of the SW 1/4, together with all accretions and riparian rights to the center of the Gimarron River in Section 12, all in Township 18 North, Range 4 East, Mayne County, Oklahoma.
2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application; and United Producing Company, Inc., concurs in the application.
3. That the applicant and the United Producing Company, Inc., are the owners of oil and gas leases on the above described land the General American Oil Company of Texas is the operator; that seven wells have heretofore been completed in the Fert's Sand on the above described lands and at this time six of said wells are producing an average of approximately 3 barrels of oil per day.
4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all wells are or will be cased to or through the sand and cemented.
5. That it is possible that some restriction will have to be made on the amount of oil that can be produced from waterflood projects in this state, and the operator of this waterflood should take notice of this condition at this time, and conduct the operation of this waterflood in such a manner that compliance can be made with any order of the Commission placing a restriction on the amount of oil that can be produced from this waterflood project.
6. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that General American Oil Company of Texas be and it is hereby permitted and authorized to operate a waterflood in the Fert's Sand underlying the NE 1/4 of Section 13, and Lots 1, 2, 3 and 4 and the SW 1/4 of the SW 1/4 together with all accretions and riparian rights to the center of the Gimarron River in Section 12, all in Township 18 North, Range 4 East, Mayne County, Oklahoma.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 25th day of June, 1939.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
Ray C. Jones, Chairman

Wilburn Cartwright
Wilburn Cartwright, Vice-Chairman

Harold Freeman
Harold Freeman, Commissioner

ATTEST:

Charles B. McCall
Secretary

In

ILLEGIBLE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO,

EXHIBIT No. 3

CASE

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF MURPHY OIL COMPANY) CAUSE CD NO. 12,303
OF OKLAHOMA FOR PERMISSION TO WATERFLOOD THE THOMAS SAND)
UNDERLYING THE SE/4 AND THE SW/4 OF SECTION 6, TOWNSHIP)
5 SOUTH, RANGE 12 WEST, COTTON COUNTY, OKLAHOMA.) ORDER NO. 40061

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 9th day of July, 1959, at 10 o'clock a.m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

David M. Thornton, Attorney, appeared for the applicant, Murphy Oil Company; Ferrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Sellers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the cause and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

F I N D I N G S

1. That this is an application of Murphy Oil Company of Oklahoma, Inc., for permission and authority to operate a waterflood in the Thomas Sand underlying the S/2 of Section 6, Township 5 South, Range 12 West, Cotton County, Oklahoma.
2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.
3. That the applicant is the owner and operator of oil and gas leases on the above described land on which some 30 wells have been completed in the Thomas Sand found at the approximate depth of 1550 feet, and some 20 of said wells are producing a total of approximately 40 barrels of oil per day.
4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all wells are or will be cased to the top of the sand and cemented.
5. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

O R D E R

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that Murphy Oil Company of Oklahoma, Inc., be and it is hereby permitted and authorized to operate a waterflood in the Thomas Sand underlying the S/2 of Section 6, Township 5 South, Range 12 West, Cotton County, Oklahoma.

IT IS FURTHER ORDERED that the daily production from this waterflood operation shall be limited to that amount of oil calculated by multiplying the number of oil-producing wells on the lease times the basic daily oil allowable fixed by the Commission for unallocated wells in the state.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 9th day of July, 1959.

CORPORATION COMMISSION OF OKLAHOMA

ATTEST:

Carl B. Mitchell
Secretary

Ray C. Jones Chairman
Wilburn Cartwright Vice-Chairman
Harold Freeman Commissioner

wd

ILLEGIBLE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. 1
CASE

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF WILLIAM J. LAMBERTON)
FOR AUTHORITY TO CONDUCT WATERFLOOD OPERATIONS UPON THE)
NORTHWEST QUARTER (NW/4) OF SECTION 17, TOWNSHIP 14 NORTH,)
RANGE 13 EAST, OSAGE COUNTY, OKLAHOMA, IN THE)
BARTLESVILLE SAND.)

CAUSE CD NO. 12,340

ORDER NO. 40128

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 16th day of July, 1939, at 10 o'clock a. m., in the Commission's Courtroom, Capital Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

R. Robert Huff, Attorney, appeared for the applicant, William J. Lambertson; and Ferrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Sellers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the cause and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

FINDINGS

1. That this is an application of William J. Lambertson for permission and authority to operate a waterflood in the Bartlesville Sand underlying the NW/4 of Section 17, Township 14 North, Range 13 East, Osage County, Oklahoma.
2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.
3. That the applicant is the operator of an oil and gas lease on the above described land on which there are 3 wells completed in the Bartlesville Sand at the approximate depth of 1,250 feet which are producing a total of approximately 20 barrels of oil per day.
4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all wells are cased through the sand and cemented.
5. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that William J. Lambertson be and he is hereby permitted and authorized to operate a waterflood in the Bartlesville Sand underlying the NW/4 of Section 17, Township 14 North, Range 13 East, Osage County, Oklahoma.

IT IS FURTHER ORDERED that the daily production from this waterflood operation shall be limited to that amount of oil calculated by multiplying the number of oil-producing wells on the lease times the basic daily oil allowable fixed by the Commission for unallocated wells in the state.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 16th day of July, 1939.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
Ray C. Jones, Chairman

Wilburn Cartwright
Wilburn Cartwright, Vice-Chairman

ATTEST:

Harold Freeman
Harold Freeman, Commissioner

Paul B. Williams
Secretary

in

ILLEGIBLE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO,
EXHIBIT No. 1
CASE

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF PAN AMERICAN
PETROLEUM CORPORATION FOR PERMISSION TO WATERFLOOD
AN AREA IN THE FRIDDY SAND COMMON SOURCE OF SUPPLY
IN THE WALTERS FIELD, COTTON COUNTY, OKLAHOMA)

CAUSE CD NO. 12,346

ORDER NO. 40132

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 16th day of July, 1959, at 10 o'clock a. m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

Norton Standeven, Attorney, appeared for the applicant, Pan American Petroleum Corporation; and Ferrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Sellers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the cause and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

FINDINGS

1. That this is an application of Pan American Petroleum Corporation for permission and authority to operate a waterflood in the Friddy Sand underlying the SW/4 of Section 3 and the SE/4 of Section 4 except a 1 1/2-acre tract in the Southeast corner of said Section 4, all in Township 2 South, Range 10 West, Cotton County, Oklahoma.

2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.

3. That the applicant and the Magnolia Petroleum Company and the Tennessee Gas Transmission Company are the owners of oil and gas leases on the above described land and the Pan American Petroleum Corporation is designated as the operator thereof; that there are 21 wells now located on said lands that are completed in the Friddy Sand found at the approximate depth of 2,150 feet that are producing a total of approximately 80 barrels of oil per day.

4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all wells are or will be cased to the Friddy Sand and cemented.

5. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that Pan American Petroleum Corporation be and it is hereby permitted and authorized to operate a waterflood in the Friddy Sand underlying the SW/4 of Section 3 and the SE/4 of Section 4 except a 1 1/2-acre tract in the Southeast corner of said Section 4, all in Township 2 South, Range 10 West, Cotton County, Oklahoma.

IT IS FURTHER ORDERED that the daily production from this waterflood operation shall be limited to that amount of oil calculated by multiplying the number of oil-producing wells on the lease times the basic daily oil allowable fixed by the Commission for unallocated wells in the state.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 16th day of July, 1959.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
Ray C. Jones, Chairman

Wilburn Cartwright
Wilburn Cartwright, Vice-Chairman

Harold Freeman
Harold Freeman, Commissioner

ATTEST:

Carl D. Williams
Secretary

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ILLEGIBLE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. _____
CASE _____

investment of the several lessees in the project as of the effective date of unit operations; (e) the creation of an operating committee and appropriate sub-committee for the general overall management and control of the unit and the conduct of its business and affairs and the operations carried on by it; (f) the time when the Plan of Unitization shall become and be effective, and (g) the time when, and conditions under which, and the method by which the unit shall or may be dissolved and its affairs wound up.

9. That the application herein and the Plan of Unitization, with respect to such unit, presented for approval conform to and comply with the requirements of Senate Bills 203 of the Oklahoma Legislature, being Sections 287.1 to 287.15, inclusive, Oklahoma Statutes 1951; that said Plan has been accepted and signed by more than 63.00 percent of the lessees of record within the unit area; that said Plan of Unitization has been signed or in writing ratified and approved by more than 63.00 percent of the owners of record of the normal one-eighth (1/8th) royalty interest within the unit area, exclusive of royalty interests owned by lessees or by subsidiaries of any lessee.

10. The amount of oil to be produced from this Unit should be fixed by the Commission at each regular market demand hearing.

11. That the application herein is supported by substantial evidence, and, in order to secure the greatest ultimate recovery of oil from the common source of supply covered hereby, to prevent waste and to protect correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of the State of Oklahoma, as follows:

1. That the petition filed herein be, and the same is hereby granted.
2. That the creation of the Byng, Conservation and Wetley Fields Thurman Sand Unit is hereby approved and same is hereby created in accordance with and upon and subject to the terms, provisions and conditions of the Plan of Unitization referred to above.
3. That the Plan of Unitization, which is attached to the application herein, is made a part of this order by reference, and is hereby approved, and such Plan of Unitization shall constitute the Plan of Unitization in and for said Unit and the unit area of such unit, all to the same extent and with the same force and effect as if copied herein in its entirety.
4. That the unit area of the unit so created shall include all of the lands which are hereinabove described, being the tracts shown on the plat which is attached to the Plan of Unitization, marked Exhibit "A".
5. That each of such tracts located in the unit area shall become, subject to the terms and provisions of the Plan of Unitization, participants in the unit production and in the other benefits and burdens of the Unit in accordance with the provisions of the Plan of Unitization.
6. That such unit and the unit operator shall, from time to time, make such reports to the Commission concerning the operation of the unit as may be requested by the Commission.
7. That the amount of oil to be produced from this unit shall be fixed by the Commission at each regular market demand hearing.
8. That the Commission retains continuing jurisdiction over said unit for the purpose of amending, modifying and interpreting of the terms and provisions of this order and the Plan of Unitization of said unit.
9. This order shall become effective immediately

DONE AND PERFORMED this 31st day of July, 1959.

CORPORATION COMMISSION OF OKLAHOMA

ATTEST:

Carl B. Mitchell

Ray C. Jones, Chairman
William C. Wright, Vice-Chairman
Harold E. Freeman, Commissioner

ILLEGIBLE

IN THE MATTER OF THE APPLICATION OF GREAT PLAINS PETROLEUM CORPORATION FOR PERMISSION TO INJECT SALT WATER INTO THE PRUE SAND FORMATION FOR THE PURPOSE OF SECONDARY RECOVERY OPERATIONS IN AND UNDER LOTS ONE (1) AND TWO (2) (BEING THE W/2 OF THE NW/4) AND THE SE/4 OF THE NW/4 AND THE S/2 OF THE NE/4 OF THE NW/4 AND THE NE/4 OF THE NE/4 OF THE NW/4 OF SECTION THIRTY-ONE (31), TOWNSHIP FIFTEEN (15) NORTH, RANGE EIGHT (8) EAST, CREEK COUNTY, OKLAHOMA) CAUSE CD NO. 12,419) ORDER NO. 20262)

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 31st day of July, 1939, at 10 o'clock a. m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

Everett Barry, Robert Burton and Don Worthington, Attorneys, appeared for the applicant, Great Plains Petroleum Corporation; and Ferrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Sollers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the cause and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

FINDINGS

1. That this is an application of Great Plains Petroleum Corporation for permission and authority to operate a waterflood in the Prue Sand underlying Lots 1 and 2 (being the W/2 of the NW/4) and the SE/4 of the NW/4 and the S/2 of the NE/4 of the NW/4 and the NE/4 of the NE/4 of the NW/4 of Section 31, Township 15 North, Range 8 East, Creek County, Oklahoma.
2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.
3. That the applicant is the owner and operator of oil and gas leases on the above described land on which there are seven wells completed in the Prue Sand at the approximate depth of 2,450 feet and said wells are producing approximately one barrel of oil per well per day.
4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all wells are cased through the sand and cemented.
5. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that Great Plains Petroleum Corporation be and it is hereby permitted and authorized to operate a waterflood in the Prue Sand underlying Lots 1 and 2 (being the W/2 of the NW/4) and the SE/4 of the NW/4 and the S/2 of the NE/4 of the NW/4 and the NE/4 of the NE/4 of the NW/4 of Section 31, Township 15 North, Range 8 East, Creek County, Oklahoma.

IT IS FURTHER ORDERED that the daily production from this waterflood operation shall be limited to that amount of oil calculated by multiplying the number of oil-producing wells on the lease times the basic daily oil allowable fixed by the Commission for unallocated wells in the state.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 31st day of July, 1939.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
Ray C. Jones, Chairman
Wilburn Cartwright
Wilburn Cartwright, Vice-Chairman
Harold Freeman
Harold Freeman, Commissioner

ATTEST:

Carl B. Mitchell
Secretary

In

ILLEGIBLE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO.
EXHIBIT No. 36
CASE

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF DOBBINS & BRANCH)
FOR AN ORDER PERMITTING THE INJECTION OF WATER FOR)
SECONDARY RECOVERY IN THE PERMIAN SAND AND IN THE LOCO)
SAND ON THE WHEELER LEASE COVERING THE W/2 SE/4 NW/4)
AND SW/4 NW/4 AND W/2 NE/4 SW/4 AND SE/4 NE/4 SW/4)
AND THE NW/4 NW/4 AND N/2 SE/4 SW/4 OF SECTION 15, TOWNSHIP 3 SOUTH, RANGE 3 WEST, STEPHENS COUNTY, OKLAHOMA.)

CAUSE NO. 12,434

ORDER NO. 40414

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 3rd day of September, 1959, at 10 o'clock a.m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

Geo. W. Gray, Attorney, appeared for the applicant, Dobbins & Branch; Parrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Sellers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the case and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

F I N D I N G S

1. That this is an application of Dobbins & Branch for permission and authority to operate a waterflood in the Permian Sand and the Loco Sand underlying the W/2 SE/4 NW/4 and the SW/4 NW/4 and the W/2 NE/2 SW/4 and the SE/4 NE/4 SW/4 and the NW/4 SW/4 and the N/2 SE/4 SW/4 of Section 15, Township 3 South, Range 3 West, Stephens County, Oklahoma.

2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.

3. That the applicant is the owner and operator of oil and gas leases on the above described land on which 5 wells have been completed in the Loco Sand found between the depths of 950 feet and 1000 feet which are now producing about 5 barrels each per day and 5 wells are completed in the Permian Sand found between the depths of 200 feet and 500 feet and are producing about 1 barrel of oil each per day.

4. That the applicant believes there are substantial quantities of oil in said formations underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all wells are or will be cased to or through the sand and cemented to the surface.

5. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

O R D E R

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that Dobbins & Branch be, and they are hereby permitted and authorized to operate a waterflood in the Permian Sand and the Loco Sand underlying the W/2 SE/4 NW/4 and SW/4 NW/4 and the W/2 NE/4 SW/4 and SE/4 NE/4 SW/4 and NW/4 SW/4 and N/2 SE/4 SW/4 of Section 15, Township 3 South, Range 3 West, Stephens County, Oklahoma.

IT IS FURTHER ORDERED that the daily production from this waterflood operation shall be limited to that amount of oil calculated by multiplying the number of oil-producing wells on the lease times the basis daily oil allowable fixed by the Commission for unconsolidated wells in the state.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 3rd day of September, 1959.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
Ray C. Jones, Chairman

Wilburn Cartwright
Wilburn Cartwright, Vice-Chairman

Harold Freeman
Harold Freeman, Commissioner

ATTEST:

Conservation Attorney
Conservation Attorney

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ILLEGIBLE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. 100

CASE

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN RE: APPLICATION OF PARAMORE OIL COMPANY, A PARTNERSHIP)
 COMPOSED OF HARRY E. PARAMORE, PAUL PARAMORE, FRED PARAMORE) CAUSE NO. 12,442
 AND DOROTHY A. HAMILTON FOR PERMISSION TO WATER FLOOD THE)
 SHALLOW LOCO SANDS UNDERLYING THE SW/4, AND THE NW/4 SW/4) ORDER NO. 40421
 OF SECTION 16, TOWNSHIP 3 SOUTH, RANGE 5 WEST, STEPHENS)
 COUNTY, OKLAHOMA.)

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 3rd day of September, 1939, at 10 o'clock a.m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

J. G. Clift, Attorney, appeared for the applicant, Paramore Oil Company; Ferrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Sellers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the case and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

F I N D I N G S

1. That this is an application of Paramore Oil Company, a partnership composed of Harry E. Paramore, Paul Paramore, Fred Paramore and Dorothy A. Hamilton, for permission and authority to operate a waterflood in the Loos Sands underlying the SW/4 of the NW/4 and the NW/4 of the SW/4 of Section 16, Township 3 South, Range 5 West, Stephens County, Oklahoma.

2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.

3. That the applicants are the owners and operators of oil and gas leases on the above described land on which 12 wells have heretofore been completed in the Loos Sands between the depths of 200 feet and 300 feet and are producing about 3/4ths barrel of oil per well per day.

4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood thereon that would otherwise be lost; that all water injection wells will be cased to or through the sand and cemented to the surface and the producing wells will be cased to or through the sand and cemented.

5. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

O R D E R

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that Paramore Oil Company, a partnership composed of Harry E. Paramore, Paul Paramore, Fred Paramore and Dorothy A. Hamilton, be and it is hereby permitted and authorized to operate a waterflood in the Loos Sands underlying the SW/4 of the NW/4 and the NW/4 of the SW/4 of Section 16, Township 3 South, Range 5 West, Stephens County, Oklahoma.

IT IS FURTHER ORDERED that the daily production from this waterflood operation shall be limited to that amount of oil calculated by multiplying the number of oil-producing wells on the lease times the basic daily oil allowable fixed by the Commission for unallocated wells in the state.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 3rd day of September, 1939.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
 Ray C. Jones, Chairman
Wilburn Cartwright
 Wilburn Cartwright, Vice-Chairman
Harold Freeman
 Harold Freeman, Commissioner

ATTEST:

Carl B. [Signature]
 Secretary

wd

ILLEGIBLE

BEFORE THE
 OIL CONSERVATION COMMISSION
 SANTA FE, NEW MEXICO
 EXHIBIT No. 1
 CASE

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF G. D. SPRADLIN TO)
 CONDUCT WATERFLOOD OPERATIONS IN THE TUSSEY FORMATION IN) CAUSE CD NO. 12,444
 A PORTION OF THE S/2 OF SECTION 31, TOWNSHIP 1 NORTH,)
 RANGE 3 WEST, GARVIN COUNTY, OKLAHOMA.) ORDER NO. 40423

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 4th day of September, 1959, at 10 o'clock a. m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

G. D. Spradlin, Applicant, appeared in his own behalf; and Ferrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Sellers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the cause and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

FINDINGS

1. That this is an application of G. D. Spradlin for permission and authority to operate a waterflood in the Tussey Sands underlying the SW/4 of the SE/4 and the E/2 of the SE/4 of the SW/4 of Section 31, Township 1 North, Range 3 West, Garvin County, Oklahoma.

2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.

3. That the applicant is the owner and operator of oil and gas leases on the above described land on which six wells have heretofore been completed in the Tussey Sands found between the depths of 3,100 feet and 3,700 feet, and said wells have now declined in production until the applicant believes that it is time to begin the operation of secondary recovery.

4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that the applicant desires to operate said waterflood by injecting water into said formation through the Jones No. 1 Well located in the SE/4 of the SW/4 of the SE/4 of said Section 31; that said well has been completed by being cased with 89 feet of 10-3/4 inch casing cemented to the surface and 3,319 feet of 3-inch casing cemented with 230 sacks of cement; that all of the oil-producing wells are completed in a similar manner.

5. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that G. D. Spradlin be and he is hereby permitted and authorized to operate a waterflood in the Tussey Sands found between the depths of 3,100 feet and 3,700 feet underlying the SW/4 of the SE/4 and the E/2 of the SE/4 of the SW/4 of Section 31, Township 1 North, Range 3 West, Garvin County, Oklahoma, by injecting water into said formation through the Jones No. 1 Well located in the SE/4 of the SW/4 of the SE/4 of said Section 31.

