Case No.

149

Application, Transcript,
Small Exhibits, Etc.

Case 149-

Class of Service

WESTERN UNION

1201

W. P. MARSHALL, PRESIDENT

SYMBOLS
DL=Day Letter
NL=Night Letter
LT=Int'l Letter Telegram
VLT=Int'l Victory Ltr.

(47) 1952 MAR 11 19

Time of receipt is STANDARD TIME at point of destination

LA64 DA353 I

LLC359 PD=WUX DALLAS TEX 11 124P=

W B SPURRIER=

OIL CONSERVATION COMMISSION SANTAFE NMEX=

PLEASE AIR MAIL ME COPY OF ORDER IN CASE 149 AS SOON AS AVAILABLE=

W E MCKELLAR JR MAGNOLIA PETROLEUM CO=

Received 3-11-52

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

G. T. HANNERS
ATTORNEY-AT-LAW
STANSELL BUILDING
LOVINGTON, NEW MEXICO

May 22, 1951

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO.
RECEIVED
MAY 25 1951

Mr. R. R. Spurrier
Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Spurrier: Case No. 149 - Crossroads

There is enclosed a suggested order for use by the Commission in disposing of the Crossroads Case No. 149.

It is my thought that unless the testimony affirmatively showed that the 80 acre pattern would accomplish the ultimate recovery of all recoverable oil from the pool, would efficiently drain the entire geographical area of the pool, would prevent waste, would be fair to the royalty owners in such pool and would protect correlative rights, then the operators have failed to justify the continuation of the 80 acre pattern. It is also my thought that not only have the operators failed to justify the continuation of the spacing pattern, but the evidence, particularly that with reference to the undeveloped portion of the north side of the field, affirmatively shows that the 80 acre pattern has not and will not prevent waste and has not and will not bring about the recovery of all of the recoverable oil in the pool or be fair to the royalty owners.

In preparation of the enclosed suggested order I have refrained from particularizing as to the deficiencies in the evidence, because if the evidence be deficient in any of the particulars above suggested or if it be deficient in any other manner, then the adoption of a blanket order such as I have suggested would be supportable by any one ground, but would not be so narrowly restricted. It is for that reason that I have made only one finding of fact, that the evidence submitted is insufficient to prove that the 80 acre exception should be further continued in effect.

I do not wish to appear presumptuous in this matter, but I thought it proper to explain my views in the

matter. If the Commission determines the case favorably to our contention, I will be glad to work with your legal department in the preparation of such final order as may be proper, and, on the other hand, if the Commission determines the case unfavorably to our contention, I will be glad to confer with your legal department about the preparation of any such final order.

Yours very truly,

G. T. HANNERS

GTH:igb

Encl.

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO, ON ITS OWN MOTION, FOR THE PURPOSE OF RECONSIDERING:

ORDER NO. 779 MADE BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 ON JULY 27, 1948, UPON THE APPLICATION OF MID-CONTINENT PETROLEUM CORPORATION, ESTABLISHING THE 80-ACRE DRILLING PATTERN AND PRORATION UNIT FOR THE CROSSROADS DEVONIAN FIELD BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO

CASE NO. 149

ORDER

BY THE COMMISSION:

This case came on for hearing before the Commission on November 21, 1950, pursuant to proper notice, at which time the operating companies Mid-Continent Petroleum Corporation, Magnolia Petroleum Company and Oil Development Company of Texas-Santa Fe Pacific Railroad Appeared by their attorneys and other representatives, and the royalty owners U. D. Sawyer and Dessie Sawyer appeared in person and by their attorney, and at which time other interested companies and individuals appeared by their attorneys or representatives; and, after due consideration of all evidence submitted, the Commission continued the case until further data and information be furnished by the operating companies; and this case then came

on for further hearing before the Commission, pursuant to proper notice, on March 21, 1951, at which time the same operating companies and royalty owners appeared by their attorneys and other representatives and at which time other interested companies and individuals appeared by their attorneys or representatives. The Commission, after consideration of all evidence submitted and the arguments of counsel and statements of interested parties, FINDS:

1. That the Commission has jurisdiction of the parties to and the subject matter of this case.

2. That Order No. 779 in Case No. 149, dated July 27, 1948, which provided for the 80 acre spacing pattern and drilling units in the Crossroads Devonian Field below 12,000 feet, was adopted and promulgated by the Commission as an exception to the general 40 acre spacing pattern and drilling unit as theretofore established and promulgated by the rules and regulations of this Commission.

3. That the evidence submitted is insufficient to prove that said Order No. 779 should be further continued in effect.

IT IS THEREFORE ORDERED:

That order No. 779 in this Case No. 149, dated July 27, 1948, be and the same hereby is cancelled, set aside and held at naught.

DONE at Santa Fe, New Mexico, this the _____ day of _____, 1951.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

_____Chairman

_____Member

_____Secretary

ORDER OF THE COMMISSION

BY THE COMMISSION:

This matter came on for hearing before the Oil Conservation Commission of New Mexico hereinafter referred to as the "Commission" on November 21, 1950 at 10:00 o'clock A. M., at Santa Fe, New Mexico, and after consideration of the testimony adduced at said hearing, the Commission required by its Order of December 29, 1950 continuation of the case until March 20, 1951 for additional evidence as to all wells drilled in the pool, and further information as to the performance of the pool, under eighty acre spacing of the Crossroads Devonian Pool.

On March 20, 1951 upon motion of the Honorable Hiram M. Dow, Attorney for Magnolia Petroleum Corporation, concurred in by all interested parties the case, was continued until 10:00 o'clock A. M., on March 21, 1951 in order that the matter might be heard before the whole membership of the Commission.

The case then came on for further hearing before the Commission at the date, time and place last aforesaid.

Now, on this ____ day of ~~May~~ July, 1951 the Commission having before it for consideration all of the testimony adduced at the November 21, 1950 and March 21, 1951 hearings as well as taking into consideration the original testimony introduced July 15, ~~1948~~ together with the pertinent official records and exhibits filed with the Commission since the inception of the case in June, 1948 and being fully advised in the premises

FINDS:

1. That due public notice of the November 21st, 1950 hearing was duly had, and all interested parties were on notice of the March 20, 1951 hearing by the Commission's Order No. R-45 of December 29, 1950 and all parties having appeared in response thereto, and the Commission having originally retained jurisdiction of the Case by its Order No. 779 has jurisdiction of the case, the subject matter thereof, and of the interested parties therein ~~as a matter of prevention of waste and protection of correlative rights.~~

2. That ~~when~~ at the time Order No. 779 was issued by the Commission, ~~on~~ July 15, 1948, there was only one completed Devonian well in the Crossroads pool, and the productive limits of said pool were highly speculative, although other wells were being drilled within the surface boundaries of said pool as recommended by the then functioning nomenclature committee.

3. That ~~at the time~~ the Commission, ~~under its authority to prevent waste and protect correlative rights~~, upon its own Motion, reopened the matter at the formal ~~suggestion~~ request of U. D. Sawyer and Dessie Sawyer, his wife, (~~owners of interests in the pool,~~) operators in the pool, who then had ~~then~~ completed seven additional wells in the Devonian formation on an eighty acre spacing pattern with one exception (East-West unit arrangement) thereto; of which five of said wells were completed as producers of oil - three being plugged and abandoned as dry holes.

4. That on the basis of conflicting expert testimony the Commission is not able to find that the northern and eastern limits of the Crossroads - Devonian pool have actually and fully been determined under the spacing plan heretofore authorized, and ~~as a result~~ the Commission cannot affirmatively find that all the recoverable oil will be, or possibly will be, ~~that all the~~ recovered from the undeveloped portion of the pool under an 80-acre spacing arrangement.

5. That forty acre spacing has been long established in New Mexico, and is the standard spacing pattern for the drilling of oil wells, ~~long established in New Mexico,~~ and any other spacing pattern at variance therewith in view of the favorable deep pool allowable rule, should be authorized only upon exceptional ~~for the most compelling~~ reasons, which are not found to exist herein.

Needs demonstration of Prod Pot Limits

6. That the Crossroads pool and the Knowles pool to the southeast, both producing from the Devonian formation at approximately the same depth, (in excess of 12000 ft.) and requiring ~~requiring~~ the same approximate drilling cost, are very similar in their respective reservoir characteristics, and should be similarly produced.

7. That the Commission is aware of and has taken into consideration ~~officially on notice of~~ the present steel shortage.

8. That Order No. 779, known as the Crossroads Devonian pool Spacing Order should be ~~supersedes~~ [illegible].

Ex 2 Dan

Statement by Mr Cecil R Buckler.
attorney for Sinclair Oil and Gas Company.

The transcript of the proceedings in this matter on November 21 - 1950 does not quite reflect my exact statement at that hearing. What I said then and desire to place in the record now is that at the risk of burdening the Commission with a "me too" position on behalf of our company, we desire the record to show that Sinclair Oil ~~and~~ Gas Company as an operator in New Mexico is vitally interested in there being established and maintained in the state, spacing of one well to 80 acres where it is shown that such 80 acre spacing will adequately drain the formation without injury to the correlative rights of parties in interest. Sinclair has no acreage within the limits of the Cronnoda Pool and we were not present at the first hearing in this matter in July 1948 but at the November 21, 1950 hearing we suggested that the high cost of drilling and completing wells to the depth of 8 to 10 thousand feet, being in the neighborhood of 3 to 5 hundred thousand dollars could be a factor resulting in less wells being drilled even on 40 acre spacing. We ~~[redacted]~~ made ~~[redacted]~~ a similar statement at the hearing on the Knowles pool.

Now subsequent events in our national ~~[redacted]~~ affairs adds ~~[redacted]~~ the necessity of giving grave consideration to the

conservation of tubular steel in
the oil development program where
conditions permit and such thus
our company is in full accord.

DOCKET
OIL CONSERVATION COMMISSION

Resume of applications to be heard March 20, 1951 at 10:00 o'clock a. m. in Santa Fe, New Mexico, in the Council Chamber of the City Hall.

1. Allowable

2. Case 149 - This is the Crossroads pool 80-acre versus 40-acre spacing question which was continued to March 20 by Order R-45, dated 12-29-50. Companies have been asked to furnish all remaining information available on the Crossroads pool.

3. Case 245 - This case, which involves the designation of the gas pools in Lea, Eddy, and Chaves Counties, was originally scheduled for the December hearing. At that time sufficient information was not available to enable the Commission to promulgate an order, and the case was therefore continued to the regular March hearing (March 20, 1951).

4. Case 260 - This case is an application by Tide Water Associated Oil Company of Houston, Texas, for an oil/oil dual completion of the Ellenburger and McKee formations for State S No. 4, located in the NE/4 NW/4 section 15, T. 21 S, R. 37 E: Perforations 7800-7825' for the Ellenburger and 7422-7434' for the McKee; or in the alternative to transfer allowable of State S No. 4 to State S No. 3.

5. Case 261 - This is an application by Cities Service Oil Company of Bartlesville, Oklahoma, to dually complete State S No. 3, located in the SE/4 NW/4 section 15, T. 21 S, R. 37 E, Lea County, New Mexico, for oil/oil completion in the Ellenburger and McKee formations; Perforations in the Ellenburger 7860-7900' and 7960-8000'; for the McKee 7454-7530'.

6. Case 262 - This is a hearing to set out the limits of the pool and spacing for Mesa Verde production in the vicinity of Largo pool, San Juan County, N. M., generally in Townships 27 and 28 and 29 North, Ranges 7 and 8 West.

7. This case is a matter of nomenclature for the designation or extension of various pools, which is necessitated by recently completed wells in the vicinity of the House Pool, Bough pool, Vacuum pool, and Bagley Siluro-Devonian pool; Twin Lakes (discovery well Magnolia #1 O'Brien "B"), Fowler-Blinebry (discovery well Stanolind, State "D" Tract 14 #1, Gladiola-Abo (discovery well Sinclair, Virgie Green Tract A #1), Levick pool (discovery well Levick, State #1), Keohane pool (discovery well Keohane, Inc. #1 D. Keohane).

Santa Fe, N. M.
February 22, 1951

STATE OF NEW MEXICO
OFFICE OF STATE GEOLOGIST
SANTA FE, NEW MEXICO

May 2, 1951

COPY

Mr. Tom Hanners
Attorney at Law
Lovington, New Mexico

Dear Mr. Hanners:

Since we have received only yesterday a version of an order for Case 149, being an order favoring 80-acre spacing, prepared by the law office of Hervey, Dow and Hinkle, we felt that it was only fair that you should be able to present your version.

Please advise.

Very truly yours,

RRS:bpw

Secretary and Director

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO UPON ITS OWN MOTION FOR THE PURPOSE OF RECONSIDERING:

CASE No. 149
ORDER No. R-100

ORDER NO. 779 OF THE OIL CONSERVATION COMMISSION OF NEW MEXICO ENTERED IN CASE NO. 149 ON JULY 27, 1948, ESTABLISHING 80-ACRE SPACING AND PRORATION UNITS FOR THE CROSSROADS (DEVONIAN) POOL BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing on July 15, 1948, and for further hearings on November 21, 1950 and March 21, 1951, in Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 15th day of October, 1951, the Commission, a quorum being present, having fully considered the testimony adduced at said hearings, the record made in this case, and the exhibits received, and being fully advised in the premises,

FINDS, (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause, the persons and subject matter thereof.

(2) That the Commission, after due notice and hearing, entered its Order No. 779 on July 27, 1948, whereby 80-acre spacing and drilling units were established for the production of oil and gas from the Devonian formation below 12,000 feet, underlying the Crossroads Devonian pool, as is more fully described and defined in said Order No. 779, and set the daily oil allowable of a normal unit for said Crossroads Devonian pool, as an exception to the general 40-acre spacing pattern and drilling unit as theretofore established and promulgated by the Rules and Regulations of this Commission.

(3) That by Section 8 of Order No. 779, the Commission retained jurisdiction of this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights.

(4) That pursuant to its retained jurisdiction, the Commission, after due notice as required by law, held hearings on November 21, 1950, and March 21, 1951, for the purpose of taking additional testimony and receiving further evidence in this cause.

(5) That there was substantial evidence, though controverted to some extent, that waste and impairment of correlative rights will result if 80-acre spacing as provided for in Order No. 779 is continued in effect.

(6) That there was no showing that pressure maintenance or other secondary recovery methods were under consideration by operators in the pool as a matter of preventing waste and protecting correlative rights.

IT IS THEREFORE ORDERED:

1. That Order No. 779 in this Case No. 149, dated July 27, 1948, be, and the same hereby is rescinded.

2. Nothing contained herein shall be construed to be a determination by the Commission as to what constitutes "reasonable development" of any lease in the pool in relation to the implied covenants of any such lease.

3. Nothing contained herein shall be construed to require the drilling of one well on each 40-acre tract in the pool.

4. The effective date of this order shall be November 1, 1951.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Edwin L. Mechem
EDWIN L. MECHEM, Chairman

Guy Shepard
GUY SHEPARD, Member

R. R. Spurrier
R. R. SPURRIER, Secretary

May 11, 1951

COPY

Mr. Tom Manners
Attorney at law
Lovington, New Mexico

Dear Mr. Manners:

In response to your telephone call to Mr. Utz, I wish to say that I do not feel free, without Mr. Dow's consent, to send you the single copy of the suggested order drawn by Mr. Dow.

However, we certainly would like to have your suggestions based upon the testimony given at the Crossroads hearing.

Sincerely,

bpw

Secretary and Director

EXECUTIVE OFFICE
SANTA FE, NEW MEXICO

June 26, 1951, 195

Respectfully referred to

Mr. Dick Spurrier, Director
Oil Conservation Commission
Santa Fe, New Mexico

for such action and report as in his opinion may seem necessary.

E. L. M.
GOVERNOR

Remarks:

1479

Case file

Thanks + for Dick Spencer

OFFICE & RESIDENCE
1306 PILE STREET

A. L. GURLEY
GENERAL BROKERAGE & REAL ESTATE
P. O. BOX 211
CLOVIS, NEW MEXICO

TELEPHONE
DIAL-6934

JUN 18 '51

17 June 1951

Governor Edwin Mechem
Santa Fe, New Mexico

Dear Sir:

When you were in Clovis on the 17 May 51, I ask the County Chairman to arrange a date for a few minutes with you relative to some very important business which I wanted to discuss with you. His answer to me was that you had a date in Santa Fe and could not spare the time at that time.

The business referred to was the decision on the hearing held in Santa Fe on March 21, relative to the respacing of the drilling on oil wells on Sec 27-33-34-35, Sawyer lease to the mid-continet and Gulf oil companies in the Crossroad field, Lea County, N.M. respacing from 80 acres to 40 acres as it is a matter of impossiblity to make anything like the recovery from one well on each 80 acres and 40 acres is not what it should be as it has been the customary when heretefor by all companies to drill on 5 to 20 acres tracks and the agreements were reached on account of scarcety of supplies to drill on 40 acre track. Now the only retarding is the recovery of oil by them being allowed to drill one well on 80 acres tracks.

We hope to have your decision on these particular points at your earliest possible convenience.

Very truly yours,

A. L. Gurley

A. L. GURLEY

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
RECEIVED
JUN 26 1951

G. T. HANNERS
ATTORNEY-AT-LAW
STANOLIND BUILDING
LOVINGTON, NEW MEXICO

W. J. UNDERWOOD

September 17, 1952

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
SEP 22 1952
RECEIVED

Mr. E. M. Dow
Harvey, Dow and Hinkle
First National Bank Building
Roswell, New Mexico

Mid-Continent Appeal from
Crossroads Spacing Order
No. 9910, Lea County

Dear Mr. Dow:

In May I prepared a Motion to Dismiss the Mid-Continent appeal, and then L. C. White, George Graham and I attempted to work out a conference about the matter before the filing of my motion, but summer intervened and we generally decided to wait until fall before pressing the matter. Mr. White has prepared a motion in behalf of the Oil Conservation Commission, and I am suggesting to him that we get our motions filed and reactivate this law suit.

I have today filed my Motion to Dismiss, raising primarily the scope of judicial review, and the unconstitutionality of the statute as to the trial de novo features.

There are enclosed, four copies of the Motion for your use in distribution to your associate council.

Yours very truly,

GTH:erw

CC:

Mr. L. C. White
Gilbert, White and Gilbert
Santa Fe, New Mexico

Mr. George Graham
Oil Conservation Commission
Santa Fe, New Mexico

COPY

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

1201

W. P. MARSHALL, PRESIDENT

SYMBOLS
DL=Day Letter
NL=Night Letter
LT=Int'l Letter Telegram
VLT=Int'l Victory Ltr.

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

LA68 DA204

D=LLC66 DL PD=WUX DALLAS TEX 29 1109A=

R R SPURRIER=

BOX 871 SANTAFE NMEX=

PLEASE ADVISE BY COLLECT TELEGRAM AS TO COMMISSION'S DECISION IN CROSSROADS WHEN SAME IS OFFICIAL= I SINCERELY APPRECIATE YOUR COURTESY AND COOPERATION IN THIS MATTER=

ED MCKELLAR MAGNOLIA PETROLEUM CO=

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
RECEIVED
MAR 29 1951
10:50 a.m.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

October 16, 1951

Mr. [redacted], Attorney
[redacted] Building
[redacted], NEW MEXICO

Dear Mr. [redacted]: RE: Case 149

We enclose signed copy of Oil Conservation Order No. R-133, which derives from Case 149.

It is suggested that you call this order to the attention of your client, Mrs. [redacted]. We will send her a conforming copy of the order as soon as it is prepared for our regular mailing.
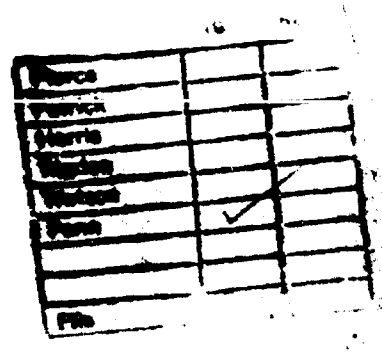
Very truly yours,

Jason Kellahin, Attorney

JKKmw
Encl.

COPY

BOTTOM HOLE PRESSURE TESTS



FIELD WIDE SURVEY

Case 149

CROSSROADS DEVONIAN FIELD

P. exhibit

MID CONTINENT PETROLEUM CORP.
MAGNOLIA PETROLEUM COMPANY
OIL DEVELOPMENT COMPANY OF TEXAS

Mag 9-C

10-7-51

SUBSURFACE ENGINEERING COMPANY

production engineering services

TULSA, OKLAHOMA OKLAHOMA CITY, OKLAHOMA LINDSAY, OKLAHOMA
SNYDER, TEXAS MIDLAND, TEXAS PREMONT, TEXAS
HOUSTON, TEXAS

ENGINEERING COMPANY • production engineering services
701 S. 33rd WEST AVE. TULSA TELEPHONE 54-5819

FIELD WIDE SURVEY

CROSSROADS DEVONIAN FIELD

10-7-51

Lease & No.	P. B. H. P. at -8141' PREVIOUS DATE	PSI GAGE	CURRENT DATE	PSI GAGE	LOSS LBS.	#DAY	SHUT IN HOURS	WATER LEVEL IN TUBING	PAGE NO.
CONTINENTAL PETROLEUM CORPORATION									
L.D.Sawyer #1	2-3-51	4853#	10-7-51	4822#	31	.126	31:15	9208'	1
L.D.Sawyer #1	3-6-51	4860	"	4847	13	.053	33:20	None	2
L.D.Sawyer #1	2-2-51	4872	"	4849	23	.093	34:50	"	3
MAGNOLIA PETROLEUM COMPANY									
Santa Fe-Pacific "B" #1			10-7-51	4853				None	4
OIL DEVELOPMENT COMPANY OF TEXAS									
Santa Fe-Pacific Railroad Fee 27 #2	11-4-50	4854	10-7-51	4859	4# Gain		37	None	5

OKLAHOMA CITY
512 Leonhardt Bldg.
Phone 58-6915

SUBSURFACE ENGINEERING COMPANY

production engineering services

Post Office Box 1827 TULSA Phone 54-5819
FREMONT, TEXAS Phone 3101 MIDLAND, TEXAS Phone 5999
SNYDER, TEXAS Phone 1457

HOUSTON
1307 Bell
Phone P-2629

Field Crossroads Devonian Invoice No. T 10-143

Company Mid-Continent Petroleum Corporation

Lease Dassie Sawyer Well No. 1

Date 10-7-51 Time 14:30 Status of Well Static

Pay Devonian Top 11715' Bottom T.D. 12231' Datum -8141'

Tubing 2½" EUE Depth 12177' B.H.C. No Plug or Pin Plug Packer No

Casing 5½" OD Depth 12218' Perforations 11840' Liner No Tree Top 2½" EUE

Depth Feet	Pressure lbs. sq. in.	Pressure Δ	Gradient lbs./ft.
28	418		
2008	1096	678	.342
4008	1782	686	.343
6008	2459	677	.339
8008	3132	673	.337
10008	3890	758	.379
11750	4660	770	.442
11950	4754	94	.470
12150	4847	93	.465
-310	-144		
11840	4703	Perf.	.465
340	119		
12180	4822	Datum	.345
-8141	4822	"	.345

Casing Press.	673# DMT
Tubing Press.	412# DMT
Oil Level	at top
Water Level	9208'
Hours—Shut In	31:15 Flowing
Temp. @	12150' -196° & 196°F.
Elevation—D.F.	4039' Ground
Last Test Date	2-3-51 Static 30h46m
Press. Last Test	4853#
B.H.P. Change	31#
Loss/Day	.126#
Choke Size	
Oil Bbls./day	
Water Bbls./day	
Total Bbls./day	
Orifice and Line	
Static and Differential	
Gas Sp. Gr.	TF
Cu. ft./day	
GOR	
GFR	

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production	Present Cumulative Production	Production Between Tests
Instrument Amerada	Number 7499	Recovery Factor Bbls./pound Loss
Run By Rex Shearer	Calibration No. M 63	Calculated By FP

Calculations and Remarks: Assumed reservoir gradient .345

FORM R.S. 1 75M 1-51

OKLAHOMA CITY
512 Leonhardt Bldg.
Phone 58-4915

HOUSTON
1907 Ball
Phone P-2429

SUBSURFACE ENGINEERING COMPANY

production engineering services

Post Office Box 1827 TULSA Phone 54-5819

FREMONT, TEXAS Phone 5101 MIDLAND, TEXAS Phone 5999

SNYDER, TEXAS Phone 1457

Field Crossroads Devonian Invoice No. T 10-143

Company Mid-Continent Petroleum Corporation

Lease U. D. Sawyer "C" Well No. 1

Date 10-7-51 Time 16:20 Status of Well Static

Pay Devonian Top 12000' Bottom 12092' T.D. 12102' Datum -8141'

Tubing 2½" EUE Depth 12100' B.H.C. 12100' Plug or Pin Packer

Casing 5½" OD Depth 12097' Perforations 12040-92' Liner Tree Top 2½" OCT

Depth Feet	Pressure lbs. sq. in.	Pressure Δ	Gradient lbs./ft.
26	717		
2006	1396	679	.343
4006	2076	680	.340
6006	2757	681	.341
8006	3436	679	.340
10006	4106	670	.335
11686	4671	565	.336
11886	4743	72	.360
12086	4816	73	.365
6	2		
12092	4818	Bottom of perf.	.365
83	29		
12175	4847	Datum	.345
-8141	4847	"	.345

Casing Press.	697# DWT
Tubing Press.	718# DWT
Oil Level	at top
Water Level	none
Hours—Shut In	33:20 Flowing
Temp. @	12086' -193° & 193°F.
Elevation—D.F.	4034' Ground
Last Test Date	3-6-51
Press. Last Test	4860# static 145 hrs
B.H.P. Change	13#
Loss/Day	.053#
Choke Size	
Oil Bbls./day	
Water Bbls./day	
Total Bbls./day	
Orifice and Line	
Static and Differential	
Gas Sp. Gr.	Tf
Cu. ft./day	
GOR	
GFR	

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production		Present Cumulative Production		Production Between Tests	
Instrument	Amerada	Number	7499	Recovery Factor Bbls./pound Loss	
Run By	Rex Shearer	Calibration No.	M 63	Calculated By	FP

Calculations and Remarks: Assumed reservoir gradient .345

Form R.S. 1 75M 1-51

OKLAHOMA CITY
512 Leonhardt Bldg.
Phone 58-4915

HOUSTON
1307 Bell
Phone P-3429

SUBSURFACE ENGINEERING COMPANY

production engineering services

Post Office Box 1827 TULSA Phone 54-5819

FREMONT, TEXAS Phone 5101 MIDLAND, TEXAS Phone 3999

SNYDER, TEXAS Phone 1457

Field Crossroads Devonian Invoice No. T 10-143

Company Mid-Continent Petroleum Corporation

Lease U. D. Sawyer "D" Well No. 1

Date 10-7-51 Time 17:55 Status of Well Static

Pay Devonian Top 11950' Bottom 12150' T.D. 12150' Datum -8141'

Tubing 2 1/2" Depth 12112' B.H.C. None Plug or Pin Plug Packer No

Casing 5½" OD EUE Depth 12147' Perforations 12000-50' Liner No Tree Top 2½" OCT

Depth Feet	Pressure lbs. sq. in.	Pressure Δ	Gradient lbs./ft.
27	723		
2007	1398	675	.341
4007	2084	686	.343
6007	2760	682	.338
8007	3442	682	.341
10007	4109	667	.334
11692	4679	570	.338
11892	4749	70	.350
12092	4819	70	.350
-42	-15		
12050	4804	Bottom of perf.	.350
131	45		
12181	4849	Datum	.345
-8141	4849	"	.345

Casing Press.	720½# DWT
Tubing Press.	717½# DWT
Oil Level	at top
Water Level	none
Hours—Shut In	34:50 Flowing
Temp. @	12092'-194° & 194°F.
Elevation—D.F.	4040' Ground
Last Test Date	2-2-51 static 32h 20
Press. Last Test	4872#
B.H.P. Change	23#
Loss/Day	.093#
Choke Size	
Oil Bbls./day	
Water Bbls./day	
Total Bbls./day	
Orifice and Line	
Static and Differential	
Gas Sp. Gr.	Tf
Cu. ft./day	
GOR	
GFR	

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production		Present Cumulative Production		Production Between Tests	
Instrument	Amerada	Number	7499	Recovery Factor Bbls./pound Loss	
Run By	Rex Shearer	Calibration No.	M 63	Calculated By	FP

Calculations and Remarks: Assumed reservoir gradient .345

OKLAHOMA CITY
512 Leonhardt Bldg.
Phone 58-0815

SUBSURFACE ENGINEERING COMPANY

production engineering services

Post Office Box 3827 TULSA Phone 54-5919

FREMONT, TEXAS Phone 3101 MIDLAND, TEXAS Phone 3599

SNYDER, TEXAS Phone 1457

HOUSTON
1307 Ball
Phone P-3429

Field Crossroads Devonian Invoice No. T 10-142

Company Magnolia Petroleum Company

Lease Santa Fe - Pacific "B" Well No. 1

Date 10-7-51 Time 12:41 Status of Well Static

Pay Devonian Top 12130' Bottom 12137' T.D. 12137' Datum -8141'

Tubing 2" EUE Depth 12125'? B.H.C. Plug or Pin B.P. Packer

Casing 7" OD Depth 12130' Perforations Open Liner Tree Top 2" 11½ Reg.

Depth Feet	Pressure Lbs. sq. in.	Pressure Δ	Gradient Lbs./ft.
26	712		
2006	1393	681	.344
4006	2090	697	.349
6006	2758	668	.334
8006	3431	673	.337
10006	4104	673	.337
11676	4668	564	.338
11876	4742	74	.370
11976	4779	37	.370
12076	4816	37	.370*
61	23		
12137	4839	Bottom of pay	.370
39	13		
12176	4852	Datum	.345
-8141	4852	"	.345

Casing Press.	683# DWT
Tubing Press.	714# DWT
Oil Level	atop
Water Level	none
Hours—Shut In	Flowing
Temp. @	12076' -193° & 193° F.
Elevation—D.F.	4035' Ground
Last Test Date	
Press. Last Test	
B.H.P. Change	
Loss/Day	
Choke Size	
Oil Bbls./day	
Water Bbls./day	
Total Bbls./day	
Orifice and Line	
Static and Differential	
Gas Sp. Gr.	Tf
Cu. ft./day	
GOR	
GFR	

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production		Present Cumulative Production		Production Between Tests	
Instrument	Amerada	Number	7499	Recovery Factor Bbls./pound Loss	
Run By	Rex Shearer	Calibration No.	M 63	Calculated By	FP

Calculations and Remarks: *Considered sediment and not water. Assumed reservoir gradient .345

Form R.S. 1 7500 1-51

OKLAHOMA CITY
502 Lombardi Bldg.
Phone 58-4913

HOUSTON
1307 Bell
Phone P-2429

SUBSURFACE ENGINEERING COMPANY

production engineering services

Post Office Box 1827 TULSA Phone 54-9819

FREMONT, TEXAS Phone 3101 MIDLAND, TEXAS Phone 3599

SNYDER, TEXAS Phone 1457

Field Crossroads Devonian Invoice No. NT 10-141

Company Oil Development Company of Texas

Lease Santa Fe - Pacific Railroad Fee 27 Well No. 2

Date 10-7-51 Time 11:00 Status of Well Static

Pay Devonian 11747' Top Pay 11778' Bottom Not drilled Thru T.D. 11880' Datum -8141'

Tubing 2½" EUE Depth 11875' B.H.C. None Plug or Pin Plug Packer No

Casing 5½" Depth 11775' Perforations Open Hole Liner Tree Top 2½" OCT

Depth Feet	Pressure lbs. sq. in.	Pressure Δ	Gradient lbs./ft.
30	715		
2010	1393	678	.342
4010	2079	686	.343
6010	2760	681	.342
8010	3439	679	.340
10010	4109	670	.335
11480*	4604	495	.337
11670	4673	69	.363
11770	4713	40	.400
11870	752	39	.390
10	4		
11880	4756	Bottom of Perf.	.390*
298	103		
12178	4859	Datum	.345
-8141	4859	"	.345

Casing Press.	720# DHT
Tubing Press.	715# "
Oil Level	at top
Water Level	none
Hours—Shut In	37:00 Flowing
Temp. @	11870'-194° & 194°F.
Elevation—D.F.	4037' Ground 4026'
Last Test Date	11-4-50
Press. Last Test	4854# Extr. to 8141#
B.H.P. Change	4# gain
Loss/Day	
Choke Size	
Oil Bbls./day	
Water Bbls./day	
Total Bbls./day	
Orifice and Line	
Static and Differential	
Gas Sp. Gr.	Tf
Cu. ft./day	
GOR	
GFR	

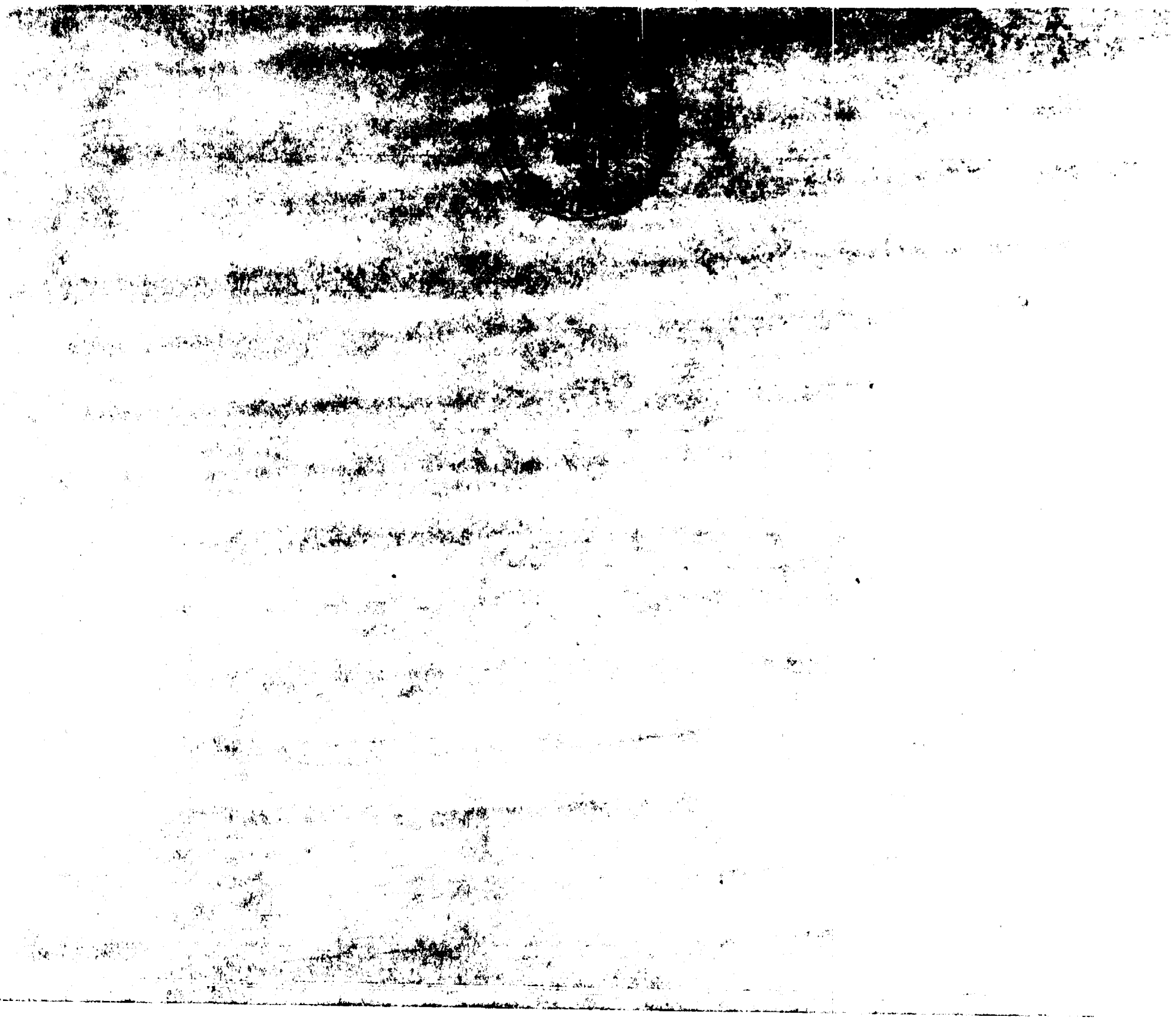
PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production		Present Cumulative Production	Production Between Tests
Instrument	Amerada	Number 7499	Recovery Factor Bbls./pound Loss
Run By	Rex Shearer	Calibration No. M 63	Calculated By FP

Calculations and Remarks:

*Considered sediment and not water.
Assumed reservoir gradient .345

Form R.S. 1 7M 1-51



February 8, 1951

Mr. William E. McKellar, Jr.
Magnolia Petroleum Company
Dallas, Texas

RE: Case 149 - Crossroads Devonian pool

Dear Ed:

This is in reply to your letter of January 16 about which I have done considerable thinking.

Your first comment about Finding No. 2 is certainly correct.

The comment on Finding No. 3 you say: "...is completely erroneous in that detailed engineering testimony was presented at the hearing ..." Finding No. 3 does not say whether Magnolia presented detailed information or not, and I, therefore, believe that you are presumptuous in arriving at that conclusion.

As you know, this case has been one of the worst problems I have ever had. I feel that in controversies of this nature that it is well for the Commission to build as complete a record as possible. No criticism is intended -- or was intended -- of your presentation of testimony, but if the items are available, the Commission would like to have permeability and porosity figures, percentage saturation, direction of water drive, and any other pertinent reservoir characteristics which you have available.

If the Commission's findings and our Order No. R-45 reflected upon your presentation, then I certainly want to take this opportunity to apologize, for no reflection was intended.

The testimony which the various companies have presented since the very beginning of Case No. 149 has not been disregarded in the light of the fact that the spacing is still set at 80 acres.

If you come to Santa Fe for the February 20th hearing, I hope we can discuss this.

Sincerely,

RRS:bpw

Secretary and Director

MAGNOLIA PETROLEUM COMPANY

A SOCONY-VACUUM COMPANY

LEGAL DEPARTMENT

DALLAS 1, TEXAS

WALACE HAWKINS
GENERAL COUNSEL
EARL A. BROWN
ROY C. LEDBETTER
RAYMOND M. MYERS
CHAS. B. WALLACE
R. T. WILKINSON, JR.
JACK VICKREY
FLOYD B. PITTS
SAM H. FIELD
WILLIAM E. McKELLAR, JR.
ASSISTANTS

January 16, 1951

Re: Case No. 149 - Crossroads Devonian Pool

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

Gentlemen: Attention - Mr. R. R. Spurrier, Secretary

Your attention is respectfully directed to Order No. R-45 entered December 29, 1950, in the above-entitled cause. It is impossible to reconcile said order with the certified transcript of the hearing conducted before your commission at Santa Fe November 21, 1950. It is evident from the published findings of fact that the transcript reporter failed to furnish the commission with a complete record of the testimony which transpired at this hearing.

Finding No. 2 makes no mention of what disposition, if any, was made of Mid-Continent Petroleum Company's motion to dismiss. Finding No. 3 is completely erroneous in that detailed engineering testimony was presented at the hearing on Magnolia's Santa Fe 1-C well and on the Oil Development Company's Santa Fe well. Both these tests produce from the Crossroads Devonian formation. Yet your finding No. 3 states that "the testimony adduced at said hearing related only to Mid-Continent wells in the Crossroads pool . . . ."

It is certainly highly irregular to have qualified expert witnesses completely disregarded in matters of this nature. In the particular case No. 149, where the engineering testimony presented by all operators concerned was unanimous and uncontroverted in that 80-acre spacing in the Crossroads Devonian pool would prevent waste and preserve correlative rights, it is amazing to learn that this testimony was completely disregarded by the commission. Such a finding is extremely perplexing when viewed in light of the splendid

record which this commission has established from its inception.

Order No. R-45 makes no disposition of the basic matter involved in case No. 149, but summons the operators to appear before the commission on March 20, 1951. Inasmuch as Magnolia has appeared before the commission on two occasions and presented all the evidence which we had available on this pool, we are at a loss to determine what additional information is desired on March 20th. It would greatly aid our engineers and geologists in the preparation of their evidence if the commission would advise as to the specific questions they desire to be answered on this pool. On two previous occasions uncontroverted engineering data has been presented on Crossroads Devonian. Witnesses have been cross-examined by royalty interests and by the commission. However, it is apparent that the commission desires answers to additional questions, otherwise there would be no reason to again summon the operators to Santa Fe at a great expenditure of time, effort, and money.

I would greatly appreciate any enlightenment which the commission members, its staff, or attorneys would care to offer in this regard.

Yours truly,

William E. McKellar, Jr.

WEM:jt

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF PETITION OF MID-CONTINENT PETROLEUM COMPANY, MAGNOLIA PETROLEUM COMPANY, AND OTHERS REQUESTING A REHEARING TO RESCIND OIL CONSERVATION COMMISSION ORDER R-100 RELATING TO SPACING IN THE CROSSROADS POOL (Lea County, New Mexico).

CASE NO. 149
ORDER NO. R-100-B

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause having come on for special hearing at 10: 00 o'clock December 19, 1951, at Santa Fe, New Mexico, before the Oil Conservation Commission hereinafter called the "Commission", upon the application of Mid-Continent Petroleum Company, Magnolia Petroleum Company, Oil Development Company of Texas and Santa Fe Pacific Railroad Company for a rehearing in the matter of oil well spacing in the Crossroads-Devonian pool, Lea County, New Mexico, and for the rescission of the Commission's Order No. R-100 relating thereto;

NOW, on this 6th day of March 1952, the Commission, a quorum being present, having considered the testimony adduced and the exhibits received at said hearing, and being otherwise fully advised in the premises finds:

1. That an active water drive is present within the Crossroads Devonian pool.

2. That the loss of the bottom-hole pressure during the life of the field, three years, has been approximately 28 lbs., half of which loss has occurred within the last seven months.

3. From the evidence it appears that core analyses taken within the Crossroads-Devonian formation show a wide range of permeability and porosity within the pool.

4. That the water-drive movement can be made more uniform through the permeable channels of the formation by the adoption of a 40-acre spacing pattern than can be obtained by an 80-acre spacing program.

5. That the combination of the active water drive within the field and the non-uniform permeability within the formation has the inherent danger of channeling water when wells are produced at high daily per-well rates, and that a 40-acre spacing program would permit the continued producing capacity of said reservoir at lower daily per-well rates, would reduce the tendency of the water channeling or coning, and would minimize the danger of the by-passing of oil within said reservoir by reason of a more uniform encroachment of the water.

6. That a proration unit of 40 acres should be established in the Crossroads-Devonian pool, Lea County, New Mexico, as being the area necessary for one well to effectively, efficiently and economically drain and develop said reservoir and to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED, That petitioners' application be and the same hereby is denied and the Commission's Order No. R-100 be and the same hereby is affirmed in all respects, except the finding of fact No. 6 is hereby withdrawn.

IT IS FURTHER ORDERED, That a proration unit of 40 acres per well be and the same is hereby established for the Crossroads Devonian Pool, Lea County, New Mexico.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Edwin L. Mechem

EDWIN L. MECHEM, CHAIRMAN

Guy Shepard

GUY SHEPARD, MEMBER

R. R. Spurrier

R. R. SPURRIER, SECRETARY

SEAL

SUMMONS

IN THE DISTRICT COURT, COUNTY OF LEA, STATE OF NEW MEXICO

IN THE MATTER OF THE PETITION OF MID-CONTINENT PETROLEUM CORPORATION AND MAGNOLIA PETROLEUM COMPANY FOR REVIEW AND APPEAL OF PROCEEDINGS BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 AND FROM ORDERS NO. R-100 and NO. R-100-B ENTERED THEREIN.

NO. 9910

vs.

....., Defendant

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
MAR 26 1952

THE STATE OF NEW MEXICO

TO: NEW MEXICO OIL CONSERVATION COMMISSION

Defendant

Greeting:

You are hereby commanded to appear before the Fifth Judicial District Court of the State of New Mexico, sitting within and for the County of Lea, that being the county in which the complaint herein is filed, within thirty days after service of this summons, then and there to answer the Petition For Review in the above cause.

Petitioners

You are notified that unless you so appear and answer, the ..... will apply to the court for the relief demanded in the complaint together with costs of suit.

WITNESS, the Honorable C. ROY ANDERSON,
District Judge of the Fifth Judicial
District Court of the State of New Mexico,
and the Seal of the District Court of Lea County,

(Seal)

this 21st day of March, A. D., 19 52

W.M.BEAUCHAMP
Clerk of the District Court.

By Lucille B Lister
Deputy

A statement of the nature of the action in general terms, viz: More particularly appears in the Petition For Review, copy of which is attached hereto.

W.M.BEAUCHAMP
Clerk of the District Court

By Lucille B Lister
Deputy

SHERIFF'S RETURN

State of New Mexico,
County of Lea

I, ...
Sheriff of Lea County, New Mexico, do hereby certify that this writ came to hand the

.....day of....., 19.....
and there was at the same time delivered to

me for service herewith.....cop.....

of this summons and.....cop.....
of the complaint filed therein; that I made service herein by delivering one copy of this summons and one copy of the complaint here-

in to each of the within named defendant.....
within the said County of Lea, as follows to-wit:

.....

.....

(Name)

on .... and
(Date of Service)

.....

on .....

.....

FEES FOR SERVICE

Serving writ and return..... $.....

Mileage ..... $.....

Total ..... $.....

....., Sheriff

By ....., Deputy

No. 9910

IN THE

DISTRICT COURT

LEA COUNTY, NEW MEXICO

IN THE MATTER OF THE PETITION OF MID-CONTINENT PETROLEUM CORPORATION AND MAGNOLIA PETROLEUM COMPANY FOR REVIEW AND APPEAL OF PROCEEDING BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO.149 AND FROM ORDERS NO. R-100 and NO. R 100-B ENTERED THEREIN

.....

.....

Defendant.....

SUMMONS

HERVEY-DOW-HINKLE
ROSWELL, NEW MEXICO

ATTORNEYS FOR PETITIONER

Attorney..... for Plaintiff.....

AFFIDAVIT OF SERVICE

STATE OF NEW MEXICO
COUNTY OF LEA
SS.

I, ..., being first duly sworn, on oath, state: That I am a citizen of the United States and over the age of eighteen years, and not a party of said action; that I have made service of the within summons in the above-named county and state by delivering a true copy of this summons together with a copy of the complaint, filed in said cause to (each of) the following defendant..... herein named, to-wit:

.....

.....

.....

IN THE DISTRICT COURT OF LEA COUNTY, NEW MEXICO

IN THE MATTER OF THE PETITION OF MID-CONTINENT PETROLEUM CORPORATION AND MAGNOLIA PETROLEUM COMPANY FOR REVIEW AND APPEAL OF PROCEEDING BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 AND FROM ORDERS NO. R-100 and NO. R 100-B ENTERED THEREIN.

CASE NO. 9910

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
MAR 26 1952
RECEIVED

PETITION FOR REVIEW

Comes, now Mid-Continent Petroleum Corporation and Magnolia Petroleum Company, and for their petition for the review of the action of the Oil Conservation Commission of the Stateof New Mexico in the above styled and numbered case, alleges and states:

1. That Case No. 149 originally came on to be heard before the Oil Conservation Commission of New Mexico on July 15, 1948 upon the application of the Mid-Continent Petroleum Corporation. Based upon the uncontroverted evidence and testimony presented in the July 15, 1948 hearing, the Commission on July 27, 1948 entered Order No. 779 in Case No. 149. Order No. 779 was based on a finding by the Commission

> "That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable areas as above delineated or any extension thereto, so as to insure a proper and uniform spacing, developing, and producing plan for all wells in this common source of supply.
>
> 3. That due to conditions established by the aforesaid discovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

4. That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superseded.

5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials."

By the terms and provisions of Order No. 779, the Commission established eighty (80) acre spacing and drilling units for the Crossroads-Devonian Reservoir, Lea County, New Mexico effective August 16, 1948.

2. Section 19 (a), Chapter 168 of the Laws of New Mexico of 1949 grants the right to any person affected by an order of the Oil Conservation Commission to apply for a rehearing in the case within twenty (20) days after the order being complained of is entered. Order No. 779 was entered and signed July 27, 1948 and became final twenty (20) days thereafter when no interested party filed an application for rehearing in the case.

3. The Crossroads-Devonian pool was developed by Magnolia Petroleum Company, Mid-Continent Petroleum Corporation, and the Oil Development Company of Texas pursuant to and in accordance with the specific provisions of Order No. 779. Nine test wells had been drilled and a tenth was being drilled to the Devonian formation by the pool operators when this matter was last before the Commission. Over three million dollars has been spent in developing this pool in reliance upon Order No.779

of the Oil Conservation Commission. A copy of Order No. 779 is attached as "Exhibit A" and made a part hereof. A plat showing the development of this pool as it existed when this case was last before the Conservation Commission is attached as "Exhibit A-1" and made a part hereof.

4. (a) On September 2, 1950, U. D. Sawyer and Dessie Sawyer filed an "Information" with the New Mexico Oil Conservation Commission. This "Information" prayed that the Commission rescind Order No. 779. A copy of said "Information" is attached as "Exhibit B" and made a part hereof.

(b) In response to the "Information" referred to above, the Oil Conservation Commission cited the operators of the Crossroads Devonian pool to appear before them in Santa Fe, New Mexico at 10:00 A. M., November 21, 1950 and show cause why Order No. 779 should be continued in effect.

(c) In response to the citation referred to above, the operators of Crossroads-Devonian Pool appeared before the Conservation Commission on November 21, 1950.

The said operators filed a motion to have the matter dismissed on the grounds that the proceedings constituted a collateral attack on Order No. 779. Order No. 779 had become final; rights obtained thereunder had become vested and millions of dollars had been spent in reliance upon the expressed terms and provisions of the order. This motion to dismiss was denied by the Commission.

Three experienced and technically trained petroleum engineers testified at the November 2, 1950 hearing. All three of these experts testified that one well would efficiently and economically drain eighty (80) acres in the Crossroads-Devonian Reservoir, and that it was unnecessary and wasteful to drill on any denser spacing pattern. The testimony of these three engineers was uncontroverted and undisputed at the hearing.

Notwithstanding this fact, the Commission failed to issue a definite order, but continued the matter until March 21, 1951.

5. At 10:00 A. M., March 21, 1951, Case 149 again came before the Conservation Commission to be heard. Mid-Continent Petroleum Corporation presented one (1) expert geologist and two (2) expert petroleum engineers. Magnolia Petroleum Company and the Oil Development Company of Texas each presented one (1) expert engineer. All five of these expert witnesses were familiar with the pool in question and all five had made a detailed study of the reservoir conditions. Each and every one of these witnesses testified that one well would efficiently and economically drain eighty (80) acres in this pool.

U. D. Sawyer and Dessie Sawyer presented one witness at the March 21, 1951 hearing. This witness' testimony was in part conflicting with that of the five (5) experts presented by the oil operators.

6. On October 15, 1951, the Oil Conservation Commission of New Mexico issued Order No. R-100 in Case No. 149. By its expressed provisions Order No. R-100 rescinded Order No.779. A copy of Order No. R-100 is attached as "Exhibit C" and made a part hereof.

7. Within the statutory time allowed Mid-Continent Petroleum Corporation, Magnolia Petroleum Company and the Oil Development Company of Texas filed an application for rehearing in Case No. 149. This rehearing was granted within the statutory time provided by law and the case again came before the Commission at 10:00 A. M., December 19, 1951. A copy of Mid-Continent Petroleum Corporation and Magnolia Petroleum Company's application for rehearing in Case No.149 is attached as "Exhibit D" and made a part hereof.

(a) The petitioners for rehearing in Case No. 149 presented three expert petroleum engineers on December 19,

1951. Each of these men had worked in the Crossroads-Devonian Pool since its inception and were highly qualified to offer testimony in this case. These witnesses testified that one well would efficiently and economically drain 80 acres in the Crossroads-Devonian Reservoir and that no waste was occurring or had occurred through use of the 80 acre spacing pattern in the pool.

(b) U. D. Sawyer and Dessie Sawyer presented one expert witness at the December 19, 1951 hearing. This witness admitted that his study of the Crossroads-Devonian Reservoir was limited to 12 days. (Official transcript of December 19, 1951 hearing Page 99). This witness' testimony in part conflicted with the testimony of witnesses presented by the operators in the pool.

8. On March 6, 1952 the Oil Conservation Commission of New Mexico issued Order No. R-100-B in Case No. 149. A copy of this order is attached as "Exhibit E" and made a part hereof. Petitioner alleges that the Commission erred in issuing Order R-100-B in the following respects, to-wit:

(1) In rescinding Order No. 779 providing for 80 acre spacing in Crossroads-Devonian Reservoir.

(2) In completely ignoring and disregarding the preponderance of the evidence and weight of the testimony presented before the Commission.

(3) In denying this petitioner's motion to dismiss the collateral attack on Order No. 779 in Case No. 149.

(4) In failing to find that one well in the Crossroads-Devonian Reservoir would efficiently and economically drain 80 acres.

(5) In failing to find that no waste or impairment of correlative rights had occurred or is occurring under the 80 acre spacing program in the Crossroads-Devonian Reservoir.

(6) In ordering that 40 acre proration units be established for the Crossroads-Devonian Pool. This finding and order is clearly against the weight and preponderance of the evidence and contrary to Section 13 (b), Chapter 168 of the Laws of the State of New Mexico, 1949.

(7) In failing to base an order in Case No. 149 upon the clear preponderance of the evidence before the Commission.

9. Petitioner further alleges that:

(1) Orders R-100 and R-100-B referred to above are contrary to the law and the evidence in this case, and should be reversed and held for naught. These orders if allowed to remain in full force and effect will result in the drilling of numerous unnecessary wells and needless expenditure of hundreds of thousands of dollars contrary to expressed provisions of Section 13 (b), Chapter 168 of the Laws of the State of New Mexico, 1949. This drilling of unnecessary wells creates fire and other hazards conducive to waste, and unnecessarily increases the production cost of oil or gas or both to the operator, and thereby also unnecessarily increases the cost of the products to the ultimate consumer. These orders referred to above, if allowed to remain in effect, will necessitate the needless and wasteful expenditure of thousands of tons of steel tubular goods at a time when steel is critical and so badly needed for National Defense.

(2) That Mid-Continent Petroleum Corporation and Magnolia Petroleum Company are the owners and operators of valid and producing oil leases within the Crossroads-Devonian Pool located in Lea County, New Mexico, and that this court has jurisdiction of this petition for review.

(3) That all of the matters and issues herein presented were heretofore presented to the Oil Conservation

Commission in Petitioners' Application for Rehearing and in the hearing granted pursuant thereto.

WHEREFORE, Petitioners respectfully pray the court, as authorized by Section 19b, Chapter 168 of the Laws of the State of New Mexico, 1949, that notice of this petition for review be served in the manner provided for the service of summons in civil proceedings upon the adverse parties, U. D. Sawyer and Dessie Sawyer, who reside in Lea County, New Mexico, and upon the Oil Conservation Commission of New Mexico by service upon R. R. Spurrier, Secretary and member of the Oil Conservation Commission, who resides and has his office in Santa Fe, New Mexico, and that this petition be set for trial, and upon the hearing thereof that this court review the action of the Oil Conservation Commission herein complained of and to enter its order vacating the orders of the Commission hereinabove referred to and to enter its order in lieu thereof establishing eighty (80) acre proration and drilling units in the Crossroads-Devonian Reservoir, Lea County, New Mexico, and that Order No. 779 originally entered in Case No. 149 be affirmed and made permanent in all respects.

HERVEY, DOW & HINKLE

By H. M. DOW

ROSS MADOLE

J. R. CROCKER

W. E. McKELLAR, JR.

ATTORNEYS FOR PETITIONER,
MID-CONTINENT PETROLEUM CORPORATION
TULSA, OKLAHOMA

ATTORNEYS FOR PETITIONER,
MAGNOLIA PETROLEUM COMPANY
BOX 900, DALLAS, TEXAS

Case 149
Woon

G. T. HANNERS
ATTORNEY-AT-LAW
STANOELL BUILDING
LOVINGTON, NEW MEXICO

April 19, 1952

M. J. UNDERWOOD

Mr. George A. Graham
Oil Conservation Commission
Santa Fe, New Mexico

Mr. L. C. White
Oil Conservation Commission
Santa Fe, New Mexico

Gentlemen:

On April 17th, I wrote H. M. Dow, at Roswell, about the defective service in the Crossroads case, and I have today discussed the matter with him by long distance telephone. He agreed that service of process on the Secretary of the Commission would be insufficient, or at least questionable. This morning he had additional process issued, and he will now serve the same on the Governor and the Land Commissioner.

He agreed for me to take the 30 days additional time that will be available under the new service of process.

I will communicate with you further as soon as I have completed my research on the law questions involved, and the availability of them by way of motion.

Yours very truly,

GTH:dlm

COPY

Upon

OIL CONSERVATION COMMISSION

P. O. BOX 871
SANTA FE, NEW MEXICO

April 7, 1952

COPY

Mr. O. T. Hammers, Attorney
Lovington,
New Mexico

Dear Mr. Hammers:

Mr. Graham asked me to relay the following information to you (in regard to your proposed conference on Case 149): that because of the Easter holidays, it was suggested that you might wish to be in Santa Fe the first week after Easter (April 13) - perhaps on the Monday or Tuesday following.

For George Graham

GG:mr

Nancy — please write
Banners. That because of
Easter Holidays we suggest
Coming - 1st week after
Easter April 13, Say Monday
or Tuesday following.

GS

G. T. HANNERS
ATTORNEY-AT-LAW
STANSELL BUILDING
LOVINGTON, NEW MEXICO

April 4, 1952

Mr. George Graham
State Land Office
Santa Fe, New Mexico

Dear George: Crossroads OCC Case 149

Process in Mid-Continent's appeal from the decision of the Commission in the Crossroads spacing matter has been served on the Sawyers and delivered to me for attention.

I will be glad to have a conference with you, Mr. White, Mr. Kellahin and Mr. Spurrier about the appeal in this case, because I have a theory I want to advance in opposition to the appeal. Your letter of April 3rd states that Mr. Macey will probably contact me over the week end, and I will be glad to confer with him about the matter. I will be in court on Monday and Tuesday, the 7th and 8th, and immediately thereafter I want to begin preparation for the defense of the Commission's order. I will at that time call you about the matter, and make arrangements for the conference between all of us.

Yours very truly,

GTH:dlm

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

April 3, 1952

COPY

Mr. O. T. Hanners, Attorney
Lovington, New Mexico

Dear Tom: RE: OCC Case 149

Charley White, Mr. Kellahin, Mr. Spurrier and I discussed yesterday the matter of appeal to the court taken by Mid-Continent and Magnolia. This office was served as of March 26, and we thought that in all probability you would wish to confer with us prior to the time the Commission responded to the pleadings.

Undoubtedly Mr. W. B. Macey, chief engineer of the Commission, will visit with you this weekend, and doubtless will carry your message to us as to when you might be in Santa Fe. If not, please let us know at your earliest convenience.

Very truly yours,

George Graham

GGraw

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

MEMORANDUM

C O P Y

To: R. R. Spurrier and W. B. Macey

From: George Graham

SUBJECT: Case 149

Observing the material prepared in connection with the Crossroads matter, and in view of the statutes, I suggest that you cause a mimeograph to be prepared of Mid-Continent et al's petition for rehearing. This would be a great convenience to the legal staff in studying the court petition, for review preparatory for our answer.

G. G.

GG:mr

IN THE DISTRICT COURT OF LEA COUNTY, STATE OF NEW MEXICO

IN THE MATTER OF THE PETITION
OF MID-CONTINENT PETROLEUM
CORPORATION AND MAGNOLIA PETROLEUM
COMPANY FOR REVIEW AND APPEAL OF
PROCEEDING BEFORE THE OIL CONSERVATION
COMMISSION OF THE STATE OF NEW MEXICO
IN CASE NO. 149 AND FROM ORDERS
NO. R-100 AND NO. R-100 B ENTERED
THEREIN

NO. 9910

ORDER SUSTAINING MOTION TO DISMISS

This cause came on for hearing before the Court on January 29, 1953, the Sawyer movants appearing by their attorneys, G. T. Hammers, of Lovington, New Mexico, and Jack M. Campbell, of Roswell, New Mexico, the Oil Conservation Commission appearing by its attorneys, L. C. White and George A. Graham, of Santa Fe, New Mexico, the Mid-Continent Petroleum Corporation appearing by its attorneys, H. M. Dow of Roswell, New Mexico, and J. P. Greve, of Tulsa, Oklahoma, and the Magnolia Petroleum Company appearing by its attorney, Ross Madole, now of Dallas, Texas; and at the same time there came on to be heard the Motion to Strike by the Oil Conservation Commission; and the Court, after considering the arguments of counsel and after being fully advised in the premises, is of the opinion:

1. That the Motion to Strike should be overruled.

2. That the Oil Conservation Commission is an administrative agency with delegated powers of legislative or quasi legislative nature, and that in the making and entry of the order appealed from the Oil Conservation Commission was acting in a legislative or quasi legislative capacity.

3. That the order appealed from was not beyond the authority of the Commission to make.

4. That the jurisdiction of the Court on appeal from an order or decision of the Commission is limited to a determination of whether or not (a) there was substantial evidence before the Commission to support such order or decision, (b) the same was arbitrary or capricious and (c) was within or beyond the authority of the Commission to make.

5. That insofar as Section 69-223 purports to confer upon the Court jurisdiction to proceed as by trial de novo, to determine issues of fact, to receive additional evidence and, from a preponderance of the evidence, to modify the order of the Commission, and to enter in lieu thereof such order as the Court may determine to be proper is in violation of Article 3, Section 1 of the New Mexico Constitution, and is void; but that said statute is not unconstitutional when the scope of judicial review is limited to the determination of the factors last above enumerated.

6. That the appellants do not allege and do not contend that the order or decision appealed from was arbitrary or capricious.

7. That the Petition for Review shows on its face that there was substantial evidence before the Commission to support the order appealed from, and that for purposes of the Motion to Dismiss the appellants do not challenge the sufficiency or substantiality of the evidence before the Commission.

8. That the Motion to Dismiss is well taken and should be sustained.

IT IS THEREFORE ORDERED that the Motion to Strike by the Oil Conservation Commission be and the same hereby is overruled.

IT IS FURTHER ORDERED that the Sawyer Motion to Dismiss be and the same hereby is sustained, and the Petition for Review is hereby dismissed.

To all of which the Mid-Continent and Magnolia appellants are allowed an exception.

Judge Presiding

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 149

ORDER NO. 779

THE APPLICATION OF MID-CONTINENT PETROLEUM CORPORATION, TULSA, OKLAHOMA, FOR AN ORDER OF THE COMMISSION TO ESTABLISH EIGHTY-ACRE PRORATION UNITS; ALSO TO ESTABLISH A UNIFORM PATTERN FOR THE SPACING AND DRILLING WELLS WITH ALLOWANCE FOR TOLERANCE FOR SURFACE OBSTRUCTIONS AND FOR AN ORDER FIXING AND ESTABLISHING ALLOWABLES FOR WELLS DRILLED IN THE CROSSROADS POOL TO A DEPTH BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO. (DEVONIAN FORMATION.)

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
MAR 26 1952

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 10:00 o'clock a.m., July 15, 1948, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission."

NOW, on this the 27th day of July, 1948, the Commission having before it for consideration the testimony adduced at the hearing of said case and being fully advised in the premises:

FINDS:

1. That on May 6, 1948, the applicant, Mid-Continent Petroleum Corporation, completed an initial and exploratory test well located in the approximate center of the SW¼ of the SE¼ of section 27, Township 9 South, Range 36 East, Lea County, New Mexico (Crossroads Pool), at a total depth of 12,258 feet; said well having been perforated from a depth of 12,115 feet to a depth of 12,215 feet, with an initial production of 995 barrels of oil, and no water, through a ¾-inch choke, for a period of six (6) hours, twenty (20) minutes.

2. That the probable area has been delineated and recommended by the Nomenclature Committee for Devonian production as discovered by the above described well as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That the discovery producing well in center of SW¼ SE¼ section 27, and the drilling wells in center of NE¼ NE¼ section 33, and center of NE¼ NW¼ of section 34, center of NW¼ SW¼ section 27, and center of W½ SW¼ section 26, all are within the probable area as above described;

"EXHIBIT A"

ILLEGIBLE

That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable area as above delineated or any extension thereto, so as to insure a proper and uniform spacing, developing, and producing plan for all wells in this common source of supply.

3. That due to conditions established by the aforesaid discovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

4. That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superseded.

5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials.

6. That in the interest of the State of New Mexico and in the interest of the general public, encouragement should be given to operators to explore and develop the natural resources of the State by the establishment of a proper and equitable spacing and development program.

IT IS THEREFORE ORDERED:

SECTION 1. That the Mid-Continent, Sawyer No. 1 well, located in the center of the NW/4 SE/4 section 27, is producing from the Devonian formation, a new common source of supply not heretofore discovered and produced in the State, and that the probable area for such production is as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That this order is meant to cover all of the Devonian formation common source of supply productive in the Mid-Continent, Sawyer No. 1, located in the center of the NW/4 SE/4 section 27, and any well drilled within, or outside the area spaced herein, to the same common source of supply as an extension thereof, shall be drilled on the pattern provided for herein.

SECTION 2. That 80-acre spacing and drilling units be established as hereinafter provided for the production of oil and gas from the Devonian formation underlying the area as hereinabove set forth.

ILLEGIBLE

SECTION 3. That each governmental quarter section be divided into two proration units as nearly as practicable along a line running east and west through the center of the quarter section, all as shown on the plat attached hereto, marked Exhibit "A," with the wells to be drilled, one in the center of the northeast quarter and one in the center of the southwest quarter of each quarter section, all as shown on said Exhibit "A"; however, if surface conditions justify, locations may be made within a radius of 150 feet from the centers thereof, provided further, however, that the units within a quarter section, as established by this order as shown on said Exhibit "A," may be changed by agreement of the operators within said quarter section upon proper showing to the Commission.

SECTION 4. That the allowable be assigned on the basis of proration units as herein established, and any proration unit of less than the normal one-half of a governmental quarter section as the result of an exception granted by the Commission after notice and hearing, shall be assigned an allowable in proportion to the assignable acreage of the unit as it bears to the normal one-half of a governmental quarter section.

SECTION 5. That the daily oil allowable on a normal unit of one-half of a quarter section assigned to the discovery well and all other wells hereafter drilled and produced in accordance with the terms of this order shall be the proportional factor of 6.75 times top allowable until such time as the Commission may issue such further and additional orders as may be deemed necessary.

SECTION 6. All rules, regulations and orders heretofore issued by this Commission which may conflict herewith are superseded, only with respect to Devonian formation production below 12,700 feet in the Crossroads Pool.

SECTION 7. That this order shall become effective on August 1, 1947.

SECTION 8. The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, prevent waste, or preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law.

DONE at Santa Fe, New Mexico, this 27th day of July, 1947.

STATE OIL CONSERVATION COMMISSION

R. R. Spurrier, Secretary

ILLEGIBLE

SANTA FE PACIFIC

SANTA FE PACIFIC

SANTA FE PACIFIC

OIL DEVELOPMENT CO.
OF TEXAS

MID-CONTINENT PET. CORP.

MAGNOLIA

⊘ 1

U. D. Sawyer "E"

Drlg. Started Feb. '49
Abandoned Dec. '49
⊘ 1-27

● 2-27
Drlg. Started June '50
Completed Oct. '50

Drlg. Started Feb. '49
Completed Aug. '49
● 1

● 1-B
Drlg. Started Apr. '51
Comp. Sept. '51

28

SANTA FE PACIFIC

27

U. D. SAWYER "D"

26

MID-CONTINENT PET. CORP.

● 1
Drlg. Started June '48
Completed Feb. 49

MID-CONTINENT PET. CORP.

● 1
Drlg. Started June '50
Comp. Feb. '51

U. D. SAWYER "C"

MID-CONTINENT PET. CORP.

Drlg. Started Sept. '47
Completed May '48
● 1

Drlg. Started May '48
Completed Jan. '49
● 1

SANTA FE PACIFIC

DESSIE SAWYER

U. D. SAWYER "A"

SANTA FE PACIFIC

MAGNOLIA

Drlg. Started May '48
Abandoned Feb. '50
⊘ 1

Drilled by
Skelly Oil Co.

Drlg. Started June '48
Completed March 49
⊘ 1

Drilled by
Mid-Continent Pet. Corp.

Exhibit A-1

33

J. E. WARREN

MAGNOLIA

U. D. SAWYER "B"

34

35

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF CASE NO. 149, :
MADE BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 ON JULY 27, 1948, UPON THE APPLICATION OF THE MID-CONTINENT PETROLEUM CORPORATION, ESTABLISHING THE 80-ACRE DRILLING PATTERN AND PRORATION UNIT FOR THE CROSSROADS DEVONIAN FIELD BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

CASE NO. 149

INFORMATION

Come now U. D. Sawyer and Dessie Sawyer, and respectfully show to the Commission as follows:

1.

That they are husband and wife, and residents of Crossroads, Lea County, New Mexico, and that they are the owners of an undivided 11/12ths interest in the oil, gas and other minerals in and under the following described lands in Township 9 South, Range 36 East, in the Crossroads Devonian Field, in Lea County, New Mexico, to-wit:

E½	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
SW¼	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
NE¼	Section 33	Not leased
N½SW¼	Section 35	Subject to lease held by Gulf Oil Corporation.
N½	Section 34	Mid-Continent lease, terminated by non-payment of rental
SE¼	Section 34	

Containing 1,200 acres, more or less

2.

That on May 6, 1948, the Mid-Continent Petroleum Corporation completed its discovery well know as the Mid-Continent-Sawyer No. 1 in the SW¼SE¼ of Section 27, Township 9 South, Range 36 East, at a total depth of 12,258, as a substantial producer from the Devonian formation; and that soon thereafter and on July 27, 1948, and upon the application of the Mid-Continent Petroleum Corporation, the Oil Conservation Commission of the State of New Mexico adopted its Order No. 779 in case No. 149, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in an area comprising 2,560 acres, including most of the lands of these informants, in a four-section square, known as the Crossroads Devonian Field, and embracing the following described lands in said township and range, to-wit:

West Half	Section 26
All	Section 27
East Half	Section 28
East Half	Section 33
All	Section 34
West Half	Section 35

and that in said Order the Oil Conservation Commission of the State of New Mexico specifically retained jurisdiction of the case for the purpose of issuing such further and additional orders as might be necessary to meet changed conditions, preclude inequities and preserve correlative rights.

3.

That thereafter three additional wells were drilled in said area and resulted in successful production of oil from the Devonian formation below 12,000 feet, which wells are known and identified as follows:

Mid-Continent Development	NE¼NW¼ Section 27
Mid-Continent Sawyer D	SW¼NE¼ Section 27
Magnolia - Santa Fe -1-C	SW¼SW¼ Section 26

and three other wells were drilled in said area to depths considered sufficient to test the Devonian Formation below 12,000 feet and then abandoned as dry holes, which wells are known and identified as follows:

Mid-Continent Sawyer-1-B	NE¼NW¼ Section 34
Skelly Oil Co. - Sawyer -1	NE¼NE¼ Section 33
Oil Development Co-Santa Fe-1	SW¼NW¼ Section 27

and two other wells were drilled in said area resulting in successful production from the Pennsylvanian formation at depths of approximately 9,700 feet, which wells are known and identified as follows:

Magnolia- Santa Fe-1-B	NE¼SE¼ Section 28
Magnolia- Santa Fe-1-D	SW¼SE¼ Section 22 (outside Devonian Field)

and three other wells are now drilling in said area, which wells are known and identified as follows:

Mid-Continent- Sawyer-1-C	NE¼SE¼ Section 27
Oil Development Co-Santa Fe-2-27	SE¼NW¼ Section 27
Oil Development Co-Santa Fe-2-22	SE¼SW¼ Section 22 (outside Devonian Field)

and that a plat, showing the location of all of said wells, is hereto attached, marked Exhibit "A" and made a part hereof.

4.

That at the time of the adoption of such Devonian 80-acre spacing pattern there was only one producing well in the Crossroads Field, that being the discovery well known as the Mid-Continent-Sawyer-1 in the SW¼SW¼ of Section 27, and that said 80-acre spacing pattern was not based on past experience in said field, but was adopted as an exception to the Statewide normal 40-acre spacing pattern on the assumption that oil would be encountered in the Devonian formation below 12,000 feet under all of the lands comprising such four-section Devonian Field, and was adopted in anticipation of other circumstances and conditions then assumed to exist.

5.

That experience in the drilling of the dry holes known as Mid-Continent-Sawyer-1-B in the NE¼NW¼ of Section 34 and the Skelly-Sawyer-1 in the NE¼NE¼ of Section 33 has demonstrated that the lands south of the discovery well were not productive of oil from the Devonian formation, and that experience in the drilling of the dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27 has demonstrated that the lands in the west half of the Northwest Quarter of Section 27 were not productive of oil from the Devonian formation; and that of all of the wells drilled in or near such Crossroads Devonian Field, four have encountered oil in the Devonian formation below 12,000 feet, three have been abandoned as dry holes after being drilled to depths below 12,000 feet, and two have been completed as producers from the Pennsylvanian formation at depths of approximately 9,700 feet.

6

That after the completion of its dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27, and on or about January 11, 1950, the Santa Fe Pacific Railroad Company and Oil Development Company of Texas abandoned such 80-acre spacing pattern, and obtained permission from the Oil Conservation Commission to depart from such 80-acre pattern and to locate its Oil Development Co-Santa Fe-2-27 in the SW¼NW¼ of Section 27, as a direct westerly offset to the Mid-Continent-Sawyer-B and as a direct northerly offset to the

Mid-Continent-Deegie Sawyer No. 1, and that such Oil Development Co-Santa Fe-2-27 is now drilling at such location, intended to ultimately test the Devonian formation below 12,000 feet.

7.

That these informants are now entitled to offset wells in the NW¼NW¼ of Section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-[illegible] in the NE¼SE¼ of section 28 and in the N½NW¼ Section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-D in the SW¼SE¼ of Section 22; that the two locations at which they are now entitled to offset wells are midway between producing Devonian wells upon their lands and producing Pennsylvanian wells upon lands not owned by them, and that if the Oil Development Co-Santa Fe-2-27 now drilling in the SE¼NW¼ of Section 27 should be successful in encountering the Devonian formation, it would be reasonable to assume that each of such offset wells should also be drilled into the Devonian formation, and by reason of the implied covenants of the oil and gas leases covering such lands they would be entitled to the drilling of such wells into the lower or Devonian formation, but that under the present 80-acre spacing pattern, Devonian wells are not to be located or drilled at either of such locations.

8.

These informants respectfully show to the Commission that drilling experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that such Devonian 80-acre pattern should be further continued in effect as an exception to the normal Statewide 40-acre spacing pattern; that these informants have a valuable property interest in the oil, gas and other minerals in and under and that may be produced from their lands above described, and that if such Devonian 80-acre pattern be continued in effect after subsequent facts and circumstances have failed to demonstrate that the same should be so continued, the value of their property interest will be unjustly diminished and

and the marketability thereof unduly impaired, and that inequities and injustices will result.

WHEREFORE, these informants pray that the Oil Conservation Commission take notice that experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of its Order No. 779 establishing such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that the same should be further continued in effect as an exception to the Statewide normal 40-acre spacing pattern, and that the Commission, upon its own motion, require the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, and any other interested parties, to show cause, if any it or they may have, why such Order No. 779 should be further continued in effect, and that upon the hearing in this matter, if said parties fail to show proper cause for the continuation of said Order No. 779, that the same be rescinded by the Commission.

Dated at Lovington, New Mexico, this 2nd day of September, 1950, and respectfully submitted.

s/ G. T. Hanners
Attorney for Sawyers
Lovington, New Mexico

Distributed
By Proration Department
October 19, 1950

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO UPON ITS OWN MOTION FOR THE PURPOSE OF RECONSIDERING:

CASE NO. 149
ORDER NO. R-100

ORDER NO. 779 OF THE OIL CONSERVATION COMMISSION OF NEW MEXICO ENTERED IN CASE NO. 149 ON JULY 27, 1948, ESTABLISHING 80-ACRE SPACING AND PRORATION UNITS FOR THE CROSSROADS (DEVONIAN) POOL BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing on July 15, 1948, and for further hearings on November 21, 1950 and March 21, 1951, in Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 15th day of October, 1951, the Commission, a quorum being present, having fully considered the testimony adduced at said hearings, the record made in this case, and the exhibits received, and being fully advised in the premises,

FINDS, (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause, the persons and subject matter thereof.

(2) That the Commission, after due notice and hearing, entered its Order No. 779 on July 27, 1948, whereby 80-acre spacing and drilling units were established for the production of oil and gas from the Devonian formation below 12,000 feet, underlying the Crossroads Devonian pool, as is more fully described and defined in said Order No. 779, and set the daily oil allowable of a normal unit for said Crossroads Devonian pool, as an exception to the general 40-acre spacing pattern and drilling unit as theretofore established and promulgated by the Rules and Regulations of this Commission.

(3) That by Section 8 of Order No. 779, the Commission retained jurisdiction of this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights.

(4) That pursuant to its retained jurisdiction, the Commission, after due notice as required by law, held hearings on November 21, 1950, and March 21, 1951, for the purpose of taking additional testimony and receiving further evidence in this cause.

(5) That there was substantial evidence, though controverted to some extent, that waste and impairment of correlative rights will result if 80-acre spacing as provided for in Order No. 779 is continued in effect.

(6) That there was no showing that pressure maintenance or other secondary recovery methods were under consideration by operators in the pool as a matter of preventing waste and protecting correlative rights.

IT IS THEREFORE ORDERED:

1. That Order No. 779 in this Case No. 149, dated July 27, 1948, be, and the same hereby is rescinded.

2. Nothing contained herein shall be construed to be a determination by the Commission as to what constitutes "reasonable development" of any lease in the pool in relation to the implied covenants of any such lease.

3. Nothing contained herein shall be construed to require the drilling of one well on each 40-acre tract in the pool.

4. The effective date of this order shall be November 1, 1951.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ EDWIN L. MECHEM, Chairman

/s/ GUY SHEPARD, Member

SEAL

/s/ R. R. SPURRIER, Secretary

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXIC

IN THE MATTER OF WELL SPACING
IN THE CROSSROADS DEVONION
RESERVOIR

CASE 149
ORDER NO. R-100

APPLICATION FOR REHEARING

TO SAID CONSERVATION COMMISSION:

Comes now MID-CONTINENT PETROLEUM CORPORATION and MAGNOLIA PETROLEUM COMPANY, interested parties in the above styl and numbered cause, and file this, their application for rehearin in the above styled and numbered cause, upon the following groun to-wit:

1.

Six and one-half months elapsed between the hearing in the above styled and numbered case and the date on which said or no. R-100 was signed and entered. During this six and one-half months the above petitioners have continued to gather reservoir data on the Crossroads Devonion Reservoir and have recently accum ulated data which is highly pertinent and essential in a final determination of the case. This evidence is especially essential in view of the Commission's finding no. 6 on which order no. R-10 is predicated, namely that there was no showing that pressure mai tenance or other secondary recovery methods were under considera- tion by operators in the pool as a matter of preventing waste and protecting correlative rights.

2.

These petitioners believe that the Commission erred in its finding no. 5, there being no substantial evidence in the re- cord that one well would not drain eighty acres in the Crossroads Devonion Reservoir especially in view of the testimony of five highly qualified petroleum engineers that one well would drain eighty acres in the Crossroads Devonion Reservoir without creatin waste and without the impairment of correlative rights.

3.

The petitioners allege that order no. R-100 violates the clear language and intent of Section 13 (b) in chapter 168 of the Laws of New Mexico of 1949. This statute reads as follows

> "No owner of a property in a pool shall be required by the Commission, directly or indirectly, to drill more wells than are reasonably necessary to secure his proportionate part of the production. To avoid the drilling of unnecessary wells a proration unit for each pool may be fixed, such being the area which may

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF PETITION OF
MID-CONTINENT PETROLEUM COMPANY,
MAGNOLIA PETROLEUM COMPANY, AND
OTHERS REQUESTING A REHEARING TO
RESCIND OIL CONSERVATION COMMISSION
ORDER R-100 RELATING TO SPACING IN
THE CROSSROADS POOL (Lea County, New Mexico)

CASE NO. 149
ORDER NO. R-100-B

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause having come on for special hearing at 10:00 o'clock December 19, 1951, at Santa Fe, New Mexico, before the Oil Conservation Commission hereinafter called the "Commission", upon the application of Mid-Continent Petroleum Company, Magnolia Petroleum Company, Oil Development Company of Texas and Santa Fe Pacific Railroad Company for a rehearing in the matter of oil well spacing in the Crossroads-Devonian pool, Lea County, New Mexico, and for the rescission of the Commission's Order No. R-100 relating thereto;

NOW, on this 6th day of March 1952, the Commission, a quorum being present, having considered the testimony adduced and the exhibits received at said hearing, and being otherwise fully advised in the premises finds:

1. That an active water drive is present within the Crossroads Devonian pool.

2. That the loss of the bottom-hole pressure during the life of the field, three years, has been approximately 28 lbs., half of which loss has occurred within the last seven months.

3. From the evidence it appears that core analyses taken within the Crossroads-Devonian formation show a wide range of permeability and porosity within the pool.

4. That the water-drive movement can be made more uniform through the permeable channels of the formation by the adoption of a 40-acre spacing pattern than can be obtained by an 80-acre spacing program.

5. That the combination of the active water drive within the field and the non-uniform permeability within the formation has the inherent danger of channeling water when wells are produced at high daily per-well rates, and that a 40-acre spacing program would permit the continued producing capacity of said reservoir at lower daily per-well rates, would reduce the tendency of the water channeling

or coning, and would minimize the danger of the by-passing of oil within said reservoir by reason of a more uniform encroachment of the water.

6. That a proration unit of 40 acres should be established in the Crossroads-Devonian pool, Lea County, New Mexico, as being the area necessary for one well to effectively, efficiently and economically drain and develop said reservoir and to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED, That petitioners' application be and the same hereby is denied and the Commission's Order No. R-100 be and the same hereby is affirmed in all respects, except the finding of fact No. 6 is hereby withdrawn.

IT IS FURTHER ORDERED, That a proration unit of 40 acres per well be and the same is hereby established for the Crossroads Devonian Pool, Lea County, New Mexico.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ EDWIN L. MECHEM, Chairman

/s/ GUY SHEPARD, Member

/s/ R. R. SPURRIER, Secretary

SEAL

J. M. HERVEY
HINKLE M. DOW
CLARENCE E. HINKLE
W. E. BONDURANT, JR.
GEORGE H. HUNKER, JR.

WILLIAM G. SCHAUER

LAW OFFICES
HERVEY, DOW & HINKLE
ROSWELL, NEW MEXICO

April 30, 1951

Mr. R. R. Spurrier
Oil Conservation Commission
Santa Fe, New Mexico

Dear Dick:

In the same order that lawyers often draft Orders for Courts to file in cases, I enclose herewith a draft of the Order in the Crossroads Pool, providing the Commission adopts the theory of Mid-Continent, etc.

Of course, if the Commission does not adopt the Mid-Continent, etc. theory, it will write its own Order, but in event the Commission finds for us, we submit a proposed draft of the Order of the Commission.

Regards.

HERVEY, DOW & HINKLE

By

HMD:gb
Encl.

Have meeting on this with Gov. & Guy

MAY 1 1951

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

Ok as to
farm only
L.

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF THE STATE OF
NEW MEXICO FOR THE PURPOSE OF
RECONSIDERING:

CASE NO. 149
ORDER NO. 779

ITS ORDER NO. 779 ENTERED ON
JULY 27, 1948, IN CASE NO. 149,
ESTABLISHING 80 ACRE SPACING
AND PRORATION UNITS FOR THE
CROSSROADS DEVONIAN POOL BELOW
12,000 FEET IN LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This matter first came on for hearing before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission", on November 21, 1950, at 10 o'clock a. m. in the city of Santa Fe, New Mexico.

On the 29th day of December, 1950, after the Commission had fully considered the testimony offered at the aforesaid hearing held on the 21st day of November, 1950, made and entered its order continuing said hearing to March 20, 1951, and the Commission in its said order of December 29, 1950, directed that further information be presented to the Commission.

On March 20, 1951, the Commission, by agreement of all parties, further continued the hearing until March 21, 1951.

The cause came on second hearing on March 21, 1951, in Santa Fe, New Mexico.

NOW, on this _____ day of _____, 1951, the Commission having before it for consideration all of the testimony adduced at the hearing held on November 21, 1950, and the hearing held on March 21, 1951, as well as testimony introduced July 15, 1948, and records and exhibits filed with the Commission subsequent to the month of June, 1948, and being fully advised in the premises:

FINDS:

(1) That on July 15, 1948, the Commission entered its original Order No. 779 in Case No, 149 after the discovery well had been completed in the Devonian formation in the Crossroads Pool at a depth below 12,000 feet in Lea County, New Mexico; that on said date, to-wit: July 15, 1948, other wells were in process of drilling to said Devonian formation in said

Crossroads Pool, but no such wells had been completed on the date the Commission issued its Order No. 779 in Case No. 149 on July 15, 1948.

(2) That the Commission retained jurisdiction in its Order No. 779, Case No. 149 for the purpose of issuing further and additional orders as might be necessary to meet changed conditions, ~~etc.~~

(3) That at the time the Commission on its own motion called a hearing for purposes of reconsidering its Order No. 779, the operators in Crossroads Pool, Lea County, New Mexico, had completed eight wells into the Devonian formation; five of which were completed as commercial producers of oil and three of which were completed as wells unproductive of oil and for that reason plugged and abandoned in the Devonian formation.

(4) That as a result of supplemental testimony adduced at the hearings held on November 21, 1950, and March 21, 1951, and records and exhibits then offered it appears that extensive geological and engineering studies have been made of the Devonian reservoir in the Crossroads Pool, Lea County, New Mexico; that cores from Devonian producing section have been taken, examined, studied and analyzed; that from time to time since completion of the discovery well in the field bottom hole pressures in the wells, both flowing and shut-in, have been taken by best recognized and most authentic methods now known to the industry; that the evidence, without contradiction, that such shut-in bottom hole pressures, according to the tests taken and the testimony offered, have remained practically constant in the reservoir; that the source of energy within the reservoir is an admitted active water drive; that the interference tests taken establish actual communication between wells by actual pressure measurements; all of which the Commission so finds.

(5) ~~(4-172)~~ Evidence before the Commission proved that one well will economically and efficiently drain eighty (80) acres in the Crossroads Devonian Reservoir.

6 ~~(5)~~ That from geological and engineering studies and tests made and conducted pertaining to reservoir conditions and performance in the Devonian section of Crossroads Pool, Lea County, New Mexico, from the time of the completion of the discovery well to the present time this Commission finds that the pool has been developed in an orderly and efficient manner without waste and without disturbance to correlative rights; that such plan of development will adequately and efficiently deplete and drain the reservoir of recoverable oil without committing waste; and without requiring directly or indirectly the drilling of more wells than are reasonably necessary to secure for each lessee, operator and royalty owner, his or its proportionate part of the production from the reservoir; all as provided for under the provisions of Section3, Chapter 168 of the laws of New Mexico, 1949.

IT IS THEREFORE ORDERED:

(1) This Order applies only to the Devonian formation common source of supply in Crossroads Pool, Lea County, New Mexico, and located within the confines of the West One-Half (W½) of Section 26, all of Section 27, East One-Half (E½) of Section 28, East One-Half (E½) of Section 33, all of Section 34, West One-Half (W½) of Section 35, all in Township 9 South, Range 36 East, Lea County, New Mexico, and shall apply to any well drilled within or outside of the area spaced herein to the same common source of supply as an extension thereof. All wells hereafter drilled shall be on the pattern provided for herein.

(2) That 80-acre spacing and drilling units be established as hereinafter provided for the production of oil and gas from the Devonian formation underlying the area as hereinabove set forth.

(3) That each governmental quarter section be divided into two rectangular spacing units by a line drawn through such quarter section, all as shown on a plat attached hereto, and made a part hereof, and marked Exhibit "A", with the wells to be drilled, one in the center of the northeast quarter and one in the center of the southwest quarter of each quarter section, all as shown on Exhibit "A"; however, if surface conditions justify, locations may be made within a radius of 150 feet from the centers thereof, provided further, however, that the units within a quarter section, as established by this order as shown on Exhibit "A", may be changed by agreement of the operators within said quarter section upon proper showing to the Commission.

(4) That the allowable be assigned on the basis of proration units as herein established, and any proration unit of less than the normal one-half of a governmental quarter section as the result of an exception granted by the Commission after notice and hearing, shall be assigned an allowable in proportion to the assignable acreage of that unit as it bears to the normal one-half of a governmental quarter section.

(5) That the daily oil allowable of a normal unit of one-half of a quarter section assigned to the discovery well and all other wells hereafter drilled and produced in accordance with the terms of this order shall be the proportional factor of 6.75 times unit allowable until such time as the Commission may issue such further and additional orders as may be deemed necessary.

(6) All rules, regulations and orders heretofore issued by this Commission which may conflict herewith are superseded.

(7) The Commission retains jurisdiction to grant exceptions to this order where necessary to protect substantive rights; and to regulate the flow of wells where necessary to

correct inequalities; all after notice and public hearing.

DONE at Santa Fe, New Mexico, this _____ day of _____, 1951, and effective this date.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

_____

_____

_____

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

May 11, 1951

COPY

Mr. Tom Hannere
Attorney at law
Lovington, New Mexico

Dear Mr. Hannere:

In response to your telephone call to Mr. Utz, I wish to say that I do not feel free, without Mr. Dow's consent, to send you the single copy of the suggested order drawn by Mr. Dow.

However, we certainly would like to have your suggestions based upon the testimony given at the Crossroads hearing.

Sincerely,

lpw

Secretary and Director

G. T. HANNERS
ATTORNEY-AT-LAW
STANSELL BUILDING
LOVINGTON, NEW MEXICO

May 5, 1951

Mr. R. R. Spurrier
Oil Conservation Commission
Post Office Box 871
Santa Fe, New Mexico

Dear Mr. Spurrier: Case No. 149 - Crossroads

This will acknowledge receipt of your letter of the 2nd relative to the Crossroads case.

I will be glad to prepare and submit a proposed order for the consideration of the Commission and I will do so the early part of the coming week and forward the same to you.

Yours very truly,

GTH:igb

IN THE DISTRICT COURT OF LEA COUNTY, NEW MEXICO

IN THE MATTER OF THE PETITION OF MID-CONTINENT PETROLEUM CORPORATION AND MAGNOLIA PETROLEUM COMPANY FOR REVIEW AND APPEAL OF PROCEEDING BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 AND FROM ORDERS NO. R-100 and No. R-100-B ENTERED THEREIN.

CASE NO. 9910

PETITION FOR REVIEW

Comes, now Mid-Continent Petroleum Corporation and Magnolia Petroleum Company, and for their petition for the review of the action of the Oil Conservation Commission of the State of New Mexico in the above styled and numbered case, alleges and states:

1. That Case No. 149 originally came on to be heard before the Oil Conservation Commission of New Mexico on July 15, 1948 upon the application of the Mid-Continent Petroleum Corporation. Based upon the uncontroverted evidence and testimony presented in the July 15, 1948 hearing, the Commission on July 27, 1948 entered Order No. 779 in Case No. 149. Order No. 779 was based on a finding by the Commission

> "That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable area as above delineated or any extension thereto, so as to insure a proper and uniform spacing, developing, and producing plan for all wells in this common source of supply.
>
> 3. That due to conditions established by the aforesaid descovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

4. That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superseded.

5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials."

By the terms and provisions of Order No. 779, the Commission established eighty (80) acre spacing and drilling units for the Crossroads-Devonian Reservoir, Lea County, New Mexico effective August 16, 1948.

2. Section 19 (a), Chapter 168 of the Laws of New Mexico of 1949 grants the right to any person affected by an order of the Oil Conservation Commission to apply for a rehearing in the case within twenty (20) days after the order being complained of is entered. Order No. 779 was entered and signed July 27, 1948 and became final twenty (20) days thereafter when no interested party filed an application for rehearing in the case.

3. The Crossroads-Devonian pool was developed by Magnolia Petroleum Company, Mid-Continent Petroleum Corporation, and the Oil Development Company of Texas pursuant to and in accordance with the specific provisions of Order No. 779. Nine test wells had been drilled and a tenth was being drilled to the Devonian formation by the pool operators when this matter was last before the Commission. Over three million dollars has been spent in developing this pool in reliance upon Order No. 779

of the Oil Conservation Commission. A copy of Order No. 779 is attached as "Exhibit A" and made a part hereof. A plat showing the development of this pool as it existed when this case was last before the Conservation Commission is attached as "Exhibit A-1" and made a part hereof.

4. (a) On September 2, 1950, U. D. Sawyer and Dessie Sawyer filed an "Information" with the New Mexico Oil Conservation Commission. This "Information" prayed that the Commission rescind Order No. 779. A copy of said "Information" is attached as "Exhibit B" and made a part hereof.

(b) In response to the "Information" referred to above, the Oil Conservation Commission cited the operators of the Crossroads Devonian pool to appear before them in Santa Fe, New Mexico at 10:00 A. M., November 21, 1950 and show cause why Order No. 779 should be continued in effect.

(c) In response to the citation referresed to above, the operators of Crossroads-Devonian Pool appeared before the Conservation Commission on November 21, 1950.

The said operators filed a motion to have the matter dismissed on the grounds that the proceedings constituted a collarteral attack on Order No. 779. Order No. 779 had become final; rights obtained thereunder had become vested and millions of dollars had been spent in reliance upon the expressed terms and provisions of the order. This motion to dismiss was denied by the Commission.

Three experienced and technically trained petroleum engineers testified at the November 2, 1950 hearing. All three of these experts testified that one well would efficiently and economically drain eighty (80) acres in the Crossroads-Devonian Reservoir, and that it was unnecessary and wasteful to drill on any denser spacing pattern. The testimony of these three engineers was uncontroverted and undisputed at the hearing.

Notwithstanding this fact, the Commission failed to issue a definite order, but continued the matter until March 21, 1951.

5. At 10:00 A. M., March 21, 1951, Case 149 again came before the Conservation Commission to be heard. Mid-Continent Petroleum Corporation presented one (1) expert geologist and two (2) expert petroleum engineers. Magnolia Petroleum Company and the Oil Development Company of Texas each presented one (1) expert engineer. All five of these expert witnesses were familiar with the pool in question and all five had made a detailed study of the reservoir conditions. Each and every one of these witnesses testified that one well would efficiently and economically drain eighty (80) acres in this pool.

U. D. Sawyer and Dessie Sawyer presented one witness at the March 21, 1951 hearing. This witness' testimony was in part conflicting with that of the five (5) experts presented by the oil operators.

6. On October 15, 1951, the Oil Conservation Commission of New Mexico issued Order No. R-100 in Case No. 149. By its expressed provisions Order No. R-100 rescinded Order No. 779. A copy of Order No. R-100 is attached as "Exhibit C" and made a part hereof.

7. Within the statutory time allowed Mid-Continent Petroleum Corporation, Magnolia Petroleum Company and the Oil Development Company of Texas filed an application for rehearing in Case No. 149. This rehearing was granted within the statutory time provided by law and the case again came before the Commission at 10:00 A. M., December 19, 1951. A copy of Mid-Continent Petroleum Corporation and Magnolia Petroleum Company's application for rehearing in Case No. 149 is attached as "Exhibit D" and made a part hereof.

(a) The petitioners for rehearing in Case No. 149 presented three expert petroleum engineers on December 19,

1951. Each of these men had worked in the Crossroads-Devonian Pool since its conception and were highly qualified to offer testimony in this case. These witnesses testified that one well would efficiently and economically drain 80 acres in the Crossroads-Devonian Reservoir and that no waste was occurring or had occurred through use of the 80 acre spacing pattern in the pool.

(b) U. D. Sawyer and Dessie Sawyer presented one expert witness at the December 19, 1951 hearing. This witness admitted that his study of the Crossroads-Devonian Reservoir was limited to 12 days. (Official transcript of December 19, 1951 hearing Page 99). This witness' testimony in part conflicted with the testimony of witnesses presented by the operators in the pool.

8. On March 6, 1952 the Oil Conservation Commission of New Mexico issued Order No. R-100-B in Case No. 149. A copy of this order is attached as "Exhibit E" and made a part hereof. Petitioner alleges that the Commission erred in issuing Order R-100-B in the following respects, to-wit:

(1) In rescinding Order No. 779 providing for 80 acre spacing in Crossroads-Devonian Reservoir.

(2) In completely ignoring and disregarding the preponderance of the evidence and weight of the testimony presented before the Commission.

(3) In denying this petitioner's motion to dismiss the collateral attack on Order No. 779 in Case No. 149.

(4) In failing to find that one well in the Crossroads-Devonian Reservoir would efficiently and economically drain 80 acres.

(5) In failing to find that no waste or impairment of correlative rights had occurred or is occurring under the 80 acre spacing program in the Crossroads-Devonian Reservoir.

(6) In ordering that 40 acre proration units be established for the Crossroads-Devonian Pool. This finding and order is clearly against the weight and preponderance of the evidence and contrary to Section 13 (b), Chapter 168 of the Laws of the State of New Mexico, 1949.

(7) In failing to base an order in Case NO. 149 upon the clear preponderance of the evidence before the Commission.

9. Petitioner further alleges that:

(1) Orders R-100 and R-100-B referred to above are contrary to the law and the evidence in this case, and should be reversed and held for naught. These orders if allowed to remain in full force and effect will result in the drilling of numerous unnecessary wells and needless expenditure of hundreds of thousands of dollars contrary to expressed provisions of Section 13 (b), Chapter 168 of the Laws of the State of New Mexico, 1949. This drilling of unnecessary wells creates fire and other hazards conducive to waste, and unnecessarily increases the production cost of oil or gas or both to the operator, and thereby also unnecessarily increases the cost of the products to the ultimate consumer. These orders referred to above, if allowed to remain in effect, will necessitate the needless and wasteful expenditure of thousands of tons of steel tubular goods at a time when steel is critical and so badly needed for National Defense.

