

Casa No.

204

Application, Transcript,
Small Exhibits, Etc.

MAGNOLIA PETROLEUM COMPANY

A SOCONY-VACUUM COMPANY

LEGAL DEPARTMENT

DALLAS 1, TEXAS

WALLACE HAWKINS
SPECIAL COUNSEL
EARL A. BROWN
ROY C. LEDBETTER
RAYMOND M. MYERS
CHAS. B. WALLACE
ROSS MADOLE
R. T. WILKINSON, JR.
FLOYD B. PITTS
SAM H. FIELD
WILLIAM E. MCKELLAR, JR.
ASSISTANTS

January 23, 1950



Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Re: Establishment of
Proration Units and
Uniform Spacing of
Wells in the Knowles
Pool in Lea County,
New Mexico, Case No.
204, Order No. R-3.

Gentlemen:

We are advised that Amerada Petroleum Corporation has applied for a re-hearing in the above styled case. Magnolia Petroleum Company, being interested in this case, submits the attached Joinder in Amerada's application for re-hearing.

Yours very truly,

William E. McKellar, Jr.

William E. McKellar, Jr.

WEMcK/bcb

Copy transcript - Case 204

mailed to U. M. Rose, Atty. at Law,

Box 1345, Hobbs, N.M. - 2/14/50

Case 204 (rehearing)

Order Granting Rehearing

Handed to Mr. Staley, 2-8-50

Order R-6

March 10, 1950

Mr. Glenn Staley
Hobbs, New Mexico

Case 204

RE: In the matter of the application of
Amerada Petroleum Corporation for an order
establishing proration units and uniform
spacing of wells for the common source of
supply discovered in the W. W. Hamilton
No. 1 well, NE SW section 35, T.16 S, R. 38 E,
N.M.P.M., Knowles pool, Lea County, New
Mexico.

You are hereby notified that the record of the Commission
hearing, held in Santa Fe, New Mexico, on February 21, 1950, in the
matter of Case 204, was continued to March 21, 1950, 10:00 o'clock
a. m., House of Representatives.

OIL CONSERVATION COMMISSION

R. R. SPURRIER
Secretary & Director

LEA COUNTY OPERATORS COMMITTEE
HOBBS, NEW MEXICO
March 13, 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 hearings to be held March 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:

The Northwestern New Mexico Nomenclature Committee, Mr. Paul Umbach, its Chairman, the Southeastern New Mexico Nomenclature Committee, Mr. Dudley Sands, its Chairman, all operators in the areas, and notice to the public:

204 *hearing*
Case 214

In the matter of hearing upon motion of the Oil Conservation Commission upon the recommendation of the Northwestern New Mexico Nomenclature Committee that;

- (1) Pool boundaries be set up around the following discovery well:
Herbert Herff #1 Federal, NE NE Section 4, Twp. 27N, R. 8W.
- (2) The following area in San Juan County be designated the Largo Pool - Mesaverde:
Twp. 27N, Rge. 8W: Section 3 & 4, All
Twp. 28N, Rge. 8W: Section 33 & 34, All.
- (3) The following extension to the Fulcher Basin-Kutz Canyon Pool to be recommended for consideration:
Twp. 28N, Rge. 10W: Section 11, W/2; Section 14, W/2.

Case 215

In the matter of hearing upon motion of the Oil Conservation Commission upon the recommendation of the Southeastern New Mexico Nomenclature Committee that:

- (1) A new pool be created to be designated as the "Saunders" pool to include S/2 Sec. 34, T 14S, R 33E and N/2 Sec. 3, T 15S, R 33E, for Permo-Pennsylvanian production.
- (2) A new pool be created to be designated as "House-San Andres" to include the E/2 Sec. 11 and W/2 Sec. 12, T 20S, R 38E, for San Andres production.
- (3) A new pool be created to be named "Hightower-Permo-Pennsylvanian" to include Secs. 22, 23, 26 & 27, T 12S, R 33E, for Permo Pennsylvanian oil and gas production.
- (4) A new pool be created to be named "Nadine" to include all Sec. 23,

T 19S, R 38E, for lower Drinkard production.

- (5) The Artesia pool be extended to include W/2 Sec. 25, T 18S, R 27E, for Grayburg production.
- (6) The Hare pool be extended to include NE/4 Sec. 21 & N/2 & SE/4 Sec. 22, T 21S, R 37E, for McKee production.
- (7) A new pool be created to be named "East Bough" to include SE/4 Sec. 7, SW/4 Sec. 8, NW/4 Sec. 17 & NE/4 Sec. 18, T 9S, R 36E, for Permo-Pennsylvanian production.
- (8) The Empire pool be extended to include S/2 Sec. 7, T 17S, R 28E, for Seven Rivers production.
- (9) The West Wilson pool be extended to include W/2 Sec. 15, T 21S, R 34E, for Seven Rivers production.
- (10) The Langlie-Mattix pool be extended to include W/2 Sec. 35, T 23S, R 37E, for Queen production.
- (11) A new pool be created to be named "South Leonard" to include all Sec. 24, T 26S, R 37E, for Queen production.
- (12) A new pool be created named "Teague-Ellenburger" to include S/2 Sec. 22 and N/2 Sec. 27, T 23S, R 37E, for Ellenburger production.

Case 216

In the matter of the application of Wilson Oil Company for an order granting it permission to drill an unorthodox location on its State B 6807 lease, located 2310 feet south of the north line and 1270 feet east of the west line (SW NW) Section 12, Twp. 21S, R 34E, N.M.P.M., in the Wilson pool of Lea County, New Mexico. 13

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on March 6, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
R. R. SPURRIER, SECRETARY

SEAL

*all 2nd parties in l file cos
& notice to l pres*

March 23, 1950

REGISTERED MAIL

Mr. Darrell W. Smith
1118 North Big Spring Street
Midland, Texas

Dear Sir:

You will find enclosed, Notice of Publication of hearing to be held by the Oil Conservation Commission, at Santa Fe, New Mexico, on April 10, 1950.

The attached notice is sent to you in accordance with Rule 104, Section e, of the Rules and Regulations of the Commission.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
R. R. Spurrier
Secretary-Director

RRS:bw
encl.

March 23, 1950

REGISTERED MAIL

Mr. C. P. Dixit
Phillips Petroleum Company
Bartlesville, Oklahoma

Dear Mr. Dixit:

You will find enclosed, Notice of Publication of hearing to be held by the Oil Conservation Commission, at Santa Fe, New Mexico, on April 10, 1950.

The attached notice is sent to you in accordance with Rule 104, Section e, of the Rules and Regulations of this Commission.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrer
R. R. Spurrer
Secretary-Director

RRS:bw
encl.

March 23, 1950

REGISTERED MAIL

Mr. Glenn Staley
Lee County Operators Committee
Dresser I
Hobbs, New Mexico

Dear Mr. Staley:

We enclose herewith, copy of Notice of Publication, in connection with
a hearing to be held April 10, 1950.

Very truly yours,

R. R. Spurr
R. R. Spurr
Secretary-Director

RRS:bw
encl.

THURSDAY

MARCH						
S	M	T	W	T	F	S
			1	2	3	4
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30

MAR. 1950

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Re Case 204

C
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GEORGE L. REESE, JR.
DON G. MCCORMICK
S. M. RUTHERFORD, III

REESE AND MCCORMICK

ATTORNEYS AT LAW

BUJAC BUILDING

CARLSBAD, NEW MEXICO

March 24, 1950

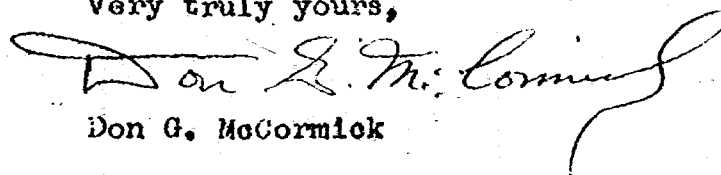
Mr. R. R. Spurrier
P. O. Box 871
Santa Fe, New Mexico

Dear Dick:

I have prepared a rough draft of the order which we discussed in Case No. 204, relating to the Knowles Pool in Lea County. However, I find that I shall need a copy of the original application filed by Amerada Petroleum Corporation in order to complete my draft. Kindly send me a copy of the application at your convenience.

I shall be out of town most of next week, so it is likely that you will not receive the final draft of the order from me for about two weeks. Since the transcript will not be completed until then, I see no difficulty due to this delay.

Very truly yours,


Don G. McCormick

DGM:mah

cc: Hon. George L. Graham
State Land Office
Santa Fe, New Mexico

GEORGE L. REESE, JR.
DON G. MCCORMICK
S. M. RUTHERFORD, III

REESE AND MCCORMICK

ATTORNEYS AT LAW
BUJAC BUILDING
CARLSBAD, NEW MEXICO

March 23, 1950

Hon. Phillip Dunleavy
Office of the Attorney General
Santa Fe, New Mexico

Re: Amerada Petroleum Corporation vs. New Mexico
Oil Conservation Commission

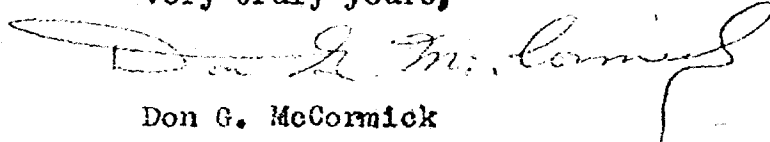
Dear Phil:

Enclosed is the original plus six copies of Answer to be filed in the above matter now pending in the District Court of Lea County. If this Answer meets your approval will you kindly have it signed by Mr. Martinez, yourself and Mr. George L. Graham, then either you or George should mail copies to the attorneys shown in the Certificate of Service.

You will note that both George L. Graham and myself are designated as Special Assistant Attorneys General on the pleading. In my conversation with you yesterday, you stated that Mr. Graham could appear as attorney for the State Land Office, but since the State Land Office is not formally a party to this action, it would be better not to have Mr. Graham shown as attorney for the land office in the pleading.

Will you kindly acknowledge receipt of this pleading and advise when service is made. An extra copy is enclosed for your file as well as a copy for Mr. Graham's file.

Very truly yours,


Don G. McCormick

DGM:mmh
Enclosures

cc: Mr. R. R. Spurrier, State Geologist, Santa Fe, N. Mex.

Hon. George L. Graham, New Mexico Oil Conservation
Commission, Santa Fe, New Mexico

PHONE
1014

U. M. ROSE
ATTORNEY AT LAW
111 NORTH DALMONT
HOBBE, NEW MEXICO

P. O. BOX
1345

February 13, 1950



Mr. J. O. Seth
% Seth and Montgomery
Attorneys at Law
Santa Fe, New Mexico

Re: Case No. 204-New Mexico Oil Con-
servation Commission, Knowles Pool

Dear Judge Seth:

Enclosed herewith is a letter on the case above captioned, in the first paragraph of which I explained my delay in notifying Council of Record of the fact that I am participating in this case on behalf of a number of royalty owners in the Knowles Pool. Enclosed is a copy of the Petition which I prepared and which was filed by several royalty owners. I do not know all of the royalty owners who signed the same, as the petitioners never advised me the names of the signatories prior to filing the Petition.

Today I talked on the telephone with Mr. W. R. Page, Chief Counsel for Amerada, and he agreed to a postponement of the hearing which I requested because of a conflict in the schedule of our geologist. Mr. Page stated that he would write you a letter and ask you to notify the Commission to give the case another setting.

I should be able to attend the hearing at just about any time within the next month or two, but inasmuch as both Amerada's expert witnesses and our own will have to appear, I suggest that, if possible, you obtain from the Commission a tentative date, clear the same with your own witnesses, and allow me to clear it with mine and then have the date made definite after we have agreed on it.

Thanking you and with best regards, I am

Sincerely yours,

A handwritten signature in dark ink, appearing to read "U. M. Rose".

U. M. ROSE

UMR/gb
Encls.

cc - Mr. Booth Kellough
Guy Shepard
R. R. Spurrier
George A. Graham

OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

March 10, 1950

C
O
P
Y

Mr. George A. Graham
Santa Fe, N. M.

Case 204
RE: In the matter of the application of Amerada
Petroleum Corporation for an order establishing
proration units and uniform spacing of wells for the
common source of supply discovered in the
W. W. Hamilton No. 1 well, NE SW section 35,
T.16 S, R.38 E, N.M.P.M., Knowles pool, Lea
County, New Mexico

You are hereby notified that the record of the Commission hearing,
held in Santa Fe, New Mexico, on February 21 in the matter of Case 204,
was continued to March 21, 1950, 10:00 o'clock a.m., House of
Representatives.

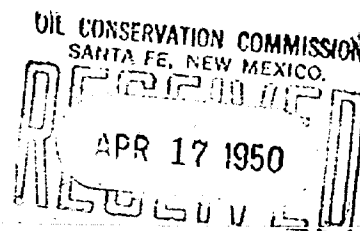
OIL CONSERVATION COMMISSION

R. R. Gouvier
Secretary and Director

GEORGE L. REESE, JR.
DON G. MCCORMICK
S. M. RUTHERFORD, III

REESE AND MCCORMICK
ATTORNEYS AT LAW
BUJAC BUILDING
CARLSBAD, NEW MEXICO

April 14, 1950



Oil Conservation Commission
Santa Fe
New Mexico

Attention: Beverly

Dear Beverly:

Please send me the original petition in case
No. 204, being the application of Amerada
Petroleum Company for a Spacing Order in the
Knows Pool.

Very truly yours,

A handwritten signature in cursive script, reading "Don G. McCormick".