IT IS FURTHER ORDERED that the daily production from this waterflood operation shall be limited to that amount of oil calculated by multiplying the number of oil-producing wells on the lease times the basic daily oil allowable fixed by the Commission for unallocated wells in the state.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no accident or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 4th day of September, 1959.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
 Ray C. Jones, Chairman

Wilburn Cartwright
 Wilburn Cartwright, Vice-Chairman

Harold Freeman
 Harold Freeman, Commissioner

ATTEST:

Carl B. Mitchell
 Secretary

In

ILLEGIBLE

BEFORE THE
 OIL CONSERVATION COMMISSION
 SANTA FE, NEW MEXICO
 EXHIBIT No. 6, 7
 CASE _____

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF ELIAS DRUMMER FOR)
AUTHORITY TO PROSECUTE WATER FLOOD OPERATIONS IN THE) CAUSE CD NO. 12,462
E/2 OF NW/4 OF SECTION 15, TOWNSHIP 28 NORTH, RANGE)
13 EAST, WASHINGTON COUNTY, OKLAHOMA AND IN THE NW/4)
OF NW/4 OF SECTION 21, TOWNSHIP 26 NORTH, RANGE 16) ORDER NO. 40435
EAST, NOWATA COUNTY, OKLAHOMA.)

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 9th day of September, 1959, at 10 o'clock a.m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

Allen M. Stocker, Attorney, appeared for the applicant, Elias Drummer; Ferrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. H. Sellers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the case and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

FINDINGS

1. That this is an application of Elias Drummer, for permission and authority to operate a waterflood in the Bartlesville Sand underlying the E/2 of the NW/4 of Section 15, Township 28 North, Range 13 East, Washington County, Oklahoma, and the NW/4 of the NW/4 of Section 21, Township 26 North, Range 16 East, Nowata County, Oklahoma.
2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.
3. That the applicant is the owner and operator of oil and gas leases on the above described land which have been heretofore developed in the Bartlesville Sand which is found at the approximate depth of 1300 feet in said Section 15, and 500 feet in said Section 21 and said wells have been produced to depletion and abandoned.
4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all injection wells will be cased to the sand and cemented to the surface and the producing wells will be cased to the top of the sand and cemented with approximately 30 sacks of cement and will have sufficient casing set and cemented to the surface sufficient to protect all fresh water.
5. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that Elias Drummer be and he is hereby, permitted and authorized to operate a waterflood in the Bartlesville Sand underlying the E/2 of the NW/4 of Section 15, Township 28 North, Range 13 East, Washington County, Oklahoma, and the NW/4 of the NW/4 of Section 21, Township 26 North, Range 16 East, Nowata County, Oklahoma.

IT IS FURTHER ORDERED that the daily production from this waterflood operation shall be limited to that amount of oil calculated by multiplying the number of oil-producing wells on the lease times the basic daily oil allowable fixed by the Commission for un-augmented wells in the state.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 9th day of September, 1959.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones Chairman
Wilburn Cartwright Vice-Chairman
Harold Freeman Commissioner

ATTEST:

Carl B. Mitchell
Secretary

wd

ILLEGIBLE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO,
EXHIBIT No. 101

CASE

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF C & S
OIL COMPANY, A CO-PARTNERSHIP, COMPOSED OF
G. W. CLAY AND K. E. SMITH, FOR AN ORDER
PERMITTING THE INJECTION OF WATER FOR THE
PURPOSE OF SECONDARY RECOVERY OF THE LOCO SAND
AS TO THE NW¹/₄ OF SW¹/₄ AND W¹/₂ OF SW¹/₄ OF SW¹/₄ AND
THE S¹/₂ OF SW¹/₄ OF SW¹/₄ OF SECTION 14, TOWNSHIP
3 SOUTH, RANGE 3 WEST, STEPHENS COUNTY, OKLAHOMA)

CAUSE NO. 12,523

ORDER NO. 40440

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 9th day of September, 1939, at 10 o'clock a. m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

K. E. Smith appeared for the applicant, C & S Oil Company, a co-partnership, composed of G. W. Clay and K. E. Smith; and Merrill H. Rogers, Conservation Attorney, and Lester B. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. E. Sellers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the cause and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

FINDINGS

1. That this is an application of C & S Oil Company, a co-partnership, composed of G. W. Clay and K. E. Smith, for permission and authority to operate a waterflood in the loco sand underlying the W¹/₂ of the SW¹/₄ of Section 14, Township 3 South, Range 3 West, Stephens County, Oklahoma.
2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.
3. That the applicant is the owner and operator of an oil and gas lease on the above described land on which there are 8 wells completed in the loco sand between the depths of 800 feet and 900 feet and said wells are producing approximately 4 barrels of oil per well per day.
4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all wells are or will be cased through the sand and cemented.
5. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that C & S Oil Company, a co-partnership, composed of G. W. Clay and K. E. Smith, be and it is hereby permitted and authorized to operate a waterflood in the loco sand underlying the W¹/₂ of the SW¹/₄ of Section 14, Township 3 South, Range 3 West, Stephens County, Oklahoma.

IT IS FURTHER ORDERED that the daily production from this waterflood operation shall be limited to that amount of oil calculated by multiplying the number of oil-producing wells on the lease times the basic daily oil allowable fixed by the Commission for unallocated wells in the state.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND PERFORMED this 9th day of September, 1939.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
Ray C. Jones, Chairman

Wilburn Cartwright
Wilburn Cartwright, Vice-Chairman

Harold Freeman
Harold Freeman, Commissioner

ATTEST:

Carl B. Mitchell
Secretary

ILLEGIBLE

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

EXHIBIT No. 1

CASE

BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF C & S OIL COMPANY
A CO-PARTNERSHIP, COMPOSED OF G. W. CLAY AND E. E. SMITH
FOR AN ORDER PERMITTING THE INJECTION OF WATER FOR THE
PURPOSE OF SECONDARY RECOVERY OF THE LOCO SAND AS TO
E $\frac{1}{2}$ SE $\frac{1}{4}$ AND THE S $\frac{1}{2}$ W $\frac{1}{2}$ SE $\frac{1}{4}$ AND THE S $\frac{1}{2}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ AND THE SE $\frac{1}{4}$
SW $\frac{1}{4}$ NE $\frac{1}{4}$ OF SECTION 15, TOWNSHIP 3 SOUTH, RANGE 5 WEST,
STEPHENS COUNTY, OKLAHOMA.

CAUSE CD NO. 12,524

ORDER NO. 40441

REPORT OF THE COMMISSION

This cause came on for hearing before the Corporation Commission of Oklahoma on the 9th day of September, 1939, at 10 o'clock a. m., in the Commission's Courtroom, Capitol Office Building, Oklahoma City, Oklahoma; the Honorable Ray C. Jones, Chairman, Wilburn Cartwright, Vice-Chairman, and Harold Freeman, Commissioner, sitting.

E. E. Smith appeared for the applicant, C & S Oil Company, a co-partnership, composed of G. W. Clay and E. E. Smith; and Ferrill H. Rogers, Conservation Attorney, and Lester D. Hoyt, Assistant Conservation Attorney, appeared for the Commission.

The case was called and referred to W. E. Sellers, Trial Examiner, for the purpose of taking testimony and reporting to the Commission.

The Trial Examiner heard the cause and has filed his report recommending that the application be granted, which report and recommendation are hereby adopted and the Commission therefore finds as follows:

FINDINGS

1. That this is an application of C & S Oil Company, a co-partnership, composed of G. W. Clay and E. E. Smith, for permission and authority to operate a waterflood in the loco sand underlying the E $\frac{1}{2}$ of the SE $\frac{1}{4}$ and the E $\frac{1}{2}$ of the W $\frac{1}{2}$ of the SE $\frac{1}{4}$ and the S $\frac{1}{2}$ of the SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ and the SE $\frac{1}{4}$ of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 15, Township 3 South, Range 5 West, Stephens County, Oklahoma.
2. That the Commission has jurisdiction over the subject matter herein; that notice has been given in all respects as required by law and the rules of the Commission and no protests have been entered to the granting of the application.
3. That the applicant is the owner and operator of an oil and gas lease on the above described land on which there are 21 wells completed in the loco sand found between the depths of 800 feet and 900 feet and said wells are producing approximately 2 barrels of oil per well per day.
4. That the applicant believes there are substantial quantities of oil in said formation underlying said land that can be recovered by operating a waterflood therein that would otherwise be lost; that all wells are or will be cased through the sand and cemented.
5. That in the interest of securing the greatest ultimate recovery of oil from the pool, the prevention of waste and the protection of correlative rights, this application should be granted.

ORDER

IT IS THEREFORE ORDERED by the Corporation Commission of Oklahoma that C & S Oil Company, a co-partnership, composed of G. W. Clay and E. E. Smith, be and it is hereby permitted and authorized to operate a waterflood in the loco sand underlying the E $\frac{1}{2}$ of the SE $\frac{1}{4}$ and the E $\frac{1}{2}$ of the W $\frac{1}{2}$ of the SE $\frac{1}{4}$ and the S $\frac{1}{2}$ of the SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ and the SE $\frac{1}{4}$ of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 15, Township 3 South, Range 5 West, Stephens County, Oklahoma.

IT IS FURTHER ORDERED that the daily production from this waterflood operation shall be limited to that amount of oil calculated by multiplying the number of oil-producing wells on the lease times the basic daily oil allowable fixed by the Commission for unallocated wells in the state.

IT IS FURTHER ORDERED that this waterflood shall be operated in such a manner that no detriment or damage will be done to any oil, gas or fresh water bearing formation.

DONE AND FORWARDED this 9th day of September, 1939.

CORPORATION COMMISSION OF OKLAHOMA

Ray C. Jones
Ray C. Jones, Chairman

Wilburn Cartwright
Wilburn Cartwright, Vice-Chairman

Harold Freeman
Harold Freeman, Commissioner

ATTEST:

Carl B. Mitchell
Secretary

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

CHAVES COUNTY

1424' Texas State 3080' Amerada State 3052' 11,518' 11,336' 8636' (PE 8585-9090) (SIL-DEV 10,575-11,045)

3015' Amerada State 3100' 10,834' 11,283' 3082'

DEV 11,676-11,302) N. CAPROCK E. CAPROCK WC 8400-8670 (DEV 12,140-11,300)

3038' 3080' 8670' 8697'

3045' 11,467' de Vegvar

3040' 3050' Vickers State 3050' 3052' 3044'

CAPROCK (Q 2995-3085)

3071' 3070'

BEFORE THE OIL CONSERVATION COMMISSION SANTA FE, NEW MEXICO EXHIBIT No. 4 CASE 1787

3072' 3075' 660'

WILLIAMS (PE)

12,460' Texas-Pacific

12,356' Texas-Pacific GROSS (DEV)

3878'

Ashmun-Hilliard 10,026'

10,675' Texas-Crude Spencer State

10,075 Champlin

BAUM (WC)

Texas Phillips 10,708' 13,465'

10,028'

13,500' Texas (A 8970-9530) (W 9405-9878)

TULK

10,013'

8245' Atlantic Stevens

10,885' Phillips State Phillips State 10,335'

Texas State

Gulf State 14,126' 1140'

Lawton State 13,14

11,173' 10,890'

T.P. Coal & Oil 13,655' Amerada State 5025'

32 33

32 12/54 12/52

Plymouth 9945'

10,250'

13,689'

4915'

33 12/57 12/58

Humble

Penrose State 5102'

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. 21
CASE 787

Jack
Campbell
+ Mr. Greenwell
W. J. Greenwell



NEW MEXICO OIL CONSERVATION COMMISSION
PURCHASER'S NOMINATIONS FOR CRUDE OIL NOVEMBER, 1959

SOUTHEAST NEW MEXICO

Continental	12,000	
Famariss	10	
Atlantic	4,105	-615
Cactus	2,811	-1109
Cities Service	11,420	/ 3
Gulf	22,000	
Magnolia	23,245	/ 200
Phillips	965	
Shell	32,200	-2100
Indiana	40,000	
Sinclair	30,000	
Texaco	32,000	
Tidewater	3,500	
McWood	3,710	- 2
Permian	2,907	/ 156
Graridge	282	- 3
High Lonesome	400	/ 25
Western Development	685	/ 80
Total Southeast New Mexico	222,240	-3365

NORTHWEST NEW MEXICO

El Paso	6,600	- 600
Shell	29,800	
Gulf	3,100	
Oriental	150	
Vanadium	25	- 3

Total Northwest New Mexico	39,675	- 603
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TOTAL NEW MEXICO	261,915	-3968
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ir/

RAILROAD COMMISSION OF TEXAS
OIL AND GAS DIVISION
AVERAGE CALENDAR DAY ALLOWABLE AS OF SEPTEMBER 26, 1959

(1)	(2)	(3)	(4)	(5)	(6)	
DISTRICTS	WELLS	SCHEDULE DAILY ALLOW	EXEMPT ALLOW	SCHEDULE DAILY ALLOW SUBJECT TO SHUTDOWN DAYS	COLUMN #4 CONVERTED TO CALENDAR DAY BASIS	TOTAL AVER CALENDAR DAY ALLOW COL. 3 + 5
1	8,202	73,804	42,604	31,200	9,360	51,964
2	5,728	300,42	27,338	273,083	81,925	109,263
3	13,053	802,372	173,964	628,408	188,522	362,486
4	12,401	454,604	75,890	378,714	113,614	189,504
5	3,350	70,198	16,514	53,684	16,105	32,619
6*	5,285	289,302	42,571	246,731	74,019	116,590
6**	19,361	375,393	30,799	344,594	103,378	134,177
7-B	17,217	345,004	90,240	254,764	76,429	166,669
7-C	8,002	330,199	50,560	279,639	83,892	134,452
8	54,063	2,896,503	301,191	2,595,312	775,920	1,077,111
9	33,081	432,622	192,370	240,252	72,076	264,446
10	12,299	195,753	139,455	56,298	16,899	156,344
TOTAL:	192,042	6,566,175	1,183,496	5,382,679	1,612,129	2,795,625

NOTE: 6* Denotes all of District 6 except the East Texas Field
6**Denotes the East Texas Field

TOTAL NUMBER OF WELLS AS OF SEPTEMBER 26, 1959192,042

TOTAL NUMBER OF WELLS AS OF SEPTEMBER 19, 1959.....191,838

INCREASE 204

TOTAL AVERAGE CALENDAR DAY ALLOWABLE AS OF SEPTEMBER 26, 1959 2,795,625

TOTAL AVERAGE CALENDAR DAY ALLOWABLE AS OF SEPTEMBER 19, 1959 2,779,346

INCREASE16,279

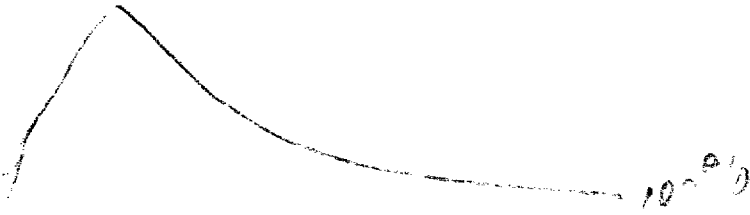
TOTAL NUMBER OF FIELDS6,688

TOTAL NUMBER OF FIELDS EXEMPT410

SEPTEMBER 26, 1959

ob

not an exhibit (for info purposes)



10-23

251059 20⁰⁰00
247101 10⁰⁰00

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE - NEW MEXICO

MEMORANDUM:

TO: ALL OPERATORS

FROM: A. L. PORTER, Jr., Secretary-Director

SUBJECT: PROPOSED WATER FLOOD RULES

Attached hereto is a proposed revision of Rule 701 of the Commission Rules and Regulations. This revision will be considered by the Commission at the October 14th hearing, Elks Club, Roswell, New Mexico.

You will note that this proposed Rule 701 is much more comprehensive than the presently existing Rule 701 and includes, among other things, provisions for administrative expansion of water floods and the assignment of project allowables to water flood projects.

It should be explained that the "Area Allowable Factor" for Southeast New Mexico is based upon the average normal unit allowable during the last ten years, and the Area Allowable Factor for Northwest New Mexico is based upon average allowables for that area since market outlets have been available.

It is proposed that these rules will apply only to new floods, not yet authorized by the Commission. Your suggestions as to the operation of buffer zones between new floods and old floods, as well as any other recommendations or proposed rules which you wish to submit, will be welcomed.

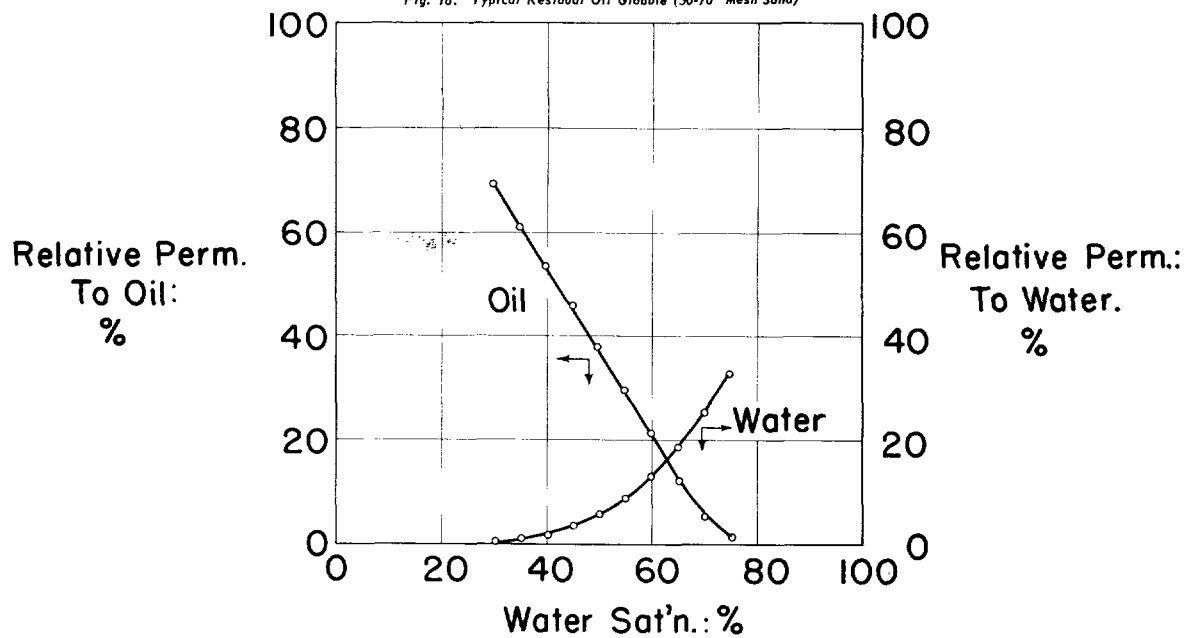
September 25, 1959

Enclosures: (2)

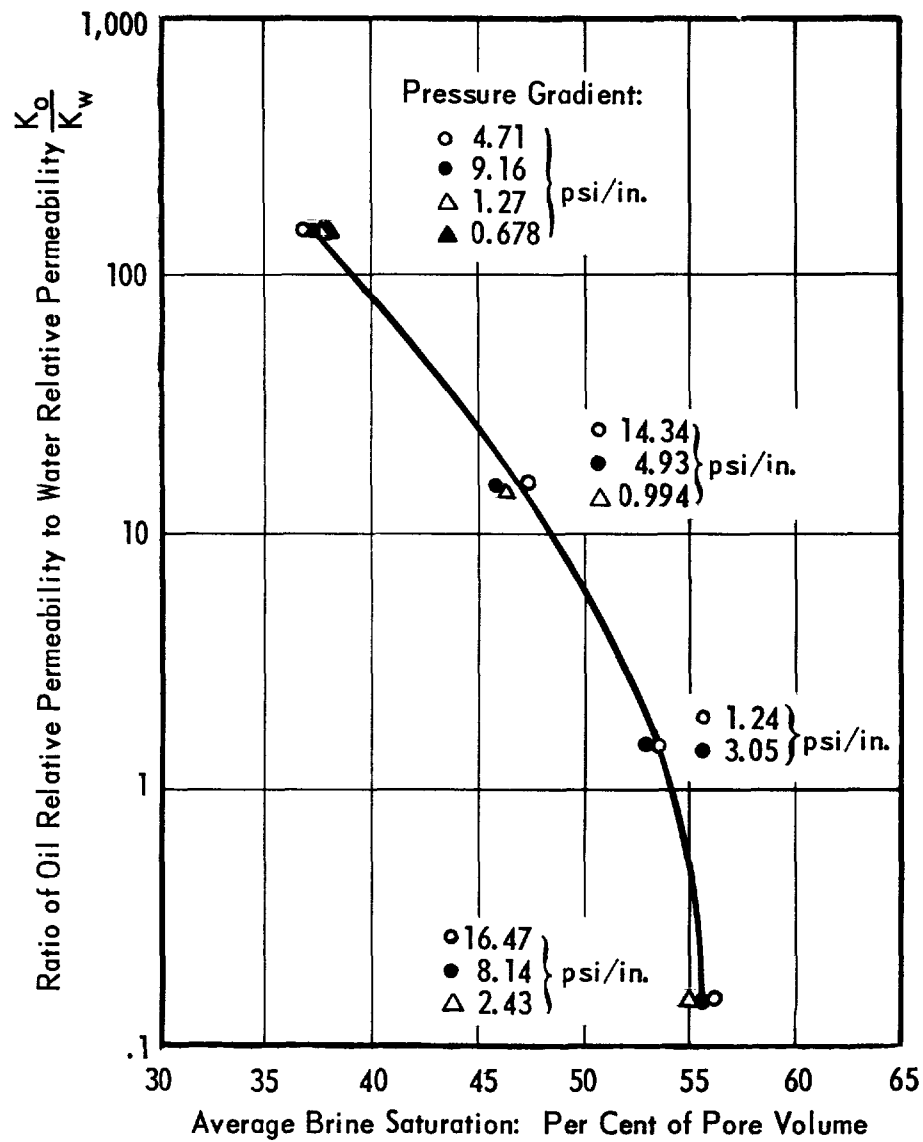
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Fig. 16. Typical Residual Oil Globule (50-70 Mesh Sand)