(2) That Mid-Continent Petroleum Corporation and Magnolia Petroleum Company are the owners and operators of valid and producing oil leases within the Crossroads-Devonian Pool located in Lea County, New Mexico, and that this court has jurisdiction of this petition for review.

(3) That all of the matters and issues herein presented were heretofore presented to the Oil Conservation

Commission in Petitioners' Application for Rehearing and in the hearing granted pursuant thereto.

WHEREFORE, Petitioners respectfully pray the court, as authorized by Section 19b, Chapter 168 of the Laws of the State of New Mexico, 1949, that notice of this petition for review be served in the manner provided for the service of summons in civil proceedings upon the adverse parties, U. D. Sawyer and Dessie Sawyer, who reside in Lea County, New Mexico, and upon the Oil Conservation Commission of New Mexico by service upon R. R. Spurrier, Secretary and member of the Oil Conservation Commission, who resides and has his office in Santa Fe, New Mexico, and that this petition be set for trial, and upon the hearing thereof that this court review the action of the Oil Conservation Commission herein complained of and to enter its order vacating the orders of the Commission hereinabove referred to and to enter its order in lieu thereof establishing eighty (80) acre proration and drilling units in the Crossroads-Devonian Reservoir, Lea County, New Mexico, and that Order No. 779 originally entered in Case No. 149 be affirmed and made permanent in all respects.

HERVEY, DOW & HINKLE

By (Signed)
H. M. DOW

(Signed)
ROSS MADDOX

(Signed)
J. H. CROCKER

(Signed)
W. E. McMILLAR, JR.

ATTORNEYS FOR PETITIONER,
MID-CONTINENT PETROLEUM CORPORATION
TULSA, OKLAHOMA

ATTORNEYS FOR PETITIONER,
MAGNOLIA PETROLEUM COMPANY
BOX 900, DALLAS, TEXAS

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

"EXHIBIT B"

IN THE MATTER OF ORDER NO. 779, MADE BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 ON JULY 27, 1948, UPON THE APPLICATION OF THE MID-CONTINENT PETROLEUM CORPORATION, ESTABLISHING THE 80-ACRE DRILLING PATTERN AND PRORATION UNIT FOR THE CROSSROADS DEVONIAN FIELD BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

CASE NO. 149

DECLARATION

Come now U. D. Sawyer and Dessie Sawyer, and respectfully show to the Commission as follows:

1.

That they are husband and wife, and residents of Crossroads, Lea County, New Mexico, and that they are the owners of an undivided 11/12ths interest in the oil, gas and other minerals in and under the following described lands in Township 9 South, Range 36 East, in the Crossroads Devonian Field, in Lea County, New Mexico, to-wit:

E½	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
SW¼	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
NW¼	Section 33	Not leased
N½ SW¼	Section 35	Subject to lease held by Gulf Oil Corporation
N½	Section 34	Mid-Continent lease, terminated by non-payment of rental
SW¼	Section 34	

Containing 1,200 acres, more or less.

2.

That on May 6, 1948, the Mid-Continent Petroleum Corporation completed its discovery well know as the Mid-Continent-Sawyer No. 1 in the SW¼NW¼ of Section 27, Township 9 South, Range 36 East, at a total depth of 12,258, as a substantial producer from the Devonian formation; and that soon thereafter and on July 27, 1948, and upon the application of the Mid-Continent Petroleum Corporation, the Oil Conservation Commission of the State of New Mexico adopted its Order No. 779 in case No. 149, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in an area

comprising 2,560 acres, including most of the lands of these informants, in a four-section square, known as the Crossroads Devonian Field, and embracing the following described lands in said township and range, to-wit:

West Half	Section 26
All	Section 27
East Half	Section 28
East Half	Section 33
All	Section 34
West Half	Section 35

and that in said Order the Oil Conservation Commission of the State of New Mexico specifically retained jurisdiction of the case for the purpose of issuing such further and additional orders as might be necessary to meet changed conditions, preclude inequities and preserve correlative rights.

3.

That thereafter three additional wells were drilled in said area and resulted in successful production of oil from the Devonian formation below 12,000 feet, which wells are known and identified as follows:

Mid-Continent Dessie Sawyer	NE¼SW¼ Section 27
Mid-Continent Sawyer D	SW¼NE¼ Section 27
Magnolia - Santa Fe - 1-C	SW¼SW¼ Section 26

and three other wells were drilled in said area to depths considered sufficient to test the Devonian formation below 12,000 feet and then abandoned as dry holes, which wells are known and identified as follows:

Mid-Continent Sawyer - 1-B	NE¼NW¼ Section 34
Skelly Oil Co. - Sawyer - 1	NE¼NE¼ Section 33
Oil Development Co-Santa Fe-1	SW¼NW¼ Section 27

and two other wells were drilled in said area resulting in successful production from the Pennsylvanian formation at depths of approximately 9,700 feet, which wells are known and identified as follows:

Magnolia- Santa Fe-1-B	NE¼SE¼ Section 28
Magnolia- Santa Fe-1-D	SW¼SE¼ Section 22 (outside Devonian Field)

and three other wells are now drilling in said area, which wells are known and identified as follows:

Mid-Continent-Sawyer-1-C	NE¼SW¼ Section 27
Oil Development Co-Santa Fe-2-27	SE¼SW¼ Section 27
Oil Development Co-Santa Fe-1-22	SE¼SW¼ Section 22 (outside Devonian Field)

and that a plat, showing the location of all of said wells, is hereto attached, marked Exhibit "A" and made a part hereof.

4.

That at the time of the adoption of such Devonian 80-acre spacing pattern there was only one producing well in the Crossroads Field, that being the discovery well known as the Mid-Continent-Sawyer-1 in the SW¼SW¼ of Section 27, and that said 80-acre spacing pattern was not based on past experience in said field, but was adopted as an exception to the Statewide normal 40-acre spacing pattern on the assumption that oil would be encountered in the Devonian formation below 12,000 feet under all of the lands comprising such four-section Devonian Field, and was adopted in anticipation of other circumstances and conditions then assumed to exist.

5.

That experience in the drilling of the dry holes known as Mid-Continent-Sawyer-1-B in the NE¼NW¼ of Section 34 and the Skelly-Sawyer-1 in the NE¼NE¼ of Section 33 has demonstrated that the lands south of the discovery well were not productive of oil from the Devonian formation, and that experience in the drilling of the dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27 has demonstrated that the lands in the west half of the Northwest Quarter of Section 27 were not productive of oil from the Devonian formation; and that of all of the wells drilled in or near such Crossroads Devonian Field, four have encountered oil in the Devonian formation below 12,000 feet, three have been abandoned as dry holes after being drilled to depths below 12,000 feet, and two have been completed as producers from the Pennsylvanian formation at depths of approximately 9,700 feet.

6.

That after the completion of its dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27, and on or about January 11, 1950, the Santa Fe Pacific Railroad Company and Oil Development Company of Texas

abandoned such 80-acre spacing pattern, and obtained permission from the Oil Conservation Commission to depart from such 80-acre pattern and to locate its Oil Development Co-Santa Fe-2-27 in the SE¼NW¼ of Section 27, as a direct westerly offset to the Mid-Continent-Sawyer-D and as a direct northerly offset to the Mid-Continent-Dessie Sawyer No. 1, and that such Oil Development Co-Santa Fe-2-27 is now drilling at such location, intended to ultimately test the Devonian formation below 12,000 feet.

7.

That these informants are now entitled to offset wells in the NW¼SW¼ of Section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-B in the NE¼SE¼ of section 28 and in the NW¼NE¼ of section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-D in the SW¼SE¼ of Section 22; that the two locations at which they are now entitled to offset wells are midway between producing Devonian wells upon their lands and producing Pennsylvanian wells upon lands not owned by them, and that if the Oil Development Co-Santa Fe-2-27 now drilling in the SE¼NW¼ of Section 27 should be successful in encountering the Devonian formation, it would be reasonable to assume that each of such offset wells should also be drilled into the Devonian formation, and by reason of the implied covenants of the oil and gas leases covering such lands they would be entitled to the drilling of such wells into the lower or Devonian formation, but that under the present 80-acre spacing pattern, Devonian wells are not to be located or drilled at either of such locations.

8.

These informants respectfully show to the Commission that drilling experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that such Devonian 80-acre pattern should be further continued in effect as an exception to the normal Statewide 40-acre spacing pattern; that these informants have a valuable property interest in the oil, gas and other minerals in and under and that may be produced from their lands above described, and that if such Devonian 80-acre pattern be continued in effect after subsequent facts and circumstances have failed to demonstrate that the same should be so continued, the value of their property interest will be unjustly diminished and

and the marketability thereof unduly impaired, and that inequities and injustices will result.

WHEREFORE, these informants pray that the Oil Conservation Commission take notice that experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of its Order No. 779 establishing such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that the same should be further continued in effect as an exception to the Statewide normal 40-acre spacing pattern, and that the Commission, upon its own motion, require the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, and any other interested parties, to show cause, if any it or they may have, why such Order No. 779 should be further continued in effect, and that upon the hearing in this matter, if said parties fail to show proper cause for the continuation of said Order No. 779, that the same be rescinded by the Commission.

Dated at Lovington, New Mexico, this 2nd day of September, 1950, and respectfully submitted.

s/ G. T. Hanners
Attorney for Sawyers
Lovington, New Mexico

Distributed
By Proration Department
October 19, 1950

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 149

ORDER NO. 779

THE APPLICATION OF MID-CONTINENT PETROLEUM CORPORATION, TULSA, OKLAHOMA, FOR AN ORDER OF THE COMMISSION TO ESTABLISH EIGHTY-ACRE PRORATION UNITS; ALSO TO ESTABLISH A UNIFORM PATTERN FOR THE SPACING AND DRILLING WELLS WITH ALLOWANCE FOR TOLERANCE FOR SURFACE OBSTRUCTIONS AND FOR AN ORDER FIXING AND ESTABLISHING ALLOWABLES FOR WELLS DRILLED IN THE CROSSROADS POOL TO A DEPTH BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO. (DEVONIAN FORMATION.)

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 10:00 o'clock a.m., July 15, 1948, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission."

NOW, on this the 27th day of July, 1948, the Commission having before it for consideration the testimony adduced at the hearing of said case and being fully advised in the premises:

FINDS:

1. That on May 6, 1948, the applicant, Mid-Continent Petroleum Corporation, completed an initial and exploratory test well located in the approximate center of the SW¼ of the SE¼ of section 27, Township 9 South, Range 36 East, Lea County, New Mexico (Crossroads Pool), at a total depth of 12,258 feet; said well having been perforated from a depth of 12,115 feet to a depth of 12,215 feet, with an initial production of 995 barrels of oil, and no water, through a 3/4-inch choke, for a period of six (6) hours, twenty (20) minutes.

2. That the probable area has been delineated and recommended by the Nomenclature Committee for Devonian production as discovered by the above described well as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That the discovery producing well in center of SW¼ SE¼ section 27, and the drilling wells in center of NE¼ NE¼ section 33, and center of NE¼ NW¼ of section 34, center of NE¼ SE¼ section 27, and center of SW¼ SW¼ section 26, all are within the probable area as above described;

"EXHIBIT A"

That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable area as above delineated or any extension thereto, so as to insure a proper and uniform spacing, developing, and producing plan for all wells in this common source of supply.

3. That due to conditions established by the aforesaid discovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

4. That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superseded.

5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials.

6. That in the interest of the State of New Mexico and in the interest of the general public, encouragement should be given to operators to explore and develop the natural resources of the State by the establishment of a proper and equitable spacing and development program.

IT IS THEREFORE ORDERED:

SECTION 1. That the Mid-Continent, Sawyer No. 1 well, located in the center of the SW¼ SE¼ Section 27, is producing from the Devonian formation, a new common source of supply not heretofore discovered and produced in the State, and that the probable area for such production is as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That this order is meant to cover all of the Devonian formation common source of supply productive in the Mid-Continent, Sawyer No. 1, located in the center of the SW¼ SE¼ section 27, and any well drilled within, or outside the area spaced herein, to the same common source of supply as an extension thereof, shall be drilled on the pattern provided for herein.

SECTION 2. That 80-acre spacing and drilling units be established as hereinafter provided for the production of oil and gas from the Devonian formation underlying the area as hereinabove set forth.

SECTION 3. That each governmental quarter section be divided into two rectangular spacing units by a line drawn through such quarter section, all as shown on a plat attached hereto, and made a part hereof, and marked Exhibit "A", with the wells to be drilled, one in the center of the northeast quarter and one in the center of the southwest quarter of each quarter section, all as shown on Exhibit "A"; however, if surface conditions justify, locations may be made within a radius of 150 feet from the centers thereof, provided further, however, that the units within a quarter section, as established by this order as shown on Exhibit "A", may be changed by agreement of the operators within said quarter section upon proper showing to the Commission.

SECTION 4. That the allowable be assigned on the basis of proration units as herein established, and any proration unit of less than the normal one-half of a governmental quarter section as the result of an exception granted by the Commission after notice and hearing, shall be assigned an allowable in proportion to the assignable acreage of that unit as it bears to the normal one-half of a governmental quarter section.

SECTION 5. That the daily oil allowable of a normal unit of one-half of a quarter section assigned to the discovery well and all other wells hereafter drilled and produced in accordance with the terms of this order shall be the proportional factor of 6.75 times top allowable until such time as the Commission may issue such further and additional orders as may be deemed necessary.

SECTION 6. All rules, regulations and orders heretofore issued by this Commission which may conflict herewith are superseded, only with respect to Devonian formation production below 12,000 feet in the Crossroads Pool.

SECTION 7. That this order shall become effective on August 16, 1948.

SECTION 8. The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law.

DONE at Santa Fe, New Mexico, this 27th day of July, 1948.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

(Signed)
THOMAS J. MABRY, Chairman

JOHN E. MILES, Member

(Signed)
R. R. SPURRIER, Secretary

SEAL

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

EXHIBIT "C"

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO UPON ITS OWN MOTION FOR THE PURPOSE OF RECONSIDERING:

CASE NO. 149
ORDER NO. R-100

ORDER NO. 779 OF THE OIL CONSERVATION COMMISSION OF NEW MEXICO ENTERED IN CASE NO. 149 ON JULY 27, 1948, ESTABLISHING 80-ACRE SPACING AND PRORATION UNITS FOR THE CROSSROADS (DEVONIAN) POOL BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing on July 15, 1948, and for further hearings on November 21, 1950 and March 21, 1951, in Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 15th day of October, 1951, the Commission, a quorum being present, having fully considered the testimony adduced at said hearings, the record made in this case, and the exhibits received, and being fully advised in the premises,

FINDS, (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause, the persons and subject matter thereof.

(2) That the Commission, after due notice and hearing, entered its Order No. 779 on July 27, 1948, whereby 80-acre spacing and drilling units were established for the production of oil and gas from the Devonian formation below 12,000 feet, underlying the Crossroads Devonian pool, as is more fully described and defined in said Order No. 779, and set the daily oil allowable of a normal unit for said Crossroads Devonian pool, as an exception to the general 40-acre spacing pattern and drilling unit as theretofore established and promulgated by the Rules and Regulations of this Commission.

(3) That by Section 8 of Order No. 779, the Commission retained jurisdiction of this case for the purpsoe of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights.

(4) That pursuant to its retained jurisdiction, the Commission, after due notice as required by law, held hearings on November 21, 1950, and March 21, 1951, for the purpose of taking additional testimony and receiving further evidence in this cause.

(5) That there was substantial evidence, though controverted to some extent, that waste and impairment of correlative rights will result if 80-acre spacing as provided for in Order No. 779 is continued in effect.

(6) That there was no showing that pressure maintenance or other secondary recovery methods were under consideration by operators in the pool as a matter of preventing waste and protecting correlative rights.

IT IS THEREFORE ORDERED:

1. That Order No. 779 in this Case No. 149, dated July 27, 1948, be, and the same hereby is rescinded.

2. Nothing contained herein shall be construed to be a determination by the Commission as to what constitutes "reasonable development" of any lease in the pool in relation to the implied covenants of any such lease.

3. Nothing contained herein shall be construed to require the drilling of one well on each 40-acre tract in the pool.

4. The effective date of this order shall be November 1, 1951.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

(Signed)
EDWIN L. MECHEM, Chairman

(Signed)
GUY SHEPARD, Member

(Signed)
R. R. SPURRIER, Secretary

SEAL

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

IN THE MATTER OF WELL SPACING
IN THE CROSSROADS DEVONIAN
RESERVOIR

CASE 149
ORDER NO. R-100

APPLICATION FOR REHEARING

TO SAID CONSERVATION COMMISSION:

Comes now MID-CONTINENT PETROLEUM CORPORATION and MAGNOLIA PETROLEUM COMPANY, interested parties in the above styled and numbered cause, and file this, their application for rehearing in the above styled and numbered cause, upon the following grounds, to-wit:

1.

Six and one-half months elapsed between the hearing in the above styled and numbered case and the date on which said order No.R-100 was signed and entered. During this six and one-half months the above petitioners have continued to gather reservoir data on the Crossroads Devonian Reservoir and have recently accumulated data which is highly pertinent and essential in a final determination of the case. This evidence is especially essential in view of the Commission's finding No. 6 on which order No. R-100 is predicated, namely that there was no showing that pressure maintenance or other secondary recovery methods were under consideration by operators in the pool as a matter of preventing waste and protecting correlative rights.

2.

These petitioners believe that the Commission erred in its finding No. 5, there being no substantial evidence in the record that one well would not drain eighty acres in the Crossroads Devonian Reservoir especially in view of the testimony of five highly qualified petroleum engineers that one well would drain eighty acres in the Crossroads Revervoir without creating waste and without the impairment of correlative rights.

3.

The petitioners allege that order No. R-100 violates the clear language and intent of Section 13 (b) in chapter 168 of the laws of New Mexico of 1949. This statute reads as follows:

> "No owner of a property in a pool shall be required by the Commission, directly or indirectly, to drill more wells than are reasonably necessary to secure his proportionate part of the production. To avoid the drilling of unnecessary wells a proration unit for each pool may be fixed, such being the area which may be efficiently and economically drained and developed by one well. The drilling of unnecessary wells creates fire and other hazards conducive to waste, and unnecessarily increases the production cost of oil or gas or both to the operator, and thus also unnecessarily increases the cost of the products to the ultimate consumer."

The preponderance of the evidence presented to the Commission in case No. 149 was to the effect that one well would drain eighty acres in the Crossroads Devonian Reservoir and that wells drilled on a closer pattern as a field-wide rule were unnecessary, conducive to waste and therefore a violation of Section 13 (b) of the above statute.

WHEREFORE, premises considered, these petitioners request that the conservation Commission of New Mexico grant a rehearing in the above styled and numbered cause and further that order No. R-100 be suspended until such time as the Commission has had an opportunity to hear the testimony presented at the rehearing

(SIGNED) HIRAM M. DOW
HIRAM M. DOW
J. H. CROCKER
W. E. McKELLAR, JR.

ATTORNEYS FOR PETITIONERS

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

EXHIBIT "D"

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF NEW MEXICO UPON ITS OWN MOTION FOR THE PURPOSE OF RECONSIDERING:

CASE NO. 149
ORDER NO. R-100-A

ORDER NUMBER 779 OF THE OIL CONSERVATION COMMISSION OF NEW MEXICO ENTERED IN CASE NUMBER 149 ON JULY 27, 1948, ESTABLISHING 80-ACRE SPACING AND PRORATION UNITS FOR THE CROSSROADS (DEVONIAN) POOL BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION FOR REHEARING

This cause came on for hearing upon the petition and motion of Mid-Continent Petroleum Corporation and Magnolia Petroleum Company, filed October 31, 1951, for a rehearing on Order Number R-100 heretofore rendered by this Commission whereby Commission Order No. 779 dated July 27, 1948 was rescinded, in which petition Santa Fe Pacific Railroad Company, and Oil Development Company of Texas join.

NOW, on this 9th day of November, 1951, the Commission, a quorum being present, having fully considered said motion and application,

IT IS HEREBY ORDERED, That the above entitled matter be reopened and that a rehearing in said cause be held on December 19, 1951, at 10 a. m. at Santa Fe, New Mexico, or at such other time or times as the Commission may designate after due notice, at which time and place all interested parties may appear.

IT IS FURTHER ORDERED, That the effective date for the operation of Commission Order Number R-100 be, and the same hereby is suspended pending further order of the Commission.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

(Signed)
EDWIN L. MECHEM, Chairman

(Signed)
GUY SHEPARD, Member

(Signed)
R. R. SPURRIER, Secretary

SEAL

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

EXHIBIT "E"

IN THE MATTER OF PETITION OF
MID-CONTINENT PETROLEUM COMPANY,
MAGNOLIA PETROLEUM COMPANY, AND
OTHERS REQUESTING A REHEARING TO
RESCIND OIL CONSERVATION COMMISSION
ORDER R-100 RELATING TO SPACING IN
THE CROSSROADS POOL (Lea County, New Mexico)

CASE NO. 149
ORDER NO. R-100-B

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause having come on for special hearing at 10:00 o'clock December 19, 1951, at Santa Fe, New Mexico, before the Oil Conservation Commission hereinafter called the "Commission", upon the application of Mid-Continent Petroleum Company, Magnolia Petroleum Company, Oil Development Company of Texas and Santa Fe Pacific Railroad Company for a rehearing in the matter of oil well spacing in the Crossroads-Devonian pool, Lea County, New Mexico, and for the rescission of the Commission's Order No. R-100 relating thereto;

NOW, on this 6th day of March 1952, the Commission, a quorum being present, having considered the testimony adduced and the exhibits received at said hearing, and being otherwise fully advised in the premises finds:

1. That an active water drive is present within the Crossroads Devonian pool.

2. That the loss of the bottom-hole pressure during the life of the field, three years, has been approximately 28 lbs., half of which loss has occurred within the last seven months.

3. From the evidence it appears that core analyses taken within the Crossroads-Devonian formation show a wide range of permeability and porosity within the pool.

4. That the water-drive movement can be made more uniform through the permeable channels of the formation by the adoption of a 40-acre spacing pattern than can be obtained by an 80-acre spacing program.

5. That the combination of the active water drive within the field and the non-uniform permeability within the formation has the inherent danger of channeling water when wells are produced at high daily per-well rates, and that a 40-acre spacing program would permit the continued producing capacity of said reservoir at lower daily per-well rates, would reduce the tendency of the water channeling or coning, and would minimize the danger of the by-passing of oil within said reservoir by reason of a more uniform encroachment of the water.

6. That a proration unit of 40 acres should be established in the Crossroads-Devonian pool, Lea County, New Mexico, as being the area necessary for one well to effectively, efficiently and economically drain and develop said reservoir and to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED, That petitioners' application be and the same hereby is denied and the Commission's Order No. R-100 be and the same hereby is affirmed in all respects, except the finding of fact No. 6 is hereby withdrawn.

IT IS FURTHER ORDERED, That a proration unit of 40 acres per well be and the same hereby is established for the Crossroads Devonian pool, Lea County, New Mexico.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

(Signed)
EDWIN L. MECHEM, Chairman

(Signed)
GUY SHEPARD, Member

(Signed)
R. R. SPURRIER, Secretary

SEAL

Sept. 25, 1952

IN THE DISTRICT COURT OF LEA COUNTY, NEW MEXICO

IN THE MATTER OF THE PETITION OF
RED-CONTINENT PETROLEUM CORPORATION
AND MAGNOLIA PETROLEUM COMPANY FOR
REVIEW AND APPEAL OF PROCEEDINGS
BEFORE THE OIL CONSERVATION COMMIS-
SION OF THE STATE OF NEW MEXICO IN
CASE NO. 149 AND FROM ORDERS NO.
R-305 and No. R 305-A THEREIN.

No. 9910

MOTION TO STRIKE

Comes now the New Mexico Oil Conservation Commission and moves the Court to strike from the Petition For Review the following allegations on the ground that they are redundant, immaterial to the issues herein, and impertinent.

1.

Strike all of paragraph numbered 1, except the last sentence thereof, reading as follows:

> "By the terms and provisions of Order No. 779, the Commission established eighty (80) acre spacing and drilling units for the Devonian-Silurian Reservoir, Lea County, New Mexico effective August 16, 1948."

2.

Strike all of paragraph numbered 2.

3.

Strike all of paragraph numbered 3 of the Petition For Review, reading as follows:

> "Nine test wells had been drilled and a tenth was being drilled to the Devonian formation by the pool operators when this matter was last before the Commission. Over three million dollars has been spent in developing this pool in reliance upon Order No. 779 of the Oil Conservation Commission. Exhibit A, a plat showing the development of this pool as it existed when this case was last before the Conservation Commission is attached as "Exhibit A-1" and made a part hereof."

4.

Strike all of sub-section c of paragraph numbered 4 in the Petition

GILBERT, WHITE AND GILBERT
ATTORNEYS AT LAW
SANTA FE, NEW MEXICO

ILLEGIBLE

For Review.

5.

Strike all of paragraph numbered 5 in the Petition For Review.

6.

Strike all of sub-paragraphs (a) and (b) of paragraph numbered 7 in the Petition For Review.

7.

Strike all of sub-paragraph "(2)" and "(3)" of paragraph numbered 8 in the Petition For Review; strike all that portion of sub-paragraph "(6)" in paragraph numbered 8 in the Petition for Review, reading as follows:

> "This finding and order is clearly against the weight and preponderance of the evidence and contrary to Section 13 (b), Chapter 168 of the Laws of the State of New Mexico, 1949."

Strike all of sub-paragraph "(7)" of paragraph numbered 8.

8.

Strike all that portion of sub-paragraph "(1)" of paragraph numbered 9 in the Petition For Review, reading as follows:

> "This drilling of unnecessary wells creates fire and other hazards conducive to waste, and unnecessarily increases the production cost of oil or gas or both to the operator, and thereby also unnecessarily increases the cost of the products to the ultimate consumer. These orders referred to above, if allowed to remain in effect, will necessitate the needless and wasteful expenditure of thousands of tons of steel tubular goods at a time when steel is critical and so badly needed for National Defense."

That the reasons for said Motion are that the foregoing allegations are either foreign to the issues, superfluous, or set forth evidentiary details, and that none of said allegations adds anything to the statement of Petitioners cause, and each of such allegations is wholly prejudicial to this Movant.

II.

As an alternative to the foregoing Motion the Oil Conservation Commission moves the Court to dismiss the Petition for Review, and in support

GILBERT, WHITE AND GILBERT
ATTORNEYS AT LAW
SANTA FE, NEW MEXICO

ILLEGIBLE

thereof, respectfully shows:

1.

That this Honorable Court has no jurisdiction over the subject matter thereof.

2.

That said Petition fails to state a claim upon which relief can be granted.

3.

That this Movant, New Mexico Oil Conservation Commission, reports and re-alleges as part of this Motion each and all of the allegations as contained in the Motion to Dismiss, heretofore filed on behalf of U. S. Steel and Pauline Cooper with like effect, as if herein fully reported.

Respectfully submitted,

Attorney for Oil Conservation Commission

GILBERT, WHITE AND GILBERT
ATTORNEYS AT LAW
SANTA FE, NEW MEXICO

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

February 13, 1953

C

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P

Y

Mr. G. T. Manners, Attorney
Stonsell Building
LOVINGTON, N. M.

Dear Mr. Manners:

I have examined your proposed order sustaining motion to dismiss in the Crossroads case (Oil Conservation Commission Case 149) and wish to say that it meets with my approval. I presume you will hear from Mr. White in the matter also.

Sincerely,

George Graham, Attorney

GGmar

G. T. HANNERS
ATTORNEY-AT-LAW
STANSELL BUILDING
LOVINGTON, NEW MEXICO

February 6, 1953

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
RECEIVED
FEB 9 - 1953

Mr. Jack M. Campbell
Atwood, Malone and Campbell
Roswell, New Mexico

Dear Jack:

In the ordinary case, when one prevails on a motion, it is best to have the order merely say that the motion is well taken and is sustained (on all or any grounds), but, in order that our question may be definitely determined, I thought it best to include in this order a statement of the grounds on which the Court sustains it. In that way we eliminate Ross Madole's contentious attitude about the sufficiency of the evidence, and pose the questions squarely for the Supreme Court to decide.

There is enclosed a copy of the suggested order, with similar copies circulated to Mr. White and Mr. Graham. After we are in agreement on the form, copies can then be circulated to Mr. Dow, Mr. Greve and Mr. Madole before presentation to Judge Harris.

It is my understanding that our discussion at the end of the hearing produced an admission from Ross Madole that for purposes of the motion he would not challenge the sufficiency of the evidence, but that if for any reason the case should be reversed and sent back to the District Court to be tried he would want, at that time, to withdraw any qualified admission as to sufficiency and be permitted to reopen that entire question. Mr. Greve was willing to stipulate as to the sufficiency of the evidence and to stand or fall on his argument of judicial review from a judicial determination. I believe, however, that Paragraph 7 accomplishes our purpose and preserves Ross Madole's question if it ever becomes available to him.

I have been delayed by other matters in the preparation

COPY

of this order, and will appreciate your comments and suggestions at your earliest convenience.

Yours very truly,

G. T. HANNERS

GTH:mbg

CC:

Mr. L. C. White
Gilbert White and Gilbert
Santa Fe, New Mexico

Mr. George A. Graham
Oil Conservation Commission
Santa Fe, New Mexico

P.S. Chief Justice Lujan, in the recent case of Baca vs. Chaffin, No. 5484, decided January 28th, goes a little beyond Yarbrough vs. Montoya with his statement about "some evidence of probative value."

COPY

Case No.

149

Application, Transcript,
Small Exhibits, Etc.

Case 149 In the matter of app. of Mid-Continent for an order to establish 80-acre proration units. etc.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO
SANTA FE, NEW MEXICO

IN THE MATTER OF THE HEARING CALLED
BY THE OIL CONSERVATION COMMISSION
OF NEW MEXICO UPON ITS OWN MOTION
FOR THE PURPOSE OF RECONSIDERING:

CASE NO. 149
ORDER NO. R-100A

ORDER NUMBER 779 OF THE OIL CONSERVATION
COMMISSION OF NEW MEXICO ENTERED IN CASE
NUMBER 149 ON JULY 27, 1948, ESTABLISHING
80-ACRE SPACING AND PRORATION UNITS FOR
THE CROSSROADS (DEVONIAN) POOL BELOW
12,000 FEET, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION FOR REHEARING

This cause came on for hearing upon the petition and motion of Mid-Continent Petroleum Corporation and Magnolia Petroleum Company, filed October 31, 1951, for a rehearing on Order Number R-100 heretofore rendered by this Commission whereby Commission Order Number 779 dated July 27, 1948 was rescinded, in which petition Santa Fe Pacific Railroad Company, and Oil Development Company of Texas join.

NOW, on this 9th day of November, 1951, the Commission, a quorum being present, having fully considered said motion and application,

IT IS HEREBY ORDERED, That the above entitled matter be reopened and that a rehearing in said cause be held on December 19, 1951, at 10 a.m. at Santa Fe, New Mexico, or at such other time or times as the Commission may designate after due notice, at which time and place all interested parties may appear.

IT IS FURTHER ORDERED, That the effective date for the operation of Commission Order Number R-100 be, and the same hereby is suspended pending further order of the Commission.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Edwin L. Mechem
EDWIN L. MECHEM, Chairman

Guy Shepard
GUY SHEPARD, Member

R. R. Spurrier
R. R. SPURRIER, Secretary

SEAL

BEFORE THE OIL CONSERVATION COMMISSION OF
THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF MID-CONTINENT PETROLEUM CORPORATION, BOX 381, TULSA, OKLAHOMA, FOR AN ORDER OF THE COMMISSION TO ESTABLISH EIGHTY-ACRE PRORATION UNITS: ALSO TO ESTABLISH A UNIFORM PATTERN FOR THE SPACING AND DRILLING OF WELLS WITH ALLOWANCE FOR TOLERANCE FOR SURFACE OBSTRUCTIONS AND FOR AN ORDER FIXING AND ESTABLISHING ALLOWABLES FOR WELLS DRILLED IN THE CROSSROADS POOL TO A DEPTH BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.(DEVONIAN FORMATION)

CAUSE NO. 149
ORDER NO. 779

APPLICATION

Comes now Mid-Continent Petroleum Corporation, Tulsa, Oklahoma, and makes the following representations unto the Oil Conservation Commission of the State of New Mexico, to-wit:

That this application pertains only to the producing formation from which oil is now being produced at a depth below 12,000 feet in the Crossroads Pool, the probable area of which has heretofore been delineated and recommended by the Nomenclature Committee, located in Lea County, New Mexico.(Devonian formation)

That one such well is presently producing in said pool; it being located in the approximate center of the Southwest quarter of the Southeast quarter of Section 27, Township 9 South, Range 36 East.

That drilling, or operations for drilling, has commenced on Four locations in said pool in addition to the discovery well above referred to; said locations being as follows: Center of Southwest quarter of Southwest quarter of Section 26; Center of Northeast quarter of Southwest quarter of Section 27; Center of Northeast quarter of Northeast quarter of Section 33; Center of Northeast quarter of Northwest quarter of Section 34, all in Township 9 South, Range 36 East, Lea County, New Mexico.

Wherefore this applicant respectfully requests that the Commission set this application for public hearing, after notice, and that upon such hearing, the Commission issue its order fixing proration units for Devonian formation production in the Crossroads Pool, Lea County, New Mexico to consist of Eighty acres in area; that the Commission fix and establish well spacing in said formation and pool as Two wells for each quarter section (160 acres) according to United States Public Land Surveys; that such wells shall be located in the approximate center of

the Northeast Quarter and the Southwest Quarter of each Governmental Quarter Section according to United States Public Land Surveys, with a tolerance of 150 feet allowed for surface obstructions; that the Commission also determine and fix the daily well allowable for all wells now or hereafter producing from the Devonian formation in said Crossroads Pool on Eighty-acre proration units.

DONE this 14th day of June, 1948.

Respectfully submitted,

MID-CONTINENT PETROLEUM CORPORATION

by_____
J. H. CROCKER, ATTY.

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION FOR THE PURPOSE OF
RECONSIDERING:

CASE NO. 149
ORDER NO. R-45

ITS ORDER NO. 779, ENTERED ON
JULY 27, 1948, IN CASE NO. 149
ESTABLISHING AN 80-ACRE SPACING
PATTERN AND PRORATION UNIT FOR
THE CROSSROADS DEVONIAN POOL
BELOW 12,200 FEET, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This matter came on for hearing at 10:00 o'clock A. M. on the 21st day of November, 1950, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 29th day of December, 1950, the Commission having duly considered the testimony presented and the record in the case

FINDS:

1. That due public notice of the November 21, 1950 hearing was duly had, and the Commission having by Order No. 779 retained jurisdiction of the case, has full authority to hear and determine the matter.

2. That the motion of Magnolia Petroleum Company for dismissal is not well taken.

3. That the testimony adduced at said hearing related only to Mid-continent wells in the Crossroads pool, and the Commission is not able to determine from such testimony whether or not 80-acre spacing and proration units over the pool as a whole has, is or will prevent waste, preclude inequities, and/or preserve correlative rights in the said Crossroads pool.

IT IS THEREFORE ORDERED:

1. That the motion for dismissal is hereby denied.

2. That the case be and the same hereby is continued to March 20, 1951, at which hearing all available pertinent information from all producing wells in said Crossroads pool shall be presented to the Commission.

3. That pending final determination of the matter, based upon full information, duly presented, Order No. 779 heretofore entered authorizing the Crossroads 80-acre spacing and proration units, shall remain in full force and effect.

IT IS FURTHER ORDERED:

That proper notice shall be given to all producers and others interested in the Crossroads pool of the March 20, 1951 hearing.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

THOMAS J. MABRY, CHAIRMAN

GUY SHEPARD, MEMBER

R. R. SPURRIER, SECRETARY

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held November 21, 1950, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

Mid-Continent Petroleum Corporation
Tulsa, Oklahoma
Magnolia Petroleum Company
Dallas, Texas
Gulf Oil Corporation
Tulsa, Oklahoma
Santa Fe Pacific Railroad Company
Amarillo, Texas
Oil Development Company of Texas
%Santa Fe Pacific Railroad Company
Amarillo, Texas
U. D. Sawyer and Dessie Sawyer
Crossroads, New Mexico
To all other persons who may have an interest in the matters herein set forth:

Case 149 (under authority of Section 3, Order No. 779, dated July 27, 1948)

In the matter of the hearing called by the Oil Conservation Commission of the State of New Mexico upon its own motion for the purposes of:

1. Reconsidering Order No. 779 made by the Oil Conservation Commission of the State of New Mexico, in Case No. 149 on July 27, 1948, upon the application of Mid-Continent Petroleum Corporation, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in the Crossroads Devonian Field of Lea County, New Mexico.

2. Rescinding and cancelling said Order No. 779 unless the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, or any other interested parties, show good cause why the same should be further continued in effect.

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on October 27, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

SEAL

R. R. SPURRIER, SECRETARY

ILLEGIBLE

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO TO:

All interested parties:

The Oil Conservation Commission of the State of New Mexico hereby gives public notice that hearings will be held before the Commission pursuant to Rule 503 of the General Rules and Regulations of this Commission on the dates hereinafter set forth for the purpose of setting the allowable production of oil and gas for the State of New Mexico for the calendar month following the date of each hearing. All such hearings shall be held in the Office of the Oil Conservation Commission at Santa Fe, New Mexico, commencing at 10:00 a.m., and shall be on the following dates:

January 24, 1950
February 21, 1950
March 21, 1950
April 25, 1950
May 23, 1950
June 22, 1950
July 25, 1950
August 24, 1950
September 21, 1950
October 24, 1950
November 21, 1950
December 22, 1950

Dated this 3rd day of January, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier

R. R. SPURRIER, SECRETARY

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held November 21, 1950, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

All named parties in the following cases and notice to the public:

Case 237

In the matter of the application of the New Mexico Oil Conservation Commission upon its own motion to establish a well spacing pattern for each of the presently designated gas pools in the Counties of San Juan and Rio Arriba, State of New Mexico, producing or capable of producing from the following formations:

1. Pictured Cliffs sandstone (except Kutz Canyon-Fulcher Basin)
2. Mesaverde formation (except Blanco)
3. Any of the Pennsylvanian formations.

Case 238

In the matter of the application of Shell Pipe Line Corporation to amend for the purpose of clarification, Rule 503 (e) and Rule 503 (f) of Order No. 850, being the Rules and Regulations of the New Mexico Oil Conservation Commission, in order that the same may be construed as covering underruns and overruns, etc.

Case 239

In the matter of the application of Humble Oil and Refining Company and Magnolia Petroleum Company for permission to inject water for secondary recovery of oil from certain marginal wells in the Grayburg reservoir, Penrose-Skelly pool on the Humble Oil and Refining Company's J. L. Greenwood Lease and the Brunson-Argo lease of Magnolia Petroleum Company, in said pool, located as follows:

J. L. Greenwood Lease: S/2 Sec. 9, Twp. 22S, R. 37E, Lea County, New Mexico
Brunson-Argo Lease: NE/4 Sec. 9, Twp. 22S, R. 37E, and NW/4 Sec. 10, Twp. 22S, R. 37E, Lea County, New Mexico.

Case 240

In the matter of the application of Resler and Sheldon for authority to dually complete a well located 2310 feet south of the north line and 990 feet east of the west line of Sec. 33, Twp. 23S, R. 37E., Lea County, New Mexico.

Case 241

In the matter of the New Mexico Oil Conservation Commission upon its own motion upon the recommendation of the Southeastern New Mexico Nomenclature Committee

J. L. Greenwood Lease: S/2 Sec. 9, Twp. 22S, R. 37E, Lea County, New Mexico,
Brunson-Argo Lease: NE/4 Sec. 9, Twp. 22S, R. 37E, and NW/4 Sec. 10, Twp. 22S, R. 37E, Lea County, New Mexico.

Case 240

In the matter of the application of Resler and Sheldon for authority to dually complete a well located 2310 feet south of the north line and 990 feet east of the west line of Sec. 33, Twp. 23S, R. 37E., Lea County, New Mexico.

Case 241

In the matter of the New Mexico Oil Conservation Commission upon its own motion upon the recommendation of the Southeastern New Mexico Nomenclature Committee for the creation of new pools, as follows:

Twp. 21S, R. 37E, N.M.P.M.
SW/4 Section 2
SE/4 Section 3
NE/4 Section 10
NW/4 Section 11

the same to be classified as an oil pool and named NORTH BRUNSON (Ellenburger).

Twp. 12S, R. 37E, N.M.P.M.
S/2 Section 13
N/2 Section 24

the same to be classified as an oil pool and named GLADIOLA (Devonian),

and for the extension of certain heretofore created pools as follows:

Extend the Grayburg-Jackson pool, Eddy County, New Mexico, by changing the present boundaries to include the N/2 Section 7, Twp. 17S, R. 31E, N.M.P.M.

Extend the boundaries of the Watkins Pool, Eddy County, New Mexico so as to include the E/2 of Sec. 36, Twp. 18S, R. 31E for Queen production.

Extend the boundaries of the Turkey Track-Seven Rivers pool in Eddy County, New Mexico, so as to include the SE/4 Sec. 9, S/2 Sec. 10, N/2 Sec. 15, NE/4 Sec. 16, all in Twp. 19S, R. 29E, N.M.P.M.

Extend the boundaries of the Maljamar-Paddock pool in Lea County, New Mexico, so as to include therein S/2 Sec. 17, NE/4 Sec. 20, in Twp. 17S, R. 32E, N.M.P.M.

Extend the existing boundaries of the Corbin pool in Lea County, to include therein the SE/4 Sec. 33, and the SW/4 Sec. 34, in Twp. 17S, R. 33E, N.M.P.M.

Extend the boundaries of the Nadine pool in Lea County, New Mexico, so as to include therein the S/2 Sec. 14, Twp. 19S, R. 38E, N.M.P.M.

Extend the North Drinkard pool in Lea County, New Mexico, so as to include therein the NE/4 Sec. 10, Twp. 21S, R. 37E, N.M.P.M.

Extend the Drinkard pool in Lea County, New Mexico, so as to include therein the E/2 Sec. 23, Twp. 21S, R. 37E, N.M.P.M.

Extend the South Leonard pool in Lea County, New Mexico so as to include therein the E/2 of Sec. 23, Twp. 26S, R. 37E, N.M.P.M.

Extend the boundary of the Langlie-Mattix pool in Lea County, New Mexico, so as to include therein the SW/4 Sec. 25 and NW/4 Sec. 36 of Twp. 24S, R. 37E, N.M.P.M.

Case 242

In the matter of the application of Continental Oil Company for an order approving the unit agreement of the Texas Hill Unit Area, Eddy County, New Mexico, comprising 13,800.43 acres more or less, situated in Townships 21, 22 and 23 south, Range 31 east, N.M.P.M. and in accordance with plat attached to said application.

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on October 27, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier

SEAL

R. R. SPURRIER, SECRETARY

130. of Conservation Statute.

13e. Pooling:

Can we get photostat copies of Sawyer leases and of Sta Fe leases as to drilling obligations?

Mr Penn - What is yield & porosity of cores?

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF ORDER NO. 779, MADE BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 ON JULY 27, 1948, UPON THE APPLICATION OF THE MID-CONTINENT PETROLEUM CORPORATION, ESTABLISHING THE 80-ACRE DRILLING PATTERN AND PRORATION UNIT FOR THE CROSSROADS DEVONIAN FIELD BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

CASE NO. 149

\# 215,700
81 1,725,901
16
13
8

INFORMATION

Come now U. D. Sawyer and Dessie Sawyer, and respectfully show to the Commission as follows:

1.

That they are husband and wife, and residents of Crossroads, Lea County, New Mexico, and that they are the owners of an undivided 11/12ths interest in the oil, gas and other minerals in and under the following described lands in Township 9 South, Range 36 East, in the Crossroads Devonian ~~Field~~ Pool, in Lea County, New Mexico, to-wit:

$E\frac{1}{2}$	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
$SW\frac{1}{4}$	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
$NE\frac{1}{4}$	Section 33	Not leased
$N\frac{1}{2}SW\frac{1}{4}$	Section 35	Subject to lease held by Gulf Oil Corporation.
$N\frac{1}{2}$	Section 34	Mid-Continent lease, terminated by non-payment of rental
$SE\frac{1}{4}$	Section 34	

Containing 1,200 acres, more or less

S
320
160
160
80
320
160
1200

S
455
145
-308 Mag.

2.

That on May 6, 1948, the Mid-Continent Petroleum Corporation completed its discovery well know as the Mid-Continent-Sawyer No. 1 in the SW¼SE¼ of Section 27, Township 9 South, Range 36 East, at a total depth of 12,258, as a substantial producer from the Devonian formation; and that soon thereafter and on July 27, 1948, and upon the application of the Mid-Continent Petroleum Corporation, the Oil Conservation Commission of the State of New Mexico adopted its Order No. 779 in case No. 149, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in an area comprising 2,560 acres, including most of the lands of these informants, in a four-section square, known as the Crossroads Devonian Field, and embracing the following described lands in said township and range, to-wit:

West Half	Section 26
All	Section 27
East Half	Section 28
East Half	Section 33
All	Section 34
West Half	Section 35

and that in said Order the Oil Conservation Commission of the State of New Mexico specifically retained jurisdiction of the case for the purpose of issuing such further and additional orders as might be necessary to meet changed conditions, preclude inequities and preserve correlative rights.

3.

That thereafter three additional wells were drilled in said area and r esulted in successful production of oil from theDevonian formation below 12,000 feet, which wells are known and identified as follows:

Mid-Continent Dessie Sawyer	NE¼SW¼ Section 27
Mid-Continent Sawyer D	SW¼NE¼ Section 27
Magnolia - Santa Fe -1-C	SW¼SW¼ Section 26

and three other wells were drilled in said area to depths considered sufficient to test the Devonian formation below 12,000 feet and then abandoned as dry holes, which wells are known and identified as follows:

Mid-Continent Sawyer-1-B	NE¼NW¼ Section 34
Skelly Oil Co. - Sawyer -1	NE¼NE¼ Section 33
Oil Development Co-Santa Fe-1	SW¼NW¼ Section 27

and two other wells were drilled in said area resulting in successful production from the Pennsylvanian formation at depths of approximately 9,700 feet, which wells are known and identified as follows:

Magnolia- Santa Fe-1-B	NE¼SE¼ Section 28
Magnolia- Santa Fe-1-D	SW¼SE¼ Section 22 (outside Devonian Field)

and three other wells are now drilling in said area, which wells are known and identified as follows:

Mid-Continent- Sawyer-1-C	NE¼SE¼ Section 27
Oil Development Co-Santa Fe-2-27	SE¼NW¼ Section 27
Oil Development Co-Santa Fe-1-22	SE¼SW¼ Section 22 (outside Devonian Field)

and that a plat, showing the location of all of said wells, is hereto attached, marked Exhibit "A" and made a part hereof.

4.

That at the time of the adoption of such Devonian 80-acre spacing pattern there was only one producing well in the Crossroads Field, that being the discovery well known as the Mid-Continent-Sawyer-1 in the SW¼SE¼ of Section 27, and that said 80-acre spacing pattern was not based on past experience in said field, but was adopted as an exception to the Statewide normal 40-acre spacing pattern on the assumption that oil would be encountered in the Devonian formation below 12,000 feet under all of the lands comprising such four-section Devonian Field, and was adopted in anticipation of other circumstances and conditions then assumed to exist

5.

That experience in the drilling of the dry holes known as Mid-Continent-Sawyer-1-B in the NE¼NW¼ of Section 34 and the Skelly-Sawyer-1 in the NE¼NE¼ of Section 33 has demonstrated that the lands south of the discovery well were not productive of oil from the Devonian formation, and that experience in the drilling of the dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27 has demonstrated that the lands in the west half of the Northwest Quarter of Section 27 were not productive of oil from the Devonian formation; and that of all of the wells drilled in or near such Crossroads Devonian Field, four have encountered oil in the Devonian formation below 12,000 feet, three have been abandoned as dry holes after being drilled to depths below 12,000 feet, and two have been completed as producers from the Pennsylvanian formation at depths of approximately 9,700 feet.

6

That after the completion of its dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27, and on or about January 11, 1950, the Santa Fe Pacific Railroad Company and Oil Development Company of Texas abandoned such 80-acre spacing pattern, and obtained permission from the Oil Conservation Commission to depart from such 80-acre pattern and to locate its Oil Development Co-Santa Fe-2-27 in the SE¼NW¼ of Section 27, as a direct westerly offset to the Mid-Continent-Sawyer-D and as a direct northerly offset to the

Mid-Continent-Dessie Sawyer No. 1, and that such Oil Development Co-Santa Fe-2-27 is now drilling at such location, intended to ultimately test the Devonian formation below 12,000 feet.

7.

That these informants are now entitled to offset wells in the NW¼SW¼ of Section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-D in the NE¼SE¼ of section 28 and in the NW¼NE¼ of Section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-D in the SW¼SE¼ of Section 22; that the two locations at which they are now entitled to offset wells are midway between producing Devonian wells upon their lands and producing Pennsylvanian wells upon lands not owned by them, and that if the Oil Development Co-Santa Fe-2-27 now drilling in the SE¼NW¼ of Section 27 should be successful in encountering the Devonian formation, it would be reasonable to assume that each of such offset wells should also be drilled into the Devonian formation, and by reason of the implied covenants of the oil and gas leases covering such lands they would be entitled to the drilling of such wells into the lower or Devonian formation, but that under the present 80-acre spacing pattern, Devonian wells are not to be located or drilled at either of such locations.

8.

These informants respectfully show to the Commission that drilling experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that such Devonian 80-acre pattern should be further continued in effect as an exception to the normal Statewide 40-acre spacing pattern; that these informants have a valuable property interest in the oil, gas and other minerals in and under and that may be produced from their lands above described, and that if such Devonian 80-acre pattern be continued in effect after subsequent facts and circumstances have failed to demonstrate that the same should be so continued, the value of their property interest will be unjustly diminished and

and the marketability thereof unduly impaired, and that inequities and injustices will result.

WHEREFORE, these informants pray that the Oil Conservation Commission take notice that experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of its Order No. 779 establishing such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that the same should be further continued in effect as an exception to the Statewide normal 40-acre spacing pattern, and that the Commission, upon its own motion, require the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, and any other interested parties, to show cause, if any it or they may have, why such Order No. 779 should be further continued in effect, and that upon the hearing in this matter, if said parties fail to show proper cause for the continuation of said Order No. 779, that the same be rescinded by the Commission.

Dated at Lovington, New Mexico, this 2nd day of September, 1950, and respectfully submitted.

s/ G. T. Hanners
Attorney for Sawyers
Lovington, New Mexico

Distributed
By Proration Department
October 19, 1950

355,000
80,000
435,000
258,000
177,000

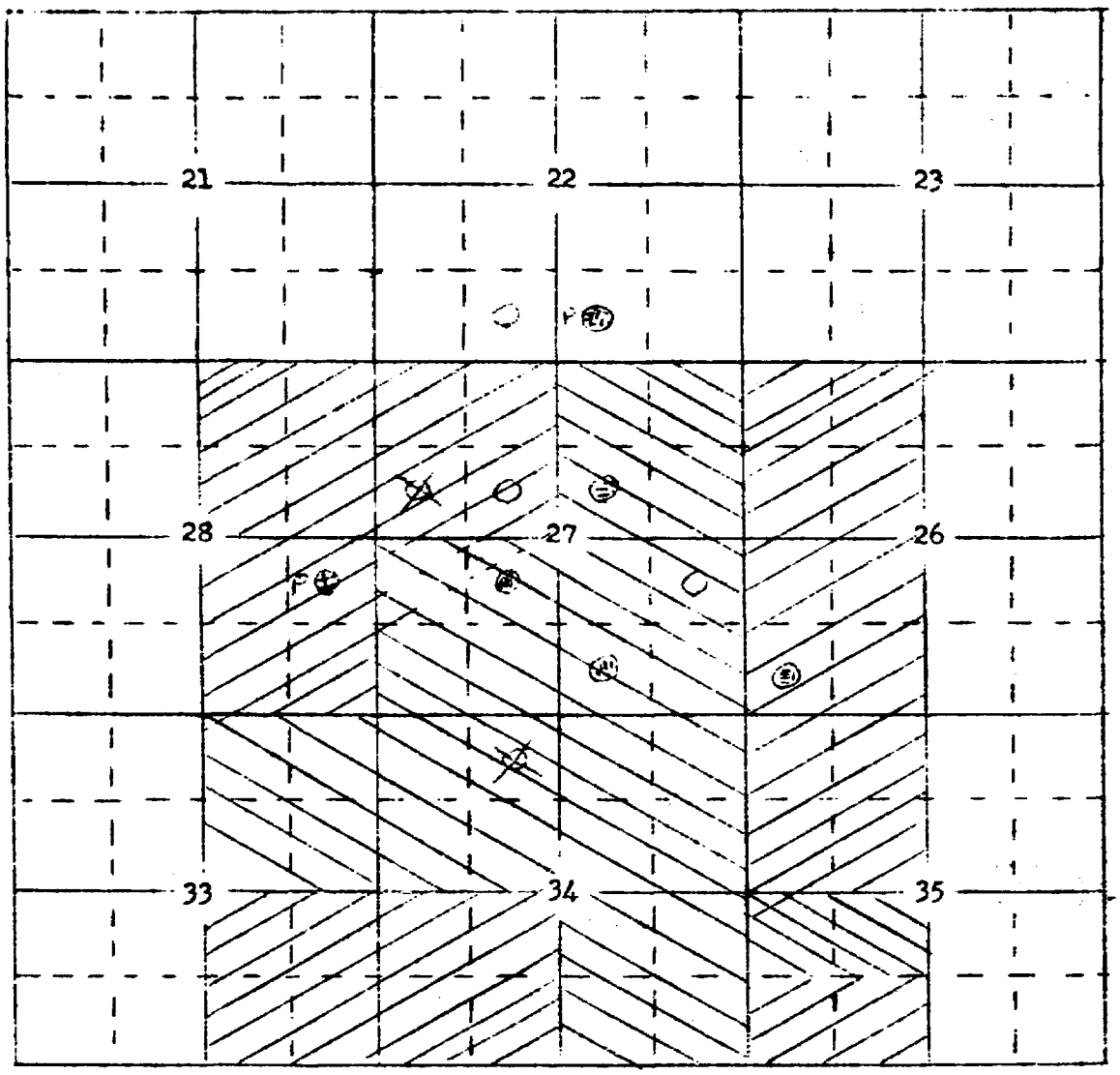
88,900/yr.
4 / 355,640
32
35
32
36

254,000
177
77

3
258 / 77,000
774

P-●	-	SW¼SE¼ 22	- Magnolia-Santa Fe-1-D	- Pennsylvanian
○	-	SE¼SW¼ 22	- Oil Dev. Co-Santa F-1-22	- Drilling
●	-	SW¼SW¼ 26	- Magnolia - Santa Fe-1-C	- Devonian
●	-	SW¼SE¼ 27	- Mid-Continent - Sawyer -1	- Devonian
●	-	NE¼SW¼ 27	- Mid-Continent - Dessie	- Devonian
●	-	SW¼NE¼ 27	- Mid-Continent - Sawyer - D	- Devonian
●	-	SW¼NW¼ 27	- Oil Dev. Co-Santa Fe -1	- Dry hole Devonian
○	-	SE¼NW¼ 27	- Oil Dev. Co-Santa Fe -2-27	- Drilling
○	-	NE¼SE¼ 27	- Mid-Continent - Sawyer -1-C	- Drilling
P-●	-	NE¼SE¼ 28	- Magnolia - Santa Fe -1-B	- Pennsylvanian
●	-	NE¼NE¼ 33	- Skelly Oil Co - Sawyer -1	- Dry hole devonian
●	-	NE¼NW¼ 34	- Mid-Continent - Saweyer -1-B	- Dry hole Devonian

Township 9 South Range 36 East



CROSSROADS DEVONIAN FIELD BELOW 12,200 FEET

- Owned by Sawyers
- Owned by AT&SF, et al
- Devonian wells below 12,000
- Drilling wells
- Pennsylvanian approx 9,700
- Dry holes

Exhibit "A"

Bond —

E. Taylor, Armstrong (Hancock) James U.	
Douthit Federal #1	15,000

1.

160 PC
320 MV } USGS Penn Paradox

~~1 Allowable~~

~~2 Case 235 (Clark + Christie~~

3. 149

~~4. 237~~

~~5. 238~~

~~6.~~ 239

7. 240

8. 241

9. 242

1.9 yrs

913087 / 1,725,901
913.087
812 81

~~1.9 yrs. prod. 2 1/2 = 8/3 = 4/3 X 2~~

237 ~~what pattern was So. Union using~~ ?

2916000 acres
4500
48600
12
24300
4860
9720
2.5
9720
.9720

CLASS OF SERVICE

This is a full-rate Telegram or Cable-gram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

1220

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL = Day Letter
NL = Night Letter
LC = Deferred Cable
NLT = Cable Night Letter
Ship Radiogram

The time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

nsl 149

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO.
RECEIVED
NOV 20 1950
LOGGED

LA46 DC2 12

D=TYA2 12 DL PD=TYLER TEX 20 324P=

R R SPURRIER, SECTY=

:OIL CONSERVATION COMM SANTA FE NMEX=

REFERRING TO NOTICE OF HEARINT TO BE HELD NOVEMBER 21ST TO RECONSIDER ORDER NUMBER 779 WHICH PROVIDES EIGHTY ACRE SPACING FOR CROSSROADS DEVONIAN FIELD, LEA COUNTY, WE, AS PART OWNERS WITH MID-CONTINENT PETROLEUM CORPORATION OF LEASES IN THIS FIELD STRONGLY URGE THAT EIGHTY ACRE SPACING FOR DRILLING AND PRORATION BE RETAINED AND NO AMENDMENTS BE MADE TO ORDER 770= REDUCED SPACING WOULD INVOLVE RUINOUS EXPENDITURES FOR ADDITIONAL DEVELOPMENT AND WOULD BE PARTICULARLY BURDENSOME AT THIS TIME IN VIEW OF SHORTAGE OF CASING AND TUBING= FURTHER, IT WOULD NOT SERVE INTERESTS OF CONSERVATION, AS PERMEABILITY AND STRONG WATER DRIVE WOULD ENABLE ONE WELL TO EFFECTIVELY DRAIN EIGHTY ACRES= RESPECTFULLY URGE ORDER 779 BE RETAINED UNCHANGED=

:DELTA GULF DRILLING CO J ZEPPA PRESIDENT=

21 779 770 779=

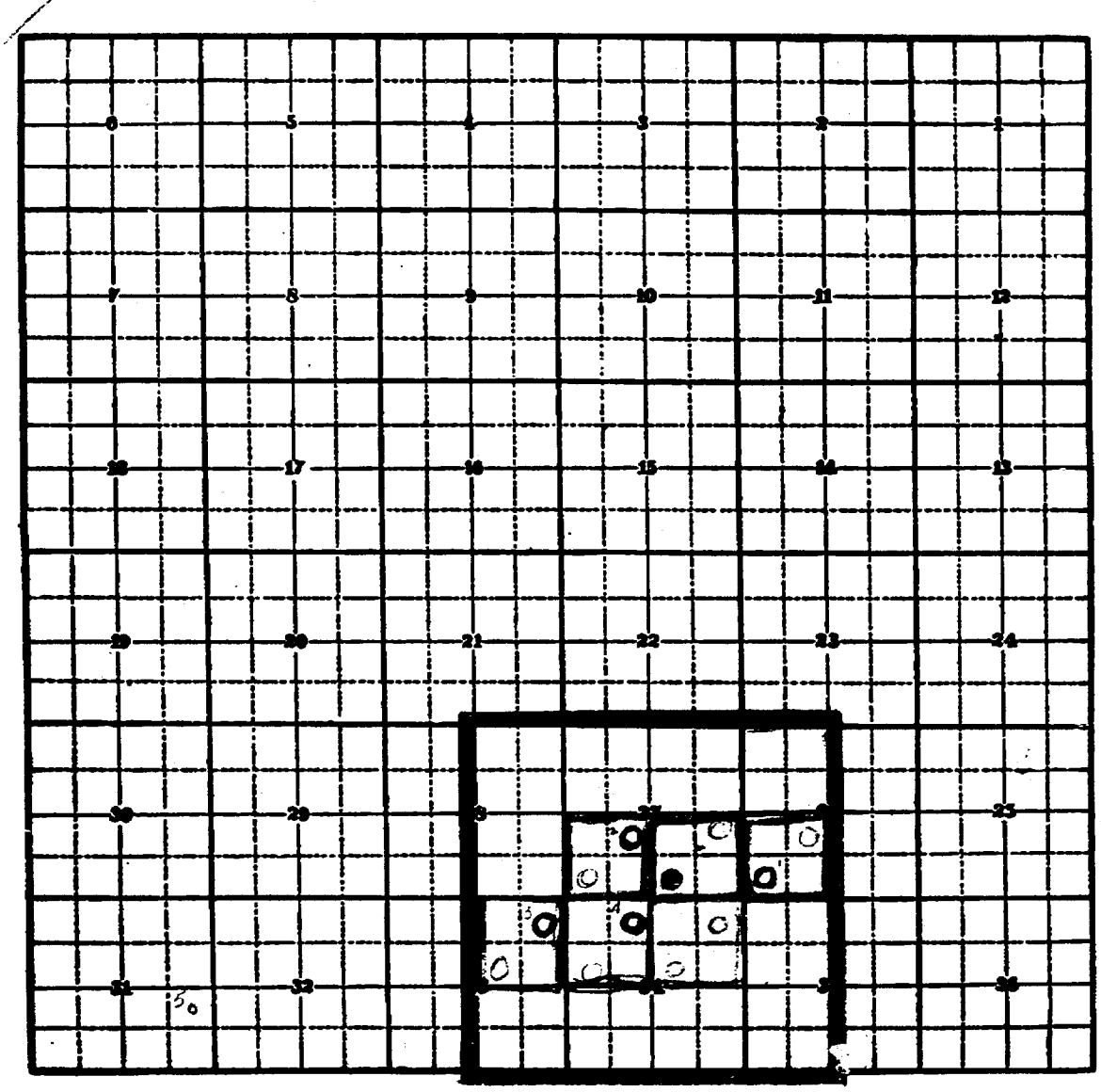
THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

For Hearing - 12 or 13 Mar. 58

Mid-Continent

Township No. 9 S of Range No. 31 E

New Mexico Principal Meridian.



● = U.D. Sawyer No 1. (PRODUCER)

○ = LOCATIONS NOW BEING DRILLED.

○ = FUTURE LOCATIONS UNDER BOA SPACING PROPOSAL

▬ = Boundary of Crossroads pool 6-29-48

12,258

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice, pursuant to law, of the following public hearing to be held July 15, 1948, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico.

STATE OF NEW MEXICO TO:

All named parties in the following cases, and notice to the public:

CASE 149

In the matter of the application of Mid-Continent Petroleum Corporation for an order establishing 80 acre proration units; to establish a uniform pattern for the spacing and drilling of wells with allowance for tolerance for surface obstructions and for an order fixing and establishing allowables for wells drilled in the Crossroads pool to a depth below 12,000 feet (Devonian formation), Lea County, New Mexico.

CASE 150

In the matter of the application of Ross Sears for an order granting permission to drill unorthodox location designated as Well No. 5 on his Miller lease, described as SW/4 of Section 26, Township 17 South, Range 32 East, N.M.P.M., in the Maljamar Field, Lea County, New Mexico.

CASE 151

Mary A. Lindop, Exrx. of Will of John Lindop, Miami, Florida; The Mid-Continent Co., Lincoln, Nebraska; F. J. Danglade, Lovington, New Mexico; United Producing Co., Inc., Charleston, W. Va.; J. L. Reed, Lovington, N. Mex.; Nettie Lowe, Lubbock, Texas; H. Dillard Schenck, Lovington, N. Mex.; Mark D. Rector, Atherton, California; Louise C. Ritsher, Beloit, Wisconsin; George F. Henneberry, Chicago, Ill.; Robert N. Cowham, Chicago, Ill.; Dr. Ralph Sullivan, Chicago, Ill.; Sigmund Stein, New York, N.Y.; Ella B. Stein, Chicago, Ill.; Marie E. Palmer, Boston, Mass.; Maud Cowham Sr., Robert Neil Cowham and C. Fred Cowham, Trustees, Chicago, Ill.; J. E. Day, Dallas 1, Texas; Claire I. Levy, Chicago, Ill.; Aylward H. Vosburgh & Grace H. Vosburgh, Chicago, Ill.; Mrs. V. M. Taylor, Roswell, New Mex.; Charles F. Grey, Trustee, Chicago 2, Ill.; Atlantic Oil Corporation, Tulsa, Oklahoma; Ginevra Dougherty, Chicago 37, Ill.; Harriet D. Herd, Midland, Texas; John J. Redfern, Jr., Midland, Texas; John G. Ellinghausen, Tulsa, Oklahoma; Helen S. Eisendrath, Chicago, Ill.; Orvilla W. Rosengren, Minneapolis, Minnesota, each claiming some interest, In the matter of the application of Amerada Petroleum Corporation for the pooling or unitization of the $NW\frac{1}{4}SE\frac{1}{4}$ of Section 32, township 19 South, Range 37 East, N.M.P.M. within the Monument pool.

Given under the seal of the Oil Conservation Commission of New Mexico at Santa Fe, New Mexico, on June 29, 1948.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

By R. R. Spurrier
R. R. SPURRIER, Secretary

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held November 21, 1950, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

Mid-Continent Petroleum Corporation
Tulsa, Oklahoma
Magnolia Petroleum Company
Dallas, Texas
Gulf Oil Corporation
Tulsa, Oklahoma
Santa Fe Pacific Railroad Company
Amarillo, Texas
Oil Development Company of Texas
%Santa Fe Pacific Railroad Company
Amarillo, Texas
U. D. Sawyer and Dessie Sawyer
Crossroads, New Mexico
To all other persons who may have an interest
in the matters herein set forth:

Case 149 (under authority of Section 3, Order No. 779, dated July 27, 1948)

In the matter of the hearing called by the Oil Conservation Commission of the State of New Mexico upon its own motion for the purposes of:

1. Reconsidering Order No. 779 made by the Oil Conservation Commission of the State of New Mexico, in Case No. 149 on July 27, 1948, upon the application of Mid-Continent Petroleum Corporation, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in the Crossroads Devonian Field of Lea County, New Mexico.

2. Rescinding and cancelling said Order No. 779 unless the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, or any other interested parties, show good cause why the same should be further continued in effect.

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on October 27, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

SEAL

R. R. SPURRIER, SECRETARY

October 27, 1950

SANTA FE NEW MEXICAN
Santa Fe, New Mexico

Re: Notice of Publication
Cases 149, 237, 238,
239, 240, 241, and 242.

Gentlemen:

Please publish the enclosed notice once, immediately. Please proof read the notice carefully and send a copy of the paper carrying such notice to this office.

UPON COMPLETION OF THE PUBLICATION SEND PUBLISHER'S AFFIDAVIT IN DUPLICATE.

For payment, please submit statement in duplicate, and sign and return the enclosed voucher.

PLEASE PUBLISH NOT LATER THAN NOVEMBER 7, 1950.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:dm
encl.

October 27, 1950

[redacted]
Hobbs, New Mexico

Re: Notice of Publication
Cases 149, 238, 239,
240 and 241.

Gentlemen:

Please publish the enclosed notice once, immediately. Please proof read the notice carefully and send a copy of the paper carrying such notice to this office.

UPON COMPLETION OF THE PUBLICATION SEND PUBLISHER'S AFFIDAVIT IN DUPLICATE.

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PLEASE PUBLISH NOT LATER THAN NOVEMBER 7, 1950.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encl.



Affidavit of Publication

State of New Mexico }
County of Santa Fe } ss.

I, Will Harrison, being first duly sworn, declare and say that I am the [redacted] (Editor) of the Santa Fe New Mexican, a daily newspaper, published in the English Language, and having a general circulation in the City and County of Santa Fe, State of New Mexico, and being a newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 of the Session Laws of 1937; that the publication, a copy which is hereto attached, was published in said paper once [redacted] for 1 time [redacted] in the regular issue of the paper during the time of publication, and that the notice was published in the newspaper proper, and not in any supplement, once [redacted] for 1 time [redacted] the first publication being on the 3rd day of November, 19 50 [redacted] time [redacted] day of [redacted], 19[redacted]; that payment for said advertisement has been (duly made), or (assessed as court costs); that the undersigned has personal knowledge of the matters and things set forth in this affidavit.

Will Harrison
Editor-[redacted]

Subscribed and sworn to before me this 4th day of November, A.D., 1950

Anna K. Ormsbee
Notary Public

My Commission expires
June 14, 1953

50 lines, one time at $ 5.90

[redacted] lines, [redacted] times, $ [redacted]

Tax $ [redacted]

Total . . . . . $ 5.90

Received payment,

[redacted]

By [redacted]

AFFIDAVIT OF PUBLICATION

State of New Mexico,

County of Lea

I, Robert L. Bummer

Publisher

Of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not in a supplement thereof for a period of One time ~~weeks~~.

beginning with the issue dated November 3, 1950

and ending with the issue dated November 3, 1950

Publisher.

Sworn and subscribed to before me this 7 day of November 1950

Notary Public. Betty Jane

My commission expires January 25, 1953

(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE
Nov. 3, 1950
NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held November 21, 1950, beginning at 10:00 o'clock A. M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

Mid-Continent Petroleum Corporation
Tulsa, Oklahoma
Magnolia Petroleum Company
Dallas, Texas
Gulf Oil Corporation
Tulsa, Oklahoma
Santa Fe Pacific Railroad Company
Amarillo, Texas
Oil Development Company of Texas
% Santa Fe Pacific Railroad Company
Amarillo, Texas
U. D. Sawyer and Dessie Sawyer
Crossroads, New Mexico

To all other persons who may have an interest in the matters herein set forth.

CASE 149 (under authority of Section 8, Order No. 779, dated July 27, 1948-

In the matter of the hearing called by the Oil Conservation Commission of the State of New Mexico upon its own motion for the purpose of:

1. Reconsidering Order No. 779 made by the Oil Conservation Commission of the State of New Mexico, in Case No. 149 on July 27, 1948, upon the application of Mid-Continent Petroleum Corporation, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in the Crossroads Devonian Field of Lea County, New Mexico.

2. Rescinding and cancelling said Order No. 779 unless the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, or any other interested parties, show good cause why the same should be further continued in effect.

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on October 27, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

SEAL

R. R. SPURRIER,
Secretary.

LEGAL NOTICE
Nov. 3, 1950
NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held November 21, 1950, beginning at 10:00 o'clock A. M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

All named parties in the following cases and notice to the public:

CASE 238

In the matter of the application of Shell Pipe Line Corporation to amend for the purpose of clarification, Rule 503(e) and Rule 503(f) of Order No. 850, being the Rules and Regulations of the New Mexico Oil Conservation Commission, in order that the same may be construed as covering underruns and overruns, etc. .

CASE 239

In the matter of the application of Humble Oil and Refining Company and Magnolia Petroleum Company for permission to inject water for secondary recovery of oil from certain marginal wells in the Grayburg reservoir, Penrose-Skelly pool on the Humble Oil and Refining Company's J. L. Greenwood Lease and the Brunson-Argo lease of Magnolia Petroleum Company, in said pool, located as follows:

J. L. Greenwood Lease: S/2 Sec. 9, Twp. 22S, R. 37E, Lea County, New Mexico.
Brunson-Argo Lease: NE/4 Sec. 9, Twp. 22S, R. 37E, and NW/4 Sec. 10, Twp. 22S, R. 37E, Lea County, New Mexico.

CASE 240

In the matter of the application of Resler and Sheldon for authority to dually complete a well located 2310 feet south of the north line and 990 feet east of the west line of Sec. 33, Twp. 23S, R. 37E, Lea County, New Mexico.

CASE 241

In the matter of the New Mexico Oil Conservation Commission upon its own motion upon the recommendation of the Southeastern New Mexico Nomenclature Committee for the creation of new pools, as follows:

Twp. 21S, R. 37E, N.M.P.M.
SW/4 Section 2
SW/4 Section 3
NE/4 Section 10
NW/4 Section 11

the same to be classified as an oil pool and named NORTH BRUNSON (Ellenburger).

Twp. 12S, R. 37E, N.M.P.M.
S/2 Section 13
N/2 Section 24

the same to be classified as an oil pool and named GLADIOLA (Devonian),

and for the extension of certain heretofore created pools as follows:

Extend the Grayburg-Jackson pool, Eddy County, New Mexico, by changing the present boundaries to include the N/2 Section 7, Twp. 17S, R. 31E, N.M.P.M.

Extend the boundaries of the Watkins Pool, Eddy County, New Mexico so as to include the E/2 of Sec. 36, Twp. 18S, R. 31E for Queen production.

Extend the boundaries of the Turkey Track-Seven Rivers pool in Eddy County, New Mexico, so as to include the SE/4 Sec. 9, S/2 Sec. 10, N/2 Sec. 15, NE/4 Sec. 16, all in Twp. 19S, R. 29E, N.M.P.M.

Extend the boundaries of the Maljamar-Paddock pool in Lea County, New Mexico, so as to include therein S/2 Sec. 17, NE/4 Sec. 20, in Twp. 17S, R. 32E, N.M.P.M.

Extend the existing boundaries of the Corbin pool in Lea County, to include therein the SE/4 Sec. 33, and the SW/4 Sec. 34, in Twp. 17S, R. 33E, N.M.P.M.

Extend the boundaries of the Nadine pool in Lea County, New Mexico, so as to include therein the S/2 Sec. 14, Twp. 19S, R. 38E, N.M.P.M.

Extend the North Drinkard pool in Lea County, New Mexico, so as to include therein the NE/4 Sec. 10, Twp. 21S, R. 37E, N.M.P.M.

Extend the Drinkard pool in Lea County, New Mexico, so as to include therein the E/2 Sec. 23, Twp. 21S, R. 37E, N.M.P.M.

Extend the South Leonard pool in Lea County, New Mexico so as to include therein the E/2 of Sec. 23, Twp. 26S, R. 37E, N.M.P.M.

Extend the boundary of the Langlie-Mattix pool in Lea County, New Mexico, so as to include therein the SW/4 Sec. 25 and NW/4 Sec. 36 of Twp. 24S, R. 37E, N.M.P.M.

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on October 27, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION
R. R. SPURRIER,
Secretary

SEAL

November 1, 1950

Mr. H. M. Dow
Mr. Clarence E. Hinkle
Hervey, Dow and Hinkle
Roswell, New Mexico

Gentlemen:

In reply to Mr. Dow's wire of November 1, we enclose herewith, copy of the Application of U. D. Sawyer, and also additional copies of our Notice of Publication.

The Notice of Publication was mailed to you on Saturday, October 28, and we cannot understand why this was not received by your office.

Very truly yours,

R. R. SPURRIER
SECRETARY-DIRECTOR

RRS:bw
encls.

CLASS OF SERVICE

This is a full-rate Telegram or Cable-gram, unless its de-ferred character is in-dicated by a suitable symbol above or pre-ceding the address.

WESTERN UNION

1201

W. P. MARSHALL, PRESIDENT

SYMBOLS
DL=Day Letter
NL=Night Letter
LC=Deferred Cable
NLT=Cable Night Letter
Ship Radiogram

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

LA05 SSB290

L JMA074 PD=ROSWELL NMEX 1 1148A= 1955 NOV 1 PM 12 15

R R SPURRIER=

OIL CONSERVATION COMMISSION SANTA FE NMEX=

PLEASE SEND US COPY OF SAWYER'S APPLICATION TO CHANGE SPACING FROM EIGHTY ACRES TO FORTY ACRES. ALSO COPY OF THE NOTICE OF HEARING WHICH WE UNDERSTAND HAS BEEN SET FOR NOVEMBER THIRTY-FIRST=

HIRAM M DOW=

Arnt Henley

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held November 21, 1950, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

Mid-Continent Petroleum Corporation
Tulsa, Oklahoma
Magnolia Petroleum Company
Dallas, Texas
Gulf Oil Corporation
Tulsa, Oklahoma
Santa Fe Pacific Railroad Company
Amarillo, Texas
Oil Development Company of Texas
% Santa Fe Pacific Railroad Company
Amarillo, Texas
U. D. Sawyer and Dessie Sawyer
Crossroads, New Mexico
To all other persons who may have an interest in the matters herein set forth;

Case 149 (under authority of Section 8, Order No. 779, dated July 27,1948)

In the matter of the hearing called by the Oil Conservation Commission of the State of New Mexico upon its own motion for the purposes of:

1. Reconsidering Order No. 779 made by the Oil Conservation Commission of the State of New Mexico, in Case No. 149 on July 27, 1948, upon the application of Mid-Continent Petroleum Corporation, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in the Crossroads Devonian Field of Lea County, New Mexico.

2. Rescinding and cancelling said Order No. 779 unless the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, or any other interested parties, show good cause why the same should be further continued in effect,

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on October 27, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. SPURRIER, SECRETARY

SKELLY OIL COMPANY

PRODUCTION DEPARTMENT
J. S. FREEMAN
VICE PRESIDENT
E. A. JENKINS
GENERAL SUPERINTENDENT

TULSA 2, OKLAHOMA

H. J. GIBBONS
CHIEF ENGINEER
G. W. SELINGER
PRORATION ATTORNEY
J. H. McCULLOCH
CHIEF CLERK

November 17, 1950

Re: Case 149
Hearing: November 21, 1950

Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Gentlemen:

We are in receipt of copy of notice issued for Case 149 for the purpose of considering Order 779 as it applies to the Crossroads-Devonian Pool, of Lea County, New Mexico. The notice is from the State of New Mexico to a number of parties and to other persons who may have an interest in the matter.

Skelly Oil Company drilled one dry hole in this field and was a party along with other operators in securing 80-acre drilling and proration units in this field which resulted in issuance of Order 779, dated July 27, 1948.

This notice, which we have recently received, states that Case 149 was being called under authority of Section 8 of Order 779, dated July 27, 1948, which section provides:

> "The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities and preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law."

The notice calling the hearing for November 21st specifically states it is to re-consider Order 779, and that the Commission would rescind and cancel said order unless Mid-Continent or any other interested party should show good cause why the order should be continued further in effect. This is not in line with Section 8 of Order 779, since such order contemplates modifications only on changed conditions.

Skelly Oil Company, although having no present production in the field, is interested in the principal of the maintenance of a drilling and spacing unit in line with facts disclosed at a proper hearing. We believe those facts were indicated at the hearing held July 27, 1948. We are interested further in believing that the Commission does not expressly limit a proration unit to 40 acres regardless of the depth and other factors presented to it.

Section 13(b) of Chapter 168 of the Laws of 1949 provides:

"No owner of a property in a pool shall be required by the Commission directly, or indirectly, to drill more wells than are reasonably necessary to secure his proportionate part of the production. To avoid the drilling of unnecessary wells a proration unit for each pool may be fixed, such being the area which may be efficiently and economically drained and developed by one well. The drilling of unnecessary wells creates fire and other hazards conducive to waste and unnecessarily increases production costs of oil or gas or both to the operator and thus also unnecessarily increases the cost of products to the ultimate consumer."

From a procedural standpoint, if the hearing is called by the complaint of any interested party, we believe that Rule 1212 with respect to re-hearings would cover the matter, which rule of procedure is in line with Section 19(a) and (b) of the 1949 Act, and the burden would be upon the complaining party to introduce evidence to show of any changed condition since the issuance of Order 779 was supported by competent legal evidence at the July 27, 1948, hearing.

However, if the hearing is called by the Commission itself in the form of what we assume to be a show cause order it is, to say the least, most unusual, considering the fact that this order has been in effect in excess of two years and a number of wells, both producing and dry, have been drilled, and it would appear to be more of a re-hearing than one of rescission and cancellation, which certainly is not contemplated even under Section 8 of Order 779. This being true, the delay would appear to us to be one covered by Rule 1212 and Section 19(a) and (b) of the Act.

Our position, therefore, is that Order 779 became a final order subject only to modification of amendments based on changed conditions assuming the burden of indicating such changes rests upon the parties desiring such change. We believe that the Commission should not arbitrarily fix a limit of 40 acres as a proration unit for wells disregarding depth and other factors as a matter of principal in the state, and, secondly, we

firmly are convinced that if Order 779 is to be amended, same should be done only upon a showing by complaining parties that such order should be amended. We are opposed to any rescission and cancellation of existing spacing rules and substituting no spacing rules whatsoever. We, therefore, urge upon the Commission to continue Order 779 as established on July 27, 1948, and only modify and amend upon a proper showing in accordance with the Act, particularly Section 13(b), and the existing rules and regulations of this Commission.

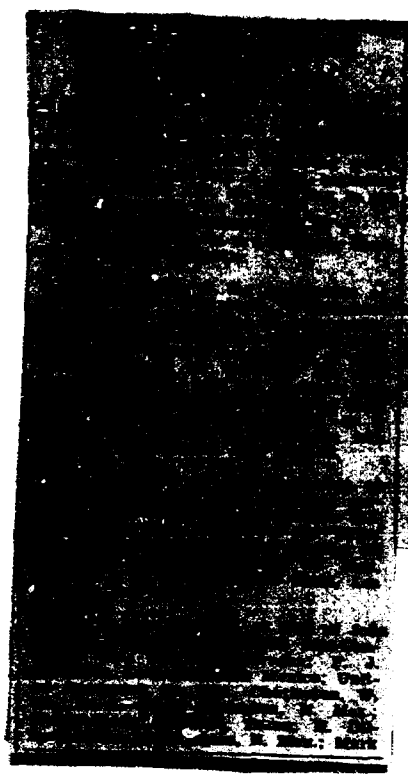
Yours very truly,

George W. Selinger

George W. Selinger

GWS:ot
cc-Mid-Continent Petroleum Corp.
Tulsa, Oklahoma

Mr. Dunlavey



Affidavit of Publication

State of New Mexico
County of Santa Fe } ss.

I, Will Harrison, being first duly sworn, declare and say that I am (the Business Manager) (Editor) of the Santa Fe New Mexican, a daily newspaper, published in the English language with general circulation in the City and County of Santa Fe, State of New Mexico, and a newspaper duly qualified to publish legal notices and advertisements within the provisions of Chapter 167 of the Session Laws of 1937; that the publication, a copy of which is hereto atached, was published in said paper once each week for one time consecutive weeks, and on the same day of each week in the regular issue of the paper during the time of publication, and that the notice was published in the newspaper proper, and not in any supplement, once each week for one time weeks consecutively, the first publication being on the 1st day of July, 1948, and the last publication on the day of 19; that payment for said advertisement has been (duly made), or (assessed as court costs); that the undersigned has personal knowledge of the matters and things set forth in this affidavit.

Will Harrison
Editor / Manager

Subscribed and sworn to before me this 1st day of July, A.D., 1948

Anna K. Ormsbee
Notary Public

My Commission expires
June 14, 1949

PUBLISHER'S BILL

73 lines, one time at $ 7.80

lines, times, $

Tax $

Total . . . . . $ 7.80

Received payment,

By

STATE OF NEW MEXICO
OFFICE OF STATE GEOLOGIST
SANTA FE, NEW MEXICO

30 June 1948

Mr. A. E. Pierce
Vice President
Mid-Continent Petroleum Corporation
Tulsa, Oklahoma

Dear Mr. Pierce:

Attached is Notice of Publication on your petition which is known as Case 149.

Hearing is to be held in the Senate Chambers of the Capitol building.

Very truly yours,

RBS:BSP

STATE OF NEW MEXICO
OFFICE OF STATE GEOLOGIST
SANTA FE, NEW MEXICO

29 June 1948

Mr. Glenn Staley
Proration Office
Drawer Eye
Hobbs, New Mexico

Dear Glenn:

Attached is Notice of Publication on cases to be heard 15 April 1948.

Very truly yours,

RRS:bmp

C
O
P
Y

STATE OF NEW MEXICO
OFFICE OF STATE GEOLOGIST
SANTA FE, NEW MEXICO

29 June 1948

Mr. John E. Miles
Commissioner of Public Lands
Capitol Bldg.,
Santa Fe, New Mexico

Dear Mr. Miles:

Attached is Notice of Publication on cases to be heard on 15 June 1948.

Very truly yours,

RMS:bsp

COPY

STATE OF NEW MEXICO
OFFICE OF STATE GEOLOGIST
SANTA FE, NEW MEXICO

29 June 1948

Thomas J. Mabry
Governor of New Mexico
Santa Fe, New Mexico

Dear Governor Mabry:

Attached is Notice of Publication on cases to be heard on 15 June 1948.

Very truly yours,

EBS:bep

STATE OF NEW MEXICO
OFFICE OF STATE GEOLOGIST
SANTA FE, NEW MEXICO

29 June 1948

The Santa Fe New Mexican
Santa Fe, New Mexico

RE: Cases 149,150, & 151
Notice of Publication

Gentlemen:

Please publish the enclosed notice once, immediately. Please proof-read the notice carefully and send a copy of the paper carrying such notice.

UPON COMPLETION OF THE PUBLICATION, PLEASE SEND PUBLISHER'S AFFIDAVIT IN DUPLICATE.

For payment, please submit statement in duplicate, accompanied by voucher executed in duplicate. The necessary blanks are enclosed.

Very truly yours,

_____

RRS:bsp

C O P Y

STATE OF NEW MEXICO
OFFICE OF STATE GEOLOGIST
SANTA FE, NEW MEXICO

29 June 1948

The Hobbs Sun
Hobbs, New Mexico

RE: Cases 149,150, & 151
Notice of Publication

Gentlemen:

Please publish the enclosed notice once, immediately. Please proof-read the notice carefully and send a copy of the paper carrying such notice.

UPON COMPLETION OF THE PUBLICATION, PLEASE SEND PUBLISHER'S AFFIDAVIT IN DUPLICATE.

For payment please submit statement in duplicate, accompanied by voucher executed in duplicate. The necessary blanks are enclosed.

Very truly yours,

_____

RRS:bep

cc: OCC, Hobbs, NM

COPY

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice, pursuant to law, of the following public hearing to be held July 15, 1948, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico.

STATE OF NEW MEXICO TO:

All named parties in the following cases, and notice to the public:

CASE 149

In the matter of the application of Mid-Continent Petroleum Corporation for an order establishing 80 acre proration units; to establish a uniform pattern for the spacing and drilling of wells with allowance for tolerance for surface obstructions and for an order fixing and establishing allowables for wells drilled in the Crossroads pool to a depth below 12,000 feet (Devonian formation), Lea County, New Mexico.

CASE 150

In the matter of the application of Ross Sears for an order granting permission to drill unorthodox location designated as Well No. 5 on his Miller lease, described as SW/4 of Section 26, Township 17 South, Range 32 East, N.M.P.M., in the Maljamar Field, Lea County, New Mexico.

CASE 151

Mary A. Lindop, Exrx. of Will of John Lindop, Miami, Florida; The Mid-Continent Co., Lincoln, Nebraska; F. J. Danglade, Lovington, New Mexico; United Producing Co., Inc., Charleston, W. Va.; J. L. Reed, Lovington, N. Mex.; Nettie Lowe, Lubbock, Texas; H. Dillard Schenck, Lovington, N. Mex.; Mark D. Rector, Atherton, California; Louise C. Ritsher, Beloit, Wisconsin; George F. Henneberry, Chicago, Ill.; Robert N. Cowham, Chicago, Ill.; Dr. Ralph Sullivan, Chicago, Ill.; Sigmund Stein, New York, N.Y.; Ella B. Stein, Chicago, Ill.; Marie E. Palmer, Boston, Mass.; Maud Cowham Sr., Robert Neil Cowham and C. Fred Cowham, Trustees, Chicago, Ill.; J. E. Day, Dallas 1, Texas; Claire I. Levy, Chicago, Ill.; Aylward H. Vosburgh & Grace H. Vosburgh, Chicago, Ill.; Mrs. V. M. Taylor, Roswell, New Mex.; Charles F. Grey, Trustee, Chicago 2, Ill.; Atlantic Oil Corporation, Tulsa, Oklahoma; Ginevra Dougherty, Chicago 37, Ill.; Harriet D. Herd, Midland, Texas; John J. Redfern, Jr., Midland, Texas; John G. Ellinghausen, Tulsa, Oklahoma; Helen S. Eisendrath, Chicago, Ill.; Orvilla W. Rosengren, Minneapolis, Minnesota, each claiming some interest, In the matter of the application of Amerada Petroleum Corporation for the pooling or unitization of the $NW\frac{1}{4}SE\frac{1}{4}$ of Section 32, township 19 South, Range 37 East, N.M.P.M. within the Monument pool.

Given under the seal of the Oil Conservation Commission of New Mexico at Santa Fe, New Mexico, on June 29, 1948.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

By _____
R. R. SPURRIER, Secretary

MAGNOLIA PETROLEUM COMPANY

A SOCONY-VACUUM COMPANY

LEGAL DEPARTMENT

DALLAS 1, TEXAS

WALACE HAWKINS
GENERAL COUNSEL
EARL A. BROWN
ROY C. LEDBETTER
RAYMOND M. MYERS
CHAS. B. WALLACE
JACK VICKREY
R. T. WILKINSON, JR.
FLOYD B. PITTS
SAM H. FIELD
WILLIAM E. McKELLAR, JR.
ASSISTANTS

OCT 25 1950

October 23, 1950

Mr. R. R. Spurrier
New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Dear Dick:

Information has recently been received that a U. D. Sawyer and Dessie Sawyer have made application to the New Mexico Oil Conservation Commission to reopen the evidence in the matter of Case No. 149 and Order No. 779, July 27, 1948.

Magnolia Petroleum Company is strongly opposed to any action which will modify or rescind Order No. 779. In order that we may appear before your commission in this matter, I especially request that you mail me a copy of the hearing notice as soon as this case is set for hearing.

Yours truly,

William E. McKellar, Jr.

William E. McKellar, Jr.

WEMcK/bcb

October 16, 1950

Mr. Pete Porter
Oil Conservation Commission
Pubblo, New Mexico

Dear Pete:

Evidently there was a misunderstanding on Case 149 among the legal department your office and our office. The order is not to be published; to remain in the case file only. Therefore, nothing will be circulated except the Shapor application, which we are enclosing.

Thanks for reminding us of your dilemma.

Very truly yours,

bpw

Secretary and Director

New Mexico
OIL CONSERVATION COMMISSION

GOVERNOR THOMAS J. MABRY
CHAIRMAN

LAND COMMISSIONER GUY SHEPARD
MEMBER

STATE GEOLOGIST R. R. SPURRIER
SECRETARY AND DIRECTOR

P. O. BOX 1545
HOBBS, NEW MEXICO

October 11, 1950

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO.
OCT 16 1950

Oil Conservation Commission
Mrs. Bettty Wistrom
Box 871
Santa Fe, New Mexico

Dear Mrs. Wistrom:

Please refer to our letter of October 2nd with which we enclosed the material on Case # 149 for you to supply the dates and signatures and return to us.

We will appreciate your prompt attention to this matter as we would like to make distribution of this publication as soon as possible.

Yours very truly,

OIL CONSERVATION COMMISSION

A. L. Porter, Jr.
Proration Manager

ALP/cd

New Mexico
OIL CONSERVATION COMMISSION

GOVERNOR THOMAS J. MABRY
CHAIRMAN

LAND COMMISSIONER GUY SHEPARD
MEMBER

STATE GEOLOGIST R. R. SPURRIER
SECRETARY AND DIRECTOR

P. O. BOX 1545
HOBBS, NEW MEXICO
October 2, 1950

Oil Conservation Commission
Mrs. Betty Whistron
Box 871
Santa Fe, New Mexico

Dear Mrs. Whistron:

As per our telephone conservation of this date, I am returning herewith the publication to which I referred for signatures and dates. This publication has already been typed on stencils which are being held for the signatures and dates.

In accordance with your instructions we are inserting order number R-32 under case number 235 which has to do with the matter of application of E. B. Clark & C. B. Christie for designation of a gas pool.

Yours very truly,

OIL CONSERVATION COMMISSION

A. L. Porter, Jr.
Proration Manager

ALP/cd

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF ORDER NO. 779, MADE BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 ON JULY 27, 1948, UPON THE APPLICATION OF THE MID-CONTINENT PETROLEUM CORPORATION, ESTABLISHING THE 80-ACRE DRILLING PATTERN AND PRORATION UNIT FOR THE CROSSROADS DEVONIAN FIELD BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

CASE NO. 149

INFORMATION

Come now U. D. Sawyer and Dessie Sawyer, and respectfully show to the Commission as follows:

1.

That they are husband and wife, and residents of Crossroads, Lea County, New Mexico, and that they are the owners of an undivided 11/12ths interest in the oil, gas and other minerals in and under the following described lands in Township 9 South, Range 36 East, in the Crossroads Devonian Field, in Lea County, New Mexico, to-wit:

E½	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
SW¼	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
NE¼	Section 33	Not leased
N½SW¼	Section 35	Subject to lease held by Gulf Oil Corporation.
N½	Section 34	Mid-Continent lease, terminated by non-payment of rental
SE¼.	Section 34	

Containing 1,200 acres, more or less

That on May 6, 1948, the Mid-Continent Petroleum Corporation completed its discovery well know as the Mid-Continent-Sawyer No. 1 in the SW¼SE¼ of Section 27, Township 9 South, Range 36 East, at a total depth of 12,258, as a substantial producer from the Devonian formation; and that soon thereafter and on July 27, 1948, and upon the application of the Mid-Continent Petroleum Corporation, the Oil Conservation Commission of the State of New Mexico adopted its Order No. 779 in case No. 149, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in an area comprising 2,560 acres, including most of the lands of these informants, in a four-section square, known as the Crossroads Devonian Field, and embracing the following described lands in said township and range, to-wit:

West Half	Section 26
All	Section 27
East Half.	Section 28
East Half	Section 33
All	Section 34
West Half	Section 35

and that in said Order the Oil Conservation Commission of the State of New Mexico specifically retained jurisdiction of the case for the purpose of issuing such further and additional orders as might be necessary to meet changed conditions, preclude inequities and preserve correlative rights.

3.

That thereafter three additional wells were drilled in said area and r esulted in successful production of oil from theDevonian formation below 12,000 feet, which wells are known and identified as follows:

Mid-Continent Dessie Sawyer	NE¼SW¼ Section 27
Mid-Continent Sawyer D	SW¼NE¼ Section 27
Magnolia - Santa Fe -1-C	SW¼SW¼ Section 26

and three other wells were drilled in said area to depths considered sufficient to test the Devonian formation below 12,000 feet and then abandoned as dry holes, which wells are known and identified as follows:

Mid-Continent Sawyer-1-B	NE¼NW¼ Section 34
Skelly Oil Co. - Sawyer -1	NE¼NE¼ Section 33
Oil Development Co-Santa Fe-1	SW¼NW¼ Section 27

and two other wells were drilled in said area resulting in successful production from the Pennsylvanian formation at depths of approximately 9,700 feet, which wells are known and identified as follows:

Magnolia- Santa Fe-1-B	NE¼SE¼ Section 28
Magnolia- Santa Fe-1-D	SW¼SE¼ Section 22 (outside Devonian Field)

and three other wells are now drilling in said area, which wells are known and identified as follows:

Mid-Continent- Sawyer-1-C	NE¼SE¼ Section 27
Oil Development Co-Santa Fe-2-27	SE¼NW¼ Section 27
Oil Development Co-Santa Fe-1-22	SE¼SW¼ Section 22 (outside Devonian Field)

and that a plat, showing the location of all of said wells, is hereto attached, marked Exhibit "A" and made a part hereof.

4.

That at the time of the adoption of such Devonian 80-acre spacing pattern there was only one producing well in the Crossroads Field, that being the discovery well known as the Mid-Continent-Sawyer-1 in the SW¼SE¼ of Section 27, and that said 80-acre spacing pattern was not based on past experience in said field, but was adopted as an exception to the Statewide normal 40-acre spacing pattern on the assumption that oil would be encountered in the Devonian formation below 12,000 feet under all of the lands comprising such four-section Devonian Field, and was adopted in anticipation of other circumstances and conditions then assumed to exist

5.

That experience in the drilling of the dry holes known as Mid-Continent-Sawyer-1-B in the NE¼NW¼ of Section 34 and the Skelly-Sawyer-1 in the NE¼NE¼ of Section 33 has demonstrated that the lands south of the discovery well were not productive of oil from the Devonian formation, and that experience in the drilling of the dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27 has demonstrated that the lands in the west half of the Northwest Quarter of Section 27 were not productive of oil from the Devonian formation; and that of all of the wells drilled in or near such Crossroads Devonian Field, four have encountered oil in the Devonian formation below 12,000 feet, three have been abandoned as dry holes after being drilled to depths below 12,000 feet, and two have been completed as producers from the Pennsylvanian formation at depths of approximately 9,700 feet.

6

That after the completion of its dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27, and on or about January 11, 1950, the Santa Fe Pacific Railroad Company and Oil Development Company of Texas abandoned such 80-acre spacing pattern, and obtained permission from the Oil Conservation Commission to depart from such 80-acre pattern and to locate its Oil Development Co-Santa Fe-2-27 in the SE¼NW¼ of Section 27, as a direct westerly offset to the Mid-Continent-Sawyer-D and as a direct northerly offset to the

Mid-Continent-Dessie Sawyer No. 1, and that such Oil Development Co-Santa Fe-2-27 is now drilling at such location, intended to ultimately test the Devonian formation below 12,000 feet.

7.

That these informants are now entitled to offset wells in the NW¼SW¼ of Section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-D in the NE¼SE¼ of section 28 and in the NW¼NE¼ of Section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-D in the SW¼SE¼ of Section 22; that the two locations at which they are now entitled to offset wells are midway between producing Devonian wells upon their lands and producing Pennsylvanian wells upon lands not owned by them, and that if the Oil Development Co-Santa Fe-2-27 now drilling in the SE¼NW¼ of Section 27 should be successful in encountering the Devonian formation, it would be reasonable to assume that each of such offset wells should also be drilled into the Devonian formation, and by reason of the implied covenants of the oil and gas leases covering such lands they would be entitled to the drilling of such wells into the lower or Devonian formation, but that under the present 80-acre spacing pattern, Devonian wells are not to be located or drilled at either of such locations.