Don G. McCormick

DGM:mnh

Sent
4-17-50

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

W. P. MARSHALL, PRESIDENT

1201

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

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

A10 DB207

DMDA102 PD=MIDLAND TEX 21 1153A=

R R SPURRIER=

=OIL CONSERVATION COMMISSION SANTA FE NMEX=

WITH REFERENCE TO HEARING OF CASE 204 THIS DATE THE HUMBLE OIL & REFINING COMPANY DOES NOT PRESENTLY OWN ACREAGE NEAR THE KNOWLES POOL BUT IS MOST INTERESTED IN THE SPACING OF DEEP WELLS IN NEW MEXICO STOP WE HAVE CRITICALLY REVIEWED GEOLOGICAL AND RESERVOIR DATA COVERING CURRENT DEVELOPMENT IN THE KNOWLES FIELD AND FIND NO EVIDENCE TO INDICATE THAT 80 ACRE SPACING WILL NOT EFFICIENTLY AND ECONOMICALLY DRAIN THIS POOL AND OTHER POOLS OF SIMILAR CHARACTER=

=HUMBLE OIL & REFINING CO BY R S DEWEY=

1950 MAR 21 AM 11 13

Copy of transcript

U. M. ROSE

Attorney at Law

Phone 1014
P. O. Box 1385

111 North Dalmont
Hobbs, New Mexico

PHONE
1014

U. M. ROSE
ATTORNEY AT LAW
111 NORTH DALMONT
HOBBS, NEW MEXICO

P. O. BOX
~~332~~
1345

February 13, 1950

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

Re: Case No. 204 - New Mexico Oil
Conservation Commission -
Knowles Pool

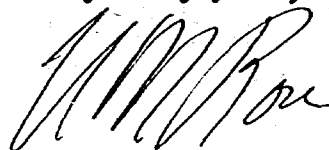
Dear Sir:

Enclosed herewith is a copy of my letter to Mr. J. O.
Seth on the case above captioned, which is self-explanatory.

Thank you very much for the notice you mailed to me
last week and the copy of the Rules of the Commission.

Looking forward to seeing you when I am in Santa Fe,
I am

Very truly yours,



U. M. ROSE

UMR/gb
Encl.

PHONE
1014

U. M. ROSE
ATTORNEY AT LAW
111 NORTH OALMONT
HOBBES, NEW MEXICO

P. O. BOX
1345
1345

February 13, 1950

Mr. J. O. Seth
% Seth and Montgomery
Attorneys at Law
Santa Fe, New Mexico

Dear Judge Seth:

Re: Case No. 204-New Mexico Oil Con-
servation Commission, Knowles Pool

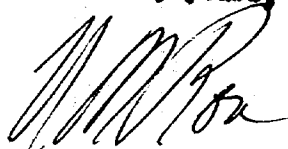
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Today I talked on the telephone with Mr. W. R. Page, Chief Counsel for Amerada, and he agreed to a postponement of the hearing which I requested because of a conflict in the schedule of our geologist. Mr. Page stated that he would write you a letter and ask you to notify the Commission to give the case another setting.

I should be able to attend the hearing at just about any time within the next month or two, but inasmuch as both Amerada's expert witnesses and our own will have to appear, I suggest that, if possible, you obtain from the Commission a tentative date, clear the same with your own witnesses, and allow me to clear it with mine and then have the date made definite after we have agreed on it.

Thanking you and with best regards, I am

Sincerely yours,


U. M. ROSE

UMR/gb
Encls.
cc - Mr. Booth Kellough
Guy Shepard
R. R. Spurrier
George A. Graham

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO TO:

Amerada Petroleum Corporation
and all other interested parties:

Notice is hereby given that a hearing will be held before the
Oil Conservation Commission at Santa Fe, New Mexico, in the Office of
the Oil Conservation Commission on February 21, 1950, commencing at 10:00
a.m., in


Case No. 204

In the matter of the application of Amerada Petroleum Corporation
for the establishment of proration units and uniform spacing of wells in
the Knowles Pool in Lea County, New Mexico.

This being a rehearing granted on application of Amerada Petro-
leum Corporation.

Given under the seal of the Oil Conservation Commission at
Santa Fe, New Mexico, on February 2, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

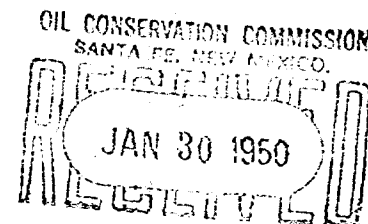

R. R. SPURRIER, SECRETARY

✓

J.O. SETH
A.K. MONTGOMERY
OLIVER SETH
WM. FEDERICI

SETH AND MONTGOMERY
ATTORNEYS AND COUNSELORS AT LAW
111 SAN FRANCISCO ST.
SANTA FE, NEW MEXICO

January 26, 1950



OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

Gentlemen:

I enclose herewith in triplicate Application for Rehearing in Case No. 204, entitled: "In the Matter of the Application of Amerada Petroleum Corporation for the Establishment of Proration Units and Uniform Spacing of Wells in the Knowles Pool in Lea County, New Mexico."

I also enclose in triplicate Memorandum Brief in Support of Application for Rehearing.

The other operators in the Knowles Pool, that is the Magnolia and Gulf, have already filed, or will file, instruments with the Commission joining in this application for rehearing.

Very truly yours,

JOS:f

JOS:f
Encs.

February 2, 1950

SANTA FE NEW MEXICAN
Santa Fe, New Mexico

Re: Case 204
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 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.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encls.

February 2, 1950

HOBBS NEWS SUN

Hobbs, New Mexico

Re: Case 204
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 to this office.

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

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

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encls.

February 2, 1950

REGISTERED MAIL

Mr. Glenn Staley
Lea County Operators Committee
Drawer I
Hobbs, New Mexico

Dear Mr. Staley:

Please find enclosed, copy of Notice of Publication, for the rehearing
on Case 204.

Very truly yours,

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

February 2, 1950

REGISTERED MAIL

Mr. J. O. Smith
111 E. San Francisco Street
Santa Fe, New Mexico

Dear Mr. Smith:

We enclose herewith, Notice of Publication in regard to the rehearing
of Case No. 204, Order No. R-3.

Very truly yours,

R. R. Spurrier
Secretary-Director

RRS:lw
encl.

January 13, 1950

Mr. J. A. Seth
111 E. San Francisco Street
Santa Fe, New Mexico

Dear Mr. Seth:

We enclose herewith, signed copy of Order No. R-3, issued by the Oil Conservation Commission, on January 11, 1950, in connection with the hearing held at Santa Fe, New Mexico, on November 22, 1949.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO TO:

Amerada Petroleum Corporation
and all other interested parties:

Notice is hereby given that a hearing will be held before the
Oil Conservation Commission at Santa Fe, New Mexico, in the Office of
the Oil Conservation Commission on February 21, 1950, commencing at 10:00
a.m., in

Case No. 204

In the matter of the application of Amerada Petroleum Corporation
for the establishment of proration units and uniform spacing of wells in
the Knowles Pool in Lea County, New Mexico.

This being a rehearing granted on application of Amerada Petro-
leum Corporation.

Given under the seal of the Oil Conservation Commission at
Santa Fe, New Mexico, on February 2, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
R. R. SPURRIER, SECRETARY

SEAL

February 7, 1950

Mr. J. O. Seth
111 E. San Francisco Street
Santa Fe, New Mexico

Dear Mr. Seth:

We enclose herewith, signed copy of Order No. R-6, issued by the
Oil Conservation Commission, in connection with the rehearing to
be held on February 21, 1950.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

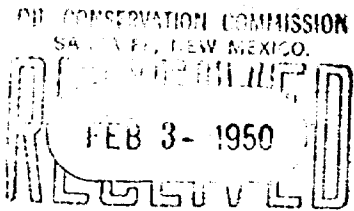
R. R. Spurrier
Secretary-Director

RRS:hw
encl.

F. J. DANGLADE

LOVINGTON, NEW MEXICO

31 January 1950



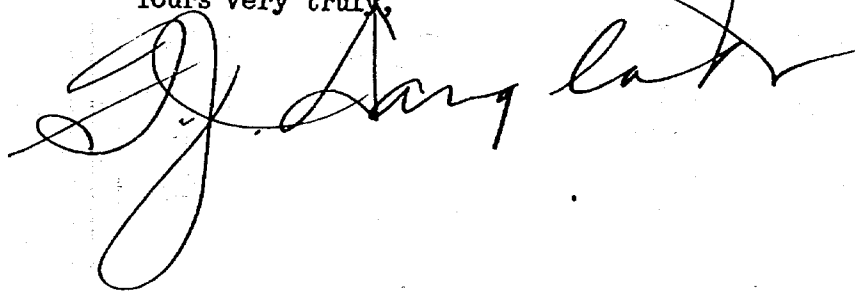
Re: Case No. 204
Order No. R-3

Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Gentlemen:

Enclosed herewith will be found my joinder in application for rehearing in the above case.

Yours very truly,



FJD:gp

Enclosure

J. O. SETH
A. K. MONTGOMERY
OLIVER SETH
WM. FEDERICI

SETH AND MONTGOMERY
ATTORNEYS AND COUNSELORS AT LAW
III SAN FRANCISCO ST.
SANTA FE, NEW MEXICO

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

MAR 27 1950

March 25, 1950

NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

Gentlemen:

Re: Case No. 204

Enclosed herewith is a letter from Mr. C. F. Bedford of the Stanolind Oil and Gas Company at Fort Worth concerning the hearing on the above case. It will be appreciated if this letter can be considered as part of the file in the case, and the Commission consider it in connection with the other matters presented.

Very truly yours,

Oliver Seth

OS:f
Enc.

STANOLIND OIL AND GAS COMPANY

FAIR BUILDING

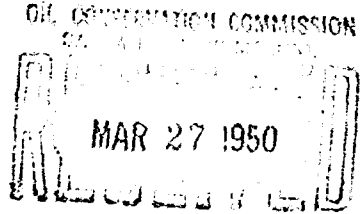
FORT WORTH, TEXAS

C. F. BEDFORD
DIVISION PRODUCTION SUPERINTENDENT

March 20, 1950

File: JEF-8904-175

Subject: Case No. 204, Orders R-3 and R-6,
Rehearing Concerning 80-Acre Spacing
Knowles Pool, Lea County, New Mexico.



State of New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Gentlemen:

This will have reference to Case No. 204, Order R-3 and to Order R-6 which granted Amerada Petroleum Corporation rehearing on their application for the establishment of eighty (80) acre proration units in the Knowles Pool of Lea County.

We wish to respectfully point out that, even though we have no material interest in any leases which may produce from the Knowles Pool, we have a keen interest in the outcome of this hearing.

Our rather wide experience obtained from a good many years in drilling for and producing crude oil qualifies us, we believe, to make the following statements concerning economics of drilling and producing deep wells.

The Knowles Pool is producing from the Devonian formation at an approximate depth of some 12,500 feet. Our records show that it costs approximately \$294,000 to \$300,000 to drill and equip a flowing oil well at a comparable depth in the Permian Basin and, further, that the overall lifting costs on such a well are very high over the producing life of the well. An operator, at best, will do well to break even on such an operation and will in all probability lose money after deductions are made for royalty, State and Federal Taxes, and lifting costs. This, then, would not provide sufficient capital to enable the operator to invest in further exploration with the result that many deep reserves may never be explored and there would certainly be no incentive for deep well exploration. We believe that economics is certainly pertinent to waste in that the leaving of oil in the ground, due to the fact that the cost of drilling and producing same is economically prohibitive, is certainly waste.

We wish to respectfully call your attention to the Commission's past policy of recognizing economics in considering field rules. We refer specifically to your findings published under Order 779 issued July 27, 1948 and having reference to 80-acre proration units in the Crossroads Pool.

Page 2

We believe that, in a reservoir with pay continuity, one well will do as efficient a job of draining 80 acres as will two wells and that the only practical difference in ultimate recovery lies in the time element. Under proration, the one well will recover essentially the same volume of oil, but will require twice the time to accomplish this as the two wells. The Commission, therefore, is faced only with the time element and not with the degree of ultimate recovery. We do, however, appreciate the position of the royalty owner. His economic picture may be such that he would prefer to obtain twice his present income for a shorter period of time. However, it is not reasonable to expect the operator to take an overall ultimate loss under these conditions.

We, therefore, respectfully request that you give serious consideration to all the factors involved when you act upon Case No. 204, as we feel that the outcome of this hearing is one of extreme importance.

Very truly yours,

C. J. Bedford

BRL/ek

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

W. P. MARSHALL, PRESIDENT

Case 204
1220 *En route*

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

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1950 MAR 20 PM 3 46

STATE OF NEWMEXICO OIL CONV COMM=

SANTA FE NMEX=

REFERENCE CASE #204 APPLICATION OF AMERADA PETROLEUM CORPORATION FOR ORDER ESTABLISHING PRORATION UNITS AND UNIFORM WELL SPACING FOR KNOWLES POOL. REGRET THE TEXAS COMPANY CAN NOT BE REPRESENTED AT HEARING ON MARCH 21, 1950 AND REQUEST THAT THIS WIRE BE INCLUDED IN RECORDS OF HEARING. THE TEXAS COMPANY HAS NO PRODUCTION IN THIS POOL AT PRESENT TIME BUT HAS APPROXIMATELY 2560

ACRES LEASED IMMEDIATELY NORTH AND NORTHWEST OF THE PRESENT PRODUCING AREA. WE ARE FAMILIAR WITH AMERADAS APPLICATION AND ARE OF THE OPINION THAT THE ADOPTION OF THEIR PROPOSAL WILL PREVENT THE DRILLING OF UNNECESSARY WELLS AND PROTECT CORRELATIVE RIGHTS

=THE TEXAS COMPANY C B WILLIAMS

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO.
MAR 20 1950

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

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 871
SANTA FE, NEW MEXICO

February 15, 1950

*Case
204*

MEMORANDUM TO R. R. SPURRIER:

Telephone conversation with Mr. U. M. Rose, representative of the royalty owners in the Knowles pool, says that he has contacted Page of Amerada and it is agreeable to Amerada to continue Case 204, for the reason that both Amerada and Rose's geologists and engineers cannot be present on the 21st because of prior commitments elsewhere.

Oliver Seth also called this morning, requesting me to poll the Commission (you and Guy) to see whether or not it is agreeable to postpone the hearing to a more convenient date and to know if the Commission wishes Amerada to file a motion for an order of continuance to some certain date or whether or not he should appear on the 21st and make motion for continuance for the record at that time.

Will you call me as soon as you return and tell me whether or not it is agreeable with you to continue the hearing since both parties are agreeable. Guy has already given his approval subject, however, to your wishes and asks that the date be set by you and he will arrange his plans for any date you may wish.

George A. Graham

GAG:bw

February 15, 1950

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George A. Graham

GAG:bw

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

294 heads
The State of New Mexico by its Oil Conservation Commission hereby gives public notice pursuant to law of a public hearing to be held November 22, 1949, beginning at 10:00 o'clock A.M. of that day in the City of Santa Fe, New Mexico, in the Hall of Representatives.