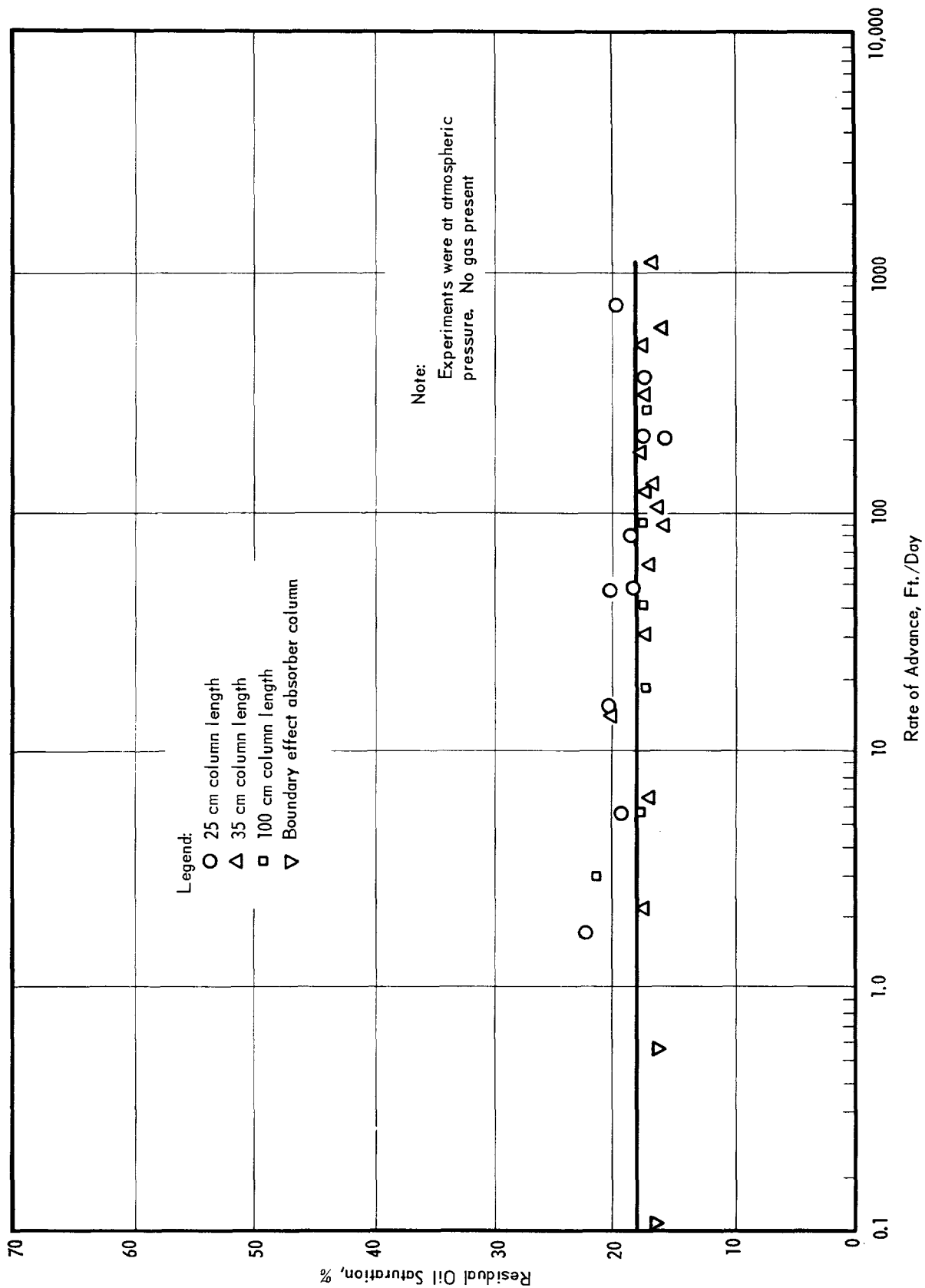


Typical Imbibition-Type Relative Permeability Curves

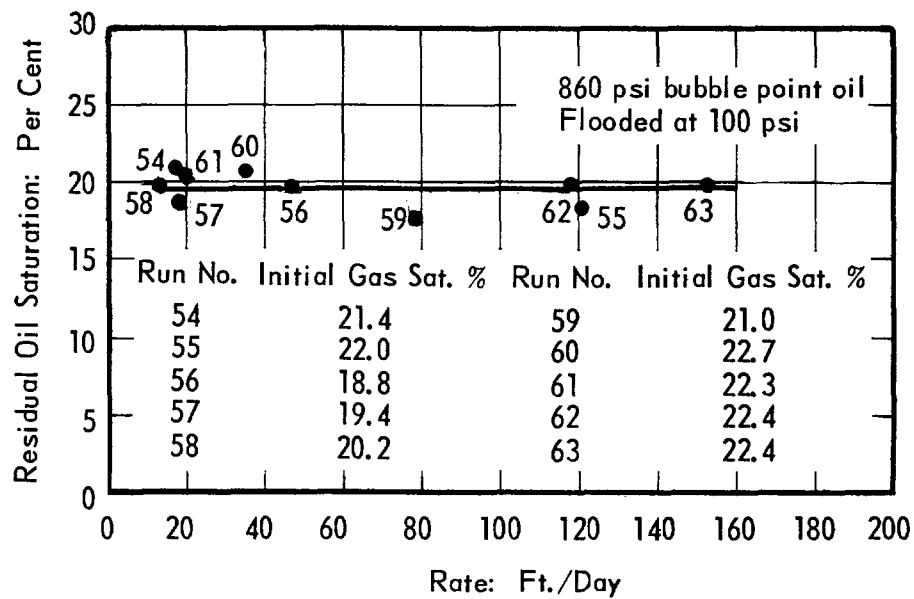


RELATIVE PERMEABILITY AS A FUNCTION OF BRINE SATURATION: MEASUREMENTS AT DIFFERENT PRESSURE GRADIENTS

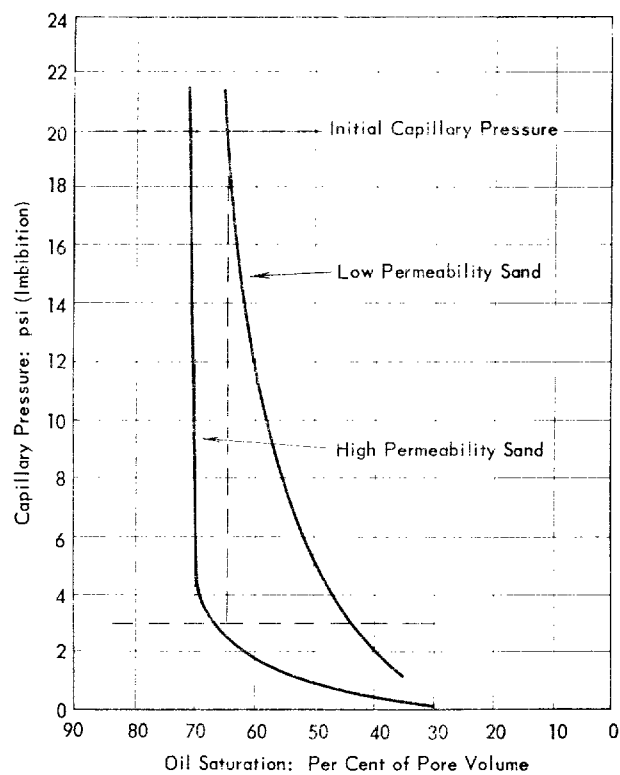
(From Data of Geffen, Owens, Parrish & Morse)



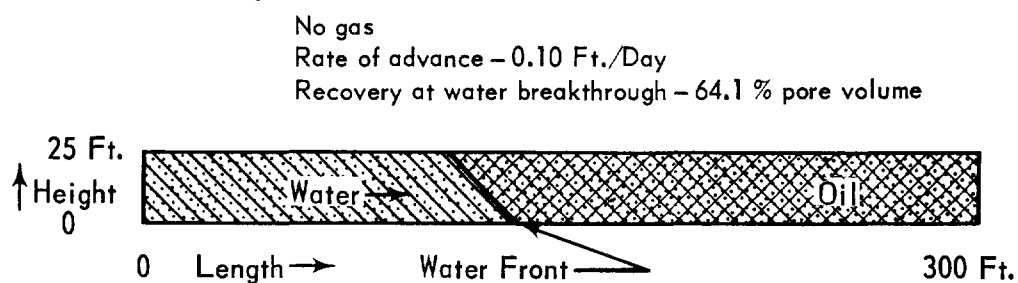
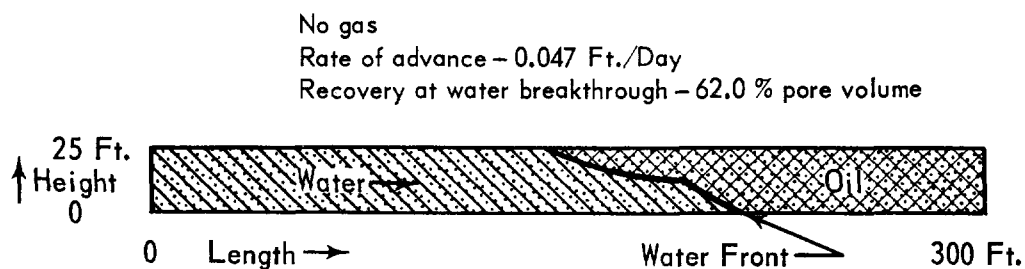
THE EFFECT OF RATE ON RECOVERY BY WATER FLOODING
(Homogeneous Sand)



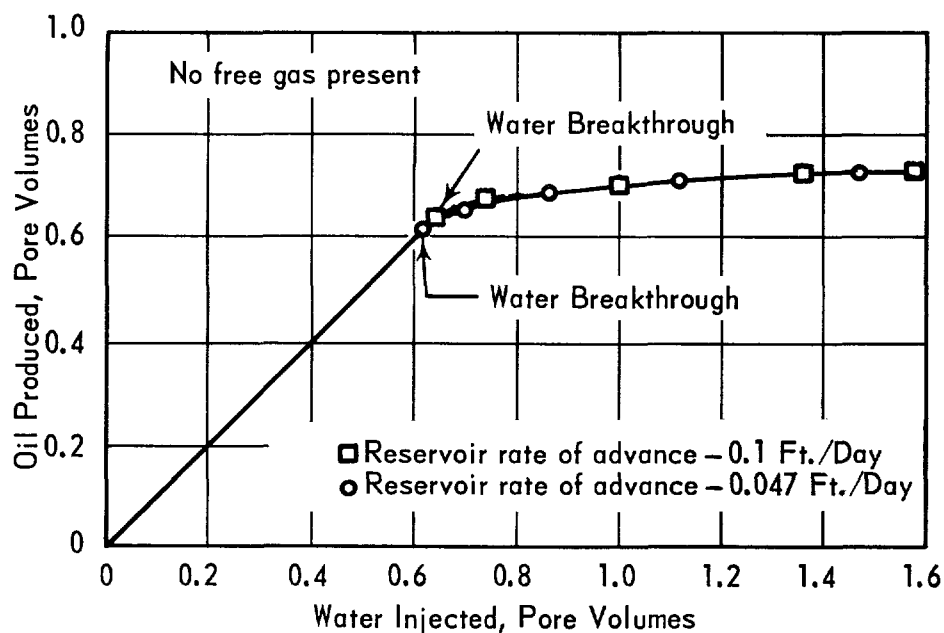
THE EFFECT OF RATE ON OIL RECOVERY BY WATER
FLOODING IN PRESENCE OF A 22% FREE GAS SATURATION
(Homogeneous Sand)



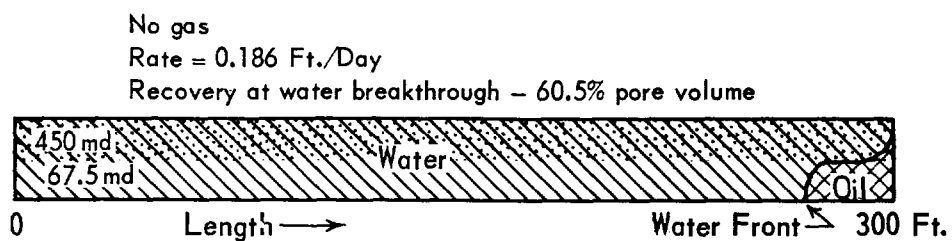
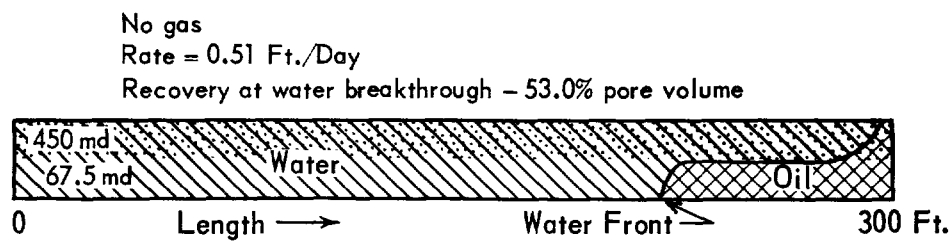
Illustrative Imbibition Capillary Pressure Curves for Low Permeability and High Permeability Sands



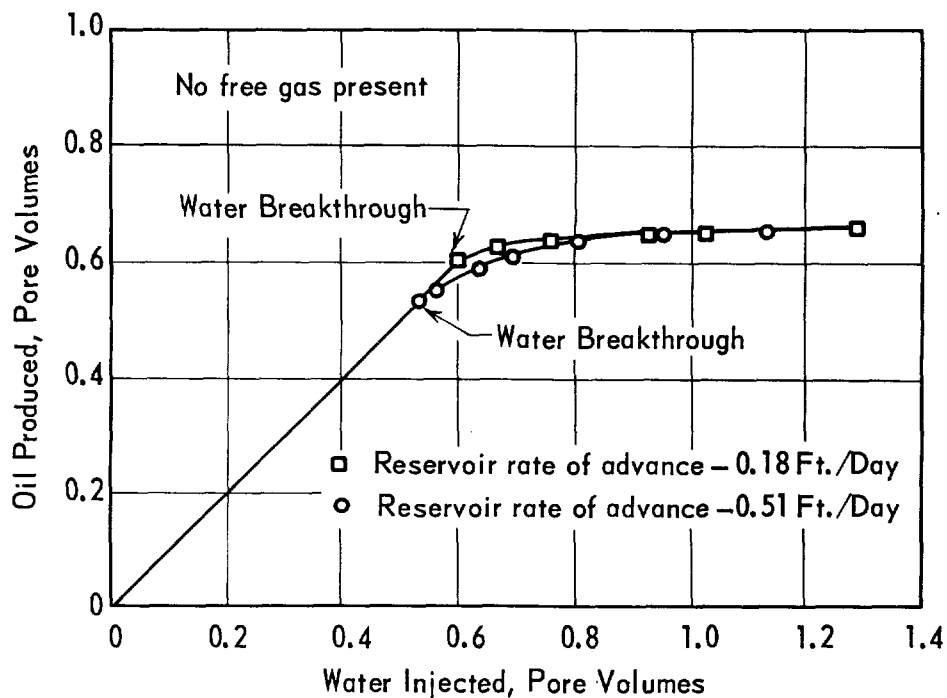
The Effect of Rate on the Flooding Conformance of a Uniform Sand Where Gravitational Segregation is Important



The Effect of Rate on Production Characteristics of a Uniform Sand Where Gravitational Segregation is Important



The Effect of Rate on the Flooding Conformance of A Stratified Reservoir

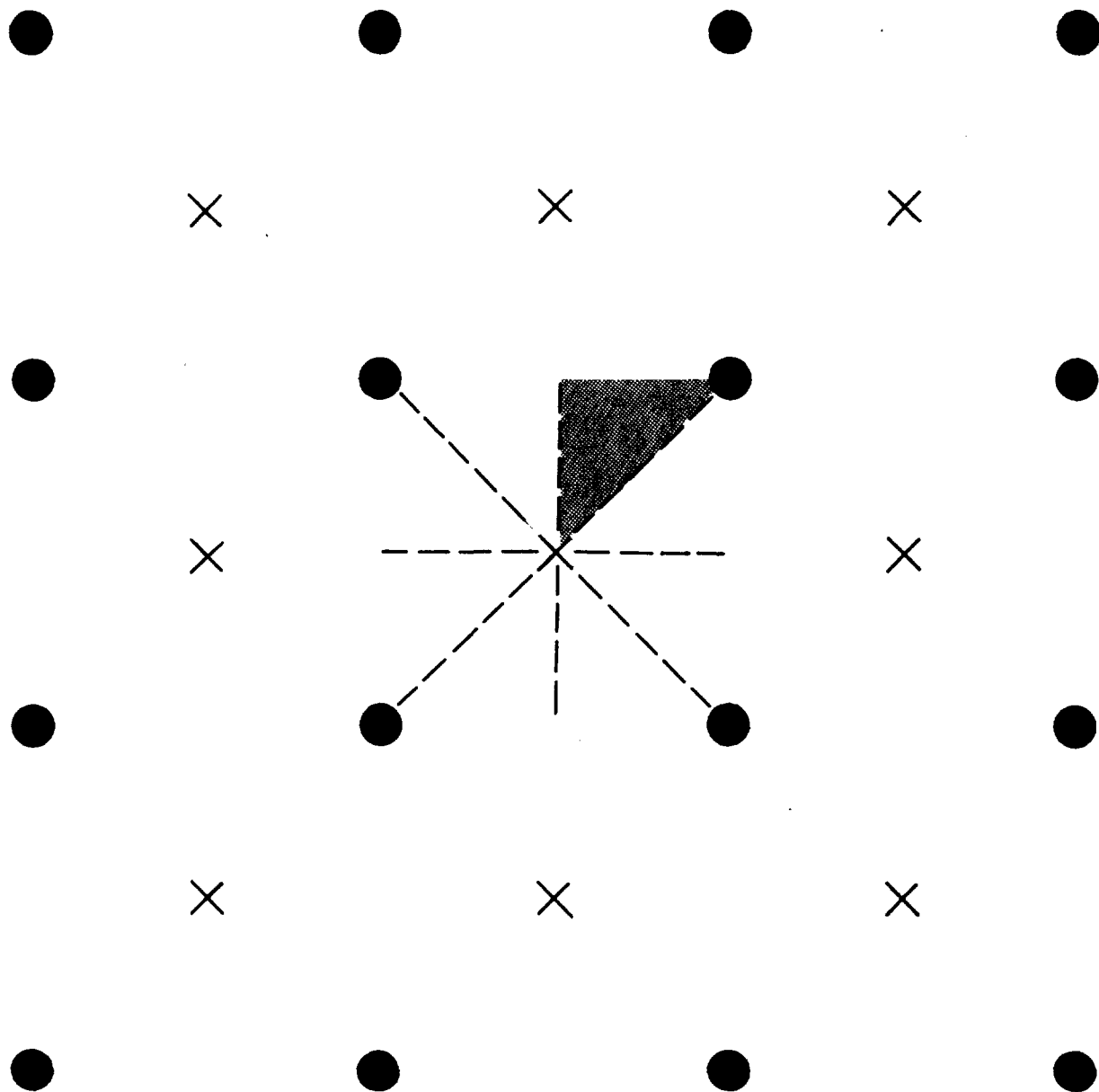


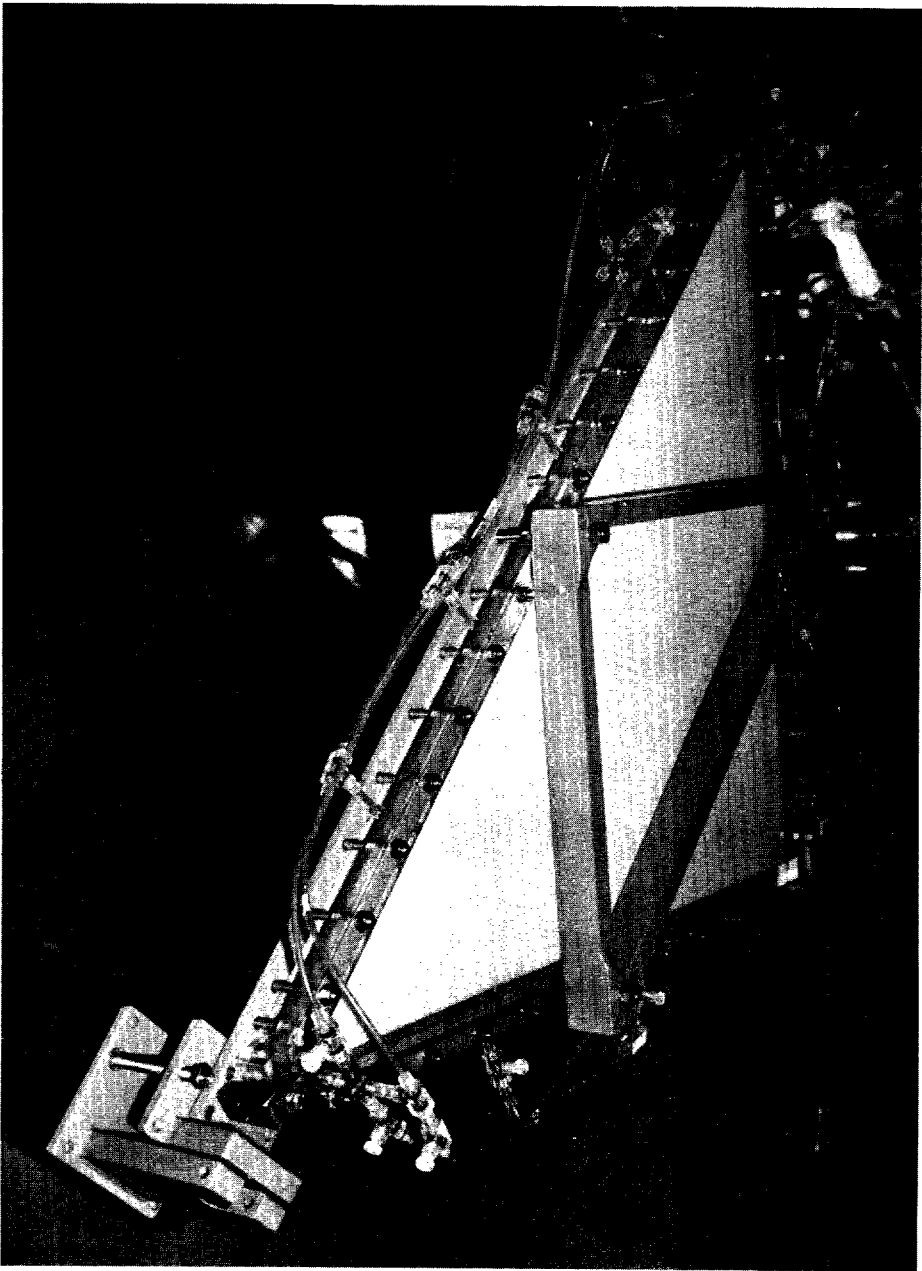
The Effect of Rate on the Production Characteristics of A Stratified Reservoir