8.

These informants respectfully show to the Commission that drilling experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that such Devonian 80-acre pattern should be further continued in effect as an exception to the normal Statewide 40-acre spacing pattern; that these informants have a valuable property interest in the oil, gas and other minerals in and under and that may be produced from their lands above described, and that if such Devonian 80-acre pattern be continued in effect after subsequent facts and circumstances have failed to demonstrate that the same should be so continued, the value of their property interest will be unjustly diminished and

and the marketability thereof unduly impaired, and that inequities and injustices will result.

WHEREFORE, these informants pray that the Oil Conservation Commission take notice that experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of its Order No. 779 establishing such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that the same should be further continued in effect as an exception to the Statewide normal 40-acre spacing pattern, and that the Commission, upon its own motion, require the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, and any other interested parties, to show cause, if any it or they may have, why such Order No. 779 should be further continued in effect, and that upon the hearing in this matter, if said parties fail to show proper cause for the continuation of said Order No. 779, that the same be rescinded by the Commission.

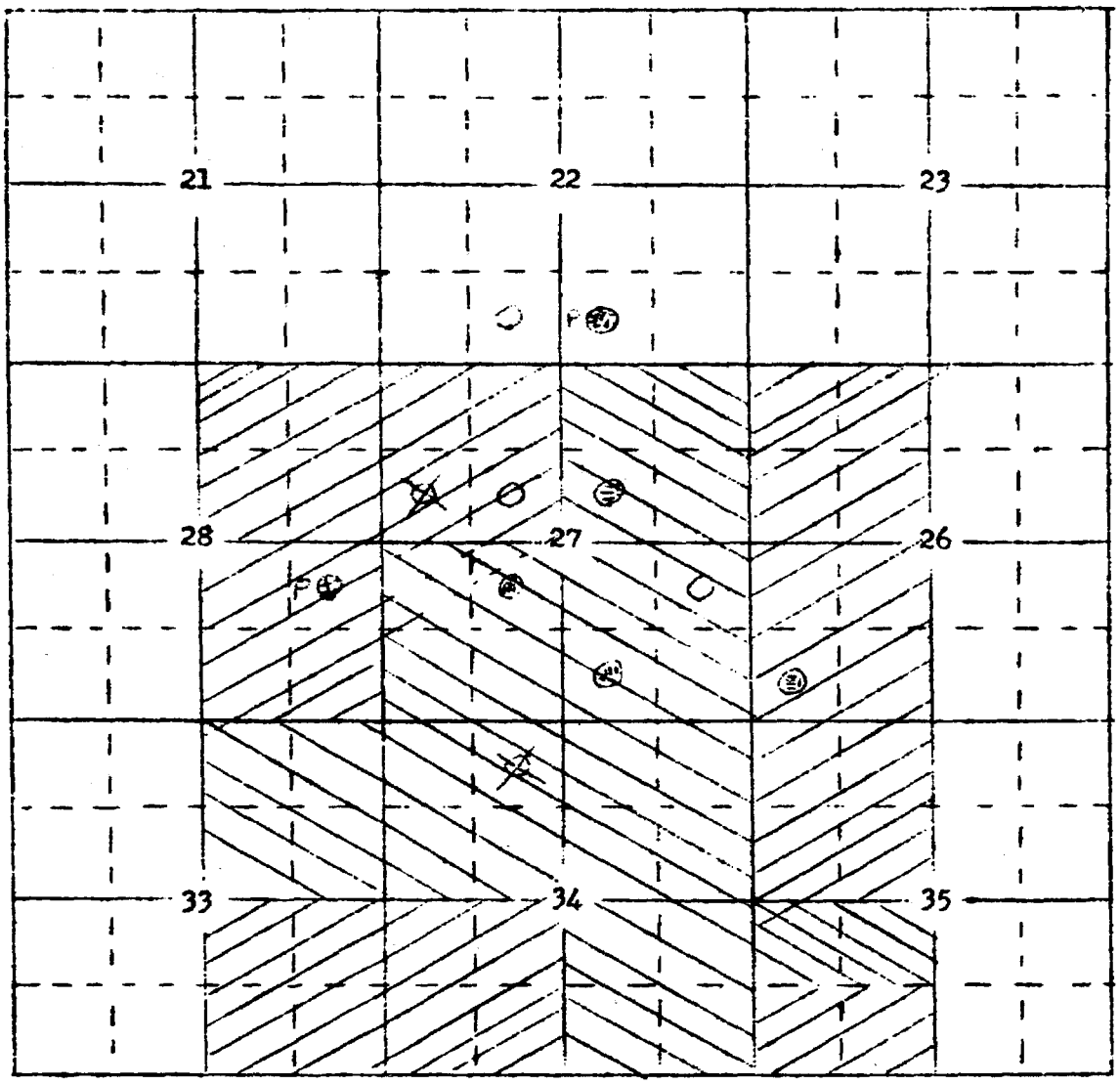
Dated at Lovington, New Mexico, this 2nd day of September, 1950, and respectfully submitted.

s/ G. T. Hanners
Attorney for Sawyers
Lovington, New Mexico

Distributed
By Proration Department
October 19, 1950

P-●	-	SW¼SE¼ 22	- Magnolia-Santa Fe-1-D	- Pennsylvanian
O	-	SE¼SW¼ 22	- Oil Dev. Co-Santa F-1-22	- Drilling
●	-	SW¼SW¼ 26	- Magnolia - Santa Fe-1-C	- Devonian
●	-	SW¼SE¼ 27	- Mid-Continent - Sawyer -1	- Devonian
●	-	NE¼SW¼ 27	- Mid-Continent - Dessie	- Devonian
●	-	SW¼NE¼ 27	- Mid-Continent - Sawyer - D	- Devonian
●	-	SW¼NW¼ 27	- Oil Dev. Co-Santa Fe -1	- Dry hole Devonian
O	-	SE¼NW¼ 27	- Oil Dev. Co-Santa Fe -2-27	- Drilling
O	-	NE¼SE¼ 27	- Mid-Continent - Sawyer -1-C	- Drilling
P-●	-	NE¼SE¼ 28	- Magnolia - Santa Fe -1-B	- Pennsylvanian
●	-	NE¼NE¼ 33	- Skelly Oil Co - Sawyer -1	- Dry hole devonian
●	-	NE¼NW¼ 34	- Mid-Continent - Saweyer -1-B	- Dry hole Devonian

Township 9 South Range 36 East



CROSSROADS DEVONIAN FIELD BELOW 12,200 FEET

- Owned by Sawyers
- Owned by AT&SF, et al
- Devonian wells below 12,000
- Drilling wells
- Pennsylvanian approx 9,700
- Dry holes

Exhibit "A"

BEFORE THE OIL CONSERVATION COMMISSION OF
THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 149
ORDER NO. 779

THE APPLICATION OF MID-CONTINENT PETROLEUM CORPORATION, TULSA, OKLAHOMA, FOR AN ORDER OF THE COMMISSION TO ESTABLISH EIGHTY-ACRE PRORATION UNITS: ALSO TO ESTABLISH A UNIFORM PATTERN FOR THE SPACING AND DRILLING WELLS WITH ALLOWANCE FOR TOLERANCE FOR SURFACE OBSTRUCTIONS AND FOR AN ORDER FIXING AND ESTABLISHING ALLOWABLES FOR WELLS DRILLED IN THE CROSSROADS POOL TO A DEPTH BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO. (DEVONIAN FORMATION)

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 10:00 o'clock a.m., July 15, 1948, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission".

NOW, on this the 27th day of July, 1948, the Commission having before it for consideration the testimony adduced at the hearing of said case and being fully advised in the premises:

FINDS:

1. That on May 6, 1948, the applicant, Mid-Continent Petroleum Corporation, completed an initial and exploratory test well located in the approximate center of the SW¼ of the SE¼ of section 27, Township 9 South, Range 36 East, Lea County, New Mexico (Crossroads Pool), at a total depth of 12,258 feet; said well having been perforated from a depth of 12,115 feet to a depth of 12,215 feet, with an initial production of 995 barrels of oil, and no water, through a 3/4-inch choke, for a period of six (6) hours, twenty (20) minutes.

2. That the probable area has been delineated and recommended by the Nomenclature Committee for Devonian production as discovered by the above described well as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That the discovery producing well in center of SW¼ SE¼ section 27, and the drilling wells in center of NE¼ NE¼ section 33, and center of NE¼ NW¼ of section 34, center of NE¼ SW¼ section 27, and center of SW¼ SW¼ section 26, all are within the probable area as above described;

That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable area as above delineated or any extension thereto, so as to insure a proper and uniform spacing, developing, and producing plan for all wells in this common source of supply.

3. That due to conditions established by the aforesaid discovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

4. That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superseded.

5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials.

6. That in the interest of the State of New Mexico and in the interest of the general public, encouragement should be given to operators to explore and develop the natural resources of the State by establishment of a proper and equitable spacing and development program.

IT IS THEREFORE ORDERED:

SECTION 1. That the Mid-Continent, Sawyer No. 1 well, located in the center

of the SW¼ SE¼ section 27, is producing from the Devonian formation, a new common source of supply not heretofore discovered and produced in the State, and that the probable area for such production is as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That this order is meant to cover all of the Devonian formation common source of supply productive in the Mid-Continent, Sawyer No. 1, located in the center of the SW¼ SE¼ section 27, and any well drilled within, or outside the area spaced herein, to the same common source of supply as an extension thereof, shall be drilled on the pattern provided for herein.

SECTION 2. That 80-acre spacing and drilling units be established as hereinafter provided for the production of oil and gas from the Devonian formation underlying the area as hereinabove set forth.

SECTION 3. That each governmental quarter section be divided into two rectangular spacing units by a line drawn through such quarter section, all as shown on a plat attached hereto, and made a part hereof, and marked Exhibit "A", with the wells to be drilled, one in the center of the northeast quarter and one in the center of the southwest quarter of each quarter section, all as shown on Exhibit "A"; however, if surface conditions justify, locations may be made within a radius of 150 feet from the centers thereof, provided further, however, that the units within a quarter section, as established by this order as shown on Exhibit "A", may be changed by agreement of the operators within said quarter section upon proper showing to the Commission.

SECTION 4. That the allowable be assigned on the basis of proration units as herein established, and any proration unit of less than the normal one-half of a governmental quarter section as the result of an exception granted by the Commission after notice and hearing, shall be assigned an allowable in proportion to the assignable acreage of that unit as it bears to the normal one-half of a governmental quarter section.

SECTION 5. That the daily oil allowable of a normal unit of one-half of a quarter section be assigned to the discovery well and all other wells hereafter drilled and produced in accordance with the terms of this order shall be the proportional factor of 6.75 times top allowable until such time as the Commission may issue such further and additional orders as may be deemed necessary.

SECTION 6. All rules, regulations and orders heretofore issued by this

Commission which may conflict herewith are superseded, only with respect to Devonian formation production below 12,000 feet in the Crossroads Pool.

SECTION 7. That this order shall become effective on August 16, 1948.

SECTION 8. The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law.

DONE at Santa Fe, New Mexico, this 27th day of July, 1948.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

THOMAS J. MABRY, CHAIRMAN

JOHN E. MILES, MEMBER

R. R. SPURRIER, SECRETARY

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

BEFORE THE OIL CONSERVATION COMMISSION OF
THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF MID-CONTINENT PETROLEUM CORPORATION, BOX 381, TULSA, OKLAHOMA, FOR AN ORDER OF THE COMMISSION TO ESTABLISH EIGHTY-ACRE PRORATION UNITS: ALSO TO ESTABLISH A UNIFORM PATTERN FOR THE SPACING AND DRILLING OF WELLS WITH ALLOWANCE FOR TOLERANCE FOR SURFACE OBSTRUCTIONS AND FOR AN ORDER FIXING AND ESTABLISHING ALLOWABLES FOR WELLS DRILLED IN THE CROSSROADS POOL TO A DEPTH BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.(DEVONIAN FORMATION)

CAUSE NO. 149
ORDER NO. 779

APPLICATION

Comes now Mid-Continent Petroleum Corporation, Tulsa, Oklahoma, and makes the following representations unto the Oil Conservation Commission of the State of New Mexico, to-wit:

That this application pertains only to the producing formation from which oil is now being produced at a depth below 12,000 feet in the Crossroads Pool, the probable area of which has heretofore been delineated and recommended by the Nomenclature Committee, located in Lea County, New Mexico.(Devonian formation)

That one such well is presently producing in said pool; it being located in the approximate center of the Southwest quarter of the Southeast quarter of Section 27, Township 9 South, Range 36 East.

That drilling, or operations for drilling, has commenced on Four locations in said pool in addition to the discovery well above referred to; said locations being as follows: Center of Southwest quarter of Southwest quarter of Section 26; Center of Northeast quarter of Southwest quarter of Section 27; Center of Northeast quarter of Northeast quarter of Section 33; Center of Northeast quarter of Northwest quarter of Section 34, all in Township 9 South, Range 36 East, Lea County, New Mexico.

Wherefore this applicant respectfully requests that the Commission set this application for public hearing, after notice, and that upon such hearing, the Commission issue its order fixing proration units for Devonian formation production in the Crossroads Pool, Lea County, New Mexico to consist of Eighty acres in area; that the Commission fix and establish well spacing in said formation and pool as Two wells for each quarter section (160 acres) according to United States Public Land Surveys; that such wells shall be located in the approximate center of

the Northeast Quarter and the Southwest Quarter of each Governmental Quarter Section according to United States Public Land Surveys, with a tolerance of 150 feet allowed for surface obstructions; that the Commission also determine and fix the daily well allowable for all wells now or hereafter producing from the Devonian formation in said Crossroads Pool on Eighty-acre proration units.

DONE this 14th day of June, 1948.

Respectfully submitted,

MID-CONTINENT PETROLEUM CORPORATION

by_____
J. H. CROCKER, ATTY.

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

PHILLIPS PETROLEUM COMPANY

PRODUCTION DEPARTMENT
C. P. DIMIT
VICE PRESIDENT
H. H. KAVELER
ASS'T. TO VICE PRESIDENT

BARTLESVILLE, OKLAHOMA

March 15, 1951

L. E. FITZJARRALD
GENERAL SUPERINTENDENT
J. M. HOUCHIN
ASS'T. GEN'L SUPT.
H. B. KELLY
CHIEF ENGINEER

In re: Hearing to Reconsider Order No. 779
Set for March 20, 1951

149

The Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Attention of Mr. R. R. Spurrier, Secretary

Gentlemen:

The Oil Conservation Commission of the State of New Mexico has set for hearing on March 20, 1951, the matter of reconsideration of Order No. 779 in Case No. 149 entered July 27, 1948, establishing 80-acre spacing pattern and proration unit for the Crossroads Devonian Pool below 12,200 feet in Lea County, New Mexico.

As a lease owner in New Mexico and the owner of potentially productive acreage in the vicinity of the Crossroads Pool, Phillips Petroleum Company urges The Oil Conservation Commission of the State of New Mexico to retain the provisions of its Order No. 779 as issued on July 27, 1948. We respectfully submit that the Commission in this instance should give consideration to the depth of production, to the fact that the reserve in-place in the Devonian formation can be efficiently drained by one well to 80-acres, and that the drilling of more than one well to each 80-acres will, in our opinion, constitute an unwarranted use of steel in a very critical time of shortage.

We respectfully offer this statement to the Commission in support of the present 80-acre spacing order, with the additional thought that unless a well-spacing program suited to the conditions found to exist in the deep reservoirs in New Mexico can be obtained, there will be a decline in exploration for and development of those deeper reservoirs.

Yours very truly,

C. P. Dimit

CPD:MN
cc Mid-Continent Petroleum Corp.
Tulsa, Oklahoma
Attention of Mr. A. E. Pierce

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held November 21, 1950, beginning at 10:00 o'clock A.M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

Mid-Continent Petroleum Corporation
Tulsa, Oklahoma
Magnolia Petroleum Company
Dallas, Texas
Gulf Oil Corporation
Tulsa, Oklahoma
Santa Fe Pacific Railroad Company
Amarillo, Texas
Oil Development Company of Texas
%Santa Fe Pacific Railroad Company
Amarillo, Texas
U. D. Sawyer and Dessie Sawyer
Crossroads, New Mexico
To all other persons who may have an interest in the matters herein set forth:

Case 149 (under authority of Section 3, Order No. 779, dated July 27, 1948)

In the matter of the hearing called by the Oil Conservation Commission of the State of New Mexico upon its own motion for the purposes of:

1. Reconsidering Order No. 779 made by the Oil Conservation Commission of the State of New Mexico, in Case No. 149 on July 27, 1948, upon the application of Mid-Continent Petroleum Corporation, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in the Crossroads Devonian Field of Lea County, New Mexico.

2. Rescinding and cancelling said Order No. 779 unless the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, or any other interested parties, show good cause why the same should be further continued in effect.

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on October 27, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

SEAL

R. R. SPURRIER, SECRETARY

ILLEGIBLE

DOCKET
OIL CONSERVATION COMMISSION

Resume of applications to be heard March 20, 1951 at 10:00 o'clock a.m. in Santa Fe, New Mexico, in the Council Chamber of the City Hall.

1. Allowable

2. Case 149 - This is the Crossroads pool 80-acre versus 40-acre spacing question which was continued to March 20 by Order R-45, dated 12-29-50. Companies have been asked to furnish all remaining information available on the Crossroads pool.

3. Case 245 - This case, which involves the designation of the gas pools in Lea, Eddy, and Chaves Counties, was originally scheduled for the December hearing. At that time sufficient information was not available to enable the Commission to promulgate an order, and the case was therefore continued to the regular March hearing (March 20, 1951).

4. Case 260 - This case is an application by Tide Water Associated Oil Company of Houston, Texas, for an oil/oil dual completion of the Ellenburger and McKee formations for State S No. 4, located in the NE/4 NW/4 section 15, T. 21 S, R. 37 E: Perforations 7800-7825' for the Ellenburger and 7422-7434' for the McKee; or in the alternative to transfer allowable of State S No. 4 to State S No. 3.

5. Case 261 - This is an application by Cities Service Oil Company of Bartlesville, Oklahoma, to dually complete State S No. 3, located in the SE/4 NW/4 section 15, T. 21 S, R. 37 E, Lea County, New Mexico, for oil/oil completion in the Ellenburger and McKee formations; Perforations in the Ellenburger 7860-7900' and 7960-8000'; for the McKee 7454-7530'.

6. Case 262 - This is a hearing to set out the limits of the pool and spacing for Mesa Verde production in the vicinity of Largo pool, San Juan County, N. M., generally in Townships 27 and 28 and 29 North, Ranges 7 and 8 West.

7. This case is a matter of nomenclature for the designation or extension of various pools, which is necessitated by recently completed wells in the vicinity of the House Pool, Bough pool, Vacuum pool, and Bagley Siluro-Devonian pool; Twin Lakes (discovery well Magnolia #1 O'Brien "B"), Fowler-Blinebry (discovery well Stanolind, State "D" Tract 14 #1, Gladiola-Abo (discovery well Sinclair, Virgie Green Tract A #1), Levick pool (discovery well Levick, State #1), Keohane pool (discovery well Keohane, Inc. #1 D. Keohane).

8. Case 264 - Kewanee Oil Co. for approval of "Four Mile Unit" Agreement, T.18 S. R.18 E and T.19 S, R.18 E, Chaves County

Santa Fe, N. M.
February 22, 1951

ILLEGIBLE

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice, pursuant to law and the rules and regulations promulgated thereunder, of a public hearing to be held October 24, 1950, beginning at 10:00 A.M. on that day, in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

Mid-Continent Petroleum Corporation
Tulsa, Oklahoma
Magnolia Petroleum Company
Dallas, Texas
Gulf Oil Corporation
Tulsa, Oklahoma
Santa Fe Pacific Railroad Company
Amarillo, Texas
Oil Development Company of Texas
% Santa Fe Pacific Railroad Company
Amarillo, Texas
U. D. Sawyer and Dessie Sawyer
Crossroads, New Mexico
To all other persons who may have an interest in the matters herein set forth:

779

Case No. 8

7-27-48

In the matter of the hearing called by the Oil Conservation Commission of the State of New Mexico upon its own motion for the purposes of:

1. Reconsidering Order No. 779 made by the Oil Conservation Commission of the State of New Mexico, in Case No. 149 on July 27, 1948, upon the application of Mid-Continent Petroleum Corporation, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in the Crossroads Devonian Field of Lea County, New Mexico.

2. Rescinding and cancelling said Order No. 779 unless the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, or any other interested parties, show good cause why the same should be further continued in effect.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on _____, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. SPURRIER, SECRETARY

MID-CONTINENT PETROLEUM CORPORATION

GENERAL OFFICES TULSA 2, OKLA.

A. E. PIERCE
VICE PRESIDENT

November 27, 1950

Subject: Additional Data requested at Crossroads Devonian Pool Hearing, November 21, 1950.

Case 149

State of New Mexico
Oil Conservation Commission
Santa Fe, New Mexico

Attention: Mr. R. R. Spurrier, Secretary

Dear Mr. Spurrier:

At the subject hearing, you no doubt recall, you requested that I send whatever additional data we might have in the way of porosity and permeability tests on our Devonian wells in the Crossroads Field.

We enclose a copy of these tests for your file. Only three samples were tests on the U. D. Sawyer "A" No. 1 and only seventeen samples were tests on the Dessie Sawyer No. 1. We did not core the U. D. Sawyer "D" and the cores taken from U. D. Sawyer "B" No. 1 were not in the Devonian.

Yours very truly,

MID-CONTINENT PETROLEUM CORPORATION

M. B. Penn

MBP:mp

MID-CONTINENT PETROLEUM CORPORATION
DESSIE SAWYER NO. 1 WELL
CROSSROADS FIELD
LEA COUNTY, NEW MEXICO

SPECIAL CORE ANALYSIS

Sample Number	Depth: Feet	Porosity: Total	Porosity: Matrix	Percent Secondary	Oil Content Percent Pore	Water Content Percent Pore	Permeability Total Max.	Permeability Total 90°
1	11,910.0-11.0	1.66	1.29	0.37	2.4	88.2	30	12
2	11.0-12.0	1.72	1.04	0.68	9.3	88.3	0.44	0.22
3	12.0-13.0	4.07	1.28	2.79	8.1	37.8	4.81	2.68
4	13.0-14.1	3.09	1.07	2.02	14.2	40.4	0.62	0.52
5	14.1-15.0	1.53	0.10	1.43	5.8	68.7	80	72
6	15.0-15.8	0.87	0.35	0.52	0.0	71.2	12	7.24
7	15.8-16.8	1.02	0.72	0.32	7.8	62.7	2500	0.17
8	16.8-17.8	1.24	0.30	0.94	32.3	67.7	4620	0.03
9	17.8-18.7	1.45	0.55	0.90	2.8	80.1	(*)	
10	18.7-19.8	0.91	0.36	0.55	14.5	85.5	9.67	
11	19.8-21.4	1.09	0.31	0.78	14.7	70.5	(*)	
12	21.4-23.3	1.26	0.16	1.10	10.3	59.6	0.98	0.74
13	23.3-24.8	0.80	0.41	0.39	0.0	100.0	0.82	0.75
14	24.8-26.3	0.73	0.15	0.58	0.0	100.0	19	2.96
15	26.3-28.0	1.11	0.23	0.88	0.0	56.8	0.09	
16	35.0-36.0	0.82	0.28	0.54	0.0	87.8	0.32	0.21
17	37.0-38.0	0.86	0.13	0.73	9.3	69.7	0.15	0.13

(*) Too broken up to run test on.

EARLOUGHER ENGINEERING

RESULTS OF SATURATION TESTS

COMPANY [redacted] WELL [redacted]

Sat. No.	Depth Feet	Porosity Per Cent	PER CENT SAT. Oil	Water	Total	Avg. Oil Content Bbls./A. Ft.	[illegible]	[illegible]	Total Oil Acid Solubility Percent
	12,181	4.6	8.7	23.	32.	31.		0.6	91.
	12,198	1.0	26.	74.	100.	20.		0.1	89.
	12,214	0.7	37.	63.	100.	20.		[illegible]	88.

Sec. 27, T [illegible] S., R. 36 E.
Lea County, New Mexico
Devonian, Sub-Sea
Information Given

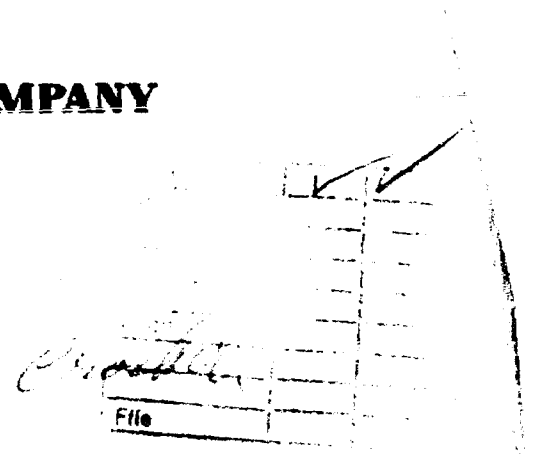
SUMMARY

DEPTH IN FEET FROM	TO	FEET OF SAND	AVG. POROSITY	AVG. OIL SAT.	AVG. WATER SAT.	AVG. OIL CONTENT BBLS./A. FT.	TOTAL OIL CONTENT BBLS./ACRE

PHILLIPS PETROLEUM COMPANY

BARTLESVILLE, OKLAHOMA

March 15, 1951



In re: Hearing to Reconsider Order No. 779
Set for March 20, 1951

The Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Attention of Mr. R. R. Spurrier, Secretary

Gentlemen:

The Oil Conservation Commission of the State of New Mexico has set for hearing on March 20, 1951, the matter of reconsideration of Order No. 779 in Case No. 149 entered July 27, 1948, establishing 80-acre spacing pattern and proration unit for the Crossroads Devonian Pool below 12,200 feet in Lea County, New Mexico.

As a lease owner in New Mexico and the owner of potentially productive acreage in the vicinity of the Crossroads Pool, Phillips Petroleum Company urges The Oil Conservation Commission of the State of New Mexico to retain the provisions of its Order No. 779 as issued on July 27, 1948. We respectfully submit that the Commission in this instance should give consideration to the depth of production, to the fact that the reserve in-place in the Devonian formation can be efficiently drained by one well to 80-acres, and that the drilling of more than one well to each 80-acres will, in our opinion, constitute an unwarranted use of steel in a very critical time of shortage.

We respectfully offer this statement to the Commission in support of the present 80-acre spacing order, with the additional thought that unless a well-spacing program suited to the conditions found to exist in the deep reservoirs in New Mexico can be obtained, there will be a decline in exploration for and development of those deeper reservoirs.

Yours very truly,

C. P. Dimit

CPD:MS
cc Mid-Continent Petroleum Corp.
Tulsa, Oklahoma
Attention of Mr. A. E. Pierce

Ex. 1 Dem

Case 149

SKELLY OIL COMPANY

PRODUCTION DEPARTMENT
J. S. FREEMAN
VICE PRESIDENT
E. A. JENKINS
GENERAL SUPERINTENDENT

TULSA 2, OKLAHOMA

H. J. GIBBONS
CHIEF ENGINEER
G. W. SELINGER
PRORATION ATTORNEY
J. H. McCULLOCH
CHIEF CLERK

November 17, 1950

Re: Case 149
Hearing: November 21, 1950

Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Gentlemen:

We are in receipt of copy of notice issued for Case 149 for the purpose of considering Order 779 as it applies to the Crossroads-Devonian Pool, of Lea County, New Mexico. The notice is from the State of New Mexico to a number of parties and to other persons who may have an interest in the matter.

Skelly Oil Company drilled one dry hole in this field and was a party along with other operators in securing 80-acre drilling and proration units in this field which resulted in issuance of Order 779, dated July 27, 1948.

This notice, which we have recently received, states that Case 149 was being called under authority of Section 8 of Order 779, dated July 27, 1948, which section provides:

> "The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities and preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law."

The notice calling the hearing for November 21st specifically states it is to re-consider Order 779, and that the Commission would rescind and cancel said order unless Mid-Continent or any other interested party should show good cause why the order should be continued further in effect. This is not in line with Section 8 of Order 779, since such order contemplates modifications only on changed conditions.

Skelly Oil Company, although having no present production in the field, is interested in the principal of the maintenance of a drilling and spacing unit in line with facts disclosed at a proper hearing. We believe these facts were indicated at the hearing held July 27, 1948. We are interested further in believing that the Commission does not expressly limit a proration unit to 40 acres regardless of the depth and other factors presented to it.

Section 13(b) of Chapter 168 of the Laws of 1949 provides:

"No owner of a property in a pool shall be required by the Commission directly, or indirectly, to drill more wells than are reasonably necessary to secure his proportionate part of the production. To avoid the drilling of unnecessary wells a proration unit for each pool may be fixed, such being the area which may be efficiently and economically drained and developed by one well. The drilling of unnecessary wells creates fire and other hazards conducive to waste and unnecessarily increases production costs of oil or gas or both to the operator and thus also unnecessarily increases the cost of products to the ultimate consumer."

From a procedural standpoint, if the hearing is called by the complaint of any interested party, we believe that Rule 1212 with respect to re-hearings would cover the matter, which rule of procedure is in line with Section 19(a) and (b) of the 1949 Act, and the burden would be upon the complaining party to introduce evidence to show of any changed condition since the issuance of Order 779 was supported by competent legal evidence at the July 27, 1948, hearing.

However, if the hearing is called by the Commission itself in the form of what we assume to be a show cause order it is, to say the least, most unusual, considering the fact that this order has been in effect in excess of two years and a number of wells, both producing and dry, have been drilled, and it would appear to be more of a re-hearing than one of rescission and cancellation, which certainly is not contemplated even under Section 8 of Order 779. This being true, the delay would appear to us to be one covered by Rule 1212 and Section 19(a) and (b) of the Act.

Our position, therefore, is that Order 779 became a final order subject only to modification of amendments based on changed conditions assuming the burden of indicating such changes rests upon the parties desiring such change. We believe that the Commission should not arbitrarily fix a limit of 40 acres as a proration unit for wells disregarding depth and other factors as a matter of principal in the state, and, secondly, we

firmly are convinced that if Order 779 is to be amended, same should be done only upon a showing by complaining parties that such order should be amended. We are opposed to any rescission and cancellation of existing spacing rules and substituting no spacing rules whatsoever. We, therefore, urge upon the Commission to continue Order 779 as established on July 27, 1948, and only modify and amend upon a proper showing in accordance with the Act, particularly Section 13(b), and the existing rules and regulations of this Commission.

Yours very truly,

(Signed) GEORGE W. SELINGER

George W. Selinger

GWS:ot
cc-Mid-Continent Petroleum Corp.
Tulsa, Oklahoma

Mr. Dunlavey

G. T. HANNERS
ATTORNEY-AT-LAW
STANSELL BUILDING
LOVINGTON, NEW MEXICO

September 27, 1950

Mr. George Graham
State Land Office Attorney
Santa Fe, New Mexico

Dear George: Crossroads 80-acre spacing

I have prepared and an here enclosing several copies of suggested Notice of Hearing in the Sawyer Crossroads 80-acre matter.

I have addressed the notice to all lessees within the Crossroads Devonian Field. The fee land is all owned by Sawyer except the railroad land. It is owned by the Santa Fe Pacific Railroad Company, and its operating Company seems to be the Oil Development Company of Texas. Magnolia Petroleum Company has leases on part of the railroad land. The Mid-Continent Petroleum Corporation is the principal party in interest, but the Magnolia and the Gulf hold some leases in the area, and the Santa Fe Pacific Railroad and its operating Company may also be interested in the matter. I think our notice runs to all the necessary parties.

I believe it would be proper for this or a similar notice of hearing be used. I think it would also be proper for the Commission to sign and file the Order which I left with your girl some days ago, and which Mr. Spurrier now has in his office. In this way, there would be a formal order on file directing that the hearing be had. I do not believe it would be necessary for anybody to be served with a copy of that Order, because the Notice of Hearing to all the interested parties gives them sufficient information of the purpose of the hearing.

If we are in accord about this matter, I will appreciate your delivering the enclosed Notice to Mr. Spurrier, along with your recommendation for their use. If there be any questions about the matter, I will be glad for you to call me by long distance about them.

Yours very truly,

GTH:hh
Enc.

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO, ON ITS OWN MOTION, FOR THE PURPOSE OF RECONSIDERING:

ORDER NO. 779 MADE BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 ON JULY 27,1948, UPON THE APPLICATION OF MID-CONTINENT PETROLEUM CORPORATION, ESTABLISHING THE 80-ACRE DRILLING PATTERN AND PRORATION UNIT FOR THE CROSSROADS DEVONIAN FIELD BELOW 12,200 FEET, LEA COUNTY, NEW MEXICO

CASE NO. 149

ORDER

BY THE COMMISSION:

WHEREAS, soon after the completion by the Mid-Continent Petroleum Corporation of the discovery well in the Crossroads Field of Lea County, New Mexico, known and identified as the Mid-Continent-Sawyer No. 1 and located in the SW¼SE¼ of Section 27, Township 9 South, Range 36 East, and on July 27, 1948, and upon the application of the Mid-Continent Petroleum Corporation, the Oil Conservation Commission of the State of New Mexico adopted its Order No. 779 in Case No. 149 establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in an area comprising 2,560 acres in a four-section square, known as the Crossroads Devonian Field, and embracing the following described lands in said township and range, to-wit:

West Half	Section 26
All	Section 27
East Half	Section 28
East Half	Section 33
All	Section 34
West Half	Section 35

and in said Order the Oil Conservation Commission specifically retained jurisdiction of the case for the purpose of issuing such further and additional orders as might be necessary to meet changed conditions, preclude inequities and preserve correlative rights./

AND WHEREAS, the attention of the Commission has been called to the fact that subsequent to the adoption of such Order No. 779 six additional wells have been drilled in such Crossroads Devonian Field to depths below 12,000 feet and sufficient to test the Devonian formation, and that three of them have resulted in dry holes; that one well has been completed in such Crossroads Devonian Field as a producer from the Pennsylvanian formation at a depth of approximately 9,700 feet, and that another Pennsylvanian well has been completed on lands immediately adjacent to and as an offset to such Devonian Field, and that another such offset Pennsylvanian well is now being drilled on lands immediately adjacent and as an offset to such Devonian Field.

AND WHEREAS, at the time of the adoption of such Order No. 779, establishing such Devonian 80-acre spacing pattern, there was only one producing well in the Crossroads Field, that being the discovery well known as the Mid-Continent-Sawyer-1 in the SW¼SE¼ of section 27, and said 80-acre spacing pattern was not based on past experience in such Field, but was adopted on the assumption that oil would be encountered in the Devonian formation below 12,000 feet under all of the lands comprising such four-section Devonian Field, and was adopted as an exception to the Statewide normal 40-acre pattern, in anticipation of other circumstances and conditions then assumed to exist.

AND WHEREAS, the attention of the Commission has been called to the fact that experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of its Order No. 779 establishing such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that the same should be further continued in effect as an exception to the Statewide normal 40-acre spacing ,pattern and proration unit.

AND WHEREAS, the Commission is of the opinion that such Order No. 779 should now be reconsidered in the light of drilling experience in such Field and facts and circumstances subsequent to the adoption of such order.

IT IS THEREFORE ORDERED:

That, after due notice and at a public hearing to be held in the House of Representatives in the State Capitol at Santa Fe, New Mexico, on _____, 1950, at the hour of 10:00 A. M., the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, and any other interested parties, show cause, if any it or they may have, why Order No. 779, made by the Oil Conservation Commission of the State of New Mexico, in Case No. 149, on July 27, 1948, establishing the 80-acre drilling pattern and proration unit for the Crossroads Devonian Field below 12,000 feet, should be further continued in effect.

DONE at Santa Fe, New Mexico, this the _____day of September, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

_____Chairman

_____Member

_____Secretary

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF ORDER NO. 779, MADE BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 ON JULY 27, 1948, UPON THE APPLICATION OF THE MID-CONTINENT PETROLEUM CORPORATION, ESTABLISHING THE 80-ACRE DRILLING PATTERN AND PRORATION UNIT FOR THE CROSSROADS DEVONIAN FIELD BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

CASE NO. 149

INFORMATION

Come now U. D. Sawyer and Dessie Sawyer, and respectfully show to the Commission as follows:

1.

That they are husband and wife, and residents of Crossroads, Lea County, New Mexico, and that they are the owners of an undivided 11/12ths interest in the oil, gas and other minerals in and under the following described lands in Township 9 South, Range 36 East, in the Crossroads Devonian Field, in Lea County, New Mexico, to-wit:

$E\frac{1}{2}$	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
$SW\frac{1}{4}$	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
$NE\frac{1}{4}$	Section 33	Not leased
$N\frac{1}{2}SW\frac{1}{4}$	Section 35	Subject to lease held by Gulf Oil Corporation
$N\frac{1}{2}$	Section 34	Mid-Continent lease, terminated by non-payment of rental
$SE\frac{1}{4}$	Section 34	

Containing 1,200 acres, more or less

2.

That on May 6, 1948, the Mid-Continent Petroleum Corporation completed its discovery well known as the Mid-Continent-Sawyer No. 1 in the SW¼SE¼ of Section 27, Township 9 South, Range 36 East, at a total depth of 12,258, as a substantial producer from the Devonian formation; and that soon thereafter and on July 27, 1948, and upon the application of the Mid-Continent Petroleum Corporation, the Oil Conservation Commission of the State of New Mexico adopted its Order No. 779 in case No. 149, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in an area comprising 2,560 acres, including most of the lands of these informants, in a four-section square, known as the Crossroads Devonian Field, and embracing the following described lands in said township and range, to-wit:

West Half	Section 26
All	Section 27
East Half	Section 28
East Half	Section 33
All	Section 34
West Half	Section 35

and that in said Order the Oil Conservation Commission of the State of New Mexico specifically retained jurisdiction of the case for the purpose of issuing such further and additional orders as might be necessary to meet changed conditions, preclude inequities and preserve correlative rights.

3.

That thereafter three additional wells were drilled in said area and resulted in successful production of oil from the Devonian formation below 12,000 feet, which wells are known and identified as follows:

Mid-Continent Dessie Sawyer	NE¼SW¼ Section 27
Mid-Continent Sawyer D	SW¼NE¼ Section 27
Magnolia-Santa Fe-1-C	SW¼SW¼ Section 26

and three other wells were drilled in said area to depths considered sufficient to test the Devonian formation below 12,000 feet and then abandoned as dry holes, which wells are known and identified as follows:

Mid-Continent Sawyer-1-B	NE¼NW¼ Section 34
Skelly Oil Co.- Sawyer-1	NE¼NE¼ Section 33
Oil Development Co-Santa Fe-1	SW¼NW¼ Section 27

and two other wells were drilled in said area resulting in successful production from the Pennsylvanian formation at depths of approximately 9,700 feet, which wells are known and identified as follows:

Magnolia- Santa Fe-1-B	NE¼SE¼ Section 28
Magnolia- Santa Fe-1-D	SW¼SE¼ Section 22 (outside Devonian Field)

and three other well are now drilling in said area, which wells are known and identified as follows:

Mid-Continent- Sawyer-1-C	NE¼SE¼ Section 27
Oil Development Co-Santa Fe-2-27	SE¼NW¼ Section 27
Oil Development Co-Santa Fe-1-22	SE¼SW¼ Section 22 (outside Devonian Field)

and that a plat, showing the location of all of said wells, is hereto attached, marked Exhibit "A" and made a part hereof.

4.

That at the time of the adoption of such Devonian 80-acre spacing pattern there was only one producing well in the Crossroads Field, that being the discovery well known as the Mid-Continent-Sawyer-1 in the SW¼SE¼ of Section 27, and that said 80-acre spacing pattern was not based on past experience in said field, but was adopted as an exception to the Statewide normal 40-acre spacing pattern on the assumption that oil would be encountered in the Devonian formation below 12,000 feet under all of the lands comprising such four-section Devonian Field, and was adopted in anticipation of other circumstances and conditions then assumed to exist.

5.

That experience in the drilling of the dry holes known as Mid-Continent-Sawyer-1-B in the NE¼NW¼ of Section 34 and the Skelly-Sawyer-1 in the NE¼NE¼ of Section 33 has demonstrated that the lands south of the discovery well were not productive ofoil from the Devonian formation, and that experience in the drilling of the dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27 has demonstrated that the lands in the west half of the Northwest Quarter of Section 27 were not productive of oil from the Devonian formation; and that of all of the wells drilled in or near such Crossroads Devonian Field, four have encountered oil in the Devonian formation below 12,000 feet, three have been abandoned as dry holes after being drilled to depths below 12,000 feet, and two have been completed as producers from the Pennsylvanian formation at depths of approximately 9,700 feet.

6.

That after the completion of its dry hole known as Oil Development Company-Santa Fe-1 in the $SW\frac{1}{4}NW\frac{1}{4}$ of Section 27, and on or about January 11, 1950, the Santa Fe Pacific Railroad Company and Oil Development Company of Texas abandoned such 80-acre spacing pattern, and obtained permission from the Oil Conservation Commission to depart from such 80-acre pattern and to locate its Oil Development Co-Santa Fe-2-27 in the $SE\frac{1}{4}NW\frac{1}{4}$ of said Section 27, as a direct westerly offset to the Mid-Continent-Sawyer-D and as a direct northerly offset to the Mid-Continent-Dessie Sawyer No. 1, and that such Oil Development Co-Santa Fe-2-27 is now drilling at such location, intended to ultimately test the Devonian formation below 12,000 feet.

7.

That these informants are now entitled to offset wells in the $NW\frac{1}{4}SW\frac{1}{4}$ of Section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-B in the $NE\frac{1}{4}SE\frac{1}{4}$ of Section 28, and in the $NW\frac{1}{4}NE\frac{1}{4}$ of Section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-D in the $SW\frac{1}{4}SE\frac{1}{4}$ of Section 22; that the two locations at which they are now entitled to offset wells are midway between producing Devonian wells upon their lands and producing Pennsylvanian wells upon lands not owned by them, and that if the Oil Development Co-Santa Fe-2-27 now drilling in the $SE\frac{1}{4}NW\frac{1}{4}$ of Section 27 should be successful in encountering the Devonian formation, it would be reasonable to assume that each of such offset wells should also be drilled into the Devonian formation, and by reason of the implied covenants of the oil and gas leases covering such lands they would be entitled to the drilling of such wells into the lower or Devonian

formation, but that under the present 80-acre spacing pattern, Devonian wells are not to be located or drilled at either of such locations.

8.

These informants respectfully show to the Commission that drilling experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that such Devonian 80-acre pattern should be further continued in effect as an exception to the normal Statewide 40-acre spacing pattern; that these informants have a valuable property interest in the oil, gas and other minerals in and under and that may be produced from their lands above described, and that if such Devonian 80-acre pattern be continued in effect after subsequent facts and circumstances have failed to demonstrate that the same should be so continued, the value of their property interest will be unjustly diminished and the marketability thereof unduly impaired, and that inequities and injustices will result.

WHEREFORE, these informants pray that the Oil Conservation Commission take notice that experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of its Order No. 779 establishing such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that the same should be further continued in effect as an exception to the Statewide normal 40-acre spacing pattern, and that the Commission, upon its own motion, require the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, and any other interested parties, to show cause, if any it or they may have, why such Order

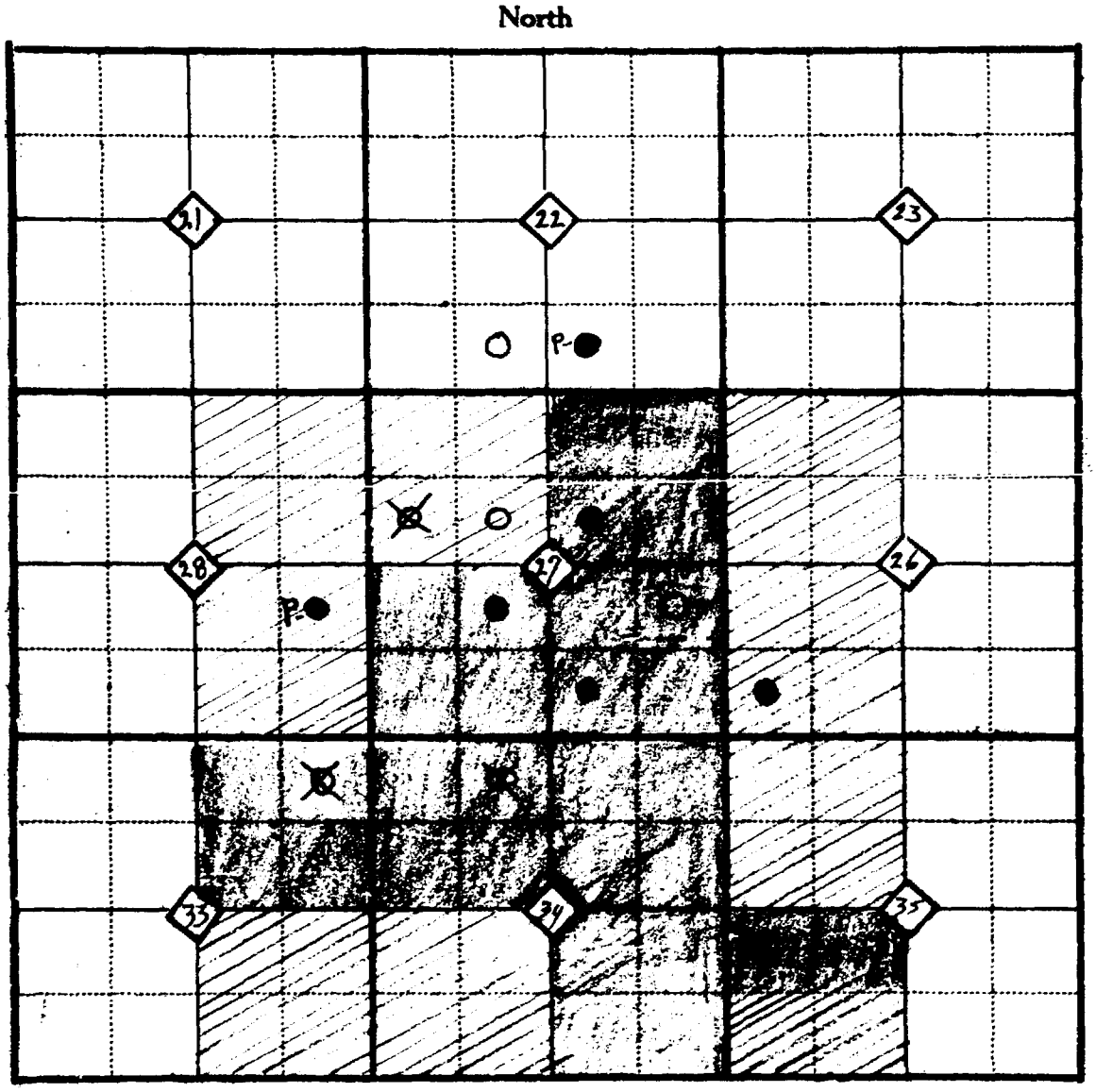
No. 779 should be further continued in effect, and that upon the hearing in this matter, if said parties fail to show proper cause for the continuation of said Order No. 779, that the same be rescinded by the Commission.

Dated at Lovington, New Mexico, this 2nd day of September, 1950, and respectfully submitted.

G. T. Hanners
Attorney for Sawyers
Lovington, New Mexico

P ●	- SW¼SE¼	22	- Magnolia-Santa Fe-1-D	- Pennsylvanian
○	- SE¼SW¼	22	- Oil Dev.Co-Santa Fe-1-22	- Drilling
●	- SW¼SW¼	26	- Magnolia-Santa Fe-1-C	- Devonian
●	- SW¼SE¼	27	- Mid-Continent-Sawyer-1	- Devonian
●	- NE¼SW¼	27	- Mid-Continent-Dessie	- Devonian
●	- SW¼NE¼	27	- Mid-Continent-Sawyer-D	- Devonian
⊗	- SW¼NW¼	27	- Oil Dev.Co-Santa Fe-1	- Dry hole Devonian
○	- SE¼NW¼	27	- Oil Dev.Co-Santa Fe-2-27	- Drilling
○	- NE¼SE¼	27	- Mid-Continent-Sawyer-1-C	- Drilling
P ●	- NE¼SE¼	28	- Magnolia-Santa Fe-1-B	- Pennsylvanian
⊗	- NE¼NE¼	33	- Skelly Oil Co-Sawyer-1	- Dry hole devonian
⊗	- NE¼NW¼	34	- Mid-Continent-Sawyer-1-B	- Dry hole Devonian

Township 9 South Range 36 East



CROSSROADS DEVONIAN FIELD BELOW 12,200 FEET
Solid Red--Owned by Sawyers Diagonal--Owned by AT&SF,et al
● - Devonian wells below 12,000 ○ - Drilling wells
P● - Pennsylvanian approx 9,700 ⊗ - Dry holes

Exhibit "A"

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 149

ORDER NO. 779

THE APPLICATION OF MID-CONTINENT PETROLEUM CORPORATION, TULSA, OKLAHOMA, FOR AN ORDER OF THE COMMISSION TO ESTABLISH EIGHTY-ACRE PRORATION UNITS; ALSO TO ESTABLISH A UNIFORM PATTERN FOR THE SPACING AND DRILLING WELLS WITH ALLOWANCE FOR TOLERANCE FOR SURFACE OBSTRUCTIONS AND FOR AN ORDER FIXING AND ESTABLISHING ALLOWABLES FOR WELLS DRILLED IN THE CROSSROADS POOL TO A DEPTH BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO. (DEVONIAN FORMATION.)

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 10:00 o'clock a.m., July 15, 1948, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission."

NOW, on this the 27th day of July, 1948, the Commission having before it for consideration the testimony adduced at the hearing of said case and being fully advised in the premises:

FINDS:

1. That on May 6, 1948, the applicant, Mid-Continent Petroleum Corporation, completed an initial and exploratory test well located in the approximate center of the SW¼ of the SE¼ of section 27, Township 9 South, Range 36 East, Lea County, New Mexico (Crossroads Pool), at a total depth of 12,258 feet; said well having been perforated from a depth of 12,115 feet to a depth of 12,215 feet, with an initial production of 995 barrels of oil, and no water, through a 3/4-inch choke, for a period of six (6) hours, twenty (20) minutes.

2. That the probable area has been delineated and recommended by the Nomenclature Committee for Devonian production as discovered by the above described well as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That the discovery producing well in center of SW¼ SE¼ section 27, and the drilling wells in center of NE¼ NE¼ section 33, and center of NE¼ NW¼ of section 34, center of NE¼ SW¼ section 27, and center of SW¼ SW¼ section 26, all are within the probable area as above described;

That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable area as above delineated or any extension thereto, so as to insure a proper and uniform spacing, developing, and producing plan for all wells in this common source of supply.

3. That due to conditions established by the aforesaid discovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

4. That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superseded.

5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials.

6. That in the interest of the State of New Mexico and in the interest of the general public, encouragement should be given to operators to explore and develop the natural resources of the State by the establishment of a proper and equitable spacing and development program.

IT IS THEREFORE ORDERED:

SECTION 1. That the Mid-Continent, Sawyer No. 1 well, located in the center of the SW¼ SE¼ section 27, is producing from the Devonian formation, a new common source of supply not heretofore discovered and produced in the State, and that the probable area for such production is as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That this order is meant to cover all of the Devonian formation common source of supply productive in the Mid-Continent, Sawyer No. 1, located in the center of the SW¼ SE¼ section 27, and any well drilled within, or outside the area spaced herein, to the same common source of supply as an extension thereof, shall be drilled on the pattern provided for herein.

SECTION 2. That 80-acre spacing and drilling units be established as hereinafter provided for the production of oil and gas from the Devonian formation underlying the area as hereinabove set forth.

SECTION 3. That each governmental quarter section be divided into two rectangular spacing units by a line drawn through such quarter section, all as shown on a plat attached hereto, and made a part hereof, and marked Exhibit "A," with the wells to be drilled, one in the center of the northeast quarter and one in the center of the southwest quarter of each quarter section, all as shown on Exhibit "A;" however, if surface conditions justify, locations may be made within a radius of 150 feet from the centers thereof, provided further, however, that the units within a quarter section, as established by this order as shown on Exhibit "A," may be changed by agreement of the operators within said quarter section upon proper showing to the Commission.

SECTION 4. That the allowable be assigned on the basis of proration units as herein established, and any proration unit of less than the normal one-half of a governmental quarter section as the result of an exception granted by the Commission after notice and hearing, shall be assigned an allowable in proportion to the assignable acreage of that unit as it bears to the normal one-half of a governmental quarter section.

SECTION 5. That the daily oil allowable of a normal unit of one-half of a quarter section assigned to the discovery well and all other wells hereafter drilled and produced in accordance with the terms of this order shall be the proportional factor of 6.75 times top allowable until such time as the Commission may issue such further and additional orders as may be deemed necessary.

SECTION 6. All rules, regulations and orders heretofore issued by this Commission which may conflict herewith are superseded, only with respect to Devonian formation production below 12,000 feet in the Crossroads Pool.

SECTION 7. That this order shall become effective on August 16, 1948.

SECTION 8. The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law.

DONE at Santa Fe, New Mexico, this 27th day of July, 1948.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Thomas J. Mabry

THOMAS J. MABRY, Chairman

JOHN E. MILES, Member

R. R. Spurrier

R. R. SPURRIER, Secretary

BEFORE THE

OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

Pursuant to legal notice to all parties and the public the following proceedings were held before the Oil Conservation Commission in the Senate Chamber of the Capitol Building in Santa Fe at 10:00 A. M. on July 15, 1948.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice, pursuant to law, of the following public hearing to be held July 15, 1948, beginning at 10:00 o'clock A. M. on that day in the City of Santa Fe, New Mexico.

STATE OF NEW MEXICO TO:

All named parties in the following cases, and notice to the public:

CASE 149

In the matter of the application of Mid-Continent Petroleum Corporation for an order establishing 80-acre proration units; to establish a uniform pattern for the spacing and drilling of wells with allowance for tolerance for surface obstructions and for an order fixing and establishing allowables for wells drilled in the Crossroads pool to a depth below 12,000 feet (Devonian formation), Lea County, New Mexico.

CASE 150

In the matter of the application of Ross Sears for an order granting permission to drill unorthodox location designated as Well No. 5 on his Miller lease, described as SW¼ of Section 26, Township 17 South, Range 32 East, N.M.P.M., in the Maljamar Field, Lea County, New Mexico.

CASE 151

Mary A. Lindop, Exrx. of Will of John Lindop, Miami, Florida; The Mid-Continent Co., Lincoln, Nebraska; F. J. Danglade, Lovington, New Mexico; United Producing Co., Inc., Charleston, W. Va.; J. L. Reed, Lovington, New Mexico; Nettie Lowe, Lubbock, Texas; H. Dillard Schenck, Lovington, New Mexico; Mark D. Rector, Atherton, California; Louise C. Ritsher, Beleit, Wisconsin; George F. Hemmeberry, Chicago, Ill.; Robert N. Cowham, Chicago, Ill.; Dr. Ralph Sullivan, Chicago, Ill.; Sigmund Stein, New York, N. Y.; Ella B. Stein, Chicago, Ill.; Marie E. Palmer, Boston, Mass.; Maud Cowham Sr., Robert Neil Cowham and C. Fred Cowham, Trustees, Chicago, Ill.; J. E. Day, Dallas 1, Texas; Claire I. Levy, Chicago, Ill.; Aylward H. Vosburgh & Grace H. Vosburgh, Chicago, Ill.; Mrs. V. M. Taylor, Roswell, New Mexico; Charles F. Grey, Trustee, Chicago 2, Ill.; Atlantic Oil Corporation, Tulsa,

Oklahoma; Ginevra Dougherty, Chicago 37, Ill.; Harriet D. Herd, Midland, Texas; John J. Redfern, Jr., Midland, Texas; John G. Ellinghausen, Tulsa, Oklahoma; Helen S. Eisendrath, Chicago, Ill.; Orvilla W. Rosengren, Minneapolis, Minn., each claiming some interest, In the matter of the application of Amerada Petroleum Corporation for the pooling or unitization of the NW¼SE¼ of Section 32, Township 19 South, Range 37 East, N.M.P.M., within the Monument pool.

Given under the seal of the Oil Conservation Commission of New Mexico at Santa Fe, New Mexico, On June 29, 1948.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

BY /s/ R. R. Spurrier
R. R. SPURRIER, Secretary

BEFORE:

Hon. Thomas J. Mabry, Chairman
Hon. John E. Miles, Member
Hon. R.R. Spurrier, Secretary

REGISTER:

George A. Graham,
Santa Fe, N. M.
For the Commission

Frank C. Barnes,
Santa Fe, N. M.
For the Commission

M. E. Sweeney
Hobbs, N. M.
For the Commission

A. E. Pierce
Tulsa, Okla.
For Mid-Continent Petroleum Corporation

J. M. Crocker
Tulsa, Okla.
For Mid-Continent Petroleum Corporation

M. B. Penn,
Tulsa, Oklahoma
For Mid-Continent Petroleum Corporation

Ed. Pierce
Midland, Texas
For Mid-Continent Petroleum Corporation

E. S. Calvert
Tulsa, Okla.
For Devonian Oil Co.

E. A. Paschal
Amarillo, Texas
For Oil Development Co. of Texas

E. O. Hennessay
Albuquerque, N. M.
For Santa Fe Railway Co.

G. H. Gray
Midland, Texas
For Repollo Oil Co.

L. J. Torch
Tulsa, Okla.
For Repollo Oil Co.

T. H. Hammett
Tulsa, Okla.
For Repollo Oil Co..

Paul C. Evans
Hobbs, N.M.
For Gulf Oil Corporation

L. Hosford
Tulsa, Okla.
For Gulf Oil Corporation

Mrs. Nettie Ogl
Santa Fe, N. M.

Scott R. Brown
Midland, Texas
For Western Natural Gas Co.

E. P. Keeler
Dallas, Texas
For Magnolia Petroleum Co.

Marve H. Mayfield
Midland, Texas
For Magnolia Petroleum Co.

R. Simmons
Artesia, N. M.
For Grayburg Oil Co. of New Mexico

R. J. Heard
Artesia, N. M.
For Grayburg Oil Co. of New Mexico

John E. Cochran
Artesia, N. M.
For Ross Sears

Oliver Seth
Santa Fe, N. M.
For Stanolind Oil and Gas Co.

P. P. Manion, Jr.
Tulsa, Okla.
For Stanolind Oil and Gas Co.

J. O. Seth
Santa Fe, N. M.
For Amerada Petroleum Corporation

R. S. Christie
Ft. Worth, Texas
For Amerada Petroleum Corporation

Harry J. Gibbons
Tulsa, Okla.
For Skelly Oil Co;

A. F. Holland
Tulsa, Okla.
For Skelly Oil Co.

George H. Selinger
Tulsa, Okla.
For Skelly Oil Co.

Walter Famaris
Hobbs, N. M.
For Famaris Oil Co.

W. G. Head
Clovis, N. M.
For Triangle Oil Co.

Glenn Staley
Hobbs, N. M.
For Lea County Operators

O. V. Adkins
Midland, Texas
For Cities Service Oil Co.

C. S. Mitchell
Bartlesville, Oklahoma
For Cities Service Oil Co.

J. D. Beatman, Jr.
Dallas, Texas
For The Atlantic Refining Co.

Sid W. Binion
Midland, Texas
For Atlantic Pipe Line Co.

W. B. Hamilton
Amarillo, Texas
For Phillips Petroleum Co.

P. J. Gaskin
Santa Fe, N. M.
For Wilson Oil Co.

Roy O. Yarbrough
Hobbs, N. M.
For the Commission

H. R. Lamb
New Mexico Bureau of Mines
Artesia, N. M.

Foster Morrell
Roswell, N. M.
For U. S. Geological Survey

COMMISSIONER MILES: The Commission is now in session.

COMMISSIONER SPURRIER: Will you read the first case, George, please?

(Mr. Graham reads the notice of publication in Case No. 149.)

COMMISSIONER SPURRIER: Will the Mid-Continent come forward, please?

MR. CROCKER: Mr. Chairman, the applicant is ready to proceed in this cause. I might state briefly that while Mid-Continent is the applicant, you might say it is applicant in name only, on behalf of itself and on behalf of all operators within the immediate area upon which this discovery well, No. 1 Sawyer in Lea County, has been drilled. This application was filed with the Commission on the 14th of June. It was done pursuant to the consensus of opinion voiced at a meeting held in Tulsa on June 11. At the meeting in Tulsa on June 11, the operators were well represented and had one thought in mind with respect to the type of application that should be filed, and Mid-Continent, as being the operator of the discovery well, was designa ted as the medium through which this application should be filed. The application, briefly speaking, invokes the jurisdiction of the Commission for the purpose of securing an order to cover three points, you might say. First, and foremost, it was thought that at this time, or as soon as could be conveniently accomplished by the Commission, the proration units in this field should be established in an area of 80 acres, a half of a governmental quarter section constituting a proration unit. The petition further seeks an order to establish a spacing pattern. We ask the Commission to designate the northeast 40 acres and the southwest 40 acres of each governmental quarter section as the drilling units, with a reasonable tolerance. We ask for 150 feet to accommodate any surface obstructions. Third, and incident to the order, we have sought in the application that this Commission fix a daily allowable. We really regard this at this particular moment as incidental to the principal

purposes, that of fixing a proration unit and to establish well spacing. Presently, in addition to the discovery well, four wells are now drilling in the area. Some offsets and probably one or maybe two that are not exactly offsets, but maybe the second location. All of these wells have respected a common conventional pattern, drilling either in the northeast 40 or southwest 40. Only a month ago, I believe June 15, we appeared--Mid-Continent on its own behalf, and sought from the Commission a temporary allowable for the discovery well. The Commission very kindly granted our request. Last evening an operators' meeting at the hotel here in Santa Fe was in session probably two hours in an effort to see whether or not any divergent opinions existed with regard to the manner in which we should present this cause to you this morning. I may state just briefly, and later on in the proceedings it will probably be elaborated on, but the unanimous opinion, I believe I can safely say,of the operators at yesterday's meeting was that we appear this morning and seek your order establishing an 80-acre proration unit and fixing a conventional well-spacing pattern as I have stated in the northeast an d southwest quarter sections of a governmental 160-acre tract. With respect to fixing a daily allowable for--at least temporarily until more information is brought before you, the meeting decided that we should ask you to fix an allowable, daily oil allowable, of 300 barrels until a further order issued by this Commission. Three hundred barrels would apply to the discovery well and to all wells hereafter drilled until such time as the Commission might fix another permanent allowable. As I state, we regard probably that any temporary allowable that you now fix you might want to change, the operators might want to change, as a result of information yet to be developed. We have taken the liberty--we do it without any presumptousness--we did it

to form a basis for our discussion at our meeting yesterday--we have prepared what we call a proposed order. We have undertaken, after some study, to incorporate in the order all of the facts with sufficient definiteness to be readily interpreted and not misunderstood. We thought we would submit it, and if the Commission agrees with us, it might be helpful in the formulation of any final order you make as a result of this hearing. In that proposed order we have--well, I think the statute gives it to the Commission anyway, perhaps the wordage is not needed--but in the order we appropriately provided that this Commission retains jurisdiction of this cause, that it might on its own motion, or upon the motion of any interested operator, at a later time issue further and additional orders. We rather anticipate that someplace further down the line when further information is developed on the reservoir that that might be done.

Now, with respect to further proceedings, we were going to offer Mr. Penn, our Chief Engineer. Following his testimony, it is our understanding that perhaps Skelly and Magnolia might care to make a further statement, and maybe we ourselves might have something further to observe. As Mr. Penn testified here a month ago today on the well, we have qualified him, I believe, to the satisfaction of the Commission and other operators as an expert. He testified with respect to the well at that particular time. The tests that had been made, the cost of the well, and other figures, engineering figures. We would like to suggest that the record of his testimony be adopted and made a part of this hearing. It might then in some respects shorten the proceedings, and we certainly have no desire to prolong the proceedings, nor unduly tax the Commission. We would be glad to give you all the information you wish. I believe with that preliminary statement, I would like to have Mr. Penn sworn and take the

stand.

(Witness sworn)

M. B. PENN, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. CROCKER:

Mr. Penn, will you state your name, please?

A. M. B. Penn.

Q. What is your profession?

A. Petroleum engineer.

Q. Where do you live?

A. Tulsa, Oklahoma.

Q. With whom are you connected?

A. Mid-Continent Petroleum Corporation.

Q. Have you heretofore testified before this Commission?

A. I have.

Q. Were you qualified as a petroleum engineer at that time as an expert witness?

A. I believe so, yes, sir.

Q. Do you want further qualifications, or will you adopt them?

COMMISSIONER MILES: We, we will adopt them.

Q. Mr. Penn, in your capacity as Chief Engineer of the Mid-Continent Petroleum Corporation are you familiar with the No. 1 Sawyer well and the Crossroads Pool in Lea County, New Mexico?

A. I am.

Q. When was that well completed--let me ask you this, first. When was the well started? About?

A. The well was started about August of 1947.

Q. When was it completed, Mr. Penn?

A. About May 6, 1948.

Q. To what depth was it completed?

A. 12,258 feet.

Q. Did you make a test for initial production at the time it

was completed?

A. Yes, the initial test showed 995 barrels of oil and no water through a 3/4 inch choke for a period of six hours and twenty minutes.

Q. Is there another well drilling in the area at the present time?

A. Yes, there are four other wells drilling.

Q. Can you give the Commission the approximate location of each of those wells?

A. The wells are located as follows: one in NENE of Section 33; one in the NENW of Section 34; one in the NESW of Section 27; and the fourth in the center of the SWSW of Section 26, all in Township 9 South, Range 36 East, Lea County, New Mexico.

COMMISSIONER MILES: For fear of overlooking it later, I did not understand how much oil was produced in a certain given time.

A. In the initial test, Governor Miles, the well was flowed for six hours and twenty minutes. And in that period it produced 995 barrels of oil. That was produced through a 3/4 inch choke on the tube at the top of the hole.

MR. CROCKER: This will help you visualize what our witness is talking about (laying a map before the Commission).

Q. What is the distance in feet between offsets?

A. This is 1867 feet between offsets. This is the Skelly well here, and this is a Magnolia well and this—these two are Mid-Continent. They are all drilling now between about four and six thousand feet.

MR. CROCKER: Did you get all the information you wanted, Governor?

COMMISSIONER MILES: Yes, sir.

Q. Mr. Penn, did you understand that that area has been delineated and recommended by the Nomenclature Committee for the Devonian formation in this particular area?

A. Yes, sir, it is my understanding that the W½ of Section 26, all of Section 27, the E½ of Section 28, the E½ of Section 33, and all of Section 34, and the W½ of Section 35 in this township have been recommended as being the probable producing area now set up by this Nomenclature Committee.

Q. Is it your understanding that it is the purpose of the application in the event an additional area might be proven productive outside of the delineated area that any order issued by the Commission based upon this application would cover and embrace such an outlying area?

A. That is correct. If a well should be drilled into or produced from the Devonian formation, in the interests of uniformity it should be drilled on the pattern that has been set forth.

Q. Mr. Penn, at the time this No. 1 Sawyer well was completed and put into production, did you understand that the Oil Conservation Commission of New Mexico had then established a formula for a daily deep well allowable for production below 12,000 feet.

A. It is my understanding that at that time the allowable for wells had been set for a depth down to 12,000 feet, but that for wells below 12,000 feet a formula or allowable had not been set up.

Q. Yes, sir. Going back to the drilling wells you have described and located, may I ask whether or not all of these wells are drilling either in the northeast 40-acre tract or the southwest 40-acre track of a governmental quarter section of 160 acres?

A. It is fortunate that they are. All the wells that are presently drilling and our discovery well are on the pattern which is shown as Exhibit A on the proposed order thatwe have prepared.

Q. In other words, if this Commission were to confirm by an

order a drilling pattern requiring all Devonian wells to be drilled on either northeast or southwest 40-acre tracts, we have no well that is unorthodox or that would require an exception to the order?

A. That is correct.

Q. Mr. Penn, I wish you would give the Commission the benefit of the observations and conclusions and recommendations that were made at a meeting held in the La Fonda Hotel yesterday afternoon, at which Repollo Oil Co., Grayburg Oil Co. Skelly Oil Co., Magnolia Petroleum Co., Amerada Petroleum Corporation, Santa Fe Railway Co. and the Oil Development Company of Texas, Lea County Operators Committee, represented by Mr. Staley, U. S. Geological Survey, represented by Mr. Morell, the Devonian Oil Co., represented by Mr. Calvert, Bureau of Mines, represented by Mr. Lamb, and Mid-Continent, with respect to their unanimous--and Gulf Oil Corporation, I beg your pardon--with respect to the unanimous view with regard to the establishment of 80-acre proration units, the conventional well-spacing pattern, and the recommendations of the meeting with regard to the fixing of a temporary daily allowable for the field until such time as the Commission, upon further information, might determine that a different permanent daily allowable should be established for the pool. I wish you would explain to the Commission those particular points, if you will.

A. The operators were still unanimous in their opinion that the reservoir can be adequately and economically drained by drilling one well for each 80-acre proration unit, as they has been in the Tulsa meeting. They were looking forward to having a great deal more information on the Mid-Continent well than was available at that time. Mid-Continent made clear that the conditions that existed and the inadequacy of the proper results, or the complete results from tests that

are still being taken might or might not be representative of the productivity and characteristic of future wells that might be drilled in the reservoir. Upon this basis the operators felt that an allowable that might be set up at this time should be an allowable that furture wells, which will probably be completed in four or five months, might produce--at a rate at which these wells might produce--for such time until information was available upon these wells which might supplement the information that was had on the discovery well. So that the 300 barrel allowable was agreed upon by the operators as being the rate at which everybody would produce until such time as more complete information could be obtained. The number isn't valued or just picked out of the air. It was decided upon from all the information that they had, and all the opinions, and all the desires that the operators representing all those present in the Cross roads area might agree upon.

MR. CROCKER: I believe with that testimony we are willing to turn the witness to the Commission and to any interested operator who might care to interrogate the witness further.

COMMISSIONER MILES: Just one question there. Maybe I am not clear on it. Awhile ago you said that was the initial production, the amount so produced. That 900-odd barrels.

A. Yes. That was the initial rate at which the well produced on the first day it was completed.

COMMISSIONER MILES: Has there been any change made since that time? Any tests made?

A. Yes, we gave the Commission quite a few tests at the last hearing, Governor, based on various sizes of chokes. All the way, I believe, from about 150 barrels per day to about 3970 barrels per day. It showed the ability of the well to produce on those various sizes of chokes, and the amount of energy required to produce the oil on these various sized chokes.

COMMISSIONER MILES: I remember that testimony.

A. Since then we have taken further tests to show the order or magnitude of those tests to be the same under the different engineering company that took the second set of tests.

COMMISSIONER MILES: That is all I have.

COMMISSIONER SPURRIER: Mr. Penn, what was the figure that the Oil Conservation Commission has set for the allowable, based upon the extension of the curve? The Commission in an executive order set an allowable before this past hearing was held.

A. It is my understanding that based on the 44 barrel basic allowable that the allowable for this well should be somewhere around 300 or 310 barrels.

COMMISSIONER SPURRIER: I wonder if we couldn't bring out a few more of the facts to substantiate your basis of 300 barrels, whereas the Commission granted an allowable of 500 barrels at the June 15 hearing.

A. There are two things that I would like to point out in that respect. In the first place, the operators are agreeable to Mid-Continent having an allowable of 500 barrels as a temporary measure, both for testing the well and as a bonus allowable for a new discovery. The operators present were not unanimous in their desire to give the applicant a permanent allowable of 500 barrels. That was to be taken care of at this hearing today. The data that Mid-Continent presented indicated that one of the important factors upon which we based the 300 barrels was production of salt water. This water appears in the well after production is increased from a low rate at a figure somewhere between 300 and 500 barrels a day. And the operators felt that 300 barrels a day, based upon this data, was probably the optimum rate. That was arrived at independent of the Commission's former factor of 6.75.

MR. CROCKER: Mr. Penn, the Commission established--I believe it was Mr. Spurrier who drew it out--a proportional formula of 6.75. Is that your understanding?

A. That is correct.

MR. CROCKER: For this depth?

A. Yes.

MR. CROCKER: As a matter of fact, the application of the proportional formula of 6.75, I believe you state, as related to 300 barrels is just a matter of a very few barrels, is it not?

A. That is correct.

MR. CROCKER: I would like to make this statement. In the meeting yesterday we got to talking in terms of barrels rather than on the question of a proportional factor. And when we adjourned yesterday, we had, as I understand, been talking in terms of 300 barrels. I don't know, it might be that the Commission if it saw fit to grant approximately what we are asking for, to-wit, 300 barrels a day, you might desire to use it in the form of a proportional factor rather than the 300 barrels. Now, I don't know how other operators--I didn't discuss that at the meeting--and I don't know how other operators who participated in yesterday's meeting might feel about it. But I take it that if the results are approximately the same, we, at lea st Mid-Continent, can't see where we would have any objection to it being referred to in a factor form or a barrel form. Does that catch the point that you made?

MR. [redacted]: I might say that several of the operators have indicated that in view of the fact that we are asking for 80-acre spacing, and in view of the fact that the curve that Mr. Spurrier has referred to is at the present time applicable to wells drilled on 40-acre proration units, it might be advisable to separate the two until some method might be worked out for setting up an allowable formula for these deep wells that will be drilled on 80-acre spacing. The two are separate and apart in that respect. I just throw that in as a suggestion.

COMMISSIONER SPURRIER: When you say the two, you mean the allowable for 40-acre units and the allowable that might be arrived at for 80-acres?

A. Yes.

MR. SELINGER: I represent the Skelly Oil Co. I would like to ask Mr. Penn a few questions.

Q. Mr. Penn, as to the casing and other drilling and operating rules, do you feel that the present general rules applicable to Lea County in that respect are sufficient to cover this area?

A. Yes, I do.

Q. Now, to further clarify Mr. Spurrier's last question to you with regard to 40 and 80-acre units. That subject is covered in Section 4 of the order--part of the proposed order that had been submitted to the Commission. Is that right?

A. That is correct.

Q. And briefly, it permits wells to be given an allowable on an 80-acre basis, and units of less than 80 acres--as a result of a hearing--will be assigned an allowable based on the amount of acreage that the--that it bears to the normal 80. Is that right?

A. That is correct.

Q. At this meeting held yesterday, all interested parties, both within the probable area as delineated by the Nomenclature Committee and by interested operators outside that area, were they unanimous in their accord as to the rules as now proposed? Submitted to the Commission?

A. They were.

Q. In your opinion, Mr. Penn, the establishment of an 80-acre unit for this field only would eliminate the necessity of drilling unnecessary wells in order for each operator to recovery his proportionate share from the reservoir?

A. It would.

Q. In order to specifically clarify it, these rules as now proposed are applicable only to the Crossroads pool, that common source of supply designated as the Devonian, which was discovered by your Sawyer No. 1 well. Is that right?
A. That's right.
MR. SELINGER: That is all.
COMMISSIONER MILES: The Governor just asked me, and I don't know. How extensive is that area applied for here? What is the proposed area?
GOVERNOR MABRY: What is the extent of the area?
COMMISSIONER SPURRIER: Four square miles.
THE WITNESS: The pool that is temporarily set up in this area here (indicating on the map) is four square miles.
COMMISSIONER MILES: Four square miles. Mr. Spurrier, did you attend that meeting?
COMMISSIONER SPURRIER: Yes, sir, I did.
COMMISSIONER MILES: Do you see any complications anywhere in the set up?
COMMISSIONER SPURRIER: I don't think there is anything in the proposed order that would be detrimental to our general set up, due to the fact that as stated it is temporary in nature until such time as additional wells are drilled and additional information compiled.
GOVERNOR MABRY: I have no questions.
COMMISSIONER MILES: I have no questions.
COMMISSIONER SPURRIER: I would like to ask some further questions, please.
GOVERNOR MABRY: Go ahead.
COMMISSIONER SPURRIER: What is the alternative, or what are the alternatives, of a person who owns only 40 acres in the Crossroads pool as it exists now or may be extended?
A. There are two alternatives. The first alternative is that a 40-acre that exists as one-half of one of the 80-acre pro-

ration units be unitized with the other forty to form an 80-acre proration unit. The second is that if the operator should choose to drill a well on his 40 acres, which is on 100 per cent interest, that he would be permitted to produce the well at one-half the allowable that would be attributable to an 80-acre proration unit.

COMMISSIONER MILES: Is that referred to in this order?

A. Yes, that is referred to in Section 4 of the order on page three.

COMMISSIONER MILES: Mr.Spurrier, do you have some more questions?

COMMISSIONER SPURRIER: Yes, Governor, thank you. I don't care to string this out too far, but I think there are a few things that should be brought out. I have heard them discussed.

Q. Suppose that some individual owned the NW¼ and the SE¼ of a governmental quarter section? What could he do now in the way of unitizing or communitizing or what should he do?

A. In the present set up, he would own half of the two 80-acre proration units. And these proration units, upon the application and agreement of the two parties could be established as they are shown in Exhibit A on our proposed order, or they could be changed as set out in Section 3. I quote, "by agreement of the operators within said quarter section upon proper showing to the Commission." It is fortunate, Mr. Spurrier, that in the area that is immediately foreseen as being productive there are very few of those problems that you mention.

GOVERNOR MABRY: I was wondering how many there were, if any.

A. I have a map that I can show you, Governor.

GOVERNOR MABRY: I don't care, specifically. Is there a substantial number?

A. It will be an exception to find one.

COMMISSIONER SPURRIER: You propose to take care of it with the two ways out.

MR. CROCKER: That is correct. The proposed order, as amended, without burdening the record, your Commission retains jurisdiction here. If any operator, or you can upon your own motion correct any inequity that might exist by reason of unusual circumstances.

THE WITNESS: The order is very flexible, Governor.

GOVERNOR MABRY: I assumed so with my cursory reading of it. There is no objection from anybody who participated in the conference? I take it that all operators of the area agreed to them?

THE WITNESS: That is correct.

COMMISSIONER MILES: Mr. Morrell, do you have any interest in the matter?

MR. MORRELL: I have a few general remarks. First, New Mexico is fortunate in having the type of operators that can settle these problems. It seems to me that a too-detailed discussion of engineering and reservoir conditions in this case would be academic as the data is available only from one well which is still in the process of experimentation. In the absence of more details it would appear that an order issued at this time should be specifically for a temporary period. Possibly for a fixed date or number of wells. After which the problem would be further considered. I have been privileged to attend several meetings of the operators of the Crossroads pool, and I would like to note for the benefit of the Commission and for the record that the considerations expressed by the operators involved were largely for the proper protection of the reservoir. Some differences of opinion were expressed, naturally. But all were quickly resolved in the interest of the majority. I feel it only proper and just--the fine work done which Mid-Continent and Magnolia aided by Skelly in initiating

and developing the necessary data to secure a well-spacing proper for the Cross roads pool. Special consideration should be given Mid-Continent and its personnel for the fine cooperation open-minded manner in which it has approached this problem. In the present circumstances I see no objection to granting the application made to your Commission.

COMMISSIONER MILES: Anybody else?

MR. SELINGER: I represent Skelly Oil Co., one of the companies drilling at the present time. If everything goes well, we hope to bring in the second well in the area. We are particularly anxious for the Commission to adopt these proposed rules for the reason that even though there is only one well, it is my experience, covering a period since 1933 in proration exclusively, that the quicker a state assumes jurisdiction for a proper development program in which they fix the spacing and proration units, the less headaches that regulatory body has farther on down the line. In that way, operators do not have any preconceived selfish ideas, whether on top of the structure or on the fringe. At the present time we don't know where the structure lies. Here all the operators come in and say, we agree on a proposed order. Let the chips fall where they may. It may be that we will be hurt by this kind of an order. That is something that we don't know. As long as each operator knows what the drilling unit is and knows where the wells are supposed to be located, and knows what his approximate allowable is, every single operator in the field is treated alike. That is why we particularly urge the Commission to adopt these rules now. Because if additional wells are brought in, then the unanimity is naturally broken up between particular interests of each individual operator. Of course, we are all in business for money making. But as Mr. Merrell very aptly put it, the cooperation shown by operators in this particular regard

has been in line with the remarkable record that operators in the field and throughout the State have shown since 1935. It is particularly to the good name of your State that in thirteen years of proration you have only had 151 proration cases. I have always found that the spirit of the Legislature, particularly in Section 12, the fifth paragraph, in which it tells this Commission to approve any plan which was agreed upon by all operators in any particular field, and if it felt that it was just to adopt that plan. We, as one operator, particularly urge the Commission under that particular section to adopt the plan which has been unanimously approved by the operators interested in the field.

MR. KEELER: I represent Magnolia Petroleum Co. I should like to take this opportunity to concur with all recommendations made by Mid-Continent and Skelly, and state that Magnolia is in favor of this proposed order as presented to the Commission.

COMMISSIONER SPURRIER: Is there anyone else to be heard from? I would like to state for the record that I heartily agree with Mr. Merrell's well put comments.

COMMISSIONER MILES: Anybody else to be heard in this matter? I don't think it is necessary for me to repeat it, but I have always found the cooperation of all the oil companies to be very admirable. We have never had any trouble along that line, so we never hesitate when they are together in adopting what they approve. Is anybody else to be heard in this matter? Unless there can be something offered that is outside of this order, I don't think it is necessary for us to hear any more testimony along that line. Unless there is somebody who wants to offer some.

GOVERNOR MARRY: I assume that counsel for all operators in the area are familiar with the order and have seen it.

MR. CROCKER: Governor, I don't know how generally counsel

have gone over it, but I think I can state that it has been submitted to most of the legal departments of the various companies operating in the pool, and that insofar as we are advised, there has been no suggestion that has come our way for any change. There were attorneys in the meeting yesterday, and engineers--production men--and every operator has gone over it. And we have heard no suggestions.

COMMISSIONER MILES: Mr. Spurrier, have you and Mr. Graham read this order?

COMMISSIONER SPURRIER: Just casually, Governor. I haven't studied it.

GOVERNOR MABRY: I don't think we need to more than announce at this time that we will approve the order. Of course, we will carefully study it.

MR. SELINGER: I would like to make one suggestion which might not be considered in line with Mr. Morrell's and Mr. Spurrier's recommendation. I think it would be practically impossible to put a definite time in the order in view of the fact that it takes a well six, seven, or eight months to be drilled and put on production.

GOVERNOR MABRY: You would prefer to leave it upon motion?

MR. SELINGER: There is a retaining provision in Section 8. I don't think a specific time limit would be applicable at this time because we don't know when we will get the additional information, and it will be probably a year and a half before more than five or six or seven wells are drilled.

GOVERNOR MABRY: "Section 8. The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law." I think we have a right to

do what we want to under that order. That would be my interpretation looking at it briefly.

COMMISSIONER SPURRIER: I wasn't aware, Mr. Selinger, that I had recommended any definite time. I would rather that the record show now that after a reasonable number of wells are drilled and the information is gathered, that then we should devise a permanent spacing.

MR. SELINGER? Then our thoughts coincide in that respect.

COMMISSIONER MILES: I think maybe Mr. Morrell suggested that. If anybody else wishes to be heard, we will be glad to hear them. If not, we will proceed with the next case.

MR. CROCKER: We desire to thank the Commission for its courtesy and patience.

COMMISSIONER MILES: Read the next case, George.

(Mr. Graham reads the notice of publication in Case No. 150.)

MR. COCHRAN: Governor Mabry and members of the Commission. This is an application made by Ross Sears to drill an unorthodox location on land described as the SW¼ of Section 26, Township 17 South, Range 32 East, in the Maljamar Field, of Lea County, New Mexico. Heretofore, there has been drilled in this 160 acres four wells. Each of the four wells were drilled in the center of each 40 acre legal subdivision. The well drilled in the SE¼ of the SW¼ of Section 26 was completed in 1942. It was drilled to a total depth of 4338 feet. The well did not have a commercial showing and was plugged and abandoned. The applicant makes application to drill an unorthodox location to be located 1295 feet north of the south line and 1370 feet east of the west line of Section 26; which location is approximately 25 feet south and 50 feet east of the common intersection of the quarter sections. It is their belief that by drilling a well at this location they can obtain a commercially producing well, and

that the drilling of such a well would be in the interests of conservation in that a substantial quantity of oil would probably be recovered that would not otherwise be recovered if the well were not drilled. In the event this application is granted and the applicant permitted to drill the well, then they would like to have an allowable set up on the proration schedule for that forty-acre unit upon which there is no production at the present time. Now, I would like to call your attention to the location on the map. Here is the well that was drilled and plugged. The proposed location is here. The Commission will note that there is no encroachment of outside property lines. Now, this lease covers Federal lands. A copy of this application was submitted to the office of the Supervisor of the U.S. Geological Survey at Roswell with the request that he express his opinion and the opinion of his office with reference to this location. I have a letter which I would like to introduce in evidence, addressed to John H.Cochran, Jr., dated June 29, 1948, from Mr. Morrell as Supervisor of the U. S. Geological Survey, in which, among other things, he states that no objection is offered by his office to the unorthodox well location specified in the application. "It is the opinion of this office that the drilling of the additional well may afford an opportunity for increased recovery of oil and gas from the presently producing reservoir of the Maljamar pool." And further, "Approval to drill the additional well at the unorthodox well location will be contingent upon approval of such location by the Oil Conservation Commission of the State of New Mexico for proration purposes." I offer in evidence this letter that I have mentioned. Now, the person who was to be a witness here today, Mr. Sears, was unable to come. Therefore, I have no witness to offer. But Mr. Morrell I believe is present, and he is thoroughly familiar with the Maljamar

pool and this particular location, and if the Commission has any questions they would like to ask with reference to it, I believe Mr. Morrell would answer those questions.

GOVERNOR MABRY: He has said what he has to say in his letter.

COMMISSIONER MILES: Has there been anybody protest it?

MR. GRAHAM: There is nothing in the file, Governor.

COMMISSIONER MILES: If not, I don't see why we wouldn't grant the order. Next case.

(Mr. Graham reads the notice of publication in Case No. 151.)

MR. SETH: We would like to have Mr. Christie sworn.

(Mr. Christie sworn.)

MR. SETH: If the Commission please, this involves the NW¼ of the SE¼ of Section 32, Township 19 South, Range 37 East, N.M.P.M. of the Monument pool. These diagrams will show the situation. The particular well is marked with a cross. The Amerada Petroleum Co. is the owner of the lease on 3¼ acres of this forty. And it has acquired the fee to the remaining six acres located as shown on the map here marked "Fee". So, it holds the lease and the six acres and the purpose of this application is to unitize the six with the 3¼ and produce it as one unit. In order that the record may be clear, I would like to offer in evidence exhibits 1, 2, and 3, which the Reporter has already marked, being the original oil lease and the assignments that quiet the lease on the 3¼ acres into the Amerada. I would like also to offer in evidence exhibit 4, which is the deed from the numerous heirs of a lady named Gaither who homesteaded the original tract and conveyed away the 3¼ acres and conveyed this six acres to the Baptist Church for church purposes. I also have an abstract of title available to the Commission if it desires it. The suit to quiet title was brought in 1939.

COMMISSIONER MILES: Do you want us to examine that title?

MR. SETH: I have examined it and it is good. Unless Mr. Graham wants to examine it, I will hold it available to the Commission. We also offer in evidence exhibit 5, which is the plat showing the surrounding conditions.

R. S. CHRISTIE, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SETH:

Q. Please state your name.

A. R. S. Christie.

Q. What is your profession?

A. Petroleum engineer.

Q. By whom employed?

A. Amerada Petroleum Co.

Q. I think Mr.Christie has testified so often before this Commission it isn't necessary to offer his qualifications.

COMMISSIONER MIKES: Yes.

Q. Are you familiar with the 40-acre tract involved here?

A. Yes, sir.

Q. Does this plat I exhibit represent the real situation down there as to wells drilled?

A. Yes, it does.

Q. The Amerada has had a well on this 40 acres for a good many years?

A. Yes, sir, since February 1937.

Q. And it is still producing?

A. Yes, sir.

Q. At this point I will offer in evidence the records of the Commission which show that this well, beginning November 1, 1939, is on the proration schedule as if it were a 40-acre unit. Is there anything that differentiates this 40 acres from the surrounding acreage, Mr. Christie?

A. No, sir.

Q. It is there being produced as a 40-acre unit--those are

being produced as 40-acre units, this should also be produced as a 40-acre unit?

A. That is correct.

Q. Is it your opinion that it should be produced as a unit?

A. Correct.

Q. Take the six acres in the NE¼. Would it be feasible from an economic point of view to drill a well on that six acres?

A. In my opinion, I don't believe it would.

Q. In other words, if a well were drilled on that six acres and the allowable cut down to 6/40 of an allowable it would probably never pay out. Is that the situation?

A. Yes, sir.

Q. In your opinion, should this 40 acres be developed as a unit as to other pays that might be found at deeper depths in the future?

A. Yes, sir.

Q. Is there any way which Amerada could use to get its share of the recoverable oil under this six acres other than by pooling or drilling an independent well?

A. No, sir.

Q. Is it your view that the 40-acre tract would--should be pooled and produced as a unit?

A. Yes, sir.

Q. From all strata that might be found?

A. Yes, sir.

MR. SETH: I believe that is all.

GOVERNOR MABRY: No protest, of course.

COMMISSIONER MILES: Does anyone want to speak on this matter?

MR. SETH: We wish to offer in evidence the registry return receipts. The notice was served on all the royalty owners under the ¾ acres and the evidence of service is shown by the return receipts. We would like that considered.

GOVERNOR MABRY: You want to introduce them in evidence?

MR. SETH: We offer them in evidence.

GOVERNOR MABRY: Service was complete and there was no protest?

MR. SETH: Yes.

COMMISSIONER MILES: The order will be granted. Is there anyone else to come before the Commission?

COMMISSIONER SPURRIER: Yes. We have Case No. 143, which was continued to this date by the Commission at the last hearing for lack of appearance. I think probably Mr. Seth will come forward.

MR. OLIVER SETH: If the Commission please, I would like to make an appearance for the Wilson Oil Co. in connection with their application which was Case No. 143 at the last hearing. Mr. Wilson was unable to be present at that time. It is an application for an unorthodox location in the SE¼NW¼ of Section 23, Township 21 South, Range 34 East. If the Commission please, the original location was made at the proper point, but mechanical difficulties arose at the well which required an abandonment of the original location. The tools were lost and could not be recovered. The rig was consequently moved a short distance south and east to a new location to avoid the original mechanical difficulties. I call Mr. Jim Gaskin at this time.

R. J. GASKIN, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. OLIVER SETH:

Q. State your full name, Mr. Gaskin.

A. R. J. Gaskin.

Q. Are you employed by the Wilson Oil Co.?

A. I am.

Q. Are you familiar with their application now pending for an unorthodox location?

A. Yes, sir.

Q. Will you state briefly to the Commission the original location?

A. The original location was in the SE¼SW¼ of Section 23, Township 21 South, Range 34 East, Lea County, New Mexico, 2320 feet south of the north line and 2380 west of the east line of the Section.

Q. Will you state who owns the acreage surrounding this location?

A. Wilson Oil Co. owns all the surrounding land.

Q. They lease it?

A. It is a State lease.

Q. They lease it from the State?

A. Yes.

Q. What was the reason for not completing the original location?

A. The original drilling started and they got down about 150 to 200 feet and lost a string of tools, and the fishing job was unsuccessful. They attempted to drill around the string of tools and get the second string of tools tied up. They finally had to abandon the hole with a loss of approximately $5,000.00.

Q. Where is the proposed location with reference to the original location?

A. It is approximately 90 feet east and 10 feet south.

MR. OLIVER SETH: I believe that is all, if the Commission please.

COMMISSIONER MILES: Does anybody have any statements to make? It is agreeable that the order be granted.

GOVERNOR MABRY: Nobody objects to that? Mr. Spurrier, have you anything else?

A. No, Governor.

GOVERNOR MABRY: Mr. Graham?

A. No.

COMMISSIONER MILES: Let the record show that the order will be granted. Are there any other matters to come before the Commission?

COMMISSIONER SPURRIER: I would like the record to show that Case No. 146, which was the pipeline case, could not be presented today, and the Lea County Operaters have requested that it be continued to our hearing on July 29.

COMMISSIONER MILES: Let the record so show.

COMMISSIONER SPURRIER: And further, we have a letter from Petrolite's attorneys requesting that we dismiss the case that Petrolite brought before us several months ago on tank cleaning. In other words, we are requested to dismiss Petrolite's application in the old tank cleaning proposition which is still to be decided at some later date. Lea County Operaters there again have not completed their work on the tank cleaning case and will advise us as soon as they do.

GOVERNOR MABRY: It is a petitioner on his own motion who wants the petition dismissed?

COMMISSIONER SPURRIER: Right.

COMMISSIONER MILES: Are some still operating under the temporary arrangement?

COMMISSIONER SPURRIER: Yes. Walter Famarriss and Hardin - Houston.

MR. FAMARRISS: In the case of 104, which I believe is the case number,I was issued an order. I think that has been referred to erroneously as a temporary order. But I believe in m y instance I was given an order which was as permanent as this Commission issues. Of course, there is the old clause at the end of the order. I believe at the October 15 hearing that I made the suggestion to the Commission that another applicant, namely, Hardin-Houston be issued a temporary order similar to the order which existed which was given for me personally. That is to clarify the record.

MR. SETH: I think that the Lea County Operators anticipate that it will come up on the 29th.

GOVERNOR MABRY: The order speaks for itself.

MR. FAMARRISS: Yes, the authority is all that I need.

GOVERNOR MABRY: I don't know what the order is.

COMMISSIONER MILES: He is operating?

COMMISSIONER SPURRIER: Yes, it is a temporary permit

MR. FAMARRISS: It still has the holdover clause at the end.

MR. GRAHAM: We held jurisdiction of the case.

GOVERNOR MABRY: Yes.

COMMISSIONER MILES: Any other matters, Mr. Spurrier? I think the order issued in Case No. 110 is temporary in nature, Mr. Famarriss. According to my understanding, you are operating under the same order as Hardin-Houston.

MR. FAMARRISS: Let's put it this way. My order was issued September 9 and theirs issued in October. So, they are operating in line with the order originally offered me.

COMMISSIONER SPURRIER: In the matter of Mr. Seth, in regard to the tank cleaning order, all that I know is that by telephone conversation George Card .....

MR. SETH: I don't know. I got a thing from Mr. Staley, a draft of a proposal.

COMMISSIONER SPURRIER: That is true, but .....

MR. SETH: I don't know whether there is anything to be continued or not, but I didn't want it to be overlooked. I don't know whether they have agreed on it or not.

COMMISSIONER SPURRIER: That is the point, Judge. Mr. Card tells me they have not agreed and wish to work on it further.

COMMISSIONER MILES: Couldn't we have the hearing at that time and extend it even if they have not agreed.

COMMISSIONER SPURRIER: I doubt that we have time to advertise, Governor.

GOVERNOR MABRY: That is all we have here today?

COMMISSIONER SPURRIER: Yes, sir.

COMMISSIONER MILES: The hearing is adjourned.

C E R T I F I C A T E

I HEREBY CERTIFY that the foregoing transcript of a hearing before the Oil Conservation Commission of the State of New Mexico in Santa Fe on July 15, 1948, is a true record of such hearing to the best of my knowledge, skill, and ability.

I FURTHERCERTIFY THAT I AM the official reporter for the United States District Court for the District of New Mexico.

DATED at Santa Fe July 22, 1948.

E. E. Greeson

E. E. GREESON
Court Reporter

BEFO E THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO.

In the matter of the application of Mid-Continent Petroleum Corporation, Box 381, Tulsa, Oklahoma, for an order of the Commission to establish Eighty-acre proration units; also to establish a uniform pattern for the spacing and drilling of wells with allowance for tolerance for surface obstructions and for an order fixing and establishing allowables for wells drilled in the Crossroads pool to a depth below 12,000 feet, Lea County, New Mexico. (Devonian formation)

Cause No. 149
Order No. _____

APPLICATION.

Comes now Mid-Continent Petroleum Corporation, Tulsa, Oklahoma, and makes the following representations unto the Oil Conservation Commission of the State of New Mexico, to-wit:

That this application pertains only to the producing formation from which oil is now being produced at a depth below 12,000 feet in the Crossroads Pool, the probable area of which has heretofore been delineated and recommended by the Nomenclature Committee, located in Lea County, New Mexico. (Devonian formation)

That one such well is presently producing in said pool; it being located in the apporximate center of the Southwest quarter of the Southeast quarter of Section 27, Township 9 South, Range 36 East.

That drilling, or operations for drilling, has commenced on four locations in said pool in addition to the discovery well above referred to; said locations being as follows: Center of Southwest quarter of Southwest quarter of Section 26; Center of Northeast quarter of Southwest quarter of Section 27; Center of Northeast quarter of Northeast quarter of Section 33; Center of Northeast quarter of Northwest quarter of Section 34, all in Township 9 South, Range 36 East, Lea County, New Mexico.

Wherefore, this applicant respectfully requests that the Commission set this application for public hearing, after notice, and that upon such hearing, the Commission issue its order fixing proration units for Devonian formation production in the Crossroads Pool, Lea County, New Mexico to consist of Eighty acres in area; that the Commission fix and establish well spacing in said formation and pool as Two wells for each quarter section (160 acres) according to United States Public Land Surveys; that such wells shall be located in the approximate center of the Northeast Quarter [redacted] and the Southwest Quarter [redacted] of each Governmental Quarter Section according to United States Public Land Surveys, with a tolerance of 150 feet allowed for surface obstructions; that the Commission also determine and fix the daily well allowable for all wells now or hereafter producing from the Devonian formation in said Crossroads Pool on Eighty-acre proration units.

Done this 14th day of June, 1948.

Respectfully submitted,
Mid-Continent Petroleum Corporation
by _____ Atty.,
Box 381, Tulsa, Okla.