STATE OF NEW MEXICO TO:

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

Case 200

In the matter of the Application of Worth Drilling Company, Inc. for an order approving an unorthodox location for A. C. Taylor well No. 7-A, 10 ft. from the south line and 1320 ft. east of the west line (SW/4) of Section 12 in Township 18 south, Range 31 east, N.M.P.M., in North Shugart pool, Eddy County, New Mexico.

Case 201

In the matter of the Application of Danciger Oil and Refining Company for an order granting permission to drill twelve unorthodox ("five spot") locations on its Turner "A" and Turner "B" leases in Sections 17, 18, 19 and 20, in Township 17 south, Range 31 east, N.M.P.M., in the Premier pool, Eddy County, New Mexico.

Case 202

In the matter of the Application of Rowan Oil Company for an order reducing the daily allowable of the Brunson pool, Lea County, New Mexico, to 90 barrels per day per well for a period of six months, within which period of time through surveys and studies information may be had for the purpose of determining the maximum efficient rate of production of reservoir.

Case 203

In the matter of the Application of Santa Fe Pacific Railroad Company and Oil Development Company of Texas, for an order allowing an exception from Commission Order No. 779, of July 27, 1948, providing an 80 acre spacing pattern for wells in the Crossroads pool, Lea County, New Mexico.

(over)

In the matter of the Application of Amerada Petroleum Corporation for an order establishing proration units and uniform spacing of wells for the common source of supply discovered in the W. W. Hamilton #1 well, NE SW Section 35, Township 16 south, Range 38 east, N.M.P.M., Knowles pool, Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on November 7, 1949.

R. R. SPURRIER, SECRETARY

[illegible][illegible][illegible]

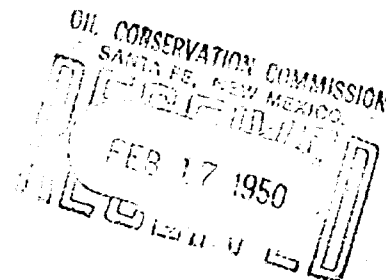
Copy of
Re hearing
order
handed
to G Staley
2-7

Signed copy^p of order mailed
to Glenn Staley - J-13-50/see case 203

J. O. SETH
A. K. MONTGOMERY
OLIVER SETH
WM. FEDERICI

SETH AND MONTGOMERY
ATTORNEYS AND COUNSELORS AT LAW
III SAN FRANCISCO ST.
SANTA FE, NEW MEXICO

February 16, 1950



New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Attention of Mr. R. R. Spurrier

Re: Case No. 204 - Knowles' Pool

Gentlemen:

We have received some correspondence from Mr. U. M. Rose, of Hobbs, in connection with the above hearing, and understand he desires a continuance. This will advise you that the Petitioner on Rehearing has no objection to a continuance of the hearing. However, in view of the importance of the matter concerned, it would be appreciated if the matter could be heard by the Commission at a very early date following the 21st.

We understand that the request of Mr. Rose for continuance will be favorably received by the Commission and, consequently, will make arrangements to proceed with the hearing at a later date as advised by the Commission in place of the hearing on the 21st.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Oliver Seth".

OS-mh

cc: Harry D. Page, Esq.
Amerada Petroleum Corporation
Beacon Building
P. O. Box 2040
Tulsa 2, Oklahoma

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea

I, Robert L. Summer
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 supple-

ment thereof for a period of one
time
weeks

beginning with the issue dated February 6, 1950

and ending with the issue dated February 6, 1950
Publisher.

Robert L. Summer

Sworn and subscribed to before

me this 7 day of

February, 1950
Notary Public.

My commission expires

January 25, 1953
(Seal)

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

LEGAL NOTICE

Feb. 6, 1950

**NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COM-
MISSION**

STATE OF NEW MEXICO TO:
Amerada Petroleum Corporation
and all other interested parties:
Notice is hereby given that a
hearing will be held before the
Oil Conservation Commission at
Santa Fe, New Mexico, in the
Office of the Oil Conservation
Commission on February 21, 1950,
commencing at 10:00 a. m. in
Case No. 204.

In the matter of the application
of Amerada Petroleum Corpora-
tion for the establishment of pro-
duction units and uniform spacing
of wells in the Knowles Pool in
Lea County, New Mexico.

This being a rehearing granted
on application of Amerada Petro-
leum Corporation.

Given under the seal of the Oil
Conservation Commission at Santa
Fe, New Mexico, on February 2,
1950.

**STATE OF NEW MEXICO
OIL CONSERVATION COM-
MISSION**

R. R. SPURRIER, Secretary.
(SEAL)

OIL CONSERVATION COMMISSION
MAR 14 1950
RECEIVED

312 North Sixth
Albuquerque, New Mexico
March 12, 1950

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

Dear Mr. Spurrier:

I have had an order for a copy of the transcript of Case No. 204.

I would appreciate it if you would lend me one of your copies for a few days and any letters or documents which were in evidence as Exhibits. This will save me a great deal of time to copy it rather than transcribe it again.

I will reimburse you for the expense of sending it.

Very truly yours,

Margaret Powell

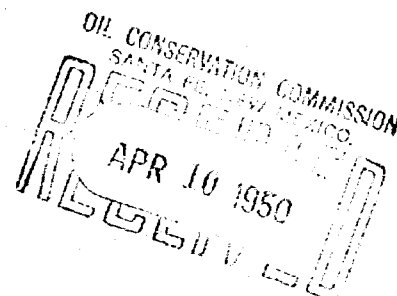
(Mrs.) Margaret Powell

Sent
3-14-50

GEORGE L. REESE, JR.
DON G. MCCORMICK
S. M. RUTHERFORD, III

REESE AND MCCORMICK
ATTORNEYS AT LAW
BUJAC BUILDING
CARLSBAD, NEW MEXICO

March 24, 1950



Mr. R. R. Spurrier
P. O. Box 871
Santa Fe, New Mexico

Dear Dick:

I have prepared a rough draft of the order which we discussed in Case No. 204, relating to the Knowles Pool in Lea County. However, I find that I shall need a copy of the original application filed by Amerada Petroleum Corporation in order to complete my draft. Kindly send me a copy of the application at your convenience.

I shall be out of town most of next week, so it is likely that you will not receive the final draft of the order from me for about two weeks. Since the transcript will not be completed until then, I see no difficulty due to this delay.

Very truly yours,

A handwritten signature in cursive script, reading "Don G. McCormick".

Don G. McCormick

DGM:mnh

cc: Hon. George L. Graham
State Land Office
Santa Fe, New Mexico

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
UNIFORM SPACING OF WELLS IN THE
KNOWLES POOL IN LEA COUNTY,
NEW MEXICO.

CASE NO. 204

ORDER NO. R-3

MEMORANDUM BRIEF
IN SUPPORT OF APPLICATION FOR REHEARING

Amerada Petroleum Corporation filed its application for the establishment of eighty-acre proration units and uniform spacing of wells in the Knowles Pool, Lea County, New Mexico. The case came on for hearing before the Oil Conservation Commission on November 22, 1949. No one opposed the application. A representative of Magnolia Petroleum Company stated that his company concurred in the recommendations made by Applicant. (See Transcript, P-29) On January 11, 1950, the Commission entered its order finding Applicant's evidence insufficient and denied the application. Applicant is now asking for a rehearing pursuant to the procedure set forth in Sec. 19(a) of Chapter 168 of the 1949 Session Laws of New Mexico.

THE EVIDENCE:

Applicant presented the testimony of its geologist and its engineer, together with the Schlumberger logs of the wells drilled in the pool and a map showing the location of

the proration units and spacing pattern requested. The proration units requested were the South Half and the North Half of each quarter section, except in certain instances where exceptions were requested and proration units consisting of the East Half and the West Half of quarter sections were asked for in order to avoid the unnecessary pooling of separately owned tracts within a quarter section. Applicant also asked that all wells be located in the center of the Northwest and Southeast quarters of each quarter section.

The geologist for Applicant testified that this pool has vugular and good vein porosity comparable to the Jones Ranch Field approximately 12 miles away, which is being satisfactorily developed on eighty-acre spacing. Applicant's engineer testified that in his opinion this pool has an effective water drive and that the productivity index indicates good permeability and productivity. Both the geologist and the engineer testified that in their opinion one well in this pool would effectively drain an area of at least eighty acres.

It was further shown by the evidence that this pool is located at a depth below 12,500 feet and the discovery well cost \$351,000.00. Future wells are estimated to cost approximately \$260,000.00 to \$270,000.00. (R-28)

(The letter "R" stands for Record, followed by the page number of the transcript of all proceedings heard before the Commission on November 22, 1949.)

The pertinent testimony on the above point is as follows:

"Q. Mr. Veeder, in your opinion based on your knowledge as a geologist and conditions that these wells disclose, would you recommend spacing be put on 80-acre spacing?

"A. I would.

"Q. You believe that this 80-acre spacing put in and pattern range be so alternated would result in the ultimate recovery of larger amounts of oil?

"A. I believe all recoverable oil would be obtained by that method." (R-24)

Applicant's geologist further explained his opinion as follows:

"Q. Mr. Veeder, *** in your opinion based on your experience, training, and knowledge of this particular area, do you recommend that an order be entered fixing spacing of 80 acres?

"A. I do, essentially because of type of porosity in Devonian formation we have vugular and good vein porosity, and we would compare this field with the Jones Ranch Field approximately 12 miles to the north which we have production history on.

"Q. In what way?

"A. That is just northeast and is of same type of production. The production is from the Devonian dolomite of same texture and character. The porosity is very similar.

"Q. Has that been developed on 80-acre spacing?

"A. Yes.

"Q. Is it working out satisfactorily?

"A. It is." (R-25)

Applicant's engineer then testified:

"Q. In your opinion, will the 80-acre spacing as set out in Amerada's Exhibit 4 and the location of wells as shown thereon result in the ultimate recovery of the recoverable oil in the pool?

"A. Based on the engineering information that we have, I believe that is correct. We have production index on discovery well, Hamilton No. 1, and north offset to the Hamilton, which is the Rose No. 1. The productivity index of Hamilton No. 1 is as shown to be 1.03 barrels per pound drop flowing at the rate of 40 barrels per hour, which indicates good permeability productivity. Production index on Rose No. 1 was .444 barrels per pound drop flowing at the rate of 20.5 barrels for 25 hours test period. While it is not as good a well from productivity standpoint as Hamilton, it is still a good well in our opinion and has fair permeability. It is lower on structure- the lowest well drilled to date. Furthermore, we believe we have a water drive in discovery well. It tested approximately 12 barrels per hour of salt water with fair permeability. We think one well will drain at least 80 acres."

Applicant also introduced a map showing the proposed location of the proration units and the well spacing pattern, and the witnesses explained that the exceptions to the proration units were asked for as indicated on the map in order that there would not be any separately owned royalty in any single proration unit requiring pooling, and that the units were arranged in that manner in order to protect the royalty owners. (R-30).

ARGUMENT AND AUTHORITIES:

Sec. 13(b), Chapter 168, 1949 Laws of New Mexico, is 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."

Sec. 10, Chapter 168, Laws of 1949, provides that the Commission is authorized to make orders: "(10) To fix the spacing of wells".

It is Applicant's contention that under the New Mexico Statutes quoted above, when it has established by competent evidence that eighty acres in the Knowles Pool is the area which may be efficiently and economically drained and developed by one well, and if the well spacing plan presented appears fair and equitable so that the correlative rights of all parties in the pool, lessee and royalty owners, will be protected, then Applicant is entitled to an order establishing eighty-acre proration units and uniform spacing. Applicant has clearly met this burden of proof. Its technical witnesses directly testified that one well would drain at least eighty acres in the Knowles Pool and recover all of the oil ultimately recoverable therefrom. There are no facts or inferences of facts from other testimony indicating a contrary conclusion. Furthermore, the well spacing and plan for location of the proration units proposed by Applicant is sufficient

and adequate to protect the correlative rights of all the owners of the pool. There is no evidence or inferences from evidence presented at the hearing indicating a contrary conclusion. If one well in this pool will drain an area of at least eighty acres as testified to by Applicant's witnesses, then an additional well drilled on the eighty-acre tract at a cost of approximately \$260,000.00 to \$270,000.00 would be an unnecessary well and would result in waste under the statutory provision quoted above.

The order finds that Applicant's evidence is insufficient. It is significant to note that the order does not find that one well will not effectively drain eighty acres, nor that the proposed spacing plan will cause waste or is unfair to the royalty owners. Such a finding could not be made since there is no evidence upon which it could be based. All of the testimony is to the contrary. The Commission simply found in its order that Applicant has failed in its proof. The testimony was uncontradicted. The witnesses were unimpeached. There was positive evidence on all essential points referred to in the order as insufficient. It follows that the Commission, in finding as it did in the order, disregarded the uncontradicted evidence of unimpeached witnesses presented by Applicant.

It is a well established rule in New Mexico, and throughout the United States generally, that the uncontradicted

testimony of an unimpeached witness can not be arbitrarily disregarded by the trier of the facts.

In 32 C.J.S., Sec. 1038, Page 1089, the rule is stated as follows:

"Uncontradicted or undisputed evidence should ordinarily be taken as true. More precisely evidence which is not contradicted by positive testimony or circumstances and is not inherently improbable, incredible or unreasonable can not arbitrarily or capriciously be discredited, disregarded or rejected, even though the witness is a party or interested, and, unless shown to be untrustworthy, is to be taken as conclusive, and binding on the triers of fact."

The same rule is stated in 20 Am.Jur. Sec. 1180, Page 1030, and in the Annotation in 8 A.L.R., page 809.

This is the well established law of New Mexico. In Citizens Finance Company vs. Cole, (1943) 47 N.M., 73, 134 P(2) 550, Syl. #3 is as follows:

"Uncontradicted testimony of a witness interested or disinterested can not be arbitrarily disregarded by the trier of facts."

The same rule is stated in Medler vs. Henry (1940) 44 N.M., 275, 101 P(2) 398.

In Walker vs. Smith, (1935) 39 N.M., 148, 42 P(2) 768, Syl. #1 is as follows:

"In examination of testimony of witness, if he stands unimpeached, either by direct evidence or lack of verity, or of bad moral character, or by equivocal character of testimony, or inherent improbability therein, or by some other legal method of impeachment, court must assume that his evidence is true."