FIELD WATER-FLOOD PROPERTIES

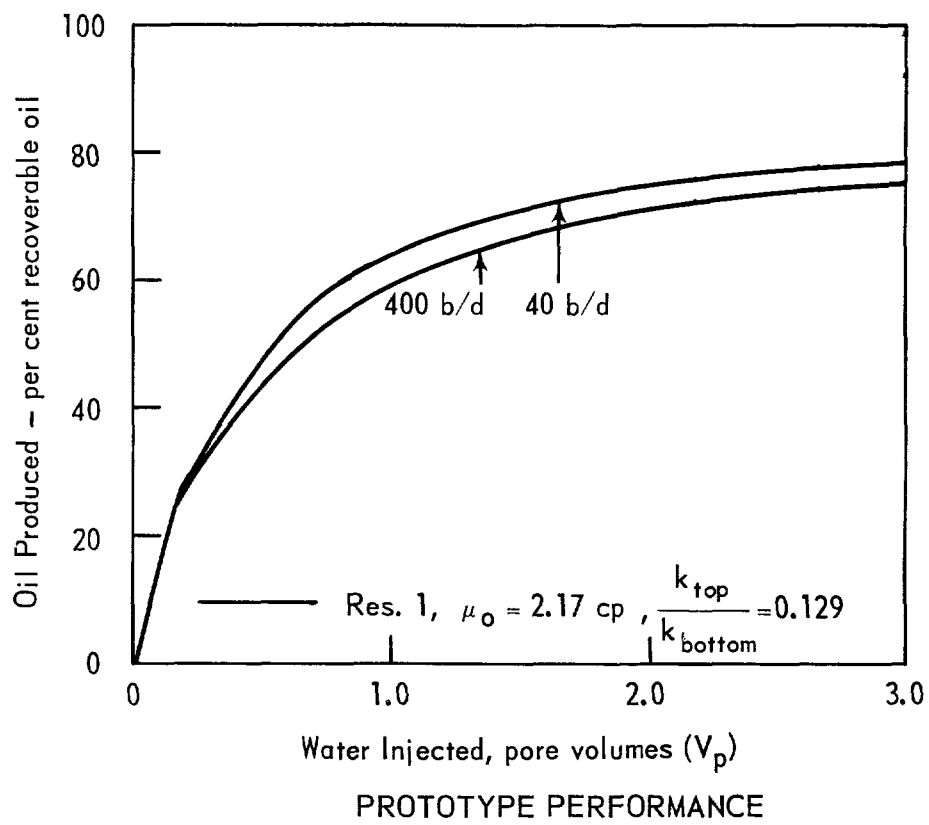
Characteristics	Range of Values (9 water floods)	Representative Water Flood
Water-Flood Pattern	5-spot	5-spot
Areal Extent, acres	20, 40, 80	20
Net Stratum Thickness, ft	4-30	10
Porosity, %	14-33	20
Absolute Permeability, md	16-339	16-116
Connate Water Saturation, %	20-50	30
Residual Oil Saturation, %	26-2	20
Water-Oil Density Difference, gm/cc	0.15-0.30	0.20
Water Viscosity, cp	0.48-0.95	0.50
Oil Viscosity, cp	0.46-10	0.50, 2.17
Interfacial Tension, dyne/cm	25-35	25

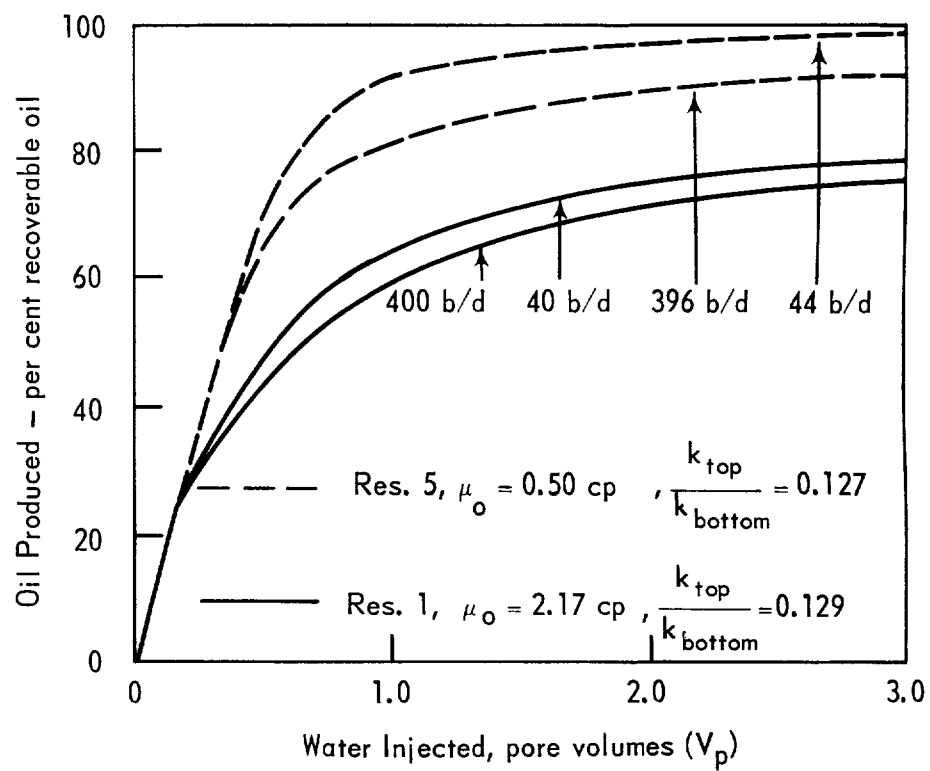
TYPICAL 5 SPOT PATTERN



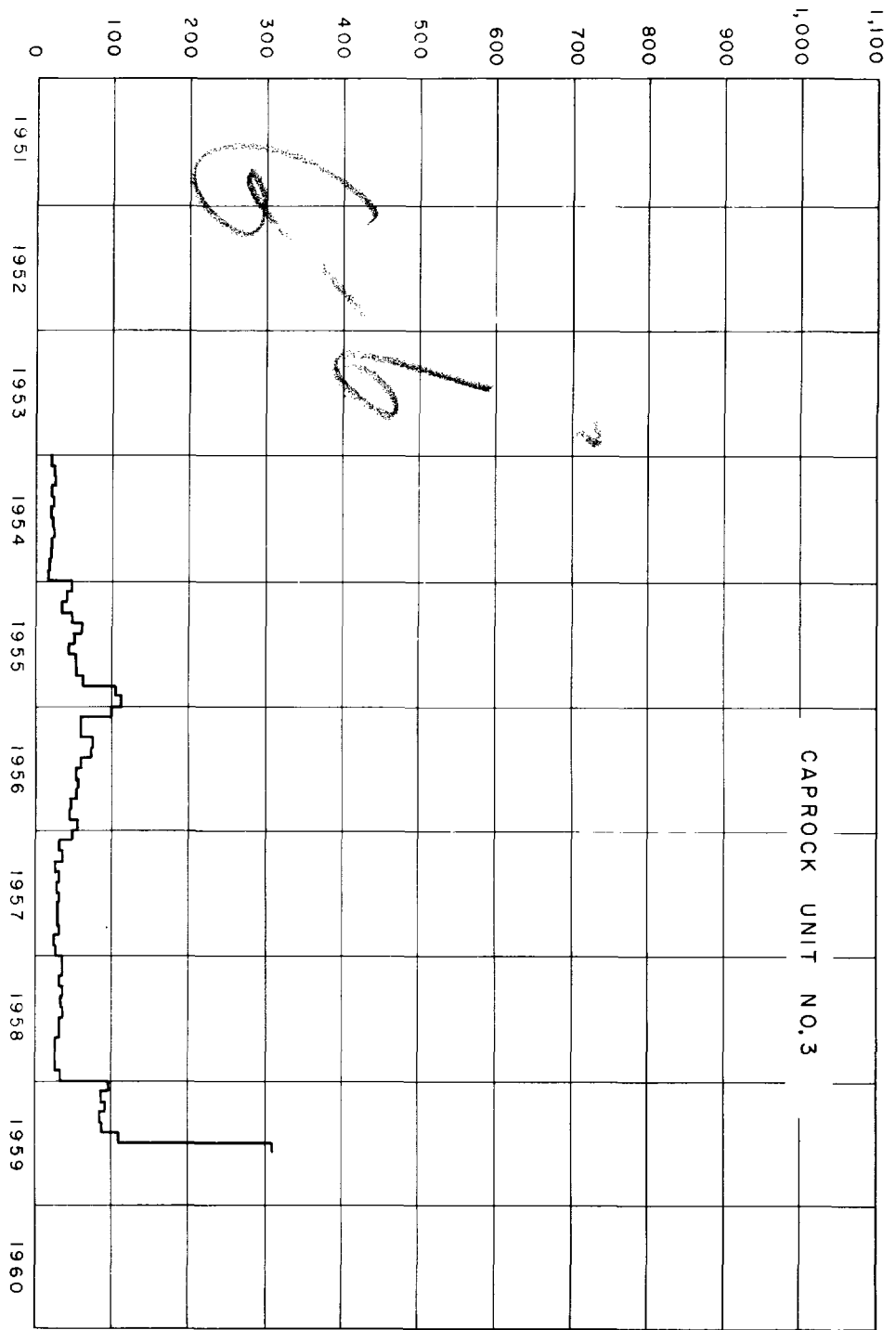
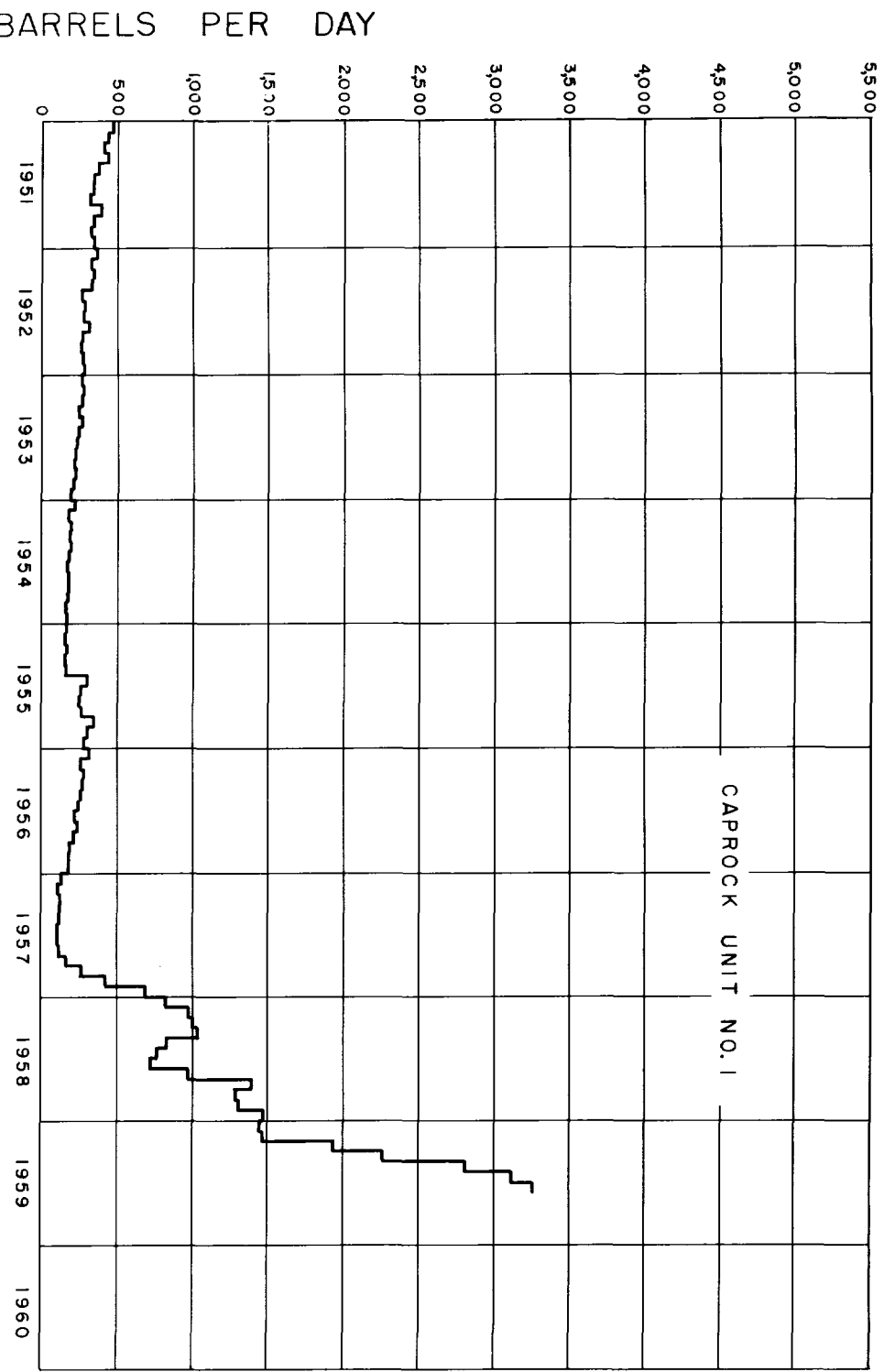


STRATIFIED 5-SPOT MODEL

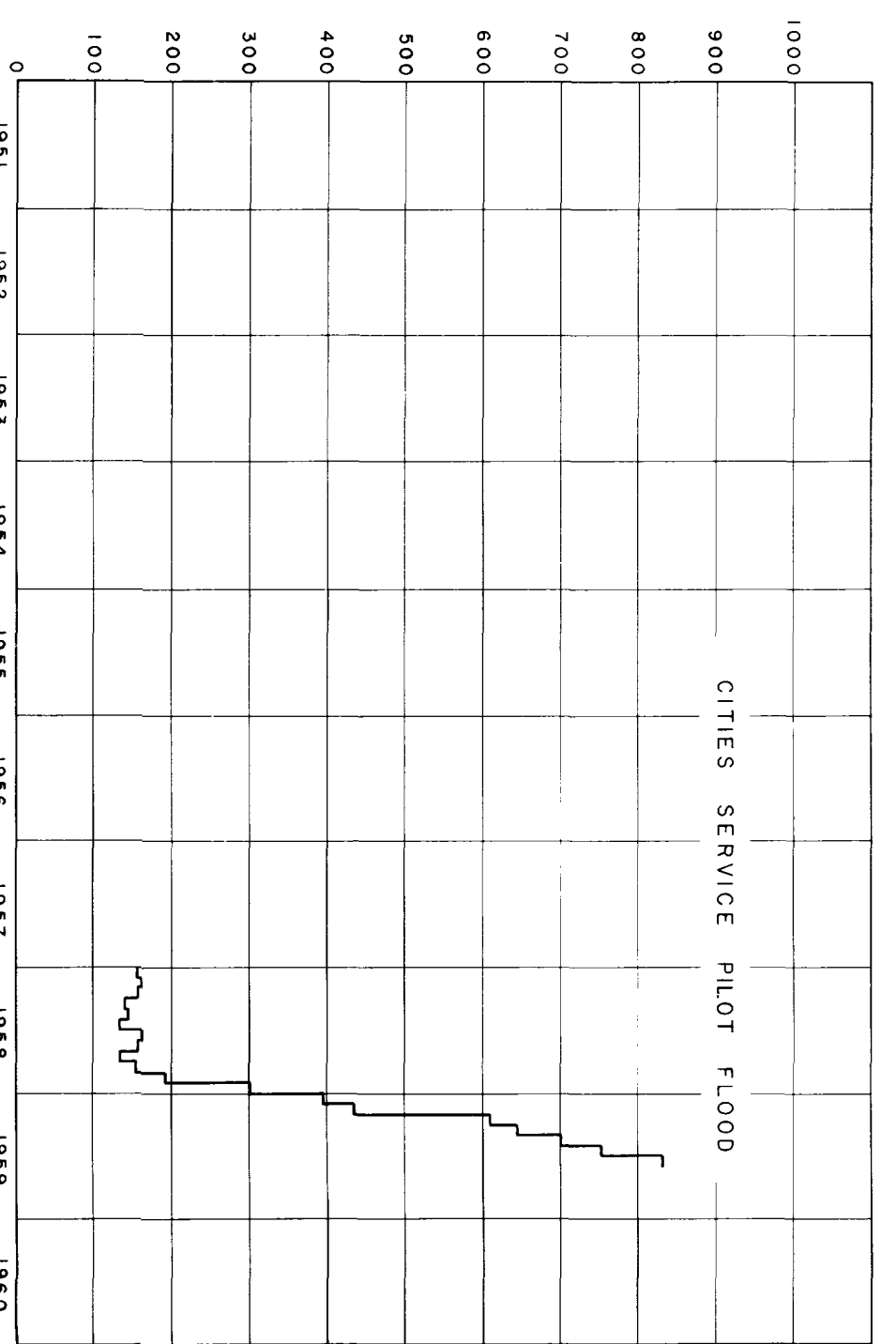
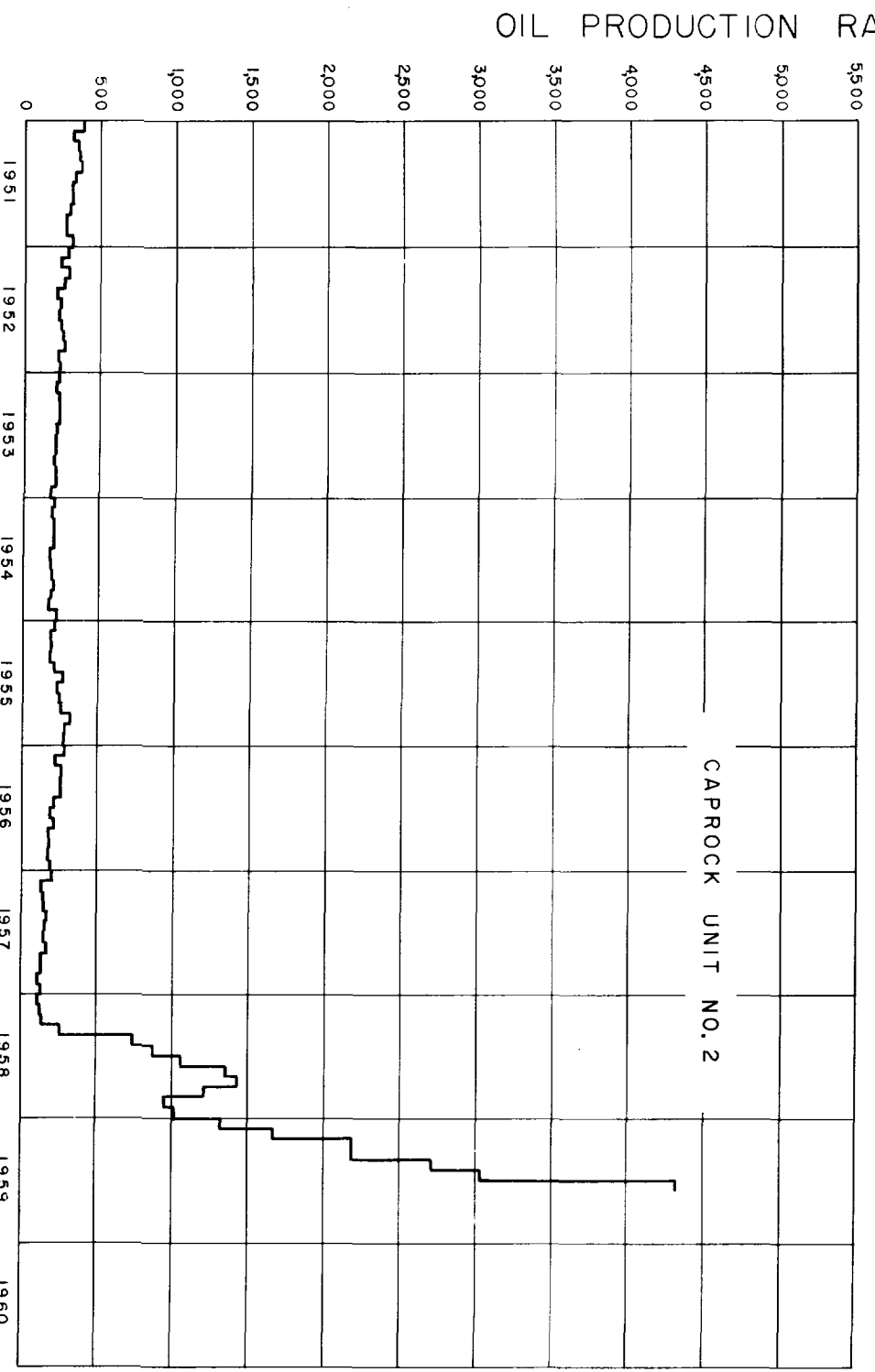