(PROPOSED ORDER)

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

In the matter of the Hearing called by the Oil Conservation Commission of the State of New Mexico for the Purpose of Considering:

CASE NO._____

ORDER NO._____

The application of Mid-Continent Petroleum Corporation, Box 381, Tulsa, Oklahoma, for an order of the Commission to establish Eighty-Acre proration units; also to establish a uniform pattern for the spacing and drilling wells with allowance for tolerance for surface obstructions and for an order fixing and establishing allowables for wells drilled in the Crossroads Pool to a depth below 12,000 feet, Lea County, New Mexico. (Devonian Formation.)

ORDER OF THE COMMISSION

BY THE COMMISSION

This cause came on hearing at ten o' clock A.M., July 15, 1948, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission".

NOW, on the _____ day of _____, 1948, the Commission having before it for consideration the testimony adduced at the hearing of said case and being fully advised in the premises, the Commission finds:

F I N D I N G S

(1) That on May 6, 1948, the applicant, Mid-Continent Petroleum Corporation, completed an initial and exploratory test well located in the approximate center of the SW¼ of the SE¼ of Section 27, Township 9 South, Range 36 East, Lea County, New Mexico (Crossroads Pool), at a total depth of 12,258 feet; said well having been perforated from a depth of 12,115 feet to a depth of 12,215 feet, with an initial production of 995 barrels of oil, and no water, through a 3/4" choke, for a period of six (6) hours, twenty (20) minutes.

(2) That the probable area has been delineated and recommended by the Nomenclature Committee for Devonian production as discovered by the above described well as follows:

West half of Section 26,
All of Section 27,
East half of Section 28,
East half of Section 33,
All of Section 34,
West half of Section 35,
All in Township 9 South,
Range 36 East, Lea County,
New Mexico.

That the discovery producing well in center of SW¼ SE¼ of Section 27, and the drilling wells in center of NE¼ NE¼ of Section 33, and center of NE¼ NW¼ of Section 34, center of NE¼ SW¼ of Section 27, and center of SW¼ SW¼ of Section 26, all are within the probable area as above described;

That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable area as above delineated or any extention thereto, so as to insure a proper and uniform spacing, developing, and producing plan for all wells in this common source of supply.

(3) That due to conditions established by the aforesaid discovery well the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

(4) That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superceded.

(5) That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing, and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials.

(6) That in the interest of the State of New Mexico and in the interest of the general public, encouragement should be given to operators to explore and develop the natural resources of the State by the establishment of a proper and equitable spacing and development program.

IT IS THEREFORE ORDERED:

SECTION 1. That the Mid-Continent, Sawyer No. 1 Well, located in the center of SW¼ SE¼ of Section 27, is producing from the Devonian formation a new common source of supply not heretofore discovered and produced in the State, and that the probable area for such production is as follows:

West half of Section 26,
All of Section 27,
East half of Section 28,
East half of Section 33,
All of Section 34,
West half of Section 35,
All in Township 9 South,
Range 36 East, Lea County,
New Mexico.

That this order is meant to cover all of the Devonian formation common source of supply productive in the Mid-Continent, Sawyer No. 1, located in center of SW¼ SE¼ of Section 27, and any well drilled within, or outside the area spaced herein, to the same common source of supply as an extension thereof, shall be drilled on the pattern provided for herein.

SECTION 2. That 80-acre spacing and drilling units be established as hereinafter provided for the production of oil and gas from the Devonian formation underlying the area as hereinabove set forth.

SECTION 3. That each governmental quarter section be divided into two rectangular spacing units by a line drawn through such quarter section, all as shown on a plat attached hereto, and made a part hereof, and marked Exhibit "A", with the wells to be drilled, one in the center of NE quarter and one in the center of SW quarter of each quarter section, all as shown on Exhibit "A"; however, if surface conditions justify, locations may be made within a radius of 150' from the centers thereof, provided further, however, that the units within a quarter section, as established by this order as shown on Exhibit "A", may be changed by agreement of the operators within said quarter section upon proper showing to the Commission.

SECTION 4. That the allowable be assigned on the basis of proration units as herein established, and any proration unit of less than the normal one-half of a governmental quarter section as the result of an exception granted by the Commission after notice and hearing, shall be assigned an allowable in proportion to the assignable acreage of that unit as it bears to the normal one-half of a governmental quarter section.

SECTION 5. That the daily oil allowable of a normal unit of one-half of a quarter section be assigned a proportional factor of 6.75 for the pool depth range of 12,000 - 13,000 feet supplementing Order No. 657, so as to provide an allowable in proper relationship to the other depth ranges in said order.

SECTION 6. All rules, regulations and orders heretofore issued by this Commission which may conflict herewith are superseded.

SECTION 7. That this order shall become effective on _____, 1948.

SECTION 8. The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law.

DONE at Santa Fe, New Mexico, this _____ day of _____, 1948.

OIL CONSERVATION COMMISSION
State of New Mexico

_____
Chairman

_____
Member

_____
Secretary

MID-CONTINENT PETROLEUM CORPORATION

GENERAL OFFICES TULSA, OKLA.

A. E. PIERCE
VICE PRESIDENT

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO.
RECEIVED
JUN 21 1948

June 18, 1948

Operators in Crossroads Pool Area
Lea County, New Mexico

Gentlemen:

Mid-Continent Petroleum Corporation has filed an application with the New Mexico Oil Conservation Commission regarding uniform spacing, proration units and allowable for the Crossroads Pool. We enclose a copy of the application for your files.

The date for the hearing, we understand, is tentatively set for July 15, 1948. It is our intention to have a meeting of the operators at 3 P. M. July 14, and we have arranged for a conference room at the La Fonda Hotel, Santa Fe, for this meeting. In case the date of the hearing is changed, the meeting will be held the day before the hearing.

Yours very truly,

MID-CONTINENT PETROLEUM CORPORATION

By _____
A. E. Pierce, Vice President

MBP/rs

encl.

C O R R E C T I O N

Application below is a correction of similar application distributed by this office June 16, 1948. Correction made by Mr. Penn, Mid-Continent Petroleum Corp., Tulsa, Oklahoma.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

In the matter of the application of Mid-Continent Petroleum Corporation, Box 381, Tulsa, Oklahoma, for an order of the Commission to establish Eighty-acre proration units; also to establish a uniform pattern for the spacing and drilling of wells with allowance for tolerance for surface obstructions and for an order fixing and establishing allowables for wells drilled in the Crossroads pool to a depth below 12,000 feet, Lea County, New Mexico. (Devonian formation).

CASE NO. _____
ORDER NO. _____

A P P L I C A T I O N

Comes now Mid-Continent Petroleum Corporation, Tulsa, Oklahoma, and makes the following representations unto the Oil Conservation Commission of the State of New Mexico, to-wit:

That his application pertains only to the producing formation (Devonian) from which oil is now being produced at a depth below 12,000 feet in the Crossroads Pool, the probable area of which has heretofore been delineated and recommended by the Nomenclature Committee, located in Lea County, New Mexico.

That one such well is presently producing in said pool; it being located in the approximate center of the Southwest quarter of the Southwest quarter of Section 27, Township 9 South, Range 36 East.

That drilling, or operations for drilling, has commenced on Four locations in said pool in addition to the discovery well above referred to; said locations being as follows; Center of Southwest quarter of Southwest quarter of Section 26, Center of Northeast quarter of Southwest quarter of Section 27; Center of Northeast quarter of Northeast quarter of Section 33; Center of Northeast quarter of Northwest quarter of Section 34; all in Township 9 South, Range 36 East, Lea County, New Mexico.

Wherefore, this applicant respectfully requests that the Commission set this application for public hearing, after notice, and that upon such hearing, the Commission issue its order fixing proration units for Devonian formation production in the Crossroads Pool, Lea County, New Mexico to consist of Eighty acres in area; that the Commission fix and establish well spacing in said formation and pool as Two wells for each quarter section (160 acres) according to United States Public

APPLICATION CONT'D

Land Surveys; that such wells shall be located in the approximate center of the Northeast Quarter and the Southwest Quarter of each Governmental quarter section according to United States Public Land Surveys, with a tolerance of 150 feet allowed for surface obstructions; that the Commission also determine and fix the daily well allowable for all wells now or hereafter producing from the Devonian formation in said Crossroads Pool on Eighty-acre proration units.

Done this 14th day of June, 1948.

Respectfully submitted,

Mid-Continent Petroleum Corporation
by Atty.
Box 381, Tulsa, Oklahoma

LEA COUNTY OPERATORS COMMITTEE
HOBBS, NEW MEXICO
June 17, 1948

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO.

In the matter of the application of Mid-Continent Petroleum Corporation, Box 381, Tulsa, Oklahoma, for an order of the Commission to establish Eighty-acre proration units; also to establish a uniform pattern for the spacing and drilling of wells with allowance for tolerance for surface obstructions and for an order fixing and establishing allowables for wells drilled in the Crossroads pool to a depth below 12,000 feet, Lea County, New Mexico. (Devonian formation)

Case
~~Cause~~ No. 148
Order No. _____

APPLICATION.

Comes now Mid-Continent Petroleum Corporation, Tulsa, Oklahoma, and makes the following representations unto the Oil Conservation Commission of the State of New Mexico, to-wit:

That this application pertains only to the producing formation from which oil is now being produced at a depth below 12,000 feet in the Crossroads Pool, the probable area of which has heretofore been delineated and recommended by the Nomenclature Committee, located in Lea County, New Mexico. (Devonian formation)

That one such well is presently producing in said pool; it being located in the apporximate center of the Southwest quarter of the Southeast quarter of Section 27, Township 9 South, Range 36 East.

That drilling, or operations for drilling, has commenced on Four locations in said pool in addition to the discovery well above referred to; said locations being as follows: Center of Southwest quarter of Southwest quarter of Section 26; Center of Northeast quarter of Southwest quarter of Section 27; Center of Northeast quarter of Northeast quarter of Section 33; Center of Northeast quarter of Northwest quarter of Section 34, all in Township 9 South, Range 36 East, Lea County, New Mexico.

Wherefore, this applicant respectfully requests that the Commission set this application for public hearing, after notice, and that upon such hearing, the Commission issue its order fixing proration units for Devonian formation production in the Crossroads Pool, Lea County, New Mexico to consist of Eighty acres in area; that the Commission fix and establish well spacing in said formation and pool as Two wells for each quarter section (160 acres) according to United States Public Land Surveys; that such wells shall be located in the approximate center of the Northeast Quarter [redacted] and the Southwest Quarter [redacted] of each Governmental Quarter Section according to United States Public Land Surveys, with a tolerance of 150 feet allowed for surface obstructions; that the Commission also determine and fix the daily well allowable for all wells now or hereafter producing from the Devonian formation in said Crossroads Pool on Eighty-acre proration units.

Done this 14th day of June, 1948.

Respectfully submitted,
Mid-Continent Petroleum Corporation
by J. M. Brooks Atty.,
Box 381, Tulsa, Okla.

Case No.

149 Exhibits

Application, Transcript,
Small Exhibits, Etc.

IN THE DISTRICT COURT OF LEA COUNTY, NEW MEXICO

IN THE MATTER OF THE PETITION OF MID-CONTINENT PETROLEUM CORPORATION AND MAGNOLIA PETROLEUM COMPANY FOR REVIEW AND APPEAL OF PROCEEDING BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 AND FROM ORDERS NO. R-100 and No. R-100-B ENTERED THEREIN.

CASE NO. 9910

PETITION FOR REVIEW

Comes, now Mid-Continent Petroleum Corporation and Magnolia Petroleum Company, and for their petition for the review of the action of the Oil Conservation Commission of the State of New Mexico in the above styled and numbered case, alleges and states:

1. That Case No. 149 originally came on to be heard before the Oil Conservation Commission of New Mexico on July 15, 1948 upon the application of the Mid-Continent Petroleum Corporation. Based upon the uncontroverted evidence and testimony presented in the July 15, 1948 hearing, the Commission on July 27, 1948 entered Order No. 779 in Case No. 149. Order No. 779 was based on a finding by the Commission

> "That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable area as above delineated or any extension thereto, so as to insure a proper and uniform spacing, developing, and producing plan for all wells in this common source of supply.
>
> 3. That due to conditions established by the aforesaid descovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

4. That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superseded.

5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials."

By the terms and provisions of Order No. 779, the Commission established eighty (80) acre spacing and drilling units for the Crossroads-Devonian Reservoir, Lea County, New Mexico effective August 16, 1948.

2. Section 19 (a), Chapter 168 of the Laws of New Mexico of 1949 grants the right to any person affected by an order of the Oil Conservation Commission to apply for a rehearing in the case within twenty (20) days after the order being complained of is entered. Order No. 779 was entered and signed July 27, 1948 and became final twenty (20) days thereafter when no interested party filed an application for rehearing in the case.

3. The Crossroads-Devonian pool was developed by Magnolia Petroleum Company, Mid-Continent Petroleum Corporation, and the Oil Development Company of Texas pursuant to and in accordance with the specific provisions of Order No. 779. Nine test wells had been drilled and a tenth was being drilled to the Devonian formation by the pool operators when this matter was last before the Commission. Over three million dollars has been spent in developing this pool in reliance upon Order No. 779

of the Oil Conservation Commission. A copy of Order No. 779 is attached as "Exhibit A" and made a part hereof. A plat showing the development of this pool as it existed when this case was last before the Conservation Commission is attached as "Exhibit A-1" and made a part hereof.

4. (a) On September 2, 1950, U. D. Sawyer and Dessie Sawyer filed an "Information" with the New Mexico Oil Conservation Commission. This "Information" prayed that the Commission rescind Order No. 779. A copy of said "Information" is attached as "Exhibit B" and made a part hereof.

(b) In response to the "Information" referred to above, the Oil Conservation Commission cited the operators of the Crossroads Devonian pool to appear before them in Santa Fe, New Mexico at 10:00 A. M., November 21, 1950 and show cause why Order No. 779 should be continued in effect.

(c) In response to the citation referrered to above, the operators of Crossroads-Devonian Pool appeared before the Conservation Commission on November 21, 1950.

The said operators filed a motion to have the matter dismissed on the grounds that the proceedings constituted a collarteral attack on Order No. 779. Order No. 779 had become final; rights obtained thereunder had become vested and millions of dollars had been spent in reliance upon the expressed terms and provisions of the order. This motion to dismiss was denied by the Commission.

Three experienced and technically trained petroleum engineers testified at the November 2, 1950 hearing. All three of these experts testified that one well would efficiently and economically drain eighty (80) acres in the Crossroads-Devonian Reservoir, and that it was unnecessary and wasteful to drill on any denser spacing pattern. The testimony of these three engineers was uncontroverted and undisputed at the hearing.

Notwithstanding this fact, the Commission failed to issue a definite order, but continued the matter until March 21, 1951.

5. At 10:00 A. M., March 21, 1951, Case 149 again came before the Conservation Commission to be heard. Mid-Continent Petroleum Corporation presented one (1) expert geologist and two (2) expert petroleum engineers. Magnolia Petroleum Company and the Oil Development Company of Texas each presented one (1) expert engineer. All five of these expert witnesses were familiar with the pool in question and all five had made a detailed study of the reservoir conditions. Each and every one of these witnesses testified that one well would efficiently and economically drain eighty (80) acres in this pool.

U. D. Sawyer and Dessie Sawyer presented one witness at the March 21, 1951 hearing. This witness' testimony was in part conflicting with that of the five (5) experts presented by the oil operators.

6. On October 15, 1951, the Oil Conservation Commission of New Mexico issued Order No. R-100 in Case No. 149. By its expressed provisions Order No. R-100 rescinded Order No. 779. A copy of Order No. R-100 is attached as "Exhibit C" and made a part hereof.

7. Within the statutory time allowed Mid-Continent Petroleum Corporation, Magnolia Petroleum Company and the Oil Development Company of Texas filed an application for rehearing in Case No. 149. This rehearing was granted within the statutory time provided by law and the case again came before the Commission at 10:00 A. M., December 19, 1951. A copy of Mid-Continent Petroleum Corporation and Magnolia Petroleum Company's application for rehearing in Case No. 149 is attached as "Exhibit D" and made a part hereof.

(a) The petitioners for rehearing in Case No. 149 presented three expert petroleum engineers on December 19,

1951. Each of these men had worked in the Crossroads-Devonian Pool since its enception and were highly qualified to offer testimony in this case. These witnesses testified that one well would efficiently and economically drain 80 acres in the Crossroads-Devonian Reservoir and that no waste was occurring or had occurred through use of the 80 acre spacing pattern in the pool.

(b) U. D. Sawyer and Dessie Sawyer presented one expert witness at the December 19, 1951 hearing. This witness admitted that his study of the Crossroads-Devonian Reservoir was limited to 12 days. (Official transcript of December 19, 1951 hearing Page 99). This witness' testimony in part conflicted with the testimony of witnesses presented by the operators in the pool.

8. On March 6, 1952 the Oil Conservation Commission of New Mexico issued Order No. R-100-B in Case No. 149. A copy of this order is attached as "Exhibit E" and made a part hereof. Petitioner alleges that the Commission erred in issuing Order R-100-B in the following respects, to-wit:

(1) In rescinding Order No. 779 providing for 80 acre spacing in Crossroads-Devonian Reservoir.

(2) In completely ignoring and disregarding the preponderance of the evidence and weight of the testimony presented before the Commission.

(3) In denying this petitioner's motion to dismiss the collateral attack on Order No. 779 in Case No. 149.

(4) In failing to find that one well in the Crossroads-Devonian Reservoir would efficiently and economically drain 80 acres.

(5) In failing to find that no waste or impairment of correlative rights had occurred or is occurring under the 80 acre spacing program in the Crossroads-Devonian Reservoir.

(6) In ordering that 40 acre proration units be established for the Crossroads-Devonian Pool. This finding and order is clearly against the weight and preponderance of the evidence and contrary to Section 13 (b), Chapter 168 of the Laws of the State of New Mexico, 1949.

(7) In failing to base an order in Case NO. 149 upon the clear preponderance of the evidence before the Commission.

9. Petitioner further alleges that:

(1) Orders R-100 and R-100-B referred to above are contrary to the law and the evidence in this case, and should be reversed and held for naught. These orders if allowed to remain in full force and effect will result in the drilling of numerous unnecessary wells and needless expenditure of hundreds of thousands of dollars contrary to expressed provisions of Section 13 (b), Chapter 168 of the Laws of the State of New Mexico, 1949. This drilling of unnecessary wells creates fire and other hazards conducive to waste, and unnecessarily increases the production cost of oil or gas or both to the operator, and thereby also unnecessarily increases the cost of the products to the ultimate consumer. These orders referred to above, if allowed to remain in effect, will necessitate the needless and wasteful expenditure of thousands of tons of steel tubular goods at a time when steel is critical and so badly needed for National Defense.

(2) That Mid-Continent Petroleum Corporation and Magnolia Petroleum Company are the owners and operators of valid and producing oil leases within the Crossroads-Devonian Pool located in Lea County, New Mexico, and that this court has jurisdiction of this petition for review.

(3) That all of the matters and issues herein presented were heretofore presented to the Oil Conservation

Commission in Petitioners' Application for Rehearing and in the hearing granted pursuant thereto.

WHEREFORE, Petitioners respectfully pray the court, as authorized by Section 19b, Chapter 168 of the Laws of the State of New Mexico, 1949, that notice of this petition for review be served in the manner provided for the service of summons in civil proceedings upon the adverse parties, U. D. Sawyer and Dessie Sawyer, who reside in Lea County, New Mexico, and upon the Oil Conservation Commission of New Mexico by service upon R. R. Spurrier, Secretary and member of the Oil Conservation Commission, who resides and has his office in Santa Fe, New Mexico, and that this petition be set for trial, and upon the hearing thereof that this court review the action of the Oil Conservation Commission herein complained of and to enter its order vacating the orders of the Commission hereinabove referred to and to enter its order in lieu thereof establishing eighty (80) acre proration and drilling units in the Crossroads-Devonian Reservoir, Lea County, New Mexico, and that Order No. 779 originally entered in Case No. 149 be affirmed and made permanent in all respects.

HERVEY, DOW & HINKLE

By (Signed)
H. M. DOW

(Signed)
ROSS MADDUX

(Signed)
J. H. CROCKER

(Signed)
W. E. McKELLAR, JR.

ATTORNEYS FOR PETITIONER,
MID-CONTINENT PETROLEUM CORPORATION
TULSA, OKLAHOMA

ATTORNEYS FOR PETITIONER,
MAGNOLIA PETROLEUM COMPANY
BOX 900, DALLAS, TEXAS

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 149

ORDER NO. 779

THE APPLICATION OF MID-CONTINENT PETROLEUM CORPORATION, TULSA, OKLAHOMA, FOR AN ORDER OF THE COMMISSION TO ESTABLISH EIGHTY-ACRE PRORATION UNITS; ALSO TO ESTABLISH A UNIFORM PATTERN FOR THE SPACING AND DRILLING WELLS WITH ALLOWANCE FOR TOLERANCE FOR SURFACE OBSTRUCTIONS AND FOR AN ORDER FIXING AND ESTABLISHING ALLOWABLES FOR WELLS DRILLED IN THE CROSSROADS POOL TO A DEPTH BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO. (DEVONIAN FORMATION.)

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 10:00 o'clock a.m., July 15, 1948, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission."

NOW, on this the 27th day of July, 1948, the Commission having before it for consideration the testimony adduced at the hearing of said case and being fully advised in the premises:

FINDS:

1. That on May 6, 1948, the applicant, Mid-Continent Petroleum Corporation, completed an initial and exploratory test well located in the approximate center of the SW¼ of the SE¼ of section 27, Township 9 South, Range 36 East, Lea County, New Mexico (Crossroads Pool), at a total depth of 12,258 feet; said well having been perforated from a depth of 12,115 feet to a depth of 12,215 feet, with an initial production of 995 barrels of oil, and no water, through a 3/4-inch choke, for a period of six (6) hours, twenty (20) minutes.

2. That the probable area has been delineated and recommended by the Nomenclature Committee for Devonian production as discovered by the above described well as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That the discovery producing well in center of SW¼ SE¼ section 27, and the drilling wells in center of NE¼ NE¼ section 33, and center of NE¼ NW¼ of section 34, center of NE¼ SW¼ section 27, and center of SW¼ SW¼ section 26, all are within the probable area as above described;

"EXHIBIT A"

That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable area as above delineated or any extension thereto, so as to insure a proper and uniform spacing, developing, and producing plan for all wells in this common source of supply.

3. That due to conditions established by the aforesaid discovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

4. That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superseded.

5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials.

6. That in the interest of the State of New Mexico and in the interest of the general public, encouragement should be given to operators to explore and develop the natural resources of the State by the establishment of a proper and equitable spacing and development program.

IT IS THEREFORE ORDERED:

SECTION 1. That the Mid-Continent, Sawyer No. 1 well, located in the center of the SW¼ SE¼ Section 27, is producing from the Devonian formation, a new common source of supply not heretofore discovered and produced in the State, and that the probable area for such production is as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That this order is meant to cover all of the Devonian formation common source of supply productive in the Mid-Continent, Sawyer No. 1, located in the center of the SW¼ SE¼ section 27, and any well drilled within, or outside the area spaced herein, to the same common source of supply as an extension thereof, shall be drilled on the pattern provided for herein.

SECTION 2. That 80-acre spacing and drilling units be established as hereinafter provided for the production of oil and gas from the Devonian formation underlying the area as hereinabove set forth.

SECTION 3. That each governmental quarter section be divided into two rectangular spacing units by a line drawn through such quarter section, all as shown on a plat attached hereto, and made a part hereof, and marked Exhibit "A", with the wells to be drilled, one in the center of the northeast quarter and one in the center of the southwest quarter of each quarter section, all as shown on Exhibit "A"; however, if surface conditions justify, locations may be made within a radius of 150 feet from the centers thereof, provided further, however, that the units within a quarter section, as established by this order as shown on Exhibit "A", may be changed by agreement of the operators within said quarter section upon proper showing to the Commission.

SECTION 4. That the allowable be assigned on the basis of proration units as herein established, and any proration unit of less than the normal one-half of a governmental quarter section as the result of an exception granted by the Commission after notice and hearing, shall be assigned an allowable in proportion to the assignable acreage of that unit as it bears to the normal one-half of a governmental quarter section.

SECTION 5. That the daily oil allowable of a normal unit of one-half of a quarter section assigned to the discovery well and all other wells hereafter drilled and produced in accordance with the terms of this order shall be the proportional factor of 6.75 times top allowable until such time as the Commission may issue such further and additional orders as may be deemed necessary.

SECTION 6. All rules, regulations and orders heretofore issued by this Commission which may conflict herewith are superseded, only with respect to Devonian formation production below 12,000 feet in the Crossroads Pool.

SECTION 7. That this order shall become effective on August 16, 1948.

SECTION 8. The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law.

DONE at Santa Fe, New Mexico, this 27th day of July, 1948.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

(Signed)
THOMAS J. MABRY, Chairman

JOHN E. MILES, Member

(Signed)
R. R. SPURRIER, Secretary

SEAL

MID-CONTINENT PET. CORP.

Drlg. Started June '48
Completed Feb. 49

● 1

MID-CONTINENT PET. CORP.

Drlg. Started June '50
Comp. Feb. '51

● 1

U. S. SAWYER "C"

MID-CONTINENT PET. CORP.

Drlg. Started Sept. '47
Completed May '48

● 1

Drlg. Started May '48
Completed Jan. '49

● 1

Drlg. Started May '48
Abandoned Feb. '50

1

Drilled by
Shasky Oil Co.

Drlg. Started June '48
Completed March 49

1

Drilled by
Mid-Continent Pet. Corp.

Exhibit A-1

U.S. SAWYER

J. E. WARREN

U.D. SAWYER "B"

MAGNOLIA

GULF

27

34

BEFORE THE OIL CONSERVATION COMMISSION

"EXHIBIT B"

OF THE STATE OF NEW MEXICO

IN THE MATTER OF ORDER NO. 779, MADE BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 149 ON JULY 27, 1948, UPON THE APPLICATION OF THE MID-CONTINENT PETROLEUM CORPORATION, ESTABLISHING THE 80-ACRE DRILLING PATTERN AND PRORATION UNIT FOR THE CROSSROADS DEVONIAN FIELD BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

CASE NO. 149

INFORMATION

Come now U. D. Sawyer and Dessie Sawyer, and respectfully show to the Commission as follows:

1.

That they are husband and wife, and residents of Crossroads, Lea County, New Mexico, and that they are the owners of an undivided 11/12ths interest in the oil, gas and other minerals in and under the following described lands in Township 9 South, Range 36 East, in the Crossroads Devonian Field, in Lea County, New Mexico, to-wit:

$E\frac{1}{2}$	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
$SW\frac{1}{4}$	Section 27	Subject to lease held by Mid-Continent Petroleum Corporation
$NE\frac{1}{4}$	Section 33	Not leased
$N\frac{1}{2}$ $SW\frac{1}{4}$	Section 35	Subject to lease held by Gulf Oil Corporation
$N\frac{1}{2}$	Section 34	Mid-Continent lease, terminated by non-payment of rental
$SE\frac{1}{4}$	Section 34	

Containing 1,200 acres, more or less.

2.

That on May 6, 1948, the Mid-Continent Petroleum Corporation completed its discovery well know as the Mid-Continent-Sawyer No. 1 in the $SW\frac{1}{4}SE\frac{1}{4}$ of Section 27, Township 9 South, Range 36 East, at a total depth of 12,258, as a substantial producer from the Devonian formation; and that soon thereafter and on July 27, 1948, and upon the application of the Mid-Continent Petroleum Corporation, the Oil Conservation Commission of the State of New Mexico adopted its Order No. 779 in case No. 149, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in an area

comprising 2,560 acres, including most of the lands of these informants, in a four-section square, known as the Crossroads Devonian Field, and embracing the following described lands in said township and range, to-wit:

West Half	Section 26
All	Section 27
East Half	Section 28
East Half	Section 33
All	Section 34
West Half	Section 35

and that in said Order the Oil Conservation Commission of the State of New Mexico specifically retained jurisdiction of the case for the purpose of issuing such further and additional orders as might be necessary to meet changed conditions, preclude inequities and preserve correlative rights.

3.

That thereafter three additional wells were drilled in said area and resulted in successful production of oil from the Devonian formation below 12,000 feet, which wells are known and identified as follows:

Mid-Continent Dessie Sawyer	NE¼SW¼ Section 27
Mid-Continent Sawyer D	SW¼NE¼ Section 27
Magnolia - Santa Fe - 1-C	SW¼SW¼ Section 26

and three other wells were drilled in said area to depths considered sufficient to test the Devonian formation below 12,000 feet and then abandoned as dry holes, which wells are known and identified as follows:

Mid-Continent Sawyer - 1-B	NE¼NW¼ Section 34
Skelly Oil Co. - Sawyer - 1	NE¼NE¼ Section 33
Oil Development Co-Santa Fe-1	SW¼NW¼ Section 27

and two other wells were drilled in said area resulting in successful production from the Pennsylvanian formation at depths of approximately 9,700 feet, which wells are known and identified as follows:

Magnolia- Santa Fe-1-B	NE¼SE¼ Section 28
Magnolia- Santa Fe-1-D	SW¼SE¼ Section 22 (outside Devonian Field)

and three other wells are now drilling in said area, which wells are known and identified as follows:

Mid-Continent-Sawyer-1-C	NE¼SE¼ Section 27
Oil Development Co-Santa Fe-2-27	SE¼NW¼ Section 27
Oil Development Co-Santa Fe-1-22	SW¼SW¼ Section 22 (outside Devonian Field)

and that a plat, showing the location of all of said wells, is hereto attached, marked Exhibit "A" and made a part hereof.

4.

That at the time of the adoption of such Devonian 80-acre spacing pattern there was only one producing well in the Crossroads Field, that being the discovery well known as the Mid-Continent-Sawyer-1 in the SW¼SE¼ of Section 27, and that said 80-acre spacing pattern was not based on past experience in said field, but was adopted as an exception to the Statewide normal 40-acre spacing pattern on the assumption that oil would be encountered in the Devonian formation below 12,000 feet under all of the lands comprising such four-section Devonian Field, and was adopted in anticipation of other circumstances and conditions then assumed to exist.

5.

That experience in the drilling of the dry holes known as Mid-Continent-Sawyer-1-B in the NE¼NW¼ of Section 34 and the Skelly-Sawyer-1 in the NE¼NE¼ of Section 33 has demonstrated that the lands south of the discovery well were not productive of oil from the Devonian formation, and that experience in the drilling of the dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27 has demonstrated that the lands in the west half of the Northwest Quarter of Section 27 were not productive of oil from the Devonian formation; and that of all of the wells drilled in or near such Crossroads Devonian Field, four have encountered oil in the Devonian formation below 12,000 feet, three have been abandoned as dry holes after being drilled to depths below 12,000 feet, and two have been completed as producers from the Pennsylvanian formation at depths of approximately 9,700 feet.

6.

That after the completion of its dry hole known as Oil Development Company-Santa Fe-1 in the SW¼NW¼ of Section 27, and on or about January 11, 1950, the Santa Fe Pacific Railroad Company and Oil Development Company of Texas

abandoned such 80-acre spacing pattern, and obtained permission from the Oil Conservation Commission to depart from such 80-acre pattern and to locate its Oil Development Co-Santa Fe-2-27 in the SE¼NW¼ of Section 27, as a direct westerly offset to the Mid-Continent-Sawyer-D and as a direct northerly offset to the Mid-Continent-Dossie Sawyer No. 1, and that such Oil Development Co-Santa Fe-2-27 is now drilling at such location, intended to ultimately test the Devonian formation below 12,000 feet.

7.

That these informants are now entitled to offset wells in the NW¼SW¼ of Section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-B in the NE¼SE¼ of section 28 and in the NW¼NE¼ of section 27 to protect against drainage in the Pennsylvanian formation by the Magnolia-Santa Fe-1-D in the SW¼SE¼ of Section 22; that the two locations at which they are now entitled to offset wells are midway between producing Devonian wells upon their lands and producing Pennsylvanian wells upon lands not owned by them, and that if the Oil Development Co-Santa Fe-2-27 now drilling in the SE¼NW¼ of Section 27 should be successful in encountering the Devonian formation, it would be reasonable to assume that each of such offset wells should also be drilled into the Devonian formation, and by reason of the implied covenants of the oil and gas leases covering such lands they would be entitled to the drilling of such wells into the lower or Devonian formation, but that under the present 80-acre spacing pattern, Devonian wells are not to be located or drilled at either of such locations.

8.

These informants respectfully show to the Commission that drilling experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that such Devonian 80-acre pattern should be further continued in effect as an exception to the normal Statewide 40-acre spacing pattern; that these informants have a valuable property interest in the oil, gas and other minerals in and under and that may be produced from their lands above described, and that if such Devonian 80-acre pattern be continued in effect after subsequent facts and circumstances have failed to demonstrate that the same should be so continued, the value of their property interest will be unjustly diminished and

and the marketability thereof unduly impaired, and that inequities and injustices will result.

WHEREFORE, these informants pray that the Oil Conservation Commission take notice that experience in such Crossroads Devonian Field and the facts and circumstances subsequent to the adoption of its Order No. 779 establishing such Devonian 80-acre spacing pattern have not demonstrated, in and of themselves, that the same should be further continued in effect as an exception to the Statewide normal 40-acre spacing pattern, and that the Commission, upon its own motion, require the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, and any other interested parties, to show cause, if any it or they may have, why such Order No. 779 should be further continued in effect, and that upon the hearing in this matter, if said parties fail to show proper cause for the continuation of said Order No. 779, that the same be rescinded by the Commission.

Dated at Lovington, New Mexico, this 2nd day of September, 1950, and respectfully submitted.

s/ G. T. Hanners
Attorney for Sawyers
Lovington, New Mexico

Distributed
By Proration Department
October 19, 1950

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

EXHIBIT "C"

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO UPON ITS OWN MOTION FOR THE PURPOSE OF RECONSIDERING:

CASE NO. 149
ORDER NO. R-100

ORDER NO. 779 OF THE OIL CONSERVATION COMMISSION OF NEW MEXICO ENTERED IN CASE NO. 149 ON JULY 27, 1948, ESTABLISHING 80-ACRE SPACING AND PRORATION UNITS FOR THE CROSSROADS (DEVONIAN) POOL BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing on July 15, 1948, and for further hearings on November 21, 1950 and March 21, 1951, in Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 15th day of October, 1951, the Commission, a quorum being present, having fully considered the testimony adduced at said hearings, the record made in this case, and the exhibits received, and being fully advised in the premises,

FINDS, (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause, the persons and subject matter thereof.

(2) That the Commission, after due notice and hearing, entered its Order No. 779 on July 27, 1948, whereby 80-acre spacing and drilling units were established for the production of oil and gas from the Devonian formation below 12,000 feet, underlying the Crossroads Devonian pool, as is more fully described and defined in said Order No. 779, and set the daily oil allowable of a normal unit for said Crossroads Devonian pool, as an exception to the general 40-acre spacing pattern and drilling unit as theretofore established and promulgated by the Rules and Regulations of this Commission.

(3) That by Section 8 of Order No. 779, the Commission retained jurisdiction of this case for the purpsoe of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights.

(4) That pursuant to its retained jurisdiction, the Commission, after due notice as required by law, held hearings on November 21, 1950, and March 21, 1951, for the purpose of taking additional testimony and receiving further evidence in this cause.

(5) That there was substantial evidence, though controverted to some extent, that waste and impairment of correlative rights will result if 80-acre spacing as provided for in Order No. 779 is continued in effect.

(6) That there was no showing that pressure maintenance or other secondary recovery methods were under consideration by operators in the pool as a matter of preventing waste and protecting correlative rights.

IT IS THEREFORE ORDERED:

1. That Order No. 779 in this Case No. 149, dated July 27, 1948, be, and the same hereby is rescinded.

2. Nothing contained herein shall be construed to be a determination by the Commission as to what constitutes "reasonable development" of any lease in the pool in relation to the implied covenants of any such lease.

3. Nothing contained herein shall be construed to require the drilling of one well on each 40-acre tract in the pool.

4. The effective date of this order shall be November 1, 1951.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

(Signed)
EDWIN L. MECHEM, Chairman

(Signed)
GUY SHEPARD, Member

(Signed)
R. R. SPURRIER, Secretary

SEAL

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

EXHIBIT "D"

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF NEW MEXICO UPON ITS OWN MOTION FOR THE PURPOSE OF RECONSIDERING:

CASE NO. 149
ORDER NO. R-100-A

ORDER NUMBER 779 OF THE OIL CONSERVATION COMMISSION OF NEW MEXICO ENTERED IN CASE NUMBER 149 ON JULY 27, 1948, ESTABLISHING 80-ACRE SPACING AND PRORATION UNITS FOR THE CROSSROADS (DEVONIAN) POOL BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION FOR REHEARING

This cause came on for hearing upon the petition and motion of Mid-Continent Petroleum Corporation and Magnolia Petroleum Company, filed October 31, 1951, for a rehearing on Order Number R-100 heretofore rendered by this Commission whereby Commission Order No. 779 dated July 27, 1948 was rescinded, in which petition Santa Fe Pacific Railroad Company, and Oil Development Company of Texas join.

NOW, on this 9th day of November, 1951, the Commission, a quorum being present, having fully considered said motion and application,

IT IS HEREBY ORDERED, That the above entitled matter be reopened and that a rehearing in said cause be held on December 19, 1951, at 10 a. m. at Santa Fe, New Mexico, or at such other time or times as the Commission may designate after due notice, at which time and place all interested parties may appear.

IT IS FURTHER ORDERED, That the effective date for the operation of Commission Order Number R-100 be, and the same hereby is suspended pending further order of the Commission.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

(Signed)
EDWIN L. MECHEM, Chairman

(Signed)
GUY SHEPARD, Member

(Signed)
R. R. SPURRIER, Secretary

SEAL

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

EXHIBIT "E"

IN THE MATTER OF PETITION OF
MID-CONTINENT PETROLEUM COMPANY,
MAGNOLIA PETROLEUM COMPANY, AND
OTHERS REQUESTING A REHEARING TO
RESCIND OIL CONSERVATION COMMISSION
ORDER R-100 RELATING TO SPACING IN
THE CROSSROADS POOL (Lea County, New Mexico)

CASE NO. 149
ORDER NO. R-100-B

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause having come on for special hearing at 10:00 o'clock December 19, 1951, at Santa Fe, New Mexico, before the Oil Conservation Commission hereinafter called the "Commission", upon the application of Mid-Continent Petroleum Company, Magnolia Petroleum Company, Oil Development Company of Texas and Santa Fe Pacific Railroad Company for a rehearing in the matter of oil well spacing in the Crossroads-Devonian pool, Lea County, New Mexico, and for the rescission of the Commission's Order No. R-100 relating thereto;

NOW, on this 6th day of March 1952, the Commission, a quorum being present, having considered the testimony adduced and the exhibits received at said hearing, and being otherwise fully advised in the premises finds:

1. That an active water drive is present within the Crossroads Devonian pool.

2. That the loss of the bottom-hole pressure during the life of the field, three years, has been approximately 28 lbs., half of which loss has occurred within the last seven months.

3. From the evidence it appears that core analyses taken within the Crossroads-Devonian formation show a wide range of permeability and porosity within the pool.

4. That the water-drive movement can be made more uniform through the permeable channels of the formation by the adoption of a 40-acre spacing pattern than can be obtained by an 80-acre spacing program.

5. That the combination of the active water drive within the field and the non-uniform permeability within the formation has the inherent danger of channeling water when wells are produced at high daily per-well rates, and that a 40-acre spacing program would permit the continued producing capacity of said reservoir at lower daily per-well rates, would reduce the tendency of the water channeling or coning, and would minimize the danger of the by-passing of oil within said reservoir by reason of a more uniform encroachment of the water.

6. That a proration unit of 40 acres should be established in the Crossroads-Devonian pool, Lea County, New Mexico, as being the area necessary for one well to effectively, efficiently and economically drain and develop said reservoir and to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED, That petitioners' application be and the same hereby is denied and the Commission's Order No. R-100 be and the same hereby is affirmed in all respects, except the finding of fact No. 6 is hereby withdrawn.

IT IS FURTHER ORDERED, That a proration unit of 40 acres per well be and the same hereby is established for the Crossroads Devonian pool, Lea County, New Mexico.

DONE at Santa Fe, New Mexico, on the day and year hereinabove written.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

(Signed)
EDWIN L. MECHEM, Chairman

(Signed)
GUY SHEPARD, Member

(Signed)
R. R. SPURRIER, Secretary

SEAL

New Mexico
OIL CONSERVATION COMMISSION

GOVERNOR EDWIN L. MECHEM
CHAIRMAN

LAND COMMISSIONER GUY SHEPARD
MEMBER

STATE GEOLOGIST R. R. SPURRIER
SECRETARY AND DIRECTOR

P. O. BOX 871
SANTA FE, NEW MEXICO

M E M O R A N D U M

To: R. R. Spurrier and W. B. Macey

From: George Graham

SUBJECT: Case 149

Observing the material prepared in connection with the Crossroads matter, and in view of the statutes, I suggest that you cause a mimeograph to be prepared of Mid-Continent et al's petition for rehearing. This would be a great conveneince to the legal staff in studying the court petition, for review preparatory for our answer.

G. G.

GG:nr

We're already rallying on it upon

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

IN THE MATTER OF WELL SPACING
IN THE CROSSROADS DEVONIAN
RESERVOIR

CASE 149
ORDER NO. R-100

APPLICATION FOR REHEARING

TO SAID CONSERVATION COMMISSION:

Comes now MID-CONTINENT PETROLEUM CORPORATION and MAGNOLIA PETROLEUM COMPANY, interested parties in the above styled and numbered cause, and file this, their application for rehearing in the above styled and numbered cause, upon the following grounds, to-wit:

1.

Six and one-half months elapsed between the hearing in the above styled and numbered case and the date on which said order No.R-100 was signed and entered. During this six and one-half months the above petitioners have continued to gather reservoir data on the Crossroads Devonian Reservoir and have recently accumulated data which is highly pertinent and essential in a final determination of the case. This evidence is especially essential in view of the Commission's finding No. 6 on which order No. R-100 is predicated, namely that there was no showing that pressure maintenance or other secondary recovery methods were under consideration by operators in the pool as a matter of preventing waste and protecting correlative rights.

2.

These petitioners believe that the Commission erred in its finding No. 5, there being no substantial evidence in the record that one well would not drain eighty acres in the Crossroads Devonian Reservoir especially in view of the testimony of five highly qualified petroleum engineers that one well would drain eighty acres in the Crossroads Devonian Revervoir without creating waste and without the impairment of correlative rights.

3.

The petitioners allege that order No. R-100 violates the clear language and intent of Section 13 (b) in chapter 168 of the laws of New Mexico of 1949. This statute reads as follows:

> "No owner of a property in a pool shall be required by the Commission, directly or indirectly, to drill more wells than are reasonably necessary to secure his proportionate part of the production. To avoid the drilling of unnecessary wells a proration unit for each pool may be fixed, such being the area which may be efficiently and economically drained and developed by one well. The drilling of unnecessary wells creates fire and other hazards conducive to waste, and unnecessarily increases the production cost of oil or gas or both to the operator, and thus also unnecessarily increases the cost of the products to the ultimate consumer."

The preponderance of the evidence presented to the Commission in case No. 149 was to the effect that one well would drain eighty acres in the Crossroads Devonian Reservoir and that wells drilled on a closer pattern as a field-wide rule were unnecessary, conducive to waste and therefore a violation of Section 13 (b) of the above statute.

WHEREFORE, premises considered, these petitioners request that the conservation Commission of New Mexico grant a rehearing in the above styled and numbered cause and further that order No. R-100 be suspended until such time as the Commission has had an opportunity to hear the testimony presented at the rehearing

(SIGNED) HIRAM M. DOW
HIRAM M. DOW
J. H. CROCKER
W. E. McKELLAR, JR.

ATTORNEYS FOR PETITIONERS

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 149

ORDER NO. 779

THE APPLICATION OF MID-CONTINENT PETROLEUM CORPORATION, TULSA, OKLAHOMA, FOR AN ORDER OF THE COMMISSION TO ESTABLISH EIGHTY-ACRE PRORATION UNITS; ALSO TO ESTABLISH A UNIFORM PATTERN FOR THE SPACING AND DRILLING WELLS WITH ALLOWANCE FOR TOLERANCE FOR SURFACE OBSTRUCTIONS AND FOR AN ORDER FIXING AND ESTABLISHING ALLOWABLES FOR WELLS DRILLED IN THE CROSSROADS POOL TO A DEPTH BELOW 12,000 FEET, LEA COUNTY, NEW MEXICO. (DEVONIAN FORMATION.)

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 10:00 o'clock a.m., July 15, 1948, at Santa Fe, New Mexico, before the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as the "Commission."

NOW, on this the 27th day of July, 1948, the Commission having before it for consideration the testimony adduced at the hearing of said case and being fully advised in the premises:

FINDS:

1. That on May 6, 1948, the applicant, Mid-Continent Petroleum Corporation, completed an initial and exploratory test well located in the approximate center of the SW¼ of the SE¼ of section 27, Township 9 South, Range 36 East, Lea County, New Mexico (Crossroads Pool), at a total depth of 12,258 feet; said well having been perforated from a depth of 12,115 feet to a depth of 12,215 feet, with an initial production of 995 barrels of oil, and no water, through a 3/4-inch choke, for a period of six (6) hours, twenty (20) minutes.

2. That the probable area has been delineated and recommended by the Nomenclature Committee for Devonian production as discovered by the above described well as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That the discovery producing well in center of SW¼ SE¼ section 27, and the drilling wells in center of NE¼ NE¼ section 33, and center of NE¼ NW¼ of section 34, center of NE¼ SW¼ section 27, and center of SW¼ SW¼ section 26, all are within the probable area as above described;

"EXHIBIT A"

That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable area as above delineated or any extension thereto, so as to insure a proper and uniform spacing, developing, and producing plan for all wells in this common source of supply.

3. That due to conditions established by the aforesaid discovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

4. That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superseded.

5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials.

6. That in the interest of the State of New Mexico and in the interest of the general public, encouragement should be given to operators to explore and develop the natural resources of the State by the establishment of a proper and equitable spacing and development program.

IT IS THEREFORE ORDERED:

SECTION 1. That the Mid-Continent, Sawyer No. 1 well, located in the center of the SW¼ SE¼ Section 27, is producing from the Devonian formation, a new common source of supply not heretofore discovered and produced in the State, and that the probable area for such production is as follows:

West half of section 26,
All of section 27,
East half of section 28,
East half of section 33,
All of section 34,
West half of section 35,
All in Township 9 South,
Range 36 East,
Lea County, New Mexico.

That this order is meant to cover all of the Devonian formation common source of supply productive in the Mid-Continent, Sawyer No. 1, located in the center of the SW¼ SE¼ section 27, and any well drilled within, or outside the area spaced herein, to the same common source of supply as an extension thereof, shall be drilled on the pattern provided for herein.

SECTION 2. That 80-acre spacing and drilling units be established as hereinafter provided for the production of oil and gas from the Devonian formation underlying the area as hereinabove set forth.

SECTION 3. That each governmental quarter section be divided into two rectangular spacing units by a line drawn through such quarter section, all as shown on a plat attached hereto, and made a part hereof, and marked Exhibit "A", with the wells to be drilled, one in the center of the northeast quarter and one in the center of the southwest quarter of each quarter section, all as shown on Exhibit "A"; however, if surface conditions justify, locations may be made within a radius of 150 feet from the centers thereof, provided further, however, that the units within a quarter section, as established by this order as shown on Exhibit "A", may be changed by agreement of the operators within said quarter section upon proper showing to the Commission.

SECTION 4. That the allowable be assigned on the basis of proration units as herein established, and any proration unit of less than the normal one-half of a governmental quarter section as the result of an exception granted by the Commission after notice and hearing, shall be assigned an allowable in proportion to the assignable acreage of that unit as it bears to the normal one-half of a governmental quarter section.

SECTION 5. That the daily oil allowable of a normal unit of one-half of a quarter section assigned to the discovery well and all other wells hereafter drilled and produced in accordance with the terms of this order shall be the proportional factor of 6.75 times top allowable until such time as the Commission may issue such further and additional orders as may be deemed necessary.

SECTION 6. All rules, regulations and orders heretofore issued by this Commission which may conflict herewith are superseded, only with respect to Devonian formation production below 12,000 feet in the Crossroads Pool.

SECTION 7. That this order shall become effective on August 16, 1948.

SECTION 8. The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law.

DONE at Santa Fe, New Mexico, this 27th day of July, 1948.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

(Signed)
THOMAS J. MABRY, Chairman

JOHN E. MILES, Member

(Signed)
R. R. SPURRIER, Secretary

SEAL

Case No.

149 Crossroads Case

Application, Transcript,
Small Exhibits, Etc.

SUMMONS

IN THE DISTRICT COURT, COUNTY OF LEA, STATE OF NEW MEXICO

IN THE MATTER OFTHE PETITION OF
MID-CONTINENT PETROLEUM CORPORATION
AND MAGNOLIA PETROLEUM COMPANY FOR
REVIEW AND APPEAL OF PROCEEDINGS
BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO IN
CASE NO. R-100-B ENTERED THEREIN.

NO. 9910

VS.

, ~~Defendant~~

THE STATE OF NEW MEXICO

TO: NEW MEXICO OIL CONSERVATION COMMISSION

Defendant

Greeting:

You are hereby commanded to appear before the Fifth Judicial Court District of the State of New Mexico, siting within and for the County of Lea, that being the county in which the complaint herein is filed, within thirty days after service of this summons, then and there to answer the complaint of

Mid-Continent Petroleum Corp. and Magnolia Petroleum Co, Plaintiff

in the above cause.

You are notified that unless you so appear and answer, the plaintiff..... will apply to the court for the relief demanded in the complaint together with costs of suit.

WITNESS, the Honorable C. ROY ANDERSON,
District Judge of the Fifth Judicial
District Court of the State of New Mexico,
and the Seal of the District Court of Lea County,
this 21 day of April, A. D., 1952

(Seal)

W.M.BEAUCHAMP
Clerk of the District Court.

By Lucille B Luker
Deputy.

A statement of the nature of the action in general terms, viz: "Petition for Review" by Mid-Continent Petroleum Corp. and Magnolia Petroleum Company pf the action of the Oil Conservation Commission of the State of New Mexico, taken in Its Order of March 6,1952, No. R-100-B in Case No.149 before the Oil Conservation Commission of New Mexico, and otherwise as stated in the Petition.

W.M.BEAUCHAMP Clerk of the District Court.

By Lucille B Luker
Deputy.

SHERIFF'S RETURN

State of New Mexico,
County of Lea

I, ...
Sheriff of Lea County, New Mexico, do hereby certify that this writ came to hand the

..... day of ....., 19.....
and there was at the time delivered to me

for service herewith .....cop.....

of this summons and .....cop.....
of the complaint filed therein; that I made service herein by delivering one copy of this summons and one copy of the complaint here-

in to each of the within named defendant.....
within the said County of Lea, as follows to-wit:

.....

.....

.....
(Name)

on ..... and
(Date of Service)

.....

on .....

.....
FEES FOR SERVICE

Serving writ and return..... $.....

Mileage ..... $.....

Total ..... $.....

....., Sheriff

By ....., Deputy

No. 9910

IN THE

DISTRICT COURT

LEA COUNTY, NEW MEXICO

INTHE MATTER OF THE PETITION OF MID-CONTINENT PETROLEUM ~~CORPORATION AND MAGNOLIA PET~~* ROLEUM COMPANY FOR REVIEW AND APPEAL OF PROCEED NGS BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. R 100-B ENTERED HEREIN

VS.

.....

.....
Defendant.....

SUMMONS

Hervey-Dow-&-Hinkle
Roswell, New Mexico

Attorney..... for Plaintiff.....

AFFIDAVIT OF SERVICE

STATE OF NEW MEXICO
COUNTY OF LEA } SS.

I, ...
of the United States and over the age of eighteen years, and not a party of said action that I have made service of the within summons in the above-named county and state by delivering a true copy of this summons together with a copy of the complaint, filed in said cause to (each of) the following defendant..... herein named, to-wit:

.....

.....

.....

Case 147

GILBERT, WHITE AND GILBERT
ATTORNEYS AND COUNSELORS AT LAW
BISHOP BUILDING
SANTA FE, NEW MEXICO

CARL H. GILBERT
L. C. WHITE
WILLIAM W. GILBERT
SUMNER S. KOCH

September 23, 1952

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
SEP 25 1952

Mr. H. M. Dow
c/o Hervey, Dow and Hinkle
First National Bank Building
Roswell, New Mexico

Dear Mr. Dow:

In accordance with Mr. Hanners letter of September 17th I have this day forwarded the original of the enclosed Motion to Strike to the Clerk of the District Court of Lea County to be filed on behalf of the Oil Conservation Commission. I appreciate and want to thank you for allowing us to let the matter rest in abeyance during the Summer. You will find enclosed extra copies of the Motion for your use.

With kind personal regards, I am

Sincerely yours,

L. C. WHITE

LCW-c

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
SEP 25 1952

September 23, 1952

Mr. G. T. Hanners
Attorney at Law
Stansell Building
Lovington, New Mexico

Re: Mid-Continent Appeal and
Crossroads Space Order
No. 9910 Lea County

Dear Mr. Hanners:

This will acknowledge receipt of your letter of September 17th, 1952 wherein you advise that you have filed your Motion to Dismiss as of that date. I am this day, on behalf of the Oil Conservation Commission, forwarding to the Clerk of the District Court of Lea County our Motion to Strike, copy of which I have previously forwarded to you.

I am sending a copy of this letter together with copy of our Motion to strike to Jack M.Campbell for his information.

Looking forward to seeing you when in Santa Fe, I remain,

Very truly yours,

L. C. WHITE

LCW-c

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
SEP 25 1952

IN THE DISTRICT COURT OF LEA COUNTY, NEW MEXICO

IN THE MATTER OF THE PETITION OF
MID CONTINENT PETROLEUM CORPORATION
AND MAGNOLIA PETROLEUM COMPANY FOR
REVIEW AND APPEAL OF PROCEEDING
BEFORE THE OIL CONSERVATION COMMIS-
SION OF THE STATE OF NEW MEXICO IN
CASE NO. 149 AND PRORATION NO.
R-100 and No. R 100-A EXTENDED THEREIN.

No. 9918

MOTION TO STRIKE

Comes now the New Mexico Oil Conservation Commission and moves the Court to strike from the Petition For Review the following allegations on the ground that they are redundant, immaterial to the issues herein, and impertinent.

1.

Strike all of paragraph numbered 1, except the last sentence thereof, reading as follows:

> "By the terms and provisions of Order No. 779, the Commission established eighty (80) acre spacing and drilling units for the Crossroads-Devonian Reservoir, Lea County, New Mexico effective August 16, 1948."

2.

Strike all of paragraph numbered 2.

3.

Strike all of paragraph numbered 3 of the Petition For Review, reading as follows:

> "Nine test wells had been drilled and a tenth was being drilled to the Devonian formation by the pool operators when this matter was last before the Commission. Over three million dollars has been spent in developing this pool in reliance upon Order No. 779 of the Oil Conservation Commission. A plat showing the development of this pool as it existed when this case was last before the Conservation Commission is attached as 'Exhibit A-1' and made a part hereof."

4.

Strike all of sub-section [illegible] of paragraph numbered 4 in the Petition

GILBERT, WHITE AND GILBERT
ATTORNEYS AT LAW
SANTA FE, NEW MEXICO

ILLEGIBLE

GILBERT, WHITE AND GILBERT
ATTORNEYS AT LAW
SANTA FE, NEW MEXICO

for Review.

Strike all of paragraph numbered 4 in the Petition For Review.

Strike all of sub-paragraphs (a) and (b) of paragraph numbered 5 in the Petition For Review.

Strike all of sub-paragraph "(a)" and "(b)" of paragraph numbered 6 in the Petition For Review; strike all that portion of sub-paragraph "(c)" in paragraph numbered 6 in the Petition for Review, reading as follows:

> "This finding and order is clearly against the weight and preponderance of the evidence and contrary to Section 13 (b), Chapter 168 of the Laws of the State of New Mexico, 1949."

Strike all of sub-paragraph "(7)" of paragraph numbered 8.

C.

Strike all that portion of sub-paragraph "(1)" of paragraph numbered 9 in the Petition For Review, reading as follows:

> "This drilling of unnecessary wells creates fire and other hazards conducive to waste, and unnecessarily increases the production cost of oil or gas or both to the operator, and thereby also unnecessarily increases the cost of the products to the ultimate consumer. These orders referred to above, if allowed to remain in effect, will necessitate the needless and wasteful expenditure of thousands of tons of steel tubular goods at a time when steel is critical and so badly needed for National Defense."

That the reasons for said Motion are that the foregoing allegations are either foreign to the issues, superfluous, or set forth evidentiary details, and that none of said allegations add anything to the statement of Petitioners cause, and each of such allegations is wholly prejudicial to this Movant.

II.

As an alternative to the foregoing Motion the [illegible] Commission moves the Court to dismiss the Petition for Review, and in support

ILLEGIBLE

thereof, respectfully shows:

1.

That this Honorable Court has no jurisdiction over the subject matter thereof.

2.

That said Petition fails to state a claim upon which relief can be granted.

3.

That this Movant, New Mexico Oil Conservation Commission, repeats and re-alleges as part of this Motion each and all of the allegations as contained in the Motion to Dismiss, heretofore filed on behalf of V. D. Sawyer and Bonnie Sawyer with like effect, as if herein fully repeated.

Respectfully submitted,

Attorney for Oil Conservation Commission

GILBERT, WHITE AND GILBERT
ATTORNEYS AT LAW
SANTA FE, NEW MEXICO

ILLEGIBLE

Case No.

149 - Crossroads

Application, Transcript,
Small Exhibits, Etc.

APPLICATION FOR REHEARING - CASE 149
(CROSSROADS)

Walton Sand

IN THE DISTRICT COURT OF LEA COUNTY, NEW MEXICO

IN THE MATTER OF THE PETITION OF AMERADA PETROLEUM CORPORATION FOR REVIEW AND APPEAL OF PROCEEDING BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 191.	CASE NO. 8485

THE STATE OF NEW MEXICO
TO: THOMAS J. MABRY, Chairman,
GUY SHEPARD, Member, and
R.R. SPURRIER, Secretary,
of the Oil Conservation Commission
of the State of New Mexico;
TEXAS PACIFIC COAL AND OIL COMPANY,
a foreign corporation,

GREETINGS:

NOTICE

You are hereby commanded to appear, in your official capacity designated above, before the District Court of the Fifth Judicial District of the State of New Mexico, Division No. 2, sitting within and for the County of Lea at Lovington, New Mexico, that being the county and place in which the petition for review herein is filed, within thirty (30) days after service of this notice, then and there to answer the petition for review of the Amerada Petroleum Corporation, Petitioner in the above cause.

You are notified that unless you so appear and answer, the Petitioner, Amerada Petroleum Corporation, will appeal to the court for the relief demanded in its petition for review, which is marked "Exhibit A", attached hereto and made a part hereof to the same extent as if set out in this notice.

WITNESS the Honorable S.P. Harris, District Judge of the said Fifth Judicial District Court, Division No. 2, of the State of New Mexico, and the seal of the District Court of Lea County, New Mexico, Division No. 2, this 23rd day of February, 1950.

W.M. Brunson
W.M. Brunson, Clerk of the said District Court.

(Seal)

By _____ Deputy

STATE OF NEW MEXICO)
) ss
COUNTY OF _____)

I, _____, Sheriff of
_____County, New Mexico, do hereby certi
that this within notice came to hand the ____ day of
February, 1950, and there were at the same time delivered
to me for service herewith true copies of this notice and
the petition for review filed in the within cause; and th
I made service herein by delivering one copy of this noti
and one copy of the said petition for review herein to e
of the within named persons within the said County of

IN THE DISTRICT COURT OF LEA COUNTY, NEW MEXICO

IN THE MATTER OF THE PETITION OF AMERADA PETROLEUM CORPORATION FOR REVIEW AND APPEAL OF PROCEEDING BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO, IN CASE NO. 191

Case No. 841

PETITION FOR REVIEW

Comes, now Amerada Petroleum Corporation, and for its petition for the review of the action of the Oil Conservation Commission of the State of New Mexico in the proceeding referred to above, alleges and states:

1. That on July 29, 1949, Petitioner filed its application with the Oil Conservation Commission of the State of New Mexico for the establishment of eighty-acre proration units and the uniform spacing of wells in the Bagley Siluro-Devonian Pool, Lea County, New Mexico, and for the uniform spacing of wells in said pool, which application was given Case No. 191 by the Commission.

2. Petitioner further states that due notice having been given said application came on for hearing before the Oil Conservation Commission of the State of New Mexico on December 20, 1949, at which hearing Petitioner introduced evidence in support of its application, establishing by a clear preponderance thereof the following facts which Petitioner hereby realleges, to wit:

(a) That on July 26, 1949, Petitioner completed a well known as the "Amerada-State BTA No. 1 Well" located in the center of the NW/4 SE/4 of Section 2, Township 12 S Range 33 East, Lea County, New Mexico, which said well discovered a new common source of supply known as the Bagley Siluro-Devonian Pool, found at the approximate depth of

(b) That the probable productive limits of said Bagley Silure-Devonian Pool is as follows:

E/2 of Sec. 34
All of Sec. 35
W/2 of Sec. 36, all in T11S-R33E

E/2 of Sec. 3
All of Sec. 2
W/2 of Sec. 1
E/2 of Sec. 11
NW/4 of Sec. 12, all in T12S-R33E
Lea County, New Mexico

(c) That one well in said pool will adequately, efficiently and economically drain an area of at least eighty acres and that to require the drilling of more than one well to eighty acres in said pool will result in the drilling of unnecessary wells and will require Petitioner to drill more wells than are reasonably necessary to secure its proportionate part of the production from said pool.

(d) That because of the effective drainage area of each well in said pool, the great depth thereof and the high cost and expense required in the drilling and completion of said wells, proration units of eighty acres or one-half of a governmental quarter section should be established.

(e) That to protect the correlative rights of all parties hereto and to prevent the unnecessary pooling of separately owned tracts within a proration unit, the unit should be formed by dividing each governmental quarter section by a line from north to south through the center thereof, so that the unit shall comprise the East Half and the West Half of each governmental quarter section, except the following units, to wit:

N/2 NW/4 Sec. 35-11S-33E
S/2 NW/4 Sec. 35-11S-33E
N/2 NE/4 Sec. 2-12S-33E
SW/4 NE/4 & NW/4 SE/4 Sec. 2-12S-33E
SE/4 NE/4 & NE/4 SE/4 Sec. 2-12S-33E
S/2 Sec. 2-12S-33E
N/2 NE/4 Sec. 11-12S-33E
S/2 NE/4 Sec. 11-12S-33E

(f) That to insure the proper and uniform spacing of all wells drilled to the common source of supply, and to

protect the correlative rights of all parties interested therein, all wells drilled into said common source of supply should be located in the center of the northwest and southeast quarters of each governmental quarter section with a tolerance of 150 feet in any direction to avoid surface obstructions.

(g) That the order of the Commission should cover all wells now or hereafter drilled to and producing from the common source of supply from which the discovery well as above described is now producing, known as the Bagley Silurian-Devonian Pool, whether within the probable productive area as delineated above or any extension thereof, as may be determined by further development, so as to insure a proper and uniform spacing, developing and producing plan for all wells in the common source of supply.

(h) That the daily oil allowable of a normal unit of eighty acres, or an area equivalent to one-half of a governmental quarter section assigned to each and every well hereafter drilled and produced in conformity with the spacing pattern hereinabove provided, should be the proportional factor of 4.67 times the top allowable until such time as the development of said pool, based upon evidence submitted to the Commission after notice and hearing, justifies an increase in allowable without injury to the reservoir, and that the Commission should retain jurisdiction to increase said allowable if the evidence so justifies.

(i) That in the event good cause is shown for the granting of an exception to the well location pattern proposed by Petitioner such exception should be granted by the Commission after notice and hearing, but in the event such exception is granted the allowable for said well should be reduced in an amount to be determined by the Commission in its discretion in accordance with the evidence presented at the hearing in order to protect the correlative rights of all

3. Attached hereto marked "Exhibit A" and made a part hereof is a plat showing the location of the Bagley Siluro-Devonian Pool as delineated above, the leasehold ownership, the wells drilled in said pool, the proposed spacing pattern for wells to be drilled in said pool and the proposed location of the proration units constituting an exception to the regular proration units comprising the West Half and the East Half of each governmental quarter section.

4. That thereafter on January 23, 1950, the Oil Conservation Commission entered its Order No. R-2 in Case #191, denying the application of Petitioner, which order is attached hereto marked "Exhibit B" and made a part hereof to the same extent as if set out in full herein.

5. That thereafter on February 6, 1950, Petitioner filed its timely application for rehearing before the Oil Conservation Commission of the State of New Mexico and said application for rehearing was denied by said Commission by Order No. R-8 in Case #191 on February 8, 1950, which said order is attached hereto, marked "Exhibit C" and made a part hereof to the same extent as if set out in full herein.

6. Petitioner further alleges that the grounds of invalidity of the orders of the Commission referred to above, upon which it relies and will rely, are as follows, to wit:

(a) That the Commission erred in finding the evidence insufficient to prove that the proposed plan of spacing would avoid the drilling of unnecessary wells, secure the greatest ultimate recovery from the pool, or protect correla

(c) That the orders entered by said Commission denying said application and denying the rehearing thereof are contrary to and in disregard of the evidence introduced at the hearing which established by a preponderance thereof the facts and matters alleged above and that eighty acres is the area that may be efficiently and economically drained and developed by one well and that the establishment of eighty-acre proration units and uniform spacing of wells as requested by Petitioner will prevent waste, avoid the drilling of unnecessary wells and protect the correlative rights of all parties interested in said pool.

(d) That the orders of the Commission referred to above are contrary to law.

Petitioner further alleges that all of the matters and questions herein presented were heretofore presented to the Commission by the Application for Rehearing.

WHEREFORE, Petitioner respectfully prays the Court, as authorized by Section 19b, Chapter 168 of the Laws of the State of New Mexico, 1949, to review the action of the Oil Conservation Commission herein complained of and to enter its order vacating the orders of the Commission hereinabove referred to and to enter its order in lieu thereof establishing eighty-acre proration units and the uniform spacing of wells in the Bagley Siluro-Devonian Pool, Lea County, New Mexico, as requested by the application of Amerada Petroleum Corporation filed with said Commission and in accordance with the evidence presented at the hearing before said Commission in support thereof as set out above and the evidence presented upon the trial de novo upon appeal, all as authorized by the laws of the State of New Mexico.

MERVEY, DOW & HINKLE

S/ By Clarence Hinkle

SPEER & MONTGOMERY

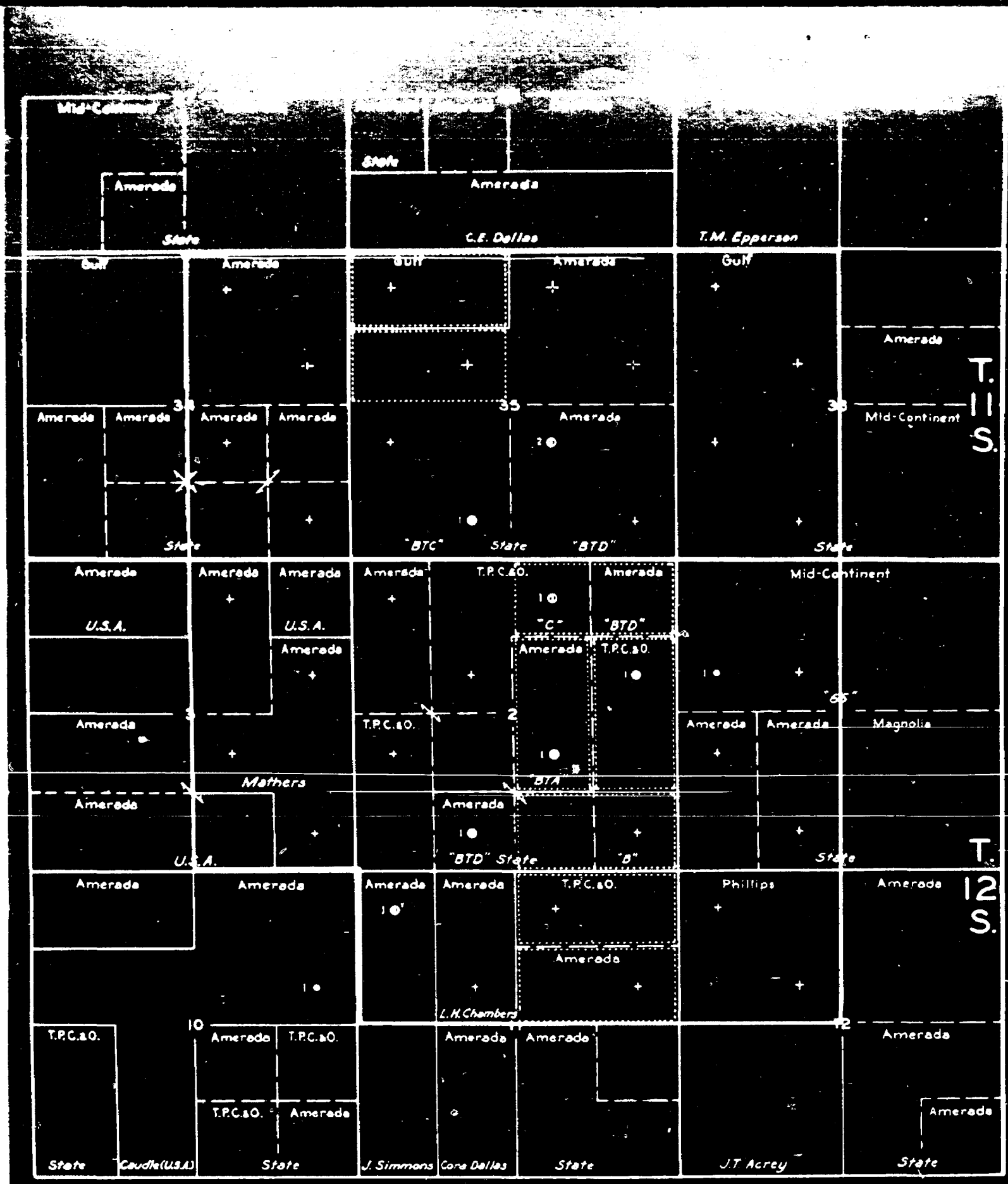
S/ By Oliver Seth

S/ Harry D. Pyle

S/ Frank Hollomon

S/

Attorneys for Petitioner
Amerada Petroleum



R.33 E.

BAGLEY FIELD

LEA COUNTY NEW MEXICO

● BAGLEY - SILURO-DEVONIAN POOL WELLS
• BAGLEY - PENNSYLVANIAN POOL WELLS

APPLICATION AMERADA PETROLEUM CORPORATION
DECEMBER 20, 1949

"EXHIBIT A"

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 191
ORDER NO. R-2

IN THE MATTER OF THE APPLICATION OF AMERADA PETROLEUM CORPORATION FOR THE ESTABLISHMENT OF PRORATION UNITS AND UNIFORM SPACING OF WELLS IN THE BAGLEY SILURO-DEVONIAN POOL IN LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This matter came on for hearing before the Commission on December 20, 1949, on the application of Amerada Petroleum Corporation to establish proration units and uniform spacing o wells in the Bagley Siluro-Devonian Pool in Lea County, New Me

The Commission having heard the evidence, the argument of counsel and being duly advised,

FINDS:

1. The Commission has jurisdiction of the subject matter and of the interested parties, due notice of the hearing having been given.

2. The evidence is insufficient to prove that the proposed plan of spacing would avoid the drilling of unnecessary wells, secure the greatest ultimate recovery from the pool or protect correlative rights.

3. The evidence is insufficient to prove that one well drilled on each 80-acre tract would efficiently drain the recoverable oil from the pool.

IT IS THEREFORE ORDERED:

1. The application of Amerada Petroleum Corporation is denied.

2. Nothing contained herein shall be construed to require the drilling of one well on each 40-acre tract in the

3. Nothing contained herein shall be construed to be a determination by the Commission as to what constitutes "reasonable development" of any lease in the pool in relation to the implied covenants of any such lease.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 19
ORDER NO. R-

IN THE MATTER OF THE APPLICATION OF AMERADA PETROLEUM CORPORATION FOR THE ESTABLISHMENT OF PRORATION UNITS AND SPECIAL SPACING OF WELLS IN THE EMPIRE-ABO/DEVONIAN POOL IN LEA COUNTY, NEW MEXICO.

ORDER DENYING REHEARING

BY THE COMMISSION:

Amerada Petroleum Corporation having filed herein an application for rehearing on the alleged grounds that Order No. R-2 heretofore entered on 23 January 1950 was erroneous, and the Commission having considered said motion and having concluded that it is not well taken,

IT IS THEREFORE ORDERED that the application for rehearing filed by Amerada Petroleum Corporation will be

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF AMERADA PETROLEUM CORPORATION FOR THE ESTABLISHMENT OF PRORATION UNITS AND THE UNIFORM SPACING OF WELLS IN THE BAGLEY SILURO-DEVONIAN POOL IN LEA COUNTY, NEW MEXICO	)	CASE NO. 191 ORDER NO. R-2

APPLICATION FOR REHEARING

Comes, now, Amerada Petroleum Corporation, Applicant herein, and alleges that on January 23, 1950, the Commission entered its order in the above styled case after due notice and hearing held on December 20, 1949, which said order denied the application heretofore filed herein by Amerada Petroleum Corporation for eighty-acre proration units and uniform spacing of wells in the Bagley Siluro-Devonian Pool, Lea County, New Mexico, and that such order is believed by Applicant to be erroneous in the following particulars, to wit:

1. That the Commission erred in finding the evidence insufficient to prove that the proposed plan of spacing would avoid the drilling of unnecessary wells, secure the greatest ultimate recovery from the pool, or protect correlative rights.

2. That the Commission erred in finding the evidence insufficient to prove that one well drilled on each eighty-acre tract would efficiently drain the recoverable oil from the pool.

3. That the order entered herein is contrary to and in disregard of the evidence introduced at the hearing which established by a preponderance thereof that eighty acres is the area that may be efficiently and economically drained and developed by one well, and that the establishment of eighty-acre proration units and uniform spacing of wells, as

requested by Applicant, will prevent waste, avoid the drilling of unnecessary wells and protect the correlative rights of all parties interested in said pool.

4. That the order entered herein is contrary to law.

WHEREFORE, Applicant respectfully requests that a rehearing be granted and after rehearing that the Commission enter its order establishing eighty-acre proration units and uniform spacing of wells in the Bagley Siluro-Devonian Pool, in Lea County, New Mexico, as requested by the application filed herein and evidence presented at the hearing in support thereof.

SETH & MONTGOMERY

By_____

_____

_____
Harry D. Page

_____
Booth Kellough

Attorneys for Applicant,
Amerada Petroleum Corporation.

IN THE DISTRICT COURT OF LEA COUNTY

STATE OF NEW MEXICO

IN THE MATTER OF THE PETITION OF AMERADA PETROLEUM CORPORATION FOR REVIEW AND APPEAL OF PROCEEDING BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 191	))))))	Case No. 8485.

PRETRIAL ORDER

This matter having come on for hearing at pretrial conference at 9:00 a.m. on May 29, 1950 in the Court Chambers at the Courthouse of Roswell, New Mexico, pursuant to the provisions of Rule 16 of the Rules of the District Courts of the State of New Mexico, upon notices duly given to all parties, it was stipulated in open Court that said pretrial conference would be held before the Court at Roswell, New Mexico, in lieu of the conference being held in Lea County, New Mexico. Petitioner Amerada Petroleum Corporation was represented by Clarence E. Hinkle for Hervey, Dow & Hinkle, Roswell, New Mexico, and Booth Kellough of Tulsa, Oklahoma, its attorneys of record. Respondent Texas Pacific Coal & Oil Company was represented by Jack M. Campbell and Ross L Malone, Jr. for Atwood, Malone & Campbell, Roswell, New Mexico, and Eugene T. Adair, Fort Worth, Texas, its attorneys of record. Respondent Oil Conservation Commission of New Mexico was represented by Don G. McCormick, Special Assistant Attorney General and George A. Graham Special Assistant Attorney General, two of its attorneys of record. The following proceedings were had:

1. Respondent Texas Pacific Coal & Oil Company, joined by Respondent Oil Conservation Commission of New Mexico, under paragraphs numbered 1 and 4 in the Notice of Pretrial conference

raised the question of the extent of the scope of the review by the Court of the order appealed from and presented argument that the Court in its review was limited to a determination of whether there was substantial evidence in the record before the commission to sustain its order. Petitioner requested additional time to submit a brief to the Court upon the question and pursuant to such request the pretrial conference was recessed pending furnishing of briefs by the parties and a determination by the Court as to the question raised.

2. Briefs having been submitted pursuant to instruction by the Court, the pretrial conference was resumed at Roswell, New Mexico, on September 11, 1950 at 1:30 p.m. due notice having been given to all parties. Petitioner Amerada Petroleum Corporation was represented by Clarence E. Hinkle for Hervey, Dow & Hinkle, Roswell, New Mexico, and Booth Kellough of Tulsa, Oklahoma, its attorneys of record. Respondent Texas Pacific Coal & Oil Company was represented by Jack M. Campbell and Ross L. Malone, Jr. for Atwood, Malone & Campbell, Roswell, New Mexico, and Eugene T. Adair, Fort Worth, Texas, its attorneys of record. Respondent Oil Conservation Commission of New Mexico was represented by George A. Graham, Special Assistant Attorney General, one of its attorneys of record.

3. The Court having considered the briefs submitted by the parties and having heard argument of counsel as to the scope and extent of the review by the Court of the order of the Oil Conservation Commission in accordance with its letter to counsel dated August 4, 1950, ordered:

> 1. That the Oil Conservation Commission of New Mexico is primarily an administrative body with certain delegated legislative powers; and that in entering the order complained of in the Petition for Review the Commission was acting in that capacity.

2. That this Court is without power to substitute its own independent judgment for that of the Commission as reflected in the Order complained of.

3. That the nature and scope of the review in this case will be confined generally to the Validity of the Order and specifically to
(a) the power of the Commission to enter the order complained of:
(b) the existence of substantial evidence before the commission supporting the order complained of; and (c) the reasonableness of the order.

4. A transcript of the proceeding before the Commission including the evidence taken in a hearing or hearings by the Commission shall be received in evidence by the Court in whole or in part upon offer by either party, subject to legal objections to evidence.

5. Evidence in addition to that contained in the transcript of the proceeding before the Commission will be limited to
(a) such matters as to which legal objections are made and sustained to evidence thereon appearing in the transcript of the proceedings before the Commission; and
(b) facts bearing upon the question of whether or not the Order of the Commission was arbitrary, capricious or unreasonable, or whether the Commission acted beyond its power.

6. With reference to sub-paragraph (a) of paragraph No. 3 above set forth and in order that there may be no confusion or misunderstanding as to the meaning of said sub-paragraph, you are specifically informed that the Court does not look with favor upon the proposition urged under point "V" of Petitioner's memorandum brief filed with the Court, being the contention that the ultimate fact was a jurisdictional one which could be heard de novo, and that the Court will not permit the introduction of evidence based upon the proposition that the action of the Commission with reference to the application under consideration by it was one of jurisdiction or power but that it was an action involving the exercise of discretion and judgment only.

4. Petitioner Amerada Petroleum Corporation excepted to all of the aforesaid order and Respondent Texas Pacific Coal & Oil Company excepted to that portion of the order which provided that the evidence taken in a hearing before the commission was subject to legal objections before the Court and that additional

evidence might be heard upon such matter as to which legal objections are made. Petitioner Amerada Petroleum Corporation then by written motion moved the Court to dismiss its appeal without prejudice. The Texas Pacific Coal & Oil Company resisted the motion on the ground that any dismissal of the appeal should be with prejudice. The Commission offered no objection to the motion. The Court having heard argument of counsel and having fully considered the matter announced that it would dismiss the case with prejudice but deny the motion to dismiss without prejudice, whereupon counsel for Petitioner stated that it would proceed with the trial of the matter unless a dismissal without prejudice were granted. The Court announced it would enter its order denying the motion to dismiss without prejudice.

5. It was agreed by all parties that subject to the exceptions hereinafter noted the transcript of testimony and the exhibits attached thereto at the hearing before the Oil Conservation Commission would be received in evidence without objection. The following exceptions were agreed upon.

(a) It was agreed and stipulated between the parties that Respondent Texas Pacific Coal & Oil Company's Exhibit "E" and all testimony relating thereto would not be considered by the Court.

(b) It was further agreed and stipulated between the parties that Respondent Texas Pacific Coal & Oil Company's Exhibit "F" and testimony relating thereto would be considered by the Court only to the extent that such exhibit and testimony might tend to prove the impracticability and lack of feasibility of such pooling as might be required under the order sought by Petitioner.

(c) It was further agreed and stipulated between the parties that a schedule of mineral, leasehold, and royalty ownership under leases of Petitioner Amerada Petroleum Corporation could be included and made a part of the transcript of record to

be considered by the Court as showing such mineral, leasehold and royalty ownership as reflected by the files of Amerada Petroleum Corporation on the dates shown in the schedules.

6. It was further agreed and stipulated between the parties that Petitioner Amerada Petroleum Corporation could prepare a written motion by which it might tender proof setting out such matters as authorized under the Rules of Civil Procedure if the matter were tried in open Court, specifically identifying witnesses and the matters concerning which they would testify, the motion to be submitted to counsel for Respondents Texas Pacific Coal & Oil Company and Oil Conservation Commission of New Mexico before filing for approval with the Court.

7. Respondent Oil Conservation Commission of New Mexico with approval of the Court and without objection filed a copy of the transcript of testimony before the Oil Conservation Commission, including all exhibits, as a part of its answer to the petition. It was stipulated and agreed between the parties that copies of the records before the Commission might be used and considered by the Court in lieu of original records.

8. Respondent Texas Pacific Coal & Oil Company objected to paragraph 6 (d) of the petition on the ground that the assignment of error was too general in its nature to be considered by the Court. Petitioner agreed to delete this paragraph with the understanding that it would not prejudice petitioner's right to raise jurisdictional questions and the Court so ordered.

9. It was stipulated and agreed that the following typographical errors in the transcript would be corrected and considered by the court as corrected:

(1.) At page 29 of the transcript on the thirteenth line from the top of said page commencing with the semicolon

the clause should read "the royalty owner wants" etc.

(2.) At page 41 of the transcript in the fifteenth line from the top of said page the word "prove" should be changed to the word "peel".

(3.) At page 53 of the transcript in the first line thereof the word "flat" should be changed to the word "flank".

This order is entered pursuant to and in compliance with Rule 16 of pretrial procedure of the rules of civil procedure of the District Courts of the State of New Mexico and will control the subsequent course of this action.

_____
District Judge

Done this __ day of _____, 1950.

_____
One of the Attorneys for Petitioner

_____
One of the Attorneys for the Oil Conservation Commission

_____
One of the Attorneys for Texas Pacific Coal & Oil Company

IN THE DISTRICT COURT OF LEA COUNTY

STATE OF NEW MEXICO

IN THE MATTER OF THE PETITION OF AMERADA PETROLEUM CORPORATION FOR REVIEW AND APPEAL OF PROCEEDING BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO IN CASE NO. 191	)	No. 8485

SEPARATE ANSWER OF TEXAS PACIFIC COAL AND OIL COMPANY

Comes now Texas Pacific Coal and Oil Company and for its answer to the Petition for Review, states:

First Defense

1. Answering Paragraph 2, it denies that Petitioner established by a clear preponderance of the evidence the matters alleged in Sub-paragraphs (c) through (i) inclusive.

2. Answering Paragraphs 6(a), 6(b) and 6(c), it denies that the Commission erred in any of the respects therein alleged.

3. Answering Paragraph 6(d), it specifically denies that the Orders of the Commission, referred to therein, are contrary to law, and further answering said Paragraph, it states that said allegation of error is so general in nature that it is unavailing to Petitioner.

Second Defense

1. Order R-2 of the Oil Conservation Commission of New Mexico, in Case #191, was supported by substantial evidence, was not arbitrary, capricious or unreasonable, and constituted a valid exercise of the powers of the Commission.

WHEREFORE, Texas Pacific Coal and Oil Company respectfully prays that the Order of the Commission entered

herein be affirmed; that the appeal be dismissed; that it recover its costs herein expended, and for such other and further relief as to the Court may seem proper.

s/ Eugene T. Adair
Eugene T. Adair
Fort Worth, Texas

ATWOOD, MALONE & CAMPBELL

s/ By: Jack M. Campbell
Roswell, New Mexico

Attorneys for Texas Pacific Coal and Oil Company.

CERTIFICATE

Jack M. Campbell, being one of the attorneys for Texas Pacific Coal and Oil Company, hereby certifies that on March 24, 1950 he caused a copy of the foregoing Separate Answer of Texas Pacific Coal and Oil Company to be mailed to Hervey, Dow & Hinkle, Roswell, New Mexico, Seth & Montgomery, Santa Fe, New Mexico, Harry D. Page, Tulsa, Oklahoma and Booth Killough, Tulsa, Oklahoma, all attorneys for Petitioner.

s/ Jack M. Campbell
Jack M. Campbell

IN THE DISTRICT COURT OF LEA COUNTY

STATE OF NEW MEXICO

IN THE MATTER OF THE PETITION OF AMERADA PETROLEUM CORPORATION FOR REVIEW AND APPEAL OF PROCEEDING BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO, IN CASE NO. 191	Case No. _____

ANSWER OF OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO
TO PETITION FOR REVIEW

Comes now the Oil Conservation Commission of the State of New Mexico, and for its answer to the Petition for Review filed herein by Amerada Petroleum Corporation, states:

1. The Commission admits Paragraph 1.

2. The Commission admits that a hearing was held on 20 December, 1949, as alleged in Paragraph 2 and admits that at such hearing the petitioner established by a clear preponderance of the evidence, the facts alleged in sub-paragraphs 2-a and 2-b. The Commission denies that at such hearing the petitioner established by any evidence the facts alleged in the remainder of Paragraph 2.

3. The Commission admits Paragraph 3.

4. The Commission admits Paragraph 4.

5. The Commission admits Paragraph 5.

6. The Commission admits that petitioner is relying on the matters alleged in Paragraph 6, but denies that the Commission erred, as alleged in sub-paragraph 6-a and 6-b, or that the orders entered by the Commission were contrary to the evidence and the law, as alleged in sub-paragraphs 6-c and 6-d.

7. The Commission reserves the right to file herein and to make a part of this answer a transcript of the proceedings had in case No. 191 before the Commission.

WHEREFORE, it is prayed that the petitioner take nothing by its Petition for Review and that the court enter its judgment herein affirming the orders of the Commission.

Joe L. Martinez
Attorney General

Phillip Dunleavy
Assistant Attorney General

Don G. McCormick
Special Assistant Attorney General

George L. Graham
Special Assistant Attorney General

ATTORNEYS FOR OIL CONSERVATION COMMISSION OF NEW MEXICO.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that true copies of the foregoing Answer were served as follows:

Hervey, Dow & Hinkle
Roswell, New Mexico

Seth and Montgomery
Santa Fe, New Mexico

Booth Kellough
c/o Amerada Petroleum Corporation
Tulsa, Oklahoma

all of whom are attorneys for petitioner, and

Atwood, Malone & Campbell
Roswell, New Mexico

attorneys for Texas-Pacific Coal and Oil Company, and that such service was made by ordinary mail addressed to the above named on March _____, 1950.

Case 149

September 17, 1952

Mr. L. C. White
Gilbert, White & Gilbert
Santa Fe, New Mexico

Mid-Continent Appeal from
Crossroads Spacing Order
No. 9910, Lea County

Dear Mr. White:

I believe it is time to proceed with our motions in the Mid-Continent case. I would have liked to conferred with you personally about the matter, but time and other matters have made it most difficult. I have, therefore, filed my Motion to Dismiss today, and I am enclosing a copy of the letter of transmittal to Mr. Dow.

Like you, I feel that the Court may become alarmed at the nature of the questions which the Mid-Continent petition seeks to review, but, if my motion is well taken, I think the Court will favorably incline to our view that no such extensive review was contemplated by the law, and that the Courts only function is to determine whether the Commission Order was suported by substantial evidence, and was within the authority of the Commission to make. Your Motion to Strike is well formulated, and I think it should be filed.

I am sending a copy of this letter to Mr. Campbell in order that he may formulate his plans for intervention.

I will be in Santa Fe within about a week, and will especially try to confer with you about these matters while I am there, but, in the meantime, I believe it best that our Motions get on the docket.

Yours very truly,

OTH:erw
CC:
Mr. George Graham
Oil Conservation Commission
Santa Fe, New Mexico

COPY

Mr. Jack M. Campbell
Atwood, Malone & Campbell
Roswell, New Mexico

Case 149

Recd
OCC -
12-22-52

G. T. HANNERS
ATTORNEY-AT-LAW
STANSELL BUILDING
LOVINGTON, NEW MEXICO

M. J. UNDERWOOD

December 15, 1952

Mr. H. M. Dow
Hervey, Dow & Hinkle
Roswell, New Mexico

Mid-Continent and Magnolia Appeal
Crossroads Spacing Case
No. 9910, Lea County

Dear Mr. Dow:

In conversation today with Judge Harris, he advised me that he was setting the above entitled case for hearing on motions for Tuesday, January 27, 1953, at Roswell, and he asked me to advise all of you of such setting.

Yours very truly,

GTH:mb

CC:

Mr. L. C. White
Oil Conservation Commission
Santa Fe, New Mexico

Mr. Ross Madole
Magnolia Petroleum Company
Dallas 1, Texas

Mr. J. H. Crocker
Mid-Continent Petroleum Corporation
Tulsa 2, Oklahoma

Mr. George A. Graham
State Land Office
Santa Fe, New Mexico

COPY

Case No.

149

Application, Transcript,
Small Exhibits, Etc.

Exhibits — Case 149

Oklahoma; Ginevra Dougherty, Chicago 37, Ill.; Harriet D. Herd, Midland, Texas; John J. Redfern, Jr., Midland, Texas; John G. Ellinghausen, Tulsa, Oklahoma; Helen S. Eisendrath, Chicago, Ill.; Orvilla W. Rosengren, Minneapolis, Minn., each claiming some interest, In the matter of the application of Amerada Petroleum Corporation for the pooling or unitization of the NW¼SE¼ of Section 32, Township 19 South, Range 37 East, N.M.P.M., within the Monument pool.

Given under the seal of the Oil Conservation Commission of New Mexico at Santa Fe, New Mexico, On June 29, 1948.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

BY /s/ R. R. Spurrier
R. R. SPURRIER, Secretary

BEFORE:

Hon. Thomas J. Mabry, Chairman
Hon. John E. Miles, Member
Hon. R.R. Spurrier, Secretary

REGISTER:

George A. Graham,
Santa Fe, N. M.
For the Commission

Frank C. Barnes,
Santa Fe, N. M.
For the Commission

H. N. Sweeney
Hobbs, N. M.
For the Commission

A. E. Pierce
Tulsa, Okla.
For Mid-Continent Petroleum Corporation

J. H. Crocker
Tulsa, Okla.
For Mid-Continent Petroleum Corporation

M. B. Penn,
Tulsa, Oklahoma
For Mid-Continent Petroleum Corporation

Ed. Pierce
Midland, Texas
For Mid-Continent Petroleum Corporation

E. S. Calvert
Tulsa, Okla.
For Devonian Oil Co.

E. A. Paschal
Amarillo, Texas
For Oil Development Co. of Texas

E. O. Hennessay
Albuquerque, N. M.
For Santa Fe Railway Co.

Santa Fe

BEFORE THE

OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

Pursuant to legal notice to all parties and the public the following proceedings were held before the Oil Conservation Commission in the Senate Chamber of the Capitol Building in Santa Fe at 10:00 A. M. on July 15, 1948.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice, pursuant to law, of the following public hearing to be held July 15, 1948, beginning at 10:00 o'clock A. M. on that day in the City of Santa Fe, New Mexico.

STATE OF NEW MEXICO TO:

All named parties in the following cases, and notice to the public:

CASE 149

In the matter of the application of Mid-Continent Petroleum Corporation for an order establishing 80-acre proration units; to establish a uniform pattern for the spacing and drilling of wells with allowance for tolerance for surface obstructions and for an order fixing and establishing allowables for wells drilled in the Crossroads pool to a depth below 12,000 feet (Devonian formation), Lea County, New Mexico.

CASE 150

In the matter of the application of Ross Sears for an order granting permission to drill unorthodox location designated as Well No. 5 on his Miller lease, described as SW¼ of Section 26, Township 17 South, Range 32 East, N.M.P.M., in the Maljamar Field, Lea County, New Mexico.

CASE 151

Mary A. Lindop, Exrx. of Will of John Lindop, Miami, Florida; The Mid-Continent Co., Lincoln, Nebraska; F. J. Danglade, Lovington, New Mexico; United Producing Co., Inc., Charleston, W. Va.; J. L. Reed, Lovington, New Mexico; Nettie Lowe, Lubbock, Texas; H. Dillard Schenck, Lovington, New Mexico; Mark D. Rector, Atherton, California; Louise C. Ritsher, Beloit, Wisconsin; George F. Henneberry, Chicago, Ill.; Robert N. Cowham, Chicago, Ill.; Dr. Ralph Sullivan, Chicago, Ill.; Sigmund Stein, New York, N. Y.; Ella E. Stein, Chicago, Ill.; Marie E. Palmer, Boston, Mass.; Maud Cowham Sr., Robert Neil Cowham and C. Fred Cowham, Trustees, Chicago, Ill.; J. E. Day, Dallas 1, Texas; Claire I. Levy, Chicago, Ill.; Aylward H. Vosburgh & Grace H. Vosburgh, Chicago, Ill.; Mrs. V. M. Taylor, Roswell, New Mexico; Charles F. Grey, Trustee, Chicago 2, Ill.; Atlantic Oil Corporation, Tulsa,

The Atchison, Topeka and Santa Fe Railway Company

EARL C. IDEN,
Solicitor for New Mexico

BRYAN G. JOHNSON,
Attorney for New Mexico

NEW MEXICO LAW DEPARTMENT

Albuquerque, New Mexico,

November 1, 1951

File 17-33

Oil Conservation Commission
Santa Fe, New Mexico

Gentlemen:

Santa Fe Pacific Railroad Company and Oil Development Company of Texas, which companies were parties in Case 149, In the Matter of Well Spacing in the Crossroads Devonion Reservoir, have been advised that Mid-Continent Petroleum Corporation and Magnolia Petroleum Company have filed an application for rehearing in connection with the Commission's Order No. R-100. We have examined this application and by this letter wish to inform the Commission that we do hereby join in this application for rehearing.

Very truly yours,

E. C. Iden

ECI:S

cc Mr. E. A. Paschal
Mr. R. D. Lutton

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO.
NOV 2 1951

STATE OF NEW MEXICO
OFFICE OF STATE GEOLOGIST
SANTA FE, NEW MEXICO

November 1, 1951

C O P Y

Mr. Hiram M. Dow
HINKLE, DOW AND HINKLE
Roswell, New Mexico

Dear Mr. Dow RE: Case 149

The application of Mid-Continent Petroleum Corporation and Magnolia Petroleum Company for a rehearing on Case 149 has been received by the Commission and ordered filed as of October 31, 1951.

The rehearing will be scheduled by the Commission on December 19, which will allow us one day prior to our regular December 20 hearing. I will immediately prepare an order for the Commission granting the rehearing and suspending the effective date of Order R-100, as requested in your application.

With best personal regards, I am,

Sincerely,

JKam Jason Kellahin

cc: Mr. O. T. Hanners
Stanolind Building
Lovington, N. M.

Mrs. U. D. Sawyer
Crossroads, N. M.

J. M. HERVEY
HIRAM M. DOW
CLARENCE E. HINKLE
W. E. BONDURANT, JR.
GEORGE H. HUNKER, JR.

ROSS MADOLE
WILLIAM C. SCHAUER

LAW OFFICES
HERVEY, DOW & HINKLE
ROSWELL, NEW MEXICO

October 29, 1951

Oil Conservation Commission
Santa Fe, New Mexico

Re: Case No. 149
Order No. R-100

Gentlemen:

We present herewith for filing on or before November 4, 1951 an Application for Rehearing in the above styled case.

Please advise us of the receipt and filing of this Application.

Very truly yours,

HERVEY, DOW & HINKLE

By Hiram M. Dow

HMD:gb
Encl.
cc-Mr. J. H. Crocker
Mid-Continent Petroleum Corp.
Tulsa, Oklahoma

Mr. W. E. McKellar
Magnolia Petroleum Company
Dallas, Texas

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
OCT 31 1951

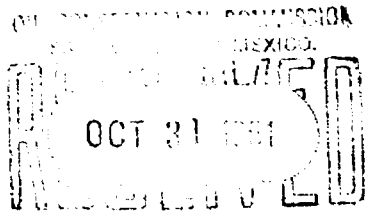
WEMcK/bbr 10/25/51 (4)

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

IN THE MATTER OF WELL SPACING
IN THE CROSSROADS DEVONIAN
RESERVOIR

CASE 149
ORDER NO. R-100

APPLICATION FOR REHEARING



TO SAID CONSERVATION COMMISSION:

Comes now MID-CONTINENT PETROLEUM CORPORATION and MAGNOLIA PETROLEUM COMPANY, interested parties in the above styled and numbered cause, and file this, their application for rehearing in the above styled and numbered cause, upon the following grounds, to-wit:

1.

Six and one-half months elapsed between the hearing in the above styled and numbered case and the date on which said order no. R-100 was signed and entered. During this six and one-half months the above petitioners have continued to gather reservoir data on the Crossroads Devonian Reservoir and have recently accumulated data which is highly pertinent and essential in a final determination of the case. This evidence is especially essential in view of the Commission's finding no. 6 on which order no. R-100 is predicated, namely that there was no showing that pressure maintenance or other secondary recovery methods were under consideration by operators in the pool as a matter of preventing waste and protecting correlative rights.