The same rule applies to an administrative board, such as the New Mexico Oil Conservation Commission. One case setting forth the general law on this point and applying it to an administrative board (the Industrial Accident Board of Idaho in that case) is Pierstorff vs. Gray's Auto Shop, (1937), 58 Idaho, 438, 74 P(2) 171, where the court at Page 175 said:

"The rule applicable to all witnesses, whether parties or interested in the event of an action, is, that either a board, court, or jury must accept as true, the positive, uncontradicted testimony of a credible witness, unless his testimony is inherently improbable, or rendered so by facts and circumstances disclosed at the hearing or trial."

The Oil Conservation Commission in entering the order in this case acted in at least a quasi judicial capacity and is bound by rules of evidence and its orders must be based on the competent evidence presented at the hearing. This proposition was decided by the Oklahoma Supreme Court in connection with the orders of the Conservation Division of the Corporation Commission. In H.F. Wilcox Oil & Gas Co., vs. State, (1933) 162 Okla., 89, 19 P(2) 347, Syl. #6 is as follows:

"When the corporation commission acts in a legislative capacity for the purpose of making rules, it may ascertain in any manner it sees fit what rules should be made, and it may make such rules without the hearing of evidence or without regard to the evidence heard, but when it attempts to apply those rules in order to prevent waste or to regulate production, it acts in a capacity at least quasi judicial, and it must act either under rules of procedure and evidence provided by the Legislature, or under rules of procedure and evidence provided by itself, and it may not then act without evidence or upon incompetent, irrelevant, and immaterial evidence."

The same rule is stated in Skelly Oil Company vs. Corporation Commission (1938), 183 Okla., 364, 82 P(2) 1009. There is no reason to believe that the New Mexico court will not follow Oklahoma on this point.

A finding which disregards uncontradicted, unimpeached evidence will not be sustained on appeal. In 3 Am.Jur. #902, page 471, it is said:

"If the undisputed evidence admits of only one conclusion, an opposite finding will not be permitted to stand by the reviewing Court."

From the above authorities it is evident that the Commission in this case is acting in a quasi judicial capacity and that under well established rules of law it can not disregard uncontradicted and unimpeached testimony when it is not contrary to physical facts or inherently improbable under the other testimony. The evidence in this case by Applicant established every essential point necessary to entitle it to an order creating eighty-acre proration units and the uniform spacing pattern requested. Only by disregarding the uncontradicted and unimpeached testimony quoted above could the Commission enter the order it did finding that Applicant's evidence is insufficient.

For these reasons Applicant respectfully contends that the Commission erred as a matter of law and, therefore, a rehearing should be granted. Applicant requests that the Commission enter its order in accordance with the uncontradicted

testimony presented at the hearing, establishing eighty-acre proration units and uniform spacing of wells in the Knowles Pool, as requested by the application.

Respectfully submitted,

SETH & MONTGOMERY

By

J. A. Smith

Oliver J. Smith

Harry D. Page

Harry D. Page

Booth Kellough

Booth Kellough

Attorneys for
Amerada Petroleum Corporation

1 NOTICE OF PUBLICATION
2 STATE OF NEW MEXICO
3 OIL CONSERVATION COMMISSION

4 STATE OF NEW MEXICO TO:

5 Amerada Petroleum Corporation
6 and all other interested parties:

7 Notice is hereby given that a hearing will be held before
8 the Oil Conservation Commission at Santa Fe, New Mexico, in the
9 Office of the Oil Conservation Commission on 21 February, 1950,
10 commencing at 10:00 a.m., in

11 Case No. 204

12 In the matter of the application of Amerada Petroleum
13 Corporation for the establishment of proration units and uniform
14 spacing of wells in the Knowles Pool in Lea County, New Mexico

15 This being a rehearing granted on application of Amerada
16 Petroleum Corporation.

17 Given under the seal of the Oil Conservation Commission
18 at Santa Fe, New Mexico, on ^{Feb.} January 2, 1950.

19 STATE OF NEW MEXICO
20 OIL CONSERVATION COMMISSION

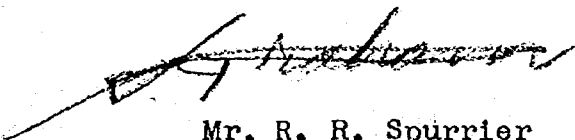
21
22 By R. R. Spurrier, Secretary
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GEORGE L. REESE, JR.
DON G. MCCORMICK
S. M. RUTHERFORD, III

REESE AND MCCORMICK
ATTORNEYS AT LAW
BUJAC BUILDING
CARLSBAD, NEW MEXICO

April 20, 1950




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

Dear Dick:

Enclosed is proposed order in Case No. 204, being the Knowles Pool spacing order. This proposed order is drafted in conformity with our previous discussion. In my opinion the Commission will be free to go to either a 40-acre or an 80-acre spacing pattern after the hearing on 20 December, 1950. In other words, this will be merely a temporary order, and no operator or royalty owner will have any grounds to claim that he has vested property rights in the spacing pattern.

If this meets with your approval, you and the other members of the Commission should sign the order.

Yours very truly,


Don G. McCormick

DGM:bb

Enclosure



PETROLEUM AND ITS PRODUCTS

GULF OIL CORPORATION

P. O. BOX 661 • TULSA 2, OKLAHOMA

January 23, 1950

GYPSY
DIVISION
RUSH GREENSLADE
VICE PRESIDENT

Oil Conservation Commission
of the State of New Mexico
Santa Fe, New Mexico

Gentlemen:

Attached hereto is joinder of Gulf Oil Corporation in the application of Amerada Petroleum Corporation for a rehearing in Case No. 204. This is the application of Amerada Petroleum Corporation for the establishment of proration units and uniform spacing of wells in the Knowles Pool, Townships 16 and 17S, Range 18E, Lea County, New Mexico.

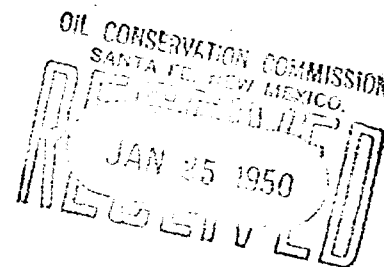
Please file Gulf's joinder in this case. It is sincerely hoped that there may be a rehearing and further consideration of this matter.

Yours very respectfully,

GULF OIL CORPORATION

BY 
R. S. KNAPPEN

RSK:wh
Att'd



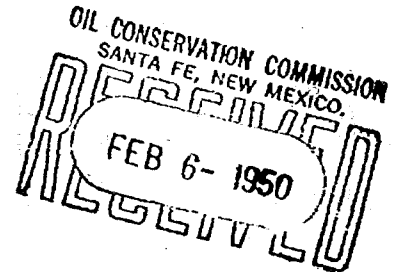
SINCLAIR OIL & GAS COMPANY

SINCLAIR BUILDING

TULSA, OKLAHOMA

LEGAL DEPARTMENT

February 2, 1950



Oil Conservation Commission
State of New Mexico
State Capitol Building
Santa Fe, New Mexico

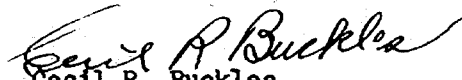
In re: Case No. 204 - Order No. R-3

Gentlemen:

Enclosed please find joinder on behalf of Sinclair Oil & Gas Company in the application for rehearing in the matter of the application of Amerada Petroleum Corporation for the establishment of proration units and uniform spacing of wells in the Knowles Pool, Lea County, New Mexico.

Will you please give us as much advance notice as possible of any hearing that is set in connection with the matter?

Very truly yours,


Cecil R. Buckles
Attorney
Box 521
Tulsa 24, Oklahoma

CRB:nb
Enc.

MARCH 21, 1950

NAME	ADDRESS	REPRESENTING
Weldon Bregance	Worth Texas	Rowan Shilling Co.
R.G. Schuchle	Midland Tex	Tex Pac Coal Co
E.T. ADAIR	FORT WORTH	TEX PAC COAL & OIL CO
Raymond Lamb	Artesia N.M.	Wilson Oil Co
Homer Dailey	Midland Tex	Continental Oil Co.
E.E. Kinney	Artesia, N.M.	N.M.S. Bureau Mines
M.T. Smith	Midland Tex	Phill Oil Co
W.E. Bates		The Texas Co
Ray O. Yumbough	O.S.C. Hobbs NM	
B.S. Blynn	" "	" "
Booth Kephough	Tulsa Okla	Amerada
Glenn Stacy	Hobbs N.M.	Lua Co. Operator
Frank C. Barnes	Santa Fe	Oil Commission
W. Henscher	Tulsa	Mid Cont Pet Corp
C.D. Borland	Hobbs	Gulf Oil Corp
F.J. DANGLADE	LOVINGTON	SELF
Edward Jennings	Roswell	Malco Ref. Inc.
Lee H. Malone	Roswell	Atwood, Malone & Byrdell
Jack M. Campbell	Roswell	"
Frank D. Dabbs	Midland	Lincoln O. & P.
R.L. Denton	"	Magnolia Pet Co
A.L. Monzingo	Kermit	Magnolia Pet Co
Oliver Jeth	Santa Fe	Amerada & Standard
B.J. Smith	Monument	Amerada
C.V. Melkman	Tulsa Okla	
P.S. Christie	Ft. Worth Tex	
E. Smith	O.S.C.	
W.R. Smith	Santa Fe	
Edw. P. Howard	Oil Commission	Santa Fe

Gulf - T. Barlow

Although Gulf has no acreage within the area considered in this application for spacing, and no knowledge of the reservoir characteristics from drilling operations, we are interested in this case inasmuch as Gulf has acreage in the near vicinity which might ultimately be productive.

It is an established fact that wells drilled to the depth at which oil was encountered in the Knowles Pool cost a very substantial sum of money and therefore will necessarily require greater ultimate recoveries to pay out the investment.

In order to encourage the development of deep structures and thus establish reserves which would otherwise not be developed, it is necessary that an operator have some additional incentive to venture his capital in the drilling of these deep wells. Increasing the allowable for the deep wells is some incentive; however, unless the margin of ultimate profit to be expected from the high cost wells is economically attractive and somewhat comparable percentage-wise to the margin of profit to be anticipated from the shallower wells, then the operator is hesitant to develop the deep seated structure. This is true because the drilling of a few dry holes could substantially or completely offset the profits from the productive wells.

In order to foster development and encourage the operator to risk the capital necessary for deep development, Gulf is of the opinion that the Commission should grant spacing orders wider than 40 acres in the deep reservoirs such as the Knowles Pool whenever reservoir conditions appear to justify this action.

Charge to the account of

CLASS OF SERVICE DESIRED	
DOMESTIC	CABLE
TELEGRAM	ORDINARY
DAY LETTER	URGENT RATE
SERIAL	DEFERRED
NIGHT LETTER	NIGHT LETTER

Patrons should check class of service desired; otherwise the message will be transmitted as a telegram or ordinary cablegram.

WESTERN UNION

A. N. WILLIAMS
PRESIDENT

NEWCOMB CARLYON
CHAIRMAN OF THE BOARD

J. C. WILLEVER
FIRST VICE-PRESIDENT

1208

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

RECEIVED
MAR 23 1950
ACCOUNTING INFORMATION
TIME FILE

Send the following message, subject to the terms on back hereof, which are hereby agreed to

Midland, Texas
March 21, 1950

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

With reference to hearing of Case 204 this date the Humble Oil & Refining Company does not presently own acreage near the Knowles Pool but is most interested in the spacing of deep wells in New Mexico stop We have critically reviewed geological and reservoir data covering current development in the Knowles Field and find no evidence to indicate that 80 acre spacing will not efficiently and economically drain this pool and other pools of similar character.

HUMBLE OIL & REFINING COMPANY

BY: R. S. DEWEY

CC - Mr. J. W. House, Bldg.
Mr. W. E. Hubbard, Houston
Mr. R. R. Spurrier - Santa Fe - Confirmation

March 10, 1950

Case 204

RE: In the matter of the application of Amerada Petroleum Corporation for an order establishing proration units and uniform spacing of wells for the common source of supply discovered in the W. H. Hamilton No. 1 well, NE SW section 35, T.16 S, R.38 E, N.R.P.M., Knowles pool, Lea County, New Mexico

You are hereby notified that the record of the Commission hearing, held in Santa Fe, New Mexico, on February 21 in the matter of Case 204, was continued to March 21, 1950, 10:00 o'clock a.m., House of Representatives.

OIL CONSERVATION COMMISSION

Secretary and Director

Mr. J. O. Seth, Santa Fe for Amerada
Mr. Jack M. Campbell, for TP C&O
Glenn Staley
George A. Graham

GENERAL OFFICES
120 BROADWAY NEW YORK

AMERADA PETROLEUM CORPORATION

BEACON BUILDING
P. O. BOX 2040

TULSA 2, OKLA.

November 4, 1949

Case 204



Mr. R. R. Spurrier, Secretary
New Mexico Conservation Commission
State Capitol Building
Santa Fe, New Mexico

Dear Mr. Spurrier:

Enclosed herewith in quadruplicate is application for spacing and drilling units in the area of our W. W. Hamilton No. 1 in Section 35-16S-38E, Lea County, New Mexico. Copies of this application are also being mailed to Mr. Glen Staley and to the Magnolia Petroleum Company, which is the only other company owning acreage within the area for which spacing is requested. We will also send copies of this application to those companies which, according to our information, own acreage adjoining the requested spacing area as indicated on the exhibit attached to the application.

We trust that you will set this for hearing at your earliest convenient date and arrange for public notices in accordance with the law. Kindly advise us of your action concerning this matter.

Very truly yours,

AMERADA PETROLEUM CORPORATION

By

C. V. Millikan
C. V. Millikan

CVM:jm
Encl.

cc - Mr. Glen Staley
Mr. R. S. Christie

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 UNIFORM SPACING OF WELLS IN THE
KNOWLES POOL IN LEA COUNTY,
NEW MEXICO.

CASE NO. 204

ORDER NO. R-3

JOINDER IN APPLICATION FOR REHEARING

COMES, NOW, the GULF OIL CORPORATION, being
interested in the above styled case, and joins amicus curiae
with Amerada Petroleum Corporation in its application for
rehearing filed in said case, and requests the Commission
to enter its order establishing eighty-acre proration units
and uniform spacing of wells in the Knowles Pool, Lea County,
New Mexico, as requested by the application filed in this case.