PROTOTYPE PERFORMANCE



CAPROCK FIELD WATERFLOODS



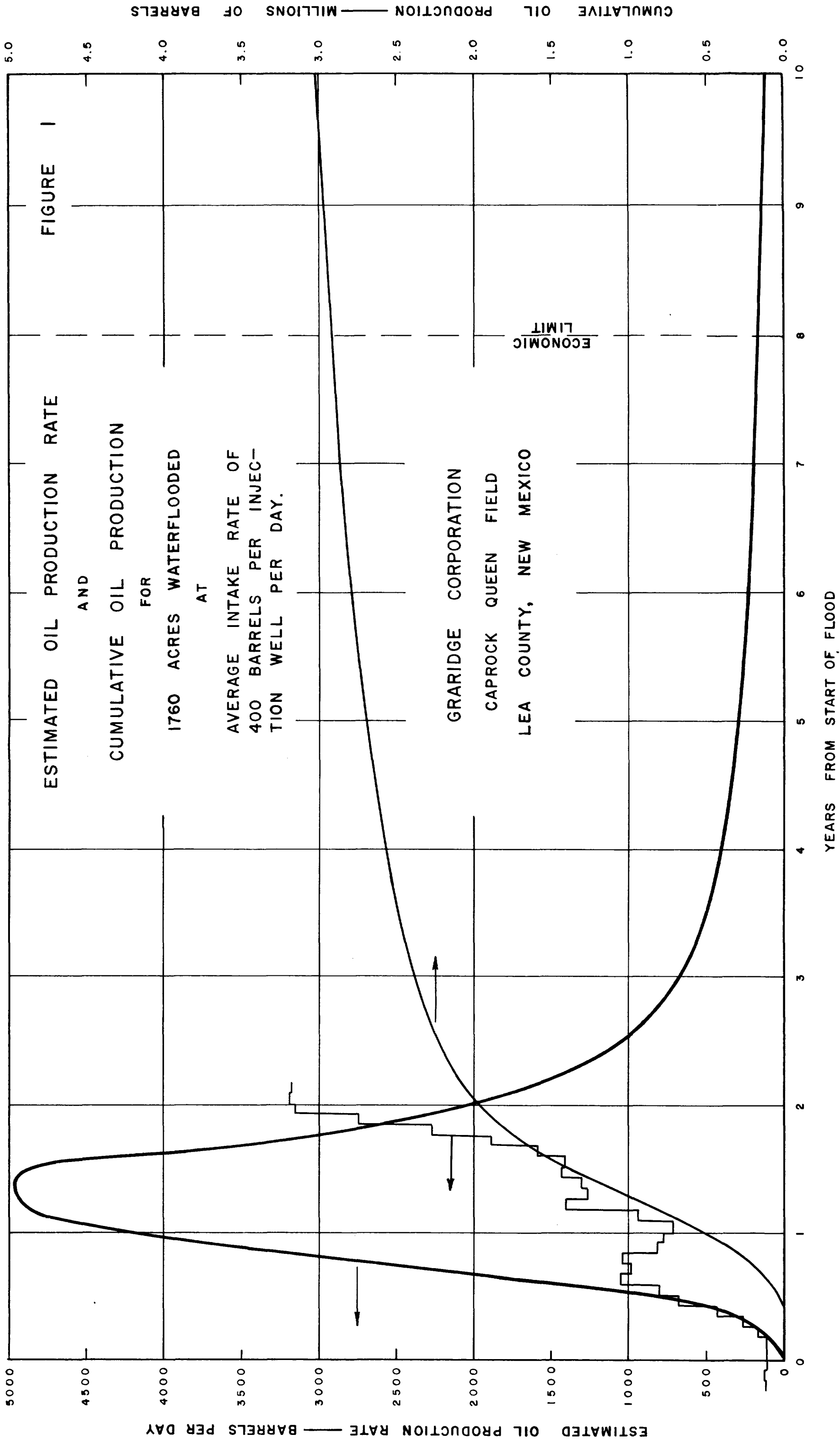
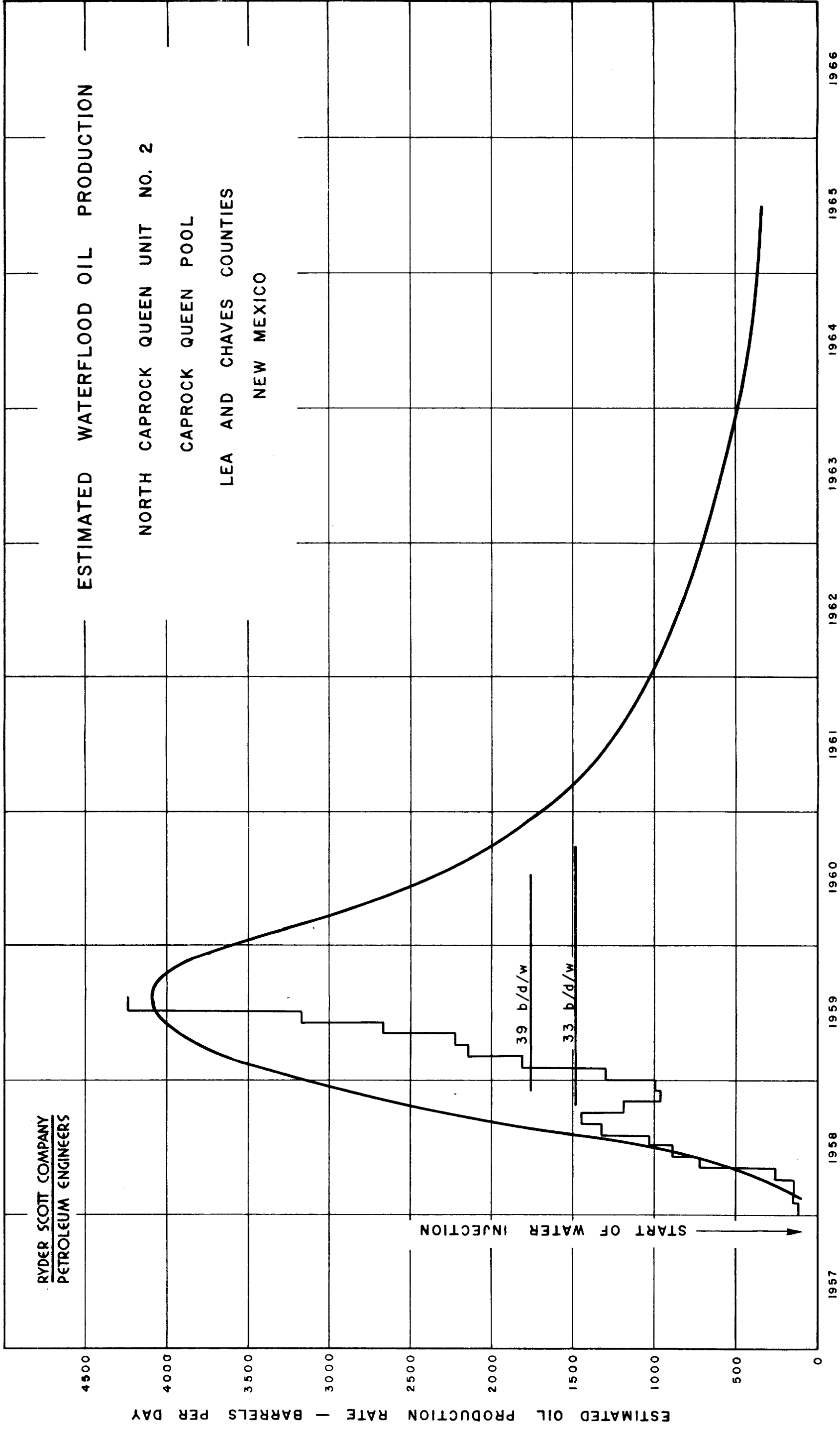
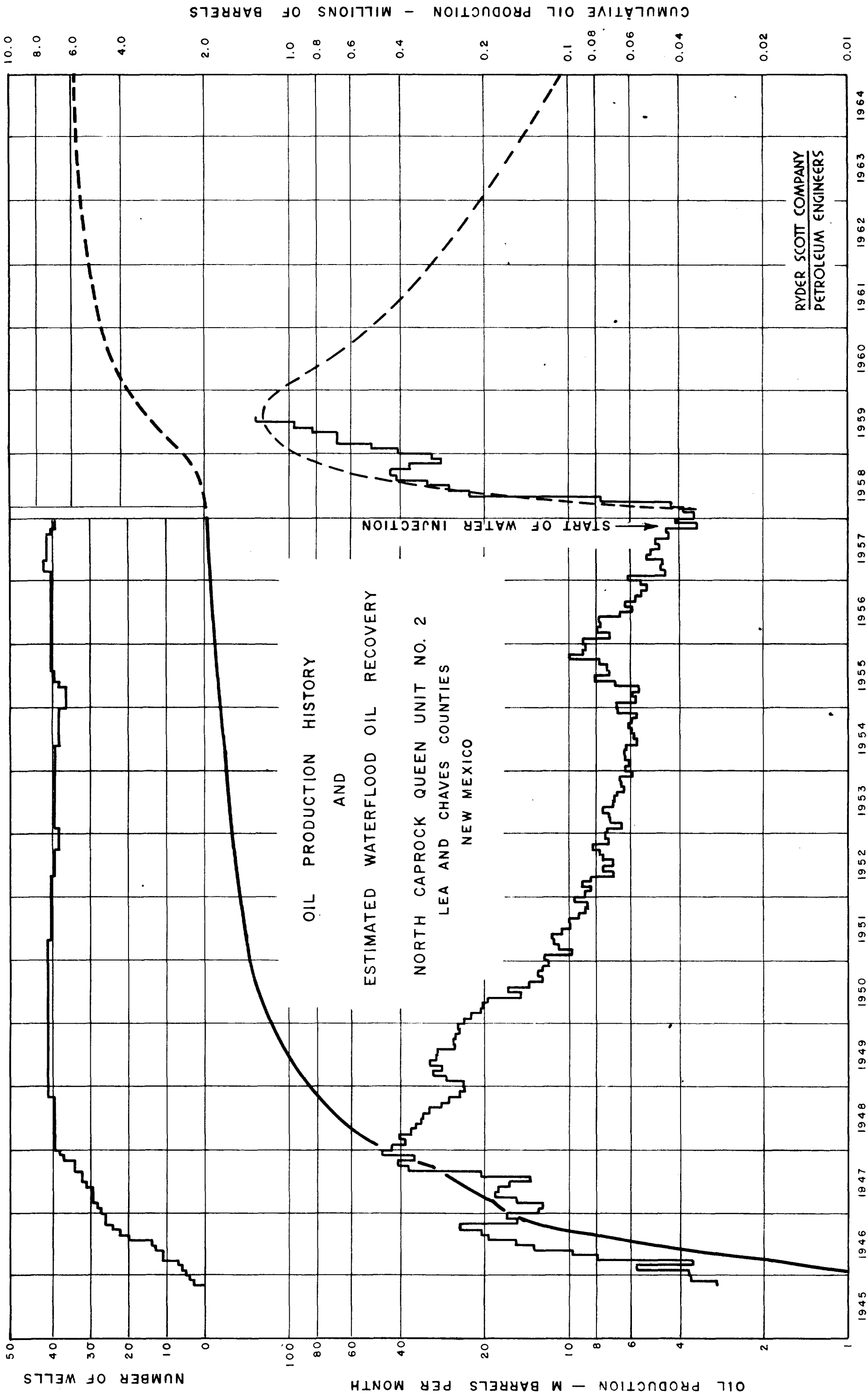