2.

These petitioners believe that the Commission erred in its finding no. 5, there being no substantial evidence in the record that one well would not drain eighty acres in the Crossroads Devonian Reservoir especially in view of the testimony of five highly qualified petroleum engineers that one well would drain eighty acres in the Crossroads Devonian Reservoir without creating waste and without the impairment of correlative rights.

3.

The petitioners allege that order no. R-100 violates the clear language and intent of Section 13 (b) in chapter 168 of the Laws of New Mexico of 1949. This statute reads as follows:

> "No owner of a property in a pool shall be required by the Commission, directly or indirectly, to drill more wells than are reasonably necessary to secure his proportionate part of the production. To avoid the drilling of unnecessary wells a proration unit for each pool may be fixed, such being the area which may

be efficiently and eccnomically drained and developed by one well. The drilling of unnecessary wells creates fire and other hazards conducive to waste, and unnecessarily increases the production cost of oil or gas or both to the operator, and thus also unnecessarily increases the cost of the products to the ultimate consumer."

The preponderance of the evidence presented to the Commission in case no. 149 was to the effect that one well would drain eighty acres in the Crossroads Devonian Reservoir and that wells drilled on a closer pattern as a field-wide rule were unnecessary, conducive to waste and therefore a violation of Section 13 (b) of the above statute.

WHEREFORE, premises considered, these petitioners request that the Conservation Commission of New Mexico grant a rehearing in the above styled and numbered cause and further that order no. R-100 be suspended until such time as the Commission has had an opportunity to hear the testimony presented at the rehearing.

HIRAM M. DOW
J. H. CROCKER
W. E. McKELLAR, JR.

ATTORNEYS FOR PETITIONERS

SUBSURFACE ENGINEERING COMPANY • production engineering services
701 S. 33rd WEST AVE. TULSA TELEPHONE 54-5819

Case 149
Magn 9-C

FIELD WIDE SURVEY

CROSSROADS DEVONIAN FIELD

10-7-51

WELL & NO.	B. H. P. at -8141' PREVIOUS DATE	PREVIOUS PSI GAGE	CURRENT DATE	CURRENT PSI GAGE	LOSS LBS.	LOSS #/DAY	SHUT IN HOURS	WATER LEVEL IN TUBING	PAGE NO.
MID-CONTINENT PETROLEUM CORPORATION									
Dessie Sawyer #1	2-3-51	4853#	10-7-51	4822#	31	.126	31:15	9208'	1
U.D.Sawyer "C" #1	3-6-51	4860	"	4847	13	.053	33:20	None	2
U.D.Sawyer "D" #1	2-2-51	4872	"	4849	23	.093	34:50	"	3
MAGNOLIA PETROLEUM COMPANY									
Santa Fe-Pacific "B" #1			10-7-51	4853				None	4
OIL DEVELOPEMENT COMPANY OF TEXAS									
Santa Fe-Pacific Railroad Fee 27 #2	11-4-50	4854	10-7-51	4859	4# Gain		37	None	5

OKLAHOMA CITY
512 Leonhardt Bldg.
Phone 58-4915

SUBSURFACE ENGINEERING COMPANY

production engineering services

Post Office Box 1827 TULSA Phone 54-5819
PREMONT, TEXAS Phone 3101 MIDLAND, TEXAS Phone 3599
SNYDER, TEXAS Phone 1457

HOUSTON
1307 Bell
Phone P-2429

Field Crossroads Devonian Invoice No. T 10-143

Company Mid-Continent Petroleum Corporation

Lease Dessie Sawyer Well No. 1

Date 10-7-51 Time 14:30 Status of Well Static

Pay Devonian Top 11715' Bottom T.D. 12231' Datum -8141'

Tubing 2½" EUE Depth 12177' B.H.C. No Plug or Pin Plug Packer No

Casing 5½" OD Depth 12218' Perforations 11840' Liner No Tree Top 2½" EUE

Depth Feet	Pressure lbs. sq. in.	Pressure Δ	Gradient lbs./ft.
28	418		
2008	1096	678	.342
4008	1782	686	.343
6008	2459	677	.339
8008	3132	673	.337
10008	3890	758	.379
11750	4660	770	.442
11950	4754	94	.470
12150	4847	93	.465
-310	-144		
11840	4703	Perf.	.465
340	119		
12180	4822	Datum	.345
-8141	4822	"	.345

Casing Press.	673# DWT
Tubing Press.	412½# DWT
Oil Level	at top
Water Level	9208'
Hours—Shut In	31:15 Flowing
Temp. @	12150'-196° & 196°F.
Elevation—D.F.	4039' Ground
Last Test Date	2-3-51 Static 30h46m
Press. Last Test	4853#
B.H.P. Change	31#
Loss/Day	.126#
Choke Size	
Oil Bbls./day	
Water Bbls./day	
Total Bbls./day	
Orifice and Line	
Static and Differential	
Gas Sp. Gr.	Tf
Cu. ft./day	
GOR	
GFR	

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production	Present Cumulative Production	Production Between Tests
Instrument Amerada	Number 7499	Recovery Factor Bbls./pound Loss
Run By Rex Shearer	Calibration No. M 63	Calculated By FP

Calculations and Remarks: Assumed reservoir gradient .345

FORM R S 1 75M 1-51

OKLAHOMA CITY
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SUBSURFACE ENGINEERING COMPANY
production engineering services
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PREMONT, TEXAS Phone 3101 MIDLAND, TEXAS Phone 3599
SNYDER, TEXAS Phone 1457

HOUSTON
1307 Bell
Phone P-2429

Field Crossroads Devonian Invoice No. T 10-143

Company Mid-Continent Petroleum Corporation

Lease U. D. Sawyer "C" Well No. 1

Date 10-7-51 Time 16:20 Status of Well Static

Pay Devonian Top 12000' Bottom 12092' T.D. 12102' Datum -8141'

Tubing 2½" EUE Depth 12100' B.H.C. 12100' Plug or Pin Packer

Casing 5½" OD Depth 12097' Perforations 12040-92' Liner Tree Top 2½" OCT

Depth Feet	Pressure lbs. sq. in.	Pressure Δ	Gradient lbs./ft.
26	717		
2006	1396	679	.343
4006	2076	680	.340
6006	2757	681	.341
8006	3436	679	.340
10006	4106	670	.335
11686	4671	565	.336
11886	4743	72	.360
12086	4816	73	.365
6	2		
12092	4818	Bottom of perf.	.365
83	29		
12175	4847	Datum	.345
-8141	4847	"	.345

Casing Press.	697# DWT
Tubing Press.	718# DWT
Oil Level	at top
Water Level	none
Hours—Shut In	33:20 Flowing
Temp. @	12086'-193° & 193°F.
Elevation—D.F.	4034' Ground
Last Test Date	3-6-51
Press. Last Test	4860# static 145 hrs
B.H.P. Change	13#
Loss/Day	.053#
Choke Size	
Oil Bbls./day	
Water Bbls./day	
Total Bbls./day	
Orifice and Line	
Static and Differential	
Gas Sp. Gr.	Tf
Cu. ft./day	
GOR	
GFR	

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production	Present Cumulative Production	Production Between Tests
		Recovery Factor Bbls./pound Loss

Instrument Amerada Number 7499

Run By Rex Shearer Calibration No. M 63 Calculated By PP

Calculations and Remarks: Assumed reservoir gradient .345

FORM R S. 1 75M 1-51

OKLAHOMA CITY
512 Leonhardt Bldg.
Phone 58-4915

HOUSTON
1307 Bell
Phone P-2429

SUBSURFACE ENGINEERING COMPANY

production engineering services

Post Office Box 1827 TULSA Phone 54-5819

PREMONT, TEXAS Phone 3101 MIDLAND, TEXAS Phone 3599

SNYDER, TEXAS Phone 1457

Field Crossroads Devonian Invoice No. T 10-143

Company Mid-Continent Petroleum Corporation

Lease U. D. Sawyer "D" Well No. 1

Date 10-7-51 Time 17:55 Status of Well Static

Pay Devonian Top 11950' Bottom 12150' T.D. 12150' Datum -8141'

Tubing 2 1/2" Depth 12112' B.H.C. None Plug or Pin Plug Packer No

Casing 5½" EUE OD Depth 12147' Perforations 12000-50' Liner No Tree Top 2½" OCT

Depth Feet	Pressure lbs. sq. in.	Pressure Δ	Gradient lbs./ft.
27	723		
2007	1398	675	.341
4007	2084	686	.343
6007	2760	682	.338
8007	3442	682	.341
10007	4109	667	.334
11692	4679	570	.338
11892	4749	70	.350
12092	4819	70	.350
-42	-15		
12050	4804	Bottom of perf.	.350
131	45		
12181	4849	Datum	.345
-8141	4849	"	.345

Casing Press.	7204# DWT
Tubing Press.	7174# DWT
Oil Level	at top
Water Level	none
Hours—Shut In	34:50 Flowing
Temp. @	12092'-194° & 194°F.
Elevation—D.F.	4040' Ground
Last Test Date	2-2-51 static 32h 20
Press. Last Test	4872#
B.H.P. Change	23#
Loss/Day	.093#
Choke Size	
Oil Bbls./day	
Water Bbls./day	
Total Bbls./day	
Orifice and Line	
Static and Differential	
Gas Sp. Gr.	Tf
Cu. ft./day	
GOR	
GFR	

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production	Present Cumulative Production	Production Between Tests
		Recovery Factor Bbls./pound Loss

Instrument Amerada Number 7499

Run By Rex Shearer Calibration No. M 63 Calculated By FP

Calculations and Remarks: Assumed reservoir gradient .345

FORM R.S. 1 75M 1-51

OKLAHOMA CITY
512 Leonhardt Bldg.
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SUBSURFACE ENGINEERING COMPANY

production engineering services

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PREMONT, TEXAS Phone 3101 MIDLAND, TEXAS Phone 3599

SNYDER, TEXAS Phone 1457

HOUSTON
1307 Bell
Phone P-2429

Field Crossroads Devonian Invoice No. T 10-142

Company Magnolia Petroleum Company

Lease Santa Fe - Pacific "B" Well No. 1

Date 10-7-51 Time 12:41 Status of Well Static

Pay Devonian Top 12130' Bottom 12137' T.D. 12137' Datum -8141'

Tubing 2" EUE Depth 12125'? B.H.C. Plug or Pin B.P. Packer

Casing 7" OD Depth 12130' Perforations Open Liner Tree Top 2" 11# Reg.

Depth Feet	Pressure lbs. sq. in.	Pressure Δ	Gradient lbs./ft.
26	712		
2006	1393	681	.344
4006	2090	697	.349
6006	2758	668	.334
8006	3431	673	.337
10006	4104	673	.337
11676	4668	564	.338
11876	4742	74	.370
11976	4779	37	.370
12076	4816	37	.370*
61	23		
12137	4839	Bottom of pay	.370
39	13		
12176	4852	Datum	.345
-8141	4852	"	.345

Casing Press. 683# DWT

Tubing Press. 714# DWT

Oil Level attop

Water Level none

Hours—Shut In Flowing

Temp. @ 12076'-193° & 193° F.

Elevation—D.F. 4035' Ground

Last Test Date

Press. Last Test

B.H.P. Change

Loss/Day

Choke Size

Oil Bbls./day

Water Bbls./day

Total Bbls./day

Orifice and Line

Static and Differential

Gas Sp. Gr. Tf

Cu. ft./day

GOR

GFR

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production

Present Cumulative Production

Production Between Tests

Instrument Amerada Number 7499 Recovery Factor Bbls./pound Loss

Run By Rex Shearer Calibration No. M 63 Calculated By FP

Calculations and Remarks: *Considered sediment and not water. Assumed reservoir gradient .345

FORM R.S. 1 75M 1-51

OKLAHOMA CITY
512 Leonhardt Bldg.
Phone 58-4915

SUBSURFACE ENGINEERING COMPANY

production engineering services

Post Office Box 1827 TULSA Phone 54-5819
PREMONT, TEXAS Phone 3101 MIDLAND, TEXAS Phone 3599
SNYDER, TEXAS Phone 1457

HOUSTON
1307 Bell
Phone P-2429

Field Crossroads Devonian Invoice No. nT 10-141

Company Oil Development Company of Texas

Lease Santa Fe - Pacific Railroad Fee 27 Well No. 2

Date 10-7-51 Time 11:00 Status of Well Static

Pay Devonian 11747' Top Pay 11778' Bottom Not drilled Thru T.D. 11880' Datum -8141'

Tubing 2½" EUE Depth 11875' B.H.C. None Plug or Pin Plug Packer No

Casing 5½" Depth 11775' Perforations Open Hole Liner Tree Top 2½" OCT

Depth Feet	Pressure lbs. sq. in.	Pressure Δ	Gradient lbs./ft.
30	715		
2010	1393	678	.342
4010	2079	686	.343
6010	2760	681	.342
8010	3439	679	.340
10010	4109	670	.335
11480*	4604	495	.337
11670	4673	69	.363
11770	4713	40	.400
11870	752	39	.390
10	4		
11880	4756	Bottom of Perf.	.390*
298	103		
12178	4859	Datum	.345
-8141	4859	"	.345

Casing Press.	720# DWT
Tubing Press.	715# "
Oil Level	at top
Water Level	none
Hours—Shut In	37:00 Flowing
Temp. @	11870'-194° & 194°F.
Elevation—D.F.	4037' Ground 4026'
Last Test Date	11-4-50
Press. Last Test	4854# Extr.to 8141#
B.H.P. Change	4# gain
Loss/Day	
Choke Size	
Oil Bbls./day	
Water Bbls./day	
Total Bbls./day	
Orifice and Line	
Static and Differential	
Gas Sp. Gr.	Tf
Cu. ft./day	
GOR	
GFR	

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production

Present Cumulative Production

Production Between Tests

Instrument Amerada Number 7499

Recovery Factor Bbls./pound Loss

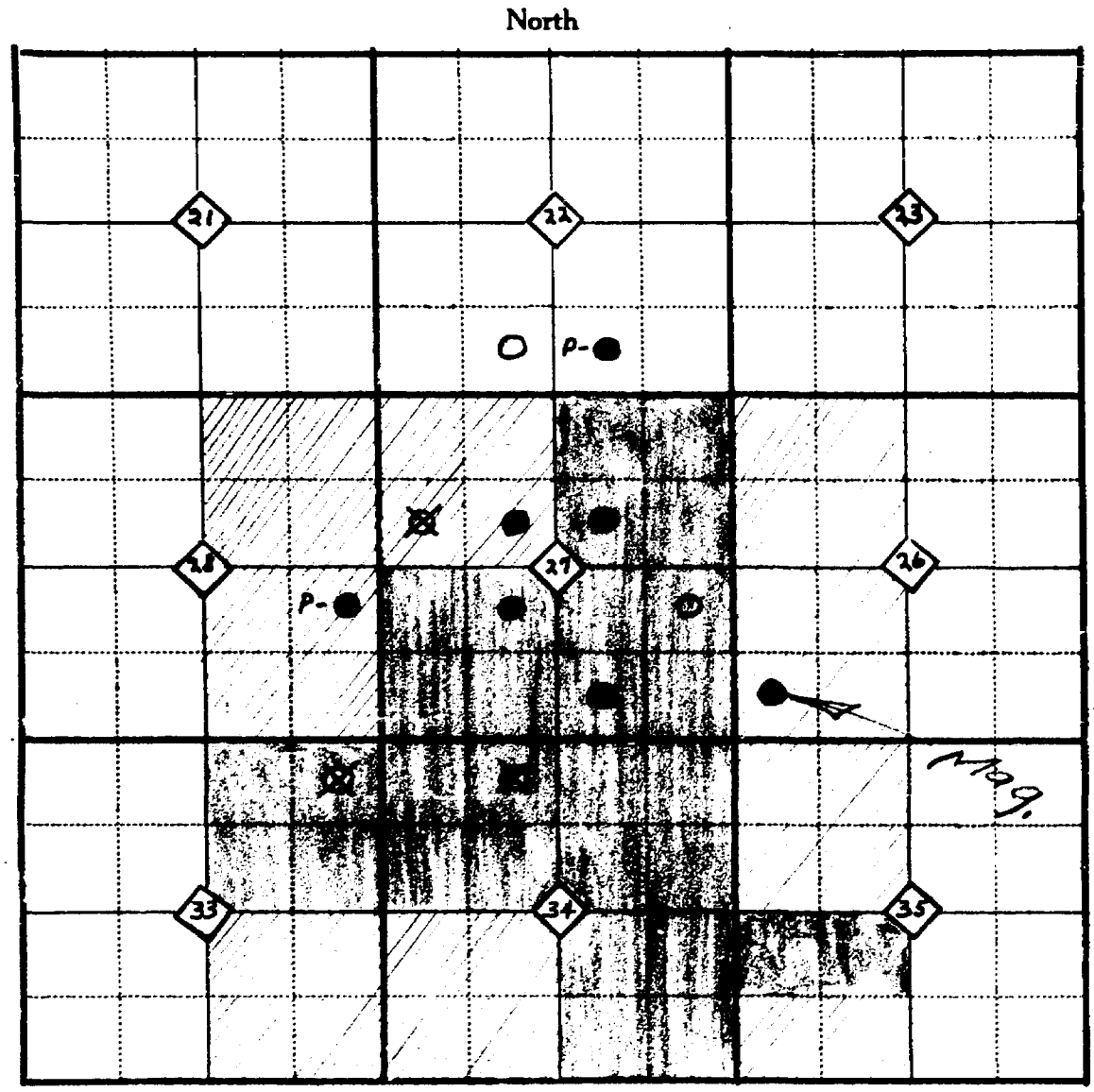
Run By Rex Shearer Calibration No. M 63 Calculated By pp

Calculations and Remarks:

*Considered sediment and not water.
Assumed reservoir gradient .345

P-●	-	SW¼SE¼	22	- Magnolia-Santa Fe-1-d	- Pennsylvanian
○	-	SE¼SW¼	22	- Oil Dev.Co-Santa Fe-1-22	- Drilling
●	-	SW¼SW¼	26	- Magnolia-Santa Fe-1-C	- Devonian
●	-	SW¼SE¼	27	- Mid-Continent-Sawyer-1	- Devonian
●	-	NE¼SW¼	27	- Mid-Continent-Dessie	- Devonian
●	-	SW¼NE¼	27	- Mid-Continent-Sawyer-D	- Devonian
⊠	-	SW¼NW¼	27	- Oil Dev.Co-Santa Fe-1	- Dry hole Devonian
○	-	SE¼NW¼	27	- Oil Dev.Co-Santa Fe-2-27	- Drilling
○	-	NE¼SE¼	27	- Mid-Continent-Sawyer-1-C	- Drilling
P-●	-	NE¼SE¼	28	- Magnolia-Santa Fe-1-B	- Pennsylvanian
⊠	-	NE¼NE¼	33	- Skelly Oil Co-Sawyer-1	- Dry hole devonian
⊠	-	NE¼NW¼	34	- Mid-Continent-Sawyer-1-B	- Dry hole Devonian

Township 9 South Range 36 East



CROSSROADS DEVONIAN FIELD BELOW 12,200 FEET
Solid Red--Owned by Sawyers Diagonal--Owned by AT&SF, et al
● - Devonian wells below 12,000 ○ - Drilling wells
P-● - Pennsylvanian approx 9,700 ⊠ - Dry holes

Exhibit "A"

G. H. Gray
Midland, Texas
For Repollo Oil Co.

L. J. Torch
Tulsa, Okla.
For Repollo Oil Co.

T. H. Hammett
Tulsa, Okla.
For Repollo Oil Co..

Paul C. Evans
Hobbs, N..M.
For Gulf Oil Corporation

L. Hosford
Tulsa, Okla.
For Gulf Oil Corporation

Mrs. Nettie Ogl
Santa Fe, N. M.

Scott R. Brown
Midland, Texas
For Western Natural Gas Co.

E. P. Keeler
Dallas, Texas
For Magnolia Petroleum Co.

Harve H. Mayfield
Midland, Texas
For Magnolia Petroleum Co.

R. Simmons
Artesia, N. M.
For Grayburg Oil Co. of New Mexico

R. J. Heard
Artesia, N. M.
For Grayburg Oil Co. of New Mexico

John E. Cochran
Artesia, N. M.
For Ross Sears

Oliver Seth
Santa Fe, N. M.
For Stanolind Oil and Gas Co.

P. P. Manion, Jr.
Tulsa, Okla.
For Stanolind Oil and Gas Co.

J. O. Seth
Santa Fe, N. M.
For Amerada Petroleum Corporation

R. S. Christie
Ft. Worth, Texas
For Amerada Petroleum Corporation

Harry J. Gibbons
Tulsa, Okla.
For Skelly Oil Co;

A. F. Holland
Tulsa, Okla.
For Skelly Oil Co.

George N. Selinger
Tulsa, Okla.
For Skelly Oil Co.

Walter Famaris
Hobbs, N. M.
For Famaris Oil Co.

W. G. Head
Clovis, N. M.
For Triangle Oil Co.

Glenn Staley
Hobbs, N. M.
For Lea County Operators

O. V. Adkins
Midland, Texas
For Cities Service Oil Co.

C. S. Mitchell
Bartlesville, Oklahoma
For Cities Service Oil Co.

J. D. Boatman, Jr.
Dallas, Texas
For The Atlantic Refining Co.

Sid W. Binion
Midland, Texas
For Atlantic Pipe Line Co.

W. B. Hamilton
Amarillo, Texas
For Phillips Petroleum Co.

P. J. Gaskin
Santa Fe, N. M.
For Wilson Oil Co.

Roy O. Yarbrough
Hobbs, N. M.
For the Commission

N. R. Lamb
New Mexico Bureau of Mines
Artesia, N. M.

Foster Morrell
Roswell, N. M.
For U. S. Geological Survey

COMMISSIONER MILES: The Commission is now in session.

COMMISSIONER SPURRIER: Will you read the first case, George, please?

(Mr. Graham reads the notice of publication in Case No. 149.)

COMMISSIONER SPURRIER: Will the Mid-Continent come forward, please?

MR. CROCKER: Mr. Chairman, the applicant is ready to proceed in this cause. I might state briefly that while Mid-Continent is the applicant, you might say it is applicant in name only, on behalf of itself and on behalf of all operators within the immediate area upon which this discovery well, No. 1 Sawyer in Lea County, has been drilled. This application was filed with the Commission on the 14th of June. It was done pursuant to the consensus of opinion voiced at a meeting held in Tulsa on June 11. At the meeting in Tulsa on June 11, the operators were well represented and had one thought in mind with respect to the type of application that should be filed, and Mid-Continent, as being the operator of the discovery well, was designa ted as the medium through which this application should be filed. The application, briefly speaking, invokes the jurisdiction of the Commission for the purpose of securing an order to cover three points, you might say. First, and foremost, it was thought that at this time, or as soon as could be conveniently accomplished by the Commission, the proration units in this field should be established in an area of 80 acres, a half of a governmental quarter section constituting a proration unit. The petition further seeks an order to establish a spacing pattern. We ask the Commission to designate the northeast 40 acres and the southwest 40 acres of each governmental quarter section as the drilling units, with a reasonable tolerance. We ask for 150 feet to accommodate any surface obstructions. Third, and incident to the order, we have sought in the application that this Commission fix a daily allowable. We really regard this at this particular moment as incidental to the principal

purposes, that of fixing a proration unit and to establish well spacing. Presently, in addition to the discovery well, four wells are now drilling in the area. Some offsets and probably one or maybe two that are not exactly offsets, but maybe the second location. All of these wells have respected a common conventional pattern, drilling either in the northeast 40 or southwest 40. Only a month ago, I believe June 15, we appeared--Mid-Continent on its own behalf, and sought from the Commission a temporary allowable for the discovery well. The Commission very kindly granted our request. Last evening an operators' meeting at the hotel here in Santa Fe was in session probably two hours in an effort to see whether or not any divergent opinions existed with regard to the manner in which we should present this cause to you this morning. I may state just briefly, and later on in the proceedings it will probably be elaborated on, but the unanimous opinion, I believe I can safely say,of the operators at yesterday's meeting was that we appear this morning and seek your order establishing an 80-acre proration unit and fixing a conventional well-spacing pattern as I have stated in the northeast an d southwest quarter sections of a governmental 160-acre tract. With respect to fixing a daily allowable for--at least temporarily until more information is brought before you, the meeting decided that we should ask you to fix an allowable, daily oil allowable, of 300 barrels until a further order issued by this Commission. Three hundred barrels would apply to the discovery well and to all wells hereafter drilled until such time as the Commission might fix another permanent allowable. As I state, we regard probably that any temporary allowable that you now fix you might want to change, the operators might want to change, as a result of information yet to be developed. We have taken the liberty--we do it without any presumptousness--we did it

to form a basis for our discussion at our meeting yesterday--we have prepared what we call a proposed order. We have undertaken, after some study, to incorporate in the order all of the facts with sufficient definiteness to be readily interpreted and not misunderstood. We thought we would submit it, and if the Commission agrees with us, it might be helpful in the formulation of any final order you make as a result of this hearing. In that proposed order we have--well, I think the statute gives it to the Commission anyway, perhaps the wordage is not needed--but in the order we appropriately provided that this Commission retains jurisdiction of this cause, that it might on its own motion, or upon the motion of any interested operator, at a later time issue further and additional orders. We rather anticipate that someplace further down the line when further information is developed on the reservoir that that might be done.

Now, with respect to further proceedings, we were going to offer Mr. Penn, our Chief Engineer. Following his testimony, it is our understanding that perhaps Skelly and Magnolia might care to make a further statement, and maybe we ourselves might have something further to observe. As Mr. Penn testified here a month ago today on the well, we have qualified him, I believe, to the satisfaction of the Commission and other operators as an expert. He testified with respect to the well at that particular time. The tests that had been made, the cost of the well, and other figures, engineering figures. We would like to suggest that the record of his testimony be adopted and made a part of this hearing. It might then in some respects shorten the proceedings, and we certainly have no desire to prolong the proceedings, nor unduly tax the Commission. We would be glad to give you all the information you wish. I believe with that preliminary statement, I would like to have Mr. Penn sworn and take the

stand.

(Witness sworn)

M. B. PENN, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. CROCKER:

Mr. Penn, will you state your name, please?

A. M. B. Penn.

Q. What is your profession?

A. Petroleum engineer.

Q. Where do you live?

A. Tulsa, Oklahoma.

Q. With whom are you connected?

A. Mid-Continent Petroleum Corporation.

Q. Have you heretofore testified before this Commission?

A. I have.

Q. Were you qualified as a petroleum engineer at that time as an expert witness?

A. I believe so, yes, sir.

Q. Do you want further qualifications, or will you adopt them?

COMMISSIONER MILES: No, we will adopt them.

Q. Mr. Penn, in your capacity as Chief Engineer of the Mid-Continent Petroleum Corporation are you familiar with the No. 1 Sawyer well and the Crossroads Pool in Lea County, New Mexico?

A. I am.

Q. When was that well completed--let me ask you this, first. When was the well started? About?

A. The well was started about August of 1947.

Q. When was it completed, Mr. Penn?

A. About May 6, 1948.

Q. To what depth was it completed?

A. 12,258 feet.

Q. Did you make a test for initial production at the time it

was completed?

A. Yes, the initial test showed 995 barrels of oil and no water through a 3/4 inch choke for a period of six hours and twenty minutes.

Q. Is there another well drilling in the area at the present time?

A. Yes, there are four other wells drilling.

Q. Can you give the Commission the approximate location of each of those wells?

A. The wells are located as follows: one in NENE of Section 33; one in the NENW of Section 34; one in the NESW of Section 27; and the fourth in the center of the SWSW of Section 26, all in Township 9 South, Range 36 East, Lea County, New Mexico.

COMMISSIONER MILES: For fear of overlooking it later, I did not understand how much oil was produced in a certain given time.

A. In the initial test, Governor Miles, the well was flowed for six hours and twenty minutes. And in that period it produced 995 barrels of oil. That was produced through a 3/4 inch choke on the tube at the top of the hole.

MR. CROCKER: This will help you visualize what our witness is talking about (laying a map before the Commission).

Q. What is the distance in feet between offsets?

A. This is 1867 feet between offsets. This is the Skelly well here, and this is a Magnolia well and this--these two are Mid-Continent. They are all drilling now between about four and six thousand feet.

MR. CROCKER: Did you get all the information you wanted, Governor?

COMMISSIONER MILES: Yes, sir.

Q. Mr. Penn, did you understand that that area has been delineated and recommended by the Nomenclature Committee for the Devonian formation in this particular area?

A. Yes, sir, it is my understanding that the W½ of Section 26, all of Section 27, the E½ of Section 28, the E½ of Section 33, and all of Section 34, and the W½ of Section 35 in this township have been recommended as being the probable producing area now set up by this Nomenclature Committee.

Q. Is it your understanding that it is the purpose of the application in the event an additional area might be proven productive outside of the delineated area that any order issued by the Commission based upon this application would cover and embrace such an outlying area?

A. That is correct. If a well should be drilled into or produced from the Devonian formation, in the interests of uniformity it should be drilled on the pattern that has been set forth.

Q. Mr. Penn, at the time this No. 1 Sawyer well was completed and put into production, did you understand that the Oil Conservation Commission of New Mexico had then established a formula for a daily deep well allowable for production below 12,000 feet.

A. It is my understanding that at that time the allowable for wells had been set for a depth down to 12,000 feet, but that for wells below 12,000 feet a formula or allowable had not been set up.

Q. Yes, sir. Going back to the drilling wells you have described and located, may I ask whether or not all of those wells are drilling either in the northeast 40-acre tract or the southwest 40-acre track of a governmental quarter section of 160 acres?

A. It is fortunate that they are. All the wells that are presently drilling and our discovery well are on the pattern which is shown as Exhibit A on the proposed order thatwe have prepared.

Q. In other words, if this Commission were to confirm by an

order a drilling pattern requiring all Devonian wells to be drilled on either northeast or southwest 40-acre tracts, we have no well that is unorthodox or that would require an exception to the order?

A. That is correct.

Q. Mr. Penn, I wish you would give the Commission the benefit of the observations and conclusions and recommendations that were made at a meeting held in the La Fonda Hotel yesterday afternoon, at which Repollo Oil Co., Grayburg Oil Co. Skelly Oil Co., Magnolia Petroleum Co., Amerada Petroleum Corporation, Santa Fe Railway Co. and the Oil Development Company of Texas, Lea County Operators Committee, represented by Mr. Staley, U. S. Geological Survey, represented by Mr. Morell, the Devonian Oil Co., represented by Mr. Calvert, Bureau of Mines, represented by Mr. Lamb, and Mid-Continent, with respect to their unanimous--and Gulf Oil Corporation, I beg your pardon--with respect to the unanimous view with regard to the establishment of 80-acre proration units, the conventional well-spacing pattern, and the recommendations of the meeting with regard to the fixing of a temporary daily allowable for the field until such time as the Commission, upon further information, might determine that a different permanent daily allowable should be established for the pool. I wish you would explain to the Commission those particular points, if you will.

A. The operators were still unanimous in their opinion that the reservoir can be adequately and economically drained by drilling one well for each 80-acre proration unit, as they has been in the Tulsa meeting. They were looking forward to having a great deal more information on the Mid-Continent well than was available at that time. Mid-Continent made clear that the conditions that existed and the inadequacy of the proper results, or the complete results from tests that

are still being taken might or might not be representative of the productivity and characteristic of future wells that might be drilled in the reservoir. Upon this basis the operators felt that an allowable that might be set up at this time should be an allowable that furture wells, which will probably be completed in four or five months, might produce--at a rate at which these wells might produce--for such time until information was available upon these wells which might supplement the information that was had on the discovery well. So that the 300 barrel allowable was agreed upon by the operators as being the rate at which everybody would produce until such time as more complete information could be obtained. The number isn't valued or just picked out of the air. It was decided upon from all the information that they had, and all the opinions, and all the desires that the operators representing all those present in the Cross roads area might agree upon.

MR. CROCKER: I believe with that testimony we are willing to turn the witness to the Commission and to any interested operator who might care to interrogate the witness further.

COMMISSIONER MILES: Just one question there. Maybe I am not clear on it. Awhile ago you said that was the initial production, the amount so produced. That 900-odd barrels.

A. Yes. That was the initial rate at which the well produced on the first day it was completed.

COMMISSIONER MILES: Has there been any change made since that time? Any tests made?

A. Yes, we gave the Commission quite a few tests at the last hearing, Governor, based on various sizes of chokes. All the way, I believe, from about 150 barrels per day to about 3970 barrels per day. It showed the ability of the well to produce on those various sizes of chokes, and the amount of energy required to produce the oil on those various sized chokes.

COMMISSIONER MILES: I remember that testimony.

A. Since then we have taken further tests to show the order or magnitude of those tests to be the same under the different engineering company that took the second set of tests.

COMMISSIONER MILES: That is all I have.

COMMISSIONER SPURRIER: Mr. Penn, what was the figure that the Oil Conservation Commission has set for the allowable, based upon the extension of the curve? The Commission in an executive order set an allowable before this past hearing was held.

A. It is my understanding that based on the 44 barrel basic allowable that the allowable for this well should be somewhere around 300 or 310 barrels.

COMMISSIONER SPURRIER: I wonder if we couldn't bring out a few more of the facts to substantiate your basis of 300 barrels, whereas the Commission granted an allowable of 500 barrels at the June 15 hearing.

A. There are two things that I would like to point out in that respect. In the first place, the operators are agreeable to Mid-Continent having an allowable of 500 barrels as a temporary measure, both for testing the well and as a bonus allowable for a new discovery. The operators present were not unanimous in their desire to give the applicant a permanent allowable of 500 barrels. That was to be taken care of at this hearing today. The data that Mid-Continent presented indicated that one of the important factors upon which we based the 300 barrels was production of salt water. This water appears in the well after production is increased from a low rate at a figure somewhere between 300 and 500 barrels a day. And the operators felt that 300 barrels a day, based upon this data, was probably the optimum rate. That was arrived at independent of the Commission's former factor of 6.75.

MR. CROCKER: Mr. Penn, the Commission established--I believe it was Mr. Spurrier who drew it out--a proportional formula of 6.75. Is that your understanding?

A. That is correct.

MR. CROCKER: For this depth?

A. Yes.

MR. CROCKER: As a matter of fact, the application of the proportional formula of 6.75, I believe you state, as related to 300 barrels is just a matter of a very few barrels, is it not?

A. That is correct.

MR. CROCKER: I would like to make this statement. In the meeting yesterday we got to talking in terms of barrels rather than on the question of a proportional factor. And when we adjourned yesterday, we had, as I understand, been talking in terms of 300 barrels. I don't know, it might be that the Commission if it saw fit to grant approximately what we are asking for, to-wit, 300 barrels a day, you might desire to use it in the form of a proportional factor rather than the 300 barrels. Now, I don't know how other operators--I didn't discuss that at the meeting--and I don't know how other operators who participated in yesterday's meeting might feel about it. But I take it that if the results are approximately the same, we, at lea st Mid-Continent, can't see where we would have any objection to it being referred to in a factor form or a barrel form. Does that catch the point that you made?

THE WITNESS: I might say that several of the operators have indicated that in view of the fact that we are asking for 80-acre spacing, and in view of the fact that the curve that Mr. Spurrier has referred to is at the present time applicable to wells drilled on 40-acre proration units, it might be advisable to separate the two until some method might be worked out for setting up an allowable formula for these deep wells that will be drilled on 80-acre spacing. The two are separate and apart in that respect. I just throw that in as a suggestion.

COMMISSIONER SPURRIER: When you say the two, you mean the allowable for 40-acre units and the allowable that might be arrived at for 80-acres?

A. Yes.

MR. SELINGER: I represent the Skelly Oil Co. I would like to ask Mr. Penn a few questions.

Q. Mr. Penn, as to the casing and other drilling and operating rules, do you feel that the present general rules applicable to Lea County in that respect are sufficient to cover this area?

A. Yes, I do.

Q. Now, to further clarify Mr. Spurrier's last question to you with regard to 40 and 80-acre units. That subject is covered in Section 4 of the order--part of the proposed order that had been submitted to the Commission. Is that right?

A. That is correct.

Q. And briefly, it permits wells to be given an allowable on an 80-acre basis, and units of less than 80 acres--as a result of a hearing--will be assigned an allowable based on the amount of acreage that the--that it bears to the normal 80. Is that right?

A. That is correct.

Q. At this meeting held yesterday, all interested parties, both within the probable area as delineated by the Nomenclature Committee and by interested operators outside that area, were they unanimous in their accord as to the rules as now proposed? Submitted to the Commission?

A. They were.

Q. In your opinion, Mr. Penn, the establishment of an 80-acre unit for this field only would eliminate the necessity of drilling unnecessary wells in order for each operator to recover his proportionate share from the reservoir?

A. It would.

Q. In order to specifically clarify it, these rules as now posposed are applicable only to the Crossroads pool, that common source of supply designated as the Devonian, which was discovered by your Sawyer No. 1 well. Is that right?

A. That's right.

MR. SELINGER: That is all.

COMMISSIONER MILES: The Governor just asked me, and I don't know. How extensive is that area applied for here? What is the proposed area?

GOVERNOR MABRY: What is the extent of the area?

COMMISSIONER SPURRIER: Four square miles.

THE WITNESS: The pool that is temporarily set up in this area here (indicating on the map) is four square miles.

COMMISSIONER MILES: Four square miles. Mr. Spurrier, did you attend that meeting?

COMMISSIONER SPURRIER: Yes, sir, I did.

COMMISSIONER MILES: Do you see any complications anywhere in the set up?

COMMISSIONER SPURRIER: I don't think there is anything in the proposed order that would be detrimental to our general set up, due to the fact that as stated it is temporary in nature until such time as additional wells are drilled and additional information compiled.

GOVERNOR MABRY: I have no questions.

COMMISSIONER MILES: I have no questions.

COMMISSIONER SPURRIER: I would like to ask some further questions, please.

GOVERNOR MABRY: Go ahead.

COMMISSIONER SPURRIER: What is the alternative, or what are the alternatives, of a person who owns only 40 acres in the Crossroads pool as it exists now or may be extended?

A. There are two alternatives. The first alternative is that a 40-acre that exists as one-half of one of the 80-acre pro-

ration units be unitized with the other forty to form an 80-acre proration unit. The second is that if the operator should choose to drill a well on his 40 acres, which is on 100 per cent interest, that he would be permitted to produce the well at one-half the allowable that would be attributable to an 80-acre proration unit.

COMMISSIONER MILES: Is that referred to in this order?

A. Yes, that is referred to in Section 4 of the order on page three.

COMMISSIONER MILES: Mr.Spurrier, do you have some more questions?

COMMISSIONER SPURRIER: Yes, Governor, thank you. I don't care to string this out too far, but I think there are a few things that should be brought out. I have heard them discussed.

Q. Suppose that some individual owned the NW¼ and the SE¼ of a governmental quarter section? What could he do now in the way of unitizing or communitizing or what should he do?

A. In the present set up, he would own half of the two 80-acre proration units. And those proration units, upon the application and agreement of the two parties could be established as they are shown in Exhibit A on our proposed order, or they could be changed as set out in Section 3. I quote, "by agreement of the operators within said quarter section upon proper showing to the Commission." It is fortunate, Mr. Spurrier, that in the area that is immediately foreseen as being productive there are very few of those problems that you mention.

GOVERNOR MABRY: I was wondering how many there were, if any.

A. I have a map that I can show you, Governor.

GOVERNOR MABRY: I don't care, specifically. Is there a substantial number?

A. It will be an exception to find one.

COMMISSIONER SPURRIER: You propose to take care of it with the two ways out.

MR. CROCKER: That is correct. The proposed order, as amended, without burdening the record, your Commission retains jursidiction here. If any operator, or you can upon your own motion correct any inequity that might exist by reason of unusual circumstances.

THE WITNESS: The order is very flexible, Governor.

GOVERNOR MABRY: I assumed so with my cursory reading of it. There is no objection from anybody who participated in the conference? I take it that all operators of the area agreed to them?

THE WITNESS: That is correct.

COMMISSIONER MILES: Mr. Morrell, do you have any interest in the matter?

MR. MORRELL: I have a few general remarks. First, New Mexico is fortunate in having the type of operators that can settle these problems. It seems to me that a too-detailed discussion of engineering and reservoir conditions in this case would be academic as the data is available only from one well which is still in the process of experimentation. In the absence of more details it would appear that an order issued at this time should be specifically for a temporary period. Possibly for a fixed date or number of wells. After which the problem would be further considered. I have been privileged to attend several meetings of the operators of the Crossroads pool, and I would like to note for the benefit of the Commission and for the record that the considerations expressed by the operators involved were largely for the proper protection of the reservoir. Some differences of opinion were expressed, naturally. But all were quickly resolved in the interest of the majority. I feel it only proper and just--the fine work done which Mid-Continent and Magnolia aided by Skelly in initiating

and developing the necessary data to secure a well-spacing proper for the Cross roads pool. Special consideration should be given Mid-Continent and its personnel for the fine cooperation open-minded manner in which it has approached this problem. In the present circumstances I see no objection to granting the application made to your Commission.

COMMISSIONER MILES: Anybody else?

MR. SELINGER: I represent Skelly Oil Co., one of the companies drilling at the present time. If everything goes well, we hope to bring in the second well in the area. We are particularly anxious for the Commission to adopt these proposed rules for the reason that even though there is only one well, it is my experience, covering a period since 1933 in proration exclusively, that the quicker a state assumes jurisdiction for a proper development program in which they fix the spacing and proration units, the less headaches that regulatory body has farther on down the line. In that way, operators do not have any preconceived selfish ideas, whether on top of the structure or on the fringe. At the present time we don't know where the structure lies. Here all the operators come in and say, we agree on a proposed order. Let the chips fall where they may. It may be that we will be hurt by this kind of an order. That is something that we don't know. As long as each operator knows what the drilling unit is and knows where the wells are supposed to be located, and knows what his approximate allowable is, every single operator in the field is treated alike. That is why we particularly urge the Commission to adopt these rules now. Because if additional wells are brought in, then the unanimity is naturally broken up between particular interests of each individual operator. Of course, we are all in business for money making. But as Mr. Morrell very aptly put it, the cooperation shown by operators in this particular regard

has been in line with the remarkable record that operators in the field and throughout the State have shown since 1935. It is particularly to the good name of your State that in thirteen years of proration you have only had 151 proration cases. I have always found that the spirit of the Legislature, particularly in Section 12, the fifth paragraph, in which it tells this Commission to approve any plan which was agreed upon by all operators in any particular field, and if it felt that it was just to adopt that plan. We, as one operator, particularly urge the Commission under that particular section to adopt the plan which has been unanimously approved by the operators interested in the field.

MR. KEELER: I represent Magnolia Petroleum Co. I should like to take this opportunity to concur with all recommendations made by Mid-Continent and Skelly, and state that Magnolia is in favor of this proposed order as presented to the Commission.

COMMISSIONER SPURRIER: Is there anyone else to be heard from? I would like to state for the record that I heartily agree with Mr. Morrell's well put comments.

COMMISSIONER MILES: Anybody else to be heard in this matter? I don't think it is necessary for me to repeat it, but I have always found the cooperation of all the oil companies to be very admirable. We have never had any trouble along that line, so we never hesitate when they are together in adopting what they approve. Is anybody else to be heard in this matter? Unless there can be something offered that is outside of this order, I don't think it is necessary for us to hear any more testimony along that line. Unless there is somebody who wants to offer some.

GOVERNOR MABRY: I assume that counsel for all operators in the area are familiar with the order and have seen it.

MR. CROCKER: Governor, I don't know how generally counsel

have gone over it, but I think I can state that it has been submitted to most of the legal departments of the various companies operating in the pool, and that insofar as we are advised, there has been no suggestion that we come our way for any change. There were attorneys in the meeting yesterday, and engineers--production men--and every operator has gone over it. And we have heard no suggestions.

COMMISSIONER MILES: Mr. Spurrier, have you and Mr. Graham read this order?

COMMISSIONER SPURRIER: Just casually, Governor. I haven't studied it.

GOVERNOR MABRY: I don't think we need to more than announce at this time that we will approve the order. Of course, we will carefully study it.

MR. SELINGER: I would like to make one suggestion which might not be considered in line with Mr. Morrell's and Mr. Spurrier's recommendation. I think it would be practically impossible to put a definite time in the order in view of the fact that it takes a well six, seven, or eight months to be drilled and put on production.

GOVERNOR MABRY: You would prefer to leave it upon motion?

MR. SELINGER: There is a retaining provision in Section 8. I don't think a specific time limit would be applicable at this time because we don't know when we will get the additional information, and it will be probably a year and a half before more than five or six or seven wells are drilled.

GOVERNOR MABRY: "Section 8. The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights; all upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law." I think we have a right to

do what we want to under that order. That would be my interpretation looking at it briefly.

COMMISSIONER SELINGER: I wasn't aware, Mr. Selinger, that I had recommended any definite time. I would rather that the record show now that after a reasonable number of wells are drilled and the information is gathered, that then we should devise a permanent spacing.

MR. SELINGER? Then our thoughts coincide in that respect.

COMMISSIONER MILES: I think maybe Mr. Morrell suggested that. If anybody else wishes to be heard, we will be glad to hear them. If not, we will proceed with the next case.

MR. CROCKER: We desire to thank the Commission for its courtesy and patience.

COMMISSIONER MILES: Read the next case, George.

(Mr. Graham reads the notice of publication in Case No. 150.)

MR. COCHRAN: Governor Mabry and members of the Commission. This is an application made by Ross Sears to drill an unorthodox location on land described as the SW¼ of Section 26, Township 17 South, Range 32 East, in the Maljamar Field, of Lea County, New Mexico. Heretofore, there has been drilled in this 160 acres four wells. Each of the four wells were drilled in the center of each 40 acre legal subdivision. The well drilled in the SE¼ of the SW¼ of Section 26 was completed in 1942. It was drilled to a total depth of 4338 feet. The well did not have a commercial showing and was plugged and abandoned. The applicant makes application to drill an unorthodox location to be located 1295 feet north of the south line and 1370 feet east of the west line of Section 26; which location is approximately 25 feet south and 50 feet east of the common intersection of the quarter sections. It is their belief that by drilling a well at this location they can obtain a commercially producing well, and

that the drilling of such a well would be in the interests of conservation in that a substantial quantity of oil would probably be recovered that would not otherwise be recovered if the well were not drilled. In the event this application is granted and the applicant permitted to drill the well, then they would like to have an allowable set up on the proration schedule for that forty-acre unit upon which there is no production at the present time. Now, I would like to call your attention to the location on the map. Here is the well that was drilled and plugged. The proposed location is here. The Commission will note that there is no encroachment of outside property lines. Now, this lease covers Federal lands. A copy of this application was submitted to the office of the Supervisor of the U.S. Geological Survey at Roswell with the request that he express his opinion and the opinion of his office with reference to this location. I have a letter which I would like to introduce in evidence, addressed to John E.Cochran, Jr., dated June 29, 1948, from Mr. Morrell as Supervisor of the U. S. Geological Survey, in which, among other things, he states that no objection is offered by his office to the unorthodox well location specified in the application. "It is the opinion of this office that the drilling of the additional well may afford an oppontunity for increased recovery of oil and gas from the presently producing reservoir of the Maljamar pool." And further, "Approval to drill the additional well at the unorthodox well location will be contingent upon approval of such location by the Oil Conservation Commission of the State of New Mexico for proration purposes." I offer in evidence this letter that I have mentioned. Now, the person who was to be a witness here today, Mr. Sears, was unable to come. Therefore, I have no witness to offer. But Mr. Morrell I believe is present, and he is thoroughly familiar with the Maljamar

pool and this particular location, and if the Commission has any questions they would like to ask with reference to it, I believe Mr. Morrell would answer those questions.

GOVERNOR MABRY: He has said what he has to say in his letter.

COMMISSIONER MILES: Has there been anybody protest it?

MR. GRAHAM: There is nothing in the file, Governor.

COMMISSIONER MILES: If not, I don't see why we wouldn't grant the order. Next case.

(Mr. Graham reads the notice of publication in Case No. 151.)

MR. SETH: We would like to have Mr. Christie sworn.

(Mr. Christie sworn.)

MR. SETH: If the Commission please, this involves the NW¼ of the SE¼ of Section 32, Township 19 South, Range 37 East, N.M.P.M. of the Monument pool. These diagrams will show the situation. The particular well is marked with a cross. The Amerada Petroleum Co. is the owner of the lease on 34 acres of this forty. And it has acquired the fee to the remaining six acres located as shown on the map here marked "Fee". So, it holds the lease and the six acres and the purpose of this application is to unitize the six with the 34 and produce it as one unit. In order that the record may be clear, I would like to effer in evidence exhibits 1, 2, and 3, which the Reporter has already marked, being the original oil lease and the assignments that quiet the lease on the 34 acres into the Amerada. I would like also to offer in evidence exhibit 4, which is the deed from the numerous heirs of a lady named Gaither who homesteaded the original tract and conveyed away the 34 acres and conveyed this six acres to the Baptist Church for church purposes. I also have an abstract of title available to the Commission if it desires it. The suit to quiet title was brought in 1939.

COMMISSIONER MILES: Do you want us to examine that title?

MR. SETH: I have examined it and it is good. Unless Mr. Graham wants to examine it, I will hold it available to the Commission. We also offer in evidence exhibit 5, which is the plat showing the surrounding conditions.

R. S. CHRISTIE, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. SETH:

Q. Please state your name.

A. R. S. Christie.

Q. What is your profession?

A. Petroleum engineer.

Q. By whom employed?

A. Amerada Petroleum Co.

Q. I think Mr.Christie has testified so often before this Commission it isn't necessary to offer his qualifications.

COMMISSIONER MILES: Yes.

Q. Are you familiar with the 40-acre tract involved here?

A. Yes, sir.

Q. Does this plat I exhibit represent the real situation down there as to wells drilled?

A. Yes, it does.

Q. The Amerada has had a well on this 40 acres for a good many years?

A. Yes, sir, since February 1937.

Q. And it is still producing?

A. Yes, sir.

Q. At this point I will offer in evidence the records of the Commission which show that this well, beginning November 1, 1939, is on the proration schedule as if it were a 40-acre unit. Is there anything that differentiates this 40 acres from the surrounding acreage, Mr. Christie?

A. No, sir.

Q. It is there being produced as a 40-acre unit--those are

being produced as 40-acre units, this should also be produced as a 40-acre unit?

A. That is correct.

Q. Is it your opinion that it should be produced as a unit?

A. Correct.

Q. Take the six acres in the NE¼. Would it be feasible from an economic point of view to drill a well on that six acres?

A. In my opinion, I don't believe it would.

Q. In other words, if a well were drilled on that six acres and the allowable cut down to 6/40 of an allowable it would probably never pay out. Is that the situation?

A. Yes, sir.

Q. In your opinion, should this 40 acres be developed as a unit as to other pays that might be found at deeper depths in the future?

A. Yes, sir.

Q. Is there any way which Amerada could use to get its share of the recoverable oil under this six acres other than by pooling or drilling an independent well?

A. No, sir.

Q. Is it your view that the 40-acre tract would--should be pooled and produced as a unit?

A. Yes, sir.

Q. From all strata that might be found?

A. Yes, sir.

MR. SETH: I believe that is all.

GOVERNOR MABRY: No protest, of course.

COMMISSIONER MILES: Does anyone want to speak on this matter?

MR. SETH: We wish to offer in evidence the registry return receipts. The notice was served on all the royalty owners under the 34 acres and the evidence of service is shown by the return receipts. We would like that considered.

GOVERNOR MABRY: You want to introduce them in evidence?

MR. SETH: We offer them in evidence.

GOVERNOR MABRY: Service was complete and there was no protest?

MR. SETH: Yes.

COMMISSIONER MILES: The order will be granted. Is there anyone else to come before the Commission?

COMMISSIONER SPURRIER: Yes. We have Case No. 143, which was continued to this date by the Commission at the last hearing for lack of appearance. I think probably Mr. Seth will come forward.

MR. OLIVER SETH: If the Commission please, I would like to make an appearance for the Wilson Oil Co. in connection with their application which was Case No. 143 at the last hearing. Mr. Wilson was unable to be present at that time. It is an application for an unorthodox location in the SE¼NW¼ of Section 23, Township 21 South, Range 34 East. If the Commission please, the original location was made at the proper point, but mechanical difficulties arose at the well which required an abandonment of the original location. The tools were lost and could not be recovered. The rig was consequently moved a short distance south and east to a new location to avoid the original mechanical difficulties. I call Mr. Jim Gaskin at this time.

R. J. GASKIN, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. OLIVER SETH:

Q. State your full name, Mr. Gaskin.

A. R. J. Gaskin.

Q. Are you employed by the Wilson Oil Co.?

A. I am.

Q. Are you familiar with their application now pending for an unorthodox location?

A. Yes, sir.

Q. Will you state briefly to the Commission the original location?

A. The original location was in the SE¼NW¼ of Section 23, Township 21 South, Range 34 East, Lea County, New Mexico, 2320 feet south of the north line and 2380 west of the east line of the Section.

Q. Will you state who owns the acreage surrounding this location?

A. Wilson Oil Co. owns all the surrounding land.

Q. They lease it?

A. It is a State lease.

Q. They lease it from the State?

A. Yes.

Q. What was the reason for not completing the original location?

A. The original drilling started and they got down about 150 to 200 feet and lost a string of tools, and the fishing job was unsuccessful. They attempted to drill around the string of tools and got the second string of tools tied up. They finally had to abandon the hole with a loss of approximately $5,000.00.

Q. Where is the proposed location with reference to the original location?

A. It is approximately 90 feet east and 10 feet south.

MR. OLIVER SETH: I believe that is all, if the Commission please.

COMMISSIONER MILES: Does anybody have any statements to make? It is agreeable that the order be granted.

GOVERNOR MABRY: Nobody objects to that? Mr. Spurrier, have you anything else?

A. No, Governor.

GOVERNOR MABRY: Mr. Graham?

A. No.

COMMISSIONER MILES: Let the record show that the order will be granted. Are there any other matters to come before the Commission?

COMMISSIONER SPURRIER: I would like the record to show that Case No. 146, which was the pipeline case, could not be presented today, and the Lea County Operators have requested that it be continued to our hearing on July 29.

COMMISSIONER MILES: Let the record so show.

COMMISSIONER SPURRIER: And further, we have a letter from Petrolite's attorneys requesting that we dismiss the case that Petrolite brought before us several months ago on tank cleaning. In other words, we are requested to dismiss Petrolite's application in the old tank cleaning proposition which is still to be decided at some later date. Lea County Operators there again have not completed their work on the tank cleaning case and will advise us as soon as they do.

GOVERNOR MABRY: It is a petitioner on his own motion who wants the petition dismissed?

COMMISSIONER SPURRIER: Right.

COMMISSIONER MILES: Are some still operating under the temporary arrangement?

COMMISSIONER SPURRIER: Yes. Walter Famarriss and Hardin - Houston.

MR. FAMARRISS: In the case of 104, which I believe is the case number,I was issued an order. I think that has been referred to erroneously as a temporary order. But I believe in m y instance I was given an order which was as permanent as this Commission issues. Of course, there is the old clause at the end of the order. I believe at the October 15 hearing that I made the suggestion to the Commission that another applicant, namely, Hardin-Houston be issued a temporary order similar to the order which existed which was given for me personally. That is to clarify the record.

MR. SETH: I think that the Lea County Operators anticipate that it will come up on the 29th.

GOVERNOR MABRY: The order speaks for itself.

MR. FAMARRISS: Yes, the authority is all that I need.

GOVERNOR MABRY: I don't know what the order is.

COMMISSIONER MILES: He is operating?

COMMISSIONER SPURRIER: Yes, it is a temporary permit

MR. FAMARRISS: It still has the holdover clause at the end.

MR. GRAHAM: We held jurisdiction of the case.

GOVERNOR MABRY: Yes.

COMMISSIONER MILES: Any other matters, Mr. Spurrier? I think the order issued in Case No. 110 is temporary in nature, Mr. Famarriss. According to my understanding, you are operating under the same order as Hardin-Houston.

MR. FAMARRISS: Let's put it this way. My order was issued September 9 and theirs issued in October. So, they are operating in line with the order originally offered me.

COMMISSIONER SPURRIER: In the matter of Mr. Seth, in regard to the tank cleaning order, all that I know is that by telephone conversation George Card .....

MR. SETH: I don't know. I got a thing from Mr. Staley, a draft of a proposal.

COMMISSIONER SPURRIER: That is true, but .....

MR. SETH: I don't know whether there is anything to be continued or not, but I didn't want it to be overlooked. I don't know whether they have agreed on it or not.

COMMISSIONER SPURRIER: That is the point, Judge. Mr. Card tells me they have not agreed and wish to work on it further.

COMMISSIONER MILES: Couldn't we have the hearing at that time and extend it even if they have not agreed.

COMMISSIONER SPURRIER: I doubt that we have time to advertise, Governor.

GOVERNOR MABRY: That is all we have here today?

COMMISSIONER CHURCHILL: Yes, sir.

COMMISSIONER MILES: The hearing is adjourned.

C E R T I F I C A T E

I HEREBY CERTIFY that the foregoing transcript of a hearing before the Oil Conservation Commission of the State of New Mexico in Santa Fe on July 15, 1948, is a true record of such hearing to the best of my knowledge, skill, and ability.

I FURTHERCERTIFY THAT I AM the official reporter for the United States District Court for the District of New Mexico.

DATED at Santa Fe July 22, 1948.

E. E. Greeson

E. E. GREESON
Court Reporter

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

TRANSCRIPT OF HEARING

November 21, 1950

E. E. GREESON
COURT REPORTER
UNITED STATES COURT HOUSE
TELEPHONE 2-0572
ALBUQUERQUE, NEW MEXICO

BEFORE THE

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

- - - - - -

PROCEEDINGS

The following matterscame on for consideration before the Oil Conservation Commission of the State of New Mexico, pursuant to legal notice at a hearing held on November 21, 1950, at 10:00 a.m., at Santa Fe, New Mexico.

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO TO:

All interested parties:

The Oil Conservation Commission of the State of New Mexico hereby gives public notice that hearings will be held before the Commission pursuant to Rule 503 of the General Rules and Regulations of this Commission on the dates hereinafter set forth for the purpose of setting the allowable production of oil and gas for the State of New Mexico for the calendar month following the date of each hearing. All such hearings shall be held in the Office of the Oil Conservation Commission at Santa Fe, New Mexico, commencing at 10:00 a. m., and shall be on the date:

November 21, 1950

Dated this 3rd day of January, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

SEAL /s/ R. R. SPURRIER, SECRETARY

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the rules and regulations of said Commission promulgated thereunder, of the following public hearing to be held November 21, 1950, beginning at 10:00 o'clock A. M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

Mid-Continent Petroleum Corporation
Tulsa, Oklahoma

Magnolia Petroleum Company
Dallas, Texas

Gulf Oil Corporation
Tulsa, Oklahoma

Santa Fe Pacific Railroad Company
Amarillo, Texas

Gil Development Company of Texas
% Santa Fe Pacific Railroad Company
Amarillo, Texas

U. D. Sawyer and Dessie Sawyer
Crossroads, New Mexico

To all other persons who may have an interest in the matters herein set forth:

Case 149 (under authority of Section 8, Order No. 779, dated July 27, 1948)

In the matter of the hearing called by the Oil Conservation

Commission of the State of New Mexico upon its own motion for the purposes of:

1. Reconsidering Order No. 779 made by the Oil Conservation Commission of the State of New Mexico, in Case No. 149 on July 27, 1948, upon the application of Mid-Continent Petroleum Corporation, establishing the 80-acre drilling pattern and proration unit for the production of oil from the Devonian formation below 12,000 feet in the Crossroads Devonian Field of Lea County, New Mexico.

2. Rescinding the cancelling said Order No. 779 unless the Mid-Continent Petroleum Corporation, applicant for the aforementioned order, or any other interested parties, show good cause why the same should be further continued in effect.

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on October 27, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ R. R. Spurrier
R. R. SPURRIER, SECRETARY

SEAL

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held November 21, 1950, beginning at 10:00 o'clock A. M. on that day in the City of Santa Fe, New Mexico, in the Capitol (Hall of Representatives).

STATE OF NEW MEXICO TO:

All named parties in the following cases and notice to the public:

Case 237

In the matter of the application of the New Mexico Oil Conservation Commission upon its own motion to establish a well spacing pattern for each of the presently designated gas pools in the Counties of San Juan and Rio Arriba, State of New Mexico, producing or capable of producing from the following formations:

1. Pictured Cliffs sandstone (except Kutz Canyon-Fulcher Basin)
2. Mesaverde formation (except Blanco)
3. Any of the Pennsylvanian formations.

Case 238

In the matter of the application of Shell Pipe Line Corporation to amend for the purpose of clarification, Rule 503 (e) and Rule 503 (f) of Order No. 850, being the Rules and Regulations of the New Mexico Oil Conservation Commission, in order that the same may be construed as covering underruns and overruns, etc.

Case 239

In the matter of the application of Humble Oil and Refining Company and Magnolia Petroleum Company for permission to inject water for secondary recovery of oil from certain marginal wells in the Grayburg reservoir, Penrose-Skelly pool on the Humble Oil and Refining Company's J. L. Greenwood Lease and the Brunson-Argo lease of Magnolia Petroleum Company, in said pool, located as follows:

J. L. Greenwood Lease: S/2 Sec. 9, Twp. 22S, R. 37E, Lea County, New Mexico.

Brunson-Argo Lease: NE/4 Sec. 9, Twp. 22S, R. 37E, and NW/4 Sec. 10, Twp. 22S, R. 37E, Lea County, New Mexico.

Case 240

In the matter of the application of Resler and Sheldon for authority to dually complete a well located 2310 ft. south and the north line and 990 ft. east of the west line of Sec. 33, Twp. 23S, R. 37E, Lea County, New Mexico.

Case 241

In the matter of the New Mexico Oil Conservation Commission upon its own motion upon the recommendation of the Southeastern New Mexico Nomenclature Committee for the creation of new pools, as follows:

Twp. 21S, R. 37E, N.M.P.M.

SW/4 Section 2
SE/4 Section 3
NE/4 Section 10
NW/4 Section 11

the same to be classified as an oil pool and named NORTH BRUNSON (Ellenburger).

Twp. 12S, R. 37E, N.M.P.M.

S/2 Section 13
N/2 Section 24

the same to be classified as an oil pool and named GLADIOLA (Devonian), and for the extension of certain heretofore created pools as follows:

Extend the Grayburg-Jackson pool, Eddy County, New Mexico, by changing the present boundaries to include the N/2 Section 7, Twp. 17S, R. 31E, N.M.P.M.

Extend the boundaries of the Watkins Pool, Eddy County,

New Mexico so as to include the E/2 of Sec. 36, Twp. 18S, R. 31E for Queen production.

Extend the boundaries of the Turkey Track-Seven Rivers pool in Eddy County, New Mexico, so as to include the SE/4 Sec. 9, S/2 Sec. 10, N/2 Sec. 15, NE/4 Sec. 16, all in Twp, 19S, R. 29E, N.M.P.M.

Extend the boundaries of the Maljamar-Paddock pool in Lea County, New Mexico, so as to include therein S/2 Sec. 17, NE/4 Sec. 20, in Twp. 17S, R. 32E, N.M.P.M.

Extend the existing boundaries of the Corbin pool in Lea County, to include therein the SE/4 Sec. 33, and the Sw/4 Sec. 34, in Twp. 17S, R. 33E, N.M.P.M.

Extend the boundaries of the Nadine pool in Lea County, New Mexico, so as to include therein the S/2 Sec. 14, Twp. 19S, R. 38E, N.M.P.M.

Extend the North Drinkard pool in Lea County, New Mexico, so as to include therein the NE/4 Sec. 10, T. 21S, R. 37E, N.M.P.M.

Extend the Drinkard pool in Lea County, New Mexico, so as to include therein the E/2 Sec. 23, Twp. 21S, R. 37E, N.M.P.M.

Extend the South Leonard pool in Lea County, New Mexico so as to include therein the E/2 of Sec. 23, Twp. 26S, R. 37E, N.M.P.M.

Extend the boundary of the Langlie-Mattix pool in Lea County, New Mexico, so as to include therein the SW/4 Sec. 25 and NW/4 Sec. 36 of Twp. 24S, R. 37E, N.M.P.M.

Case 242

In the matter of the application of Continental Oil Company for an order approving the unit agreement of the Texas Hill Unit Area, Eddy County, New Mexico, comprising 13,800.43 acres more or less, situated in Townships 21, 22 and 23 south, Range 21 east, N.M.P.M. and in accordance with plat attached to said application.

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on October 27, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ R. R. Spurrier
R. R. SPURRIER, SECRETARY

BEFORE:
Hon. Guy Shepard, Member and Acting Chairman.

Hon. R. R. Spurrier, Member and Secretary

REGISTER:

W. K. Byrom
Hobbs, New Mexico
Nolen and Byrom

B. H. Nolen
Hobbs, New Mexico
Nolen and Byrom

B. R. Carney
Tulsa, Oklahoma
Warren Petroleum Company

Booth Kellough
Tulsa, Oklahoma
Amerada Petroleum Corporation

S. J. Forester
Tulsa, Oklahoma
Sinclair Oil and Gas Company

Cecil R. Buckles
Tulsa, Oklahoma
Sinclair Oil and Gas Company

S. J. Fraser
Tulsa, Oklahoma
Sinclair Oil and Gas Company

M. L. Patterson
Odessa, Texas
Phillips Petroleum Company

Scott R. Brown
Farmington, New Mexico
Western National Gas Company

W. F. Mellis
Midland, Texas
El Paso Natural Gas Company

Elvis A. Utz
Santa Fe, New Mexico
New Mexico Oil Conservation Commission

H. W. McCody
Dallas, Texas
Southern Union Gas Company

E. B. Clark
Wichita, Kansas
Clark and Christie

Quilman B. Davis
Dallas, Texas
Southern Union Gas Company

Joe Lilly
Farmington, New Mexico
Southern Union Gas Company

C. D. Borland
Hobbs, New Mexico
Gulf Oil Corporation

E. E. Merkt, Jr.
Ft. Worth, Texas
Gulf Oil Corporation

Murray C. Moffatt
Ft. Worth, Texas
Gulf Oil Corporation

Glenn Staley
Hobbs, New Mexico
New Mexico Engineering Commission

Forrest B. Miller
Santa Fe, New Mexico

T. H. McElvain
Santa Fe, New Mexico

Lloyd Nelsapple
Ft. Worth, Texas
Sinclair Oil and Gas Company

G. M. Gray
Midland, Texas
Sinclair Oil and Gas Company

R. S. Blynn
Hobbs, New Mexico
New Mexico Oil Conservation Commission

G. E. Kendrick
Jal, New Mexico
El Paso Natural Gas Company

C. L. Perkins
El Paso, Texas

E. Taylor Armstrong
Dallas, Texas
James D. Hancock and Company, Ltd.
British American Oil Production Company

Paul S. Johnston
Hobbs, New Mexico
Texas Pacific Coal and Oil Company

Raymond Lamb
Artesia, New Mexico
Wilson Oil Company

R. E. Murphy
Roswell, New Mexico
Magnolia Petroleum Company

Lewis M. Bond, Jr.
Ft. Worth, Texas
Stanolind Oil and Gas Company

J. O. Seth
Santa Fe, New Mexico
Stanolind Oil and Gas Company

C. F. Redford
Fort Worth, Texas
Stanolind Oil and Gas Company

O. Seth
Santa Fe, New Mexico
Stanolind Oil and Gas Company

Alex Clarke, Jr.
Ft. Worth, Texas
Stanolind Oil and Gas Company

Roy Yarbrough
Hobbs, New Mexico
New Mexico Oil Conservation Commission

R. E. Denny
Midland, Texas
Humble Petroleum and Refining Company

W. E. Hubbard
Houston, Texas
Humble Petroleum and Refining Company

Payton Howard
Midland, Texas
Shell Oil Company

F. C. Brown
Houston, Texas
Shell Oil Company

M. T. Smith
Midland, Texas
Shell Oil Company

R. E. Roehl
Midland, Texas
Cities Service Oil Company

R. L. Denton
Midland, Texas
Magnolia Petroleum Company

Frank R. Leveing
Hobbs, New Mexico
Shell Oil Company

B. L. Ryan
Midland, Texas
Shell Oil Company

R. E. Canfield
Roswell, New Mexico
U. S. Geological Survey

Foster Morrell
Roswell
U. S. Geological Survey

H. L. Johnston
Ft. Worth, Texas
Continental Oil Company

E. L. Shafer
Hobbs, New Mexico
Continental Oil Company

Homer Daily
Midland, Texas
Continental Oil Company

W. Barker Boyd
Ft. Worth, Texas
Continental Oil Company

T. M. Cady
Ft. Worth, Texas
Continental Oil Company

Thomas Steele
Hobbs, New Mexico
Ohio Oil Company

G. L. Shoemaker
Midland, Texas
Stanolind Oil Company

John Gould
Sundown, Texas
Honolulu Oil Corperation.

Charles W. Sternberg
Denver, Colorado
Sunray Oil Corperation

Manual A. Sanchez
Santa Fe, New Mexico
Delhi Oil Corperation

Robert Mims
Dallas, Texas
Delhi and Blaco Company

W. Clifford Smith
Dallas, Texas
Delhi Oil Corporation

Frank C. Barnes
Santa Fe, New Mexico
New Mexico Oil Conservation Commission

E. E. Kinney
Artesia, New Mexico
New Mexico Bureau of Mines

George Graham
Santa Fe, New Mexico
New Mexico Oil Conservation Commission

Dan McCormick
Carlsbad, New Mexico
New Mexico Oil Conservation Commission

A. R. Greer
Aztec, New Mexico
New Mexico Oil Conservation Commission

Hiram Daw
Roswell, New Mexico

J. H. Crocker
Tulsa, Oklahoma

G. T. Hanners
Lovington,
New Mexico

- o -

CHAIRMAN SHEPARD: The meeting will please come to order. The first order of business will be the allowable hearing.

MR. McCORMICK: Let's have Ed Kinney and Elvis Utz sworn. Will you swear them, Mr. Chairman?

(Mr. Utz and Mr. Kinney sworn.)

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ELVIS A. UTZ,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. McCORMICK:

Q Please state your name.

A Elvis A. Utz.

Q What is your official position with the Oil Conservation Commission?

A Engineer.

Q As such, do you make a study of market demand for oil in the State of New Mexico?

A I do.

Q Do you have the estimate of market demand furnished by the Bureau of Mines?

A No, I do not have it this month. It hasn't arrived yet.

Q Have you received and compiled nominations of purchasers of oil for the month of December, 1950?

A Yes, I have.

Q What are the nominations?

A The total nominations are 121,899 barrels per day or 633 barrels increase over November.

Q That is for the entire state?

A That is for the entire state. There are 698 barrel nominations for the northwest.

Q In your opinion what would be the reasonable market demand for oil for the entire State for the month of December, 1950?

A 142,225 barrels.

Q How much of this demand can be met by the unallocated pools of northwestern New Mexico?

A Approximately 800 barrels.

Q That leaves 141,425 for southern New Mexico?

A That is correct, for the allocated pools.

Q In your opinion would that figure, the balance of the market demand, be met by the allocated pools of southern New Mexico?

A Yes, it can.

Q Is the potential producing capacity of all the wells in southern New Mexico greater than that figure?

A Yes, I believe it is.

Q In order to prevent waste, in your opinion, is it necessary for the wells in Lea County, Eddy County and Chavez County to be limited in their production?

A Yes, I believe it is.

Q And, in your opinion, can the wells in these three counties

produce this amount of oil which you have suggested without committing waste?

A According to any information we have in our office they can, yes.

Q And your final recommendation then is 141,425 barrels for southern New Mexico?

A That is right. And I would recommend 48 barrel normal unit allowable to arrive at that total allocation.

Q That is the same normal unit allowable we have for the current month?

A That is correct.

Q How do you recommend that production be distributed?

A According to the rules and regulations of the New Mexico Oil Conservation Commission.

Q The present rules and regulations?

A Yes, sir, the present rules and regulations.

MR. McCORMICK: Any questions of Mr. Utz?

A VOICE: What was the total nominations?

A 121,899.

Q (By Mr. McCormick) I will ask you this Mr. Utz. How has the nominations for the past two months been comparing with the production and pipeline runs?

A They have been running fairly close. I will say within five per cent of each other.

Q Which is the lower?

A The last of July the nominations were a little above the production, that reversed in August and then production has been gaining a little each month on the nominations.

Q And the pipeline runs according to your latest figures are a little in excess of the then current nominations?

A That is correct.

MR. McCORMICK: Any questions of Mr. Utz?

(Witness dismissed.)

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E. E. KINNEY,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. McCORMICK:

Q Your name is Ed Kinney?

A Yes, sir.

Q What official position do you hold?

A Petroleum engineer, New Mexico Bureau of Mines.

Q As such, have you been making a continuing study of market demand for oil in the State of New Mexico?

A I have.

Q Please state to the Commission what the general picture is now on market demand and storage.

A A canvass of the majority of the purchasers of crude oil in the State of New Mexico shows the market demand to be firm, the supply to be slightly less than market demand; the difference

being made up from storage. It is recommended that the allowable be maintained at 48 barrels and that recent discoveries will tend to close the gap.

Q Anything else you would like to state Mr. Kinney?

A No, sir.

MR. McCORMICK: Any questions of Mr. Kinney? Does anyone else have any remarks to make.

MR. SMITH: Our nominations for the month of December have been filed with the Commission and that figure is 895 barrels for the month or 28,701 barrels per day and represents a slight increase over November, taking into consideration a new well which we expect to connect in December.

MR. McCORMICK: Anyone else? Any remarks, or comments or questions? That is all.

(Witness dismissed.)

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CHAIRMAN SHEPARD: Case Number 235.

MR. DAVIS: My name is Quilman Davis. Mr. Christie, a member of the partnership of Clark and Christie, petitioners in Case Number 235, has asked me to request the Commission to dismiss the petition filed on the basis that the questions raised under that application have been settled satisfactorily to all parties. We ask that the case be dismissed without prejudice, and also it is requested that the order previously issued in connection with case number 235 be rescinded. I have

here a signed statement by the interested parties which I would like to offer in evidence that the case has been satisfactorily settled.

CHAIRMAN SHEPARD: It will be accepted. Any objections to dismissing Case Number 235. If not, we will take it under advisement and take up the next case.

Mr. Hanners, are you ready for Case Number 149?

MR. HANNERS: If I could have just a minute.

CHAIRMAN SHEPARD: All right. At this time we will take up Case Number 237.

(Mr. Graham read the notice of publication in Case Number 237.)

MR. McCORMICK: Mr. Barnes, do you have a statement to make in connection with 237?

MR. BARNES: I have.

MR. McCORMICK: Mr. Frank Barnes, go ahead Mr. Barnes.

MR. BARNES: In the matter of Case Number 237, it appears a situation is developing in certain areas of the San Juan in northern New Mexico that may eventually result in wasteful practices which poses a considerable problem to the Oil Conservation Commission and the operators in the area. I am speaking specifically in respect to the spacing of certain gas wells drilled to the three major gas producin g formations of this area. In the San Juan basin at the present time we have only two specially designated pools that are not under the state wide 40 acre spacing regulations. The two pools are

Kutz Canyon-Fulcher, Pictured Cliffs gas pool, which is under 160 acre spacing and the Blanco-Mesa Verde pool which is under the 320 acre spacing. At the present time, these pools are not only being extended in several different directions, but a number of wildcat wells and new pools, some miles removed from these designated pools, are being drilled. Of course, some wells are being located under statewide 40 acre spacing regulations. We believe, and there is considerable geological evidence to support the fact, that many of these pools will eventually connect up and we will end up with the problem of gas wells drilled and completed on 40 acres.

This way the Pictured Cliffs or Mesa-Verde -- which will end up being connected to pools -- they already have special spacing regulations of 160 or 320 acres. When that happens -- there may not be any immediate serious consequences -- but eventually if it comes to the proration of gas in that area we will have operators with wells drilled on 40 acres that will want a 320 or 160 acre allowable. The situation hasn't reached serious proportions at the present time, but it could become quite a problem within the matter of a couple of years. What we would like to do under Case Number 237 is get the views of the operators. Their ideas as to how we could meet this problem in anticipation of the difficulties we may have later on and arrive at some universal spacing pattern on a functional basis, or it may be necessary to leave it under the

present practice of spacing these pools individually. We have made some study of the problem and have some ideas on it. It would undoubtedly be advantageous to get the ideas of the various operators in the area. That is all I have.

CHAIRMAN SHEPARD: Anyone else, anyone have anything on Case Number 237?

MR. ARMSTRONG: My name is E. Taylor Armstrong, 1218 Republic Bank Building, Dallas, representing James Hancock and Company, Limited and British American Oil Producing Company.

May it please the Commission, it wasn't clear from the notice here as to - in my mind - as to whether or not Case Number 237 would involve what is known as the Douthit Number 1 Federal Well inasmuch as the notice says all "presently designated gas pools", and as I understand it isn't in a "presently designated gas pool."

For that reason, we have - this well has been completed in September but has been shut in since that time. There is one well about two miles from it and then what is known as the west Kutz Canyon Field, is approximately five miles distant. On behalf of the operators, James D. Hancock and Company and British American Oil Producing Company, we would like to suggest to the Commission that before any spacing order is fixed by the Commission as to these Santa Fe Permit Numbers o78089, 078092, and 078094, that a special hearing be set as a matter

of fact, we have not had an opportunity to really study the pertinent factors, and based upon which we can make a suggestion to the Commission. If the Commission has in mind to adopt spacing rules that would affect these particular permits, we request a special hearing be set in the future where we could have further time to study it. I would like to file this application at this time.

CHAIRMAN SHEPARD: It will be received. Anyone else.

MR. GREER: My name is A. R. Greer with Benton and Montan. Benton and Montan are interested in about --

CHAIRMAN SHEPARD: (Interrupting) Do you want to testify or are you just making a statement?

MR. GREER: Just making a statement. We have an interest in about --

CHAIRMAN SHEPARD: (Interrupting) A little louder.

MR. GREER: We have an interest in about twenty-five thousand acres in the west Kutz Canyon Area and we believe that about fifteen thousand acres will eventually be taken under consideration or will connect with the wells that are presently drilled in the west Kutz Canyon Field. This particular well that British American has reference to will also undoubtedly connect with the west Kutz Canyon Area and as such there will be a very large area directly affected by the rules and the spacing set up for the west Kutz Canyon Field. In view of this we concur in British American's recommendation that a special hearing be had covering the west

Kutz Canyon Field and taking into account the area as far south as the British American and Hancock Douthit Number 1 and probably should include as far south as the Huerfano area.

We would like to request about 60 days in which to gather additional information before this hearing be set up. We recommend it be held sometime in January.

MR. DAVIS: I represent Southern Union Gas Company. First, I would like to ask if it is intended special hearings will be held on individual wells for a spacing order, or is the information given here today to be taken and from which orders will be written?

MR. SPURRIER: This hearing, Mr. Davis, according to the notice is to consider all the pools now named.

MR. DAVIS: Well, that was what I wasn't clear on. I didn't understand.

MR. SPURRIER: That is right. In this particular well that Mr. Armstrong is talking about, since it isn't in a named pool, it won't be considered today and will be taken up at a hearing at a later date.

MR. DAVIS: On that basis, Southern Union Gas Company recommends 160 acre spacing for Pictured Cliff wells and 320 acre spacing in the Mesa Verde wells, particularly in the La Plata Field. We would like to see 320 acre spacing there and wells located on the 160 acre unit 320 feet out from the

center of the alternate quarter. Now, we do have a situation up there which will have to be provided for in the order to permit wells either on the northwest southeast as a pattern with a provision that wells heretofore drilled on the northeast southwest pattern can be drilled so that we will be able to produce wells on 320 acre spacing. Now, as to this Kutz Canyon Field, we feel that 160 acre spacing for picture cliff wells there is desirable. As to the Barker dome we feel in that instance there is only one lessor, the Ute Mountain tribe of Indians, and the Southern Union Gas Company is the lessee, under those leases were sublease agreements going through, I believe, El Paso Natural Gas Company. We feel in this instance that we do not have enough information to justify spacing there and recommend it be deferred until such time as we can determine what is proper spacing up there. We will have no trouble whatsoever as far as production because of the fact that we are the lessees under the lease and the Indians hold us responsible for all operations there with El Paso Natural operating through us under a sub lease agreement.

MR. SPURRIER: How many wells are there in the Barker Dome? Do you know, Mr. Davis?

MR. DAVIS: Pennsylvania well.

MR. SPURRIER: Yes.

MR. DAVIS: There is my engineer, about eight wells.

MR. SPURRIER: And you think that is not enough information

to set a spacing pattern.

MR. DAVIS: No, sir, not at that time.

CHAIRMAN SHEPARD: Do you have any more questions, Mr. Spurrier?

MR. SPURRIER: No.

CHAIRMAN SHEPARD: Anyone else.

MR. BOND: My name is L. H. Bond with Stanolind Oil and Gas Company. Stanolind Oil and Gas Company is the interest owner with Benson Montan in the acreage near the West Kutz Canyon Field. Since that acreage has not been developed at this time and since we do not have what we consider information to support our spacing recommendations, we would like to concur with Mr. Greer's recommendation that special hearing be set for the West Kutz Canyon Field in 60 days or at a later period is convenient with the Commission. The Stanolind Oil and Gas Company also is an interest owner in the Ute Dome Paradox Field which is a Pennsylvania formation. There is only one well completed in the Pennsylvania in the Ute Dome field at the present time, Stanolind Ute Indians No. 4. This well was completed in 1943 in September at a total depth of 6692 feet and was perforated from 6390 to 6330, 6310 to 6360 in the paradox. The well flowed natural 1100 cubic feet per day. After acidization flowed at the rate of 1025 cubic feet per day. Initial bottom hole pressure in this field was 3000 pounds and the bottom hole temperature 140 degrees. The gas from this well has

very high carbon dioxide content, approximately 24.37 per cent. It also has a high hydro-sulphide, hydrogen sulphide content in the percentage of 1.33. I would like to submit in this respect as Stanolind's Exhibit No. 1 an analysis of the gas in this well which was run by the C. W. Seybolt and Company. In view of the extremely sour gas which is produced from this well which makes the market picture very poor and since this well has been shut in since it was completed for lack of a market Stanolind Oil and Gas Company recommends that a spacing of 640 acres be established in the Ute Dome Paradox Field. It is our believe at this time at least that spacing on anything less than 640 might possibly prove uneconomical. Another field which falls under the call of this hearing - Stanolind is the only operator in the field - and it consists of Section 35, Section 36 in Township 32, North and Sections 1 and 2 in 31 North both in Range 14 West. We are the only operator in the field. In the Blanco Pictured Cliffs Field Stanolind has acreage in the general field limitation and a considerable amount of acreage which we anticipate will be productive in the Pictured Cliffs formation. There is only one well completed in the Pictured Cliffs formation at this time. Since the operators there do not have pertinent data on that well to present, it is our believe that the Pictured Cliff formation in Blanco will probably not be developed until the Mesa Verde formation which is apparently the most prolific in that area and which covers the same area probably

is the Blanco Pictured Cliff is depleted. The spacing in the Blanco Mesa Verde field is one well of 320 acres. It is our recommendation that the Blanco Pictured Cliff fields also be extended on one well to 320 acres.

It is believed upon depletion of the Mesa Verde formation in this field it will be possible to replete the wells in the Pictured Cliff formation and adequately drain that reservoir. That is all I have.

MR. SETH: Just one question. Return for a minute to the Ute Paradox.

MR. BOND: Yes, sir.

MR. SETH: You limited your testimony to the Paradox. There are Pennsylvania sands besides the Paradox.

MR. BOND: Not to my knowledge. There is a possibility, I believe, of production.

MR. SETH: Should it develop there is, do you recommend the same spacing for all pools?

MR. BOND: Yes, sir. Any Pennsylvania formation, I believe, should have 640 acre spacing.

CHAIRMAN SHEPARD: Anything else, anyone else?

MR. MIMS: I am with the Delhi Oil Company. We wish to state we are in accord with 320 acre spacing for Blanco and 160 acre spacing for Pictured Cliffs in all areas now proved.

MR. SPURRIER: You mean to say 320 acre spacing for Mesa Verde?

MR. MIMS: That is right and 160 for Pictured Cliffs with the present information on call and so forth we can hardly see how you could drill on more or less acreage and get ultimate production from the wells.

CHAIRMAN SHEPARD: Anyone else.

MR. DAVIS: I overlooked one thing a while ago. With the psacing orders I would like to recommend to the Commission that any spacing order prepared for any fields be pure and simple a spacing order without provisions for casing and cementing programs, such as equipment, testing and so forth and that the general rules and regulations of the Commission be used for that purpose. We work awfully hard to get these rules into effect and if there need to be any additional rules let's put them in the rule book instead of a separate order and we strongly recommend the special order be limited to the spacing of wells.

MR. SPURRIER: Do you know what the spacing pattern on Barker Dome now is for the Paradox?

MR. DAVIS: For the paradox. As far as I know it was initially planned for 320. Mr. Thompson can probably answer that question.

MR. SPURRIER: Well, I think we had better get Mr. Thompson up here then.

MR. DAVIS: All right. He is here so I think I had better use him.

MR. SPURRIER: All right.

MR. DAVIS: This will be a pure statement by Mr. Thompson. If it is all right with the Commission we will consider this just a statement.

MR. SPURRIER: All right. Do you understand the question, Mr. Thompson?

MR. THOMPSON: Please repeat it.

MR. SPURRIER: What is the approximate spacing pattern on Barker Dome now?

MR. THOMPSON: The present pattern has been scattered out in some places where the wells are as much as two miles apart. In some places we have two wells per section. The reason we would like to postpone a spacing order up there at present is that we would like to have more productive data on the thing to tell more about it. For instance, the Federal Power Commission and the State Geologist and DeGaullier and McNaughton have estimated the reserves in the order of 60 million feet to 100 million feet per acre. If that is true, it will certainly be economical to drill on 320 acre spacing. Does that answef the question?

MR. SPURRIER: Yes, sir, thank you.

CHAIRMAN SHEPARD: Anything further on 2377

MR. MORRELL: In view of the interest of the United States Government with respect to the Pictured Cliffs and the Mesa Verde and the Pennsylvania zone in the northwest of New Mexico, I think it would be interesting to the Commission to put into the record that on the basis of development to date

the geological survey prefers a spacing of 160 for Pictured Cliffs and 320 for Mesa Verde. As to the Pennsylvanian formations two fields are now involved, the Barker Dome and the Ute. It so happens that on the Barker Dome there is but a single lease of any land, being a single lease the question does not present itself as to drainage between operators or lessee and lessor. Under the circumstances, being a single lease, I question the necessity of establishing under state regulations spacing units for Barker Dome. As to Ute Dome that field is also covered by a single lease with the Stanolind Oil and Gas Company and for the same reason there is no - being no drainage between operators - on the basis of present information there appears to be considerable question as to the necessity of establishing a spacing unit for Ute Dome. I thought at this time for the benefit of the operators in the San Juan Basin it would be interesting to them to review very briefly some recent correspondence that I have had with Mr. Spurrier with respect to location of wells. I thought it might be informative. If you have no objection, Mr. Spurrier?

Rule 104-A of the General Rules and Regulations of the New Mexico Oil Conservation Commission provides for spacing of wells both oil and gas not closer than 660 feet to any boundary line of a tract. There appears to be considerable question as to what is meant by the term "tract". Apparently it has been interpreted differently by different parties. I feel

that the consensus of opinion is that it refers to a proration unit as used in prior regulations taking that literal construction it was necessary where wells are drilled 990 feet from the outer boundary of 160 acre drilling unit to apply to the Commission for an unorthodox location. Inasmuch as the existing orders for Fulcher Basin and Kutz Canyon and also for the Blanco Gas pools provide for that spacing, that is, 330 feet from the center of 160 acre tract, or conversely 990 feet from the ounter boundary of 160 acre tract, it has been the policy of the geological survey to require operators on federal lands to drill wildcats on that same basis inasmuch as drilling to the Pictured Cliffs formation or to the Mesa Verde can be expected to find the gas only. Which would result in having them brought within a designated ppool. And following the precedent established in those two pools for which outstanding orders exist it is reasonable to assume the same spacing would be required.

The recent correspondence with Mr. Spurrier has suggested the possibility that the Commission bring on its own motion a review of Rule 104 to permit the 990 spacing in the San Juan Basin. Mr. Spurrier has informed me that as a result of a prior hearing on Rule 104 that some review of that rule is now under consideration.

Since it is under consideration I thought it would be

interesting to bring it to your attention so that you could work with the Commission and help them to rewrite that rule in such a way it would attain the objective you would like.

Mr. Spurrier, I was wondering if you had any further comments with respect to that status of the revision of Rule 104.

MR. SPURRIER: Yes, we are holding up that review waiting for some of the operators to express their views. You remember I called for those in the meeting at Farmington the other day.

MR. MORRELL: That is right.

MR. SPURRIER: And we haven't yet heard from them.

MR. MORRELL: Thank you.

MR. BARNES: Mr. Morrell, on the basis of state regulations Rule 104 is there actually anything you can see that would prevent an operator from drilling a wildcat well in that area to any formation through 40 acres. Is there anything that would prevent it?

MR. MORRELL: The application for notice of intention to drill states the objective, if the objective is to one of those formations expecting to produce gas, I would say it should follow the gas well spacing.

MR. BARNES: But referring again to wildcat wells. Now, when you say outside of designated pools, is there legally anything to prevent an operator from drilling on 40 acres.

What I mean is there any requirement you can conceive of that would force an operator under that rule to have more than 40 acres to drill a well anywhere to any formation in the San Juan Basin?

MR. MORRELL: I don't know that there is anything legally so far as state law is concerned, so far as federal leases are concerned they have to get the permission of the supervisor.

MR. BARNES: In other words, you would require specific permission to drill one 40 acre tract to any formation?

MR. MORRELL: Well, it so happens that the rules and regulations of the geological survey with respect to federal lands are sufficiently broad that it is the duty and responsibility of the supervisor to set up and plan for well spacing even in connection with a wildcat well if it is deemed appropriate in an area reasonably expected that they can produce gas. We have consulted our lessees and operators as to their spacing pattern that they have in mind, so that the wildcat well is still based on a pattern that would be followed if it was a successful test.

MR. BARNES: In other words, it has been the policy of the United States Geological Survey to set up spacing of federal wells based legally on a formational drilling program rather than on a field or pool basis, is that correct?

MR. MORRELL: I would say your statement is correct except for the use of the word arbitrary.

MR. BARNES: I didn't chose the word too carefully, but I thought may be it would apply in that particular case anyway.

MR. MORRELL: In answering your question, Mr. Barnes, I would say specifically that Southern Union and the Aztec Oil and Gas Company are currently developing the La Plata pool on the basis of 320 acres spacing units. That is entirely on a voluntary basis pending a hearing before the Oil Conservation Commission for setting that spacing. We have already considered and have immunitization agreements on 320 acre units for that purpose so we do anticipate. Does that answer it?

MR. BARNES: Well, partially Mr. Morrell. I was simply trying to bring out, to point out the fact that on a purely legal basis and insofar as the Oil Conservation Commission Rules and Regulations go there would be no basis, no legal basis to deny the operator the right to drill on a wildcat area, let's say a Pennsylvanian well on 40 acres provided he was fool enough to do so and thought he could do so economically.

In the designated pools where there is no regulations there would be nothing to prevent him from drilling on more than 160 acres.

MR. MORRELL: You have brought in the Pennsylvania formation. As to the Dakota lease and the Pennsylvanian we are approving those on 660 foot locations.

My reference to 330 and 990 referred only to Pictured Cliffs and Mesa Verde.

MR. BARNES: That is, Mr. Morrell, I just wondered what your program is and how much we actually had to say about the spacing program as it develops up there in so far as our own rules and regulations are concerned.

It has been my impression that the United States Geological Survey was anticipating some of these pool extensions and I don't want to use the word forcing, let's say suggesting spacing programs that coincide with the actual pools adjacent to these wildcat wells.

MR. MORRELL: My thoughts were to inform the Commission and be helpful to the operators so that they would be informed all at the same time.

CHAIRMAN SHEPARD: Thank you, Mr. Morrell. Anyone else?

If not, 237 will be taken under advisement and at this time we will have a five minute recess.

(Recess.)

CHAIRMAN SHEPARD: Case Number 149.

Mr. Graham, will you read the notice of publication, please.

(Mr. Graham reads the notice of publication in case 149.)

CHAIRMAN SHEPARD: Will all the interested parties in case 149 enter their appearance at this time? I believe they are represented here by attorneys. We will just have them entered before we start.

MR. DOW: For the Mid Continent Petroleum Corporation, Mr. J. H. Crocker of Tulsa; for the Magnolia Petroleum Corporation, Mr. W. E. McKellar, Dallas and for both those companies, Mr. Hiram M. Dow of Roswell; For the Santa Fe Pacific Railroad Company of Amarillo and the Oil Development Company of Texas, Mr. Earl C. Iden of Albuquerque.

MR. HANNERS: On behalf of U. D. Sawyer and Dessie E., G. T. Hanners of Lovington, New Mexico.

CHAIRMAN SHEPARD: Mr. Hanners, will you proceed?

MR. HANNERS: We have been discussing the matter if the Commission please as to the procedure in the hearing. In discussing with Mr. Dow, we treated the matter in the nature of a rule to show cause by the Commission on its own Motion and directed to Mid-Continent the applicant and the other lessees in the area as to why the order should be continued in effect. We believe the orderly procedure would be for the Mid-Continent to proceed with its technical proof which isn't available to us.

CHAIRMAN SHEPARD: Is Mid-Continent ready to proceed or what do you think of this procedure?

MR. DOW: Well, if the Commission please, I want to state to the Commission first that we come in peace. We have had varied reactions to the Commissions order to show cause in this case and we are going to dictate into the record what we might term a motion to dismiss in the beginning. We are, of course, as I say in a spirit here of cooperation and we are not perhaps expecting the Commission to take definite action on this Motion in the beginning, but perhaps after all the testimony is in. Notwithstanding our Motion we are here with testimony to reprove the case that was made when the original order was entered. The Mid-Continent Petroleum Corporation and the Santa Fe Pacific Railway Company and the Oil Development Company of Texas and the Magnolia Petroleum Company are appearing today in response to the citationnotice issued by this Commission in the matter of Case Number 149. These operators are not fully informed, in fact are somewhat puzzled, by the Commission's Action in reopening this case. For the record, the respondents would like a statement from the Commission as to the basis upon which the Commission has taken this action.

Now, there is no allegation or no -- we are not accused of waste or committing waste or of effecting correlative rights, in fact not accused of anything and we would like to know

At the outset what prompted the Commission to take the action, upon what basis, the basis of its order which it directed to use to show cause why the order should not be rescinded. We are presuming that it was upon information that was filed by the Sawyers through Mr. Hanners. The Sawyer information does not allege that waste, as defined by the New Mexico Oil Conservation Act of 1949, has occurred in the Devonian Pool of the Crossroads Field. And without such allegation the Oil Conservation Commission of New Mexico has no jurisdiction over the subject matter of said information. I am dictating our motion for the record. Further the order number 779 was issued in the matter of Case Number 149 on July 27, 1948, effective August 16, 1948, and becoming final 20 days thereafter when no interested party applied for a rehearing. Order Number 779 has now been in full force and effect for over two years. Pursuant to said order and believing this Commission respected its previous order and we had acquired substantive rights, the operators in the Crossroads Devonian Field have invested in excess of three million dollars.

The rights obtained in Order 779 have become vested and as such cannot be affected in a collateral attack of this character. The Oil Conservation Commission of New Mexico is a statutory body created by the Conservation Act of 1949. The jurisdiction of this Commission is especially

limited by the Act. The Commission has statutory authority to modify the order only to the extent necessary to prevent waste as defined by the Act. Your attention is specifically directed to Section 13-E of the Oil Conservation Act.

The Sawyer information contains no allegation that waste, as prohibited by the Oil Conservation Act, is occurring within the Crossroads Devonian Pool. The Commission has no cause or authority to summon operators of the Crossroads Devonian Pool before it simply to listen to complaints of any interested New Mexico royalty owner.

The Commission is not a complaint board. Its jurisdiction and duties, its powers and authorities are strictly set forth in the Oil Conservation Act. The Commission has committed serious error in citing these respondents to appear and again prove their case in the matter of order number 779, without any proof that waste, as defined by the Act, is occurring. This Commission is without jurisdiction to reopen Case 149. These respondents suggest this and challenge the jurisdiction of the Commission in this matter and object to again being summoned to reprove the case for 80 acre spacing without information and believe that order number 779 is resulting in waste in the Crossroads Devonian Pool.

The duty is upon the informants to appear and prove their case. For the reasons assigned the respondents move that the Commission dismiss this case. Mr. Commissioners, we bring that to the attention of the Commission because we think

the precedent of this case might prove serious to the Commission and the operators and all concerned. If some complainant in some other pool is dissatisfied with the 40 acre spacing and just complained and wanted the order changed as to that pool, this might set a precedent that would be hard to get away from. This Commission has had a wonderful record and we certainly do not want to see this case go on up and have the jurisdiction and all these features of the Commission challenged. And therefore, we are here at considerable expense and lots of time put in to furnish testimony that in our opinion will not only justify the former order but will show it was a wise one and the conditions that now apply in that field should strengthen the belief of the Commission in the justice and fairness of the correctness of this order. With that understanding, we will produce our testimony. I am going to ask each of the attorneys associated with me in this ~~week~~know their technical witnesses and are familiar with the points they want to bring out to do the interrogating. Mr. Crocker will first place his witnesses on the stand for the Mid-Continent.

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M. B. PENN,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. CROCKER:

Q State your name please.

A M. B. Penn.

Q Have you been sworn as a witness?

A I have.
Q Are you a graduate petroleum engineer? A Yes, sir.
Q Will you state your qualifications please? What school were you graduated from and in what year and with whom you have been connected since and what your principle duties are in your present position?