GULF OIL CORPORATION

By Russell G. Lowe

Attorneys.

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 UNIFORM SPACING OF WELLS
IN THE KNOWLES POOL IN LEA COUNTY,
NEW MEXICO.

CASE NO. 204
ORDER NO. R-3

JOINDER IN APPLICATION FOR REHEARING

COMES, NOW, the Magnolia Petroleum Company, being interested in the above styled case, and joins amicus curiae with Amerada Petroleum Corporation in its application for rehearing filed in said case, and requests the Commission to enter its order establishing eighty-acre proration units and uniform spacing of wells in the Knowles Pool, Lea County, New Mexico, as requested by the application filed in this case.

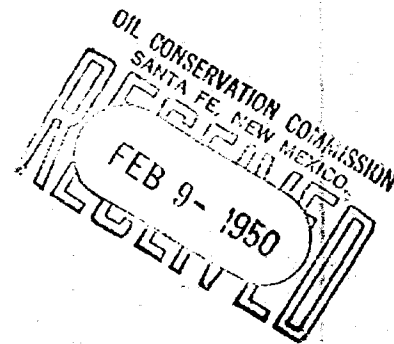
MAGNOLIA PETROLEUM COMPANY

By

D. E. Austin

William D. McKellar, Jr.
Attorneys.

February 8, 1950



Mr. U. M. Rose
Attorney at Law
Hobbs, New Mexico

Dear Mr. Rose:

At the suggestion of Commissioner Guy Shepard, I am enclosing a copy of a notice in the matter of the rehearing in Case 204 -- the 80-acre spacing in the Knowles Pool in Lea County--also a copy of the Order granting rehearing. Under separate cover, this office is sending you a copy of the Rules and Regulations of the Oil Conservation Commission, should you desire to intervene in this rehearing.

You doubtless know that at a recent hearing the Oil Conservation Commission, by order, rejected the 80-acre spacing in the so-called Knowles Pool, but has consented to rehearing the matter at which you and your clients may be heard.

Very truly yours,

GEORGE A. GRAHAM
Attorney, State Land Office
and Oil Conservation Commission

GAG:mih
enclosures
cc. Oil Conservation Commission

C
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BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

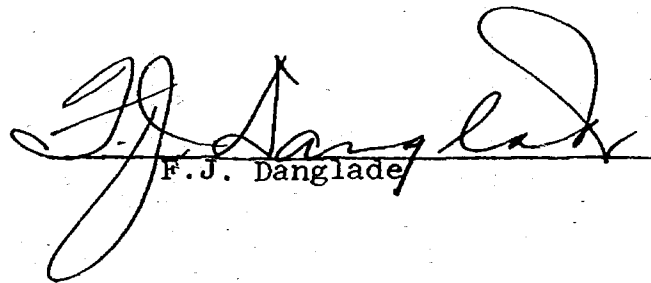
IN THE MATTER OF THE APPLICATION
OF AMERADA PETROLEUM CORPORATION
FOR THE ESTABLISHMENT OF PRORATION
UNITS AND UNIFORM SPACING OF WELLS
IN THE KNOWLES POOL IN LEA COUNTY,
NEW MEXICO.

CASE NO. 204

ORDER NO. R-3

JOINDER IN APPLICATION FOR REHEARING

COMES, NOW, F.J. Danglade, being interested in
the above styled case, and joins amicus curiae with Amerada
Petroleum Corporation in its application for rehearing filed
in said case, and requests the Commission to enter its order
establishing eighty-acre proration units and uniform spacing
of wells in the Knowles Pool, Lea County, New Mexico, as
requested by the application filed in this case.


F.J. Danglade

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:

ORDER NO. _____

THE APPLICATION OF AMERADA PETROLEUM
CORPORATION FOR THE ESTABLISHMENT OF
PRORATION UNITS AND UNIFORM SPACING OF
WELLS FOR THE KNOWLES POOL, LOCATED
BELOW THE DEPTH OF 12,000 FEET,
DISCOVERED IN THE W.W. HAMILTON NO. 1
WELL, NE/4 SW/4 SEC. 35-16S-38E,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 10:00 o'clock
a.m., November 22, 1949, at Santa Fe, New Mexico, before the
Oil Conservation Commission of the State of New Mexico, herein-
after referred to as the "Commission".

Now, on this _____ day of _____, 1949,
the Commission, having before it for consideration the testi-
mony adduced at the hearing of said case and being fully ad-
vised in the premises:

FINDS:

1. That on May 4, 1949, the applicant, Amerada
Petroleum Corporation, completed a well known as "W.W. Hamilton
No. 1 Well", located in the center of the NE/4 SW/4 of Sec. 35-
16S-38E, Lea County, New Mexico. Said well was drilled to a
depth of 12,656 feet, and encountered the top of the Devonian
formation at 12,451 feet. It was plugged back to 12,600 feet
and 5½" casing set to 12,518 feet, and produced through the
open hole. The well tested 935.31 bbls. of oil, 24 hours
through a ½" choke, with a gravity of 46.9 and gas/oil ratio
of 180, and B.S. and W. of 0.4%.

2. That the probable productive area of the Devonian formation discovered in said well and from which it is producing, is as follows, to wit:

All of Sections 34, 35 and 36, Township
16 South, Range 38 East; and
All of Sections 1, 2 and 3, Township
17 South, Range 38 East,
Lea County, New Mexico.

That said new common source of supply discovered in said well has been named and designated by the Nomenclature Committee as the "Knowles Pool".

That in addition to the discovery well described above, there have now been completed or are now drilling the following wells within the probable productive area of said common source of supply, described above, to wit:

- (a) Amerada-Stella Rose #1 Well, located in the SE/4 NW/4 of Sec. 35-16S-38E;
- (b) Amerada-Rose Eaves #1 Well, located in SE/4 SW/4 Sec. 35-16S-38E;
- (c) Amerada-Rose Eaves A-#1 Well, located in NW/4 NE/4 Sec. 2-17S-38E;

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

3. That the Devonian formation as found in the discovery well below the depth of 12,000 feet, is a common source of supply which should be drilled and developed on proration units larger than those normally established under the present rules and regulations and orders of the Commission with respect to proration units, because of the depth of such wells, the time necessary to drill said wells, and the high

cost and expense required in the drilling and completion of said wells, together with the drainage area thereof; and the Commission finds that proration units of an area equivalent to one-half of a governmental quarter section are necessary and proper for the drilling and development of said common source of supply, such being an area which may be efficiently and economically drained and developed by one well.

4. 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 the parties interested therein, all wells drilled into said common source of supply should be located in the center of the Northwest and the Southeast quarters of each governmental quarter section, with a tolerance of 150 feet in any direction to avoid surface obstructions.

5. That the discovery well referred to above, known as the "W.W. Hamilton #1 Well", located in the NE/4 SW/4 of Section 35-16S-38E, is located off of the spacing pattern herein ordered, being the first well drilled to said common source of supply and should be granted an exception to this spacing order and should be considered the well for the proration unit on which it is located.

6. That until further order of the Commission, the allowables for all wells drilled to said common source of supply should be computed on the same basis as in the case of other proration units of 40 acres, applying a deep pool adaptation of 6.75 times the top allowable for a unit, according to the rules and regulations and orders of this Commission.

7. That except as above specifically set forth, all of the present rules, regulations and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping and operating of wells drilled into the new common source of supply as found in the above described well and, therefore, the general state-wide rules and regulations should remain in full force and effect except as modified, amended or superseded in the particulars specifically set out above.

IT IS THEREFORE ORDERED:

SEC. 1. That the Amerada Petroleum Corporation "W.W. Hamilton #1 Well", located in the center of the NE/4 SW/4 of Sec. 35-16S-38E, Lea County, New Mexico, producing from the Devonian formation below the depth of 12,000 feet, discovered a new common source of supply not heretofore discovered and produced in this state, and that the probable productive area of said formation is as follows:

All of Sections 34, 35 and 36, Township 16 South, Range 38 East, and all of Sections 1, 2 and 3, Township 17 South, Range 38 East, Lea County, New Mexico

That said new common source of supply is hereby designated "Knowles Pool".

That this order is intended to cover all of the Devonian formation common source of supply discovered in said Amerada-W.W. Hamilton #1 Well, described above, and any and all wells drilled to and produced from said common source of supply whether within the probable productive area delineated above or any extension thereof, shall be drilled on the spacing pattern hereinafter set forth.

SEC. 2. That proration units of an area equivalent to one-half of a governmental quarter section are hereby established for the production of oil and gas from the Devonian formation underlying the area described above, and in order to protect the correlative rights of all parties, said units shall comprise the South Half and the North Half of each quarter section within said area, except the following units, to wit:

W/2 NW/4 Sec. 34
W/2 SW/4 Sec. 34
E/2 SW/4 Sec. 34
NE/4 NW/4 and NW/4 NE/4 Sec. 34
SE/4 NW/4 and SW/4 NE/4 Sec. 34
E/2 NE/4 Sec. 34
W/2 SW/4 Sec. 35
NE/4 SW/4 and NW/4 SE/4 Sec. 35
SE/4 SW/4 and SW/4 SE/4 Sec. 35
E/2 SE/4 Sec. 35
All in T16S, R38E;

the location of all of said units being shown on the plat attached hereto, marked "EXHIBIT A" and made a part of this order.

SEC. 3. That all wells drilled into said common source of supply shall be located in the center of the Northwest and Southeast quarters of each governmental quarter section, with a tolerance in any direction of 150 feet to avoid surface obstructions, except the Amerada-W.W. Hamilton #1 Well, already drilled and completed in the center of NE/4 SW/4 of Sec. 35-16S-38E, which said well is hereby granted an exception to this order and the proration unit upon which the well is located is hereby determined to be a fully developed and productive proration unit and entitled to a full allowable as herein provided.

SEC. 4. That the daily oil allowable of a normal unit comprising an area equivalent to one-half of a quarter section assigned to the discovery well and all other wells hereafter drilled and produced in accordance with this order shall be the proportional factor of 6.75 times the top allowable until such time as the Commission may issue such further and additional orders, whether general state-wide orders or special orders in this cause, or general rules or regulations affecting the allowable of this pool, as may be deemed necessary.

SEC. 5. That the Commission may for good cause shown, after notice and hearing, permit the drilling of a well off of the spacing pattern herein provided, but, except for the exception herein granted to the discovery well described above, if any well is drilled off of the spacing pattern herein provided as the result of such an exception granted by the Commission after notice and hearing, the allowable for the proration unit on which said well is located shall be reduced, the amount to be determined by the Commission in accordance with the evidence presented at the hearing.

SEC. 6. That all rules, regulations and orders heretofore issued by the Commission which may conflict herewith are superseded with respect to the Devonian formation

in the Knowles Pool herein referred to, otherwise said rules, regulations and orders shall be fully applicable hereto.

SEC. 7. This order shall become effective on _____, 1949.

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

DONE at Santa Fe, New Mexico, this _____ day of _____, 1949.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF AMARCA PETROLEUM CORPORATION
FOR THE ESTABLISHMENT OF PRO-
DUCTION UNITS AND UNIFORM SPACING
OF WELLS IN THE KNOXES POOL IN
ISA COUNTY, NEW MEXICO.

CASE NO. 204
ORDER NO. N-6

ORDER GRANTING REHEARING

The Commission having entered in Case No. 204 on January 11,
1930, Order No. N-3, and the Amarca Petroleum Corporation having filed
the timely motion for rehearing,

IT IS, THEREFORE, ORDERED:

1. The application for rehearing filed by Amarca Petroleum
Corporation is hereby granted.
 2. The rehearing shall be held at the State Capitol Building
in Santa Fe, New Mexico, on February 21, 1930, commencing at 10:00 a.m.
- DONE at Santa Fe, New Mexico, this 2nd day of February, 1930.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

THOMAS K. HARRY, CHAIRMAN

Guy Shepard
GUY SHEPARD, MEMBER

R. R. SPURRER, SECRETARY

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. 204
ORDER NO. R-3

IN THE MATTER OF THE APPLICATION OF
AMERADA PETROLEUM CORPORATION FOR THE
ESTABLISHMENT OF PRORATION UNITS AND
UNIFORM SPACING OF WELLS IN THE KNOWLES
POOL IN LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing before the Commission on November 22, 1949, on the application of Amerada Petroleum Corporation to establish proration units and uniform spacing of wells for the Knowles Pool, in Lea County, New Mexico.

The Commission having heard the evidence presented, the argument of counsel and being duly advised,

FINDS:

1. It has jurisdiction of this case and the parties thereof, due notice of 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.
4. The evidence is insufficient to prove that the proposed plan of spacing would prevent waste.
5. The evidence is insufficient to prove that the proposed plan is fair to the royalty owners in said 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 pool.
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.

DONE at Santa Fe, New Mexico, on the 11th day of January, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Thomas J. Mabry
THOMAS J. MABRY, CHAIRMAN

Guy Shepard
GUY SHEPARD, MEMBER

R. R. Spurr
R. R. SPURR, SECRETARY

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 UNIFORM SPACING OF WELLS
IN THE KNOWLES POOL IN LEA COUNTY,
NEW MEXICO.

CASE NO. 204

ORDER NO. R-3

JOINDER IN APPLICATION FOR REHEARING

COMES, NOW, the Sinclair Oil and Gas Company,
being interested in the above styled case, and joins
amicus curiae with Amerada Petroleum Corporation in its
application for rehearing filed in said case and requests
the Commission to enter its order establishing eighty-
acre proration units and uniform spacing of wells in the
Knowles Pool, Lea County, New Mexico, as requested by
the application filed in this case.

SINCLAIR OIL AND GAS COMPANY

By

Ralph W. Bennett
Leisl R. Buckles

Attorneys.

GENERAL OFFICES
120 BROADWAY NEW YORK

AMERADA PETROLEUM CORPORATION

BEACON BUILDING
P. O. BOX 2040

TULSA 2, OKLA.

June 16, 1950

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

Dear Mr. Spurrier:

Enclosed herewith we are sending you a copy of a core analysis report on our Eaves "A" No. 1 in the Knowles Field. Analysis of the core was delayed because of a fire in their Midland Laboratory. After receiving it, I wanted to inspect the core and compare it with the analysis before forwarding it.