FIGURE 1

Pl No. 8 Case 1787

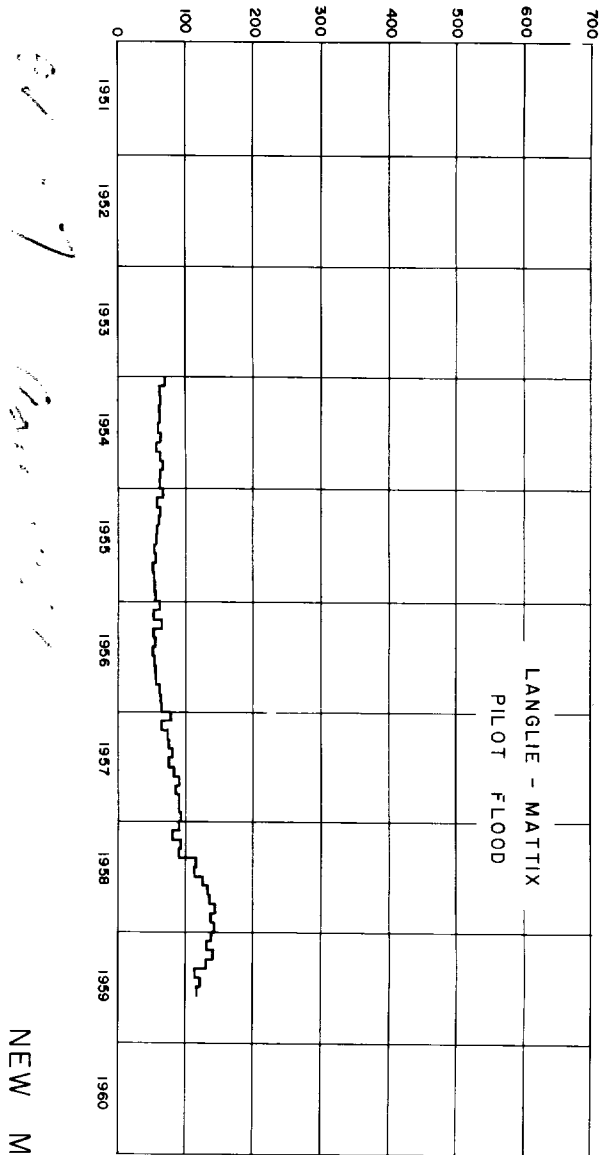


Core 1787 9/10

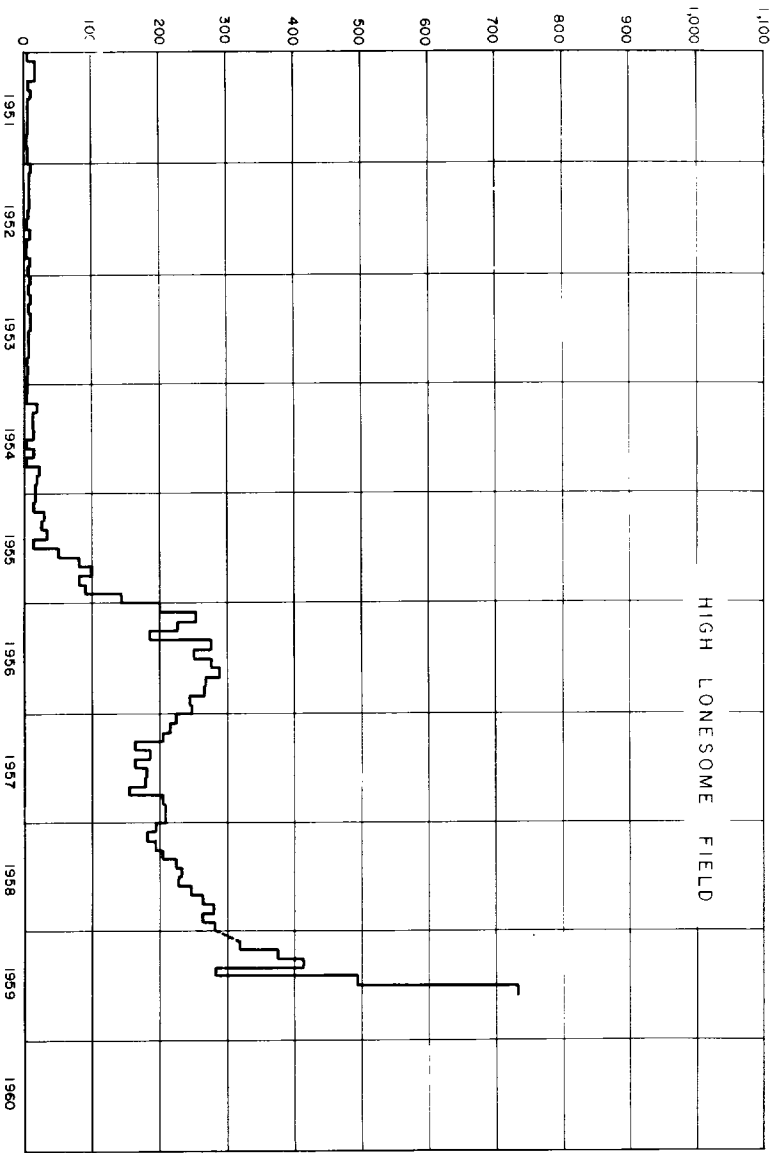
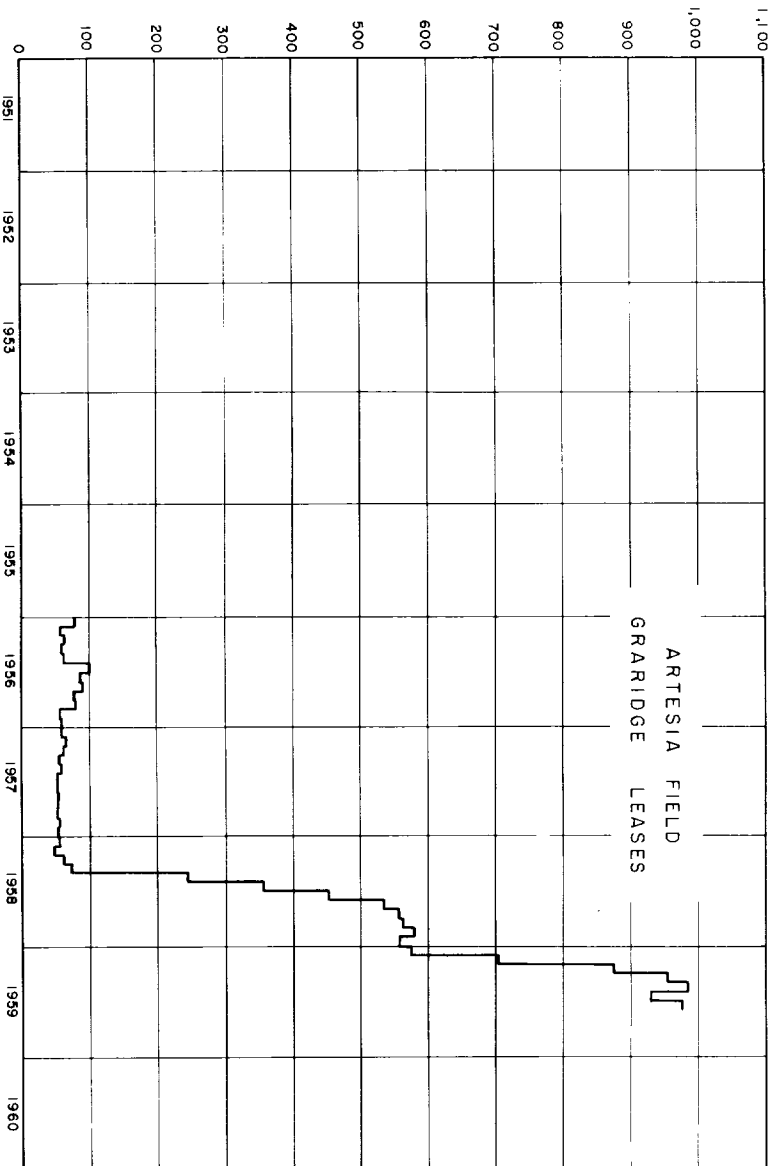
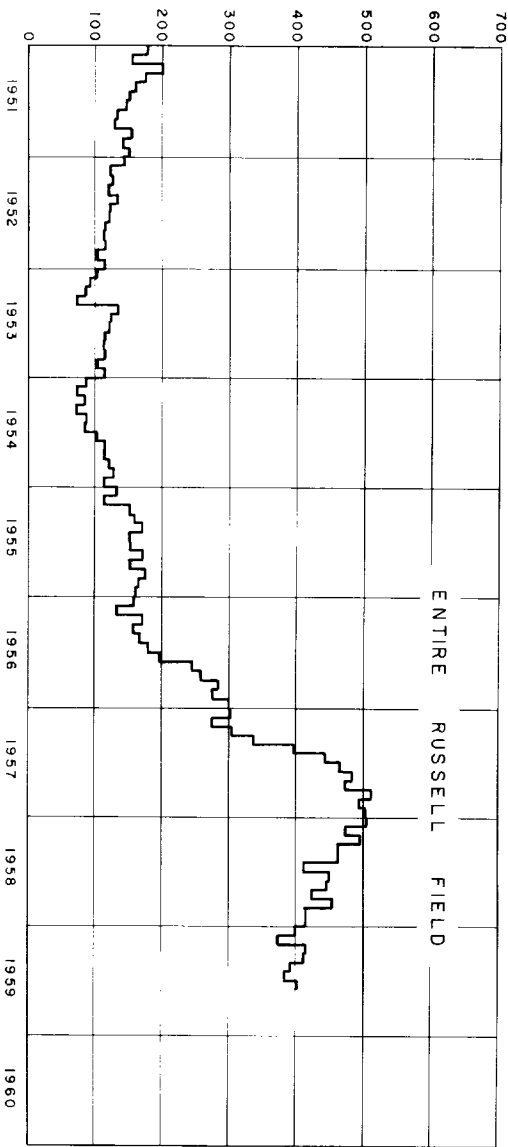
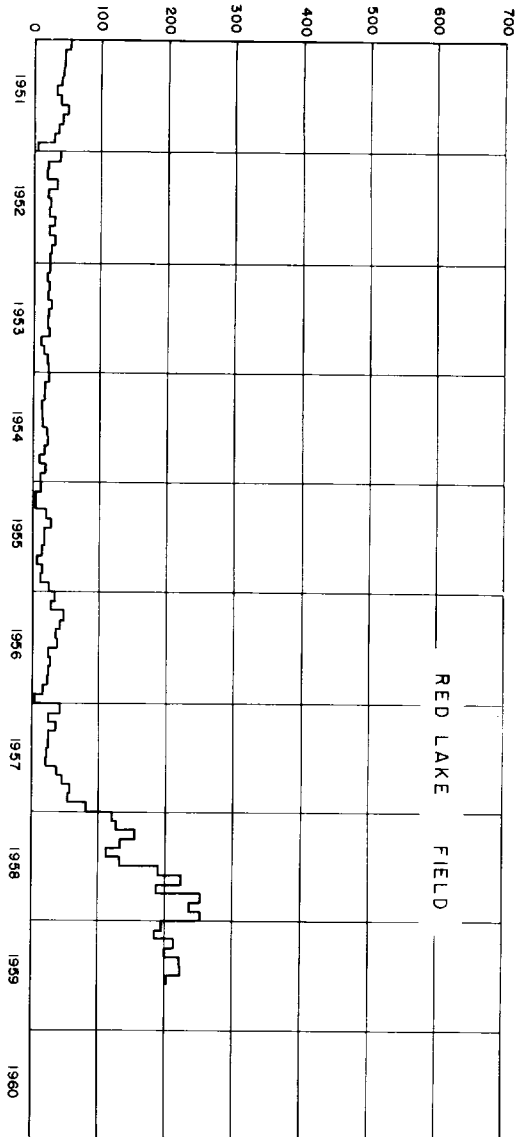
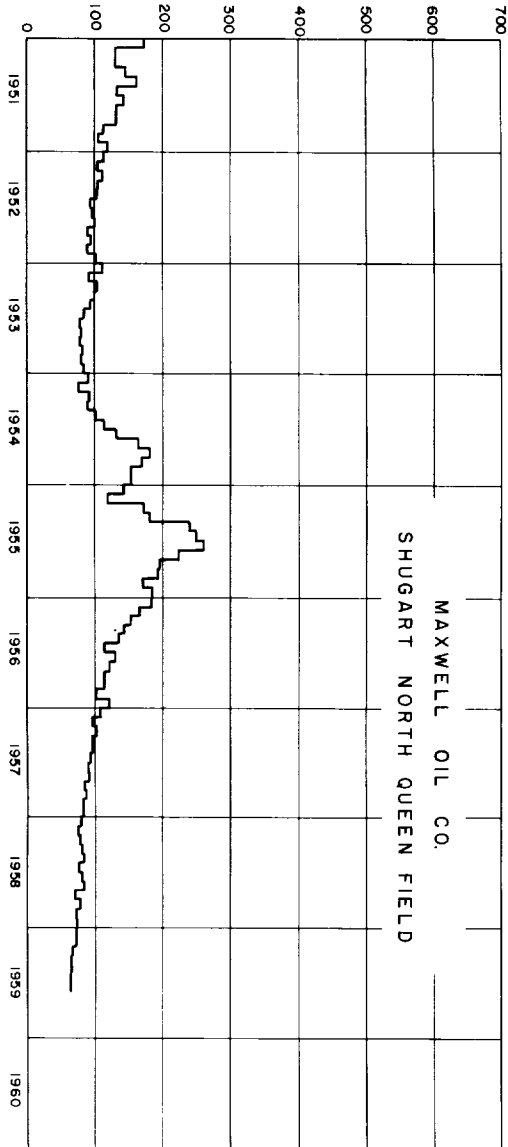


Case 1787 Ex 9

OIL PRODUCTION RATE — BARRELS PER DAY



NEW MEXICO WATERFLOODS

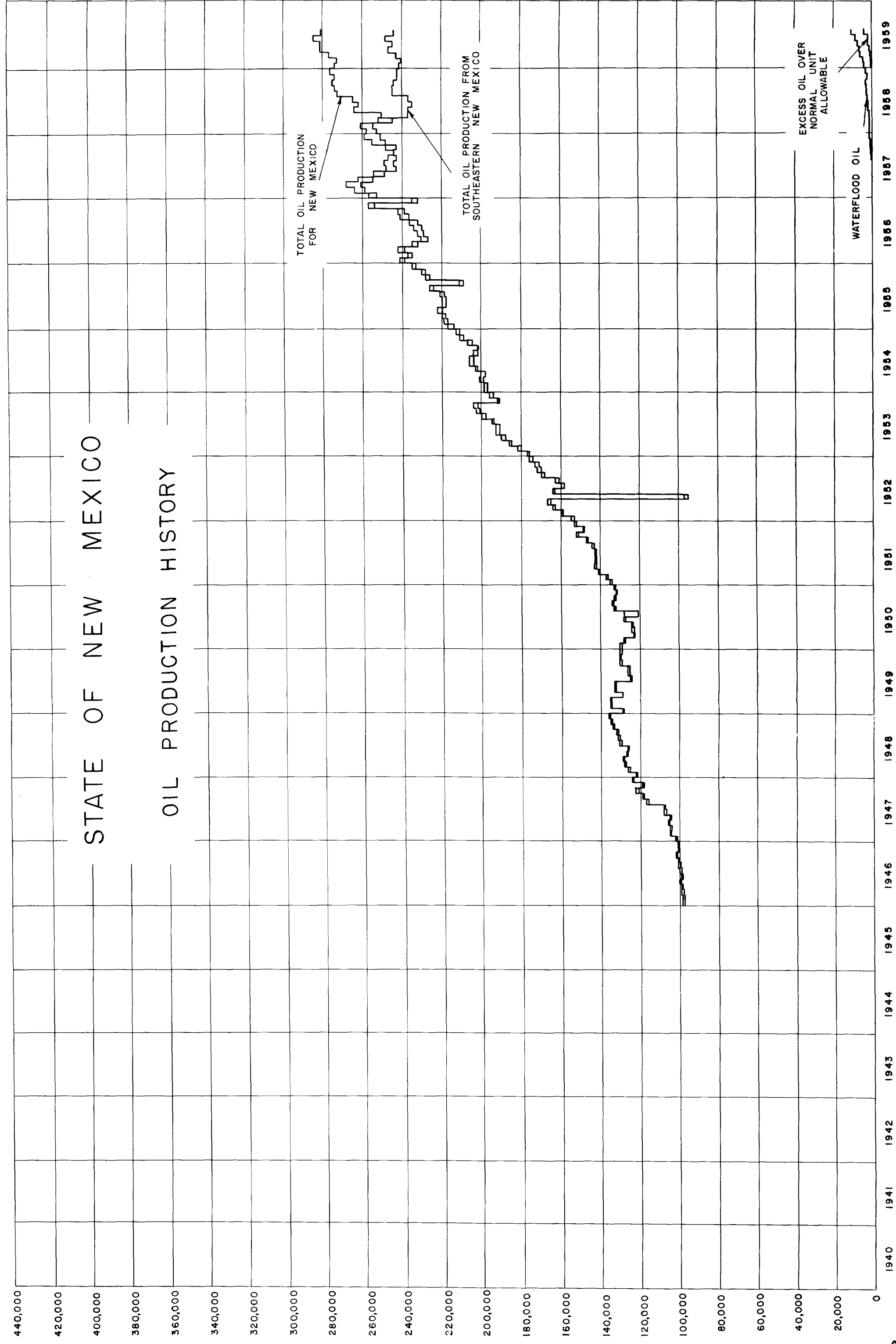


OIL PRODUCTION RATE - BARRELS PER DAY

Done
1787
EC 13

STATE OF NEW MEXICO

OIL PRODUCTION HISTORY



GRARIDGE CORP
P.O. BOX 100
LEA COUNTY, N.M.
MAY 1958

22,000
21,000
20,000
19,000
18,000
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0

OIL PRODUCTION RATE — BARRELS PER DAY

1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973

GRARIDGE CORPORATION OIL PRODUCTION RATE FOR ENTIRE CAPROCK FIELD LEA AND CHAVES COUNTIES, NEW MEXICO

TOTAL PRIMARY AND
WATERFLOOD OIL
PRODUCTION

ESTIMATED WATERFLOOD OIL PRODUCTION
400 B/D WATER INJECTION PER IN -
TAKE WELL.
CONSTANT RATE OF DEVELOPMENT AT
4480 ACRES PER YEAR.
5 YEARS TO DEVELOP 22,400 ACRES
STARTING JANUARY 1, 1958.

PRIMARY OIL
PRODUCTION

ESTIMATED WATERFLOOD OIL PRODUCTION
80 B/D WATER INJECTION PER INTAKE
WELL.
CONSTANT RATE OF DEVELOPMENT AT
4480 ACRES PER YEAR.
5 YEARS TO DEVELOP 22,400 ACRES
STARTING JANUARY 1, 1958.

WATERFLOOD OIL
PRODUCTION

EXCESS ABOVE
NORMAL UNIT
ALLOWABLE

Case 1787 No 12

SUMMARY OF STRIPPER WATERFLOOD ALLOWABLES IN TEXAS, September, 1959

(1) RRC Dist. #	(2) No. Fields	(3) No. Lses. Under WF	(4) NUMBER WELLS		(5)	(6)	(7)	(8)		(9)	(10) Avg. allow. per well per calendar day prod. & inj.	(11) Total allow. above ydstk. for lses. under WF/day	
			Prod.	Injec.				Total	ALLOWABLE				
									Prorated				Marg.
1	11	14	222	76	298	2,286	364	51	3.7				
2	4	4	12	11	23			58	2.5				
3	5	5	18	18	36		100	102	5.6				
4	32	96	940	352	1,292	822	2,544	8,063	8.4		891		
5	3	22	204	20	224	359	64	864	4.6				
6	5	9	148	27	175	364	93	1,339	8.8		29		
7-B	70*	366	2,579	443	3,022	4,268	1,348#	12,672#	5.2		1,085		
7-C	11	37	320	106	426	614	664	5,654	15.3		2,755		
8	25	506	3,688	2,311	5,999	6,137	1,527	96,841	16.7		31,408		
9	80*	909	6,084	1,841	7,925	6,780	2,283#	52,725#	7.2		4,100		
10**	4**	36	425	119	544			3,162	5.8				
TOTAL	250	2,004	14,640	5,324	19,964	21,630	8,987	181,531	9.87		40,268		

SUMMARY:

Avg. calendar day allowable as of 9/26/59	2,795,625
Est. daily allowable for stimulated floods, 75% of Columns 7 and 9	141,015
Stimulated flood allowable % of state	5.044%
Total flood allowable above ydstk. /cal. day	40,268
Flood allowable above ydstk. % of state	1.440%

County Regular Marginal and Exempt

Exempt Excluding County Regular

Panhandle Marginal and Exempt

Exempt Excluding County Regular and Panhandle

33,486

148,045

3,162

144,88

SYMBOLS:

*Include County Regulars
#County Regular Marg. incl.
in Exempt Column
**Four counties
@Panhandle Exempt.
@@Incl. in Exempt. Column

DATA BY

Edgerton & Stearns
Austin, Texas

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

EXHIBIT No. 14

CASE

Case 1787
Ex 15

EXHIBIT

SUMMARY OF WATERFLOODING IN OKLAHOMA

May, 1959

Total State Production, B/D	556,856
Minimum Allowable, B/D	20

WATERFLOOD PRODUCTION:

Daily average	139,544
% of Total State Production	25.06

Number of Waterflood oil wells	17,136
Number of Waterflood input wells	<u>11,400</u>
Total wells	28,536

Waterflood production; B/D/oil well	8.14
Waterflood production; B/D/total well	4.89

Number of authorized projects included <u>1/</u>	643
--	-----

1/ 28 projects are not included; These projects did not report the amount of oil produced.

EXHIBIT

WATERFLOOD PRODUCTION IN OKLAHOMA - MAY, 1959
(NO PRORATION OF WATERFLOODS)

RANGE - B/D/total well	NUMBER OF PROJECTS	NUMBER OF WELLS			PIPELINE RUNS - MAY, 1959		PRODUCTION IN EXCESS OF 20 B/D/TOTAL WELL	
		INPUT	OIL WELLS	TOTAL	MONTHLY	DAILY/TOTAL WELL	DAILY	FRACTION OF STATE TOTAL PROD.
60 and above 1/	4	2	9	11	22,144	64.9	494	.0009
50 thru 59	1	9	32	41	63,643	50.1	1,233	.0022
40 thru 49	4	8	29	37	49,934	43.5	871	.0016
30 thru 39	8	79	181	260	273,103	33.9	3,610	.0065
20 thru 29	22	276	714	990	755,939	24.6	4,388	.0078
Less than 20	604 (94%)	11,026	16,171	27,197	3,161,127	3.8	-	
Totals	643	11,400	17,136	28,536	4,325,890 3/	4.9	10,596	

= 1.9% of total State production
= 7.6% of total Waterflood production

- 1/ Highest daily rate of all Oklahoma waterfloods, was 74 B/D/total well.
2/ Total State production during May, 1959 averaged 556,856 B/D.
3/ Total Waterflood production during May, 1959, averaged 139,545 B/D, or 25.06% of States total production.

Ans Gc. 16
1787

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, N.M.
JULY 1959
CASE NO. 17

Exhibit _____

KANSAS OIL PRODUCTION STATISTICS

8 Months 1959

Month	Prorated Table "B" Pools			Partially Restricted Table "C" Pools			Unprorated Table "D" Pools			Total All Pools		
	Wells	Total B/D	Average B/W/D	Wells	Total B/D	Average B/W/D	Wells	Total B/D	Average B/W/D	Wells	Total B/D	Average B/W/D
January	6,188	120,915	20	4,517	57,040	13	35,377	149,646	4	46,082	327,601	7
February	6,253	129,017	21	4,539	59,596	13	35,390	152,739	4	46,182	341,352	7
March	6,319	129,255	20	4,550	59,109	13	35,313	152,739	4	46,182	341,103	7
April	6,336	130,501	20	4,550	58,720	13	35,346	154,152	4	46,282	343,673	7
May	6,464	120,368	19	4,551	53,933	12	35,367	151,978	4	46,382	326,279	7
June	6,533	111,543	18	4,567	57,501	13	35,382	154,698	4	46,482	330,742	7
July	6,604	113,733	17	4,586	56,126	12	35,392	142,968	4	46,582	312,827	7
August	6,503	111,153	17	4,647	54,241	12	35,452	150,041	4	46,682	315,435	7
8 mos. 1959 Average -	6,416	121,723	19	4,563	57,033	12	35,377	151,120	4	46,357	326,126	7

Source: Monthly prororation reports of the Kansas Corporation Commission.

Exhibit _____

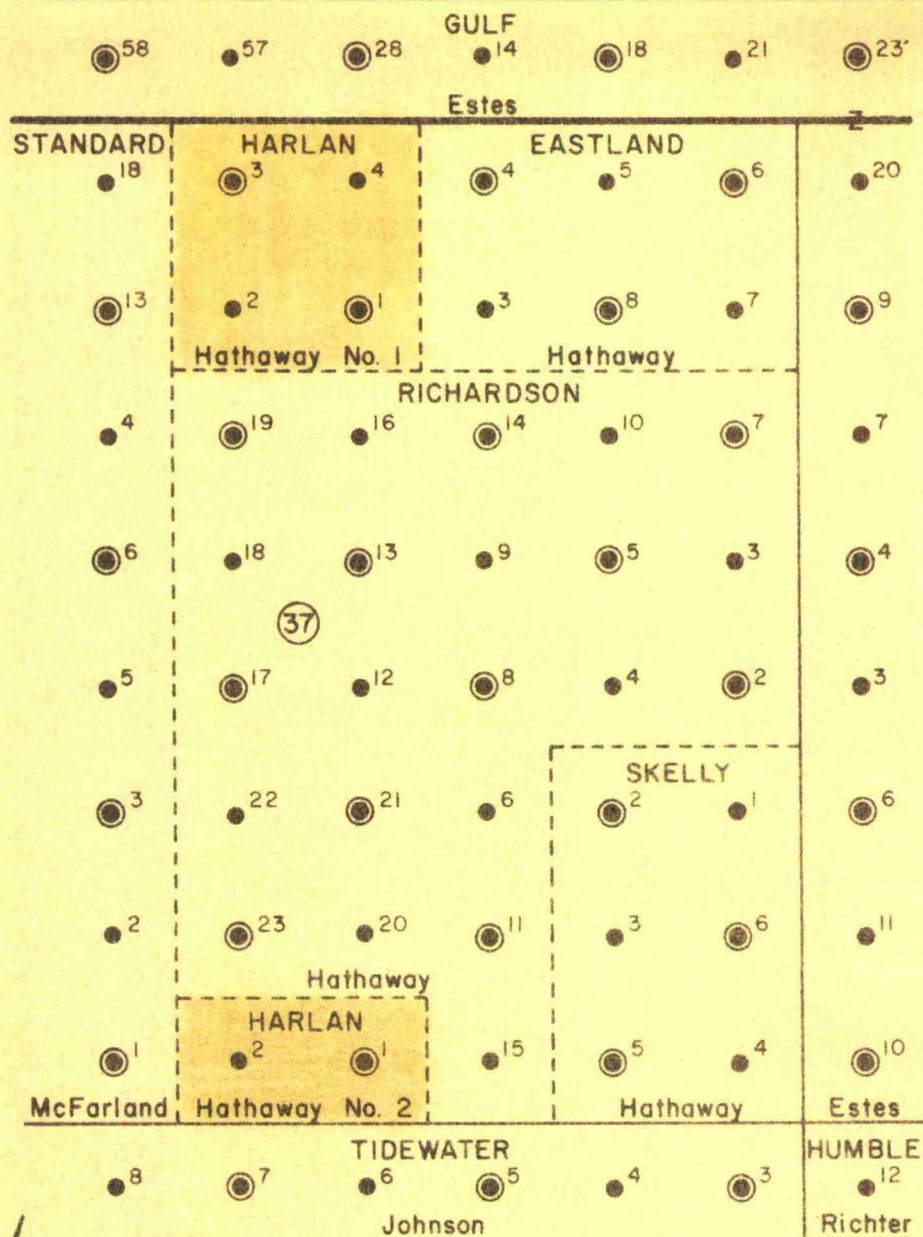
RELATION OF WATERFLOOD TO TOTAL OIL PRODUCTION

KANSAS

<u>Year</u>	<u>Total Oil Bbl/Dy</u>	<u>Waterflood Oil</u>		<u>Projects Reported</u>
		<u>Bbl/Dy</u>	<u>% of Total</u>	
1958	329,000	47,000	14.25	240
1957	340,000	46,000	13.62	212
1956	341,000	41,000	12.36	217
1955	332,000	41,000	12.46	188
1954	324,000	31,000	9.47	173
1953	313,000	30,000	9.54	182
1952	313,000	27,000	8.75	170
1951	312,000	22,000	7.12	143
1950	294,000	19,000	6.52	137
1949	274,000	19,000	7.00	150

Source: Annual data published by State Geological Survey of Kansas.