A I was graduated from the University of Tulsa in 1932 and a Bachelor of Science in petroleum engineering. The last 15 years I have been associated with the Mid-Continent Petroleum Corporation. The last ten years of which I have been doing petroleum engineering work in the production department and now have the capacity of chief petroleum engineer.

Q Mr. Penn, as a petroleum engineer, have you heretofore testified before this Commission on engineering matters pertaining to the so-called Crossroads pool as it produces from the Devonian formation?

A I have.

Q I will ask you to state whether or not Mid-Continent Petroleum Corporation is presently a producer in the Devonian formation of the Crossroads pool?

A It is.

Q Can you state for the record the description of the particular tracts upon which Mid-Continent Petroleum Corporation has wells producing from the Devonian formation.

A The discovery well known as the U. D. Sawyer A No. 1 -

Q Just give the description of the lease first.

A It is located on the lease described as the south half of Section 27, Township 9 south, range 36 east Lea County, Oklahoma.

Q New Mexico?

A New Mexico. The U. D. Sawyer 1-D lease comprises the northeast quarter of the same Section 27 and the Dessie Sawyer No. 1 is located on a lease comprising the southwest quarter of the same Section 27. A well is now drilling to the Devonian reservoir on the U. D. Sawyer C Lease which comprises the north half southeast quarter of the same section 27. This well is now drilling, I think, someplace between nine and ten thousand feet.

Q Has Mid-Continent heretofore drilled a well in the north half of Section 34 of the same Township and range?

A It has.

Q Mr. Penn, will you advise the Commission as to how many wells are presently producing in the Crossroads pool from the Devonian formation? That would include wells drilled by other operators as well as Mid-Continent.

A Mid-Continent has three wells producing from the Devonian. Two other companies each have a well producing from the Devonian.

Q Does that mean there are five presently producing wells from the Devonian formation in the Crossroads pool?

A That is correct.

Q How many producing wells are there located on leases in which Mr. and Mrs. Sawyer are the lessors?

A Three.

Q Of the five producing wells in the Crossroads three are located on Sawyer land?

A That is correct.

Q I wish Mr. Penn you would go to the discovery well please and advise the Commission when it was started and when it was completed?

A The discovery well which is the U. D. Sawyer "A" No. 1 was started in September 1947 and completed in May 1948?

Q To what depth?

A At a total depth of 12,258 feet if my memory serves me correctly.

Q Did this well produce commercially upon completion in the Devonian formation?

A It did.

Q Do you remember approximately what the initial production was upon completion?

A On May 6, 1948 an initial production test was taken on the well, which indicated 995 barrels flowing through 3/4 inch choke in 6 hours and 20 minutes.

Q What was the next well started - let me ask you this. Do you have the figures on the cost of that well?

A Yes, sir, I do. The well was drilled at a cost of$355,640.39

Q Is the oil kept separate that is produced from this well from other wells producing on the Sawyer lease?

A It is.

Q Do you have the record of the money recovery you have had as a result of this expenditure?

A The total revenues from the oil sold amounts to $258.513.75 through September 30, 1950.

Q Would you subtract the two figures please and give the result as being the red figure?

A The figure I have before me includes with the drilling expense and the operating expense to date which gives a difference of $254,345.47, with the drilling expense plus the operating expense minus the total revenue gives the last figure I stated.

Q What was that figure?

A $254,345.47 in the red.

Q That is on the discovery well?

A That is on the discovery well.

MR. HANNERS: May I interrupt and call attention to the fact the figures you have given will not produce that result. Perhaps I misunderstood your figures.

A I am directing these remarks to Mr. Hanners. The total drilling expense was $355,640.49. I was under the impression that Mr. Crocker wanted the present status of the well. To that drilling figure should be added $80,098.09 operating expense from the completion of the well to date. That gives

ORDER OF THE COMMISSION

BY THE COMMISSION:

This matter came on for hearing before the Oil Conservation Commission of New Mexico hereinafter referred to as the "Commission" on November 21, 1950 at 10:00 o'clock A. M., at Santa Fe, New Mexico, and after consideration of the testimony adduced at said hearing, the Commission required by its Order of December 29, 1950 continuation of the case until March 20, 1951 for additional evidence as to all wells drilled in the pool, and further information as to the performance of the pool, under eighty acre spacing of the Crossroads Devonian Pool.

On March 20, 1951 upon motion of the Honorable Hiram M. Dow, Attorney for Magnolia Petroleum Corporation, concurred in by all interested parties the case, was continued until 10:00 o'clock A. M., on March 21, 1951 in order that the matter might be heard before the whole membership of the Commission.

The case then came on for futther hearing before the Commission at the date, time and place last aforesaid.

Now, on this _____ day of May, 1951 the Commission having before it for consideration all of the testimony adduced at the November 21, 1950 and March 21, 1951 hearings as well as taking into consideration the original testimony introduced July 15, 1948 together with the pertinent ofjicial records and exhibits filed with the Commission since the inception of the case in June, 1948 and being fully advised in the premises

FINDS:

1. That due public notice of the November 21st, 1950 hearing was duly had, and all interested parties were on notice of the March 20, 1951 hearing by the Commission's Order No. R-45 of December 29, 1950 and all parties in interest having appeared in response thereto, and the Commission having originally retained jurisdiction of the Case by its Order No. 779 has jurisdiction of the case, the subject matter thereof, and of the interested parties therein as a matter of prevention of waste and protection of correlative rights.

2. That when Order No. 779 was issued by the Commission on July 15, 1948, there was only one completed Devonian well in the Crossroads pool, and the productive limits of said pool were highly speculative, although other wells were being drilled within the surface boundjries of said pool as recommended by the then functioning nomenclature committee.

3. That at the time the Commission, under its authority to prevent waste and protect correlative rights, upon its own Motion, reopened the matter at the formal suggestion of U. D. Sawyer and Dessie Sawyer, his wife, (owners of interests in the pool,) operators in the pool had then completed seven additional wells in the Devonian formation on an eighty acre spacing pattern with one exception (East-West unit arrangement) thereto; of which five of said wells were completed as producers of oil - three being plugged and abandoned as dry holes.

4. That on the basis of conflicting expert testimony the Commission is not able to find that the northern and eastern limits of the Crossroads - Devonian pool have actually and fully been determined under the spacing plan heretofore authorized, and as a result the Commission cannot affirmatively find that all the recoverable oil will be, or possibly will be, ~~that all the~~ recovered from undeveloped portion of pool under an 80-acre spacing arrangement.

5. That forty acre spacing has been, and is, the standard spacing pattern for the drilling of oil wells, long established in New Mexico, and, any other spacing pattern at variance therewith in view of the favorable deep pool allowable rule, should be authorized only for the most compelling reasons.

6. That the Crossroads pool and the Knowles pool to the southeast, both producing from the Devonian formation at approximately the same depth, (in excess of 12000 FT) - requiring the same approximate drilling cost, are very similar in their respective reservoir characteristics, and should be similarly produced.

7. That the Commission is officially on notice of the present steel shortage.

8. That Order No. 779, known as the C ossroads Devonian pool Spacing Order should be superseded, and

the difference I stated.

Q Well let's see if we have this straight. You stated that the cost as reflected by our books directly applicable to this operation amounts to $355,640.49?

A For the drilling of the well alone.

Q All right. Now what was the operating expense?

A $80,098.09.

Q That is to be added to the figure I just referred to, the $355.640.49?

A That is correct.

Q Now the revenue, total revenue, amounts to $258,513.75. Is that what you testified to?

A That is correct.

Q That was what results in the red figure of $254,345.48?

A That we still have invested in the well that we have not had returned to us.

Q All right. What was the next well Mid-Continent drilled to the Devonian formation?

A Mid-Continent moved in another rig as soon as the first well was completed and started drilling two wells, being the Dessie Sawyer No. 1 and the U. D. Sawyer B No. 1. Both of these wells were started in June, 1948 and the latter completed in February, 1949 - the former completed in February 1949 - and the latter completed in March 1949.

Q Let's refer to the U. D. Sawyer B No. 1.

A That is the one completed in March 1949.

Q Did that well produce oil or was it a dry hole?

A I would say that well produced 1,632 barrels of oil.

Q Has it been plugged as a dry hole?

A It has.

Q Has the lease upon which it was drilled been released to Mr. and Mrs. Sawyer?

A I understand it has.

Q What depth - to what depth was that well drilled? Was that well drilled to a sufficient depth to fully test the Devonian formation if it existed?

A It has. It was drilled to a total depth of 12,750 feet.

Q Do you have the cost figures on that well?

A That well cost $425,848.32.

Q $425,8 - what?

A $ -,848.32.

Q You recovered how much oil from it?

A We recovered in money $4,212.46.

Q Will you calculate and advise the Commission what the red figure is on that operation?

A $421,635.96.

Q All right. Let's develop some information on the Dessie Sawyer No. 1 located in the northwest quarter of the southwest quarter of Section 27, northeast of the southwest of 27. Mr. Penn how deep was this well drilled?

A This well was drilled to a total depth of 12,241 feet.

Q It was bottomed in the Devonian formation?

A That is correct.

Q Is it presently a commercial producer?

A It is.

Q Do you have the cost figures pertaining to that operation?

A That well has cost $442,865.22.

Q Do you have a record of the revenue thus far produced and received from that operation?

A The revenue was $386,093.34. The difference is $56,771.78.

Q That is the red figure?

A That is the red figure.

Q What well was next started on the Sawyer land?

A The next well started in February 1949 upon completion of the Dessie Sawyer No. 1 well which we call U. D. Sawyer D No. 1. It was completed in August 1949?

Q Was it completed to a depth sufficient to test the Devonian formation?

A It was bottomed at 12,150 feet.

Q Is that in the Devonian formation?

A In the Devonian formation.

Q Did it produce oil commercially?

A It did.

Q Is it now producing oil commercially?

A It is.

Q Do you have the cost figures on that one?

A That well has cost $344,328.34.

Q Now, Mr. Penn, do you have a record of the revenue that has

been derived from the well you are just speaking of?

A The revenue amounts to $264,268.35.

Q Will you give the red figure on that operation?

A $80,059.99.

Q (Off the record.)

Q Now, Mr. Penn, would you testify that Mid-Continent Petroleum Corporation is presently drilling a well located in the northeast quarter of the southeast quarter of Section 34?

A I would.

Q That well has not been completed as yet I take it?

A That is correct.

Q Is it the purpose of the company to drill that well to the Devonian formation?

A It is.

Q Can you give the Commission a little data such as you may have with respect to the present depth of the well, when was it started?

A The well started drilling in June 1950 and it is presently drilling between nine and ten thousand feet.

Q Baring unforeseen difficulties when do you estimate the approximate date of completion of that well would be?

A In the early part of next year.

Q I presume you have no authentic cost figures pertaining to this operation up to the present time that is?

A The only cost figures I have are those invoices which we have received up to the effective date I have been giving on

these other wells which is September 30, 1950. At that time we had only invoices amounting to $29,520.32.

Q That is somewhat negligible as to what the figure would be if you had all the invoices is it not?

A That is right.

Q Mr. Penn upon the completion of the discovery well about which you have testified, that completion date being some date in May 1948, was a meeting convened in which all operators or lease owners in the Crossroads pool met for the purpose of discussing the propriety of appearing before this Commission to seek spacing for the pool?

A That is correct, such a meeting was held in Tulsa.

Q Is it not true that the Magnolia Petroleum Company originally set the machinery in motion pursuant to which the meeting was held?

A I believe that is correct.

Q It was - I will ask you if it was due to the fact that Mid-Continent Petroleum corporation actually had completed the discovery well that it was the consensus of opinion at the meeting that Mid-Continent Petroleum Corporation should file the application with the Commission?

A That is correct.

Q It was filed at the direction and with the authority and approval of Magnolia Petroleum Company, Oil Development Company, GulF Oil Company, Skelly the Santa Fe Pacific people?

A I believe there were some others. I don't recall.

Q I believe there were, but the ones I have mentioned approved of it, did they not?

A Yes, sir.

Q Prior to the filing of that application for spacing I will ask you whether or not Mid-Continent Petroleum Corporation appeared before this Commission and secured an allowable governing the production in the discovery well?

A That is correct, they did.

Q What allowable did the Commission grant?

A They originally upon that informal hearing - it was 500 - per day.

Q Did Mid-Continent Petroleum Corporation start to produce that well at the rate of 500 barrels a day pursuant to the authority given it by the Commission?

A They did.

Q How long did they produce at that 500 barrels a day?

A I believe the record will show about a month.

Q What happened then?

A Well it began to make some water.

Q Did we call the Commission in Santa Fe and so advise them?

A I believe we did.

Q When we appeared before the Commission seeking the spacing, did we advise the Commission that we thought an allowable of 500 barrels a day was entirely too much due to the entrance of water in that well?

A We did.

Q What did we recommend as being a fair allowable based on the information we then had and were able to present?

A 300 barrels a day.

Q Did you conclude it might be a mistake to have over-produced that well at the rate of 500 barrels a day?

A I believe we did conclude that.

Q So you feel that you are very close to the water line in that well and that to produce at 500 barrels a day tended to hasten the water entrance?

A I believe it did.

Q What are they producing at the present time from two other wells, that would be D 1, UD Sawyer D, do you know?

A 340 barrels a day each.

Q Are either of these wells making water?

A Neither of these wells is making water.

Q Let's go back to the discovery well. Is that well making water?

A Yes, it is.

Q I wish you would tell the Commission how much water and how much oil is being produced daily.

A That well produces about 450 barrels of water a day and about - then in the month of October -

Q What year?

A 1950. It produced about 65 barrels of oil a day.

Q I presume the well is on the pump?

A It is.

Q Are the D 1 and Sawyer D flowing wells?

A They are.

Q Are they making their allowable without difficulty?

A They are.

Q Mr. Penn, did the Skelly Oil Company drill a well to the Devonian formation located in the northeast northeast of Section 33 in the same township and range we have been speaking of?

A They did.

Q Do you know what they encountered - Skelly encountered - in the Devonian formation?

A Salt water.

Q Are you informed that the Magnolia well located in the southwest of the southwest of 26, Township 9 south, 36 East, has in the past made water and probably at the present time making any water?

A That is my information.

Q Do you know whether that well is flowing or on the pump?

A That well is on the pump.

Q If I understand your testimony correctly, you state that the Santa Fe - that the Skelly well in 33 and the Magnolia well in 26 and the Mid-Continent well, the discovery well, in 27 all - the Skelly well of course didn't produce oil on account of the salt water - and presently the Magnolia well and the Mid-Continent discovery are making water?

A That is correct.

Q Is this a water drive field in your opinion as an engineer?

A The energy for lifting the oil to the surface in this reservoir is that derived from what is known as a water drive reservoir.

Q Mr. Penn, do you regard water then as a source of energy under which this field produces, is that right?

A That is right.

Q Will you as an engineer state the principle forms of energy sources ordinarily encountered in this country in producing pools and reservoirs?

A I believe most of the reservoirs in this part of the country produce from what is known as the dissolved gas drive. That is that the gas dissolved in the oil lifts the oil to the surface. Other pools have produced from energy derived from an expanding gas cap above the oil reservoir. This field produces from the third type which is a water drive source of energy.

Q What is the theory of engineers with respect to recovery from the various sources of energy, in other words, from what source do you think you get the utmost in recovery if that can be testified to.

A Practical indications and - practice indicates and proves that more or recoverable oil is being produced from water drive fields than is produced from gas drive fields. As a matter of fact, I would say that gas drive fields produce from as low as three per cent of the oil in place to as high as 25 per cent of the oil in place whereas water drive fields produce from 50 to as high as

35 per cent in some instances of the oil in place.

Q Are the Oil and Lawyer 2 wells higher on the structure than the Mid-Continent discovery well, the dry hole of Skelly in 33, the dry hole of Mid-Continent in 34, and the Magnolia well in 26?

A They are.

Q Is it your theory that through the force of the water drive oil might migrate towards the uplift or towards the peak of the structure?

A That is true in this field.

Q If we might forget for a moment the property lines on the surface that charter individual rights and think only in terms of the reservoir itself, I would like to ask you what the potentialities are of a well, or two or three wells, located on the peak or top of the structure with respect to ultimately recovering all recoverable oil from the reservoir?

A In such a field as this those wells which now exist on the top of the structure would eventually drain all the oil therefrom.

Q Do you think in a water drive field density of wells might hasten the entrance of water to the point that the edge wells would be captured by water?

A That is true.

Q Do you have any further observations which you might care to make for the benefit of the Commission?

A I believe not.

MR.CROCKER: Does the Commission wish -

CHAIRMAN SHEPARD: Well, at this time, we will recess until 1:30.

(noon recess.)

CHAIRMAN SHEPARD: Mr. Crocker, will you resume.

MR. CROCKER: If the Commission please, we still have two or three questions.

CHAIRMAN SHEPARD: All right, you may proceed.

FURTHER DIRECT EXAMINATION

of

M. R. PENN,

By MR. CROCKER:

Q Mr. Penn, first I believe you have a record, you would like to make in regard to some figures. Will you do that?

A I will have to admit I was somewhat confused in the form our accountants gave us on these costs and didn't put all the costs into the record thus accounting for the improper arithmetic. The cost and expense allocable to the U D Sawyer A No. 1 as of September 30, 1950 totals $512,859.22. This sum is arrived at as follows: The lease hold expense, $271.75; well and lease and equipment, $76,848.99; drilling expense, $355,604.39; operating expense, $80,098.09. These figures total the sum I gave. I would also like to correct the October production for this same well from 1900 barrels to 2900 barrels for October. This will revise the 65 barrels of oil per day to approximately 100 barrels of oil per day.

Q As against how much water.

A 450 barrels a day of water.

Q Mr. Penn, during the noon hour have you had an opportunity to make a grand total of money spent on all of our operations on the Sawyer leases, and a grand total of all the revenues so that you can tell the Commission what the present status of the entire operation is?

A The total amount of money we have spent on the four wells discussed, exeluding the drilling well, is $1,725,901.10. The total revenue from these four wells is $913,087.90. The balance of money spent still notrecovered, which is the difference between those two figures, is $812,813.20, which is approximately one-half of the total money spent.

Q Mr. Penn, from your observation in drilling and developing in the Crossroads pool since the completion of the discovery well are you convinced that there have been any changed conditions such as would make you believe that 80 acre spacing is not the proper spacing in the interest of conservation?

A I am still convinced as I was after we tested the first well that was drilled that one well on this Devonian reservoir in the Crossroads pool would adequately drain at least 80 acres.

Q Is it your thought that the 80 acre spacing proration unit should be continued in the Crossroads pool in the future in the light of studies you have made of beservoir conditions developed by the past drilling operations?

A It is.

MR. CROCKER: I believe that is all.

CHAIRMAN SHEPARD: Mr. Hanners, do you desire to cross examine?

MR. HANNERS: I do, if the Commission please.

CROSS EXAMINATION

By MR. HANNERS:

Q Mr. Penn, I hand you a little hand-made plat that has the four sections of the Devonian field drawn on it and that shows the lands owned by Sawyer in the solid lines and lands owned by other parties in the diagonal and ask you to state if that fairly represents the situation - I will ask you to state if that represents the situation on the ground as to producing wells, dry holes and drilling wells?

A Yes, sir, with one exception. The well located in the southeast corner of the northwest quarter of Section 27, which we call Oil Development Company of Texas 2-27, Santa Fe Pacific, I believe that well wasn't completed.

Q That was completed in the month of October, 1950, wasn't it?

A I believe that is correct.

Q Do you know the initial production from that well?

A No, sir, I don't have the final report on that well. I am not prepared to testify as to the completion or the initial production data on that well.

Q If the figure 576 barrels as indicated by the report - would that be approximately correct so far as you know?

A I understand it is a commercial well.

Q There has been one other well completed in the southeast

quarter of the southwest quarter of Section 22 which was also an oil development well.

A I believe that well is completed but I don't believe that well produces from the Devonian.

Q That is a pensylvania well in Section 22, is that correct?

A I believe it is.

Q Now, you say, you said awhile ago, as I understood you that the water drive found in the Magnolia well in the SW quarter of 26 and found in the Sawyer discovery well- I believe the phrase you used was, causing the oil to migrate upward toward Dessie-Sawyer well and the Sawyer 1 D, was that correct?

A That would occur.

Q That was your testimony? A Yes.

Q Now observing from the plat the Sawyers would be entitled to drilling of an offset well sometime between the U D Sawyer well the SWNE of 27, and the Pennsylvanian well of Magnolia in the SWSE of Section 22, would that be true?

A Are you referring to the drilling of a well on the northwest quarter of the northeast quarter of Section 27?

Q Yes, sir, that is my question.

A That would be off pattern.

Q I will develop it further. Would there not also in time be a well due the Sawyers between the Dessie-Sawyer well on the NE of the SW of 27, and the Pennsylvania well of Magnolia on the NE of the SE of 28?

MR. CROCKER: I would like --

MR. HANNERS: I will develop it further, Mr. Crocker.

MR. CROCKER: Are you talking about Devonian or Pennsylvania?

MR. HANNERS: I will develop it further, but the statement the witness has just made is that itwould be off pattern.

MR. CROCKER: You are not asking - undertaking to develop - that the well there would be a Pennsylvania well if there is a legal obligation to drill it.

MR. HANNERS: No. Those two locations would be midway between the Pennsylvania well and a Devonian well, wouldn't they, Mr. Penn?

A That is correct.

Q And under your present 80-acre spacing pattern a Devonian well isn't to be located at either of those two quarters?

A That is correct.

Q Now, if there is a water encroachment forcing the migration of oil northwestward toward the Dessie-Sawyer well and toward the Sawyer B well then would it be reasonable for a well at either of those locations I have mentioned to be drilled into the Devonian formation?

A I don't follow the reasoning.

Q If a well were drilled at either of those locations would it be reasonable for the well to stop as soon as it had encountered the Pennsylvania formation, or would it be reasonable for that well to be drilled deeper into the Devonian formation producing in the well known as the Dessie-Sawyer well and the one known as the Sawyer B?

A You have based your question on the assumption that the water drive was from the southeast. I don't believe that has been developed that the water drive occurs only from the southeast.

Q I have understood you to say, Mr. Penn, that the water drive was forcing your oil to migrate toward the Dessie-Sawyer well and toward the Sawyer D1.

A Assuming those wells are on the top of the structure, that takes place in all directions, not necessarily only from the southeast.

Q But Mr. Penn, would a prudent operator with an obligation to drill a well at either of the intervening locations I have mentioned, that is, between the Pennsylvania well and the Devonian well on the north, and between the Pennsylvania well on the west and the Devonian well, would a prudent operater also explore the Devonian formation at that location?

A I believe you are asking for geoligical testimony there.

Q Would it be reasonable, Mr. Penn, for a prudent operator drilling a well inthose locations, particularly after the recent bringing in of the Santa Fe 2-27 as a Devonian producer, to stop at the Pennsylvania formation in those two locations I have mentioned, or would he go deeper and penetrate the Devonian sands?

A Mr. Hanners, if we had presented here a picture of our conception of the geology of this structure, or if we had

presented an interpretation of our seismograph data from which one might readily see the structure which is present, or if you had developed the same type of evidence I believe a geologist could take the stand and answer that question.

Q I assume them, you are not in a position to testify whether a reasonably prudent operator would or would not explore the Devonian formation if he was at either of those two locations I have mentioned.

A That's right. That is a geological question.

Q And under the present 80-acre pattern, a devonian well is not to be located at either of those two locations I have mentioned?

A That's right.

Q Is it your testimony, Mr. Penn, that one well will drain 80 acres efficiently?

A At least 80 acres.

Q How will you draw off that 80-acre tract? Will it be an oblong?

A By saying that one well will drain 80 acres under a reservoir I mean that one well will drain that porportionate part of the oil from the reservoir that 80 acres would be - would be allocated to 80 acres.

Q And if one well allocated to 80 acres in an oblong running east and west such as the initial pattern here, is it your testimony one well would drain that 80 acre oblong tract?

A That conclusion doesn't follow from my answer to the previous question, I believe.

Q Will you please look at the chart and point off to me, if you will please, sir, the 80 acres being drained now by the recent oil development company well known as 2-27 located in the southeast of the northwest of 27. Before you answer that it is true that the well just west of that recent Santa Fe well was a dry holw in the Devonian formation. Is that true?

A That is correct.

Q Now, will you please explain to me the 80 acres being drained by the Oil Development Company well 2-27 located in the southeast of the northwest of 27?

A The 80 acres being drained by that well could be any 80 acres in the vicinity of the well covering the productive limits of the field.

Q Then would it be true, Mr. Penn, that the 80 acres in that instance should run towards the south, the 80 acre tract should be in an oblong running north and south?

A That is the 80 acres I believe that is -- drilled -- that is applicable or allocable to that well as far description is concerned. But that is not necessarily or actually the acres that is being drained by that well as it appears in the reservoir.

Q Well, could you now find the approximate limits of that 80 acres that is now being drained by the Oil Development Company well?

A I believe my answer to the previous question that that can

be any 80 acres under the reservoir - under the surface - that is contained in the reservoir.

Q Then under the present 80- acre pattern, if this Joint Fe well to which we have been referring is draining 80 acres it could be draining on 80- acre lease assigned to it, could it not, and that could be the 80 acres on the north and south?

A No, not necessarily.

Q Then where would the 80 acres be, Mr. Penn?

A It can be any 80 acres on the -- in the reservoir that is productive.

Q So then, Mr. Penn, if the Joint Fe well is not draining 80 acres could it be reasonable to assume it is draining from the Devonian to the north because it couldn't drain from the Devonian formation to the west of it because it is dry.

A It could drain - in the absence of any geological testimony- it could drain the Devonian formation from a very few feet of the hole in the west.

Q Could it be reasonable to assume it is draining an 80-acre tract in an oblong running north and south under the spacing pattern. Isn't that the only basis on which you could justify the 80 acres allocated to that well?

A You have read me two questions that conflict. The answer to the second question I believe was no.

Q Then your answer to the first one -

Could you repeat the first question?

A I will [illegible]. Mr. Penn, I want to be fair, I don't

want to confuse you.

A That's why I want to make the record straight.

Q What I want to know is, 80 acres is allocated to the Santa Fe well 2-27. If 80 acres is being drained by that well, doesn't it follow the 80 acres must be an oblong tract running north and south?

A As far as the reservoir is concerned I will answer the questions, Mr. Manners, by saying no, because the well can be drained within a very few feet, the Devonian formation, within a very few feet of the dry hole to the west.

Q Then I take it your testimony is that the well isn't effeciently draining 80 acres.

A I would conclude that well could be draining more that 80 acres.

Q If it is draining more that 80 acres it is draining from the north isn't it?

A Yes.

Q Then it would be reasonable to assume that a well drilled north of the Sawyer B-1 would be drilled into the Devonian formation, wouldn't it?

A No, because that well would adequately drain at least 80 acres and there is no use to drill a well up there.

Q But observe the diagonal lines and the land owned by the Santa Fe Railroad which would be drained from land owned by the Sawyers by the failure to drill the Devonian well north of the D well. Wouldn't that be true?

A I don't follow that reasoning. I don't understand what you are driving at there. Would you repeat that?

Q You said that the 80 acres being drained by the 2-27 well would logically lie north of it. I believe that is your testimony.

A As well as within a few feet of the dry hole to the west.

Q My question is then, if the area being drained by the 2-27 lies north of the well wouldn't it be reasonable if a well be drilled north of the Sawyer D-1 well that it also be drilled into the Devonian formation because you say there is a drainage from the north by the Santa Fe 2-27 well.

A No, I don't see at all that the 2-27 well is draining any of the Sawyer's land if that is what you are getting at. I say two wells equally distant from the center line of the north half of 27 will both produce the same allowable and I see no reason to believe that one is draining any oil from the other, unless one might testify that the Sawyer D well of the Mid-continent has heretofore drained some oil out from under the Santa Fe lands because of the priority it got from an early completion. And in the same manner, I say that the well south of the 2-27 well was completed prior to the 2-27 well and it no doubt has drained some oil out from under it, and if anything has happened the Sawyer's has been draining the Santa Fe rather than the Santa Fepresuming to over drain the Sawyer's.

Q Now Mr. Penn, will you move to the southeast corner of the

map to the Santa Fe well in the southwest of the southwest of 26 and explain the 80 acres being drained by that well.

A Are you referring to the well in the southwest southwest of 26?

Q That is correct.

MR. CROCKER: May I ask a question, Mr. Hanners?

MR. HANNERS: Yes, sir.

MR. CROCKER: I believe the Santa Fe has an engineer who will be on the witness stand.

MR. HANNERS: I wanted Mr. Penn to develop the testimony he just started to give about the drainage by Sawyer particularly in view of the Santa Fe well in the southwest southwest of 26 as to what area is being drained by it.

THE WITNESS: The well referred to drains at least 80 acres of the reservoir in the Devonian. That isn't 80 acres that I can draw a circle or confine by any kind of a line.

Q But if there be drainage there as between different owners it would be drainage from the Sawyers following the same reasoning that you just discussed in the last answer, wouldn't that be true, Mr. Penn.

A Not necessarily, Mr. Hanners. The well referred to is the only well on what appears to be three-quarters of the section. And the amount of that three-quarters of the section that is productive is included in the area that that well, I would say, is draining.

Q You were asked a question awhile ago if there had been any radical change between now and 1948, Mr. Penn. When you testified on this matter in 1948, didn't you then assume that

the four sections represented by that map designated as the Devonian area, the Devonian field, would be productive of oil from the Devonian formation?

A As I recall, Mr. Hanners, the area was designated by a committee then in existence and known as the Nomenclature Committee. And the basis upon which they designated that area is unknown to me. My conclusion at that time was drawn entirely from the physical data obtained from our discovery well.

Q But at that time were you not all assuming that the four section area designated by the Nomenclature Committee would be productive of oil from the Devonian formation?

A If you change the word "assuming" to "hoping" I will hold with you.

Q And since that time you have had three dry holes in the Devonian formation.

A That is correct.

Q Much of your testimony has related to financial matters, Mr. Penn, and discussing your figures as to the Sawyer No. 1 I notice you have included $80,000 of operating expense. Is it true, Mr. Penn, that during the last year you spent some forty or fifty thousand dollars on a pumping unit on that well?

A Approximately forty thousand dollars, I would say.

Q Now, do the figures you gave in each case include the equipment you now have at the location?

A They include the equipment we now have on that lease.

Q That is your pumping and producing equipment?

A The only pumping equipment we have is on the one well, the other equipment would be such things as lead lines, tank batteries, Christmas trees, and tubing in the well.

Q In the cost of the dry hole you drilled in Section 34, what was your figure there?

A That is the U-D Sawyer B No. 1?

Q That is right.

A The total investment and expense there was $425,848.32.

Q Now, should there be deducted from that any appreciable amount for salvage from that dry hole in casing and what-not?

A The answer I will have to give you on that Mr. Hanners, is this: the figures I have given you are the status - is the status - of the investment and expense as of September 30, 1950, and if we had recovered any pipe from that well it could only have been the 5½ inch pipe that existed above the intermediate string, above the lowest point reached by the intermediate string, and it would be included because this is a true status of the amount of money that has been spent on that well.

Q All right, Mr. Penn, coming back to financial matters again I believe you said the Dessie-Sawyer well was completed in February of 1949 at a total cost of $442,000 plus.

A That included expenses to September 30, 1950.

Q And you have recovered from that $386,000 plus dollars?

A That is correct.

Q So that in the 18 or 19 months since its completion, you lack

only $56,000 of having recovered that $442,000 investment?

A That is correct.

Q And on the Sawyer D well you completed it in August 1949 at a cost of $344,000 plus dollars including your operating and maintenance expense?

A That is correct.

Q And have recovered 264,000 plus dollars from it in a period of about 14 or 15 months.

A That is correct.

Q One thing further. I understood you to say that the difficulty in the Sawyer discovery well had been brought about in part, at least by the excessive rate at which you first began to produce it. Is that correct?

A Water coned into the well. I am inclined to believe that is a true statement.

CHAIRMAN SHEPARD: Any further questions of this witness?

REDIRECT EXAMINATION

By MR. CROCKER:

Q Mr. Penn, with respect to drilling an exploratory operations at the present time are materials increasingly hard to obtain?

A Pipe is very difficult to obtain at the present time.

Q Have labor costs gone down?

A Since the drilling of our last completion, I would say no.

Q Mr. Hanners asked you about various locations as to whether or not if a well were drilled in these various locations he referred to it is possible you would encounter the Devonian

formation, did he not?

A Something to that effect.

Q He asked you whether or not you figured such wells would be necessary if you encountered the formation, the Devonian formation, in order to prevent waste from the reservoir.

A No.

Q In your opinion if those wells are not drilled and the spacing order is conformed to is it your opinion that the ultimate recovery of oil from the reservoir on the 80-acre spacing pattern will recover all — sufficiently drain and recover — all the recoverable oil from the reservoir?

A That is my opinion.

MR. CROCKER: That is all.

MR. MANNERS: That is all.

CHAIRMAN SHEPARD: Any further questions of this witness? If not, you will be excused Mr. Penn. Call the next witness.

(Witness excused.)

JAMES R. PUCKETT

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. MCKELLER:

Q Please state your name.

A James R. Puckett.

Q Are you a petroleum graduate/engineer, Mr. Puckett?

A Yes.

Q Will you please state to the Commission your experience and

your position and by whom you are employed?

A I have had 5 years experience as Petroleum Engineer for Magnolia and presently I am District Petroleum Engineer for Magnolia.

Q The Magnolia well, does it fall within your District?

A That's right.

Q Are you familiar with the formation known as the Crossroads Devonian formation?

A Yes.

Q You are familiar with the Santa Fe Pacific "C" No. 1 well?

A Yes.

Q Does this well in your opinion produce from the formation known as Crossroads Devonian?

A Yes.

Q What depth is this well producing from?

A It is producing from a total depth of 12,263 feet.

Q 12,263. When was this well completed?

A January 11, 1949.

Q Could this well flow initially when it was first completed?

A Yes.

Q Approximately how long did it flow?

A Approximately 8 months to the best of my knowledge.

Q To the best of your knowledge it flowed about 8 months, at which time it had to be put upon a pump?

A Right.

Q Is this well still producing from a pump?

A Right.

Q For this reason it is my understanding you have no bottom hole pressure data on this well.

A That is correct.

Q Will you please state the previous history of the oil-water ratio in this Magnolia well.

A The well was potentialed initially 100 per cent oil and no water but the well started making water in a couple of days after it was potentialed. Some 20 to 25 per cent water and the water-oil ratio has increased since then, continued to increase.

Q At the present time the last month for which you have production figures available, Mr. Puckett, what per cent of water did this well produce? I wish when you answer the question you would state the number of barrels of oil per day and the number of barrels of water.

A For the month of October it averaged 120⅞ barrels of oil per day and 138 barrels of water per day. Slightly over 50 per cent water.

Q This well is producing at the present time slightly in excess of 50 per cent water?

A That is correct.

Q In your opinion, Mr. Puckett, as an experienced petroleum engineer what type drive do we have, that is the source of energy in this particular field, the Crossroads Devonian Field?

A The primary source of energy appears to be water, the water

drive, water influx.

Q In your opinion it is a water drive?

A Yes.

Q On what do you base this opinion, Mr. Puckett?

A The low solution ratio, the small amount of gas in solution in the oil. It is not sufficient to lift the oil.

Q What has been our gas-oil ratio, just approximately?

A Approximately 40 cubic feet per barrel.

Q Approximate gas-oil ratio at 40 to 1.

A 40 cubic feet to a barrel of oil.

Q Such a small ratio would certainly not be sufficient to furnish the energy for this field, would it?

A That is my opinion.

Q Do you have any other data or have you made any other studies and data obtained from any other production history of any other Devonian wells in that Crossroads pool that would give us any other data upon which to substantiate an opinion?

A I have none.

Q But you feel certain from the studies you have made of Magnolia's one well in this field that we do have a water drive?

A Yes.

Q Well, in your opinion then, would one well sufficiently, drain - effectively drain - drain 80 acres in the Crossroads Devonian pool?

A It is my opinion that any reservoir where you have an effective

water drive, that one well will effectively drain 80 acres at least.

Q Well, is it further your opinion or not that the wells which are at present complete or in the process of drilling in the Crossroads Devonian pool in all probability will recover all the recoverable oil in place which can be recovered by primary means, and these wells which have been drilled and in the process of drilling will they effectively recover that oil?

A Will you restate that question please?

Q Yes, sir. Strike that and I will restate it. In your opinion would the wells which have been drilled or which are now in the process of drilling effectively drain all the recoverable oil from the Crossroads Devonian pool which can be recovered by primary means?

A I am afraid I haven't made a detailed enough study to figure that.

Q But in your opinion one well will effectively drain 80 acres?

A Yes.

Q What was the initial cost of Magnolia's Santa Fe Pacific well?

A The cost figure I have is a total completed expenditure cost to September 30, 1950. That figure is $402,957.27.

Q That is a total capital investment. Does that include operation lifting costs and other operating expense?

A No. The operating expense has been $50,604.78 to September 30, 1950.

Q Then until September of 1950 you have expended approximately

$450,000 on this well?

A The total figure is $453,562.05.

Q Does this figure to the best of you knowledge include the pumping unit which you had to place on our location?

A Yes.

Q It includes the cost of the repairs, usual maintenance, labor and what-not, added individually?

A That's right.

Q And we have shown what has been our revenue from this well or income?

A Net income has been $145,280.00.

Q Leaving us in the red approximately how much?

A $308,082.05.

Q Magnolia still has then invested in this well the sum total of around $308,000.00. Is that correct?

A Correct.

MR. McKELLER: I have no further questions to ask the witness, Mr. Manners.

CHAIRMAN SHEPARD: Would you care to ask him any questions?

MR. MANNERS: Just a very few.

CROSS EXAMINATION

By MR. MANNERS:

Q Mr. Puckett, do you have your production records through 1950?

A Through October of 1950.

Q That will show an excess of 3500 barrels a month through the 10 months of 1950, won't it?

A Yes.

Q What is your total for 1950?

A I have a grand total but I don't have - it looks like it will average around 3500 a month.

Q And as I under stand your testimony it is based upon your experience with your own Devonian well in the southwest quarter of the southwest quarter of 26 -

A That is correct.

Q And you have stated that you didn't feel qualified to testify as to whether or not the Devonian wells existing on the remainder of the Devonian field would efficiently drain the entire field -

A I have not made that thorough enough study.

MR. MANNERS: That is all.

CHAIRMAN SHEPARD: Any further questions?

REDIRECT EXAMINATION

By Mr. McKELLER:

Q But you did state, Mr. Puckett, that based upon your study of our well that you feel - that it is your opinion - that one well will efficiently drain 80 acres?

A Correct.

MR. McKELLER: I have no further questions.

CHAIRMAN SHEPARD: If there is no further questions, you will be excused, Mr. Puckett. Next witness.

JOHN C. MAJOR

Having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. IDEN:

Q Will you state your name please?

A John C. Major.

Q What is your profession or occupation?

A I am a petroleum engineer with the Oil Development Company of Texas.

Q Are you a licensed petroleum engineer?

A Yes, sir. Licensed in the State of Texas.

Q Are you familiar in a general way at least with the Crossroads Devonian pool?

A Yes, sir, in respect to our well.

Q And what well do you refer to, Mr. Major?

A I refer to the present producing well of the Oil Development Company of Texas known as Santa Fe Pacific Railroad 2-27.

Q Is that well in the southeast quarter of the northwest quarter of Section 27?

A Yes, sir.

Q Will you give - state generally, Mr. Major the - with reference to the status of that particular well?

A Well No. 2-27 was started June 9, 1950. The top of the Devonian pay was encountered at 11,778 feet. The well was completed with an open hole from 11,775 to the total depth of 11,880. It was acidized. The initial potential on the quarter inch choke was 576 barrels per day and the tubing pressure 1-10 and the casing pressure 1251, gas-oil ratio

40 to 1, gravity 44.6, basic sediment 27.4 of 1 percent, and received an allowable of 324 barrels a day effective October 1, 1950.

Q Do you have an exhibit, Mr. Major, with reference to pressure tests with respect to this particular well?

A Yes, sir.

Q Will you produce that form?

A Yes.

Q Mr. Major, you produced a chart which has been identified as "Exhibit 1". Will you explain to the Commission what this chart shows and the purpose of making it and also what conclusion you can reach from what is shown by this exhibit. Go into such detail as you think might be helpful to the commission.

A This is a chart showing the results of the shut-in and flowing bottom hole pressure test taken on the subject well during the period November 4 to November 6, 1950. The work as performed by the West Texas Engineering Service, Inc. under my supervision. The graph at the top underlined in pink is a graphic representation of the pressure behavior at the bottom of the well for a 48 hour shut-in period followed by a 24 hour flowing period which was in turn followed by a period of four hours of observation of pressure build up. The green graph shows casing and tubing pressure during the flowing period of the test. The other graphs indicate a constant choke size of 16 slant lines 64ths inches, and a constant flowing bottom hole pressure of 4156 and a constant

gas-oil ratio of 23cubic feet per barrel which existed during the flowing period of the test with the resultant productivity index which is underlined in yellow at .865 barrels per pound drop in bottom hole pressure. It appears in this graph the well built up to reservoir pressure in less than 24 hours. I am referring to the pink line. Start at the left and follow it across, please. As there is a negligible difference between the 24 hour shut-in pressure and the 48 hour shut-in pressure, upon opening the well the pressure immediately dropped from 4714 PSI to 4156 PSI flowing pressure. This pressure remained constant throughout the flowing portion of the test. At the end of the test when the well was shut in the bottom hole pressure rapidly increased from 4156 to 4669 within two hours time. Over on this right-hand side which is the top part of the graph. And built up to within 13 pounds of reservoir pressure within 8 hours. The gas-oil ratio of 23 cubic feet per barrel, it is my opinion that this rapid pressure build up is a strong indication of a water drive and the drive medium has an almost immediate effect upon the reservoir in the vicinity of the well, both indicating a continuous pressure, that is, from the driving medium, the water, into the well bore.

Q Mr. Major, based on your knowledge of the Crossroads Devonian field in particular the well you have been testifying about, what is your opinion and the opinion of those you represent here with reference to what the spacing should be in this pool to properly drain the pool?

A It is our opinion that development of the Devonian reservoir of Crossroads on an 80-acre spacing program is adequate to economically drain the reservoir without causing waste.

Q Do you have any further or other information on bottom hole pressure that might be helpful?

A Yes, if it is used with other pressures in the field to which I do not have access. The static bottom hole pressure at the Santa Fe Pacific well No. 2-27 at a test depth of 11,870 was 4712 pounds. This pressure extrapolated to the datum of 8141 Sub. R, which is the common pressure datum in the field, is 4834.

MR. IDEN: That is all we have.

CROSS EXAMINATION

By MR. HANNERS:

Q Mr. Majors, were you the geologist with the Oil Development Company some two years ago when this matter was first discussed before the Commission?

A No, sir.

Q Were you the geologist with the Oil Development Company when they drilled or spudded it in or began the dry hole you drilled in the southwest of the northwest of 27?

A No, sir. I am a petroleum engineer. The geologist with the company at that time is no longer with us.

Q After the drilling of that well, your company sought permission to depart from the 80-acre pattern that had theretofore been established, did it not?

MR. DOW[illegible] Excuse me Mr. Hanners, if the Commission please I presume the Commission will take judicial knowledge of its own proceedings and as I understand there was no departure from the 80-acre pattern.

MR. HANNERS: They turned it north and south.

MR. DOW[illegible] That's right.

MR. IDEN: I think the record will show that the application was for an exception and of course, the record speaks for itself and of which I assume the Commission will take notice. It is the best evidence.

Q From your experience with this question, Mr. Major, was it true that the original 80-acre pattern was adopted on the assumption that the four section area would all be productive of oil in the Devonian formation?

A I am sorry, I cannot answer that. I wasn't employed by this company during the original field development.

Q Were you with the company when your company filed the application for the exception on the 80-acre pattern in January of this year?

A Yes, sir.

Q Did you confer with Mr. Iden when prepared that petition?

A No, sir. The petition was prepared by Mr. Pascal who was manager of production for the Oil Development Company of Texas, and Mr. Iden.

Q Mr. Major, I hand you a little chart that another witness has identified. There is shown on that four devonian wells in production. One Devonian well drilling and your well

2-27 is shown as a drilling well which has been completed since the preparation of that chart. Now, is it your testimony, Mr. Major, that those Devonian wells will effectively drain and efficiently drain the entire Crossroads Devonian field?

A Yes, sir.

Q There is no need for the drilling of any further wells?

A From an engineering standpoint, I don't believe there is.

Q From an engineering standpoint you do not believe it will be necessary ever to drill anymore wells into the Devonian formation in this Crossroads field.

A I believe that is correct.

MR. HANNERS: That is all.

CHAIRMAN SHEPARD: Anything more? If not, the witness will be excused.

(Witness excused.)

MR. DOW[illegible] Mr. Booth Kellough of Amerada is present and I would like to have him make a statement for the Commission.

MR. KELLOUGH: I am Booth Kellough representing Amerada Petroleum Corporation. I don't believe it will come as a surprise to this Commission to learn that the Amerada is in favor of the 80-acre spacing in these deep pools in New Mexico. Now, there is nothing I could add to this hearing to the fine presentation which has been made by merely saying Amerada doesn't have any properties in the Crossroads pool but we are interested in the questions and

problems which seem to currently arise in the 80-acre spacing request, and I would like to convey a thought to the Commission which I believe, I hope will be helpful in considering this and other similar cases. It isn't new, but I do submit that it is sound. Getting back to the very fundamentals, to focus our attention on what is the issue in these 80-acre spacing cases, we go first to the source of the law. And I want to quote the statutues. This is a quotation; I copied it down last nigh. Section 213 of the 1941 New Mexico annotated statutes as amended in 1949, but this provision was left intact which I think it is reasonable to assume is an expression of the legislature that they intend to keep the current view and the current law. Here is what the statute says. No owner of a property in a pool should be required by the Commission, directly or indirectly, to drill more wells than are reasonably necessary to secure his proportionate part of the production. To avoid the drilling of unnecessary wells, a proration unit for each well may be fixed, such being the area which may be efficiently and economically - get those two words - efficiently and economically drained and developed by one well. The drilling of unnecessary wells creates fire and other hazards conducive to waste and that necessarily increases the production costs of oil and gas to the operator, and thus also unnecessarily increases the cost of production to the ultimate consumer. That is your basic statute. It

says in substance that if one well will drain 80 acres that is the size of the proration unit that should be fixed by this commission. Now, that is a question of fact so we come to the next step. How do you determine that? That ultimate question of fact which the legislature says is the decisive issue. Well, it is based upon opinion naturally and conclusions of the geologists and engineers. Now then, here you get the question; where does your proof lie? When you have a case like you have here at Crossroads or as you have in the Knowles pool where the Commission has made an order based upon the most advanced testimony of the engineers and geologists and all the information they have available. That it is their honest opinion under oath that one well will drain 80 acres. Now, then the burden of proof to deny that should be upon the party who contends that one well will not drain 80 acres. Now why is that? I think this is a very clear answer to that. The statute says that if you drill an unnecessary well that is waste. So, that if one well will drain 80 acres any extra well is an unnecessary well. Now then that is the kind of waste that you can't stop after the wells are drilled. The only time you can prevent the wasteful expenditure of money or waste as defined by the statute is before they are drilled. So, when you have the best engineering and geological evidence you can get, and they conclude it is their opinion that one well will drain an area of 80 acres then the only time you can

prevent the wasteful drilling of an unnecessary well is to rely upon that testimony until you are convinced that one well won't drain 80 acres. Now, there is only one other comment on the merits - and the merit - in connection with this case I would like to make and I wish to make a brief statement about this because it is a prevelaent, I think, misconception in these 80 acre spacing cases. There are of course other incidental questions which arise in connection with these. Now, the fundamental and primary issue is whether or not one well will drain 80 acres. Now when your evidence establishes that under the law and under conservation and under just plain right and wrong the operators should be required to drill only one well to 80 acres if that will adequately drain the pool. Now then we have questions of how you are going to arrange the proration units and you have problems of well spacing but those are incidental. Now then whole attack here is based upon the idea that when you have 80-acre spacing you are going to get some drainage across lease lines. Well, that is a situation which you never cure by spacing. Under any kind of spacing you are going to get drainage across lease lines unless the proration units and the spacing pattern is dependent entirely upon property rights. That is not what the statute requires the Commission to do, and I am sure the Commission knows the proper way to develop an oil pool. It seems to me quite,

helpful when considering 80-acre spacing when you have these diagonal shaped units as you necessarily have in order to keep your 80-acre units is to turn your map diagonally. The map in this case, if it is turned diagonally - I won't mark it up — Mr.

MR. HANNERS: That is all right. Go ahead.

MR. KELLOUGH: Of course, it doesn't drain in the exact form of a square. Probably it is nearly in the form of a circle. But if you turn it diagonally and add a diagonal side of each quarter section you have a picture of 80-acre spacing and it is uniform. It is in the form of a square. It is just a bigger square. Take this case here. The inference was this well in the southwest of 26 would drain over here into 27. Now it is the contention that you can correct that by changing the spacing. Well, they are now drilling a well in the northeast southeast of 27. Presumably it will drain over into this Section 26. So all you do by changing your spacing is your would have four wells instead two and the operator spend half a million dollars and the royalty owner get the same amount of oil. I don't want to inject myself into the merits of your case, but that is one of the principal questions and propositions that seem to currently arise in the request for 80-acre spacing. That is there ought not to be 80-acre spacing because you will have drainage across lease lines. We have that under any spacing and you don't correct it by sub-spacing. I wish to

to urge that if in viewing these cases you can keep in mind the fundamental issue of whether or not one well will drain 80 acres and who has the burden of upsetting that, I hope it will be some guide and some help to this Commission. Thank you.

CHAIRMAN SHEPARD: Thank you. Anything further?

MR. HANNERS: There is one matter of evidence I wanted to cover with Mr. Penn and failed to do it.

(Mr. Penn was called for further cross examination by Mr. Hanners.)

Q Mr. Penn, I have the September production records rather than the October ones. Do they appear correct? Your September ones for the Sawyer No. 1 were 2,532 barrels; from the Dessie-Sawyer, 10,002 barrels; from the Sawyer B, 10,010 barrels; for a total of 22,544 barrels. I took those from the September runs. In following the line of your financial testimony I have multiplied those figures by two and a half dollars and find that the recovery for mid-continent from these three wells for the month of September was slightly under $50,000.00. Are those figures approximately right?

A They appear to be substantially correct. I was using production rather that pipe-line runs on my estimation.

Q I won't quibble about the few cents difference. I wanted to get in the monthly production as being approximately $20,000.00 to the Mid-continent.

A I believe that's right.

MR. SPURRIER: Mr. Penn, do you have any permiability

figures on these wells you have drilled?

A I have a core analysis of free samples from the "A" and we have other samples from the Dessie-Sawyer well that I would be glad to furnish the Commission.

MR. SPURRIER: Would you care to give them to us now or would you rather introduce them as an exhibit? In other words, do you have them availalbe now?

A I have only one copy of them with me. I would like to send you a copy of them by mail if I could.

MR. HANNERS: No objection to that.

MR. SPURRIER: That will be all right.

MR. DOWELL: Is that all?

MR. HANNERS: Yes, sir.

(Witness excused.)

MR. DOW: Mr. Cecil Buckle of Sinclair.

MR. BUCKLE: At the risk of bothering the Commission with the statement "me too" I would like to get into the record the fact that the Sinclair Oil and Gas Company as an operator in New Mexico is vitally interested in not only maintaining the 80-acre spacing in the State where it is shown 80-acre spacing will adequately drain the pools - we were here at the former hearing when this order was made, and stated our position, and are back here still insisting we think the Commission should give due credence to the economic factor of producing at an economic loss on New Mexico, retaining if possible the extra cost of these wells,

because it might result in some of these wells being drilled where this cost is getting pretty close to a half million dollars a well and the possibility of recovery of the investment isn't coming back very fast. We took the same position before this Commission on the Knowles field and would like very much to have the record show our continued interest in this 80-acre spacing.

MR. DOW: The Commission probably has on file a letter from the Skelly Oil Company from Mr. Selinger under date of November 17, 1950, entitled this case. We would like to have this letter go into the record. I have shown it to Mr. Hanners.

MR. HANNERS: No objections.

CHAIRMAN SHEPARD: It will be received.

(Off the record.)

MR. DOW: Outside of the argument - I presume we will have an argument - that ends our testimony.

MR. SPURRIER: Mr. Dow, could you put someone on that would give us an approximate time of the pay out on this well?

MR. McKELLER: In answer to the question, I will put my engineer on the stand. I don't think our reservoir engineer has been able to compute from the data we have and the rapid encroachment of the water on our well any reliable definite time. We will feel extremely lucky if we get our initial investment out of it. However, if you would like to have Mr.

Puckett on the stand? Jim, could you help any on that?

MR. DOW: Mr. Puckett, could you assist us on that?

MR. SPURRIER: Mr. McKeller, what I would like is the figures for this pool. Any one well doesn't necessarily reflect the true figure.

MR. McKELLER: There has been no engineering committee set up for the pool, has there Mr. Staley? Jim, if you could come and take the stand and answer any questions that the Commission might have in that respect. I can't promise anything but glad to help all we can.

MR. PUCKETT: Well, the only information I can offer is a repetition of what we have written here. We still have $308,000 plus dollars investment to obtain. The water percentage is increasing and the production curve in this well hasn't leveled off sufficiently to extrapolate what our ultimate recovery would be, but it looks doubtful if we will ever get our money back.

MR. McKELLER: This isn't secret technical date that should not be introduced?

MR. PUCKETT: No.

MR. MCKELLER: We have here the production curve if that will be any help to you, Mr. Spurrier. If you can draw any conclusions based on that. I don't think you can.

MR. DOW: I presume Mr. Spurrier --

MR. HANNERS: (Interrupting) Mr. Puckett, you testified as to the slow recovery from your well. Other witnesses have testified the Mid-continent Sawyer well drilled in February

1949 at a cost of (figures not given) and already recovered $386,000.00 from February 1949 to date and about $56,000.00 yet in the red. But the Sawyer D well drilled by Mid-continent completed in August of 1949 at a cost of $342,000 has already recovered $264,000 in about 15 months. Those figures would indicate a highly rapid payout for those two Mid-continent wells as contrasted to the very slow payout for your well. Wouldn't that be true?

MR. McKELLER: If you can answer it, Jim, based on your knowledge as an engineer, go ahead.

MR. PUCKETT : I am inclined to agree with Mr. Spurrier it would have to be a field-wide figure. You have dry holes over here that have a half million dollars invested that haven't recovered anything that should be considered in the whole picture.

MR. HANNERS: Your testimony is there are wide extremes in your case and in the case of the Mid-continent wells.

MR. PUCKETT: Yes.

MR. HANNERS: That is all.

CHAIRMAN SHEPARD: We will be at recess.

(Recess.)

CHAIRMAN SHEPARD: The meeting will come to order.

MR. SPURRIER: Before you begin I would like to remind everyone that wants a copy of the record to let the reporter know, leave an order with the reporter.

MR. DOW : I am not going to make a speech, Mr. Commissioner

this thing to my mind and our minds strikes at the very foundation of development in New Mexico, and the notice -- I assume that not only we but any other interested party may show good cause, and I would like to inquire if any other operators here would like to make a statement on this in the record. I am informed a Stanolind Oil and Gas Company representative would probably so desire and I would like to get that in the record.

OLIVER SETH: I would like to make a brief statement on behalf of the Stanolind Oil and Gas Company. Stanolind has no leases or acreage in this particular field but they are vitally concerned as are the other companies involved in any determinational policy which will cover further development in the State. Stanolind does have general leases in the area and in fields with similar geology. We would just like to express our position that we support the position taken by the companies here and the 80-acre spacing policy as heretofore expressed by the Commission. We all are anxious to see the proper and orderly development of all the existing fields and any new areas. There are several in the Blanco area in which Stanolind is interested and similar problems will arise and consequently we would like to make it known to the Commission at this time what the views of Stanolind are. Thank you.

MR. DOW: May I inquire, Mr. Commissioner, if there are other parties here who would like to make a statement?

I assume you will allow us a small period of time to argue this matter and I should like particularly for the Commission to hear from both Mr. McKeller and Mr. Crocker and Mr. Iden on this matter. We are up to the time of presenting the argument and I would like to call on them in that order.

(Argument by Mr. McKeller; argument by Mr. Crocker; Argument by Mr. Iden.)

MR. DOWELL: That is all Mr. Commissioner.

CHAIRMAN SHEPARD: Is that all?

MR. DOWELL: That is all.

CHAIRMAN SHEPARD: Mr. Hanners?

(Argument by Mr. Hanners.)

MR. JOHNSON: I am Paul Johnson of the Texas Pacific Coal & Oil Company. We have these Devonian wells in the Bagley Field near Tatum and as yet we are not producing any water, of course, we might in the future. I personally am against making a permanent order for 80-acre spacing until we know more about it.

MR. McKELLER: Is that for the Bagley field?

MR. JOHNSON: Yes, I am talking about the Bagley field. We don't have any production in the one. And I understand before I went with the Texas Pacific they did want 40-acre spacing. I don't know why at the moment. However, in the event we do go to 80-acre spacing in the Bagley field, that is as a permanent order, I understand there is an injunction against that now, then we do want to see more engineering data presented as to why we shouldn't go to 40 or stay on the 80.

In other words, we might want to go to 160. And in presenting data for any reservoir we are going to have to have some core analysis and the permiability and the amount of oil in place and the direction from which the water drive is coming, and how it is going to affect the wells as it approaches those particular wells. At the moment we are in an enviable position in the Bagley field. We have the highest well in the field and have our wells right around it. So we will be postponing any hearing forgetting 40-acre spacing on that. It might be our off set operators will want to go to it sooner than we do. So that is the position of the Texas Pacific on the thing right now.

(Further argument by Mr. Hanners.)

CHAIRMAN SHEPARD: Anything further? If not, the case will be taken under advisement and we will promise you a decision very shortly. The next case is 238. Will you read it Mr. Graham, please.

(Reads the notice of publication in case No. 238.)

MR. HOWARD: I have here prepared proposed changes. Mr. Brown, you have some of those. Would you circulate them among the remaining people. Appearance for Shell Pipline Corporation, Paxton Howard. If the Commission please, when the new rules were written it was recognized by everyone who participated in the writing of them that as they were put into effect certain ambiguties would develop that would need consideration and clarification. Sure enough it is the feeling of certain of the parties that those ambiguities do exist. The Shell Pipeline Corporation whom I am representing at this hearing has called to my attention certain questions in the rules that bothers the pipline company and I know it is bothering -- these questions -- the orther pipeline companies. The proposals I am going to make are not changes in the rules. They are merely attempts at clarification. In other words to put into the rules in black and white that which I think is generally understood to be the rules anyway but which is not just as clearly stated as it might be. Now as to the problem, there is this question in the pipeline company's mind. Suppose that a certain unit unit has an allowable we will say for the month of October at 1400 barrels. The pipeline company makes its last run from the lease or from the unit on the 26th of October at which time it has run 1200 barrels from that particular

unit for the month of October. Now, that leaves another 200 barrels production from that unit for the month. The next run from the unit won't be made until the 3rd of November. Now there is the question in the minds, I know of my client, and I think of some of the other pipeline companies as to whether the rules do give that pipeline company specific authority to run in November that 200 barrels of that October allowable which wasn't run in October? Now as I stated I think we all when we were writing the rules were under the impression we were including in the rules the right to do that. And I think it has been the thought of the Commission and the thought of everyone concerned that in other words the first runs that were made in November were to be considered as the running of that valid underage in October. The difficulty as I see it comes about by reason of definition in the rules. Definition 56, shortage or under production, shall mean the amount of oil or the amount of natural gas during a proration period by which a given proration unit fail to produce the amount equal to that authorized in the proration schedule. Now as I say, I was a member of the committee that worked on those and I am sure it was really my thought and the thought of the members of the committee at the time that the term "fail to produce" wasn't intended to limit actual production. It was supposed to include this matter of underruns as well. But we didn't say so. Now there has also been some question

in the minds of the pipeline companies - there is no clear distinction between what is intended to be current shortage such as the example I gave, that 200 barrels, and what is intended to be back allowable. In other words what can the pipe line companies run without having the publication on the schedule. And what is it necessary to put on the schedule in order to authorize the pipeline companies to run. I think the commission is aware of the fact that the pipeline companies are very anxious to abide completely by what the rules are and it is the feeling, that of my client at least, that if we can make these amendments and express in the rules that which we all understand to be the rule that it would be beneficial to the pipelines in complying with the regulations. I have prepared and I have submitted to you and submit here the proposed changes that we suggest in order to clarify this matter. I will state this is not submitted on the basis this is the only answer. It is an attempt on our part to get the answer to the problem that is common to all the pipeline companies. So, I want to submit my proposition here and it may be that someone else has a much better answer to it. But at least this will get the matter started now without taking too much time, you will note I have prepared this in the form of alternative suggestions. Suggestion A, which I will state as my preference and Suggestion B, which is a shorter way of doing it but I don't believe is as desirable. I suggest that we have in the rules a definition of over-production and a

definition of under-production such as I have prepared here. In other words over-production will be changed to read as follows:

"41. Over-Production shall mean the amount of oil or the amount of natural gas produced froma proration unit during a proration period in excess of the amount authorized on the proration schedule."

Under-production, which will be rule 42 shall mean:

"42. Under-Production shall mean the amount of oil or the amount of natural gas during a proration period by which a proration unit failed to produce an amount equal to the authorized on the proration schedule."

You would introduce definitions of over runs and under runs.

"43. Over-runs shall mean the amount of oil or the amount of natural gas run from a proration unit during a proration period in excess of the amount authorized on the proration schedule."

A new definition of "Under-runs" will be added and will become Definition 44 as follows:

"44. Under-Runs shall mean the amount of oil or the amount of natural gas during a proration period by which a proration unit failed to have run an amount equal to that authorized on the proration schedule."

Now there you break down, break them down, between runs and production. Now Rule 503 (e) which is the

make-up rule would be changed to read as follows:

"503 (e) Current oil "Under-Production" or"Under-Runs" may be made up, or current and unavoidable and lawful "Over-Production" or "Over-runs" shall be compensated for, at any time or times during the two proration periods next following the proration period in which such occurred. This may be done without any special authorization therefor from the Commission, and the volumes thereof will not appear in the Schedule. Such current "Under-Production" or"Under Runs" are not to be confused with "Back-Allowable."

Now, the theory of that is, of course, that this current over or under either production or runs which is to be made up during the two proration periods immediately following the occurrence thereof will not be considered as Back-Allowable. It will not require any publication on the schedule. It will not require any special letter or order of the Commission. The pipeline companies will be able to make it up during those two proration periods immediately following the happening of the event. When, however, that is not made up during two periods, then it would come within the classification of back-allowable which will require an application to the Commission for the allowance of back-allowable as the rules now provide. Now in connection with back allowable there has been a suggestion that back-allowables should not be published in the schedule. It has been suggested that since it isn't actually a part of current allowables that it has no place in the schedule, and that it does cause a lot of bookkeeping on the part of the parties making up the schedule; and it has been suggested that it be dropped from the section of the schedule. If that is done, I want to call

attention to the fact that there will have to be a change made in rule 501F, the first section of which now reads: "All legal and authorized back-allowable available for purchase will be published in the monthly proration schedule. There will have to be added to that sentence of the provision, authorized by letter or order of the Commission.

A VOICE: Which rule is that?

MR. HOWARD: 503, I beg your pardon. At the end of the first sentence of 503 (f), if you are then to publish the back-allowable there should be added, authorized by letter or order of the Commission. If the Commission please, this is submitted as a clarification to meet a question that has bothered the pipelines. I don't consider it as an amendment in any sense. I don't consider it is a matter which needs to be supported by testimony from the stand. It is administrative and if the Commission is of the opinion that the clarification is in order, it is my opinion the Commission can make such change and it isn't necessary to introduce testimony just to the effect that it ought to be done.

Now, there is one other matter I would like to call to the Commission's attention that I think has also been bothering the pipelines and that is this. Of course, the runs are supposed to be made in accordance with the schedule. Now if the schedule, or say the allowable hearing is held on the 25th and an order for the state-wide allowable is granted but the schedule doesn't come out until the 7th or 8th of the following month. Now in the case of the matter

I am trying to correct there. We know it is the intention that the producer shall produce and the pipeline shall run on the basis of the preceeding monthly schedule until the new schedule comes out. So actually there is no present order providing for that so that you do have a situation until the schedule comes out in the first part of the month that there is no definite break down schedule for that month. Now that could be remedied by one of three ways. The meeting setting allowables could either be held earlier in the month so that the schedule could be out the first of the month or in the state-wide order issued there could be a statement to the effect that until the schedule comes out production and the transportation authorized on the basis of your preceeding months schedule or there should be included, or there could be included in the rules some statement or rule to the effect that would be the case. Those are two suggestions on behalf of the Shell Pipeline Company I wish to make to the commission for consideration and for consideration by the other operators.

There is another matter that just came up as a result of a gathering last night of several folks talking over the rules and in which they were all in accord and asked me since I was presenting this other matter if I would present this too. It is in connection with the Form C-110. At the present time it is required that a C-110 be filed for every unit and on a 160 acre lease there would have to

be four C-110's filed on that particular lease. It has been suggested in order to cut down paper work considerably and recording and such as that, if it were possible for the C-110 to be filed on a lease basis. That is not changing the allowable. It doesn't have anything to do with that but instead of referring to only one unit it could refer to say the four units on the lease and certify that the production from all of them was in accordance with the law. If the Commission please, those are the suggestions I have to make. Thank you.

CHAIRMAN SHEPARD: Anyone else? Anyone else have anything to say on these proposed changes. If not, we will take up case 239. Will you read it Mr. Graham?

(Reads the notice of publication of case no. 239.)

ROBERT S. DEWEY

having been first duly sworn, made the following statement:

MR. DEWEY: My name is Robert S. Dewey, Division Petroleum Engineer for the Humble Oil and Refining Company of Midland, Texas.

On September 21, 1950, the Humble Oil and Refining Company and the Magnolia Petroleum Company filed a joint letter addressed to the New Mexico Conservation Commission requesting this hearing on a proposed water flood in the Primrose-Skelly field. I request that this letter be made a part of this hearing and be identified as Exhibit 1. For the benefit of those present I will give the pertinent

information that is contained in the request for the hearing.

Application is requested to inject water in the Grayburg reservoir Penrose-Skelly field, Lea County, New Mexico, (reads from the letter.) As part of this, these plats mentioned on this location is all part of this lease. Alittle over a year ago meetings were held with several operators in this area to discuss the advisability of entering into some sort of cooperative water injection program. As a result of those meetings the Humble Oil Company and the Magnolia Petroleum Company have entered into a joint agreement, subject to the approval of this Commission, to water flood a certain section of the Penrose-Skelly field. The area in the Penrose-Skelly field which is primarily concerned in this case is the Humble J. L. Greenwood lease, south half of Section 9, Township 22 South, range 37 East, Lea County, New Mexico, and the Brunson - and the Magnolia's Petroleum Company's Brunson-Argo lease, the northeast quarter, Section 9, Township 22 south, range 37 east, and the northwest quarter, Section 10, Township 22 south, range 37 east, Lea County, New Mexico. Humble's property comprises 320 acres and Magnolia's property comprises 160 acres. Due to the meetings that were held the other operators in the area have been advised relative to the intentions of the Magnolia and Humble relative to the injection of water and besides that the two companies have obtained waivers from said operators.

I will give you - is it all right to present photostatic copies?

CHAIRMAN SHEPARD: Yes, sir.

MR. DEWEY: Rather than the originals?

CHAIRMAN SHEPARD: Yes, sir.

MR. DEWEY: I would like to enter in the record the photostatic waivers that have been received by the Humble Oil and Refining Company advising the other operators in the area relative to our proposal and obtaining their approval. I would like to bring out the fact that while there are several other producing horizons in the same area as the Grayburg formation, our proposal is strictly limited to water injection into the Grayburg formation and we are not asking for water injection in any other formation. We have very little geological evidence to offer. The structure relief on the Humble property as determined by the base of the queen and the top of the Grayburg formation is nearly flat. There is less than 25 feet difference in structure on the Humble lease. The top of the Grayburg formation is approximately 3600 feet. The geologist informs us that the Grayburg formation consists of a crystalline dolamite. The original drilling of the Penrose-Skelly field, the wells penetrated approximately 80 feet below the casing set and into the Grayburg formation. From electric logs that were obtained in conjunction — were obtained when we obtained information on deepening of later wells on the lease, to lower formations, our interpretation is that the pay section

in the Grayburg formation underlying the Humble lease is approximately 44 feet. Of that 44 feet we have very little idea of the net pay. The wells on the Humble-Greenwood lease were originally completed between the years 1937 and 1940 at which time it wasn't customary to core and very little if any used was made of electric logs. One well was partially cored, Greenwood No. 1. The analysis of ten samples from this core indicate that the average porosity of those ten samples was 7.9. The highest permiability was less than one millidarcy. In the original drilling of the wells the wells were drilled approximately in the center of 40-acre spacing. On the Humble lease the 7 wells were completed on 320 acres. Due to the rapid decline in production the 8th location was never drilled. It was customary to set - to run surface pipe - and exclude the surface water and complete the wells with 7 inch casing set from the top of the Grayburg dolamite. The casing was then drilled out leaving the six and a quarter open hole to the formation. On one - on our Greenwood No. 1 - we have deepened that to the Brunson pay so that well isn't available for water flooding. The Greenwood No. 5 was deepened to the paddock at which point it was found it was dry and the well was plugged back subsequently and has remained plugged back to the Grayburg formation. It is a temporarily abandoned well with the idea that it might be used in connection with water flooding the lease. In drilling this well to the paddock pay it was necessary

to run 5½ inch casing. To recomplete the well as we propose to do and make an input well the casing will have to be perforated and the well recompleted. All the wells on the Humble lease are on the pump. The production, the daily production of the five producing wells, runs from the- runs on the order of 12 to 14 barrels a day. The production on the Magnolia lease I think is fairly comparable. The Magnolia Petroleum Company agreed to use their No. 8 Brunson-Argo well as an injection well and we have agreed to use our No. 5 as a diagonally off-setting injection well and we mutually agreed that comparable amounts of water will be injected into these two wells in a pilot flood. We know very little about the characteristics of the Grayburg formation and how those characteristics may effect the water injection. We feel this is strictly an experimental water flood and for that reason we desire a good deal of lattitude in the injection rate that we will use in injecting water. We do desire to be allowed to inject as high as 1,000 barrels per well per day in either or both of the two wells and to determine mutually what seems to be the best injection rate. Now we don't know whether either well will take water or at that rate. Our No. 5 well, as I explained before has to be recompleted. We did run a test on the Humble Greenwood 7 in which we determined over a 12 hour period that the well would take water under gravity of about 52½ barrels per hour or approximately 1260 barrels per day. We intend to

We intend to use fresh water that is available on the lease for injection purposes. The Humble has four water wells and one of these wells was tested, and we found we could produce it at 1000 barrels per day with a Pomona pump.

We intend to keep very accurate reports on the amount of water and the pressure at which the wells take the water and all pertinent data pertaining to water injection and plan to furnish it to the Commission monthly by letter if that is satisfactory. We would like very much for other operators in the same area to join with us in the experimental plan. We would be glad to furnish any other operator in the area the identical information we furnished the Commission. If the injection of the Humble Greenwood No. 5 is successful we desire to proceed with the injection into wells Nos. 3 and 6 which are also included in this request.

Does the Commission have any questions?

MR. MCKORMICK: How soon do you plan to start your operation?

MR. DEWEY: I see no reason why we can't get started very shortly, after the - if the Commission grants its approval. It will take a little time to recomplete the well, perhaps a week, might take a week to lay some water lines and that sort of thing around the lease. But there isn't a great deal of work to be done and I see no reason why it wouldn't be launched within two weeks after we obtain permission as far as we are concerned.

MR. MCCORMICK: This would be calculated to recover some

oil that wouldn't be recovered by any other methods.

MR. DEWEY: That is right. We hope to recover some oil by this method. We wouldn't spend our money if we didn't think we would get a return from it. Does anyone have a question?

CHAIRMAN SHEPARD: Any questions?

MR. DEWEY: Thank you.

CHAIRMAN SHEPARD: Mr. Dewey, without any objections that order will be entered right away, so you may proceed. Case No. 240.

(Mr. Graham reads notice of publication in case No. 240.)

MR. SHELDON: My name is Vilas P. Sheldon. I am to represent Resler and Sheldon in this matter asking for dual completion to be approved for a multible zone completion for a well which has been drilled in Section 33 of Township 23 south, Range 37 east which places it in the Mattix Field of Lea County.

In 1938 this well was drilled to a depth of 3481 feet, gas being encountered in the Queen sand down from 3414 to 3472 approximately and it was completed at the depth of 3481 as a gas well and has more or less continuously since that time sold dry gas for fuel tovarious concerns, the last of which has been the El Paso Natural Gas Company. They have a connection to the well at the present time and took gas from the well until workover operations were started in the first part of October, 1950. In other words, they did take gas from the well in September and the first few days of October and all the months before that.

In October 1950 the well was deepened to a total depth of 3620 feet, oil being found in that interval. The oil section was shot with nitroglycerin and proved to be capable of producing oil. To complete the oil the operator ran a string of two inch tubing with the Lane formation packer, the packer being set in the formation from 3480 to 3490 feet. Testing over several days indicated an effective seal created by the packer and the well flows pipeline oil to the tubing. The gas pay has been packed up and the connection to the El Paso Natural while it is still there, the gates are shut on it and no gas is being sold. Oil is being sold. On November 18 to 19th in the 24 hour period the gas oil ratio was conducted on the well during which time the well was flowing and flowed by a magnitometer (?), making seven flows a day of about 45 minutes duration each. The gas oil ratio was 1136 cubic feet per barrel. The petitioner requests permission of the Commission to make a dual completion. The dual completion has been made but we request permission for authority to sell oil, to sell gas, pardon me.

We ask permission to sell gas from the same pay that has been producing gas for some 12 years.

MR. McCORMICK: From what formation is it producing oil?

MR. SHELDON: The Queen in my opinion.

MR. McCORMICK: And also gas from the Queen?

MR. SHELDON: I would say yes.

MR. McCORMICK: What is there between the two zones?

MR. SHELDON: Dense dolamite. The zone is absolutely separate, as the packer installation has proven. This ratio of 1136 is a very satisfactory ratio. The gas is shut off and it is necessarily agreeable to the petitioner that the dual completion should be granted on the basis that the effective nature of the dual completion be maintained.

MR. McCormick: Were there other wells in that field that have dual completions?

MR. SHELDON: No, sir.

MR. McCormick: Are there other oil wells offsetting this producing from the Queen?

MR. SHELDON: Yes. In the application to the Commission which we furnished that was set out however I will offer as an exhibit a little sketch map. There is a well, one location directly west, producing oil from the identical sand we produce oil from. There is a well directly - pardon me - there is a well one half mile to the soth producing oil from the same sand that we produce oil from and in the general vicinity, that is, taking in an area of quarter sections there are quite a number of wells producing oil from the section we are producing oil from. In the immediate vicinity of this well there is no well producing oil from the section that this well produces gas from. It seems to be a rather strange affair.

MR. McCormick: Any wells producing gas?

MR. SHELDON: There have been none drilled. There are some other wells in the area drilled

through it but they drilled through it and set pipe.

MR. McCORMICK: Is there any possibility that gas which you have encountered is a gas cap for the Queen.

MR. SHELDON: In this particular field it is my opinion that it isn't possible. In other words, geological information that I have secured indicates that the zone that produces gas in this well is too high above sea level in this pool to ever - the gas oil contact is pretty well-defined.

MR. McCORMICK: Do you know of any way that waste could result from this completion you have requested?

MR. SHELDON: The dual completion as made now has effectively shut the gas off, that is the upper gas off from the oil pay so I do not see how there could be any waste from producing the oil and we are in effect asking for permission to continue to sell gas from the pay the gas has been sold from for 12 years. In my opinion it will not create waste in the pool as we know it now.

MR. McCORMICK: I have nothing further.

CHAIRMAN SHEPARD: Any objections?

MR. MORRELL: No objection.

CHAIRMAN SHEPARD: If there is no objection, the order will be entered.

MR. SHELDON: Thank you sir.

CHAIRMAN SHEPARD: Case No. 242.

(Mr. Graham reads the notice of publication in Case No. 242.

W. BAXTER BOYD,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DOW:

MR. DOW: Mr. Commissioner this is an application of the Continental Oil Company for approval of the proposed unit agreement of the Texas Hill Unit Area, Eddy County, New Mexico comprising 13,800.43 acres more or less, situated in Township 21, 22, and 23 south, Range 21 east N.M.P.M. 11,880 acres of the lands embraced in the proposed unit agreement are lands of the United States. 1800 acres are state lands and 120 acres are fee or privately owned land.

MR. SURRIER: Mr. Dow, you said 13 thousand didn't you mean 18 thousand?

(Off the record.)

MR. DOW: It is 13,800.43 acres. In the proposed order. The unit area described in the proposed unit agreement was designated by the Director of the United States Geological Survey as one suitable and proper for unitization, and a copy of which letter is attached to the application. There is also attached to the application and made a part as Exhibit @ a copy of the geological report made by Mr. W. Baxter Boyd geologist for the Continental Oil Company with a plat attached thereto which is the same report filed with the Director of the United States Geological Survey, and pursuant to which the area was designated as an area proper and suitable for unitization.

The Continental Oil Company is designated as unit operator and proposes to drill to 8200 feet or to such lesser depth as the Ellenberger formation has been penetrated, and also provides for the drilling within two years after oil and gas has been discovered on the second exploratory well to test the other geological feature as per the unit agreement.

There is a proposed form approved b y the State of New Mexico and Secretary of the Interior. It is believed it will promote the economic and efficient recovery of oil and gas to the end that the maximum yield may be obtained from the sand or area if oil and gas should be produced in paying quantities. I wish to offer the testimony of Mr. W. Baxter Boyd, district geologist for the Continental Oil Company.

Q I wish you would give briefly your educational background, your experience and familiarity with the section of New Mexico and with the proposed unit agreement.

A I graduated from the University of Okalhoma with a Bachelor of Science degree in geology in 1928. I have been continuously employed in the application of petroleum geology through the industry since then. For 17 years I have been employed by Continental Oil Company and for the past 2 and half years I have been given the supervision of geology of the West Texas and southeastern New Mexico area among other areas in Texas. During this time I have become familiar with the geology of southeastern New Mexico. The particular geological features with respect to this unit have been checked by - under my

supervision - by field parties and a projected producing horizons which we expect to explore have been examined by geologist under my supervision in our midland office. All these details I am familiar with.

Q You prepared or caused to be prepared the report which is filed with the application?

A Yes, sir.

Q Does the Continental Oil Company propse in the agreement to drill a well for oil and gas on some portion of the land?

A Yes.

Q And to what depth?

A 8200 feet or 500 feet into the Ellenberger.

Q You are familiar then with the proposed unit agreement?

A Yes, sir.

Q Would that in your opinion be in the interest of the conservation - of oil and gas and the prevention of waste?

A It would yes.

Q In your opinion does the proposed unit agreement cover all the land situated upon the geological structure involved and it will afford effective control of the entire structure if oil and gas is discovered?

A It does.

Q MR. DOW: Do you care to ask any questions, Mr. Commissioner?

CHAIRMAN SHEPARD: No.

MR. MaCORMICK: I have no questions.

MR. DOW: That is all.

Do you want to offer anything else, Mr. Boyd.

MR. BOYD: I can't think of anything that will add to the material in the Commission's hands.

CHAIRMAN SHEPARD: Anyone else have anything to say? Any objections? The order will be granted.

Case No. 241.

(Mr. Graham reads the notice of publication in Case No. 241.

EDWARD E. KINNEY,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. McCORMICK:

Q State your name.

A Ed Kinney.

Q What is your official position?

A Petroleum engineer New Mexico Bureau of Mines.

Q Have you been a member of the Nomenclature Committee of Southeastern New Mexico?

A Yes, sir.

Q Secretary I believe, you have been recording secretary. I will ask you if you have checked the description of the proposed pools as set out in the official publication of Case No. 241?

A I have.

Q Without going into the details of each pool I will ask you if the information as revealed in this publication constitutes a recommendation of the southeastern New Mexico Nomenclature

A It does.

Q And in your opinion is that recommendation as prepared based on present information?

A It is.

Q The pools they recommend be created and to be extended would each constitute common reservoirs as they are now known or thought to exist?

A Yes, sir.

Q You recommend to us that these pools be created and extended?

A I do.

MR. McCORMICK: Any questions? That is all.

CHAIRMAN SHEPARD: Anything further. If not, we will stand adjourned.

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STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

I HEREBY CERTIFY That the attached and foregoing transcript of proceedings before the Oil Conservation Commission is a true and complete record therof to the best of my knowledge, skill and ability.

DATED AT Albuquerque, New Mexico this 19th day of December, 1950.

E. E. Gleason
Notary Public.

My Commission expires August 4, 1952.

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

TRANSCRIPT OF HEARING

CASE NO. 149

MARCH 21, 1951.

E. E. GREESON
COURT REPORTER
UNITED STATES COURT HOUSE
TELEPHONE 2-0572
ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

March 21, 1951

- -

Case 149: This is the Crossroads pool 80-acre versus 40-acre spacing question which was continued to March 20 by Order R-45 dated 12-29-50. Companies have been asked to furnish all remaining information available on the Crossroads pool.

BEFORE:
Hon. Governor Edwin L. Mechem, Chairman
Hon. Guy Shepard, Member
Hon. R. R. Spurrier, Member and Secretary

REGISTER:

G. T. Hanners
U. D. Sawyer
Lovingston, New Mexico

John Major
Oil Development of Texas
Amarillo, Texas

E. A. Paschal
Oil Development of Texas
Amarillo, Texas

Charles E. Shaver
Humble Oil and Refining Company
Houston, Texas

J. R. Puckett
Magnolia Petroleum Company
Kermit, Texas

L. J. Gude
Oil Development Company of Texas
Amarillo, Texas

Frank Purdum
Subsurface Enginerring Company
Tulsa, Oklahoma

Bernerd A. Ray
Consulting Geologist
Midland, Texas

M. B. Penn
Mid-Continent
Tulsa, Oklahoma

E. J. Pierce
Mid-Continent
Midland

J. H. Crocker
Mid-Continent
Tulsa, Oklahoma

E. P. Keeler
Magnolia Petroleum Company
Dallas, Texas

Foster Morrell
U. S. Geological Survey
Roswell, New Mexico

Robert E. Murphy
Magnolia Petroleum Company
Roswell, New Mexico

E. E. Kinney
N. M. Bureau of Mines
Artesia, New Mexico

Hiram M. Dow
Roswell, New Mexico

Wm. Ed McKellar, Jr.
Magnolia Petroleum Company
Dallas, Texas

E. C. Iden
Oil Development Company of Texas
Santa Fe Pacific Railroad Company
Albuquerque, New Mexico

Mrs. U. D. Sawyer
Crossroads
New Mexico

Don G. McCormick
Carlsbad, New Mexico

George Hirschfeld
N. M. O & G. E. C.
Hobbs, New Mexico

Elvis A. Utz
Oil Conservation Commission
Santa Fe, New Mexico

H. A. Nedom
Amerada
Tulsa, Oklahoma

C. V. Millikan
Amerada
Tulsa, Oklahoma

R. U. Fitting, Jr.
U. D. Sawyer
Midland, Texas

George Graham
Oil Conservation Commission
Santa Fe, New Mexico

- - -

MR. SHEPARD: The meeting will come to order. This is a continuation of Case 149 which was continued until yesterday and recessed until this morning by agreement.
You may proceed, Mr. Dow.

MR. DOW: Mr. Commissioner we appreciate the full Commission being present because this is the third hearing,

you might say, of this case, and if you will bear with me just a minute I would like to just briefly state the historical background of this case, and in as brief a manner as I can what has gone before.

The case pertains only to the Devonian formation as the same exists within the confines of the Crossroads pool in Lea County, New Mexico.

The discovery well in this pool was commenced in September, 1947. About 8 months thereafter this wildcat wlll was completed in the Devonian formation at a total depth of 12,258 feet. On May 6, 1948, the initial production taken indicated 995 barrels flowing through a 3/4 inch choke in 6 hours and 20 minutes. The well cost $355,640.39.

We believe the records of this Commission will verify the statement to the effect that this well was the deepest oil producing well ever built in the State of New Mexico at the date of its completion. Needless to say, the well created a great deal of excitement not only in New Mexico but also throughout the producing states generally.

About one month following the completion of the Crossroads discovery well, a meeting of the operators, of all operators, and lease owners in the vicinity of the discovery well was called and held in Tulsa.

The meeting was representative and well attended. The operators in this meeting were favored by the presence of Mr. Spurrier and Mr. Morrell of the United States Geological Survey and Mr. Glenn Staley.

The State of New Mexico extended every cooperation. Pursuant to action taken in the Tulsa meeting a plan was agreed upon and an application lodged with this Commission to enter an appropriate spacing order for the pool.

Section 13 E of the Conservation Act provides: "Whenever it appears that the owners in any pool have agreed upon a plan for the spacing of wells, or upon a plan or method of distribution of any allowable fixed by the Commission for the pool, or upon any other plan for the development or operation of such pool, which plan, in the judgment of the Commission, has the effect of preventing

waste as prohibited by this act and is fair to the royalty owners in such pool, then such plan shall be adopted by the Commission with respect to such pool; however, the Commission, upon hearing and after notice, may subsequently modify any such plan to the extent necessary to prevent waste as prohibited by this act."

A hearing was conducted then before this Commission on July 15, 1948. Pursuant to notice as required by law. That is, notice to all interested parties. And on July 19, 1948, the plan for 80-acre spacing was approved by this Commission, Order No. 779. We here quote findings of fact made by the Commission found in the Preamble of its Order 779. That is the order in which we are now coming to show cause, or continuation of the hearing to show cause why it should not continue in effect.

Paragraph Three of the Preamble in Order 779 reads as follows: "That due to conditions established by the aforesaid discovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool."

And Paragraph 5 and 6 reads as follows:

"5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials.

"6. That in the interest of the State of New Mexico and in the interest of the general public, encouragement should be given to operators to explore and develop the natural resources of the State by the establishment of a proper and equitable spacing and development program."

Since the date of the Order eight wells, not including the discovery well, have been drilled to and into the Devonian formation; three of which have been plugged and abandoned and five of which are presently producers.

The probable average drilling time for each well is 6 or 7 months. The probable average cost of each of said wells exceeds a quarter million dollars. The Mid-Continent alone - I will refer to the transcript of the November 21, hearing where it has such a paragraph in the summary, Page 55 of the transcript showed the total amount of money we have spent on the four wells discussed, including the drilling well; $1,725,901.10. The total revenue from these four wells is $913,087.90. The balance of money spent and not recovered, which is the difference between those two figures, is $812,813.20, which is approximately one-half of the total money spent as of the date of the hearing of November 21, 1950.

By a letter dated October 19, 1950, U. D. Sawyer and Dessie Sawyer through their attorney informed the Commission of their ownership of some 1200 acres in the Crossroads Pool, and complained that on account of the 80-acre spacing in the Devonian - and I quote "the value of their property was being unjustly diminished and the marketability thereof being unduly impaired". They made no statement of facts indicating that waste, as defined in the Statute, had or was occurring in the Devonian - Crossroads Pool. Nor that correlative rights were not being protected. And without such an allegation it was our contention that the Commission was without jurisdiction to act.

Thereafter under authority of Section 8 of Order 779, the Commission issued a notice dated October 27, 1950, ordering all interested parties to show cause before the Commission on November 21, 1950 why 80-acre spacing should be continued in effect in the Devonian - Crossroads Pool.

Upon the day of the hearing the Mid-Continent Petroleum Corporation and the Magnolia Petroleum Corporation and the Santa Fe Pacific Railroad Company and the Oil Development Company of Texas, being owners and operators in the pool, appeared and lodged a legal objection to the Commission's order on the ground that their rights had become vested and could not be affected in a collateral

attack of this nature, and asserted that the Commission had authority to modify its spacing order only to prevent waste and to protect correlative rights.

And at the outset of the hearing, the operators took the position that it was the duty of the informant to assume the burden of proof. But the operators at the same time expressed a willingness to be of further assistance to the Commission and to present evidence to strengthen the belief of the Commission in the justice and fairness of its previous order, and following that statement, the operators did proceed and offered the testimony of three witnesses.

The uncontroverted testimony of each witness was to the effect that water influx or water drive constitutes a source of reservoir energy in the Crossroads Pool in the Devonian producing formation. All witnesses, petroleum engineers, testified from their studies of the Devonian formation in the Crossroads Pool it was apparent to them from reservoir behaviour since the issuance of Order 779 that the Order was a proper one and should not be changed.

The informants and their attorney were present at the hearing, and their attorney interrogated the witnesses produced by the operators, but presented no evidence. On the 29 of December, 1950, the Commission entered an order finding, and we quote: "And the Commission is not able to determine from such testimony whether or not 80-acre spacing and proration units over the pool as a whole has, or will prevent waste, preclude inequities, and/or preserve correlative rights in the said Crossroads pool."

And it ordered the case continued to March 20, 1951, at which hearing all available pertinent information from all producing wells in the Crossroads pool shall be presented to the Commission. The operators are appearing now. They are adhering to the legal position heretofore stated. But in order to be fair with the Commision and all concerned, they are now prepared to go ahead, as before, and present their evidence.

Now in this case for Mid-Continent Petroleum Company appears Mr. J. H. Crocker of Tulsa, attorney; for Magnolia

Petroleum Company appears Mr. Ed McKellar of Dallas, attorney; for the Santa Fe Pacific Railroad and the Oil Development Company of Texas appears Mr. Earl C. Iden of Albuquerque; and as local counsel I represent both Mid-Continent and Magnolia.

Now, we are prepared to present witnesses which in our judgment will furnish the information required by the order of the Commission dated December 27, 1950.

MR. SHEPARD: You may proceed Mr. Dow with your witnesses.

MR. DOW: If we may do it, the witnesses of course are petroleum engineers, their testimony is technical and at the former hearing Mr. Crocker interrogated the witness for Mid-Continent and Mr McKellar for Magnolia and Mr. Iden for the Santa Fe Pacific and the Oil Development Company.

The witness for Magnolia - for Mid-Continent - is Mr. Bernerd A. Ray, geologist; Mr. Frank Purdum, petroleum engineer; and Mr. M. B. Penn, petroleum engineer - and will you announce yours Mr. McKellar.

MR. McKELLAR: Mr. Jim Puckett

MR. DOW: Mr. Iden.

MR. IDEN: J. C. Major.

MR. DOW: Then Mr. Crocker will proceed with our witnesses. Now, we of course took the position at the outset it was up to the informants to make a case, but we went ahead and we are willing to do that now, although we understand the informants have a witness at this time. I presume Mr. Hanners will put him on after you hear our witnesses.

MR. SHEPARD: Will you announce your position, Mr. Hanners.

MR. HANNERS: Our position in the matter, if the Commission please, is that the transcript of the first hearing in 1948 shows that the 80-acre spacing pattern was proposed by the Mid-Continent as a temporary measure,

based upon the drilling of only one well, and on the assumption that the four section area which had been designated by the nomenclature committee as the Crossroads - Devonian field would be productive of oil from the Devonian formation throughout the entire area. And that the order as shown by the transcript of that hearing was adopted purely as a temporary measure. That subsequent facts have not shown in and of themselves that the order should be further continued as a exception to the normal state-wide pattern.

At the hearing in November of 1950 the observation was made by a member of the Commission that the testimony submitted by the operators wasn't sufficient to show in and of itself certain technical data and information about the field, and the order was continued until this date so that the companies might submit any additional information they had available. We have available as a witness to advise the Commission Mr. R. V. Fitting, a petroleum engineer at Midland.

Our position in the matter would be that the applicant having obtained the order as a temporary exception from the normal state-wide pattern that the Commission retain jurisdiction in the original order to review the matter after the history of the field had been further developed. And that we are here now for the purpose of permitting the Commission to consider whether this exception order should be further continued in effect.

(All witnesses sworn by Mr. Graham.)

MR. CROCKER: If the Commission please, we will offer Mr. Ray first as a witness, he will testify as a geologist.

MR. DOW: I take it that the transcript of the preceding hearing of November 21 is part of the record of this hearing?

MR. SHEPARD: Right.

MR. DOW: All of the hearing.

MR. SPURRIER: Mr. Crocker before you start let's remind everyone that there is nothing to be said here today that won't be important and let's take it slowly and let's make sure that the people who are hear to listen can hear.

MR. CROCKER: We will be very glad to cooperate to the best of our ability.

BERNERD A. RAY,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. CROCKER:

Q Will you state your name, please?

A Bernerd A. Ray.

Q Where do you live, Mr. Ray?

A Midland, Texas.

Q What is your profession?

A Consulting geology.

Q Are you a graduate geologist?

A I am a graduate geologist, attending school and taking mining geology at the University of Minnesota, and then followed up by one year at the University of Oklahoma specializing in petroleum geology.

Q Have you been in consulting geological work in Midland and in connection with fields in New Mexico, Texas, Oklahoma and other producing states?

A Yes.

Q Have you done a considerable amount of work in the state of New Mexico?

A Yes, I have.

Q What fields in New Mexico have you given thought and study as a geologist?

A Well, Monument, Hobbs, Langlie, all the fields in Lea County, and the Lovington pool. Some work in the Denton pool and the Crossroads and the Bough pool.

Q Have you recently done geological work and given study to the Devonian reservoir as it exists in the Crossroads pool, New Mexico?

A Yes, I have.

Q Did you make a map?

A Yes.

Q To exemplify your work?

A Yes.

MR. CROCKER: We offer it for identification as Exhibit 1.

Q Mr. Ray I show you a map or plat which has been identified as Mid-Continent Petroleum Corporation Exhibit 1. Will you examine this Exhibit and inform the Commission as to what it is, who made it, if you know, and interpret the showings thereon and - you might do that at this time and we will put it up on the board.

A This map is contoured on the top of the Devonian dolamite, and the red line you see outlining the pool, that is the water datum, minus 82 hundred feet and up until a short time ago we thought minus 82 hundred feet was the water datum. In drilling below that you would get water. Above minus 82 hundred you would encounter oil. But recently the Mid-Continent 1-A well and the Magnolia 1-C are now producing considerable amounts of water. And this present map has been perimetered, and we find inside this red line there is approximately 450 productive acres within that red line. There is a structure that is

Circular in area namely with expanding water coming from all sides and forcing the oil up dip through crevices or vugular fractured dolamite. And we have cores here to show and illustrate the type of porosity we have in this pool. The permeable portions is the cracks and joints in the formations. There is no intercrystalline porosity in the formation. All the oil is coming through these cracks and through the vugs of the formation. And having a very affectiv water drive it is gradually pushing the oil up dip into the higher portions of this structure as the oil is being taken out. Now the permeability is through these fractures and vugs and our porosity is mostly through these fractures and vugs and our porosity, is mostly through these minute cracks in the formation.

I think these cracks are horizontal and vertical. And the oil in place is in this fractured dolamite and vugular portion of the dolamite. There is very little gas connected with this oil. There is only 40 cubic feet of gas per barrel of oil. It is as close to being a 100 per cent water drive field I believe we have an example of today. That I can think of right now. Usually at this depth you have a great deal more gas in the oil. A water drive field is more or less the reverse of your gas cap fields. The gas cap fields, when the field is being produced the gas will expand and your more productive wells will be the ones down dip on the flanks, whereas in the water drive fields the wells higher on the structure will ultimately produce more oil than the wells out on the flanks and the wells out on the flanks will go to water first.

Frequently in water drive fields we have zones of permeability which is more or less through this vugular porosity and through the fractures and joints. On the west side we have evidence of a fault, which I just learned the other day from the oil development company that they had extensively tested their well here to prove to them it was faulty. Now this fault may run on down to this Mid-Continent 1-B in section 34. Otherwise, we don't know for sure whether we have water communication at this vertical fault or not. But we could very easily. But on the south and the east and the north side to date we don't know of any faulting in there. And I think we have a very effective water drive approaching the field

from all directions, with one exception here that somebody might dispute that, there would be no communication on the south side.

Frequently in an oil field where you have water drive that way, a denser pattern might hasten the production of water and it is my opinion these wells will drain that field sufficiently. The engineers I think will bring that up later, that they have found that the bottom hole pressures have been very uniform. That there is very little fluctuation as the field is producing oil. The highest part of the structure, which is about the center of that section (indicating on the map), there is about 1180 feet of drop from the lowest well to the highest position on the structure which is - in any direction here it is less than a mile. That structure as I said before just covers approximately 450 acres and you have actually about 75 acres to a well now.

As I mentioned we have this very sharp west dip, which may be due to this fact. And we have our dip in the other four directions which is a little bit more uniform. I believe there is some truncation in the field there. There has been a little erosion on top of the structure.

The oil companies encounter the oil formation 25 to 75 feet in. And any wells drilled out around the edge here would be right at water datum.

Q Are you speaking of the north edge?

A Yes, or this edge here.

Q The north edge of the reservoir and in section 27?

A Yes. One of the reasons for closing this structure on the north as I have, these two wells are flat on the Bettenbaugh limestone. That is the evidence I submit here. The reasons for that structure to close there. That it doesn't go on northward. This dolamite encountered in this formation is very massive and dense and there is no intercrystalline porosity. Thereby, all your oil is coming through these fractures and these vugs and joints. Do you think we should show those cores, or do you have some questions?

Q Mr. Ray have you examined the cores taken from the actually producing formation in this reservoir?

A Yes, sir, I have.

Q Do you have any core or cores available by which you might analyze the physical pieces?

A Yes.

Q Will you produce them?

(Off the record while the cores are brought forth and unpacked from the boxes.)

THE WITNESS: I would like to show you these cores.
(Off the record.)

MR. CROCKER: Mr. Ray I hand you herewith a physical exhibit which has been identified as Mid-Continent's No. 2. Will you please inform the Commission what this Exhibit is.

A This Exhibit is the core from the discovery well, showing the vugular porosity, which many of these holes are connected by little minute fractures and cracks horizontally and vertically. This black material you see here is frequently called dried oil or Gilsonite, or very often spoken off as asphalt. But you see all these cores show a considerable amount of that Gilsonite.