I am not too pleased with this report in several respects. Some of the core description under "Visual Examination" is quite misleading. A number of the cores are described as being fractured; however, after examining all the cores, I could see only a few places where even small fractures existed. From the strictly geological interpretation, there are a number of lines in the core which could well be called fractures but showed no evidence of porosity or even oil stain. Certainly the cores do not show fracturing as we commonly think of a fractured reservoir rock.

A number of the cores are marked "slightly vuggy" and only a few as "vuggy". To the upper part of the core, in the majority of cases, the term "slightly vuggy" is appropriate. In the lower 20 feet or so, I believe the descriptions "vuggy" and "very vuggy" could be used. For a clear conception of the cores, some pictures in U.S.G.S. Water Supply Paper No. 639, particularly Plates 11, 13, and 15, following Page 68, could be considered as cross-sections of cores from Eaves "A" No. 1. While these photographs are considerably enlarged, they should be considered as actual size for representing the cores. As yet, we have no check on the permeabilities reported, although I must confess I am suspicious of them on several of the more "vuggy" samples. Although the report does not specifically state, the cores were analyzed by the so-called "big-chunk method", in which the complete section of the core was analyzed.

We trust you will find this core analysis report of interest and value in considering the large area that can be efficiently and effectively drained by one well.

Very truly yours,


C. V. Millikan

CVM:jm
Enclosure

jeel

CORE ANALYSIS REPORT
FOR
AMERADA PETROLEUM CORPORATION

EAVES NO. A-1 WELL
KNOWLES FIELD
LEA COUNTY, NEW MEXICO



CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

May 23, 1950

Amerada Petroleum Corporation
McClintic Building
Midland, Texas

Attention: Mr. Blackwood

Subject: Special Core Analysis
Eaves No. A-1 Well
Knowles Field
Lea County, New Mexico

Gentlemen:

Reported herein are revised estimates of recoverable oil based on a solution gas-oil ratio of 165 cubic feet per barrel and a formation volume factor of 1.15

The unit recoverable oil by solution gas drive is 33 barrels per acre-foot and the increase due to an effective water drive is 10 1/2 barrels per acre-foot.

Very truly yours,

CORE LABORATORIES, INC.

T. L. Kennerly
T. L. Kennerly

TLK:mrn

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

May 19, 1950

Amerada Petroleum Corporation
McClintic Building
Midland, Texas

Attention: Mr. Blackwood

Subject: Special Core Analysis
Eaves No. A-1 Well
Knowles Field
Lea County, New Mexico

Gentlemen:

The Eaves No. A-1 well was cored using diamond coring equipment and water base mud. The cores were logged, sampled and quick-frozen at the well site by a representative of Core Laboratories, Inc. and transported to the Midland laboratory for analysis.

The Woodford shale was cored between 12,455 and 12,470 feet and the Devonian formation was cored between 12,470 and 12,580 feet. The Devonian formation was analyzed by special methods to determine the effects of vugs and fractures upon the physical characteristics of the cores. Permeability tests were not made on the samples in the interval, 12,473 to 12,485 feet, as the cores were not of correct shape to fit the permeameter. However, plug permeability tests were made over this interval to determine matrix permeability. The intervals, 12,470 to 12,473 and 12,485 to 12,490 feet, were not analyzed as the formation was not considered to be productive.

The results of these analyses are presented in tabular and graphical form on the enclosed pages along with estimates of recoverable oil by gas and water drive mechanisms of recovery.

We trust these data will be of value to you in the proper evaluation and development of this reservoir.

Very truly yours,

CORE LABORATORIES, INC.

R. S. Bynum
R. S. Bynum, *Tik*
District Engineer

RSB: jr

CORE LABORATORIES, INC., MIDLAND, TEXAS

Company - AMERADA PETROLEUM CORPORATION
Well - EAVES NO. A-1
Field - KNOWLES
County - LEA

Date Report - MAY 9, 1950
Elevation -
Cores - CHRISTENSEN DIAMOND
Formation - DEVONIAN

Page - 1 OF 4
File - MT-264 S
Analysts - VBO:RCW:JHM
Drilling Fluid - WATER BASE MUD

SAMPLE NUMBER	DEPTH: FEET	POROSITY: PER CENT	SATURATION:		SATURATION:		PERMEABILITY		VISUAL EXAMINATION
			% BULK VOL.	% PORE	% OIL	% WATER	TO AIR	90°	
1	12473.0-74.0	1.55	0.00	1.55	0.0	100.0	*	*	Dense, dol. lime
2	74.0-75.0	5.23	1.22	1.84	23.3	35.2	*	*	Sl. porous, dol. lime
3	75.0-76.2	1.79	0.41	0.99	22.9	55.1	*	*	Dense, fract. dol. lime
4	76.2-77.4	3.19	1.05	1.50	33.0	47.1	*	*	Dense dol. lime - 10% anhy.
5	77.4-78.0	1.84	Trace	1.72	Trace	93.7	*	*	Dense, fract. dol. lime
6	78.0-79.1	1.37	Trace	1.28	Trace	93.6	*	*	Dense, fract. dol. lime
7	79.1-80.0	0.75	0.00	0.75	0.0	100.0	*	*	Dense, fract. dol. lime
8	80.0-81.1	1.16	0.00	1.16	0.0	100.0	*	*	Dense, fract. dol. lime
9	81.1-82.1	4.16	0.67	1.07	16.1	25.8	*	*	Dense, shaly, porous dol. lime
10	82.1-83.1	5.59	1.83	1.17	32.6	21.0	*	*	Dense, fract. dol. lime
11	83.1-85.0	1.50	Trace	1.50	Trace	100.0	*	*	Dense, fract. dol. lime
12	90.0-91.3	3.35	0.39	0.60	11.6	17.9	8.3	2.3	Dense, porous, dol. lime
13	91.3-93.0	2.20	0.07	0.81	3.2	36.8	<0.1	<0.1	Dense, porous, dol. lime
14	93.0-94.0	0.78	Trace	0.73	Trace	93.8	1.8	0.7	Dense, fract. dol. lime
15	94.0-95.0	1.11	0.00	0.82	0.0	73.8	<0.1	<0.1	Dense, fract., sl. porous dol. lime
16	95.0-96.1	3.50	0.69	1.00	19.7	28.7	16	11	Fract., shaly, porous, dense dol. lime
17	96.1-97.1	3.52	1.11	1.05	31.6	29.9	1.9	1.0	Dense, porous dol. lime
18	97.1-98.6	2.97	Trace	2.09	Trace	70.4	1.1	0.4	Dense, porous, fract. dol. lime
19	98.6-100.1	2.10	Trace	1.63	Trace	77.6	<0.1	<0.1	Dense, fract., sl. porous dol. lime
20	12500.1-01.1	2.70	0.00	2.60	0.0	96.5	2.9	1.9	Dense, fract., sl. porous dol. lime
21	01.1-02.6	1.64	0.00	1.60	0.0	97.6	0.3	0.2	Dense, fract., sl. porous dol. lime
22	02.6-03.7	2.60	0.00	1.46	0.0	56.2	0.5	0.3	Dense, fract., sl. porous dol. lime
23	03.7-05.1	1.32	Trace	0.98	Trace	74.1	11	0.3	Sl. porous lime
24	05.1-06.5	4.43	0.49	2.35	11.1	53.1	2.2	1.7	Sl. porous dol. lime
25	06.5-07.9	3.41	0.00	1.11	0.0	32.7	3.8	3.2	Sl. porous dol. lime
26	07.9-08.4	4.93	0.15	1.60	3.1	32.5	25	9.2	Sl. porous, sl. vuggy, fract. dol. lime
27	08.4-10.6	3.83	0.32	0.98	8.4	25.6	8.5	3.8	Sl. porous, sl. vuggy, fract. dol. lime
28	10.6-11.8	1.02	0.00	0.97	0.0	95.0	<0.1	<0.1	Dense, dol. lime
29	11.8-13.0	1.29	Trace	0.83	Trace	64.3	0.1	0.1	Sl. porous dol. lime

CORE LABORATORIES, INC.
MIDLAND, TEXAS

AMERADA PETROLEUM CORPORATION
EAVES NO. A-1 WELL

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FILE - ML-264 S

SAMPLE NUMBER	DEPTH: FEET	POROSITY: PER CENT	SATURATION:		SATURATION:		PERMEABILITY		VISUAL EXAMINATION
			% BULK VOL. OIL	WATER	% PORE OIL	WATER	TO AIR MAXIMUM 90°		
30	12513.0-14.0	1.81	Trace	1.52	Trace	84.0	5.2	0.9	Sl. porous dol. lime
31	14.0-15.3	1.94	Trace	1.54	Trace	79.4	<0.1	<0.1	Dense, styl. dol. lime
32	15.3-16.8	2.01	Trace	0.84	Trace	41.8	0.2	0.2	Sl. porous dol. lime
33	16.8-18.1	2.73	0.72	0.54	26.3	29.8	0.2	0.2	Sl. porous dol. lime
34	18.1-19.2	2.13	Trace	1.35	Trace	63.5	<0.1	<0.1	Sl. porous dol. lime
35	19.2-20.0	1.81	Trace	0.73	Trace	40.3	4.1	0.2	Sl. porous dol. lime
36	20.0-21.0	1.20	0.00	0.86	0.0	71.7	0.8	0.1	Dense, sl. fract. dol. lime
37	21.0-23.0	2.74	0.00	2.37	0.0	86.6	0.1	0.1	Dense, sl. porous dol. lime
38	23.0-23.7	1.87	Trace	1.48	Trace	79.1	<0.1	<0.1	Sl. porous dol. lime
39	23.7-25.0	1.34	Trace	0.51	Trace	38.0	0.2	0.1	Dense, dol. lime
40	25.0-26.1	0.70	Trace	0.70	Trace	100.0	<0.1	<0.1	Dense, dol. lime
41	26.1-27.0	2.24	Trace	2.24	Trace	100.0	<0.1	<0.1	Dense, dol. lime
42	27.0-28.7	1.25	Trace	1.25	Trace	100.0	<0.1	<0.1	Dense, dol. lime
43	28.7-30.2	4.24	Trace	4.24	Trace	100.0	8.0	0.9	Porous dol. lime
44	30.2-31.2	9.73	2.49	1.90	25.5	19.6	2.5	0.7	Porous dol. lime
45	31.2-32.2	5.67	1.31	3.20	23.1	56.5	85	*	Porous dol. lime
46	32.2-33.2	7.02	1.03	1.67	14.7	23.8	*	*	Porous dol. lime
47	33.2-35.0	8.42	1.97	2.37	23.4	28.2	7.4	4.1	Porous dol. lime
48	35.0-36.0	10.64	2.03	5.06	19.1	47.6	80	72	Porous dol. lime
49	36.0-37.0	3.26	Trace	2.41	Trace	74.0	25	4.8	Porous dol. lime
50	37.0-37.8	6.51	1.57	2.77	24.2	42.6	14	14	Sl. vuggy, sl. fract., porous dol. lime
51	37.8-38.7	4.88	1.52	1.06	31.2	21.8	5.2	3.1	Sl. porous dol. lime
52	38.7-39.8	3.73	0.45	1.62	12.1	43.6	0.2	0.1	Sl. porous dol. lime
53	39.8-40.8	2.72	0.56	2.16	20.6	79.5	0.5	0.4	Dense dol. lime
54	40.8-42.0	5.22	0.82	1.70	15.7	32.7	56	5.7	Sl. porous dol. lime
55	42.0-43.3	6.39	0.57	4.51	9.0	70.8	453	47	Sl. vuggy, sl. porous dol. lime
56	43.3-44.9	5.71	0.61	3.09	10.7	54.1	106	*	Sl. porous, sl. vuggy dol. lime
57	44.9-45.7	7.19	1.34	3.40	18.7	47.4	*	*	Sl. porous, sl. vuggy dol. lime
58	45.7-47.3	7.76	1.51	2.70	19.4	34.8	67	61	Sl. porous, sl. vuggy dol. lime
59	47.3-48.2	4.59	0.73	2.66	15.9	58.0	18	11	Sl. porous, sl. vuggy dol. lime
60	48.2-49.2	5.79	0.60	4.19	10.3	72.4	540	360	Sl. porous, sl. vuggy dol. lime
61	49.2-50.3	5.29	0.31	3.18	5.9	60.2	106	31	Sl. porous, sl. vuggy dol. lime

CORE LABORATORIES, INC.
MIDLAND, TEXAS

AMERADA PETROLEUM CORPORATION
EAVES NO. A-1 WELL

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SAMPLE NUMBER	DEPTH: FEET	POROSITY: PER CENT	SATURATION: % BULK VOL.		SATURATION: % PORE		PERMEABILITY TO AIR. MAXIMUM 90°	VISUAL EXAMINATION	
			OIL	WATER	OIL	WATER			
62	12550.3-51.2	3.73	0.12	3.29	3.2	88.1	64	53	Sl. porous, sl. vuggy dol. lime
63	51.2-52.1	9.11	1.70	3.73	18.7	40.9	73	18	Vuggy, fract. dol. lime
64	52.1-53.2	8.83	0.46	4.50	5.2	51.0	84	76	Sl. vuggy, sl. fract. dol. lime
65	53.2-54.3	7.95	0.40	4.17	5.0	52.5	141	26	Porous, vuggy dol. lime
66	54.3-55.7	5.99	0.24	2.02	4.0	34.0	76	*	Sl. vuggy, anhy. dol. lime
67	55.7-56.7	8.96	0.33	6.13	3.7	68.3	1260	475	Sl. vuggy, anhy. dol. lime
68	56.7-57.7	4.89	Trace	3.10	Trace	63.5	1.3	0.7	Sl. vuggy, anhy. dol. lime
69	57.7-59.0	8.67	0.70	4.76	8.1	55.1	400	106	Vuggy dol. lime
70	59.0-60.2	5.82	0.20	3.04	3.4	52.2	908	142	Vuggy dol. lime
71	60.2-61.5	2.79	Trace	2.55	Trace	91.7	19	4.9	Sl. fract, sl. vuggy dol. lime
72	61.5-62.8	6.19	0.69	4.92	11.1	79.7	27	13	Sl. fract, sl. vuggy dol. lime
73	62.8-64.1	5.27	1.05	2.92	19.8	55.3	21	14	Sl. fract, sl. vuggy dol. lime
74	64.2-65.5	4.92	1.18	3.34	24.0	67.9	3.1	0.4	Sl. fract, sl. vuggy dol. lime
75	65.5-66.9	4.64	0.41	3.43	8.8	74.0	4.5	2.9	Sl. fract, sl. vuggy dol. lime
76	66.9-68.3	5.98	1.22	3.92	20.4	65.6	0.7	0.4	Sl. vuggy, sl. porous dol. lime
77	68.3-69.3	4.83	0.56	3.53	10.8	73.2	19	3.9	Sl. vuggy, sl. porous dol. lime
78	69.3-70.3	4.17	0.10	3.37	2.4	81.0	119	39	Sl. vuggy, sl. porous dol. lime
79	70.3-71.5	8.51	1.41	4.36	16.6	51.3	*	*	Vuggy dol. lime
80	71.5-72.8	7.92	1.62	2.90	20.5	36.8	182	44	Vuggy dol. lime
81	72.8-74.3	10.34	2.27	4.26	21.9	41.2	22	12	Vuggy dol. lime
82	74.3-75.5	5.36	0.45	2.92	8.4	54.5	55	50	Sl. fract. dol. lime
83	75.5-76.7	3.86	0.38	3.26	9.9	84.5	1.9	<0.1	Sl. fract. dol. lime
84	76.7-77.5	7.33	1.32	3.83	18.0	52.2	2.8	0.6	Sl. fract. dol. lime
85	77.5-78.8	13.74	1.31	4.66	9.6	34.0	136	114	Sl. fract, porous dol. lime
86	78.8-80.0	7.44	0.58	3.25	7.8	43.7	8250	490	Sl. fract, porous dol. lime