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT NO. 18
CASE



SCALE: 1" = 1000'

- PRODUCTION WELL
- PROPOSED PRODUCTION WELL
- ⊙ INJECTION WELL
- ⊗ PROPOSED INJECTION WELL
- ABANDONED WELL
- ⊕ DRY HOLE

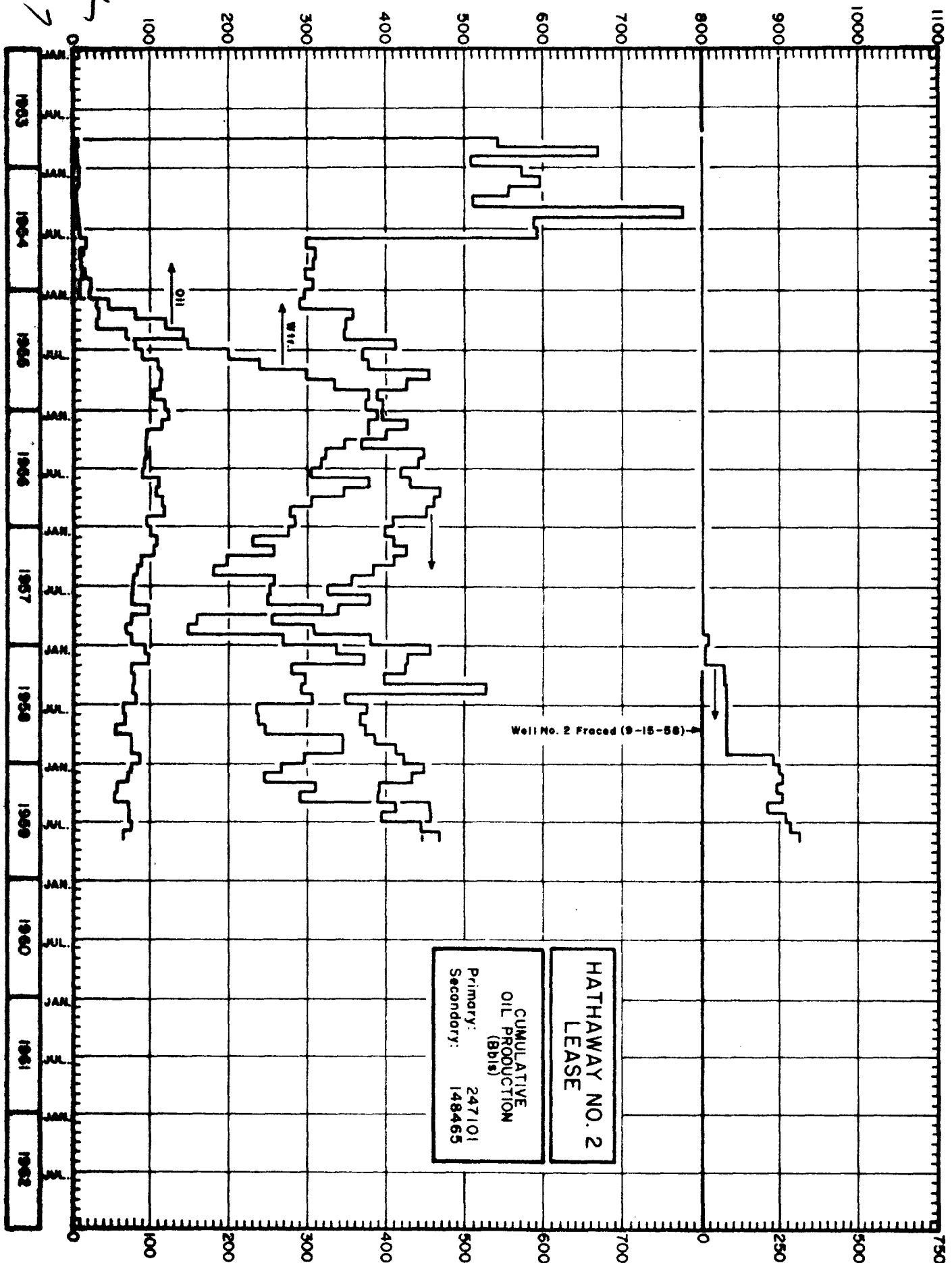
Prepared By:
GEORGE L. BUCKLES CO.

HARLAN PRODUCTION CO. LEASES
60 ACRES MORE OR LESS
NORTH WARD - ESTES FIELD

SECTION 37, BLOCK 34
H & TC RR SURVEY
WARD COUNTY, TEXAS

Dec 17 87 E 20

Average Daily Production Rate - Barrels

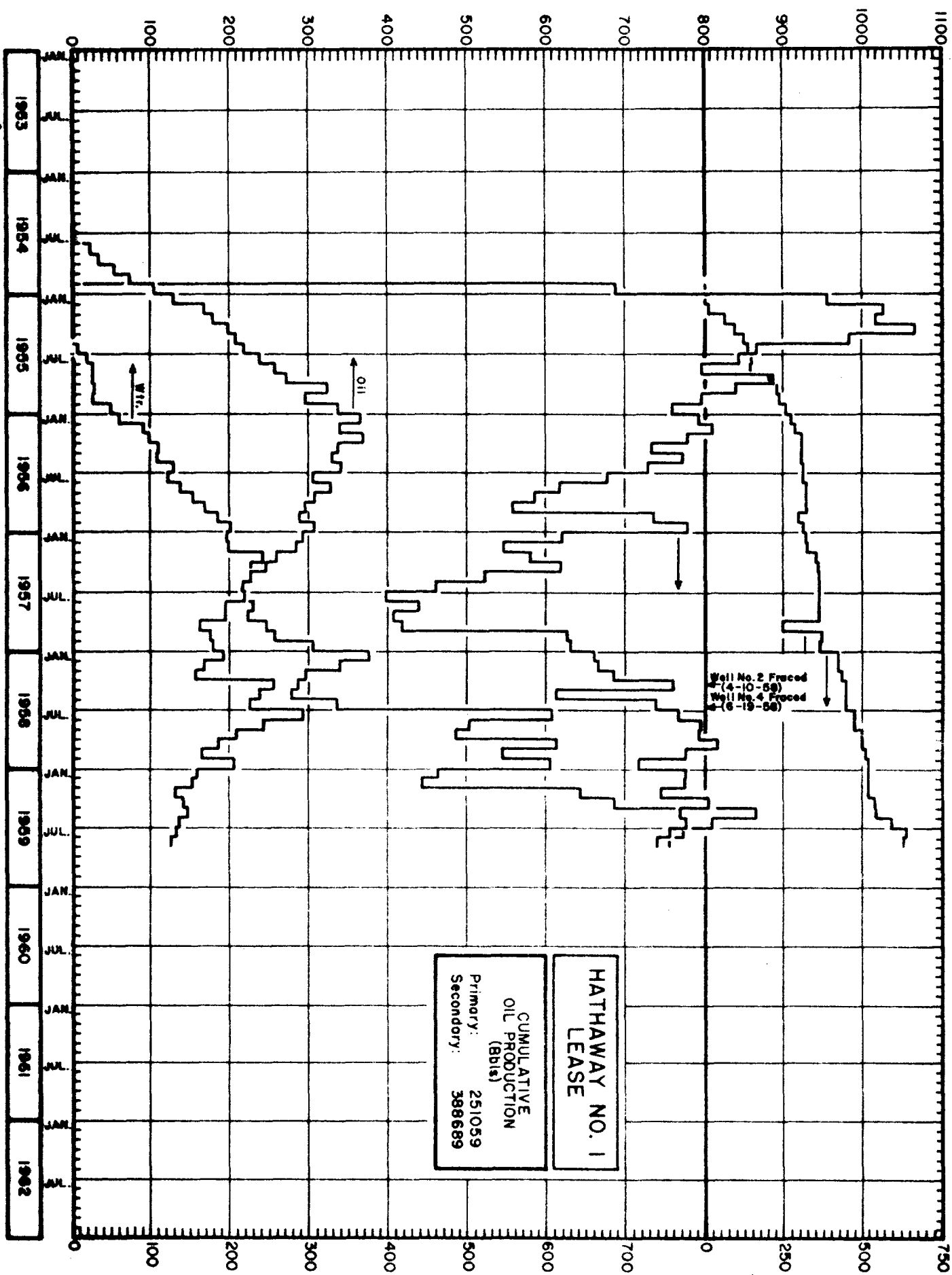


Average Daily Injection Rate - Barrels

Well Head Press.-Psig.

Case 1787 & 22

Average Daily Production Rate - Barrels



Average Daily Injection Rate - Barrels

Well Head Press. - Psig.

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. 23

RUSSELL ENGINEERING

LAB No. 1085

Core Analysis Data

for

CLARK & COWDEN EXPLORATION COMPANY &
HOME-STAKE PRODUCTION CO.

WELL Guitar Trust Estate No. 1-W

DATE CORED 9-15-58 ELEV. 1650 K.B.

FIELD Regular

TYPE OF CORE Diamond 3 1/2"