Q How was that core recovered and from what depth was it taken?

A This was taken from 12,229 feet in the discovery well. There was a diamond core bit that was used in extracting it out of the formation.

Q Was it taken from the Devonian formation?

A It was taken from the Devonian formation.

Q Is that a producing section of the formation?

A Yes, this is part of the producing formation in the

Crossroads pool. Now as to the Exhibit -

Q (Interrupting) I hand you a physical Exhibit which the reporter has identified as Mid-Continent's Exhibit 3. Will you explain the Exhibit fully to the Commissi on?

A This core was taken at 12,235 feet. I show it to you as an illustration of how it was fractured. Minute little holes or vugs in there throughout the core. Here it has been fractured also showing a little of the Gilsonite from the formation - from the discovery well.

Q Mr. Ray, I offer you a physical Exhibit which has been marked by the reporter as Mid-Continent's Exhibit 4. I will a sk you to explain to the Commission what it is and make such comments on it as you desire.

A This is an example of the formation in that it is quite dense and hard. There is a little chirt that does occur in the Devonian formation. But as dense as it is there are a few cracks and a few small holes where oils come through. But this particular piece just happens to be a little more dense than some of the others.

Q Was this core taken from the discovery well?

A Yes.

Q At what depth?

A 12,247 feet.

Q All right. Mr. Ray here is a physical exhibit which the reporter has identified as Mid-Continent's Exhibit No. 5. Will you tell the Commission what it is and explain or analyze -

A This Exhibit shows some -

Q First let us - is that from the discovery well?

A This is from the discovery well.

Q And at what depth?

A 12,221 feet.

Q Is that from the Devonian formation?

A It is from the Devonian formation. It shows a little cracking and breaking here. Possibly brecciated a little. It has been cracked and re-cemented. It also shows the joints or cracks here on the edge and vertical cracks through here plus a lot of gilsonite in these cracks and joints.

Q Mr. Ray I hand you a physical Exhibit which the reporter has designated as Mid-Continent's Exhibit No. 6. Will you please explain the Exhibit?

A This was taken at 12,228 feet from the discovery well. Mid-Continent's discovery well. It shows your vugular porosity here and its accidentally being broken through here by a fractural crack. Likewise here it is broken and here we find the gilsonite or dried oil throughout the core. Most of the cores are similar to this one.

Q Mr. Ray I hand you herewith a physical Exhibit which the reporter has identified as Mid-Continent's Exhibit No. 7. Will you tell the Commission what it is and analyze it for the benefit of the Commission please?

A This is from the discovery well, Mid-Continent's 1-A Sawyer and shows a great deal of minute fractures and cracks running vertically. A few of them you can see take an horizontal axis. It shows some of this vugular porosity with some Gilsonite in the vugs.

MR. HANNERS: What is the depth on that Mr. Crocker ?

THE WITNESS: We had it written on here some place.

(Off the record.)

THE WITNESS: That depth is 12,221.

MR. HANNERS: Exhibit 7 and 5 are the same Exhibit?

THE WITNESS: Yes. It fits onto No. 5. This illustrates the vugular porosity and the cracks and joints in it.

And it has the appearance of being brecciated a little bit on the inside of the core, but we see the asphalt of gilsonite throughout that core.

Q Mr. Ray I hand you a physical Exhibit which the reporter has identified as Mid-Continents Exhibit No. 8. Will you please tell the Commission what it is and analyze it?

A This is from the Mid-Continents discovery well at 12,182 feet which is near the top of the Devonian where it was encountered in this well. It shows a very dense massive dolamite with a few cracks running vertically, just a few vugs in the core with some gilsonite along some of the fractures. I believe that is all on that.

Q Mr. Ray, in view of the individual analyses you have made for the purpose of the Commission, do you have a general summary statement as a result of all of the cores, what the general indication is as to the reservoir, as to its permeability, and any further statement to generally summarize what you have been testifying to as to each of the separate Exhibits?

A I believe each of these cores illustrate the type of porosity we have in the Crossroads oil pool. It is vugular, fractured, and minute little cracks throughout. And the oil is being produced from these vugs and cracks and joints. There is no inter-crystalline saturated dolamite in the Crossroads pool. All the oil occurs in this type of fracturing and vugular porosity.

Q Mr. Ray, what does permeability really mean? Is it the ease with which the oil flows through?

A Yes.

Q What is porosity?

A Porosity would be the minute openings around your crystalline grains where oil would be permitted to lodge.

Q I believe you testified that it is your belief that the oil or the reservoir energy in the Devonian formation is in

the nature of an effective water drive?

A Yes.

Q Does that mean that as the influx of water comes into the formation that it pushes the oil up dip?

A Pushes the oil up dip.

Q And is it your thought these holes and fractures you have spoken of, that that affords a method -

A That is the communication.

Q Of communication. In view of what you have testified to, do you think that the reservoir lends itself to what is called 80-acre spacing, and that one well will effectively drain all recoverable oil from 80-acres?

A Yes, it is my thought it will in this particular field due to the type of porosity and fracturing and jointing we have.

Q Is it your thought as a geologist and from the investigation you have made and the testimony you have given that Order 779 should be modified, altered or changed with respect to the 80-acre spacing this Commission provided for in that Order?

A No, I don't think it should. I think it should remain an 80-acre spacing.

MR. CROCKER: I believe that is all we have with the witness.

MR. SHEPARD: Mr. Hanners.

CROSS EXAMINATION

By MR. HANNERS:

Q On how many wells, Mr. Ray, did you take similar tests?

A How many wells?

Q Yes, sir.

A I believe your Dessie well was cored, wasn't it, but those cores are not available.

Q They were not available to you?

A No.

Q So your testimony is confined to your observation and analysis of the core test taken from the discovery well?

A Yes.

Q You spoke of the water drive, Mr. Ray. Where would the water drive be with reference to the sections from which you took those cores?

A Where would the water drive be?

Q Yes, sir. Is it horizontally to it or vertically below it, where is the water?

A Well, I think the water datum is about minus 8200, and as you produce your field the water has a tendency to move upward in your hole.

Q So then is the water below the section from which you took those core tests?

A No. In some of these cores they are in the water datum now. Mid-Continent well is producing a considerable amount of water today.

Q Is there any water horizontal to the sections from which you took those cores?

A Horizontal?

Q Yes, sir.

A There could be but it would be very hard to say that except we know the well is producing a considerable amount of water per day and the bottom, or total depth, is minus 8192.

Q Mr. Ray, where did the water come from that that well is

now producing today?

A I think it is coming from below and possibly from the sides.

Q Below and possibly from the sides?

A Yes, sir.

Q Now the area from which you took the cores, is that the area from which production is being had in the discovery well now?

A Yes, sir. These cores are from the producing formation today.

Q You have taken tests from 12,221 to 12,237, that would be 16 feet?

A There is one Exhibit here near the top at 181.

Q Is that well producing from that wide a pay section now?

A What are those perforated intervals, Mr. Penn?

Q Mr. Ray, do you know from what area the discovery well is now producing?

A What area?

Q At what interval?

A Yes it is producing from about 81- it is producing from 8141 minus.

Q Yes, sir.

A Above that depth. The total depth was 8192.

Q Is that above the interval from which you took these cores?

A No, that is -

Q What is the elevation on the well there?

A It is 4033.

Q That added to your 8141 minus would give a figure of 12,171. Is that the interval from which the well is now producing?

A Yes.

Q Then these tests you took were from the interval below that?

A With one exception. There is one core from 181.

Q That would be 11 feet below the interval from which the well is now producing. Wouldn't that be true, Mr. Ray?

A I didn't quite get that question.

Q You took one core from 12,182?

A Yes.

Q You testified the well was producing from 12,171. So your nearest core would be 11 feet below the interval from which the well is producing, wouldn't it Mr. Ray?

A Pardon me. I was looking - the total depth is 8225 minus - excuse me. The plug back is minus 8207. And the top of the Devonian is minus 8073.

Q Well, so that we can clarify it, are these cores which you have laid on the table taken from the interval from which the well is now producing?

A I think so. Let me check here. Plug back depth is 12,232.

Q From how wide an interval is the well now producing?

A From there back to - may we have the perforations Mr. Penn.

Q Now, Mr. Ray, you have the figures now for the well where it was perforated and from which it is now producing.

A Yes, sir.

Q Would you read your figures, please sir?

A From 12,100 to 142; 12,152, 12,182.

Q Now, is that the area, the interval from which the well is now producing?

A Yes.

Q Then your tests were also from below that figure were they not?

A These cores, yes. I believe they are with one exception.

Q Your Exhibit No. 8 was taken from 12,182 feet?

A Yes, I believe so.

Q Then all of the other six Exhibits or five Exhibits were taken from the area below that from which the well is now producing?

A Yes, sir.

Q Now do you have any cores -

A (Interrupting) Originally this well was producing from this formation. But when water encroachment came in they plugged part of the hole where these cores were cored?

Q You have testified that the cores now on the table have evidenced, to which you have applied technical names, showing the movement of oil through them, is that right?

A Yes, sir.

Q What were the words used to describe the black portions in the Exhibits?

A Gilsonite or dried oil or frequently called asphalt.

Q What became of the oil in place in those cores when that well was plugged back to 12,182 feet, some distance above the section from which those cores were taken?

A What has become of the oil?

Q Yes, sir.

A I think some of the oil has been moved up into the formation higher.

Q How much has been moved up into the formation higher, what percentage?

A That would be very hard to state.

Q So some oil was left in place in this formation in the interval from which you took these tests when the well was plugged up at 12,182 feet?

A No, I wouldn't say that any oil had been left in the formation. It is more easy to understand that the oil has been gradually, been moved, up dip as the well was produced.

Q Well, the water drive which pushes the oil up dip, will it bypass any of the oil and leave it in place in those formation

A It can, and in cases it does when you produce a formation too rapidly.

Q What percentage of the oil was left in place in the formation from which you took those core tests when the well was plugged back above them to 12,182 feet?

A That I couldn't answer. I don't know how much oil, if any, had been left there.

Q But you would not say oil wasn't left in place in that area from which the samples were taken when the well was plugged back to 12,182 feet?

A No, I think there is a greater probability the oil has moved up dip.

Q Now, did you study the core analyses of those samples?

A Yes, sir.

Q You have laid out on the table ratherlarge Exhibits. How much of the material comprising one of those Exhibits is analyzed in one of those core analyses, how big a chunk?

A Analyzed?

Q Yes, sir.

A The core laboratory analyzed the cores, didn't they?
know how
Q Do you/much of a section of one of those Exhibits is analyzed by the laboratory, how big a chunk?

A I think in these - they will vary in size - what is it? One or two inches at a time.

MR. PENN: All of it.

A All of it.

Q Are you satisified, Mr. Ray, the entire core was analyzed by the laboratory?

A Yes, sir. It was tested by the core laboratory in Midland, I believe.

Q Now do you have the analyses from the core test in the laboratory?

A Mr. Penn the engineer has it.

Q Have you studied them over?

A I have looked them over, yes.

Q Do you have any core analyses from any other wells?

A In this field?

Q Yes, sir.

A I have one core analysis in the Dessie-Sawyer.

Q When were these tests taken, when did you do your work?

A Just recently I looked at their core analyses.

Q When was that?

A About a week ago.

Q Now where are the core analyses in these Exhibits you have here? Are they available today?

A Yes, sir, I think Mr. Penn the engineer has them.

Q Now would those analyses shows the permeability of those sections you have laid out on the table?

A Yes, sir.

Q And they show uniformity of the permeability of that section

A No, I don't believe they do.

Q Will there be variations in the permeability of those sections lifted by those core tests?

A Yes, sir.

Q Will there be wide variations in the permeability?

A Yes, there would be. If you get one piece as dense as that (indicating one of the Exhibits), you wouldn't have any analysis.

Q Then the wider the variation in the permeability of that section, the wider is the variation of your movement of oil into the well, is that right?

A Yes, there may be some variation, some formations will vary in permeability.

Q And unless you had the core test from all the wells in the area and had studied the analyses of them, you would not assume those tests applied to the behaviour of the whole

basin, would you, Mr. Witness?

A The behaviour of the wells is illustrated by these wells around here, I think. Magnolia's well is making water, Mid-Continent's discovery well is making water.

Q Now, if the Magnolia well is making water and the discovery well, which is the A-1, is making water, and if the wells north of there, which would be the Oil Development Companies 2-27 and the Sawyer D, were not making water, then what is your opinion as to the source from which that water is coming in those two wells on the south?

A It is probably bottom water. The reason these other wells are not making any water, they are completed much higher in the section.

Q So the water already coming into the two wells on the south is coming from what direction?

A Probably from south, southeast, and south, southwest.

Q Now, you said something a while ago about a fault on the west side. Is this the area indicated by the little blue check marks along this west side?

A This line right here, yes.

Q What was the difference in the depth of the southeast well drilled by the Santa Fe, 1-27 -

A Yes.

Q And the 2-27? What was the difference between those two wells?
A About 800 feet difference.

Q 800 feet difference in the top of the Devonian?

A Yes.

Q And this would indicate to you as an engineer -

A That you have a very sharp, steep dip to the west.

Q Do you have a fault in there?

A Could very easily be.

Q Do you describe that as a fault?

A Until just yesterday I did not have the information from - the Oil Development Company told me they had tested their well extensively running deep meters, and so forth, which convinced them they had a fault in their well.

Q Now, would that fault be about midway between the Santa Fe No. 1 and the Santa Fe No. 2-27?

A No, I don't believe it is. I believe it approaches the Santa Fe 1 welland then could possibly run down to the Mid-Continent well in section 34.

Q Now, how do you fix the line of your fault at the place you have indicated on the map?

A The Mid Continent well?

Q Yes, sir.

A In section 34 and the Oil Development well in 27 is the general control for that fault.

Q Now are there any other faults in the field there?

A Not that I know of definitely but there could be.

Q Now did you find in the core tests that wehave here the material called breccia?

A Yes, I think there is possibly some.

Q What would it indicate when you find it?

A It frequently indicates you have a structure that has been truncated and small pieces broken up have been re-cemented.

Q Is that indicative of a fault in the area?

A No. You can find it in a fault area, you can find breccia adjacent to or in the fault.

Q Now what is indicated on your map by the red line?

A The water datum, minus 8200.

Q Have you drawn a line on the map that would indicate the limits of the Devonian reservoir there?

A Yes, I think this red line here indicates the limits of it.

Q You spoke a while ago about the Bough field or Betenbaugh formation. On your map I notice you have in the Mid-Continent A-1 the Betenbaugh formation at 5586 and then the number C the top at 5586, and then the two wells immediately north of it and the 2-27 well at 5523 and in the D well at 5555. Now what does that indicate?

A Those are the subsea datums of the Betenbaugh limestone. That is where the Betenbaugh was encountered.

Q Now, what is the difference in elevation at which you found the Devonian formation in the 2-27 well and in the Dessie Sawyer well?

A The 2-27 ?

Q Yes, sir.

A Oil Development Company?

Q Yes, sir.

A The difference? The difference was encountered?

Q Yes.

A 7705 in the Oil Development well, and in the Mid-Continent Dessie Sawyer well it was 7674.

Q It would make a difference of 31 feet structurally between those two wells?

A Yes, sir.

Q Now the 2-27 well or the U-D Sawyer D well are they making any water?

A No.

Q So the water drive isn't coming from that direction is it?

A Those wells are completed at a minus 7838 and a minus 8110.

Q Then what information do you have to support your statement that the water in the A-1 well and the Magnolia 1-C is coming from what direction?

A I think it is coming? We can't say definitely and be positive it is coming from any particular direction. The assumption in the oil business is that it is probably moving in laterallly from more than one direction.

Q Your testimony is that it is the assumption it is probably moving in laterally from more than one direction?

A Yes, sir.

Q But you have no reliable information on which to base that statement, is that right?

A Well, except that the Magnolia well is making water when they started out not to make water and that they were completed near the water datum.

Q Howmuch lower than the 1-A well?

A You see the Magnolia encountered the Devonian at minus 8191 or 9 feet above normal water datum.

Q By the way I have just observed another thing. The Betenbaugh formation in the two wells on the north side of 27, both are shown at 5587 and 86?

A Yes.

Q Which is exactly the same as that formation in the Dessie No. 1 and in the 1-C?

A Yes.

Q So that part of the formation is absolutely horizontal, isn't it?

A Apparently is. But it has been our experience in this area that considerable thickening takes place below the Betenbaugh line.

Q Then how do you justify the drawing of this line on the north side of Section 27?

A I took an average interval from the Betenbaugh to the Devonian of two or three of those wells.

Q Which ones?

A Magnolia 1-C, and then I took the Oil Development No. 1 dry hole, and then I took one of the higher wells in the field.

Q Which higher well in the field?

A As I recall I believe it was No. 1, Dessie Sawyer.

Q Now if you took the Dessie Sawyer in the comparison you have just made, where did you find the Devonian - up near the Magnolia Pennsylvanian well No. 1 in section 22?

A Where I took that interval?

Q Yes, sir.

A Just a minute. It would be about 7674, but you are taking the highest well in the field.

Q Now that would be the top of the Devonian at the same interval you have found it in the Dessie well?

A Yes, sir.

Q Then why did you close the north end of this basin, of this structure?

A We have two wells that are flat, and I have taken an average of two or three of the wells, intervals.

Q Well, now if you average the Dessie Sawyer well with the one immediately below it or with the Oil Development Company well north of it, I am trying to find out Mr. Witness your justification for closing the structure, structural limits on the north side of this field as you have in your map?

A How else will you take it into account if you have two wells that are flat? You close your contours - you would spring it east-west, wouldn't you?

Q But those four wells that we have been discussing are almost flat on your Betenbaugh lime?

A Yes, sir.

Q Do you feel wholly justified in the closing of the reservoi: you have made on the north side here?

A Yes, sir.

Q Do you feel there might be a fault in the north side of section 27?

A I don't know if there is a fault or not.

Q You don't know whether there is or not?

A No.

Q Now, when did you discover there was a fault on the west side?

A Yesterday from information from the Oil Development Company.

Q Isn't about the only way you could really determine where there is a fault in the north part of section 27 would be by the drilling of the well up there?

A Yes .

Q If there be variations -

A (Interrupting) You might not drill it in the right place to get that information, too.

Q If there be variations in the permeability of the sections from which you have taken those cores, there would be variations in the permeability throughout the entire reservoir?

A Yes, sir.

Q And the greater the variation in the permeability of the rock the greater the variation in the movement of oil through it, isn't that true?

A Core analysis had a very high permeability of these cores due to all the fracturing and the vugular porosity.

Q But the greater the variation - it would produce a non - uniform situation through the field, wouldn't it?

A Well, I don't know there is any great variation in the core analyses.

Q Have you studied the core analyses as to the permeability?

A Yes.

Q From how many wells?

A From the two wells Mid-Continent had.

Q Those are the only two wells cored in the field. And you have no test as to the permeability from any of the other wells?

A No, other than production performance.

Q Now, what is the range in permeability shown by the cores and the tests which you have studied?

A The range in the permeability?

Q Yes, sir.

A I believe Mr. Penn or the engineers will bring that up later.

Q You don't recall?

A No, I don't recall the figures.

MR. HANNERS: I believe that is all.

REDIRECT EXAMINATION

BY MR. CROCKER:

Q Did you testify that in your experience as a geologist that you have done geological work in examination of cores from other Devonian reservoirs in the State of New Mexico and western Texas ?

A Yes, sir.

Q I will ask you if the cores that you have presented here an analyzed for the benefit of the Commission are representative of the general characteristics of the Devonian reservoirs in which you have done geological work in eastern New Mexico and western Texas?

A I believe you have the same type formation in your Bagley pool, the Hightower and the Knowles pool. Those three pools are typically like this one. They don't have any inter-crystalline porosity in those three fields. It is fractures and vugular porosity they have.

Q I believe you testified to the Commission in response to Mr. Hanners question you had examined the core analyses of the cores taken from our well, did you not?

A The Dessie and the 1-A

Q Are these cores fairly representative of the condition developed by the analyses of the one taken from the Dessie well?

A Yes, sir, that is correct.

By MR. McKELLAR:

Q Isn't it true, Mr. Ray, that that laboratory core analysis would show a porosity or permeability considerably less than that which actually existed in any reservoir of a fractured type such as you have testified about?

A Yes, sir.

Q In other words, the core analysis of the porosity and permeability which the Mid-Continent is able to obtain from the core laboratories did not actually reflect the true porosity and permeability of this Crossroads Devonian reservoir?

A That is true because they wouldn't have any way of testing those fractures.

Q They do not take the fractures into consideration?

A No.

Q That was my understanding. Now, Mr. Hanners asked you questions in respect to the amount of oil left in place. In your opinion isn't it true, as a practical matter, that the technical men of the oil industry know that no type of reservoir drive mechanism will completely flush the formation one hundred per cent? In other words, it is impossible to get 100 per cent recovery?

A That is true.

Q And isn't it further the opinion of geologists and petroleum engineers that in any field in which you have an effective water drive, you obtain the maximum oil recovery from the formation?

A That is true.

Q While it is my understanding that is impossible to compute the actual percentages but from the best data that the engineers have been able to obtain through study of water drive reservoirs, do you have any idea of what those percentages would be, or is it an engineering question?

A It is more of an engineering question.

Q It is more of an engineering question?

A Yes, sir.

Q Then we will take that up with the engineers. Now, you testified as to the presence of Breccia?

A Yes, sir.

Q Now, the mere fact that breccia is or is not found in a core, is that any indication as to whether a fault does or does not exist in the immediate vicinity?

A No.

Q In other words, it isn't a matter to even be considered in trying to determine whether or not a fault exists, in your opinion?

A Yes, that is right.

Q All right. Now there has been some indication here in testimony that you just decided a definite fault existed between the two Oil Development Company wells at a late date, yesterday?

A Yes, sir.

Q But did you, when you made your study and before consulting, before having a chance to examine the results of the data obtained b y Oil Development, was it your opinion or not that some definite geological unconformity exited in that area?

A Yes, due to the fact that we have such a steep dip, west dip there.

Q In other words you had determined through your studies that a steep dip did exist there?

A Yes, sir.

Q In your opinion at that time it could very easily have been a fault?

A Yes.

Q And after examining data made available to you by Oil Development, you were convinced in all probability a definite fault existed?

A Yes, sir.

FURTHER CROSS EXAMINATION

By MR. HANNERS:

Q Mr. Ray, there was an application filed in this case some months back by the Santa Fe Pacific and the Oil Development Company, and with it there was an Exhibit marked Exhibit A. I am going to hand it to you and ask you if the red line drawn on that map could represent the fault you have drawn on your map?

MR. McKELLAR: Mr. Chairman, before that Exhibit is tendered to the witness, I would like to have one issue clarified. I don't think that Exhibit was entered in this case. I think it was an Exhibit tendered by the Oil Development Company in an application for exception to the spacing rules. Unless it is part of the case, I object to it being tendered to the witness.

MR. SHEPARD: Was it entered as an Exhibit in the last hearing?

MR. IDEN: I was just using this for my own information.

MR. HANNERS: The file discloses this map in it.

MR. McKELLAR: I don't recall that ever being entered in this case. It is the map which the Oil Development Company entered in their application for a spacing rule in order to obtain their 2-27 well . I don't think the record will indicate it is part of this case.

(Off the record.)

MR. SHEPARD: It is about noon and I think we can adjourn. We will stand in recess until 2:00 o'clock.

(Noon recess.)

MR. SHEPARD: The meeting will come to order.

MR. DOW: Mr. Chairman, I want to say this at the outset, that all of us here appreciate the pressing engagements of the Governor and appreciate his coming over this moring.

I have talked it over with all counsel and if at any time the Governor feels he ought to be attending to other business, it is perfectly agreeable with us to proceed before the other two commissioners. We wanted you to feel free in that respect.

GOVERNOR MECHEM: Thank you, sir.

MR. DOW: We know you would anyway, but we wanted you to know our feelings.

GOVERNOR MECHEM: Thank you. I am jumping from water to oil today.

MR. SHEPARD: Mr. Hanners I believe you were cross examining.

MR. HANNERS: No further questions.

MR. SHEPARD: You may call your next witness, Mr. Crocker.

MR. CROCKER: First, we would like to formally tender the Exhibits 1 through 8 inclusive offered by Mid-Continent Petroleum Corporation. I would like in connection with the physical Exhibits that are before the Commission to make a suggestion, if it is agreeable, that after these Exhibits shall have served their purpose, the full purpose of the Commission and of Mr. Hanners, we would like to have the privilege of withdrawing them and taking care of them because they are originals and cannot be duplicated.

We would very much prefer to keep them in our custody after they have completely filled their purpose.

MR. SHEPARD: They can be returned.

MR. CROCKER: Will Mr.Spurrierthen advise us when we might pick them up and take them?

MR. SPURRIER: Yes, sir.

MR. CROCKER: All right, thank you. Mr. Ray, I believe you are excused unless the Commission says -

MR. SHEPARD: You may call your next witness, Mr. Crocker.

FRANK PURDUM,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. CROCKER:

Q Your name is Frank Purdum?

A Yes, sir, my name is Frank Purdum.

Q Mr. Purdum what is your profession?

A I am a petroleum engineer.

Q Are you a registered engineer in any State?

A I am a registered engineer in Oklahoma also in the State of Texas.

Q Do you operate an engineering company?

A Yes, own and operate a subsurface engineering company. We specializae in oil well testings.

Q How long have you been in the business of testing oil wells?

A 15 years more or less.

Q Mr. Purdum, has your firm, under your supervision and direction, tested any of the wells drilled by Mid-Continent Petroleum Corporation in the Crossroads pool?

A We have conducted tests on the Mid-Continent wells in the Crossroads pool.

Q Will you describe to the Commission what type of tests you have made?

A We measured the amount of oil and gas produced. We measured the bottom hole pressure in the well, both with the wells flowing and with them shut in.

Q Will you tell the Commission please how you go about testing an oil well for the bottom hole pressure and how you measure it?

A Our method is to actually run an amerada instrument into the well, bottom hole pressure recording instruments, it records the pressure at the bottom of the well. Naturally, if the well is flowing it would record flowing bottom hole pressure. If the well is shut in, it would record the static pressure.

Q Mr. Purdum, would the results of your work on the Mid-Continent wells indicate any trend with respect to bottom hole pressure.

A Yes, there was a distinct trend in the field as shown by these tests. There was practically no change in bottom hole pressure in the wells from the - in the reservoir rather - from the original test we ran on the U. D. Sawyer A-1 in the middle of 1948, until the test we ran in February on the U. D. Sawyer C-1. There has been practically no change in the shut in bottom hole pressure.

Q When did you make those tests?

A We have conducted those tests from the time shortly after the first well was completed in the field which was some time in the middle of 1948.

Q When was the last one?

A The last test was in February of this year. That was on the recently completed well, the C No. 1 well.

Q Yes, sir. What importance or significance is the fact that there has been no appreciable loss in bottom hole pressure during the four and a half or three years you have had the reservoir under observation?

A The significance of the fact there has been very little change in pressure, practically no change in pressure, indicates a very active water drive present in the field.

Q Did you conduct any other tests?

A Yes. We conducted other tests in the field. In order to determine if there was communication through the reservoir between the wells.

Q How do you do that?

A In this particular instance, we shut two of the wells in - I am talking about two of the Mid-Continent wells, the U. D. Sawyer D 1 and the Dessie Sawyer No. 1 wells. We shut both of those wells in and ran several - a series - of bottom hole pressure tests until the maximum pressure was recorded by our instruments. That would be maximum standard pressure. We then left one of the wells shut in and flowed the other well and measured - ran the bottom hole pressure test on the well left shut in until we found a distinct drop in bottom hole pressure in the well that was - that remained shut in.

Q Does that mean you first shut in both wells or all wells you were testing to get the pressure stabilized or to an equilibrium?

A Yes, that was the idea, to have some stable pressure to start from so that when we would denote the drop in pressure in the well that was still shut in, that it could only be from the effect of flowing the other well.

Q You opened one well and had a recording gauge in the bottom

of the shut in well?

A Actually didn't leave the recording gauge in all the time during the test. It took sometime. We withdrew the instrumen and ran it back in at different times.

Q After you conducted that operation, what was the result under your interpretation?

A The result was that we did detect a drop, a measureable drop, in bottom hole pressure in the well left shut in.

Q And when one well was opened and flowing?

A Yes.

Q What do you conclude from this drop of pressure that was recorded on the shut in well while the other well was flowing, what did that indicate to you?

A To me it indicates, and I think it is conclusive, that the wells are pressure connected through the reservoir, and they can be actually flowing oil from one well to the other across that distance.

Q Well, is the drop in bottom hole pressure in the shut in well due to the flowing - due to the other well flowing - does that have any special significance in the reservoir? I guess you have just answered that question unless you care to further amplify it.

A There is a special significance in this particular reservoir due to the high permeability. There isn't much drop in the well that is flowing. The difference between the shut in and the flowing pressure isn't much. And it is of special significance in this test that we did detect the measureable drop in bottom hole pressure due to the large permeability. It designates a very free flow. That is, between the wells much larger than otherwise would be designated.

Q Well does the result of the test indicate to your mind that the order originally issued by this Commission, No. 779

fixing a spacing as on the basis of one well to 80-acres was a proper Order, that the reservoir now lends itself to the conclusion that was a proper Order, and that one well will in fact adequately and efficiently drain the recoverable oil from a tract equivalent to 80 acres?

A Yes, these tests show that a well in this reservoir can drain even more than 80-acres. It shows relatively free movement of reservoir fluid between the wells. It also shows that there is an active and forceful water drive that has maintained the bottom hole pressure, and this natural drive should flood the reservoir in a natural manner and allow the present wells to produce substantially all of the recoverable oil.

MR. CROCKER: Thank you. I believe that is all from this witness.

CROSS EXAMINATION

By MR. HANNERS:

Q Mr. Purdum, how much was the drop in pressure you spoke of in the well that was shut in?

A The drop in pressure sir?

Q You said you had two wells shut in, and opened one and observed the drop in bottom hole pressure in the well shut in. How much was that?

A It was ten pounds.

Q Ten pounds?

A Yes, sir.

Q Ten pounds out of how much pressure?

A Something over 4800 pounds.

Q It dropped ten pounds out of 4800?

A Yes, sir.

Q Now, did you take any other tests on any other wells up there?

A At that particular time?

Q Yes.

A During the interference test I mentioned?

Q Yes.

A No. The other two wells were pumping, and the C well wasn't completed at that time.

Q You based your test on the Dessie Sawyer in the northeast of the southwest and the U. D. Sawyer well D-1 in the southwest of the northeast?

A I am not thoroughly familiar with the location but it was the Dessie Sawyer - it was the Dessie Sawyer and the U. D. Sawyer 1-D. Those were the two wells that we tested at that time. Now, I suppose you are still referring - you see we ran quite a few tests in the pool. Now, you are talking about the interference test, am I right, sir?

Q Yes. Did you run any other similar interference tests?

A No. These were the only two we could run at that time. There were no other wells available.

Q And about all that test showed is that you had a drop of ten pounds out of 4800 pounds bottom hole pressure?

A That is right.

Q And from that you conclude that 80-acres would be efficiently drained by one well?

A That and the other test we ran. You see we have run tests in the field since 1948.

Q Do you have the evidence or the reports of those other tests that you ran, Mr. Purdum?

A I don't have the tests with me, no, sir.

MR. HANNERS: That is all.

MR. MCKELLAR: I have one question I would like to ask.

By MR. McKELLAR:

Q The fact that this bottom hole pressure in the well shut in in your interference test, Mr. Purdum, the drop was only ten pounds from the original bottom hole pressure of approximately 4800 pounds, is it your opinion this drop of ten pounds could have only been occasioned by the fact that oil was being drained from around the closed well by the well which was open, at least fluid was being drained?

A That is right. Ten pounds in our instruments with the meters we use is a measurable amount. There is no mistaking the fact that you can detect ten pounds. In fact, we can detect less.

Q In other words, fluid was being withdrawn from the area around the closed well by the well that was open? There was inter-communication between the two?

A There is no question in my mind.

MR. McKELLAR: Thank you sir.

MR. SHEPARD: Any further questions? If there are no further questions, you will be excused.

(Witness excused.)

MR. SHEPARD: The next witness, Mr. Crocker.

M. B. PENN,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. CROCKER:

Q Will you please state your name?

A M. B. Penn.

Q Mr. Penn what is your profession?

A Petroleum Engineer.

MR. HANNERS: Mr. Crocker, we will admit the qualifications of Mr. Penn.

MR. CROCKER: All right.

Q Mr. Penn were you a witness as a petroleum engineer before this Commission at the hearing conducted on November 21st in this particular matter?

A Yes, sir.

Q I am going to ask the reporter to please identify this. I hand you Mr. Penn what has been marked as Exhibit 9 of the Mid-Continent Petroleum Corporation and I will ask you to please tell the Commission what it is, what it means, and give us an interpretation, if you will please.

A The information shown on this Exhibit is what is commonly called in the oil business performance curves. These curves were prepared under my direction and set outthe data on all the wells that produce from the Crossroads-Devonian pool. This set of curves might look complicated at first glance, but I would like to explain and point out the simple facts they set out. The heavy line in the middle portion of the sheet is the daily average production. You can see that the daily average production started in May 1948, when the discovery well was drilled.

MR. McKELLAR: That is daily production of oil Mr. Crocker?

THE WITNESS: Yes, that is oil. A curve immediately above merely denotes the time at which each of the completed wells, each of the oil wells was completed. And you will see that in the early part of 1949 when the Magnolia 1-C and the Mid-Continent Dessie Sawyer wells were completed the production curve increased from about 200

barrels a day to about 500 barrels a day because of the two new wells. Then in the later part of 1949 when the one D-Sawyer was completed, the production increased from approximately 500 barrels a day to about 750 barrels a day. Nothing of any significance happened then to the oil production until the Magnolia well and the Mid-Continent discovery well were put on the pump in the early part of 1950. In the latter part of 1950 the Oil Development well was completed and increased production to 1200 barrels a day. Our well 1-C was completed in the later part of last month, and its increase in production is not shown on this curve.

But in the month of March the allowable at 350 barrels per day, the production of oil in the field had increased to about 1600 barrels a day. That will bring the curve up to something like this as I have shown with the red line. Now the lower curve on the sheet is an explanation of the water production. And the water production increased rapidly when Magnolia and Mid-Continent put their two wells on the pump. The dotted lines show the cumulative amount of oil which gradually increased throughout the life of the field on up to the present time.

There is 655 thousand barrels produced from the field. The most significant data on this sheet is the pressure curve at the top of the page. Tests were made by Mr. Purdum's firm. The fact that the bottom hole pressure curve is practically a straight line, inasmuch as that is the ideal condition you can have in a reservoir, when bottom hole pressure declines you are running out of energy. The amount of energy is decreasing rather. The fact that we have had a constant and steady bottom hole pressure in this field is further proof of the fact that we have an effective water drive which will produce the maximum amount of oil from the reservoir.

Q Now you have analyzed the Exhibit Mr. Penn. Have you given all of the conclusions or observations you care to make with respect to that Exhibit?

A Yes.

Q May I ask whether or not since the hearing was had

November 21st and the work that Mr. Purdum has done in conducting pressure surveys since that time, are you still of the same opinion you were at the time you testified in the case to the effect that in view of this water drive condition that one well will adequately and efficiently deplete the reservoir on an 80-acre pattern, as authorized and provided and ordered in the Commission's Order No. 779?

A It is most evident and easily understandable why that is true. All the data that we have been able to take on this field, such as the mechanical arrangement of the permeability, you might call it, in the cores; the fact that the porosity is cavernous; and the fact that the porosity isn't a matter of the space between sand grains or the space between small crystals; the fact that we have an active water drive without any bottom hole pressure decline, and most of all the fact that the interference test Mr. Purdum has described depict the actual communication between the wells by actual pressure measurements that show the effect this cavernous porosity has upon the reservoir we are dealing with here. Whenever an engineer tells the layman that here is something very unusual, I can understand that the layman might think that is just the way of convincing him of something. But in all fairness and in all truth, I say this is a most unusual reservoir. Mid-Continent Petroleum Corporation would be highly pleased if all of the reservoirs they produce had an effective water drive such as this one, and a cavernous porosity, and an infinite permeability, so that we can produce the oil without having to inject any gas or water, as we do in many reservoirs; not only to get an appreciable amount of oil out, but even to make the wells pay out.

Q Mr. Penn the testimony you have given, does that relate generally speaking, to the entire Devonian reservoir? You are not speaking of just any specific particular well or tract? Your testimony covers the entire reservoir?

A Yes. These data are made up from the information which has been furnished us on the Oil Development Company - Santa Fe well and the Magnolia well and our own well.

Q Are you now, so far as any observations are concerned

pertaining to the reservoir - if you will, I would like to ask you if you know how many tons of steel is employed in each of these producing wells in the Devonian reservoir, approximately, if you know?

A I believe it is approximately 200 tons.

Q 200 tons of tubular goods in the -

A Yes.

Q Now, Mid-Continent drilled a dry hole southwest of the discovery well. That well I understand has been plugged and abandoned?

A Yes.

Q Can you tell the Commission how much steel was recovered from that operation, and how much steel is left or buried or beyond recovery that must remain in that dry hole?

A I would estimate that approximately half of the steel remains in the well.

Q 100 tons of it?

A Yes, sir.

MR. CROCKER: Just a minute please.

(Off the record.)

MR. CROCKER: I believe that we are through with Mr. Penn.

MR. SHEPARD: Mr. Hanners.

CROSS EXAMINATION

By MR. HANNERS:

Q There is one matter you testified about at the earlier hearing that Mr. Crocker did not question you about and I wonder if you have any of the dollars and cents figures as

to the pay out of the wells to supplement the information you had in November?

A Yes.

Q Hasn't the Dessie Sawyer well paid itself out since we had the hearing in November?

A I believe within a very few dollars the Dessie Sawyer and the D-1 well - at this sitting - I believe you can say those are paid out.

Q And you have had about the same monthly return of pay out since November that you had had up to that time on the other well?

A Except for the slight increase in allowable.

Q So the picture is a little bit better now than it was in November?

A Yes.

Q The two wells that have been paid out are the Dessie Sawyer well that started production in February of 1949?

A That is right.

Q That showed a total cost of 444 some odd thousand dollars?

A I believe I gave you the figure at the last hearing.

Q And that has been recovered and 24 more?

A The well is now paid out, and I gave you the information at the last hearing. I don't have it before me right now. I can get it if the Commission wishes.

Q The U D Sawyer began production in August 1949?

A The U D Sawyer 1-D.

Q And you showed costs there of $344,000, which has been

paid out in 17 months of operation, hasn't it?

A The well is now paid out, yes.

Q Now, you spoke of tests that you had - through a period of time. What additional data or information have you prepared to submit to the Commission about those matters since our hearing in November?

A I intended to present nothing more to the Commission about those. I have the data up to February the 1st which as I said a while ago, if you wish to cross examine about -

Q Since the hearing in November you did submit one Exhibit to the Commission by letter, didn't you Mr. Penn?

A Yes.

Q What was that Exhibit?

A During the last hearing, Mr. Spurrier asked me if I had any core analyses. I replied that I did and I would be glad to send him copies of those analyses which I did shortly after the hearing.

Q On what well do you have the core analysis?

A I sent him a core analyses of cores taken from the Dessie Sawyer well which were quite complete. And I sent him a core analyses of cores taken from the 1-A well, which was the discovery well.

Q How many cores were analyzed in the tests on the Dessie Sawyer well you put in your report?

A To my knowledge about 20.

Q And how many completed on the D well?

A Three.

Q Now did that report you submitted show any additional

variation in permeability?

A Yes.

Q How wide a range did it show?

A I believe the permeabilities exhibited were from practicall zero to in the neighborhood of four or five thousand millidarcs.

Q How do you account for the wide variation?

A May I show the Commission with one of these cores?

Q Surely, speak freely.

A In the first place I would like to say that permeability is the measurement, the arbitrary measurement, of the ability of a fluid or of air to move through rock. The high permeabilities were obtained by the cavernous material here. The high permeabilities measure the actual ability of the oil to move through this reservoir because the oil is in the cavities. Now, the low permeabilities were in materials such as you see right here. (Indicating an Exhibit.) That is as hard as your front steps. Nothing is going to move through that. So that the low permeabilities depict the rock that contains no oil, or if it did, it couldn't get out. And the high permeabilities explain the ability of the oil to move very freely through these cracks and vugs and holes you see through here.

Q Now, Mr. Penn in order to advise the Commission as to the permeability throughout the reservoir you had made similar tests from all the wells, didn't you?

A No, I didn't. A lawyer might but an engineer wouldn't.

Q The only Exhibit you have submitted is from 18 or 20 cores from the Dessie and three from the U D Sawyer D?

A Those are all the core analyses we have. If we had more, I would be glad to give them to you. It is quite expensive to obtain these cores. You don't just send the bucket down and get them. You have to work for them.

The management decides whether they will core or not core, and that is the reason we don't core every one.

Q You spoke of the permeability as being that quality in the rock which permitted fluid to pass through it. What becomes of the oil in the rock where there isn't great enough permeability to permit it to move through? Is that oil ever recovered?

A In any recovery that Mid-Continent ever made that was produced by normal methods, nobody ever recovered all the oil. If he mined the stuff he couldn't and took it out with a spade.

Q What percentage of oil in this reservoir would be recovered from such wells as the ones from which you took these cores?

A The engineers more or less commonly agree that a water drive reservoir, such as this one, that 60 to 80 per cent of the oil will be recovered?

Q Then there would be 40 to 20 per cent of the oil left in place?

A That is correct.

Q Now in speaking of the water drive pressure, would it by-pass some oil in place through the rock as it creates the energy that operates the fluid?

A I am not aware of your definition of by-passing.

Q Well, I don't have a technical way to describe it other than to say this. Will the water drive leave some oil in place as it passes through?

A I think I have already testified to that.

Q Is that about 60 to 80 per cent recoverable oil that you have referred to?

A The water drive produces 60 to 80 percent of the oil in place. That is called recoverable oil. The oil that is produced.

Q Now in the Sawyer well where you plugged back up to a higher zone, had you recovered 60 to 80 per cent of the oil in place -

A (Interrupting) Mr. Hanners, I am speaking of the reservoir as a whole.

Q I am speaking of the Sawyer well. Did you recover that same percentage of oil out of this formation -

A (Interrupting) In what volume are you speaking?

Q In the A-1 well have you recovered 60 to 80 per cent of the oil at the time you pulled up above the area from which you took these cores?

A We took all oil out of the well. Now, what area around the well are you talking about?

Q Mr. Penn, have you attempted to draw the limits of this Devonian reservoir - I mean the outside limits, such as one of the other witnesses has on his map?

A No, I haven't.

Q You do not have an Exhibit similar to the one introduced by the first witness that you have prepared showing the northern limits of the field?

MR. CROCKER: Isn't that a geological question, Mr. Hanners? Don't you think it is a geological question?

MR. HANNERS: I will leave it to the geologist if this witness is not able to answer it. Will the Commission permit me just a moment.

(Off the record.)

Q Mr. Penn, over what distance in footage did you recover the oil through the A-1 well horizontally?

A I don't know.

Q Do you know over what distance in footage any of the wells

are recovering the oil?

A No, I don't.

MR. HANNERS: That is all.

MR. SHEPARD: Any further questions.

BY MR. McKELLAR:

Q Mr. Penn, you testified that a number of those wells have - a number of the Mid-Continent wells, - drilled through this Devonian formation have of course paid out. But the subject matter before the Commission is the Crossroad-Devonian reservoir. We are not particularly interested in any one of Mr. Sawyers wells or the Santa Fe wells. We are dealing with a reservoir problem. Has this Devonian reservoir paid out?

A No, it hasn't.

Q It hasn't? I have one other question or two. Have you furnished the Commission with all the data which Mr. Spurrier requested at the November hearing?

A I am under the impression I have.

Q And you are now in a position, I take it, to furnish the Commission with any additional data which you have available and which you can obtain that they might desire before they render an opinion in this case?

A Definitely, yes

Q The fact of the limits, productive limits, of the Crossroads-Devonian formation, is that a geological or engineering question?

A I hope it is a geological question. I haven't prepared anything on it.

Q That is the reason you haven't taken this up, is that right?

A That is right.

Q I have one other question. You testified in your opinion this reservoir being an active water drive with practically unlimited permeability and in all probability will recover something between 60 and 80 percent of the recoverable oil in place -

A I would like to correct that statement. It will recover 60 to 80 per cent of the oil in place.

Q That is correct. Which will mean we must leave under our present methods of operation approximately between 20 and 40 percent of the oil in place?

A That is correct.

Q Which we will not be able to recover under primary means?

A That is correct.

Q How does that compare with the amount of oil which would have to be left in place in reservoirs which didn't have this type of permeability and didn't have water drive, for instance in a gas expansion field?

A If the oil were to be lifted to the surface in such a field as this by only the dissolved gas - of course, we have to assume there is more gas dissolved in the oil than there is here -

Q I am assuming this is a gas cap oil-gas expansion, any type other than water drive?

A In such fields we have recoveries from 10 to 40 per cent of the oil in place recovered.

Q In other words, the performance which you anticipate in this reservoir is just about as good as the know-how of the oil industry is able to make it?

A It is the most efficient.

Q This is an ideal situation?

A This is, yes.

MR. McKELLAR: That is all I have.

MR. HANNERS: I have one further question, Mr. Penn.

A Yes.

BY MR. HANNERS:

Q Have you made a study to determine the ultimate pay out of this reservoir?

A Ultimate pay out?

Q Ultimate recovery to be obtained from this reservoir?

A Yes.
Q Have you a report on that?

A No I don't. Those are confidential figures, Mr. Hanners, and I believe the Commission will recognize in the face of the federal tax picture and other things -

MR. McKELLAR: This will get into the ad valorem tax picture, sir. If we knew how much oil we had under the acreage, we could be taxed.

MR. HANNERS: Isn't that what we need to know in order to properly consider the matter before the Commission?

THE WITNESS : No, it has nothing to do with it. We are talking about only one thing, and that is the ability of the wells already drilled to produce all of the recoverable oil from the reservoir, and we had testified they will do it. The tax picture nor the profit picture nor anything else has anything to do with it.

Q Did you have a report prepared just recently as to the productivity index for each of the wells in that field?

A Yes, sir, I do. I furnished the Commission with that, Mr. Hanners, in the hearing on the A-well.

Q You haven't had that prepared since then?

A No, no more reports.

Q And that is based only on the A-1 well?

A Yes.

Q Have you made them on the other wells?

A Yes.

Q Have they been submitted?

A No.

Q Do you propose to?

A No. We will, if the Commission asks. They are substantially the same. They range from three to forty pounds per day pound drop. The Commission has asked for static bottom hole pressures and we have furnished those. One other thing I would like to say Mr. Hanners. You are inferring here something I don't like a bit.

MR. HANNERS: Feel free to speak, Mr. Penn.

A I don't like anyone to infer we keep anything secret from the Commission. We have never kept anything secret from the Commission. We have run additional tests since this last hearing and we have furnished them to the Commission. There is nothing secret from the Commission in the way of reservoir data.

MR. HANNERS: I am not inferring that at all, Mr. Penn. That is all I have.

MR. SHEPARD: We will take a five minute recess.

(The record may show Exhibit 9 was formally

tendered in evidence by Mr. Crocker.)

MR. SHEPARD: You have another witness, Mr. Crocker?

MR. CROCKER: That closes our case. I believe Mr. McKellar has something.

MR. McKELLAR: I would like to call Mr. Jim Puckett. He is our District Engineer for the Kermit District, and the previous record in the case will show, in which he has testified, that he is qualified and this is one of the pools in his territory and the record will show Magnolia has one well, being our Santa Fe Pacific well, completed in January, 1949.

JIM PUCKETT,

Having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. McKELLAR:

Q Mr. Puckett, will you please review the production history of our well?

A The Magnolia Santa Fe Pacific C-1 was completed in January 1949 and flowed initially clean oil, and within a couple of days started making water, some 20 to 25 per cent, and continued to flow for approximately 8 months, after which time it was put on the pump. The water percentage has continued to increase, and as of January, 1951, the water percentage was somewhat in excess of 50 per cent. I believe the daily average production from the well for January is 150 barrels of oil and 193 barrels of water.

Q 150 of oil and 193 of water?

A That is correct.

Q Have you made an engineering study of this Crossroads-Devonian reservoir on the, based upon the data, obtained from wells other than the -

A I have made a study of the data that has been presented to the Commission.

Q In your opinion from your studies, what is the principal type of drive mechanism present?

A It would be very definitely a strong water drive.

Q Please explain to the Commission upon what you base your answer to the last question.

A The bottom hole pressure history primarily. There has been no decline in bottom hole pressure as shown by the Exhibit No. 9 presented by Mid-Continent. There isn't enough gas in solution in the oil to be of any benefit as a producing mechanism in this reservoir. The only source that is available is the water. And the bottom hole pressure history will bear that out.

Q As I understand your answer, there is two things; one: a constant bottom hole pressure and the fact that there isn't just sufficient gas present to indicate either a gas expansion cap or any other type of mechanism?

A The bottom hole pressure history primarily, or of course the fact that there isn't sufficient gas present.

Q From your studies Mr.Puckitis it your opinion one well will efficiently and adequately drain 80-acres in this reservoir?

A It is.

Q Is it further your opinion the wells presently producing from this reservoir will efficiently and adequately drain this reservoir?

A It is.

MR. McKELLAR: I have no further questions.

CROSS EXAMINATION

By MR. HANNERS:

Q As a matter of information, Mr. Puckett, was your C-well drilled above the water table as shown on Mr. Ray's chart?

MR. McKELLAR: We weren't furnished with a copy of Mr. Ray's chart I don't think.

A The chart there shows the top of the Devonian at minus 8191 and Mr. Ray shows the water datum as minus 8200.

Q Where is the bottom of your well?

MR. McKELLAR: Our well is bottomed at 12,257.

Q Using your minus figure again?

A This Exhibit shows the total depth as a minus 8233. That information was in the previous record. I don't have it immediately available. I can get it.

Q Your well was clean and free of water when you completed it wasn't it?

A It produced a couple of days.

Q In a couple of days it made water?

A Yes.

Q But when you completed it there was no water at the time?

A To the best of my knowledge there wasn't.

Q Now what is the direction of that water drive, what is the source?

A The source of the water drive?

Q Yes, sir, directionally.

MR. McKELLAR: That is primarily a geological question, but I have no objection to my witness answering it if he has made a study of it.

A The source of the water drive is the aquafer, the water

surrounding the structure.

Q Where is the water coming from to the 1-C well?

A The Devonian Reservoir.

Q But from where, the south, the east, or below?

MR. McKELLAR: I am going to have to object to that question. It is a geological question.

MR. SHEPARD: He may answer the question if he knows

Q If you know - I want to be fair with you.

MR. McKELLAR: The point I want to point out is that this particular data isn't the subject of this man's study, and of course for that reason it is highly probable he hasn't made a study.

MR. SHEPARD: He might state if he has.

MR. McKELLAR: Speak up Jim if you have and if you know, answer it.

A State the question again.

Q Where does the water come from you find in your 1-C well?

MR. McKELLAR: You mean the direction?

MR. HANNERS: Yes, sir.

A I wouldn't know.

Q Unless you knew the source of the water drive, you wouldn't be familiar with this whole reservoir would you?

A You say source and then you say direction.

Q I mean the same, directionally?

A The source is as I stated, the aquafer, surrounding the reservoir.

Q But unless you know the direction -

A I don't see that it makes any difference which direction it comes.

Q Do you know the direction?

A No, sir. I know it gets there.

Q Do you know whether it comes in horizontally or vertically?

A No, I couldn't state definitely.

Q Do you know where the water comes from that is found in the Sawyer A No. 1 well?

A I would say it came from the same source, the aquafer surrounding the structure.

Q But directionally?

A No I don't know the direction.

MR. HANNERS: That is all.

REDIRECT EXAMINATION

BY MR. McKELLAR:

Q Mr. Puckett does the direction from which this water comes make any difference so long as the water is there and the bottom hole pressure is maintained, and will the direction from which it comes make any difference to the real issue as to whether or not one well will effectively and adequately drain 80-acres?

A I can't see it would.

Q It is your opinion the direction would make no difference?

A That is right.

MR. McKELLAR: That is all.

MR. SHEPARD: Any further questions.

(Witness excused.)

MR. SHEPARD: Call your next witness.

JOHN MAJOR,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. IDEN:

MR. IDEN: If the Commission please, Mr. Major and I also appear here representing the Santa Fe Pacific Railroad Company, which is an owner of mineral rights in the field, and the Oil Development Company of Texas which is an operator.

Q Mr. Major, will you state your name please?

A John Major.

Q And you testified previously at a previous hearing in this case?

A Yes, sir.

MR. HANNERS: we will admit the qualifications of the witness.

MR. IDEN: All right.

Q As a preliminary to what you expect to state here today will you give a little short general review of what you heretofore stated in order to connect it up.

A Yes, sir. At the previous hearing I testified concerning the history of the drilling and the completion of the Oil Development Company of Texas Santa Fe-Pacific Well No. 2-27, located in the southeast quarter of the northwest quarter section 27. The previous record shows that this well was acidized. I would like to correct this at this time. This well wasn't acidized, and it does flow by natural flow.

Following this I presented and explained as an Exhibit a graph showing the shutin and flowing bottom hole pressure behaviour of this well 2-27 during the period from November 4 to November 6th. This graph illustrated in my opinion the rapid adjustment of bottom hole pressure from flowing to shutin position, indicating a high degree of permeability. It is because of this interpretation that I wish at this time to correct the previous record to show that the well wasn't acidized, and that the pressure performance reflects the natural reservoir condition.

Q Now, Mr. Major, since the previous hearing what additional data or information, if any, can you give to the Commission?

A The Oil Development Company of Texas completed well No. 2-27 and a geologist analyzed our well cuttings. These well cuttings in size from 1/8 to 1/4 of an inch and are irregular pieces. The pay interval wasn't cored nor were there any electrical or radioactive logs taken. As a result of this we had no data to present on porosity and permeability as was previously asked by Commissioner Spurrier. We do have as additional information a graph showing the daily production performance of our producing well No. 2-27.

Now this graph isn't based on engineering data. It is based upon the field production inasmuch as recordings of daily production, using wellhead equipment; that is, the pressure gauges are not accurately calibrated.

Q Do you have several copies?

A Yes, sir, I do.

Q The graph which you have referred to has been Marked Exhibit 1 of the Oil Development Company of Texas and the Santa Fe Pacific. Will you please explain that to the Commission in such manner as you care to showing what it is intended to convey?

A Yes, sir. This is a fairly non-technical graph. Across the bottom of the graph I have months, and the little small squares each represent one day.

Now curve No. 1 which has a red index and is in solid lines, is the barrels per day that the well has produced. Curve No. 2, which is near the top of the page, is a dotted line with an orange index and it shows the choke and the restricting devise fittings and 64th of an inch that were used to obtain the production as shown in curve 1 .

Curve No. 3 which is a dash line and has a blue index, shows the resulting gauging and casing pressure. The two read approximately the same. They may vary ten or 15 pounds but read about the same. It shows the flowing pressure which results through this well's restriction on the choke size and with the daily production. Curve No. 4- it is dotted down at the bottom of the sheet - it merely shows the cumulative production of oil from the well.

MR. IDEN: We offer in evidence as part of the witness's testimony Exhibit No. 1.

MR. HANNERS: No objection.

MR. IDEN: Do you have anything else, Mr. Major, you wish to give to the Commission?

A Yes. Commissioner Spurrier asked opinions as to the direction of the water drive in this field. The Oil Development Company of Texas has previously testified that in their opinion the field is limited to the west by a fault. It is my opinion therefore from the known data that the water drive doesn't come from the west, but maybe from the north, the east, the south, dependent upon the effect of this water body or aquafer that surrounds the reservoir. In this morning's examination there appeared to be some question as to the exact location of this fault to the west. It is the opinion of the Oil Development Company that this fault bisects the abandoned Mid-Continent B well and lies closely adjacent to the abandoned Oil Development Company well No. 1-27 The reason that at this time we place fault close to 1-27 is based on the crooked hole in well 1-27 below the depth of 10,500 feet. In drilling this well we carried very little weight on the bit in these lower depths, but it was impossible to drill a straight hole in the well. The deviation from vertical in this well was approximately - it varied - it was about 5 degrees. I don't have the well records with me.

I am recalling that. But I believe up to 5 degrees because that was the limiting factor on the drilling contract, and he was very worried about the crookedness of the hole. I would like to explain this particular action a little more fully. In the lower part of this well, as I say, we carried very little weight, very few drill collars, and tried all speed and revolutions, and tried to get the hole to straighten up, but it couldn't be done. Somedays the drilling contractor cut as little as 20 to 23 feet. As I say, this came up this morning. I would like to show the Commission the way it was shown to me by the driller how this particular action works. Now if you will assume - would you like to see this Mr. Hanners?

MR. HANNERS: That is all right, keep your seat.

A If you will assume this rubber eraser on this pencil is the bit, and the pencil is the drill part, and you have your control clear up here two miles away, you twist this bit and the bit has sharp edges. The main cutting force is to the outside of the bit, the center of it having a pulvurizing action. It has a tendency to walk in a clock-wise direction, which is normal in drilling operations. But now when you come up against a fault - (off the record) when you come up against a sloping plain or fault like that, your bit edge digs in to the edge toward the fault and it has a tendency to walk up like that (indicating and illustrating with the pencil) climb. That is the reason behind my present placement of this fault near well 1-27.

Q Do you have anything else Mr. Major or does that conclude what you had in mind?

A I believe that is all.

Q What /You have stated here today together with what you have heretofore testified to in this case, so far as you know that gives the Commission what the facts are which you believe pertinent to the matter?

A Not all of them that are/pertinent, but all that we have.

Q I mean pertinent to the Commission?

A All that we have, yes, sir.

MR. IDEN: I think that is all.

MR. HANNERS: We have no questions.

MR. SHEPARD: If there are no further questions, you will be excused.

(Witness excused.)

MR. IDEN: That is all we have.

MR. DOW: I wish to place in the record a letter from the Phillips Petroleum Company that was written in connection with this hearing to Mr. Spurrier.

(Marked Exhibit 1 Dow.)

And I wish to place in the record a statement by Mr. Cecil Buckle of Sinclair who was obliged to leave yesterday He desired I place this statement into the record, because the record as written of the former hearing wasn't exactly clear to him and he wanted to clear it up. I won't take the time to read them to the Commission. Just put them in. That I guess is our case.

MR. HANNERS: If the Commission please we have a petroleum engineer to put on the stand to discuss this matter with you.

MR. SHEPARD: You may proceed.

R. U. FITTING,
having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. HANNERS:

Q Your name is R. U. Fitting?

A Yes, sir.

Q You reside at Midland, Texas?

A Yes, sir.

MR. McKELLAR: We will waive the qualifications of Mr. Fitting as a petroleum engineer.

A I am also a consulting geologist.

Q Have you been engaged in that practice for some years?

A Yes, sir, about 18 years.

Q And have an extensive practice in it? Mr. Fitting, have you devoted your attention recently to a study of the Crossroads-Devonian field so that you would be in a position to testify before the Commission about the matter today?

A Yes, sir.

Q Will you explain generally the manner in which you have proceeded to that qualification?

A My immediate study of the Crossroads field has been confined to the last ten days, during which time I reviewed all records that had been placed before the Commission and all of the data that has been here submitted. I have also made a study of the well records and well history. The production of water and the production of oil in the field The bottom hole pressure records that are available in the Commission's files. I found in the file, in the Commission' file, covering the exception by Oil Development Company, the map that had been submitted by Mr. Major in November and also a cross section of the field and 20 of the core analyses submitted by Mid-Continent, and I found productivit index data on the Oil Development-Santa Fe Pacific 2-27 well and the Sawyer A-1, and I found in the transcript the costs of wells and the other matters that have been recited by the witnesses here today.

Q Have you reviewed all of the information contained in the files of the Commission relative to the first hearing in 1948 and the hearing in 1950 about the matter?

A And in addition the file or the record of November 1949, a hearing of the Oil Development Company and in addition I had all available electric and gamma ray logs in the field, and well completion practices and the study of production records, which isn't reflected by the Commission records from these hearings.

Q What is the matter we should take up first?

A I would like to refer to Mid-Continent's Exhibit 1.

Q That is the one the witness Mr. Ray had this morning?

A Yes, sir.

MR. HANNERS: Where is that map? Would you place it on the easel?

MR. McCORMICK: We all have copies.

THE WITNESS: I will just refer to it here.

Q Will you examine that plat and in your own way proceed to explain to the Commission the matters of significance as disclosed by that map?

A I will be glad to. We have all heard Mr. Major testify as to the existence of a fault to the west of their 2-27 well. I wish to point out that the difference in the top of the Devonian in the two wells that are located 1320 feet apart is on the order of 800 feet, and would require a dip in the nature of 35 degrees or over in the top of the formation were that to be explained without faulting. I certainly subscribe to the faultthat has been put there by the prior witnesses. I note though on this map that it is contoured without reference to the fault in that the minus 8200 feet datum is shown as the limits of the production of the pool. I also note that the two Pennsylvania producers to the north have encountered the Betenbaugh lime, which is some 2000 feet up the hole from the producing section at exactly the same point as two of the producers in the field. And I think it is an unfair interpretation to show this field is limited to the north by the present development. I have added up the top of the Betenbaugh lime in all the producers in the field, and added to it the interval between that marker and the top of the Pennsylvanian in all the producers in the field, and I feel that the top of the Devonian productive horizon in the 1 and 1-D wells, those Pennsylvania wells, would be minus 7916, which would be 215 feet above the total depth of the Magnolia 1-C, which was originally completed clean. Consequently, it appears that the limits of this pool have not been defined to the north, and furthermor, in view of the fact that there is a fault

on the west side of the field, there is every reason supposedly that additionalfaulting would be found in the area Whether it will be of sufficient magnitude to change the contours on the top of the pay, I couldn't anticipate; but it is a reasonable expectancy this field can be continued to the north. Another thing I would like to point out is that the original water table in this field must have been below minus 8243, which was the total depth of the Magnolia 1-C, Santa Fe Railway, and not minus 8200 as shown on this Exhibit, because that well, as testified to by Mr. Puckett, was clean on completion. It is my estimation of the well production from U. D. Sawyer 1-A of Mid-Continent or Magnolia's 1-C that the vertical fracturing which has been testified to and can be seen in these cores has resulted in the coning of water from the water which underlies this field and has resulted in the drowning out of portions of the pay section by that coning effect. The Commission must realize where there is two or three hundred feet of pay section available in these wells it is necessary the wells drain between wells a distance of as much as 16 or 1800 feet in order to completely drain your fields. Consequently, the reduced pressure permits water to come from below because of the shorter distances with greater ease than it does permit it to come from the edge of the field. I believe this covers my observations about this particular Exhibit.

Q Now have any other Exhibits been introduced to which you would like to direct your attention especially?

A No, I think not.

Q Now what matter would you next prefer to take up in your study of the field?

A One other matter that I was directed to by Mr. Hanners was the definition of waste as it is defined in the New Mexico Statutes, and as I read the Statutes, it states that all of the oil must be produced. It doesn't permit any avoidable physical waste. And I quite agree with Mr. Puckett when he states in none of these fields will it be possible to produce all of the oil. There is some unavoidable physical waste in the production of any oil field. The question is, how best can you produce the field so that you have the least of this unavoidable physical waste. It is my feeling that the

existence of vertical fracturing in this field permits the coning of the water table under each of these wells because of the short distance to the water of the greater number of outlets in this field. If we had wells one foot apart, those cones would be so intersected it would be a flat water table coming up and drowning out the wells. But where they are so far apart, as in 80-acre spacing, the wells would be drowned out before the full 80-acres ascribed to the well can be completely drained of its oil.

(Governor Mechem called from the hearing.)

Q Now Mr. Fitting what would be the consequence of the matter you have discussed in your last answer when viewed in the light of our definition of waste?

A I think that waste can be avoided by the drilling of additional wells.

Q Would waste result by the drilling of wells on an 80-acre pattern in the manner you have just explained by your last answer?

A Yes, it would.

Q Will you proceed with your explanation of the various factors which you have considered in arriving at a conclusion as to the proper spacing in the well pattern to be employed in this field?

A Since it is obvious wells can't be drilled in this field one foot apart because you couldn't get the return of the investment on the well, the question comes down to one of economics, and that is how many wells can you afford to drill with this type of reservoir. The economics that are demanded in order to know the answers to the question I don't find in the files and records of this field. I find only the cost of wells. I have made a calculation of the pay out of a top allowable well which would be on the order of 17 months, which I - D experienced. The question is how much oil would be recovered additionally by the drilling of additional wells. In my opinion the record of the U. D. Sawyer 1-A and the fact that so much of the section had to be abandoned because it was found to be water bearing and drowned out, is full evidence of what can be anticipated in the future on the other

other wells as the water level cones up into the well bores of these other remaining water free wells.

Q Are there any other matters which you have considered and about which you would further want to advise the Commission in arriving at your conclusion as to the proper spacing pattern in this field?

A The uniform development of a field of this kind is demanded by the fact that water can cone into the wells. The present spacing pattern in the field isn't uniform. Wells would be demanded at all of the forty acre points in order that there be equal distance between all of the wells that are in the proven productive area of the Crossroads pool.

Q Now would the uniformity of spacing them tend to minimize the damage caused by the water encroachment into the two wells on the south?

A Yes, indeed it would.

Q Would you explain this to us?

A The cones of water which rise in these wells would be uniform cones. They would intersect one another in such a manner that there would be a more uniform movement of the water table into the oil bearing section of this reservoir.

(Governor Mechem returns to the room.)

There is one other matter. The present 80-acre spacing order precludes the drilling of a well in the northwest of the northeast of section 27, which is immediately north of the Mid-Continent 1-D well. Now the Mid-Continent 1-D well encountered the top of the Devonian at minus 7810, or 423 feet above the total depth of a well that was completed clean and probably close to the water. And there is evidence from the indications of the upper markers in the wells to the north that that location would be productive of oil in the Devonian. At the present time the Mid-Continent is faced with having to get an exception to the 80-acre order in order to drill that particular location because the pattern location would be in the northeast of the northeast of section 27.

Q Now, Mr. Fitting, if a prudent operator as that term is ordinarily understood in the oil and gas industry, owned the lease on the north half of the northeast of Section 27 that would include, of course, the two locations you have just mentioned. If a prudent operator owned that lease, would he, with prudence, drill a well anywhere in that 80-acre tract?

A I certainly don't want to claim that Mid-Continent isn't a prudent operator, they definitely are. But if the operator owned that tract alone and didn't have a vested interest in the reservoir I believe he certainly would drill a well there because I think it would be productive. In fact, I think I can find somebody that would be happy to spend the money to drill that lease.

Q And in your opinion it would be productive in the Devonian formation?

A Yes, sir, and it is outside the limits as shown by Mr. Ray on his map. Thus you come to one other proposition this 80acre spacing results in, and that is incomplete development of the field because the pattern location doesn't look particularly attractive, and off pattern locations require an exception, and a company like Mid-Continent owns the bulk of the field, and don't care to get the off pattern location, or presumably so, and it results in the fact that we have the situation that the field, in my opinion, isn't completely developed.

Q Do you attach any significance to the fact that the Oil Development Company made an off pattern location on the well No. 2-27?

A I don't attach any significance except to the fact that the 80-acre must run north and south on the tract which is assig ned to it. Or assume that is the case.

Q Coming down to the south of the map in section 34, would a prudent operator owning a lease in the northeast quarter of section 34, conduct any drilling operation?

A I believe I would prefer to drill, if I proposed to drill the location, which would be the northwest of the northeast

quarter.

Q South of the A-1 discovery well?

A Yes, sir.

Q And would it be in the wrong end of our present 80-acre spacing?

A Yes, sir, it would be an unorthodox location, based on the fact that the present 80-acre order requires drilling in the northeast northeast.

Q Now are there any other things shown or indicated by this map that we should discuss?

A I think not.

Q Now what other matters have you considered in qualifying yourself to answer questions today as to what is the most workable spacing pattern in the Crossroads pool.

A I have no further comment to make except that I don't believe that the current pattern is getting the full recovery of oil from the field and that the 40-acre pattern will materially increase the ultimate recovery from the field, and the fact that a well will pay out in 17 months at top allowable, the question comes to one of economics as to whether the field will support this development. And in my opinion it will.

Q Is it your opinion that the 80-acre pattern now prevailing in the Crossroads field is conducive of the production of waste?

A It certainly is.

Q Is it your opinion the 40-acre pattern would afford a more orderly and acceptable and practical development of the Crossroads reservoir?

A And that less waste would occur under a 40-acre pattern than under the 80-acre pattern.

Q Can you think of anything else?

A No, sir.

MR. HANNERS: Your witness.

CROSS EXAMINATION

BY MR. McKELLAR:

Q Since you testified last as to the economics, and it is probably foremost in the mind of the Commission at the time you testified, since one well would pay out in a period of some 17 months, you thought that was a good indication the reservoir could afford additional exploration. If I misunderstood your remarks, please stop me. Is it your opinion that the Mid-Continent 1-C drilled in section 34 paid out in 17 months or is it your opinion that the Magnolia 1-C produced in section 26 will pay out in 17 months, or is it your opinion the Oil Development Company 1-27 will pay out in 17 months?

A I would like to take the question in two parts. First, I didn't quite say what you said I said. I merely said the top allowable well in this field will pay out in 17 months, now of course those wells which you have mentioned which are dry holes are not ever going to pay out.

Q Nor are wells on any low structure - or any of the low structure wells?

A There is a question about the Magnolia not paying out.

Q Not in 17 months?

A It might not give you an immediate profit but I understand at the present time it has produced 83,864 barrels, 88,560 barrels as of the end of January, and about 172,000 barrels will pay out a $350,000 well.

Q But you have neglected the operating expense which we have incurred for the past two years?

A In making that calculation I didn't. I assumed an operating

expense of $35.00 a day or ten cents a gross barrel.

Q I just simply want to point out while some of these wells have paid out in 17 months, it is certainly no indication that any well drilled within the reservoir will pay out in that length of time?

A I agree on that.

Q It must be a goodwell, a top allowable well?

A Yes.

Q Going back to the first of your testimony, you testified in your opinion the total limits of this reservoir had not been properly defined, and probably the structure map, which was introduced as Mid-Continent's Exhibit 1, could conceivably have erroneously shown this top productive limit, is that right?

A That is substantially correct, yes, sir.

Q Assuming this map which was introduced did not properly show that limit, how would that affect the basic issue which is before the Commission, which is will one well effectively drain 80-acres?

A I merely pointed out that the present 80-acre order leads to the incomplete development of the reservoir, and particularly the Crossroads reservoir, in my opinion in the north end has not been completely developed.

Q Is it your belief that if Mid-Continent developed on 40-acre spacing, that there would be more incentive for them to step out than there is if they know they will get an 80-acre allowable if they hit an 80-acre well? Or is it because the incentive of 80-acre spacing is more conducive to exploration than the contrary?

A My answer to that is at the present time it is my understanding this field meets only a 40-acre allowable.

Q Is it your opinion that there is more incentive for an

operator to drill additional wells on a 40-acre spacing than there would be on an 80-acre spacing?

A There is certainly less risk of stepping out and of getting these dry holes that have been secured in the past.

Q And there is also less profit?

A Yes, I expect there would be less profit to the operator per well. But I also want to point out there are several 40-acre wells proven beyond question of doubt. The well in the northwest of section 27 would certainly be a proven location.

Q But the fact that the well would be productive if drilled would have nothing to do with the basic issue of whether one well will effectively drain 80-acres in this reservoir?

A Unquestionably one well in 80-acres in this reservoir will partially drain the reservoir, but we have the experience in this reservoir that wells have been drowned out by water, in my opinion, coning up, by water, before all the 80-acres assigned for that well had been produced by that well. Consequently, there would be a reduction of waste by drilling the additional wells.

Q Is it your opinion that the present producing rate 350 barrels per day is sufficient to distribute the oil water contact so as to prevent this coning of which you speak?

A I don't believe it can be handled entirely by the producing rate. The field first has to be drilled on a uniform spacing pattern, which it isn't now. Then there will be the matter of determining whether the field then can sustain a 350 rate or not.

Q It is a M. E. R. question then, I take it?

A It will be after complete development of the field. It isn't now. It is one of spacing now.

Q You testified as I understood a minute ago that the greater number of outlets in the field would ultimately recover the greater amount of oil and would avoid waste?

A Yes, sir.

Q Is it your opinion we have an effective water drive in this reservoir?

A That is unquestionable.

Q Are you aware of this book which has been published on the physical processes of oil production by Mr. Muskat?

A I have read parts of it.

Q Mr. Muskat, who, I think, has been qualified as an expert engineer before this Commission, has made a statement at page 817 of his book, "Since the energy for oil expulsion, in reservoirs in which there is a complete water drive through out their producing ranges, is provided by an excited infinite source, and as the distance of travel of the invading water in covering the oil reservoir is essentially independent of the well density, the overall physical ultimate recovery should not be materially affected by the well spacing." Is there any way to reconcile your opinions with this expression by Mr. Muskat?

A Mr. Muskat's opinionswere based entirely on uniform fields, where the water table can arise not along fissures and not along abnormally high permeability routes as appears in this field, but where your adequate permeability is segregation under the differentials permitted by gravity between oil and water. He goes on to say in the last page of his book, if I may read back to you, that the problem you have here is one that is not yet solved. "In practical operations, the well spacing would be determined -

Q Which page?

A 897. "In pracitcal operations the well spacing should be determined primarily on the basis of reservoir continuity and economic factors pertinent to the particular reservoir of interest."

Q Read on sir, the next line there please.

A That is all I want to read. You may read the rest.

MR. McKELLAR: For the record the next line, continuing, reads: "The initial well spacing plan should be made a s wide as possible."

MR. SPURRIER: If I might say something here, it is my own personal opinion that quoting from what the news reporters call it "out of context" isn't very impressive in a meeting like this. Or in a problem like this. You have to study the whole thing or read the whole chapter. A few sentences are not particularly to the point.

THE WITNESS: There is one thing though, Mr. Spurrier. Mr. Muskat has been referred to here and the basic principles on which this book is written, as he states in the book many times, certainly he is dealing with a uniform reservoir, which we are not dealing with here. And he states that on the next to the last page, and if I may read that I will stop reading from his book: Here it is on page 903, the beginning of the second paragraph. "Aside from its inherent basic complexity the physics of oil production is beset with many specific involved problems; one of the most serious of these is the treatment of the non-uniform reservoir" which is what we have here.

Q Conceding we have a fractured non-uniform type of reservoir, is it your opinion that the porosity in this type of reservoir is somewhat unlimited?

A No, indeed no. The porosity is comprised of pervious materials, although that is very small and maybe water bearing.

Q I am sorry, the permeability of the reservoir, the manner in which the oil must move through the reservoir?

A Oh, it has many cracks, and you have many fractures in here. The one well completed close to water there might have fracturin that permits the water to rise vertically in that well. The other well there may be -

Q (Interrupting) But it was in the wells in which we have the cores?

A apparently it was and apparently in the well owned by Magnolia because the well immediately showed water.

Q Will this coning or bypassing, will not the same condition occur, apply on a 40-acre spacing?

A Would you restate the question?

Q You testified that the location of one well to each 80-acres would cause bypassing or coning?

A Yes.

Q In this reservoir. Would not the same condition exist on a 40-acre spacing program?

A It will exist on any pattern. But my point is that these cones are so widely spaced that there has probably been little effect on the oil-water contact at the points far distant from the wells, and where 40-acre wells would be drilled -

Q Then I take it that the manner of spacing, that is, one well to 80 or one well to 40, would or would not affect the coning? Isn't it a question of the rate of the reservoir withdrawal, rather than the question of spacing?

A No. It is a question of both. You have to have uniform spacing of wells because around the bottom of each well there is a cone of water built up. Some of these intersect well bores, some do not.

Q As long as the reservoir was produced at a proper rate with a constant bottom hole pressure, wouldn't the water successfully flush out this oil from the cracks and crevices and vugs?

A No, sir, I don't think so. You have mistaken the static pressure in these wells for the flowing pressure. Mr. Purdum testified the productivity index varied from five to 40. That means that the flowing pressure producing 350 barrels per day varies from about 400 pounds less than the static to about 8 lbs. less than the static, so that the producing pressure, the pressure at which these wells produce, is quite variable. Those pressure drops are the things responsible for the rise in water along these fissures.

Q That is correct. And as the reservoir is drained and water

slowly comes in will not the oil be flushed into the bores of the wells?

A Not if the wells are drowned out as 1-A was by the coning of water.

Q Getting down to 1-A, you testified that a prudent operator might possibly drill a well on the north half of section 34, is that correct?

A I testified that if he wanted to drill a well there, I didn't say a prudent operator would, I said if he wanted to drill a well there he would drill in the northwest of the northeast, rather than the northeast of the northeast, which the present rule would require him to drill.

Q You are aware that section 34 isn't presently under lease by any company? It has been released and is on the market with apparently no takers.

A I didn't know it was on the market. I knew Mrs. Sawyer my client owned it.

Q At least, it isn't under lease by any of the present operators in this field?

A Which makes Mrs. Sawyer an operator as well as Magnolia.

Q She isn't an operator in the Crossroads pool?

A She owns acreage which is productive.

Q The operator, under New Mexico law, if the Commission cares to have me define the law -

MR. SHEPARD: I believe we know what the operator is.

MR. McKELLAR: I don't have any further questions of the witness.

MR. SHEPARD: Any other questions?

REDIRECT EXAMINATION

BY MR. HANNERS:

Q Mr. Fitting, I want to ask you about this book written by Mr. Muskat. Do you have some articles appearing in this book about the same subject matter we have been discussing?

A I have an article which he quotes rather freely in the book.

MR. McKELLAR: But your article isn't dealing with well spacing and the reservoir, is it sir? That is Chapter 14.

A I am not sure.

Q Do you think of anything we should go into other than the testimony you have already given?

A I think not.

Q Any matter you think we may have overlooked?

A I don't believe so.

Q Is it your considered opinion that the spacing pattern in the Crossroads field should be the normal state-wide 40-acre pattern?

A In order to prevent avoidable waste, yes.

MR. HANNERS: That is all.

MR. McKELLAR: I have no other questions.

MR. SHEPARD: Any other questions? If not the witness will be excused.

MR. HANNERS: Let me have just a moment and I think we are ready to conclude.

(Off the record.)

That is all if the Commission please.

(Governor Mechem leaves the hearing.)

MR. SHEPARD: Do you have any rebuttal?

MR. DOW: I don't know whether Mr. Millikan wants to make a statement or not. You might inquire if anybody else has any further testimony. We have no further testimony.

MR. SHEPARD: Do you have any further testimony Mr. Hanners?

MR. HANNERS: No, sir.

MR. DOW: Does the Commission want to hear argument?

MR. SPURRIER: I don't know about Mr. Shepard and I don't know about Governor Mechem but I thought perhaps you wanted Governor Mechem to hear a closing argument.

MR. DOW: As you will.

MR. SPURRIER: Yes, sir.

MR. DOW: We were just going to put it up to the Commission whether they wanted to hear a closing argument. That has been our thought all the way along.

MR. SPURRIER: It is up to you. I would be glad to listen to it.

(Off the record.)

MR. DOW: We will submit the case without argument.

MR. SHEPARD: We will wait just a minute. This gentleman might want to make a statement.

MR. DOW: Mr. Millikan, would you like to make a statement for the record.

MR. MILLIKAN: I would be very pleased to do so if the Commission will permit.

MR. SHEPARD: Go ahead and make your statement.

MR. MILLIKAN: Gentlemen, my name is Millikan, the initials are C. V. I am Chief Engineer of the Amerada Petroleum Corporation. Our company has no physical interest in this pool. We do however operate in three other pools in the State of New Mexico, and one in Texas producing from this Devonian formation. The character of the Devonian in those

pools is substantially as the Exhibits which have been submitte in this hearing in the performance of the wells and of the reservoir as a whole, being quite comparable to my understanding of the Crossroads as based on the testimony which has been presented to you today. I think there is no question that this is a water drive. In fact, it is one of the most active water drive pools of any which it has been my experience to work with. That applies not only to Crossroads but also to these other Devonian pools in each of which our company owns a majority interest. Being a very active pool and having this type of porosity and permeability as demonstrated not only by core analyses but by the actual performance of the wells, I think we can anticipate a much higher recovery of oil than we normally recover or expect to recover from reservoirs. Reference has been made a number of times in discussing these cores, and it is amply demonstrated here that the reservoir is non uniform. It is possible to reach a lack of uniformity that is so consistent over an area that it becomes uniform. In other words, we can have what I heard one time expressed as homogeneous heterogeneit (laughter) even with that there are these strata of more dense sections of the lime which will prevent or at least largely retard vertical migration of the oil through the reservoir, and the even migration is still more or less parallel to the bedding planes of the reservoir that perhaps applying less in the case of a reservoir of this type than it will in sandstone. But nevertheless still existing. The question has been raised here about uniformity of spacing. If I may comment for just a moment about 80-acre spacing, which has been proposed here and which does exist with one exception, is a uniform spacing. That is, the wells are equi-distant between each other the same as they are on a 40-acre spacing, such distance of course being greater. But nevertheless is a perfectly uniform square and spacing. I will call the attention of the Commission to Exhibits which were presented at a hearing by me on June 20, 1950 on the Knowles pool in which that is explained in some detail. I would also call the attention of the commission to th fact that the recommendation of 80-acre spacing in the State of New Mexico is new only in name. that under state wide rules wells are permitted to be placed three hundred and thirty feet out of the corner of a regular quarter-quarter section. That must then recognize then that a well located 330 feet out of the corner of a quarter-quarter section will drain an area extending through the diagonal corner of that 40, that being a distance

which is one-half of the diagonal of an area of 90 acres square, in the form of a square, I should say. That has been the fact since the first rules of this Conservation Commission, and in practice has been in effect since substantially the first, at least the first major, development in the State of New Mexico. The fact that also - that also is explained in some detail in the Exhibits referred to. That also calls attention to the fact that I believe the majority - I have forgotten the percentage - but I believe the majority of the wells in Hobbs are so located. About 28 or 29 per cent of all the wells drilled in the Monument field are so located. So that we speak of the large areas that are drained by wells when we talk of 80-acre spacing, and yet we seem to be surprised that a well will drain such a large area, still it has been in common practice in the State of New Mexico since major oil development started.

Not only that, but in these older areas which were so drilled, the permeability of the formations is very substantially less than is indicated here; and in most cases a low, or for all practical purposes substantially no, water drive. I would like to bring up another point on this drainage and movement of oil and gas through reservoirs. We seem to think there is something phenomenal about it. And yet when we get into the movement of water through a reservoir we think little of water moving over great distances. I think most people in the State of New Mexico are familiar with the Artesian water basin around Roswell in which water moves from the outcrop of that lime some distance to the west of Roswell into these wells. The effect of excessive withdrawals from these water wells has been recognized for many years. The number of wells which can be drilled is now controlled by the state, and yet that is moving through a formation which is surprisingly comparable in its characteristics with the lime reservoir samples some of which are lying on the table before you. The state engineer's recc; is show substantial interference of wells, and rather quickly, in those water wells. Much more quickly than we find normally in the oil reservoirs, for good physical reasons which I would be glad to go into if the Commission cares to go into it. And so there is no difference in the principles involved here as compared with the handling of these water wells.

Now as to the rate of withdrawal from these

reservoirs, I think the Commission might be interested in considering what has happened at Knowles. In that pool the allowable was increased, doubled from a 40-acre base to an 80-acre base effective January 1st of this year. For a few days after that those wells did make that double allowable, which at that time was somewhat less, but at present is 702 barrels per day. The capacity of those wells to produce without artificial lift has dropped now to approximately 400 barrels per well and they are producing for all practical purposes let's say wide open. I anticipate they will settle down at about that rate and we will produce, continue to produce some 1300 barrels of oil per day or perhaps a little less, for quite sometime in the future. Now, that is 1300 barrels per day from the reservoir. That is regardless of the number of wells that were there. I think it would make no difference if we doubled the number of wells and tripled and quadrupled the number of wells, I still think our production would be 1500 barrels per day.

The nature of the reservoir is such as to limit that production unless we go on with an artificial lift, which might create these higher differential pressures, and thereby tend to create physical waste or at least that is possible. In view of the fact that this reservoir has all the appearances of the same nature of the reservoir at Knowles and at Bagley and at Hightower, with which I am quite familiar, I think there is every reason to believe that the wells which are there will recover the maximum ultimate recovery of oils from those wells, from that reservoir. And will do so without physical waste. Not that they will recover 100 per cent, but they will havemuch higher than normal recovery. That drilling any additional wells may possibly take the oil out a little faster, but will not increase the amount of oil produced. I think that is all I have, gentlemen, unless there are some questions you care to ask.

MR. HANNERS: If the Commission please, after Mr. Millikan's statement, I observed Mr. Morrell sitting there. I wonder if he would care to make a statement.

MR. SHEPARD: Do you care to say anything Mr.

Morrell?

MR. MORRELL: No, sir.

MR. SHEPARD: Anyone else. If not the case will be taken under advisement and we will stand adjourned.

MR. DOW: Mr. Commissioner, I don't believe the reporter identified Mr. Buckle's statement as an Exhibit which I introduced into the record and if he will identify that(marked Exhibit 2 Dow).

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STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

I HEREBY CERTIFY that the foregoing and attached transcript of hearing in Case 149 before the Oil Conservation Commission on March 21, 1951, at Santa Fe is a true record of the same to the best of my knowledge, skill and ability.

DATED at Albuquerque, this 5th day of April, 1951.

E. E. Greeson

E. E. GREESON.

My Commission expires August 4, 1952.

EXHIBIT NO. 1 DOW:

PHILLIPS PETROLEUM COMPANY
Bartlesville, Oklahoma

March 15, 1951

In re: Hearing to Reconsider Order No. 779
Set for March 20, 1951

The Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Attention of Mr. R. R. Spurrier, Secretary

Gentlemen:

The Oil Conservation Commission of the State of New Mexico has set for hearing on March 20, 1951, the matter of reconsideration of Order No. 779 in Case No. 149 entered July 27, 1948, establishing 80-acre spacing pattern and proration unit for the Crossroads Devonian pool below 12,200 feet in Lea County, New Mexico.

As a lease owner in New Mexico and the owner of potentially productive acreage in the vicinity of the Crossroads Pool, Phillips Petroleum Company urges the Oil Conservation Commission of the State of New Mexico to retain the provisions of its Order No. 779 as issued on July 27, 1948. We respectfully submit that the Commission in this instance should give consideration to the depth of production, to the fact that the reserve in-place in the Devonian formation can be efficiently drained by one well to 80-acres, and that the drilling of more than one well to each 80-acres will, in our opinion, constitute an unwarranted use of steel in a very critical time of shortage.

We respectfully offer this statement to the Commission in support of the present 80-acre spacing order, with the additional thought that unless a well-spacing program suited to the conditions found to exist in the deep reservoirs in New Mexico can be obtained, there will be a decline in exploration for and development of those deeper reservoirs.

EXHIBIT 1 DOW (continued)

Yours very truly,

s/ C. P. Dimit
C. P. Dimit

CPD:MN
CC Mid-Continent Petroleum Corporation
Tulsa, Oklahoma
Attention of Mr. A. E. Pierce

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EXIBIT NO. 2 DOW

Statement by Mr. Cecil R. Buckles, attorney for Sinclair Oil and Gas Company.

The transcript of the proceedings in this matter on November 21, 1950, does not quite reflect my exact statement at that hearing. What I said then and desire to place in the record now is that at the risk of burdening the Commission with a "me to" position on behalf of our company, we desire the record to show that Sinclair Oil and Gas Company as an operator in New Mexico is vitally interested in there being established and maintained in the state, spacing of one well to 80-acres where it is shown that such 80-acre spacing will adequately drain the formation without injury to the correlative rights of parties in interest.

Sinclair has no acreage within the limits of the Crossroads Pool and we were not present at the first hearing in this matter in July, 1948 but at the November 21, 1950 hearing we suggested that the high cost of drilling and completing wells to the depth of 8 to 10 thousand feet, being in the neighborhood of 3 to 5 hundred thousand dollars could be a factor resulting in less wells being drilled even on 40 acre spacing. We made a similar statement at the hearing on the Knowles pool.

Now subsequent events in our national affairs adds the necessity of giving gave consideration to the conservation of tubular steel in the oil development program where conditions permit and with this our company is in full accord.

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BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

In The Matter Of:	
Special Hearing December 19, 1951: A rehearing on Case 149 is set for 10 a.m. at Mabry Hall, Santa Fe, New Mexico, on this date. Mid-Continent Petroleum Corporation, Magnolia Petroleum Company and others, have asked recision of Oil Conservation Commission Order R-100 relating to spacing in the Crossroads Pool, (Lea County, New Mexico).	Case No. 149 (Rehearing)

TRANSCRIPT OF HEARING

BEFORE:

Hon. Edwin L. Mechem, Governor

Hon. R. R. Spurrier, Secretary and Member

Special Hearing
December 19, 1951

REGISTER

W. E. McKellar, Jr.	Magnolia Petroleum Company
J. H. Crocker	Mid-Continent Petroleum Corporation, Tulsa
Hiram Dow	Roswell, New Mexico
E. C. Iden	Albuquerque, New Mexico
E. A. Paschal	Oil Development Company of Texas
John W. Strayhorn	Magnolia Petroleum Company
Frank Purdum	Subsurface Engineering Company
E. J. Pierce	Mid-Continent Petroleum Corporation, Midland
M. B. Penn	Mid-Continent Petroleum Corporation, Tulsa
R. E. Murphy	Magnolia Petroleum Company, Roswell, New Mexico
John Major	Oil Development Company of Texas
Glenn Staley	New Mexico Oil and Gas Eng. Committee, Hobbs
Lewis H. Bond	Stanolind Oil and Gas Company, Fort Worth
Jack M. Campbell	Self
Emmett D. White	Leonard Oil Company, Roswell
Charles C. Lawrence, Jr.	New Mexico Oil and Gas Association, Roswell
Cecil R. Buckler	Sinclair Oil and Gas Company, Tulsa, Oklahoma
R. S. Christie	Amerada Petroleum Corporation, Tulsa, Oklahoma

R. S. Dewey	Humble Oil and Refining Company, Midland, Texas
C. J. Ray, Jr.	The Texas Company, Fort Worth, Texas
Mrs. U. D. Sawyer	Crossroads, New Mexico
U. D. Sawyer	Crossroads, New Mexico
Elvis A. Utz	Oil Conservation Commission, Santa Fe
Jason Kellahin	Oil Conservation Commission, Santa Fe
George Graham	Oil Conservation Commission, Santa Fe
L. C. White	Oil Conservation Commission, Santa Fe

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MR. SPURRIER: Meeting will come to order, please.

The only case we have on the docket today is Case No. 149.

(Mr. White reads the Notice of Publication.)

MR. DOW: If you will indulge me just a minute, I would like to state to the Commission our position in this matter and to recount in a way the orders which the Commission has entered in this case from the beginning. In order to be as brief as possible I have written out a statement containing about 50 pages which I would like to refer to and say to the Commission that the Magnolia Petroleum Company; Oil Development Company of Texas; Santa Fe Pacific Railroad Company and Mid-Continent Petroleum Corporation appear before you today pursuant to an application

for rehearing in the matter of oil well spacing in the Crossroads Devonian Reservoir, Lea County, New Mexico, and the Commission's order of November 9th, 1951, granting a rehearing and setting the cause down for a special hearing on this date. These petitioners or applicants for rehearing desire to thank the Commission for granting a rehearing and giving the matter a special setting on this date. We shall try to cooperate with the Commission by being brief as possible consistent with what we believe to be a proper presentation of our side of the case and shall also try to not unduly burden the record.

We shall now enter our appearances in the record as follows: Oil Development Company of Texas and Santa Fe Pacific Railroad Company are represented by Mr. E. C. Iden of the firm of Iden and Johnson, Albuquerque; Magnolia Petroleum Company and Mid-Continent Petroleum Corporation are represented by Mr. Hiram Dow of the firm of Hervey, Dow and Hinkle, Roswell, with W. E. McKellar, Jr., Dallas, Texas specially appearing for Magnolia Petroleum Company, and J. H. Crocker, Tulsa, Oklahoma, specially appearing for Mid-Continent Petroleum Corporation.

Oil Development Company of Texas, Magnolia Petroleum Company, and Mid-Continent Petroleum Corporation are oil and gas lessees and own and operate all wells presently producing oil from the Devonian Reservoir in the Crossroads Pool in Lea County. Santa Fe Pacific Railroad Company owns approximately 50 per cent of

the royalty in the Crossroads Pool and it supports the position of the oil and gas lessees in this matter and as above stated it is represented here today by Mr. Iden.

We do not attempt to flatter ourselves to the extent of thinking that the references we shall hereafter make to Chapter 168 of the Laws of New Mexico, 1949, shall be informative to the Commission. We realize that you gentlemen who have been connected with the Commission for some time have read and studied the Chapter so many times you can very largely repeat the language employed throughout the text word for word verbatim. However, for the purposes of the record in this case we deem it necessary for us to make frequent reference to Chapter 168 and apply, as best we can, its clear provisions to the evidence disclosed by the reporter's transcripts. Therefore, the Commission will understand our motives and we seek your reasonable indulgence in our effort to develop both the law and the evidence.

We might state for the record that the Crossroads Pool in Lea County, New Mexico, has been drilled and developed in the Devonian formation on the basis of and pursuant to an 80 acre pattern for the spacing and drilling of such wells, which order is defined in Case 149 as order number 779, dated July 27, 1948, with the exception of one well to which we shall later refer. At the time this order was promulgated and entered Governor Thomas J. Mabry and Messrs. John E. Miles and R. R. Spurrier

constituted the membership of the Oil Conservation Commission of the State of New Mexico.

The next order of the Commission, pertaining to the matter of 80 acre pattern for well spacing and drilling in the Crossroads Pool, was promulgated and entered by the Commission on January 11, 1950. The effect of this order in Case number 203, order number R-1, was to preserve the 80 acre spacing pattern in Crossroads Pool but to grant unto the Santa Fe Pacific Railroad Company and Oil Development Company of Texas an exception to the pattern provided by order number 779. Governor Thomas J. Mabry was then chairman of the Commission and Messrs. Guy Shepard and R. R. Spurrier were members of the Commission.

The next order promulgated and entered by the Commission in this matter was done on October 27, 1950. This order was in the nature of a citation levelled at the lessors and the oil and gas lessees having interests in the producing area of the Crossroads Pool to appear on November 21, 1950 at a public hearing called for the purpose of showing good cause why order 779 should not be cancelled and rescinded. At the time this order or citation was entered on October 27, 1950 and on the occasion of the hearing held on November 21, 1950 Governor Thomas J. Mabry was chairman of the Commission and Messrs. Guy Shepard and R. R. Spurrier were members. The citation just referred to apparently was issued by the Commission at the

instance and request of Mr. and Mrs. U. D. Sawyer through their attorney, Mr. G. T. Hanners of Lovington, New Mexico.

Following the aforesaid citation and the hearing on November 21, 1950 the Commission issued another order or citation to appear before the Commission again on March 21, 1951 for further hearing based on the original citation of October 27, 1950. The parties so cited appeared again before the Commission on March 21, 1951, at which time the last hearing was had. At the time of the March 21, 1951 hearing the membership of the Commission consisted of Governor Edwin L. Mechem, as chairman, and Messrs. Guy Shepard and R. R. Spurrier as members. Thus, it will be observed that Mr. Spurrier is the only member of the Commission who has participated as such in all of the orders and hearings referred to. It is for that reason the applicants or petitioners for this rehearing feel impelled to review, to some extent, the law and the evidence from the date of the original spacing order number 779 (July 27, 1948) to the time this Commission promulgated and entered its order on October 15, 1951 in Case number 149 (order number R-100) attempting to rescind the original order 779, Case number 149 dated July 27, 1948.

Under Chapter 168 of the Laws of New Mexico, 1949, the Oil Conservation Commission was delegated certain prescribed powers and its duties with respect to the administration of such powers were defined. The Act also prescribed certain inhibitions

and limitations beyond which the Commission was denied authority to act. Under Section 3 of Chapter 168 of the Laws of New Mexico, 1949, the Oil Conservation Commission was created as a statutory body. Under Section 9 of this Law, the Commission is empowered and ordered to prevent waste, as defined in the Conservation Act, and to protect correlative rights. These are the only legal bases for any action which the Commission might take under the law creating the Commission and any and all orders of the Commission to be legal must be designed either (1) to prevent waste, or (2) to protect correlative rights.

Section 13 of Chapter 168, Laws of 1949, sometimes herein referred to as the Conservation Act, reads as follows:

"No owner of a property in a pool shall be required by the Commission, directly or indirectly, to drill more wells than are reasonably necessary to secure his proportionate part of the production. To avoid the drilling of unnecessary wells a proration unit for each pool may be fixed, such being the area which may be efficiently and economically drained and developed by one well. The drilling of unnecessary wells creates fire and other hazards conducive to waste, and unnecessarily increases the production cost of oil or gas or both to the operator, and thus also unnecessarily increases the cost of the products to the ultimate consumer."

Section 13, paragraph (e) of the Conservation Act is as

follows:

"Whenever it appears that the owners in any pool have agreed upon a plan for the spacing of wells, or upon a plan or method of distribution of any allowable fixed by the Commission for the pool, or upon any other plan for the development or operation of such pool, which plan, in the judgment of the Commission, has the effect of preventing waste as prohibited by this act and is fair to the royalty owners in such pool, then such plan shall be adopted by the Commission with respect to such pool; however, the Commission, upon hearing and after notice, may subsequently modify any such plan to the extent necessary to prevent waste as prohibited by this act."