* Unsuitable for analysis

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Petroleum Reservoir Engineering
DALLAS

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 File MI-264 S
 Well EAVES NO. A-1

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

CORE SUMMARY

FORMATION NAME	DEVONIAN				
DEPTH, FEET	12,474.0-12,580.0	106' gross			
% CORE RECOVERY	100	62'			
FEET OF PERMEABLE, PRODUCTIVE FORMATION RECOVERED	62.4				
AVERAGE PERMEABILITY, MILLIDARCYs	MAX: 299 ✓ 90°: 55				
CAPACITY—AVERAGE PERMEABILITY X FEET PRODUCTIVE FORMATION	MAX: 18,658 90°: 3432				
AVERAGE POROSITY, PERCENT	5.95 ✓				
AVERAGE RESIDUAL OIL SATURATION, % PORE SPACE	15.2				
GRAVITY OF OIL, 'A.P.I.					
AVERAGE TOTAL WATER SATURATION, % PORE SPACE	48.3				
AVERAGE CALCULATED CONNATE WATER SATURATION, % PORE SPACE	48.3				
SOLUTION GAS-OIL RATIO, CUBIC FEET PER BARREL (1)	1200 ¹⁴⁵				
FORMATION VOLUME FACTOR—VOLUME THAT ONE BARREL OF STOCK TANK OIL OCCUPIES IN RESERVOIR (1)	1.74 ¹¹⁵				

CALCULATED RECOVERABLE OIL } Prediction dependent upon complete isolation of each division. Structural position of well, total permeable thickness of oil zone and drainage area of well should be considered.

BY NATURAL OR GAS EXPANSION, BBLs. PER ACRE FOOT (2)	22 33	Based upon letter 5-22-50			
INCREASE DUE TO WATER DRIVE, BBLs. PER ACRE FOOT	45 104				
TOTAL AFTER COMPLETE WATER DRIVE, BBLs. PER ACRE FOOT (3)	67 177				

CORE LABORATORIES, INC.

R. S. Bynum
 R. S. Bynum *TSK*

NOTE:

- (*) REFER TO ATTACHED LETTER.
 (1) REDUCTION IN PRESSURE FROM estimated SATURATION PRESSURE TO ATMOSPHERIC PRESSURE.
 (2) AFTER REDUCTION FROM ORIGINAL RESERVOIR PRESSURE TO ZERO POUNDS PER SQUARE INCH.
 (3) RESERVOIR PRESSURE MAINTAINED BY WATER DRIVE AT OR ABOVE estimated ORIGINAL SATURATION PRESSURE.
 (4) NO ESTIMATE FOR GAS PHASE RESERVOIRS.

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representation, as to the productivity, proper operation, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

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
 UNIFORM SPACING OF WELLS IN THE KNOWLES
 POOL IN LEA COUNTY, NEW MEXICO.

CASE NO. 204

ORDER NO. R-3

APPLICATION FOR REHEARING

COMES, NOW, Amerada Petroleum Corporation,
 Applicant herein, and alleges that on January 11, 1950, the
 Commission entered its order in the above styled case after
 due notice and hearing held on November 22, 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 Knowles 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 Commission erred in finding the evidence
 insufficient to prove that the proposed plan of spacing would
 prevent waste.

4. That the Commission erred in finding the evidence
 insufficient to prove that the proposed plan is fair to the
 royalty owners in said pool.

5. That the Commission erred in disregarding
 uncontradicted evidence of unimpeached witnesses introduced

in the uncontested hearing of this case that eighty acres, or one-half of a governmental quarter section, 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.

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 Knowles Pool, as requested by the application filed herein.

SETH & MONTGOMERY

By

Oliver Seth

Harry D. Page
Harry D. Page

Booth Kellough
Booth Kellough

Attorneys for Applicant
Amerada Petroleum Corporation.

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

PROCEEDINGS

The following matter came on for consideration before a joint hearing of the Oil Conservation Commission of the State of New Mexico, pursuant to legal notice, at Santa Fe, New Mexico, on November 22, 1949, at 10:00 A. M.

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives public notice pursuant to law of a public hearing to be held November 22, 1949, beginning at 10:00 o'clock A.M. of that day in the City of Santa Fe, New Mexico, in the Hall of Representatives.

STATE OF NEW MEXICO TO:

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

Case 200

In the matter of the Application of Worth Drilling Company, Inc. for an order approving an unorthodox location for A. C. Taylor well No. 7-A, 10 ft. from the south line and 1320 ft. east of the west line (SW/4) of Section 12 in Township 18 south, Range 31 east, N.M.P.M., in North Shugart pool, Eddy County, New Mexico.

Case 201

In the matter of the Application of Danciger Oil and Refining Company for an order granting permission to drill twelve unorthodox ("five spot") locations on its Turner "A" and Turner "B" leases in Sections 17, 18, 19 and 20, in Township 17 south, Range 31 east, N.M.P.M., in the Premier pool, Eddy County, New Mexico.

Case 202

In the matter of the Application of Rowan Oil Company for an order reducing the daily allowable of the Brunson pool, Lea County, New Mexico, to 90 barrels per day per well for a period of six months, within which period time through surveys and studies information may be had for the purpose of determining the maximum efficient rate of production of reservoir.

Case 203

In the matter of the Application of Santa Fe Pacific Railroad

Company and Oil Development Company of Texas, for an order allowing an exception from Commission Order No. 779, of July 27, 1948, providing an 80 acre spacing pattern for wells in the Crossroads pool, Lea County, New Mexico.

Case 204

In the matter of the Application of Amerada Petroleum Corporation for an order establishing proration units and uniform spacing of wells for the common source of supply discovered in the W. W. Hamilton #1 well, NE SW Section 35, Township 16 south, Range 38 east, N.M.P.M., Knowles pool, Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on November 7, 1949.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ R. R. Spurrier
R. R. SPURRIER, SECRETARY

SEAL

BEFORE:

Honorable Guy Shepard, Chairman
George Graham, Attorney
R. R. Spurrier, Secretary

REGISTER:

C. D. Borland
Hobbs, New Mexico
For Gulf Oil Corporation

J. H. Crocker
Tulsa, Oklahoma
For Mid Continent Petroleum Corporation

J. A. Seth
Santa Fe, New Mexico
For Amerada Petroleum Corporation

C. V. Millikan
Tulsa, Oklahoma
For Amerada Petroleum Corporation

J. A. Veeder
Midland, Texas
For Amerada Petroleum Corporation

R. S. Christie
Ft. Worth, Exas
For Amerada Petroleum Corporation

William C. Schauer
Roswell, New Mexico
For Worth Drilling Company

Roy O. Yarbrough
Hobbs, New Mexico
For the New Mexico Oil Conservation Commission

Jack M. Campbell
Roswell, New Mexico
For Texas Pacific Coal & Oil Company

Elvis A. Utz
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

E. E. Kinney
Artesia, New Mexico
For the New Mexico Bureau of Mines

L. O. Storm
Hobbs, New Mexico
For Shell Oil Company

Glenn Staley
Hobbs, New Mexico
For Lea County Operators

Robert F. Herron
Amarillo, Texas
For Oil Development Company of Texas

E. A. Paschal
Amarillo, Texas
For Oil Development Company of Texas

E. C. Iden
Albuquerque, New Mexico
For Oil Development Co. of Texas
Santa Fe Pacific Railway Company

E. O. Hemenway
Albuquerque, New Mexico
For Santa Fe Pacific Railway Company

Harold Kersey
Artesia, New Mexico
For Danciger Oil & Refining Company

John E. Cochran, Jr.
Artesia, New Mexico
Danciger Oil & Refining Company

Ed McKellar, Jr.
Dallas, Texas
Magnolia Petroleum Company

E. P. Keeler
Dallas, Texas,
Magnolia Petroleum Corporation

O. E. Van Meter
Midland, Texas
Magnolia Petroleum Company

Roy T. Durst
Ft. Worth, Texas
For Rowan Oil Company

Hamilton Rogers
Ft. Worth, Texas
For Rowan Oil Company

G. H. Gray
Midland, Texas
For Sinclair Oil & Gas Company

CHAIRMAN SHEPARD: Will the meeting please come to order.

(Mr. Graham read Notice of Publication.)

CHAIRMAN SHEPARD: The order of the cases has been changed slightly by the Commission--Case No. 202 will be heard first; Case 200 will be second; 201, third; 203, fourth; 204, fifth.

(Mr. Graham read Notice of Publication for Case 200.)

MR. ROGERS: I am Hamilton Rogers, representative of the Rowan Oil Company, applicant in this case. I have present one witness, Roy T. Durst.

(Witness sworn.)

MR. ROGERS: Mr. Chairman and Members of the Commission, I am here as representative of Rowan Oil Company. The application filed relates to the oil allowable in Brunson pool in Lea County. The applicant for itself as an independent party and in behalf of other operators similarly situated requests that the Commission enter an order reducing the allowable of the field on a temporary basis in order that information might be obtained with reference to reservoir energy in an effort to bring about corrective conditions for the pool. This application is made in the interest of conservation of natural resources of the State of New Mexico, and it is hoped that through this study, it will be detailed later, conditions can be brought about to insure the maximum recovery of oil from this pool. The subject matter of this hearing has been studied by the operators in the pool, their staffs, and by the engineering sub-committee of the Brunson Committee. Representatives of the operators met in the proration office in Hobbs in September to consider the report of the engineering sub-committee that had been made with reference to

the pool. The majority of the representatives present deemed it advisable that an allowable for the pool be reduced. This reduction in allowable was thought advisable because of the rapid decline in bottom hole pressures and the increasing irregular water encroachment. A second hearing was held in October, and at that hearing the majority of the operators present recommended that the application be filed before this Commission for the purpose of having the allowable for the pool reduced to 90 barrels of oil per day on a temporary basis for six months, and during that time study the pool. I have here the Supplemental Report of Brunson Pool Operators, dated June 30, 1949. I offer it as Exhibit A in this hearing.

CHAIRMAN SHEPARD: It will be received.

MR. ROGERS: And also a supplemental report with reference to Brunson Pool, Bottom Hole Pressures, Exhibit B.

CHAIRMAN SHEPARD: It will be received.

MR. ROGERS: Mr. Chairman, Mr. Durst is a graduate engineer. He has testified before regulatory bodies a number of times, will you accept his qualifications as a witness?

CHAIRMAN SHEPARD: Yes, they will be accepted.

MR. ROGERS: Mr. Durst, will you give in narrative form an analysis of the reports and data contained in the report of the Brunson Pool Operators.

MR. DURST: Generally, Exhibit A reflects that the original bottom hole pressure of Brunson Pool was 2945 pounds per square inch during September of 1945 after the first well had been completed. From that time to June 1, 1949, the number of wells drilled, total number of wells in June 1, 1949, was 74. Bottom hole pressures were taken in the intervening time from September until June, 1949, and these bottom hole pressure

figures reflect cumulative pressure drop was 924 pounds while a total of 5,640,253 barrels of oil were produced. A substantial amount of water has also been produced, although those figures are not readily available. The cumulative decrease reflects 6,104 barrels of oil have been produced for each pound dropped in bottom hole pressure during the first six months of 1949, while 1,520,922 barrels of oil were being produced. Pressure drop for the period was 267 pounds, approximately 29 per cent of the total drop since the field was first discovered. For comparative purposes with other Ellenburger pools, we introduce the following data from the TXL Ellenburger, Exeter County, Texas. The TXL Ellenburger is substantially larger in area than is the Brunson. However, the well spacing is identical, geological point of the formation of the TXL is the same age. TXL Ellenburger had an original bottom hole pressure, facts taken under December 1945, at which time the pressure was 4,071 pounds. From that time until September 30, 1949, a total sum of 150 wells had been completed. At latter date the average bottom hole pressure for this reservoir was 3,640 pounds per square inch. From December 1945 until September 1949, a total of 25,086,891 barrels of oil had been produced, which reflects average production of 58,247 barrels of oil have been produced for each pound dropped in bottom hole pressure as compared to the previously quoted 6,104 barrels for the Brunson pool. The production drop can readily be seen. TXL Ellenburger's drop has been some nine and a half times as great as that of the Brunson field. As Mr. Rogers mentioned, decline in bottom hole pressure in the Brunson Pool has been discussed by all operators, and it is the consensus of opinion that daily allowable for Brunson pool should be reduced to 90 barrels for a six months' test period only in order to perform many tests at reduced rates.