COUNTY Jones STATE Texas

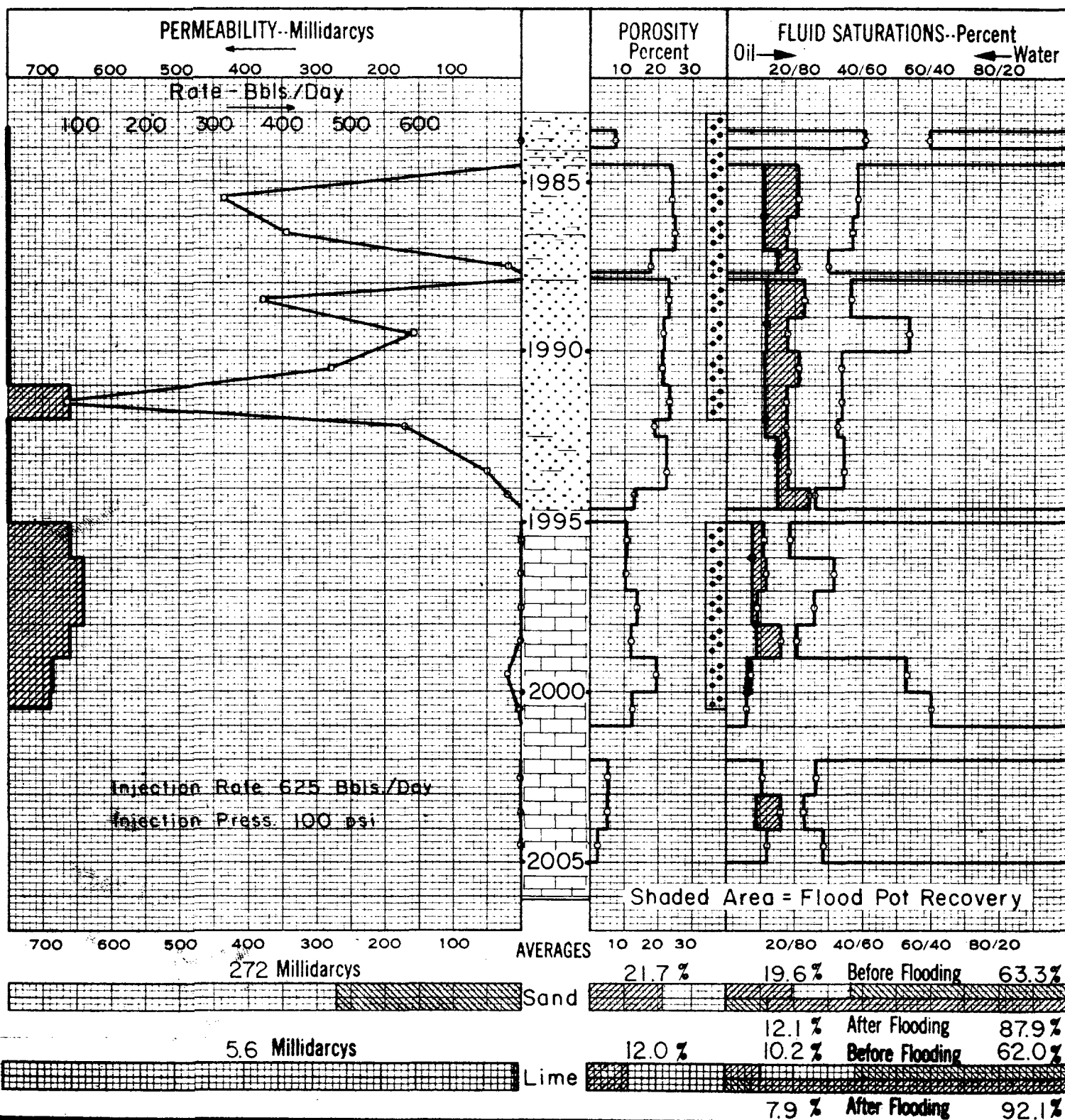
DRLG. FLUID Water Base Mud

LOCATION 175' FWL & 1076' FSL of

FORMATION Flippen Sandstone & Limestone

Section 44, Block 15, T.P.R.R. Survey

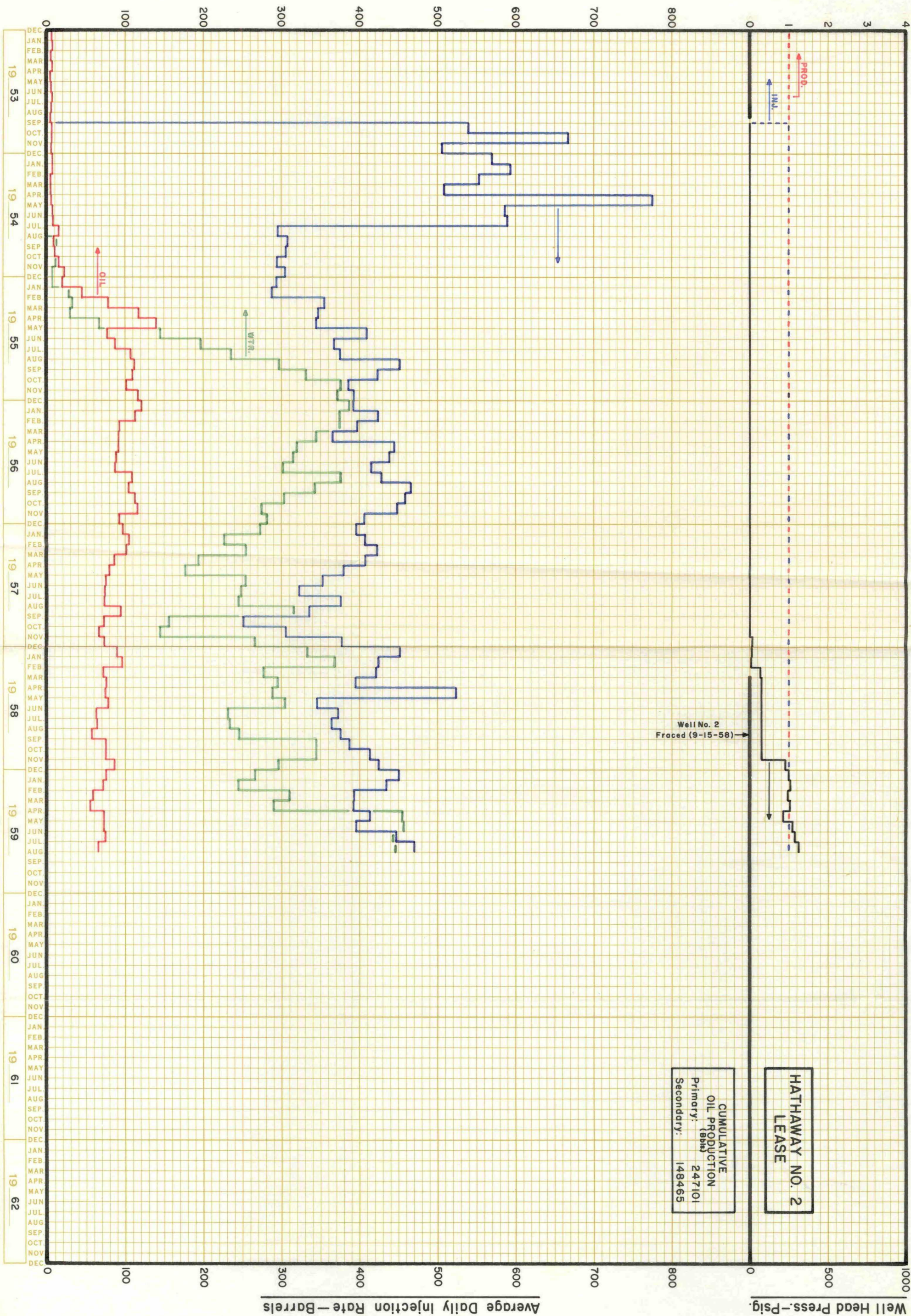
INTERVAL CORED: 1983.0 TO 2006.0





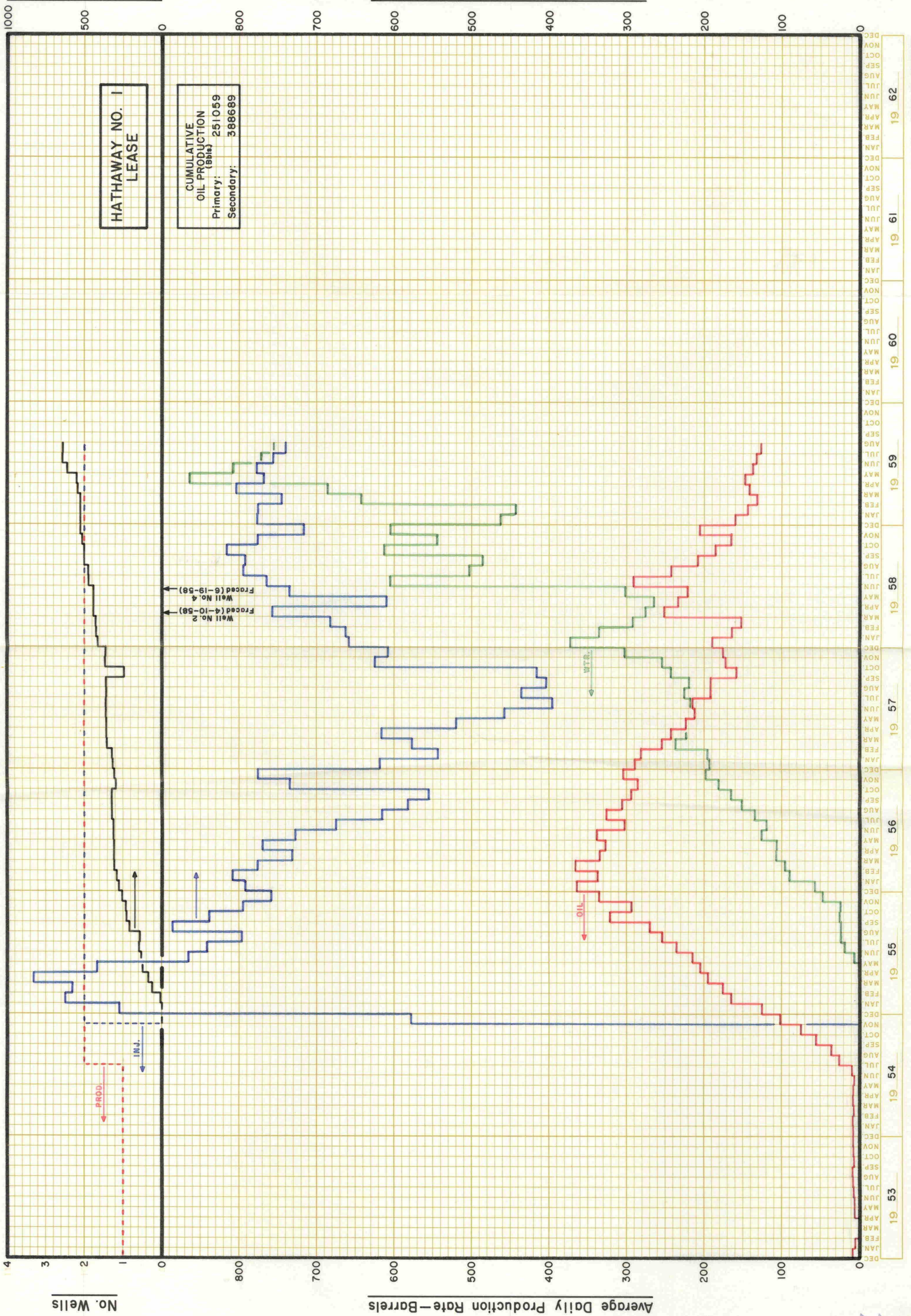
Average Daily Production Rate—Barrels

No. Wells



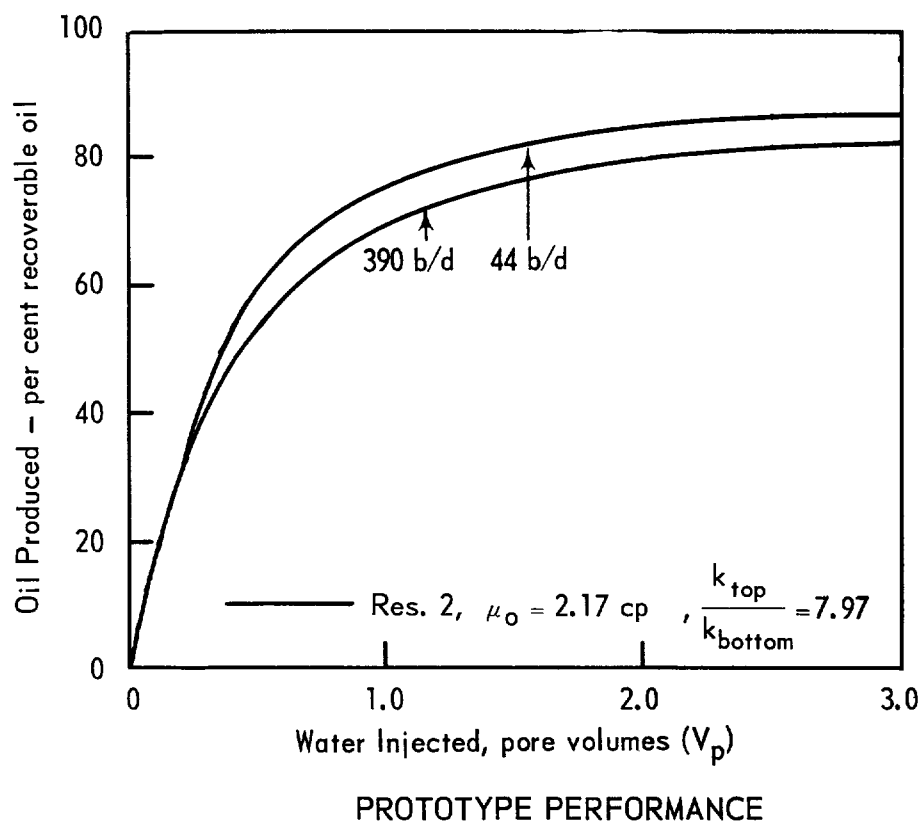
Well Head Press.-Psig.

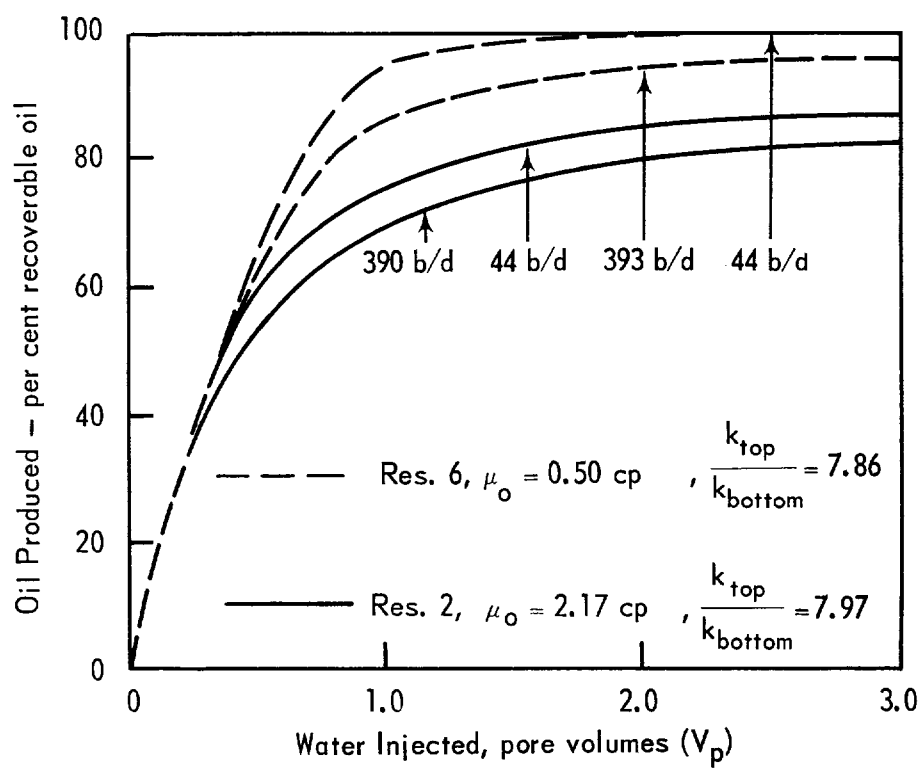
Average Daily Injection Rate - Barrels



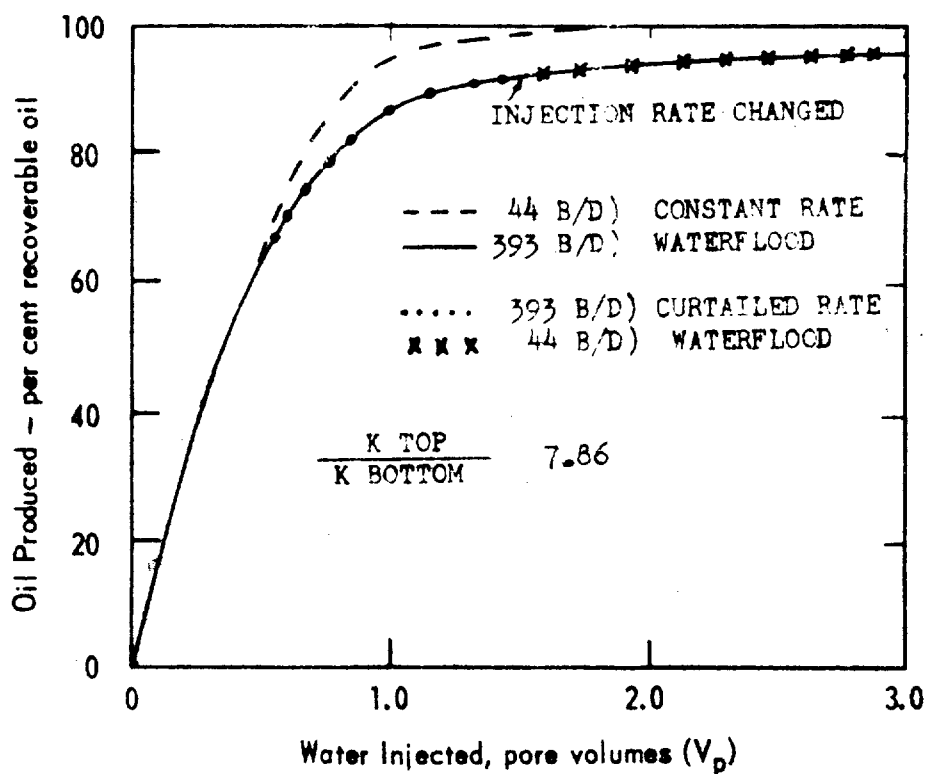
LARGE FORMAT
EXHIBIT HAS
BEEN REMOVED
AND IS LOCATED
IN THE NEXT FILE

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

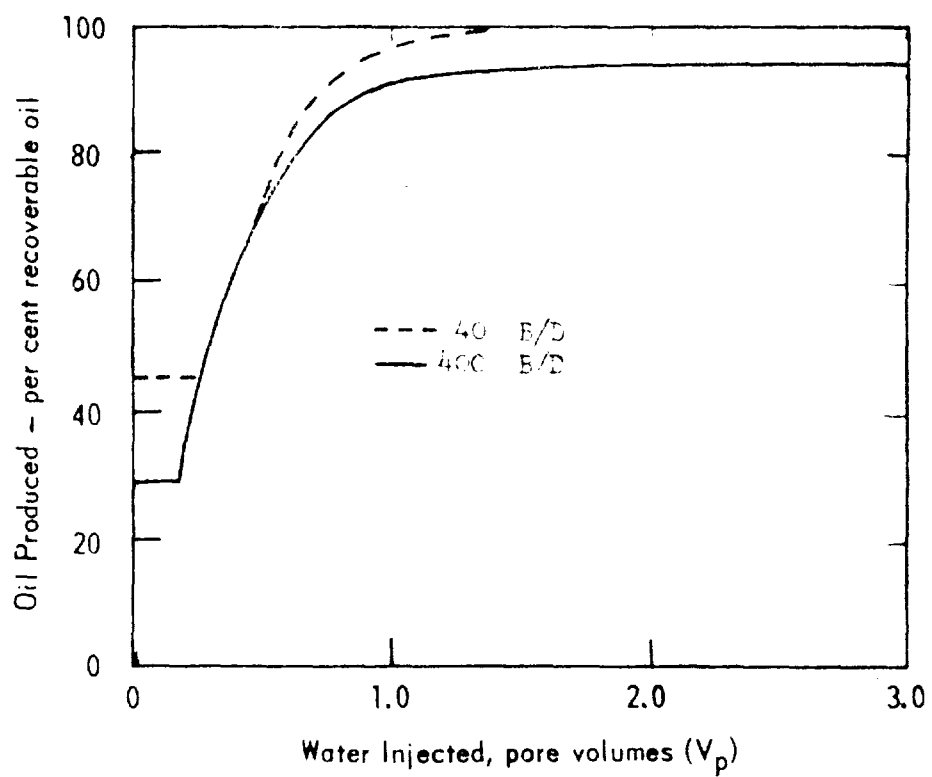




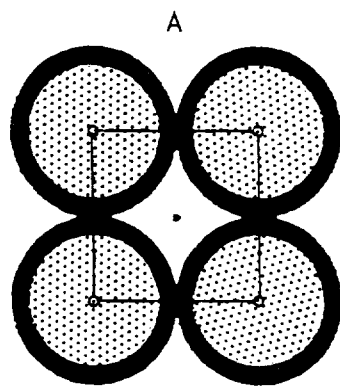
PROTOTYPE PERFORMANCE



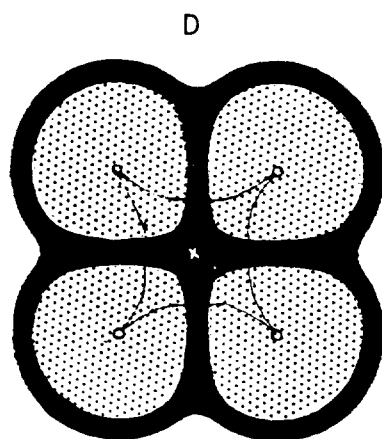
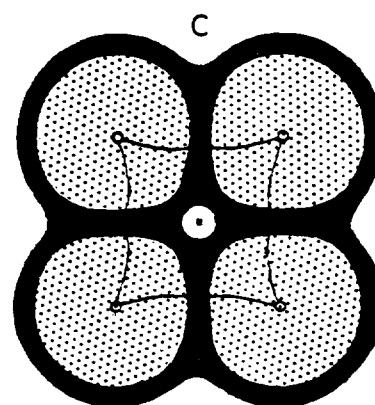
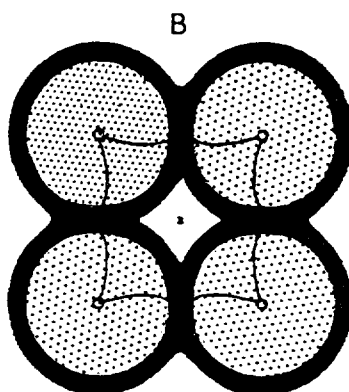
PROTOTYPE PERFORMANCE
 EFFECT OF CURTAILMENT



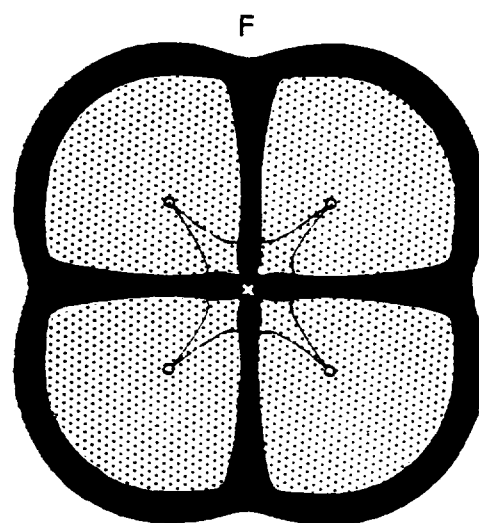
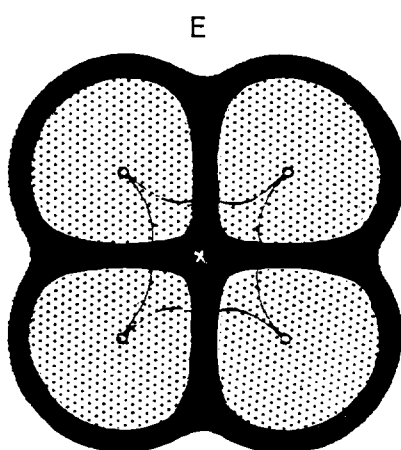
PROTOTYPE PERFORMANCE
WITH INITIAL GAS SATURATION



OIL BANK
INTERFERENCE



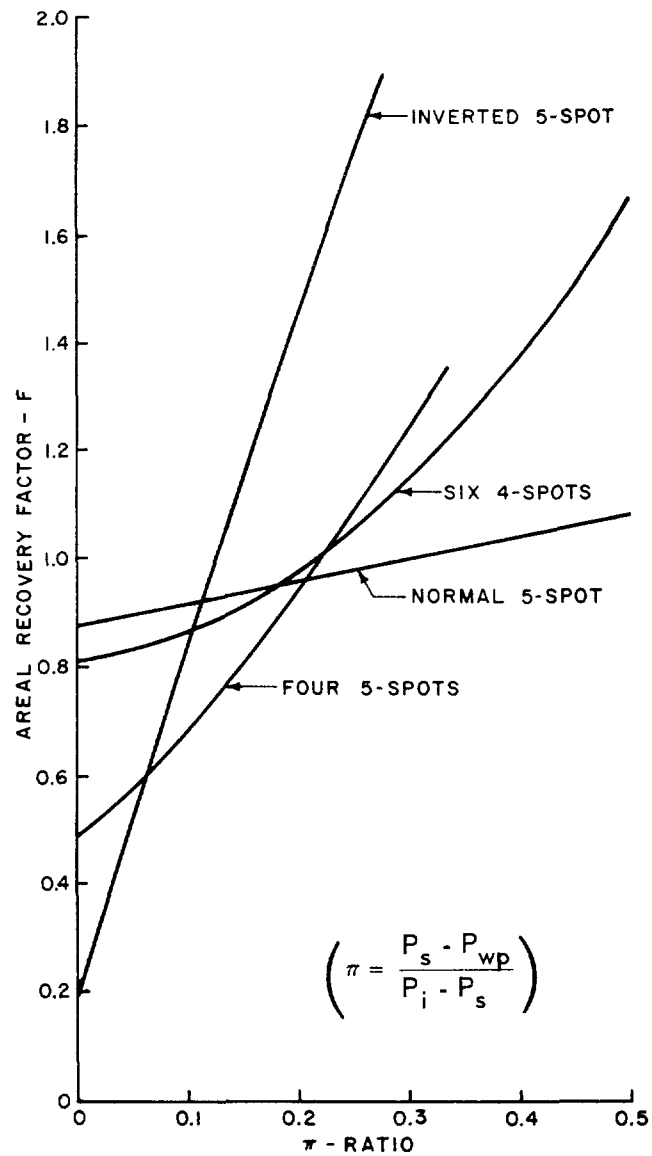
MOMENT OF FIRST
OIL PRODUCTION



X - PRODUCERS
o - INJECTORS

 OIL BANK
 GAS REGION
 WATER BANK

Fluid migration out of a five-spot in a pressure-depleted, dissolved gas drive reservoir.
(After Fischer and Matthews)



EFFECT OF OPERATING CONDITIONS
ON AREAL RECOVERY FACTOR

(After Dalton, Rapoport, and Carpenter-AIME
10-59)

DOCKET: REGULAR HEARING OCTOBER 14, 1959Oil Conservation Commission 9 a.m., Elks Club, 200 North Richardson AvenueROSWELL, NEW MEXICO

- Allowable: (1) Consideration of the oil allowable for November, 1959.
- (2) Consideration of the allowable production of gas for November, 1959, from six prorated pools in Lea County, New Mexico, also consideration of the allowable production of gas from seven prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico.

NEW CASESCASE 1787:

In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider the promulgation of statewide rules governing the operation of water flood projects including the assignment of project or unit allowables.

CASE 1788:

Southeastern New Mexico nomenclature cas calling for an order creating, extending and abolishing existing pools in Chaves, Eddy, Lea and Roosevelt Counties, New Mexico

- (a) Create a new oil pool for Delaware production, designated as the El Mar Delaware Pool, and described as:

TOWNSHIP 26 SOUTH, RANGE 32 EAST, NMMPM

Section 24: S/2

Section 25: All

Section 26: All

Section 34: E/2 Partial Section

Section 35: All Partial Section

Section 36: All Partial Section

- (b) Create a new oil pool for Paddock production, designated as the Justis-Paddock Pool, and described as:

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMMPM

Section 13: SE/4

- (c) Create a new oil pool for Tubb production, designated as the Justis-Tubb Pool, and described as:

TOWNSHIP 25 SOUTH, RANGE 38 EAST, NMMPM

Section 30: NW/4

- (d) Create a new oil pool for San Andres production, designated as the East Millman-San Andres Pool, and described as:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMMPM

Section 22: NE/4

- (e) Create a new oil pool for Devonian production, designated as the West White Ranch-Devonian Pool, and described as:

TOWNSHIP 12 SOUTH, RANGE 28 EAST, NMPM
Section 1: NE/4

- (f) Create a new oil pool for Yates and Seven Rivers production, designated as the San Miguel-Yates and Seven Rivers pool, and described as:

TOWNSHIP 20 SOUTH, RANGE 34 EAST, NMPM
Section 4: NE/4

- (g) Create a new oil pool for Wolfcamp production, designated as the Tonto Deep-Wolfcamp Pool, and described as:

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM
Section 22: SW/4

- (h) Abolish the Grayburg-Keely Pool in Eddy County, New Mexico, described as:

TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM
Section 14: S/2 SW/4
Section 15: S/2 SE/4
Section 22: All
Section 23: All
Section 26: All
Section 27: All

- (i) Extend the vertical limits of the Grayburg-Jackson Pool to include the lower San Andres formation.

- (j) Extend the Allison-Pennsylvanian Pool to include therein:

TOWNSHIP 9 SOUTH, RANGE 36 EAST, NMPM
Section 1: E/2 NW/4
Section 14: N/2
Section 15: NE/4

- (k) Extend the Artesia Pool to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 8: NE/4

- (l) Extend the Bluitt-Pennsylvanian Pool to include therein:

TOWNSHIP 8 SOUTH, RANGE 37 EAST, NMPM
Section 21: SW/4

- (m) Extend the Caprock-Queen Pool to include therein:

TOWNSHIP 15 SOUTH, RANGE 31 EAST, NMPM
Section 20: SW/4