The record in this case shows that all oil and gas lessees owning leases in the Crossroads Pool did agree upon a plan for the development of the Pool. This plan was fully explained to the Commission and all interested parties on July 19, 1948. There was no objection or opposition lodged against the proposed plan by either royalty owners or operators and the Commission thereupon promulgated and entered the original spacing order number 779 adopting conventional 80 acre spacing for the Pool. Thereafter, the Pool was orderly developed on the plan created by the Commission. All wells producing from the Devonian formation in the Pool are spaced on the plan prescribed with the exception of one well drilled by the Oil Development Company of

Texas in the southeast quarter of the northwest quarter of Section 27.

At this time (three and one half years after the original spacing order) at least 10 wells have been completed in the Devonian Formation in the Crossroads Pool and operations have started for the drilling of the eleventh well. It is our contention that this Pool has been and is being developed in an orderly, prudent and efficient manner and the best of faith has obtained on the part of all operators in the Pool. No one will, or can, deny the fact that several millions of dollars have been expended in the drilling of seven Devonian Formation producers and three dry holes. These millions were spent and these wells were drilled by the operators in solemn reliance upon the integrity of an order made by the duly accredited representatives of the Sovereign State of New Mexico and the order thus became act of the State. Let us pause for a moment to see what the State of New Mexico told us three and one-half years ago. I shall quote just a few excerpts. I am now quoting as follows:

"That it is the intention of this order to cover all wells now or hereafter drilling to and producing from the common source of supply from which the discovery well as above described has been drilled to and is now producing from, whether within the probable area as above delineated or any extension thereto, so as to insure a proper and uniform spacing, developing, and pro-

ducing plan for all wells in this common source of supply.

"3. That due to conditions established by the aforesaid discovery well, the Commission finds it advisable to amend and supplement its present rules, regulations and orders to properly cover the question of development of leases and spacing of wells now or hereafter drilling to, into and producing from the Devonian formation, encountered at a depth below 12,000 feet in the Crossroads Pool.

"4. That the present rules, regulations, and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping, and operating of wells to the new common source as found in said above described well and, therefore, the general Statewide Rules and Lea County Rules should remain in full force and effect except as hereinafter modified, amended or superseded.

"5. That the Devonian formation, as found in the discovery well below 12,000 feet, is a common source of supply which should be drilled and developed on a program other than that normally followed under the present rules, regulations, and orders of the Commission, particularly Order No. 637, effective March 1, 1946, with respect to units of proration, spacing and assignment of allowables, because of the depth of such wells, the time necessary to drill, and the high costs attached thereto, in addition to the hazards and scarcity of materials.

"6. That in the interest of the State of New Mexico and in the interest of the general public, encouragement should be given to operators to explore and develop the natural resources of the State by the establishment of a proper and equitable spacing and development program."

Quotation closed. Based on the quoted findings of the Commission, it made its order consonant therewith. The operators have kept faith with the order and relied on it and spent their money and thereby created and acquired substantive rights. In the face of this it seems inconceivable that the creator of the order should back away from its solemn act or at least show an obvious disposition to do so. It is the plain duty of the State of New Mexico, as with any other state of the Union, to stoutly defend its official acts and orders against attack. The Commission distributed the complaint filed herein to the operators on or about October 19, 1950 with this kind of command. You said in effect to us that you (the Commission) were going to reconsider the original spacing Order (779). This much we find no fault with, but you further said to us in effect you were ready to rescind and cancel the order unless we should appear and show good cause why the order should not be rescinded and cancelled. Since the complaint of Mr. and Mrs. Sawyer did not even contain requisite allegations to vest jurisdiction, it certainly seems to us that the Commission clearly erred in not telling the com-

plainants that the State of New Mexico would support and defend its order until they should "show good cause" why you should rescind and cancel. However, you chose to handle the matter in exact reverse. The operators responded to your citation and appeared on November 20, 1950. We stressed seriously as your records show that the complaint of Sawyers should be dismissed. We further stressed with equal seriousness that if you were not ready to dismiss the complaint on the ground of lack of jurisdiction, that the burden of proof should rest with the complainant. We here and now reassert error on the part of the Commission in not dismissing the complaint for lack of necessary allegations to vest jurisdiction. We further reassert error on the part of the Commission in not promptly ordering the complainants to produce their proof to show why the State of New Mexico should abandon and abdicate its solemn Act. The operators advised the Commission of their desire to cooperate and that they had brought witnesses to Santa Fe at some considerable expense and would be willing to put their witnesses on the stand to give the Commission all evidence in their possession relating to the reservoir performance in the Crossroads Pool. This was done by the operators without thereby waiving the purely legal points which had been previously stressed and as referred to. Qualified witnesses testified as this Commission knows. The Commission further knows as the record shows that the testimony was uncon-

tradicted. The complainants offered no testimony whatsoever at the Hearing held on November 20, 1950. After operators' witnesses had finished testifying on both direct and cross, the witnesses were offered to the Commission, for further questioning. Despite this record, we received another command from the Commission to again appear on the 21st day of the following March. The Commission had decided it wanted more information. The operators complied again and offered testimony, cores, and other exhibits. Five highly qualified witnesses testified and by a preponderance of substantial evidence clearly established, we believe, (a) that one well in the Devonian Reservoir in Crossroads Pool will adequately, effectively and efficiently drain more than an 80 acre area and thereby deplete in an orderly manner the reservoir; (b) that the correlative rights of all interested parties will be protected by the well spacing pattern created by this Commission under its order made July 27, 1948. The complainants at this Hearing on November 20, 1951 offered one witness. Their witness agreed with our witnesses that the energy of the Crossroads Pool is a water drive. Next comes the order of the Commission dated October 15, 1951 (order R-100) attempting to rescind and cancel the original spacing order. Let us particularly look at Finding No. 5 of this order, which reads "that there was substantial evidence, though controverted to some extent, that waste and impairment of correlative

rights will result if 80-acre spacing as provided for in Order No. 779 is continued in effect." We stoutly believe and therefore maintain that the Commission again erred in making such an order as was made October 15, 1951 in that the order is in disregard of substantial evidence introduced at the Hearings by the operators and that by a great preponderance thereof the State of New Mexico should not strike down its order No. 779, in view of the law and the facts in this case. The Commission apparently entertains the impression that Section 8 of its Order 779 gives it the right to destroy substantive rights and property rights and vested rights through its language employed in said Section 8 which reads as follows: "The Commission retains jurisdiction in this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude inequities, and preserve correlative rights, etc." We think State and Federal Courts and Regulatory Bodies in other oil producing states have answered this question. In the event good cause is shown to a Regulatory Body for the granting of an exception to an order it has made under which substantive rights have become established and vested, such an exception may be granted after notice and hearing and in case of oil wells in a pool which has been developed under a spacing pattern the Body has authority to make equitable adjustments in allowables in order to protect correlative rights. This rule has been sus-

tained as being reasonable and right and within proper scope of a Regulatory Body. It is in accord with the dictates of justice. This is the view this Commission took when it granted an exception to the Oil Development Company of Texas and the Santa Fe Pacific Railroad Company. However we come again after being granted a rehearing and voluntarily assume the burden through the introduction of further testimony supplementing that already adduced, of proving to the Commission that no waste is occurring and no correlative rights are being impaired.

We appreciate your indulging us to include this statement in the record and set forth before the Commission at the outset our views in the matter. We are coming here again today to supply additional evidence in the light of what has transpired since the last order has been entered. We wish to show the Commission that there is no waste in the manner in which this pool is being developed and that certainly no correlative rights are being impaired. We are ready to go ahead and carry the burden. We maintain we really have been acting in the reverse in this matter all the way through. We still want to cooperate with the Commission and thank them for giving us the rehearing. We are ready.

MR. SPURRIER: You may proceed.

MR. DOW: Mr. McKellar of Dallas is going to question the expert and technical witnesses.

MR. McKELLAR: I would like Mr. Penn, and Mr. Purdum, and Mr. Strayhorn to come forward to be sworn.

This rehearing was applied for principally on two findings which the Commission made in issuing Order R-100. That to the effect that waste to correlative rights would result if the 80-acre spacings was continued in effect. I will attempt to show by the witnesses that the finding is erroneous. The second point I will attempt to prove is that the pressure is being maintained in the field.

I will call as my first witness Mr. Penn.

M. B. P E N N,

having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. McKELLAR:

Q Will you please state your name?

A M. B. Penn.

Q Your position?

A Chief petroleum engineer for Mid-Continent Petroleum Corporation.

Q You are the chief petroleum engineer for the Mid-Continent Petroleum Corporation?

A That is right.

MR. McKELLAR: Mr. Penn's qualifications have been presented before the Commission in previous hearings. If there is no objec-

tion I will not go into his qualifications.

MR. HANNERS: We admit his qualifications.

Q Do you have a map showing the present development of the Crossroads Pool?

A Yes, I do.

MR. McKELLAR: That is the map I have already presented to the Commission.

Q Mr. Penn, will you briefly explain what this map shows?

A This map is a copy of an exhibit that was presented at the March hearing that we have brought up to date to show two new wells. One is a drilling well and one is a completed well. It shows the Magnolia 1-B Santa Fe Pacific that was completed in September 1951 in the northwest quarter of Section 26. The drilling well of Mid-Continent Petroleum Corporation which is called UD Sawyer 1-E, which is located in the center of the northeast quarter of the northeast quarter of Section 7, and is today a drilling well.

Q That is a true overall picture of the locations, both dry hole drilling wells and producing wells as now appears in the Crossroads Devonian Reservoir?

A As of this date today.

MR. McKELLAR: I would like to introduce a copy of that in the record.

A You may have this copy.

(Marked exhibit.)

Q Mr. Penn, at the last hearing we had what we called a performance chart entitled Exhibit 9. Has this chart been brought up to date?

A Yes, it has.

Q Do you have some copies of that with you?

A Yes, I do.

MR. McKELLAR: We would like to introduce a copy of the chart as our Exhibit 9B. It is our old Exhibit 9 simply brought up to date.

MR. HANNERS: We have no objection.

Q Mr. Penn, will you briefly explain to the Commission what this chart portrays? First explain the time that each well was completed in this reservoir as portrayed by this chart.

A The chart shows that on curve which has been named number of wells that the discovery well was drilled and completed in May 1948, which is Mid-Continent 1-A Sawyer. January 1949 Magnolia 1-C Santa Fe Pacific was completed. In February of 1949 Mid-Continent No. 1 Dessie Sawyer was completed. In August 1949 Mid-Continent 1-D Sawyer was completed. In October 1950 Oil Development Company 2-27 Santa Fe Pacific was completed. February 1951 Mid-Continent 1-C Sawyer was completed. And the last completion was in September 1951, which is Magnolia 1-B Santa Fe Pacific, which I described in discussing the map.

Q This Magnolia No. 1 Santa Fe Pacific has been completed since the last hearing on this matter was held?

A Yes, I believe it was started following the last meeting in April and completed in December.

Q This chart does not show the well which the Mid-Continent is now in the process of drilling to the Devonian?

A That is correct.

Q What does the chart portray as to cumulative oil production as of October 1, 1951?

A From the cumulative oil curve we can see that approximately one million barrels of oil have been produced. The exact figure is 1,007,584 barrels. That is to October 1, 1951.

Q 1,000,700?

A 1,007,000.

Q 1,007,000?

A Yes.

Q What is the daily average oil production, Mr. Penn, as shown by the chart as of October 1st?

A The daily average oil production is 1,700 barrels.

Q Mr. Penn, the next line on this chart to which I direct your attention is at the top of the page. There is a line the datum pressure. Would you please explain to the Commission briefly just what you mean by this datum pressure line?

A The datum pressure is a curve drawn through the points which

are bottom hole pressures taken at a datum plane in the reservoir.

Q From this chart then the first point on your datum pressure curve would indicate the reservoir pressure as of the date of the completion of the discovery well, the one Sawyer 1-A well.

A Very shortly thereafter.

Q That is what, Mr. Penn?

A That is 4,874 pounds.

Q The bottom hole reservoir pressure of the discovery well shortly after the completion was 4,874 pounds?

A That is correct. We call that the original reservoir pressure.

MR. McKELLAR: I wish to direct the Commission's special attention to that because that is an important point in maintaining whether or not the petitioners have maintained a reservoir pressure in this Devonian Reservoir.

Q In previous hearings you have testified that a strong active water drive is present in the reservoir. Has your opinion on this point changed any since the last hearing was held?

A I have found no evidence to change my opinion.

Q You are still of the opinion that a strong active water drive is present?

A That is correct.

Q Mr. Penn, as I understand it all the engineers that have

testified in the matter have concluded that a strong active water drive is present, is that correct?

A That is correct.

Q Well, I won't go into that any further. Will you please review the wells of Mid-Continent that are making water in this reservoir at the present time?

A There are two wells at the present time that are making water that are owned by Mid-Continent. The Mid-Continent 1-A Sawyer which is the discovery well is making water and the Mid-Continent No. 1,Dessie Sawyer No. 1 well.

Q Your No. 1-A well is making water at the present?

A That is correct.

Q Has your company conducted any study of this well or made any changes in your operating practices or equipment recently in attempting to reduce this amount of water?

A At the present time we are installing a new type of pump on this well as a result of the experiments of the Magnolia on their No. 1-C Santa Fe Pacific. Previous to this installation we have changed the position of the bottom of the tubing. Let me change that. We have lowered the tubing in the well which slightly changed the operating conditions as to oil and water.

Q Did that improve your oil-water ratio?

A For a short time, yes.

Q And you are now in the process of trying to improve it still

further?

A Our idea in putting the pump on, it is called a long left pump, a pump with a 24-foot stroke, is to remove more fluid from the well with the hope that we will increase the daily average oil production.

Q Is the presence of this water in your A-1 well any indication of coning or any indication that any of the producing oil formation is being drowned out, in your opinion?

A It indicates to me that water is now being produced that originally displaced oil that had been produced. The well has never been drowned out and has been producing about the same amount of oil and water since the workover.

Q Is it unusual in your experience as chief petroleum engineer of Mid-Continent to find a well producing water in this type of a water-drive reservoir?

A We would expect that to happen.

Q That would, in your opinion, be more or less normal procedure?

A That is correct.

Q In your opinion is any waste occurring underground, waste damage to the reservoir, in the 1-A well?

A The production of oil and water in a fairly uniform ratio in this type of reservoir does not indicate waste to me. This well, I might say, has produced to date 145,612 barrels of oil.

Q Mr. Penn, are any other Mid-Continent wells making water? You mentioned you had two. What other wells?

A No. 1 Dessie Sawyer which is located in the southwest quarter of Section 27.

Q Approximately how much oil, clean oil, did this Dessie well produce before it began making any appreciable amount of water?

A Approximately 230,000 barrels.

Q Did your company take any action to try and remedy the water condition when the Dessie well began to make water?

A When the well first showed water we cut the production back because we didn't know where the water was coming from, whether we had a hole in the pipe, or whether we were producing formation water, or exactly what might be occurring. We cut the production back and eliminated the production of water.

Q How do you explain this water in this Dessie well which is a well high on structure, Mr. Penn?

A It has been our experience in the operation of faulted reservoirs that wells located near the fault may start making water early in the life of the field regardless of their position on the structure with respect to the water-oil contact.

Q As I understand your opinion then, Mr. Penn, your company has experienced this condition in other wells in other fields which were located, although they were high wells, where they were located or adjacent to a fault line have begun to make water

early and a well which was located lower on the structure but considerable difference away from the fault?

A That is correct.

Q This is nothing unusual in your experience?

A I believe not.

Q In your opinion does this indicate any evidence of coning or drowning out of any of the producing formations in this well?

A I don't know what path the water followed that was produced from the well. I am inclined to believe from our past experience that it came from a fault plain to the well bore.

Q Came up the fault to the porous formation and then across into the well bore? In simple terms is that more or less your position?

A Yes, sir.

Q In your opinion is any waste occurring in this Dessie well?

A No. I wouldn't say it was waste to produce water with oil in such a reservoir as we have here.

Q Nothing unusual in your experience in this type of situation?

A That is correct.

Q In your opinion, Mr. Penn, as a result of your studies, do you think one well will effectively drain 80 acres?

A Yes, I believe one well will drain more than 80 acres in this reservoir.

Q Just briefly will you refresh the Commission's mind upon the

basis of your conclusion?

A The Commission will remember that we brought a number of cores in and showed the porosity and the permeability. We have discussed at length the effectiveness of the water drive as shown by the datum pressure curve which indicates a small loss in bottom hole pressure. That small loss in bottom hole pressure is evidence that our conclusions drawn from the porosity and permeability as to drainage are true. I would further refresh the Commission's memory concerning the interference tests we discussed at the last hearing.

Q Do you have any other points, Mr. Penn, upon which you base your conclusion that there is an inter-connected source or an inter-connected channel for this oil in this reservoir?

A The new wells as they are completed in the field have not had the original bottom hole pressure of 4,874 pounds. As a matter of fact, the point shown on the curve in the month of November 1951 of 4,854 is 20 pounds less than the original bottom hole pressure and is the pressure found in the newly completed Oil Development Company 2-27 Santa Fe Pacific well. This is 20 pounds less.

Q You mean Oil Development or Magnolia?

A Oil Development 2-27 Santa Fe Pacific. This is the average pressure which then existed throughout the reservoir.

Q Mr. Penn, much has been said in this --

A (Interrupting) Would you let me make one more remark? Strike his statement and let me make one more comment? We will present a lengthy discussion after a while from another witness on the bottom hole pressure datum curve and will show that the bottom hole pressure found in Magnolia 1-B Santa Fe Pacific is also the average bottom hole pressure of the field rather than the original bottom hole pressure.

Q Am I to understand that the Magnolia well completed in September of this year came in at approximately the average reservoir pressure and some 20 pounds less than the original bottom hole pressure of the reservoir?

A That is correct.

Q To you that is conclusive evidence that there is an interconnected channel for the oil throughout the reservoir?

A That indicates to me that the oil is in a state of equilibrium in the reservoir as to the pressure which can indicate nothing but drainage to the producing wells.

Q Mr. Penn, much has been said in previous hearings on this subject and regarding correlative rights in this pool. I realize this term is more or less a legal concept. Briefly, it simply means the opportunity afforded each owner of property in a pool to produce his just and equitable share. That being the share he should receive in proportion to his acreage in the pool. It is obvious from a brief review of the map that Mr. and Mrs. Sawyer

own approximately 60 per cent of the acreage in this reservoir, that is the proven or developed acreage. You have testified that we presently have seven producing wells in this reservoir. How many of these seven wells are on property under which Mr. and Mrs. Sawyer own the mineral rights?

A Four wells.

Q The Sawyers presently have four of the seven producing wells?

A Yes, and they own the minerals under it, yes and the well presently being drilled, Mid-Continent 1-EDU Sawyer is drilled on land on which they own the minerals.

Q They have four of the seven with a possibility of having five out of eight?

A That is correct.

Q Or approximately 60 per cent of the producing wells are now on their property?

A That is correct.

MR. SPURRIER: Where is the well that is drilling now?

MR. McKELLAR: It is in northeast of 27.

Q Mr. Penn, how much of this oil has the Crossroads Reservoir produced as of October 1st?

A 1,007,584 barrels.

Q 1,007,584 barrels?

A Yes.

Q What does the one-eighth royalty of this oil amount to?

A 125,948 barrels, or figured at $2.65 a barrel,$333,762.

Q There has been approximately $333,762 paid to royalty owners in this pool as their one-eighth share, is that correct?

A That is correct.

Q What portion of this $333,762 has been paid to Mr. and Mrs. Sawyer?

A Approximately $224,000.

Q $224,163 out of an approximate $333,762?

A That is right.

Q That is approximately 70 per cent, is that correct?

A That is 67 per cent.

Q 67 per cent of the overall royalty has been paid to Mr. and Mrs. Sawyer?

A That is correct.

Q Is this all the revenue that the Sawyers have received from their royalty?

A It is my understanding that they sold approximately one-twelfth of their royalty for $100,000.

Q Then they have already received approximately $324,000 for their royalty?

A That is correct.

Q Do you have any figures as to the current monthly income of Mr. and Mrs. Sawyer from this pool?

A According --

Q (Interrupting) Royalty alone.

A According to the figures of the purchasing company they received $9,217.24 for the oil produced in October 1951. The total for the three month period of September, October, and November of 1951 is $25,546.32. This is for the approximate 11/12 of one-eighth owned by the Sawyers. In other words, after they had sold approximately one-twelfth of their one-eighth.

Q In other words, Mr. Penn, their income, monthly income, currently from royalty alone on the four producing wells on which they own a royalty is approximately $8,000 to $9,000 a month?

A That is correct.

Q Mr. Penn, in your opinion is the pressure presently being maintained in this reservoir?

A The water drive is maintaining the pressure in this reservoir. As a barrel of oil is produced a barrel of water moves into the reservoir. If this did not happen a rapid decline in bottom hole pressure would occur because of the low gas-oil ratio that exists in this reservoir, there being no gas expansion to take place and displace the barrel of oil that has been removed provided there was no water drive, but since there is a water drive, a very effective water drive in this reservoir, a barrel of water displaces each barrel of oil that is produced so that the pressure is maintained.

Q The pressure is being maintained in this?

A That is correct.

Q Mr. Penn, are there any other points that you would like to bring to the Commission's attention?

A I believe not, unless the Commission has something they would like to ask me.

MR. McKELLAR: Unless the Commission has some questions to direct to the witness I turn him over to Mr. Hanners.

MR. HANNERS: If the Commission please, we had not intended to appear impoverished.

CROSS EXAMINATION

By MR. HANNERS:

Q You are aware of the fact, are you not, that the first order made back in July of 1948 was made on the major premise that four sections of land would all be productive of oil from the Devonian formation? That four sections being the four sections that was described in the information filed by the Sawyers?

Mr. Penn, when the information in this case was filed by the Sawyers there was an exhibit attached to it that covered a four section area. Are you familiar with the fact that the four sections there described are the same four sections that were described in the original order made back in 1948?

A I believe that is correct.

Q Are you also familiar with the fact, Mr. Penn, that the order

made in 1948 was made on the assumption that the four section area would all be productive of oil from the Devonian formation?

A I don't recall that fact.

Q The original order did cover the full four sections, didn't it?

A Yes, it did.

Q At our hearing in March I believe that you and other engineers and geologists testified with reference to a map that you introduced as your Mid-Continent Exhibit No. 1. At that time you had an extra copy and I believe one is in the Commission's file and one is here. At our hearing in March, isn't it true, Mr. Penn, that the geologists and the engineers testified that the red line on Mid-Continent Exhibit No. 1 represented the productive area of the Crossroads Devonian field?

A They did that, yes.

Q You subscribed to that same statement at that time, didn't you, Mr. Penn?

A I don't recall whether or not I subscribed to it. It was the evidence presented by the geologists.

Q Will you take my pencil, please, and draw on my copy of Exhibit No. 1 the approximate location of the new Magnolia well in the northwest quarter of Section 26?

A Approximately there. (Witness complies.)

Q You have drawn the location of the Magnolia 1-B well in the

southwest of the northwest of 26 at the outer edge of your red circle which had been previously drawn on the map indicating the boundaries of the field?

A Yes.

Q Do you have the information, Mr. Penn, as to the depth at which the Magnolia well encountered the Betenbaugh lime in the Devonian formation?

A No, sir, I don't.

Q Do any of the witnesses with you today have that information?

MR. McKELLAR: We have it.

MR. HANNERS: I would like for one of the witnesses to show the corresponding depths that the Betenbaugh lime was encountered in the last well.

MR. McKELLAR: Be glad to do it.

Q Draw on the map the Mid-Continent Sawyer well described as, I believe, in the northeast quarter of Section 27.

A (Witness complies.)

Q Mr. Penn, the location of your company's Sawyer E well is some distance beyond the red circle which you had previously used to indicate the boundaries of the Devonian field, is that correct?

A That is correct.

Q Do you now concede, Mr. Penn, that the statement of yourself, if you made it, and the statement of the other engineers and

geologists at the March hearing as to the limits of the Devonian field were in error?

A Yes, sir.

Q Are you able to extend the contours that are shown on this map in a direction northerly so as to include the location of your E well and so as to include the Magnolia 1-B?

A I haven't done that.

Q Will there be one of your witnesses here today capable of doing that?

MR. McKELLAR: May I interrupt. We have a geologist who can testify to the Magnolia well, he being a Magnolia geologist. He can not testify as to what basis the Mid-Continent used in locating their present location. As a matter of fact, as was brought out in the last hearing, I don't think that the geologist, certainly not your geologist and not the Magnolia geologist, who did not testify, I don't think he has closed that on the north. In other words, it is open to get the correlation of the well now being drilled.

Q Mr. Witness, are you able to close the boundaries or the limits of the Devonian field now on the north or on the east?

A No, sir.

Q At the time of our hearing in March the geologist and engineers had closed all of the boundaries of the Devonian field excepting only the engineer Mr. Fitting, isn't that true?

A As I remember, that is correct.

Q So we have a basic error then in the testimony of the engineers and geologists who testified for your company and others in our hearing in March, is that correct?

A I wouldn't use such strong language if I were going to say it. I would say we had a basic revision in the evidence we presented because of the fact that another well has been completed in the reservoir.

Q Didn't you also testify at the March hearing, Mr. Penn, as did the other engineers and geologists, that the Dessie Sawyer well located in the northeast of the southwest of 27 was high on the structure?

A Yes, sir.

Q And would be the last well to make water?

A I don't recall that testimony.

Q Do you recall the testimony that the wells in a water-drive field, that the wells high on the structure will ultimately produce more oil than the wells out on the flanks and wells out on the flanks will go to water first?

A You are reading, I believe, from the transcript of the last hearing.

Q That is correct.

A What page is that?

Q The testimony of the first witness, Mr. Ray.

A What page of your copy?

Q Page 12. If such was the testimony at the March hearing and if you have now encountered water in the Dessie Sawyer well, Mr. Penn, what would the recovery of the water in the Dessie Sawyer well now indicate to you as an engineer?

A I believe I testified that it indicated that water was being produced from the Dessie Sawyer well which came into the well from the fault plain and that is based on our past experience of faulted reservoir production, performance instead of production.

Q Doesn't the fact that you now make water in the Dessie Sawyer indicate lack of uniformity in the water movement in the field?

A Would you explain further your question, please.

Q You testified at the first hearing that the Dessie Sawyer well was high on the structure and that the flank well would go to water before it. How do you explain that statement if the Dessie Sawyer well which is high on the structure is now making water itself other than to say there is a lack of uniformity of water movement through the field?

A If you will please explain what you mean by uniformity I will try to answer the question.

Q You had testified at the first hearing that the edge wells would make water first. How do you now explain the fact that the Dessie Sawyer well is making water and the other edge wells are not?

A I tried to explain in answer to your last question that water was moving into this well I thought, from our past experience, from the fault plain which is nearby.

Q By the way, at what depth are you now producing the Dessie Sawyer well?

A It hasn't been re-completed, it is producing through its original perforations.

Q At what depth? Are you producing it above or below 12,000 feet?

MR. McKELLAR: That fact is in the record in the case. A lot of the evidence that didn't change we didn't bring it all up to date again.

A This record shows the total depth of the Dessie Sawyer No. 1 well as 12, 231 feet. The following intervals were perforated: 11,750 to 765, 11,740 to 750, 11,785 to 11,840. Bottom perforation would be 11,840 which is above 12,000 feet so the answer to your question would be yes.

Q That the Dessie Sawyer well is now producing from above 12,000 feet?

A Yes.

MR. SPURRIER: From above or below?

A Above, the production perforation I assume he is talking about, Mr. Spurrier.

Q Mr. Penn, on the map which you have before you and in our

testimony at the hearing before, you engineers used a minus figure in describing the depth of your wells. Can you give me the figures on the Dessie Sawyer well? What was the original depth that you engineers used in the minus figure?

A I don't have that before me. If you could read it out of the past record it would shorten the proceedings.

Q Maybe I can find it. You talked about some financial matters of the Sawyer people. As I recall you testified at our hearing back in October as to the payout your company had recovered on some of the wells that you had drilled. That was in October of last year. You testified at that time that the Dessie Sawyer well had cost you 442 thousand odd dollars to complete, that you had recovered $386,000, and were then carrying a deficit of $56,000. Do you have those figures handy?

A No, I don't have the October figures here before me.

MR. McKELLAR: Last year? We can assume those to be correct. It is a matter of record in the case.

Q These are taken from the transcript?

A Yes.

Q At that time the Dessie Sawyer had produced 170,000 barrels of oil. The records now show that since October of last year you had produced an additional 108,907 barrels from that well, the Dessie Sawyer well, and that by using the easy factor of $2.00 per barrel for the 7/8 working interest which you have that you

have produced $217,814 and that the Dessie Sawyer well has now paid itself out by more than $161,000. The record you had at that time also showed that the UD Sawyer well D-1 lacked some $80,000 of having paid itself out. The record showed that since that time you have produced 134,721 barrels of oil from the UD Sawyer D-1 and that by using an easy factor of $2.00 per barrel for your 7/8 working interest you have now paid out the UD Sawyer well by more than $169,000.

A Pardon me, which is that?

Q UD Sawyer D-1. So that Sawyer D well in the southwest of the northeast of 27 was completed by you in August of 1949 and at a drilling cost of $334,000. In slightly over two years you have recovered your entire drilling cost plus $169,000. So that from a financial standpoint your company has not done poorly either, has it, Mr. Penn?

A That is a broad question. We try to operate as prudently as possible and show profit for the stockholders.

Q The only well that you now have which has not virtually recovered all drilling costs is the one dry hole that you drilled, is that not true?

A Not according to my record, Mr. Hanners. Would you like for me to bring those up to date according to the Accounting Department records?

Q I would appreciate those figures.

A UD Sawyer A has a red figure of $194,762.17 as of October 31, 1951. UD Sawyer 1-C has a red figure of $116,053.19.

Q How old is that well, Mr. Penn, the 1-C? When was it completed?

A It was completed February 1951.

Q It has a red figure of how much?

A $116,053.19.

Q What was the total drilling cost?

A I show a total leasehold equipment drilling cost and operating expenses to date of $316,627.81.

Q Does that mean that since February of this year you have more than recovered 50 per cent of the cost of the well and all of your leasehold expense?

A Yes.

Q Proceed.

A UD Sawyer 1-D shows a black figure of $200,527.03. No. 1 Dessie Sawyer black figure of $156,053.13. Would you like me to recap that into one number?

Q No, sir, I don't believe that is necessary.

MR. HANNERS: That is all, Mr. Penn.

I would like to offer the instrument previously marked as Mid-Continent Exhibit 1 which has the location of the two new wells, with the understanding that you have engineers present who could give us the statistics.

MR. McKELLAR: We have a geologist.

MR. SPURRIER: Without objection it will be received.

REDIRECT EXAMINATION

By MR. McKELLAR:

Q You, as I understand, you were not contradicting Mr. Ray's testimony that a well high on the structure would be normally the last well on the field to make water in a water-drive reservoir?

A No, sir.

Q You were explaining the Dessie Sawyer as an exception to the general rule because of its close proximity to the fault line?

A That is correct.

Q Which fault line was admitted by Mr. Ray and the geologist for Mr. and Mrs. Sawyer at the last hearing.

A That is my understanding.

Q Mr. Penn, your four producing wells in this reservoir do show that they have now made a profit as an overall proposition, do they not?

A They have.

Q As an overall proposition for the Crossroads Devonian Reservoir has your company made a profit or is the figure still in the red?

A We are still in the red.

Q Assuming that you were in the black, that is the purpose you

are in the state of New Mexico operating for, is it not?

A That is true.

Q You try to make a profit?

A Yes.

Q That is the way you stay in business?

A Yes, sir.

MR. McKELLAR: That is all.

RECROSS EXAMINATION

By MR. HANNERS:

Q The only well that you have that still leaves any of your operations in the red is the one dry hole that you drilled, isn't it?

A I believe I presented figures that showed that two of the wells were in the red and two had paid out as individual wells. That the Sawyer A well had not paid out and the Sawyer C well had not paid out.

Q Aren't they both new wells, Mr. Penn?

A This A well I believe is the discovery well, Mr. Hanners.

Q I beg your pardon. The large red figure you have though is chargeable to the one dry hole, isn't it, principally?

A I didn't give you the red figure for the Sawyer B. I believe it amounts to $474,000. On the fourth well for which I gave you figures we have a balance of the red figures and the black figures in the black at $45,964.80 for those four wells.

Q One question I asked you about a moment ago. How far above the water level in the Dessie Sawyer well as you first drilled it are your base perforations?

A I don't have the elevation on the well.

Q You will have some other geologist or engineer who can furnish that information for us?

MR. SPURRIER: Does anyone else have a question?

By MR. WHITE:

Q I would like to ask some questions first. I might like to explain myself. It has been stated by expert testimony before this Commission before that the words porosity and permeability were coined by geologists merely to confuse lawyers. I am neither a geologist or engineer and I am confused. For example, in your testimony you state that drilling of one well on 80-acre tract could effectively drain the 80 acres. Others have testified it would adequately. Do you use the term effectively drain in the economic sense or in regard to the per cent of the oil initially in place?

A In regard to the recoverable oil in place.

Q Would that be in the economic sense or term?

A That would be in the performance sense of the term. In the economic sense, you mean dollar wise with respect to the drilling costs?

Q Yes.

A No. I believe that in this particular reservoir that one well will recover a very high percentage of the oil in place. I believe you will find in my past testimony that I stated it could be as high as 80 per cent of the oil.

Q Well, can you recover the same percentage of oil initially in place by drilling one well on every 80 as you can by drilling on 40-acre tract?

MR. McKELLAR: In this particular reservoir?

A In this particular reservoir?

Q Yes.

A I believe the difference would be very slight.

Q What would that difference be a less percentage by drilling the 80?

A Slightly so, yes, I believe.

Q What percentage would you place on there?

A I can't place a percentage on there.

Q Then I take it from your testimony that you cannot drain the same percentage of oil initially in place on it by drilling one well on 80 as you can on 40.

A I believe that most engineers will concede that if we drilled two wells on a 40 we would drain more than if there were one well, and if there were four wells on forty we would drain more than if there was one well.

Q Is it not true that 40-acre spacing in a majority of fields

is considered as wide spacing?

A I can only answer that by saying that each particular field has a problem in itself.

Q What would you estimate the number of barrels of oil in place to be in the Crossroads Pool?

A We hadn't presented that data in the past as we considered it as confidential information. If my company wishes to release it, I would be glad to do so. I would like to clear that with them.

Q Would that also be true as to the approximate number of barrels per acre?

A Yes.

Q And also as to the net?

A Yes.

Q How long a period of time would you estimate that it would take to drain the pool on an 80-acre pattern?

A At the present allowable?

Q Yes.

A I would expect that the last well might be plugged within 20 years.

Q What is your basis for that conclusion?

A The engineering studies that we have made of the reservoir.

Q How long would it take to drain the pool on a 40-acre pattern?

A The same period of time.

Q Well, if that be true you have testified that you can get twice as much oil off the ground on 40-acre pattern than on the 80.

A Beg your pardon.

Q Didn't you testify a moment ago that you could get twice as much oil out of the ground on the 40?

A No.

Q If you have a well on every 40-acre tract you say it would take as long to drain that pool as it would if you had a well on every 80 acres?

A I believe you are a little confused.

Q I think possibly I am.

A When you ask me whether or not we would get any more oil by drilling a well on a 40-acre tract I understood you to mean would we get any more oil out of an 80-acre tract if we drilled two wells on it than we would if we drilled one well on it. I said we might get slightly more oil by drilling two wells on an 80-acre tract than if we drilled one well, likewise we might get more oil if we drilled 8 wells on an 80-acre tract than if we drilled one well. Now you ask me when will the pool be depleted. I said I would expect that the last well might be plugged within 20 years. Then you asked me how long would it take to get the oil out if the pool were drilled on 40-acre spacing. I said the same period of time. At this point I would like to add that we have an engineer

who will testify further on that particular point which I believe will clarify this matter in your mind.

Q How long would you say it would take to effectively drain this pool upon an 80-acre pattern?

A I said I thought --

Q (Interrupting) You said 20 years?

A The last well would be plugged within 20 years.

Q Now how long do you say it would take to drain this pool if there were a well on every 40-acre tract?

A Same length of time.

Q Are your wells meeting the allowables at the present time?

A No, not all of them.

Q In your opinion --

A (Interrupting) Let me correct that by saying that all our wells aren't producing at top allowable.

Q Would you be able to get your top allowable if you drilled a well on every 40-acre tract?

A No. We have an engineer that will show that the pool is being produced at the present time, we believe, at just a little above the proper rate of production at which this field should be produced. That is a little less than 2,000 barrels a day. If we drill more wells in the field the field should still be produced as a prudent operation at 2,000 barrels a day. There is just so much energy to produce the oil in that field without waste

according to the law and its definition. Regardless of how many wells you drill in the field you are still going to have to produce the reservoir without waste and to produce the reservoir without waste we have to make proper use of the energy that is available. That energy that is available indicates to us that the field should be produced at a rate a little less than 2,000 barrels a day. In other words, I say that if we had twice as many wells in a field the top allowable for each well would be cut in half. We have approximately 350 barrels top allowable per well now. If you had twice as many wells the top allowable would be 175 barrels a day.

Q How much undrilled acreage does your company have in this pool?

A I believe we have one 80-acre tract that doesn't have a well completed or drilling on it. That is the south half of the southwest of Section 27.

Q In other words, you have been carrying out your development program in a proper and efficient manner?

A Yes, sir.

Q Do you know what the acreage is of the other companies?

A No, sir, I am afraid I don't know what I consider to be productive. You would qualify your statement by productive acreage I believe.

Q Yes. Can it be said then as far as your company is concerned

that your development has met the implied and expressed covenants of your leases and you have been carrying out your development in a proper manner?

A Yes, sir.

Q Alright.

A May I correct one statement. You asked me how much of our acreage was undeveloped. The only 80-acre tract on which we don't have a well either drilled or drilling is the south half of the southwest of 27.

Q As to this water drive is this a horizontal or vertical water drive?

A Not knowing which it is I will say it is a combination of both. We have no evidence to indicate which it is.

MR. WHITE: I think that is all I have.

MR. SPURRIER: We will recess until 1:30.

(Recess.)

AFTERNOON SESSION, WEDNESDAY, DECEMBER 19, 1951

MR. SPURRIER: We will come to order.

RECROSS EXAMINATION

By MR. HANNERS:

Q Mr. Penn, just before lunch you were asked some questions by Mr. White as to the undeveloped Sawyer acreage. I believe you answered on the basis of 80-acre spacing, did you not?

A Yes, sir.

Q So that if you had answered on the basis of 40-acre spacing you would have testified that out of the 480-acre Sawyer lease you have developed five 40's and have seven of their 40's undeveloped.

A That is right with the drilling well and the eighth one.

Q You were also asked if you had complied with the implied covenants of the oil and gas lease. Isn't it true, Mr. Penn, that in July of 1949 Magnolia completed a Pennsylvanian well in the northeast quarter of the southeast quarter of 28 and that you people have not yet offset that well on the Sawyer lands?

MR. McKELLAR: You mean has he not drilled a Pennsylvanian well?

MR. HANNERS: Yes.

MR. McKELLAR: You can answer.

A We have no Pennsylvanian producers.

Q My question is you have not complied with the implied covenants of the lease to drill an offset well on the Sawyer land to protect them from the drainage of the Pennsylvanian well of the Magnolia.

A I believe that is a legal question. As far as it looks to me you are probably right.

Q Are you familiar with a demand that was made on your company in July of 1950 for the drilling of that well?

MR. McKELLAR: If you are going into that --

MR. CROCKER: Isn't this hearing confined to the Devonian matter. If you want to talk about the Pennsylvanian matter the Court House door is open to you on that.

Q Are you familiar with the fact that in July 1950 a demand was made on your company for the drilling of the well?

A No.

MR. McKELLAR: I am going to have to object to any question dealing with the Pennsylvanian wells because we are dealing with Devonian.

Q Would it be fair to say, Mr. Witness, about compliance with implied covenants that you limit your answer.

MR. WHITE: I directed that question in reference to the Crossroads Pool.

MR. McKELLAR: Crossroad Devonian.

MR. HANNERS: Then his answer was limited to the Crossroads Devonian Pool. That is all.

REDIRECT EXAMINATION

By MR. McKELLAR:

Q The only question I have, you told in answer to Mr. White's question that two wells on the 40 drilled to the Crossroads Devonian would drill more than one well, two wells to the 80 would drain --

A (Interrupting) I said they might.

Q In your opinion would the additional oil that would be recovered by drilling this second well on the same 80 be sufficient amount to pay for the additional cost and expenditure of drilling the second well?

A At the present time with the addition, with the information we have in this particular reservoir, my answer would be no.

MR. McKELLAR: I have no further questions.

MR. SPURRIER: Mr. Hanners?

MR. HANNERS: Nothing further.

By MR. WHITE:

Q Upon what information do you base your conclusion?

A Mr. White, I don't believe you were here last time when we presented information regarding an interference test in which we showed evidence of drainage over a distance of 1,866 feet. That indicates to me that one well will drain more than 80 acres. It is possible that well could drain the oil if it were located in the center of a circle that had a radius of 1,866 feet. My second reason for making the statement that I have can be explained better if you will look at the exhibit I presented in the form of a map. You will observe, please, that the new well drilled by Magnolia Petroleum Company, their 1-B well, is located a half a mile east of our 1-D well, a half a mile north of the 1-C well, and 1,866 feet from our 1-C well. When the bottom hole pressure static bottom hole pressure was measured on that well following

its completion they didn't find they had drilled into virgin reservoir there. They found that they had drilled into a reservoir from which some of the fluid had been drained because they found a bottom hole pressure of 4,853 pounds. We found the bottom hole pressure --

Q (Interrupting) That is static pressure?

A Yes, we found the initial reservoir pressure to be 4,874 pounds which indicates that there was drainage from that location and the nearest well was 1,866 feet away. That is my reason for making that statement.

Q Has any attempt been made to unitize this pool?

A Not to my knowledge.

MR. WHITE: That is all.

MR. SPURRIER: Anyone else have a question of Mr. Penn? If not, the witness may be excused.

(Witness excused.)

MR. McKELLAR: We call not as our witness but Mr. Bob Murphy for any information you may want to ask him. He is our geologist. He can tell you, I think, where our B well struck the Devonian and struck the Betenbaugh lime.

MR. HAMMERS: Perhaps we can do that during a recess. All I want to do is complete the chart.

MR. McKELLAR: I wouldn't call him then. I will call Mr. Frank Purdum.

F R A N K P U R D U M,

having been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. McKELLAR:

Q Mr. Purdum, will you please state your name, sir?

A My name is Frank Purdum.

Q What is your position?

A I am the owner of Subsurface Engineering Company.

Q That is a consulting firm specializing in engineering work?

A Yes, for the oil industry.

Q I think, Mr. Purdum's qualifications have been presented to the Commission before, unless there is some --

MR. HANNERS: (Interrupting) There is no objection, we admit the qualifications.

Q Has your Subsurface Engineering Company conducted bottom hole pressure surveys of the Crossroads Devonian Reservoir throughout the history of the field?

A Yes, sir, starting shortly after the Mid-Continent Sawyer 1-A well was completed and periodically from then on.

Q Does this datum pressure curve which appears on our exhibit 9A reflect the results of these bottom hole pressure surveys?

A Yes, this 9A or 9.

Q 9B?

A Yes, these curves show the results of the several tests that

were made.

Q There are six points which appear, six little circles which appear on the datum pressure line. Will you please explain to the Commission what each one of these points indicate?

A The first point which is in June of 1948 is initial reservoir pressure which we secured by running tests in the Mid-Continent Sawyer 1-A well. The next pressure point that is shown that I called No. 2 here is an average of three tests that was in December of 1949 and to secure that pressure we tested all of the wells that we could get into at that time, Mid-Continent wells which was UD Sawyer A-1, UD Sawyer D-1, and Dessie Sawyer No. 1. The pressure of 4,861 pounds, and I might state all of these are calculated to a subsea datum of minus 8,141 feet. The 4,861 pounds is an average of the three tests run at that time. Then the next point which is in November of 1950, which is the third point, is just one test that was run in the Oil Development Santa Fe 2-27 well shortly after it was completed. That pressure was 4,854 pounds. The fourth point is an average of two wells, the Mid-Continent UD Sawyer D-1 well and the Dessie Sawyer No. 1 well. That pressure is 4,862 pounds. Then shortly after that in March of 1951 the Mid-Continent C-1 Sawyer well was completed and we ran a static pressure on that which is the fifth point which showed to be 4,860 pounds. Then in October of this year we ran a static bottom hole pressure on five wells. The Magnolia or, yes, rather the Magnolia

Santa Fe Pacific B-1. The Oil Development Santa Fe Pacific 27-2. The Mid-Continent Dessie Sawyer No. 1, UD Sawyer D-1, UD Sawyer D-1 the average of which was 4,864 pounds.

Q Mr. Purdum, this last test included five wells that has been run since we had the last hearing this past October, is that correct?

A Yes, the hearing was in March, was it not?

Q Yes, you run it this past October?

A Yes, and it is, the five wells was since that hearing.

Q Why didn't you test all seven of the wells on that test?

A There are two other Devonian wells in the field, UD Sawyer A-1 which was the discovery well of the field and the Magnolia Santa Fe Pacific C-1 both of those wells are pumping wells, the rods weren't pulled, we couldn't test those.

Q Were these two wells shut in or were they producing when you conducted the tests?

A In order to limit any interference they were shut in at approximately the same time the other wells were shut in so that we would get a correct static pressure.

Q Have you compiled the result of this October 1951 bottom hole pressure survey?

A Yes, we have compiled these results. We have the individual data sheets and the tabulation.

Q I have three copies of this. I would like to mark it as our

Exhibit 9C for the record.

(Marked Exhibit 9C.)

Q Mr. Purdum, will you please explain this exhibit which we marked 9C?

A This Exhibit 9C shows on the cover page the tabulation of the three Mid-Continent wells and the Magnolia well and the Oil Development Company well in which we ran static bottom hole pressures as of that date. The pages following are the individual data sheets showing the calculations and the pressures at different depths for each of the wells tested.

Q From this report that you have submitted the average compiled, the average bottom hole pressure for this reservoir is now 4,846 pounds, is that correct?

A Yes, numerical average of those individual tests calculates out to be 4,846 pounds.

Q I understand from your report that the average reservoir pressure is now only 2,800 pounds, less than it was on the original survey when the test was conducted.

A We measured 4,874 pounds in May of 1948 on the discovery well shortly after it was completed. The average now is 4846 of the Devonian wells that we could test which is 4,876, 28 pounds, yes, 28 pounds loss in reservoir pressure in that length of time.

Q How do you explain this comparative small loss in bottom hole pressure over this period of time and after over a million

barrels of oil have been produced from the reservoir?

A This small loss in reservoir pressure is explained by the very active water drive which has been shown to exist by earlier testing and further substantiated by the recent field-wide bottom hole pressure that we are now talking about.

Q Is it your opinion that the reservoir pressure in this pool is being effectively maintained by the present plan of operation?

A It is my opinion that no other plan of operation could more effectively conserve the reservoir energy as shown by the reservoir pressure.

Q Does this loss of 28 pounds in bottom hole pressure over the period of time and after this much production show appreciable loss for a reservoir of this type or any reservoir for that matter?

A A loss of only 28 pounds with an original pressure of over, well it is almost 4,900 pounds, is a very small loss, in fact it is only one pound for each 40,000 barrels approximately of oil produced. That is a small loss in pressure for this or any other reservoir for that amount of production and over this length of time.

Q Does this small loss in reservoir pressure indicate to you that the water drive in this field is effective, very effective, or not effective at all, or just what does it indicate in that respect?

A The small loss in reservoir pressure shows conclusively that

the pressure is being maintained almost but not quite as there has been some loss in bottom hole pressure, 28 pounds, in the last three years, a little over three years.

Q Which is a very small loss for this much oil, in your opinion?

A Yes, it is a small loss for that amount of production.

Q Mr. Purdum, is there any other information which you deem important to the Commission in the determination of the issues which are presented in this case?

A Yes, there are several important factors that must be considered, it seems to me, and that they are quite apparent from the tests and studies made of this data and such as, one, the loss of the reservoir pressure during the time only a few wells were being produced as compared to the loss in the reservoir pressure after the field was further developed; two, the effect of increased field withdrawals of oil on the rate of energy loss if additional wells are drilled and the present per well allowable maintained; three, the necessary reduction in per well allowable that must be made when additional wells are drilled if the present efficient natural pressure maintenance is to be continued. I believe that we will all agree that as there has been 28 pounds loss in reservoir pressure during the life of the field and that approximately half of the loss has occurred in the last seven months that the present field withdrawal right now, it is with the completion of the Magnolia wells itself approximately 2,000 barrels per day

1,700 barrels without the Magnolia well. That is the B-1 well that has recently been completed. It seems quite apparent that the 2,000 barrels per day is a maximum that can be produced without a more rapid decline in reservoir pressure.

Q I believe that is all the questions I have of the witness. Excuse me.

A Well, there, if this rate of pressure decline is increased then there is going to be a result of waste of reservoir energy and a reduced ultimate recovery due to the fact that the pressure will go down and there isn't much reserve left that is within two or three hundred pounds we are now on those wells of when they will cease to flow static pressure. Should more wells be drilled in this reservoir and as the field withdrawals must remain constant, there will be no other choice but to reduce the allowable of the well. The income from the reservoir can be increased only at the expense of physical waste of the reservoir energy which it seems that we are all obligated to conserve.

Q Is that all your thoughts on this?

A Yes, that pretty well sums my studies of these tests that we have made on the reservoir over the life of the field.

Q Mr. Purdum, one other question I had. You stated that you were in the consultant business?

A Yes.

Q You are not employed solely by the Mid-Continent, Magnolia,

or the Gil Development Company of Texas?

A No.

Q Approximately what per cent of your overall business do you receive from the Mid-Continent Petroleum?

A One per cent, I expect.

Q One per cent of your overall business?

A I imagine. I haven't actually figured it up but it is not a large percentage.

MR. McKELLAR: I have no further questions.

CROSS EXAMINATION

By MR. HANNERS:

Q Your second point on the pressure charts we have has the figure 4861 as the average of three tests. Those three tests being on the A-1, D-1, and Dessie well. Can you give us the figures on each of those three wells rather than the average?

A Yes, I have them here. If you don't mind I will take them off this, I have just tabulated them. For UD Sawyer A-1 4860, 4860 or UD Sawyer A-1; for UD Sawyer D-1 is 4875, and for --

Q (Interrupting) I didn't understand you.

A Excuse me. 4875 for the UD Sawyer D-1, for Dessie Sawyer No. 1 4849.

Q How long were each of those wells shut in, Mr. Purdum, for the taking of those tests?

A I will have to refer to this. Well, I don't have that in

front of me, but it was a series of tests in most cases and we did test them until a maximum was secured.

Q Approximately how long?

A I would say mostly 48, in the neighborhood of 48, say from 24 to 48 hours average.

Q Your next average figure that you have is on your fourth point where you took the figure 4862 as the average of the test taken on the Sawyer D-1 and on the Dessie Sawyer. Will you give us the individual figure yourself rather than the average?

A Yes. The UD Sawyer D-1 was 4872. The Dessie Sawyer No. 1 was 4853.

Q I believe you testified that one of the factors that led you to your present conclusion is the loss of reservoir pressure. That was what you gave as the first one. If I have understood you correctly I note that the UD Sawyer had a pressure test of 4872 as compared to an original pressure on the discovery well of 4874. That would be a slight variation, would it not?

A Yes. That is not much.

Q On the test that you averaged as your point it would test where you got an average of 4861, the pressure test on the Sawyer D well at the time was 4875 which was one pound greater than your original test on your discovery well, isn't that true?

A Yes, sir.

Q Mr. Purdum, there is a map by the side of you marked Mid-

Continent Exhibit 1. You recall at the earlier hearing where you testified similarly from your pressure tests that in your opinion all of the wells then drilled would drain effectively and efficiently the entire Crossroads Devonian formation.

A I don't remember if that was the exact wording.

Q I want to be fair, I will read you your answer from page 42.

A Alright.

Q "It also shows that there is an active and forceful water drive that has been maintained bottom hole pressure. This natural drive should flood the reservoir in a natural manner and allow the present wells to produce substantially all of the recoverable oil."

A I think, I still think that is true.

Q How do you explain the drilling of the well by the Magnolia in the northwest southwest of the northwest of Section 26?

A That is the B-1?

Q Yes, which was outside the map you had before you at the time you gave the testimony. How do you explain the Mid-Continent E well in the northeast of 27 which is outside the limits of the map you had before you when you gave that testimony?

A Well, there has been considerable agitation for further development in the field and those locations were made. I had nothing to do with making the locations but it is entirely possible that the decision there was in order to be sure that the field was adequately drilled and there always is a possibility of

extensions to fields.

Q Do you feel, Mr. Purdum, that the drilling of those wells will obtain additional production of oil?

A In no substantial amount, no.

Q Don't you believe the companies expect to recover substantial production from those wells?

A Yes. I think they expected to get some oil from them.

Q At the time we testified before would you concede that the statement you made that all the wells then in existence were efficiently draining the entire Devonian Reservoir is in error?

A No, it isn't in error but this lease wouldn't have secured much benefit from the oil that would migrate over to the Sawyer.

MR. McKELLAR: That is Magnolia Santa Fe Pacific lease?

A Yes, and they have certain rights that need to be protected. I didn't make that location, as I say, but I think that the royalty owners and the company that had the property here in 26, they probably wanted to produce part of the reservoir oil from their lease, too.

Q One other thing, and I don't think you were asked this on direct examination, but there has been testimony of water encroachment in the Dessie Sawyer well. Did you hear that testimony this morning?

A Yes, I did hear it.

Q From that testimony do you conclude that there is uniformity

or lack of uniformity in the movement of water through the field?

A I think the fact that this Dessie Sawyer well is drilled in the close proximity to a fault, and again I am not testifying to the fault because I don't know but that has been conceded there is a fault there, and that the Dessie Sawyer No. 2 --

MR. McKELLAR: (Interrupting) No. 1.

A No. 1 is drilled close to the fault and the behavior of that well has no bearing on the action of the other wells in the field as shown by the UD Sawyer A-1, that is a low well and it is producing water. The Santa Fe Pacific Magnolia is a low well and it is producing water. The other wells are all higher and they aren't producing water. So I can't see that the fact that the Dessie Sawyer well is in that faulted section makes any difference with the conclusions that you can draw in the other part of the field.

Q You have no knowledge of your own, do you, Mr. Purdum, as to the fault?

A No, I mentioned that. I am just saying that it was mentioned today that everyone conceded there was a fault through there and that that would explain the water coming in from the edges and up through the cracks and crevices of the fault.

Q Mr. Purdum, I want to be absolutely fair but there are two statements I have trouble understanding. You stated today that one of the prime factors for your conclusion is the loss of

reservoir pressure. In the answer I read you a moment ago from the transcript of your testimony in March you said this, "It also shows that there is an active and forceful water drive that has maintained the bottom hole pressure." Are both of those statements necessarily true?

A Yes, you can, it is all a matter of degree. Here the reservoir pressure is being maintained, in fact it has lost only 28 pounds in the whole life of the field.

Q That is not true?

A That is substantially --

Q (Interrupting) That is not true as to each of the wells?

A Of course, when there is only one well in the field then you can only measure one well and that is the numerical average of the one well. As you drill more wells the only possible way that each well could drop in pressure, the loss would be exactly the same, would be to have the same amount of pay section, exactly the same amount of oil produced from each well. It is physically impossible to produce a field and have all of the wells show exactly the same pressure through the life of the field.

Q And the fact that the wells do not show the same pressure indicates a lack of uniformity, does it not, in the movement of water through the formation?

A Yes, I think that is true that it would to that small degree

a variation of a few pounds out of 4900 pounds, I think that would be true to that small degree.

MR. HANNERS: That is all, Mr. Purdum.

REDIRECT EXAMINATION

By MR. McKELLAR:

Q Mr. Purdum, there has been much said in this hearing in this case about the uniformity and lack of uniformity of this well. As I understand your testimony it would be impossible practically to have a lime stone reservoir which was completely uniform which was just like an open tank, is that correct?

A We seldom find one in wells that we test, in fact I don't know of any reservoir that we have ever tested either sand or lime stone but what there was a certain variation in the pressure throughout the field at a certain time.

Q On a comparative basis when your engineers speak of a uniform reservoir and a non-uniform reservoir on a comparative basis, would you speak of this as a relative uniform reservoir the performance of the wells while they are not all exactly the same, no, but on a comparative basis are they relatively uniform?

A That is quite apparent. In looking at the tabulation that I have here of the recent survey that we made and calling attention to the Dessie Sawyer No. 1 which has a bottom hole pressure at that time of 4,822 pounds and that is a well that is different than the others due to the fact that it is drilled presumably up

against that fault.

Q In the industry, in the terminology of your engineers, that would be known as a uniform reservoir or not?

A That is right, because the others, just let me read the pressures that we measured in the other wells of the reservoir without calling their names: 4847, 4849, 4852, and I said 4853 a while ago, I misread the number, and 4859, there is a variation of only, let's say, from 47 to 59, or 12 pounds in four wells, and the only one that is any different is the Dessie Sawyer well that we think is effected by the fault. The others are very uniform, within 12 pounds. Let me also call attention to the fact that these wells have been drilled at different times. Now the one well, the Magnolia Santa Fe B-1 well, has 4852 and again I will mention that I said 4853 a while ago, but it really is 4852 and that is a lower pressure than in the Oil Development Company Santa Fe 27-2 but still it is only 7 pounds difference.

MR. McKELLAR: That is all the questions I have.

MR. HANNERS: Nothing further.

By MR. SPURRIER:

Q I don't remember who testified, I think it might have been Mr. Penn, on interference tests between wells. What was the differential, do you remember that or should I ask Mr. Penn?

MR. McKELLAR: I think I can remember. I believe the difference between the draw down in one well due to flowing the others,

I believe, is 10 pounds. It was a small amount.

MR. SPURRIER: That is all. Anyone else have a question of Mr. Purdum.

By MR. WHITE:

Q On these static tests, through those tests you can ascertain what the approximate permeability is?

A Not through the static test but the combination of tests that we have run.

Q The draw down?

A The draw down and build up, it is done in different manners. It can be done in different ways but those tests do give you an indication of the effective permeability in the well.

Q But the static test does not?

A The static test gives you only an indication of the loss of reservoir energy.

Q Were any additional tests made such as draw down tests to show what the permeability might be in these wells?

A Since the test that we have previously testified to, no, not to my knowledge.

Q Were any corresponding analyses taken to determine porosity?

A That is a little out of my sphere. I don't know.

MR. McKELLAR: We put all that on at the last hearing and had the actual correspondence there. I think all that would be in the record as to the corresponding analyses and this porosity

and permeability.

A The tests that we have run in the past I have a record.

MR. McKELLAR: Those drawn down tests and interference?

A Not the permeability but the productive index test which is a measure of the permeability. I could give you those figures on some of the wells. The wells that we tested, if you wish.

MR. HANNERS: Mr. White, I believe those figures might be helpful. The productivity indeces.

A Yes, I have them.

MR. HANNERS: Would you give them, please.

A On the UD Sawyer D-1 we measured the productivity index up to 3.92 and that is barrels per day per pound drop in bottom hole pressure. On the Dessie Sawyer No. 1 that value is 2.16. On UD Sawyer C-1 in the neighborhood of 19. That is barrels per day per pound drop. On the UD Sawyer A-1 the productivity index was approximately 20. I believe that is all that we have tested this for P.I.'s in the field.

MR. HANNERS: You spoke of the interference test you had taken on two wells. What were those two wells?

A I believe I will have to refer to my notes.

MR. McKELLAR: That was those that he testified to at the last hearing.

A The three wells involved were the UD Sawyer D-1 and Dessie Sawyer No. 1.

Q Which of those two wells was shut in and which was producing when you took the test?

A Well, I am going to have to refresh my memory a little bit. I have looked at some things since then.

MR. McKELLAR: Just take your time. The whole thing is in the record.

A That is on page 40.

Q In your testimony then did you give us the two wells from which you took the interference test?

A Let's see, the two Mid-Continent wells we shut both of these wells in. That was the UD Sawyer D-1 and Dessie Sawyer No. 1.

Q What well were you producing at the time you had those two shut in for the purpose of the interference test?

A As I say, I will have to --

Q (Interrupting) Mr. Purdum, we did not have the information in the record of the last hearing is the reason for my inquiry now.

A I want to apologize for not having it on the tip of my tongue, but I don't. We left one of the wells shut in.

Q Which one?

A The Dessie Sawyer.

Q How long did you produce from the D-1 well in making the test at the time when the Dessie Sawyer well was shut in. It is not in the transcript, Mr. Purdum. You will have to refer to your notes.

A Well, if it is not in the transcript --

MR. McKELLAR: You testified that you flowed it until you picked up a distinct drop, until you had a measureable drop.

MR. HANNERS: I don't find that.

Q What I want to know, the purpose of my question is which well you produced and for how long and at what rate and which well you had shut in while you were making the interference test, how many barrels of oil you produced in order to accomplish the test and how many times you ran your testing device to get that ten pound drop in pressure you testified about.

A I can't tell you that unless I have my, the copy of the test. I don't read it in there.

MR. McKELLAR: It is not in there.

MR. HANNERS: It is not in the transcript.

MR. WHITE: That is all then, Mr. Purdum.

A Alright, thank you.

REDIRECT EXAMINATION

By MR. McKELLAR:

Q If the interference test had never been run could you from the additional data which we have obtained since the last hearing when we presented these interference tests, could you from additional data that you have obtained since then concluded that there is inter-communication within the reservoir?

A Well, it is, someone might object to the small interference

that we had. To me it is in the interference test the ten pound for that high permeability in the reservoir that is conclusive in my mind.

Q Assuming that you had never ran any?

A If we hadn't run those at all and we go to the reservoir and drill a new well and then we find that instead of being 4874 or 75 pounds, 1474 pounds was the original reservoir pressure, and when we ran a test on a brand new well and find that the reservoir pressure at that point is only 4853 pounds that shows that something has happened to the reservoir pressure. In other words, at that point in the reservoir there is less pressure than there was originally.

Q That is the Magnolia B?

A That is the B-1.

Q That is conclusive even if you had not run the interference test?

A That is right, the interference test is another indication which is substantiated in full by the fact that the pressure does go down in the part of the reservoir that hasn't been produced.

MR. McKELLAR: That is all.

RECROSS EXAMINATION

By MR. HANNERS:

Q The ten pound drop which you testified about was ten pounds

out of 4874 pounds of pressure?

A That is right.

Q Would that be one-tenth or one per cent on one hundred of one per cent?

A Well, out of 50 pounds would be one per cent of five thousand, so it is less than one per cent.

MR. HANNERS: That is all.

A But it is still indicative that there is a drop.

MR. SPURRIER: Anyone else have a question. If not, the witness may be excused.

(Witness excused.)

J O H N W. S T R A Y H O R N,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. McKELLAR:

Q Will you please state your name?

A John W. Strayhorn.

Q What is your position, Mr. Strayhorn, by whom are you employed?

A Petroleum Engineer by Magnolia Petroleum.

Q Where are you located?

A Buckeye, New Mexico.

Q Are you a graduate petroleum engineer?

A Yes, I am, from the University of Oklahoma.

Q When did you finish at the University of Oklahoma?

A In May of 1948.

Q You have been employed by the Magnolia --

MR. HANNERS: We will admit his qualifications.

Q Have you had experience in making an engineering study of the Crossroads Devonian Reservoir, Mr. Strayhorn?

A Yes.

Q How long have you been working in this reservoir as an engineer?

A About three years.

Q You were there when Magnolia first began their operation, then, in the Devonian?

A No, immediately after.

Q How many production wells does the Magnolia now have in this reservoir?

A Two.

Q Approximately what is the daily oil and water production from the two wells?

A The Magnolia Santa Fe Pacific C No. 1 makes about 260 barrels of oil and 400 barrels of water. Santa Fe Pacific 1-B, top allowable making 350 barrels.

Q Have you made an engineering study of this reservoir with particular emphasis on the type of energy present?

A Yes.

Q Do you agree with the other engineers that it is a water drive?

A Yes.

Q Is it your opinion that one well will efficiently drain 80 acres in this reservoir?

A I think so.

Q Do you think that by drilling two wells on the same 80 we would recover enough additional oil from the second well to pay for the drilling of the well?

A No, I don't.

Q Upon what do you base your conclusion?

A Well, my conclusions are based primarily upon this bottom hole pressure of Magnolia's new well and the Santa Fe Pacific 1-B where its bottom hole pressure during the last survey was 4252 pounds which is only six pounds above the field average pressure at that time. If the wells previously completed were not draining the entire reservoir prior to this well being completed, I think that if they were draining the entire reservoir they would be draining more than 80 acres of well. I think that the well would have had a pressure near the original pressure of 4864 pounds.

Q Is it your opinion that this reservoir pressure is being effectively maintained in this pool?

A Yes, sir.

Q Is it your opinion where there is a loss of only 28 pounds of reservoir pressure over the life of the pool it is indicative that any waste is occurring?

A In fact the loss of only 28 while producing over, slightly over a million barrels of oil, would indicate the reservoir is being produced efficiently.

Q Do you find any evidence of coning or flooding out of any of the formations is occurring in the pool?

A On the basis of Magnolia and Santa Fe Pacific C No. 1 I would say no. The well was completed from only about 20 feet of pay and very near the water table as indicated by the almost immediate production of water after completion and this well has continued to produce for a period of approximately three years now. I think in the neighborhood of 150,000 barrels of oil and water percentage has gradually increased as you would expect on an edge well in a water drive field. But the well, as I said before, is making 265 barrels a day at the present time and it is evidently not flooded out. I think if there was any appreciable coning it would have been flooded out by this time.

MR. McKELLAR: I have no further questions.

CROSS EXAMINATION

By MR. HANNERS:

Q As I understand, Mr. Strayhorn, your first Magnolia well was the C-1 in southwest southwest of 26.

A That is right.

Q It was completed above the water and produced without making water for a period of some months?

A No, approximately two days I think, something like that.

Q Has the water increased in that well through the months and years since it was first put on production?

A Gradually, yes.

Q So now then you have 400 barrels of water to 260 barrels of oil?

A That is right.

Q Does that indicate to you that there might be a coning up of the water under the well?

A No, it indicates to me that the water is gradually flushing the oil from the zone adjacent to this well possibly or possibly below it but it is gradually flushing the oil and replacing the oil and some of the water is coming in behind the oil and being produced with the oil.

Q Have you at different times produced a higher ratio of water than 400 to 260 as you are now producing?

A I couldn't answer that accurately.

Q You had your well, the 1-C well, shut in for a month or two while you were treating the water, didn't you?

A Not while we were treating for water, no. We installed a pump there at one time that took some time.

Q Isn't it true that you have had a water ratio to the oil higher than your 400 to 260 or did you not?

A I don't believe our percentage has been any higher than that. It might have been slightly higher at some time. That isn't over any extended period, though.

REDIRECT EXAMINATION

By MR. McKELLAR:

Q A couple of months ago Magnolia went in there and did some re-completion work on the well and changed their equipment up to where we increased our fluid withdrawal from the well, increased both our oil production and water production but did not substantially change the oil water ratio? We simply increased the production of both oil and water?

A I think that is right.

Q We did do that. This well, constant increase of the oil water ratio throughout the life of this well is that what you engineers expect and is that what your experience in practically all the low structure wells in the field where a strong active water drive is present?

A Yes, especially in this field, not especially in the field, there is no gas to produce the oil unless the water comes in to force the oil out, there is no way to produce it.

Q There is a normal situation, nothing unusual?

A That is right, in a water drive type field.

By MR. WHITE:

Q Mr. Strayhorn, is it true that a coning condition is less likely to arise if you take the oil from under the 80 acres by the medium of two wells than it would be for one well because of the pressure differential?

A Well, it would depend on the pressure differential around each well, I would think.

Q I have reference to just the drilling of two wells on 80-acre tract, taking oil out of two wells as against the one well and the coning condition less likely on a rise if you have two wells.

A Are you speaking of this reservoir?

Q Yes.

A I don't believe so, no.

Q What is your reason for that?

A Well, one thing it is a good permeability in the reservoir which more or less I think would allow, you would have a very small draw down as noticed from the PI tests there because during the production it would cause a small draw down in bottom hole pressure. I think that is your criteria.

Q You stated that it was, that you considered it economically unsound to drill two wells on 80-acre tract, is that correct?

A I believe that you would not recover enough oil from the second well, additional oil from the second well, to pay for the

well.

Q If the Commission were to require 40-acre spacing would you consider it so unsound economically as to be disposed to recommend to your company to relinquish their leases?

A That is not in my realm.

MR. McKELLAR: The geologist's realm is location. The engineering wouldn't have anything to do with it.

A The thing you are getting at, I might bring this up, it would depend on the time. I wouldn't say that the other well wouldn't produce enough oil to pay out. It wouldn't produce enough additional oil over what one well would produce on the 80 acres.

MR. SPURRIER: Anyone else have a question of Mr. Strayhorn?

(Witness excused.)

MR. HANNERS: As I understand Mid-Continent and Magnolia have concluded their testimony.

MR. SPURRIER: That is what I understand.

MR. HANNERS: I have one witness, Mr. Fitting.

MR. McKELLAR: We waive his qualifications.

R A L P H U. F I T T I N G,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. HANNERS:

Q Your name is R. U. Fitting?

A Ralph U. Fitting.

Q From Midland?

A Yes.

Q You are the same Mr. Fitting who testified in this case previously?

A Yes, sir.

Q In your testimony in March you testified, I am speaking generally now, that the employment of the 80-acre spacing pattern in the Crossroads Devonian field, in your opinion, was conducive to waste. That one well would not efficiently drain 80 acres and that the proper and practical drilling pattern to be employed in the Devonian reservoir was one well to 40 acres.

You likewise testified that the limits of the Devonian Reservoir as established by other witnesses were in your opinion in error in that they were improperly enclosed on the north and on the east. Since your testimony there have been two wells drilled in the area that you had then testified would be productive. After hearing the testimony today have you changed your opinion and conclusions in any way as to the recommendation you would make to the Commission as to the proper spacing pattern to be employed in the Crossroads Devonian field?

A No, sir, I have not. The combination of the strong water drive which is freely admitted by the witness and non-uniform permeability which has developed in the field has the inherent

danger of channeling of water at highly daily per well rates. The drilling of additional wells would permit the continued producing capacity of this reservoir at lower per well rates, would reduce tendency toward channeling or coning of water, and danger of trapping of oil. There has been evidence that there is irregular encroachment of water in two wells and possibly three. These two are the Mid-Continent Dessie well and in which well the bottom of the perforation is 442 feet above the original water oil contact. That is evidence of an irregular encroachment of water by whatever means it is explained that the water is in the well. The Mid-Continent 1-A Sawyer similarly being the discovery well, went to water in about three months after the completion of the well and certainly evidences that water irregularly encroached into that well. The same thing may possibly be true of the Magnolia 1-C well which went to water in just a couple of days after it was completed. Certainly the development of the Magnolia 1-B well which found the top of the Devonian at minus 8037 or 207 feet above the water level, if you assume the bottom of the Magnolia 1-C well was the water level, evidences that there is a great deal more productive land in the Crossroads Devonian field than has now been developed.

Q On the map which was introduced at the first hearing and is marked as Mid-Continent Exhibit 1 there is various contour lines including one pencilled in red pencil, what have you to say now,

Mr. Fitting, as to the correctness of those contour lines?

A They are obviously incorrect insofar as the new Magnolia 1-B well is concerned and the same objection that I had at the previous hearing as to enclosing them south of the Pennsylvanian producers on the Oil Development Santa Fe Railroad lease and Magnolia Santa Fe 1-D, that argument still applies.

Q From the testimony you have heard today, Mr. Fitting, are there any particular factors that have been mentioned today that in your opinion have any particular significance on this question? In the testimony which you have heard today has there been any part of it that has particularly impressed you in coming to the conclusion that you have voiced at the March hearing and which you have reiterated today?

A I see no reason for change of opinion as to this matter.

Q In your opinion has the fact that the two wells have been developed outside the pattern demonstrated the truth of the statement that you made in March?

A Well, the facts are that one well has been drilled outside that pattern and found the Devonian above the water level. If the other is still drilling --

Q (Interrupting) What other observations would you make today, Mr. Fitting, having heard the testimony of the gentlemen who have testified?

A I believe I have nothing further.

Q It is still your opinion that the 80-acre pattern if employed

in the Devonian Reservoir would be productive of waste or conducive to waste?

A Yes, sir.

Q And that the practical normal 40-acre pattern is the best one to employ in the reservoir?

A It is certainly the practical pattern to employ in this reservoir for the reason it merits a uniform spacing of wells and a tendency toward the uniform and encroachment of water into this field.

Q Do you think of anything further, Mr. Fitting, that we should discuss?

A No, sir.

CROSS EXAMINATION

By MR. McKELLAR:

Mr. Fitting, you have testified at both hearings, the last one and this one, about the inherent danger of channeling a reservoir of this type if drilled on a spacing pattern of 80 acres one well to 80 acres. Now admitting for the sake of argument, that may be true, what wells in this field have you concluded that there is actually channeling or coning of water existing in today, which of these 70 producing wells?

A I already mentioned that there are three of them producing water at depths considerably above the original water level, two considerably above, one slightly above.

Q The Magnolia 1-C which produced water is at or near the oil water contact line?

A Probably, yes, sir.

Q So it is nothing unusual in a field of this type with the water drive of this type in that well producing water?

A Yes, it is unusual for a well to start making water after producing two days clean.

Q If it is completed right at or near the oil water contact?

A Well, it simply means that water comes through a permeable layer more rapidly than it has through the rest of the rock.

Q If it was completed right at or near the oil water contact line where only a small amount of clean oil existed between the well bore and the line it would be expected would it not?

A Yes.

Q That is what our geologists have testified where this well was completed, is it not?

A I believe he did.

Q And you yourself admitted that it was relatively near the oil water content?

A That is correct.

Q So there is nothing unusual about the Magnolia 1-C well making this water?

A Well, I think your geologist has inferred that it was close to the oil water contact by virtue of the fact that it did go to

water rapidly. So we are arguing in circles in that I will state this, I think that was completed close to the oil water contact rather than the minus 8200 which was shown on the previous exhibit.

Q No question. There has been some explanation for the water in the Dessie well, the mere fact that the well makes water in a water drive field is not conclusive that it is actually coning, is it?

A It depends on the definition of coning. By whatever source this water has entered the Dessie well it is the bottom of the perforations in that well are 442 feet above the depth that the Magnolia 1-C was originally completed clean and so that it would be an irregular incursion of water into the field whether you call it coning or came up the fault.

Q This produced clean some 32,000 barrels of oil recently?

A I know the substantial quality of oil.

Q For a substantital period of time also?

A Yes.

Q Some year and a half or two years before it began making?

A Also you must remember that the Dessie is the highest on the field. Others have produced more than that and are not making water.

Q It is the well that is closest to the fault line, right?

A That has been assumed. I guess it is closest to a fault.

Q Didn't you admit there was a fault line in the field?

A I did but I did not admit how close the well was to the fault because I didn't know.

Q Well, now, as I understand your testimony you testified here today that if we drilled two wells on 80 we would reduce the allowable per well and that would by a slower withdrawl per well reduce the inherent danger of coning, is that the substance of what your testimony was?

A Yes, sir.

Q I take it then that you are somewhat agreed with Mr. Purdum when he testified that the overall reservoir withdrawl daily is approximately 2,000 barrels of oil a day?

A No, I don't agree with that. He has left out the water production in the field.

Q At any rate if we drill these wells two wells to the 80 we would have to cut the per well allowable?

A Not necessarily.

Q You just testified that if we drilled two to 80.

A That it would reduce the inherent danger.

Q And reduce the allowable and reduce the chances of coning?

A That is correct. But that doesn't mean that you have to take half the allowable which I presently have.

Q You don't know how much we would have to produce it?

A I see no danger of the field running out of energy, it looks like a strong water drive. The dangers are that it is going through

only portions of the section. In view of the wide range of permeability observed in the field and evidenced by the core analysis submitted by Mid --

Q (Interrupting) We have lost 28 pounds in reservoir pressure which is an indication that we have withdrawn fluid from the reservoir at the rate slightly higher than it would be replaced.

A It doesn't follow there is a certain differential in pressure necessary to cause water to move into a field of this kind. I wouldn't be alarmed over the pressure loss.

Q We point to it with pride, it is an indication that the withdrawal rate has just about been reached, wouldn't you say?

A No, sir.

Q What would you say would be a safe loss in reservoir pressure?

A You are substantially above the bubble point I don't think there is any danger unless you reach the bubble point. There is an inherent loss by virtue of by-passing of oil through water going through the more permeable layers and not completely flushing out the entire section.

Q Do you know what the bubble point would be with the gas-oil ratio we have?

A Less than a thousand pounds.

Q Considerably less than a thousand. If we got rid of that there would be nothing left to lift oil to the surface?

A That is why I see no danger in the 2728 point loss.

Q It is an indication that we are withdrawing fluid at slightly higher rates than it could be replaced.

A If you could drill a well a mile from the field you would find virgin conditions.

Q You imagine it, but you have no studies with which to substantiate that.

A No, I don't have, but that is my picture of the water pressures around the field.

Q Magnolia didn't find it in the B well when they went half a mile from the nearest production.

A They found substantially the virgin pressure.

Q They found the average reservoir pressure did they not which was substantially the virgin pressure if --

A (Interrupting) They found 22 pounds less than the original pressure on the discovery well. I must point out though that we are dealing with very small differences in pressure, as a matter of fact one of the pressure determination on 1-D after it had been produced two years was one pound higher than the original pressure. We are dealing with minute differences.

Q We are dealing with measurable differences from an engineer's standpoint.

A There is some question about that. Actually the pressure determinations that have been made by Mr. Purdum were not made at the datum but were made several hundred feet above the datum

and calculated down the hole in oil whereas there is water in some of the wells. There is some calculations as to the pressures as he has done it.

Q But had he done it any other way the pressures would have been still higher, would they not?

A Yes, they would.

Q It would have shown that we had even less drop in the reservoir.

A Yes, sir.

Q Less loss?

A That is right.

Q It would have shown that we produced the field even more efficiently.

A I don't believe that the index of pressure loss is the principle one to determine whether this field is being efficiently produced or not.

Q But it is an important one.

A It is one on which I agree. There is no reason for alarm.

Q Certainly it is one that all companies in operating a field keep their eyes on the reservoir pressure at all times.

A For good reason.

Q It is the one that various oil and gas conservation boards watch closely in the production from any given pool, does it not?

A Yes, and if I may expand my answer just a bit, the real

danger that I see is indicated by the production of water from wells that are completed hundreds of feet above the original water-oil contact. That is the danger that exists in this field and which is being increased by the high withdrawal rates from widely scattered wells.

Q Have you ever in your experience of a fault ever noticed that where a well was near a fault although it was high up on the structure it made considerable water well before it ever ceased to produce oil entirely.

A Yes, I think of one illustration of that.

Q The Dessie well, assuming simply for my argument and not for your testimony, that it is located near the fault as our witnesses have testified then you have experienced that same condition in other fields where they made water as the Dessie well?

A Yes.

Q That created no waste in your opinion, or did it?

A I believe that there is a danger of waste the way that well is going to water.

Q There is also danger of waste but getting down to brass tacks in this one well.

A I believe it is.

Q In your opinion it is indicative of waste?

A Because I believe that what I would do is perforate the well over a thicker section and not subject the thin section which is

now open in the well to the draw down in pressure that is necessary to produce the well. I don't believe the water has coned uniformly from below into that well. I think it has come through these permeable layers by torturous paths and the well can be clean up.

Q You spoke of additional land for development, additional acreage that this pool hasn't been completely developed. Of course last year you testified to Section 34 and the section lying south of that which still hasn't been leased. You testified that you as a prudent operator would recommend a location there, would prefer to drill it. Of course none of the other prudent operators in New Mexico agreed with you since no one leased the land or drilled on it, but that is neither here nor there.

A It is to me, if I may say what I said before. You said that I would recommend to a prudent operator the drilling of the well there. That is not exactly a quotation of what I said. I said this, if I may answer, sir. That if someone wanted to drill a well on the north part of Section 34, the most attractive location would not be the one that would be permitted to be drilled under the 80-acre pattern setup in there at that time.

Q In answer to the question you did state that in substance but Mr. Hanner's question, coming down to the south of the map in Section 34 would a prudent operator owning a lease in the northeast quarter of Section 34 conduct any drilling operation.

A I believe I would prefer to drill, if I propose to drill in New Mexico, which would be in the northwest of the northeast.

Q Do you agree that the development of this pool has been concluded on the west side?

A To the west of the fault?

Q To the west of the fault.

A I believe it probably has, yes.

Q In other words, we can strike out further enlargement to the west. Coming to the south where there is a dry hole, how do you feel about the south?

A That Mid-Continent well in Section 34.

Q You testified the pool hadn't been developed now. I am just trying to get what exact direction had not been developed.

A If I knew what direction hadn't been developed, I would go out and buy the leases myself, if I could buy them. It stands to reason that there has been a well drilled since the last hearing which indicates that the field wasn't at that time developed no matter what the direction be. I think at the last hearing I indicated that it was principally to the north that I thought the field remained undeveloped. I still feel that way and there is evidence that the field remains undeveloped to the northeast.

Q Development is proceeding in a regular 80-acre spacing pattern, one well just concluded and one now being drilled.

A There is quite a lapse of time between the completion of the

well Magnolia 1-B and the commencement of the well.

Q Three months you mean. Completed in September, October, now being drilled in December.

A What I said the well prior to the Magnolia 1-B. That well was completed in February 1951. Magnolia 1-B was started in April 1951.

Q One month.

A During a period of three years there has been six wells drilled.

Q Yes. Do you think that is orderly development?

A It is pretty slow, isn't it?

Q It is. It absolutely is slow. You know what it costs to drill alone? It is admittedly slow.

MR. McKELLAR: That is all the questions I have.

MR. WHITE: No questions.

MR. HANNERS: Do you think of anything further?

A I would like to introduce one exhibit here which is a graphic illustration of the core data submitted by Mid-Continent showing the rank of permeability.

(Marked Exhibit Sawyer No. 1 for identification.)

By MR. WHITE:

Q From your testimony is it true that if they were to drill a well on 40-acre spacing that would not necessarily mean, due to the high water drive, that the royalty owner would receive a

quicker return on his mineral interest?

A Oh, I expect he would receive a slightly quicker return, but that isn't the object of recommending the additional development in here. It is one to prevent the waste of oil that in my opinion is occurring as a result of erratic incursion of water into the field, if by drilling the additional wells there would be a greater recovery of oil to the field, to the royalty owner, operator, and to the state.

MR. HANNERS: Mr. Fitting, the instrument that you just referred to is marked as Sawyer Exhibit 1, graphic core analysis data. Please explain to the Commission what the chart shows.

A That is a graphic illustration of the core analysis data that was submitted by Mid-Continent either at the prior hearing or by letter between the two prior hearings. It shows the range of permeability from one-tenth of one millidarcy up to 4,620 millidarcy. These have been plotted with reference to the top of the Devonian at certain distances from the top as they occur in the wells from which these cores were obtained. The cores are principally from the UD Sawyer A No. 1 and from the Dessie Sawyer No. 1. The cores from the Dessie Sawyer No. 1 were obtained 200 feet below the top of the Devonian and that is the way they are shown on the graph. The cores from UD Sawyer A-1 were from about 70 feet of the top of the Devonian to 110. There are not many samples but a wide range of permeability and porosity indicated

that is the reason I thought this would be helpful to the Commission.

MR. HANNERS: We offer the exhibit.

MR. McKELLAR: I have no objection. I have one question.

By MR. McKELLAR:

Q Does that permeable graph taking into consideration the fractures and cracks which run through the formation which go to make up the overall permeable --

A (Interrupting) I am merely graphing the data that was presented in the hearings. I was advised by Mr. Penn that the samples that were analyzed covered large pieces of rock and so in part it may have fractures in it and in parts it doesn't have probably.

Q You testified just before you introduced this chart in answer to Mr. White's question that in your opinion additional oil would be recovered by the drilling of two wells on an acre. How much oil do you estimate, how much additional oil by the second well?

A I don't have an estimate of that. I would like to explain the answer on it. We are faced here with a field that there is going to be a high percentage of recovery from a very small part of the pay. We may get close to 100 per cent from some of the tortuous channels that are in the field, in other parts of the field where they are permeable there are going to be recoveries

that are less than 10 per cent. If the movement of water can be made more uniform through the permeable channels there is certain deducible evidence there that we increased recovery of oil. It is not unlikely by proper handling of the field of this kind to double the oil recovery by gutting the field at high rates with widely spaced wells.

Q In your answer you don't intend to infer that you are gutting the field by high rates, or do you? If you do, answer yes.

A I am giving you the two variations that could be obtained.

Q I am getting the Crossroads Devonian in Lea County.

A I am 1,000 barrels a well a day. There would be erratic water incursion even more so than evidenced.

Q You made no concrete estimation as to how much this additional well on the 80 would bring in, would produce, as I understand your answer.

A I don't, I can't give you the figure in barrels.

Q Can you give it in dollars and cents?

A I think it will be substantially more than the cost of the well.

Q You can't give it in barrels but you can give it in dollars and cents. I don't quite follow you.

A I can give it to as being appreciable and more than the cost of the well. As to the number of barrels, I don't know. Percentage wise I can see it would be possible.

Q On what do you base your answer on --

A (Interrupting) I am basing it on the fact that we are getting evidence of water coming into the field without the complete flushing out of oil.

Q How much time have you spent on this preparation for this study of this field?

A About two days.

Q Plus ten days you spent previously?

A Yes, sir.

Q A total of 12 days?

A Yes, sir.

MR. McKELLAR: That is all.

MR. SPURRIER: Any one?

A I have one other thing that I would like to add. I spent 18 years studying the oil business in addition to those 12 days.

MR. McKELLAR: That is all.

MR. HANNERS: That is all.

MR. SPURRIER: I had one question of Mr. Fitting. In your experience, Mr. Fitting, what do you think is an average or a reasonable pay-out time for various kinds of wells or various depth wells?

A That is a hard question to answer because obviously the operators want it usually as fast as possible. I can illustrate what the pay-out times are for various wells in both Texas and

New Mexico. They vary from less than a year on some of the shallow wells to as much as four years, on one field I know where extension wells were secured in a tightly prorated field in west Texas. I consider the pay-out time in New Mexico fields to be good.

MR. SPURRIER: As I remember when the hearings were held to determine this deep well allowable factor pay-out time in Lea County of those shallower wells was probably three to four years. Does that sound correct to you?

A I recall those early hearings on the deep well factor, in fact, I participated in them. I think that it was two and a half to three and a half years. The factor was based largely on economics.

MR. SPURRIER: That is all.

By MR. McKELLAR:

Q One question on the old hearings. Of course economics has been increased since then and oil is worth more money. Do you remember the hearings in which you participated what spacing you recommended for the deep Devonian pools?

A I don't believe I recommended any spacing. In fact there wasn't any deep Devonian pools at that time.

MR. HANNERS: We have nothing further.

MR. SPURRIER: Does anyone have anything further?

(Witness excused.)

MR. DOW: I simply wanted in closing to stress this thought with the Commission that this has been an unsual procedure. I believe the law is that when the Commission makes an order after hearing and findings that it should support the order and that anyone who is dissatisfied with it or complains that waste is being committed should carry the burden of showing what the waste is and correlative rights are being impaired. It has been the reverse in this, upon mere letter or information that was filed with the Commission.

Of course, if the Commission on its own initiative issues an order effecting prior order why then it can designate who has the burden or both parties. But in this case if proceeded regularly certainly the complainant would have had the burden to show to the Commission that waste is being committed or that correlative rights are impaired. On the other hand, they produce one witness when we produced several, and we have all gone along in the spirit of cooperation with the Commission and came in, assumed the burden in showing that we are producing the Crossroads Pool in a manner as to maintain the pressure and that we are not committing waste and that correlative rights are not impaired. I think our testimony by preponderance shows that to be true. I think we went beyond what we were required to go. As to this spacing problem, and I realize that it would be a fine thing if the Commission could get rid of this thing and say let's just go to a 40-acre

spacing all over the state, but the Commission can't do that as long as the law is as it is because they are going to have to face the thing on account of the fact that the law provides that companies shall not be required to drill unnecessary wells, giving them reasons for it. It is just one of the things that the Commission is going to have to face as long as the law stands. It just can't brush it off by saying we are just going to do away with all 80-acre and go to a 40-acre spacing. These applications are going to come up and of course they are going to have to be dealt with each on its own merits. I think considering the merits of this cause Order 779 having been issued having been acted upon in good faith, that we shouldn't have been called upon to show cause why they shouldn't consider that the other party complaining should have been required to submit evidence first that waste was being committed or that correlative rights were being adversely effected. Which certainly they haven't carried the burden of doing. I want to make the few observations but on the technical part of the testimony Mr. McKellar would like to discuss that.

MR. IDEN: I don't think I have anything.

MR. McKELLAR: I have a few words I would like to bring out on No. 6 which is part of the grounds on which the order was predicated. The finding reads that there was no showing that pressure maintenance or other secondary recovery methods were under consideration by the operators in a pool as a matter of

preventing waste and protecting correlative rights. This finding says pressure maintenance or other secondary recovery methods.

I want to point out that the terms secondary recovery refers to method of fluid injection, gas, or water applied after the so-called primary method of flowing or pumping have reached or approached the economic limits of the wells, have reached what we commonly call the stripping stage. Pressure maintenance on the other hand refers to the operation of injecting fluid at the beginning or near the beginning of the development of the pool well in advance of the stripping state, when the operators of Crossroads have not undertaken any secondary recovery operation in the pool. Of course this fact does not preclude such consideration as if and when the well reaches that stage.

If the reservoir is produced properly there may be little oil to be recovered by these measures. The basic issue I want to point out is on the finding has the pressure been maintained, if it has not the operators are guilty of poor production practices. If it has been maintained, then certainly one must concede that a pressure maintenance operation if in effect is functioning properly. We have shown that the original bottom hole pressure average was 4874, that as of October 1st of this year it is 4846, or a loss of 28 pounds, or a loss of about one pound per every 40,000 barrels of oil. I think that this was admitted by all the witnesses and I can conceive of no one geologist, engineer,

royalty owner, lawyer, or what not that could ask for a better example of pressure maintenance in operation than we have shown in the operation in Crossroads Devonian. I want the Commission to bear that in mind because I think it does conclusively show that the findings No. 6 was either drafted through a misunderstanding of the true meaning of these terms or through a misinterpretation of what we actually have here. Thank you.

MR. SPURRIER: Mr. Hanners.

MR. HANNERS: If the Commission please, I believe the record shows that previous statements by Mr. Dow as to their position in the matter and I believe it discloses our position but to restate it most briefly, the order which was adopted in 1948 immediately after the discovery of the first well and prior to the drilling of any second well was bottomed on the proposition that a four section area would be productive of oil from the Devonian formation.

Sometime later the Santa Fe Railroad and its oil associate filed an application to abandon the 80-acre pattern because they had encountered a dry hole in one well they drilled. At that time the Sawyer royalty owners merely filed an information to the Commission calling attention to the fact that the first order had been adopted as an exception to our state wide 40-acre pattern and that subsequent facts had not demonstrated in and of themselves it ought to be continued.

We merely called attention to certain information of the Commission. The order then was issued for the hearing at which the petitioners in the first matter, that is Mid-Continent and Magnolia, were required to show cause, if any, they might have why the order should not be cancelled as an exception. As Mr. Dow said he feels that they went further than we should. We feel we went further than we should. We came with witnesses to show not only that the Mid-Continent and its associates had failed to demonstrate that the order should be continued but we showed that waste was occurring by reason of and in all events it should be cancelled. The Commission then made as its finding of fact No. 5 in the present order cancelling the 80-acre pattern. There has been substantial evidence though controverted to some extent that waste and impairment of core will result if the 80-acre spacing provided by 779 is continued in effect. We think that was a correct finding of fact. We believe there has been a change of condition that supports the jurisdiction of the Commission under the reserve paragraph to take up the hearing as we did in October and the one in March and the one we had today.

We therefore respectfully submit that not once has its associates failed to demonstrate the 80-acre pattern should be continued, not only have they failed to do that but we have affirmatively shown it should be cancelled. We therefore submit that the application for rehearing should be denied and the order

of October 15 rescinding order No. 779 and putting the Devonian back on the normal statewide 40-acre pattern should stand as first made by the Commission.

MR. DOW: Only one question on Mr. Hanner's statement. The Santa Fe Pacific didn't abandon the 80-acre spacing. They got an extension by reason of a default?

MR. HANNERS: That is correct. I did not intend to misstate it. They changed the pattern without abandoning the 80-acre order.

MR. CROCKER: I believe Mr. Hanners says that Order 779 was bottomed on an exception to the statewide spacing order that then prevailed at the time. I submit to the Commission that in the preamble, the findings that the Commission made, I believe it found specifically that conditions brought about by this discovery well at the depth which it was bottomed called for an amplification or change in the basic policy on account of cost, time, hazards, and materials required.

I don't believe that the Commission at that time merely says we are just going to grant you an exception here. It looks to me like as I read the preamble a basic policy was considered. Now then with respect to reserve powers in Section 8 of the Order 779, that is not an unusual provision in this order. I know of no Commission or regulatory body, and I haven't been before all of them, but I think in Texas, I think in Oklahoma, I think in Kansas, I think in Arkansas, and I think in Louisiana these orders as

issued by the regulatory body is naturally reserved and retains jurisdiction to correct any inequity or any changed condition. It normally and naturally follows, I think, that when the regulatory body makes an order at the inception of a pool they undertake to delineate upon their map the probable definition of the pool, the extent of it. That cannot always be true, as we know.

In the development under these orders you will eventually come to the edge of the pool. It brings about, as in the Santa Fe case, in this particular pool they drilled in good faith on a conventional location and it so happened, apparently, from the evidence, that they were on the wrong side of the fault. They spent their money and got a barren well. It was quite natural that inasmuch as they owned the entire northwest quarter in view of development that had been had in the southeast quarter I believe that they had some inequities. They probably had some production in that pool and they were being deprived of the reasonable right to secure it. They came before this Commission under that Section 8, and the Commission, I think, rightfully considered the matter from the standpoint of an exception. Ordinarily these exceptions are granted where the Commission has cogent and compelling reasons submitted to it. Now the Commission in that case, it didn't strike down 80-acre spacing rights, substantive rights had been created, money spent. The Commission came to the conclusion that the equities of the Santa Fe Pacific

or the Oil Development Company could be preserved by granting an exception to the order, and any time a Commission makes an order, if it has authority to make an order, it has authority to grant exceptions to it, if it makes an order and creates substantive rights, it should not strike down the entire order where equities can be preserved through the medium of an exception. You act as quasi judicial body. You are bound by the ordinary rules of evidence. I think that those are factors that should be considered by the Commission.

MR. JACK CAMPBELL: If the Commission please, speaking only for myself, I would like to have you clarify a point there, Mr. Crocker. Is it your conception that when the Commission enters an order, as it did in this case, and you speak of substantive rights coming into existence, is it your conception that thereafter the power of the Commission is limited to acting upon requests for exceptions to that order?

MR. CROCKER: No, I don't mean that quite. I think this, Mr. Campbell, if the Commission makes an order that it is obviously proved later and development later obviously shows that it is destructive of conservation, it is provocative of waste and invades correlative rights to such an extent that that order cannot be cured by exception when those jurisdictional facts are laid, I think the exception then has inherent power on its own motion to go into the thing. I believe that.

MR. CAMPBELL: Your statement as to property rights being created assumes the continued existence of the same facts?

MR. CROCKER: I make this assertion that a sovereign state should sustain its orders and have high respect for the substantive rights of their creator and not strike them down if any inequity can be preserved or taken care of through the medium of exceptions under the reserve power.

MR. SPURRIER: If nothing further.

MR. R. S. CHRISTIE: Representing Amerada Petroleum Corporation. We have no production in the Crossroads Pool but as the Commission well knows we are interested in several other pools which now have 80-acre proration units. After listening to the testimony in this case I think it is quite similar to some of the other pools which have been developed on the 80-acre spacing program. To me the important point in this case in other fields which have 80-acre units is will one well drain 80 acres. I think the evidence in this case, as far as my own opinion is concerned, is that one well will drain 80 acres. I just merely want to state in behalf of Amerada we concur in the findings of the applicant and suggest that the Commission consider this case very seriously in other fields that have 80-acre units.

MR. SPURRIER: Anyone else?

MR. BUCKLER: Representing Sinclair Oil and Gas Company. We have nothing in this particular Crossroads field. We are generally

interested in 80-acre spacing in the state of New Mexico wherever it can be possibly done and the rights of all parties that are interested protected, correlative rights protected. We think that the Commission should establish a policy as well as one they have heretofore had 80-acre spacing it shouldn't be an exception to the 40-acre. It should come as a matter of course where the facts fit as the 80-acre spacing, the only thing to be determined and to be determined from a proceeding in this case and others whether it is applicable or isn't and we dislike to see the Commission shy away from the 80-acre policy but would like to see it and are here to show our interest in that policy to be adopted if possible.

MR. SPURRIER: Anyone else? Would you by the same token recommend that the Commission consider anything less than 40-acre spacing?

MR. BUCKLER: If the Commission found that it was necessary to proper development and protection of correlative rights in order to have conservation for the state, I would see no objection to it. I think the facts of everything would have to sit on just such a state of facts.

MR. WHITE: With Leonard Oil. If you did consider less than 40-acre spacing how would you feel about the allowable?

MR. BUCKLER: I should think that would have to be based on the facts of the pool as it was developed, on what the porosity and the conservation loss would be if it were necessary to grant

an allowable on proration basis.

MR. SPURRIER: Anyone else? If not, the hearing is closed and the case will be taken under advisement.

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STATE OF NEW MEXICO)
:
COUNTY OF BERNALILLO)

I HEREBY CERTIFY that the foregoing and attached transcript of rehearing in Case No. 149 before the Oil Conservation Commission, State of New Mexico, at Santa Fe, on December 19th, 1951, is a true and correct record of the same to the best of my knowledge, skill and ability.

DATED at Albuquerque, New Mexico, this 8th day of January, 1952.

Ida Dearnley
REPORTER