These could be observed in an effort to determine rates of production for the ultimate recovery of maximum amount of oil from the Brunson pool. Specific procedure to be followed and tests under reduced withdrawal rates are as follows: (1) A general bottom hole pressure survey will be taken of all wells in the Brunson field in the manner prescribed by the Oil Conservation Commission and immediately prior to the effective date of reduced allowable. (2) A limited number of key wells to be designated by the sub-committee of Brunson Pool Operators Committee, will have gas-oil ratio tests taken immediately prior to the bottom hole pressure survey outlined above. In addition, gas-oil ratio tests and bottom hole pressure tests as prescribed by the Commission will be taken on the designated key wells only at 60-day intervals until a total of six months has elapsed. (3) During the six month period, the top per well allowable for the Brunson field will be fixed at 90 barrels of oil per day. Wells producing gas in excess of the limiting gas-oil ratio of 2000 cubic feet per barrel will be penalized downward from 90 barrels per day. (4) Immediately prior to the termination of the six month test period, a general bottom hole pressure survey will again be taken of all wells in the Brunson field in the manner prescribed by the Oil Conservation Commission. (5) At the end of test period the top per well allowable for the Brunson Field will revert to the normal as presently prescribed by the Oil Conservation Commission. The results of all bottom hole pressure and gas-oil ratio tests enumerated above will be made available to all operators in the field for review and study. Further recommendations to the Commission will be made subsequent to the accumulation of this data, if recommendations are in order.

MR. ROGERS: In Exhibit A, Mr. Durst, the pressure production data shown for June 1, 1949, reflects pressure for period of 267 pounds, did you have supplemental information, Exhibit B?

MR. DURST: Yes, Exhibit B reflects from June 1, 1949, until early in November 1949, the field is experiencing an additional pressure drop of 132 pounds insofar as 56 comparable wells were concerned. An additional survey included a total of 64 wells, and results of these bottom hole pressure tests indicate in 64 wells the pressure drop has been 68.4 pounds since June 1, 1949. Incidentally, these figures are incomplete, not all the wells have been run that appear in the figures for June 1, 1949.

MR. ROGERS: Attached to Exhibit A, Mr. Durst, is a Water Map, what does that indicate with reference to irregular water encroachment in the pool?

MR. DURST: The Water Map shows those wells as of July 1, 1949, in the Brunson pool that were producing water. It is rather difficult to make an interpretation from this map although it is clear that the encroachment of water is extremely irregular. This could be due to several different things, possibly the details of which would bear quite a bit of study.

MR. ROGERS: If the Commission should grant the order requested, Mr. Durst, do you think in your opinion, would you say that the data compiled from the reservoir under the outlined procedure would afford the operators in the pool an opportunity to offer corrective steps to prevent any underground waste if such were reflected from that study?

MR. DURST: Yes, the results of a six months test under reduced rates of production should tend to furnish additional information to the operators and to the Oil Conservation Commission whereby its best judgement can be utilized in obtaining the maximum

output of recoverable oil from the reservoir.

MR. ROGERS: Mr. Chairman, that is all I have. I would like to say, however, that this application is filed as a result of recommendations of the operators' committee. We appear as the applicant for ourselves as an independent party and in behalf of others similarly situated, and we think, in the public interest in the conservation of reservoirs. Perhaps this is in the nature of an experiment, I don't of personal knowledge know that there is a precedent. It is not in self interest alone, not self-served. I think the operators in this pool are anxious to set up a system of production which will insure the maximum recovery of oil from the pool. We, therefore, request that the Commission enter an order which will grant the applicant the relief requested.

CHAIRMAN SHEPARD: Does anybody have anything further?

MR. KEELER: E. P. Keeler, Magnolia Petroleum Company. Magnolia is in full agreement with the applicant's request for reduction in allowable in the Brunson Pool to 90 barrels per day, however, there is one item in the application that we do not fully agree with, and that is item No. 5 which reads as follows: "At the end of the test period, the top per well allowable for the Brunson field will revert to the normal as presently prescribed by the Oil Conservation Commission." We feel that that rather automatically reverts to present allowable, that a study should be made of the data accumulated as a result of the tests recommended in this application, and that allowable to be adopted after the expiration of the temporary period should be based on the results obtained from these surveys. Just how that could be accomplished I don't know. It could be that possibly the 90 barrels allowable continue for seven

months and have a hearing during the seventh month at which time results of all these tests be presented and recommendations made for the future, or if possible if the time would permit, the hearing could be held at the end of six months. I don't know if that would be sufficient time to enable a thorough study of the survey taken at the end and the records checked and the results of the reduction in allowable as reflected by bottom hole pressure and gas-oil ratio survey. This should be the basis for further ratios adopted rather than automatically reverting to present allowable. One other suggestion, in our opinion there is rather a serious situation down there. If the Commission sees fit to issue an order reducing the allowable to 90 barrels per day, we suggest it be made effective December 1.

CHAIRMAN SHEPARD: Anyone else? Mr. Staley, do you have anything to say?

MR. STALEY: No, sir.

MR. ROGERS: One other thing in response to what the representative from Magnolia has said. I have here a telegram from Mr. House. It is in line with the general recommendations. I offer it in the case since it was sent to Mr. Rowan and does reflect substantially the same thing this gentleman has said. It reads as follows: "In re production rate Brunson pool, Lea County, New Mexico. Humble recommends 75 barrel top allowable instead of 90 for the 6 month test period, and at the end of the 6 month test period, the test data be reviewed, and the top allowable be determined from these data rather than reverting back to the 122 barrel top allowable, Humble Oil and Refining Company by J. W. House." I would like to offer this telegram in evidence as Exhibit C.

CHAIRMAN SHEPARD: It will be received.

MR. ROBERS: Our position in application for reversion back to top allowable is occasioned by agreement of operators present at the hearings mentioned, and we appear here as applicant to carry out wishes of that committee.

MR. BORLAND: C. D. Borland, Gulf Oil Corporation. At meetings held in Hobbs, we were the only Company that opposed six months period. At the end we did go along if at the end of that period the allowable reverts back to what would be normal. We still feel that way about it. We are opposed to any change in allowable except after a second hearing.

CHAIRMAN SHEPARD: Anybody else?

MR. GRAY: G. H. Gray, Sinclair Oil & Gas Company. We are in general agreement with this procedure. We don't object to this method.

MR. CHRISTIE: R. S. Christie, Amerada. We also concur with applicants request. We would leave it up to the Commission to decide whether the allowable is to revert to 122 barrels at end of six months' period. If it seems proper to change it after a hearing or reverts back, we go along in either case.

CHAIRMAN SHEPARD: Anybody else?

MR. STORM: L. O. Storm, Shell Oil Company. We are in agreement with the application. It was our wish that allowable revert back to normal top allowable at the end of six months.

CHAIRMAN SHEPARD: Anyone else?

MR. SPURRIER: Mr. Durst, this is a general question, if you have an answer all right if you don't, it doesn't matter.

This pool is thought to be an absolutely water drive pool?

MR. DURST: I am not too well prepared to answer that specific question. From information available to me personally, it is my opinion that it is a water drive in view of the water pro-

duction that is being experienced by a number of wells in the field.

MR. SPURRIER: Are the permeability and porosity greatly different from that of TXL?

MR. DURST: Again I do not have the exact figures to quote to you. As I understand, some of the major companies represented here do have detailed analyses on cores taken from the Brunson and from the TXL Elleburger, and possibly comparative information is available present here this morning. But from the production data from the bottom hole pressure information, it is apparent to me that there is a vast difference in relative permeability in the two sources in question.

MR. SPURRIER: It would be your guess that the permeability is considerably less than that of the TXL?

MR. DURST: Substantially less, yes, sir.

MR. SPURRIER: Do any engineers have the information which I asked and he did not have?

MR. KEELER: Magnolia Petroleum Corporation has core information on one well in the field in Brunson Field. We have no production in the TXL and are not familiar with that, but Mr. Van Meter with Magnolia has this information.

MR. VAN METER: This core analysis was taken from Magnolia's E. O. Carson No. 17 in Ellenburger formation, Brunson Field. In this core we obtained at 15 feet of limestone core which was analysed by special analysis presently made by a commercial laboratory. The average porosity was 7.2 per cent; a permeability of 10.8.

MR. SPURRIER: I would like to have the representative from Gulf to tell us what specifically Gulf objects to--the procedure of testing or cutting allowable?

MR. BORLAND: Gulf's objections are not in agreement with the test. We would go along provided at end of six months the allowable would revert back to what would be called normal.

MR. SPURRIER: Would you advise us as to what Gulf's procedure would be?

MR. BORLAND: After obtaining information and a second hearing is called, we may object at that time to any change in allowable.

MR. SPURRIER: Your mind is made up at this time even before the tests is made?

MR. BORLAND: Yes.

MR. SPURRIER: This may or may not relieve the situation. The question in this case is ascertaining the maximum efficiency rate. I don't know whether this has appeared in the record before this. Has any one any comments to make on maximum efficiency rate?

MR. ROGERS: Mr. Spurrier, one comment, we have enough trouble in Texas with this, and we don't want it to get over here in New Mexico. I think what the operators in this pool are interested in, not only self interest, from the point of conservation of natural resources and recovering the greatest amount of oil. Now how that information and how procedures worked may be emeshed with what is referred to as M.E.R. we don't know. But we are not anxious to see this Commission get into too much of that either.

MR. SPURRIER: That is all.

CHAIRMAN SHEPARD: The case will be taken under advisement. The next case is No. 200.

(Mr. Graham read the Notice of Publication in Case 200.)

MR. SCHAUER: If it please the Commission, I am appearing for

Hervey Dow & Hinkle representing the Worth Drilling Company, Inc., My name is William C. Schauer. We have no witnesses and are prepared to submit the case on basis of the record. The matter before the Commission is in regard to the application by the Worth Drilling Company of Fort Worth, Texas, seeking approval to drill an additional well on an unorthodox "five spot" location. Notice of intention to drill was filed with the United States Geological Survey, and they made no objection to an additional well provided we obtained the consent and approval of this Commission. I would like to refer to and offer as an exhibit a letter now on file with the Commission from Foster Morrel of the United States Geological Survey to the Worth Drilling Company, dated November 4, 1949, which reads as follows: "This office offers no objection to the drilling of "five-spot" wells at unorthodox locations. However, we request in all such cases that the locations be no closer than 25 feet from any 40-acre subdivision line. Our approval of such location will be contingent upon approval by the New Mexico Oil Conservation Commission and to secure such approval it will be necessary to file a petition for a hearing the matter before the Commission. ...". I should like to offer as Exhibit 2 the plat which was filed with the original notice of intention to drill with the Commission, which shows the location of additional well to be drilled. This plat shows four wells that are being worked by the Worth Drilling Company as follows: No. 1 in the southwest quarter of the southwest quarter of Section 12. No. 2 of the southeast of quarter of Section 7. No. 3 in northeast of the northwest of Section 13. No. 4 in the northeast of Southwest quarter of Section 12 in Township 13 south, Range 31 east. The tentative proposed location of additional well is approximately

in the center of the four wells just mentioned and more particularly described as being 25 feet north of the south boundary and 1295 feet east of the west boundary of Section 12, Township 18 south, Range 31 east. The designation of this well was to be Well No. 7A. The field is the North Shugart Field located in Eddy County, New Mexico.

MR. SPURRIER: Mr. Schauer, while you are at this point, you have changed the proposed location from the application, have you not?

MR. SCHAUER: Yes, that was amended at the request, I believe, of the U. S. Geological Survey and the Oil Conservation Commission both. It is requested that the Commission take notice of facts within its knowledge and its reports to the effect that in the four wells just mentioned the production has fallen below the allowable, and in that regard reference is made to the proration order for November issued by the proration office of the Oil Conservation Commission indicating that production of the four wells fell below allowable from approximately 79 barrels to 214 barrels. It is, of course, our desire to drill this well so that we could equal that allowable, and in the event the Commission grants this request the allowable for the entire 160, that is, south half of the northwest of 12 and north half of the northwest of 13, Township 18, Section 31 east will be allocated to entire five wells.

CHAIRMAN SHEPARD: Is that all government property, are there any overriding royalties?

MR. SCHAUER: I don't have that fact within my possession.

MR. COCHRAN: May I say something, it so happens that I have knowledge as to the title of that particular lease. The ownership is uniform for entire 160 acres.

CHAIRMAN SHEPARD: I wanted to know if there were the problem

of unitizing. Does anybody have any questions?

MR. STALEY: You mentioned in Intention to Drill the fact that this well location calls for ten feet from the south line and 1320 feet east of west line. The general practice is to avoid placing of any well on legal subdivision line.

MR. SPURRIER: Mr. Staley, Mr. Schauer has amended the application so that location does not fall on the subdivision line.

CHAIRMAN SHEPARD: Anybody else, if no further objections the order will be granted.

(Mrs. Graham read the Notice of Publication in Case 201.)

MR. COCHRAN: My name is John E. Cochran, Jr. Our witness is Harold Kersey. We represent the Lanciger Oil and Refining Company in its application for permission to drill twelve unorthodox "five spot" locations on what is known as Turner "A" and Turner "B" leases located in the Premier pool, Eddy County, New Mexico. Both of these leases are on Federal land, and in this connection, I have a letter from Mr. Foster Morrel of the U. S. Geological Survey which states that his office has no objection to the drilling of these wells or the proposed spacing pattern, and that further they believe that the drilling of these wells will afford opportunity to recover considerably more oil from the lease. I offer this letter in evidence as Exhibit No. 1.

CHAIRMAN SHEPARD: It will be received.

(Witness sworn.)

MR. COCHRAN: In the interest of time, I might state to the Commission that Mr. Kersey is a graduate petroleum engineer of the University of Oklahoma and is engaged in the practice of his profession as oil operator and drilling contractor. If the Commission would like Mr. Kersey to detail his qualifications--

CHAIRMAN SHEPARD: He may go ahead and testify.

DIRECT EXAMINATION BY MR. COCHRAN:

Q. Mr. Kersey, are you familiar with the Turner "A" and the Turner "B" leases?

A. I am.

Q. What has been the occasion for you to observe and to become familiar with these leases?

A. I have drilled all the wells on Turner "A" and Turner "B", except one, which totals 51 wells.

Q. How many wells are there on Turner "A"?

A. There are 22 wells on Turner "A", fourteen of those are producing from the Grayburg Lime, at approximately 3400 feet and eight from the Seven Rivers Sand at approximately 1870 feet.

Q. How many wells are there on Turner "B"?

A. There is one well from the Premier Sand at 3100 feet; ten from the Grayburg Lime at 3400 feet; and eighteen from the Seven Rivers Sand at approximately 2100 feet.

Q. Is a well being drilled at the present time?

A. At present time Turner No. 33B is being drilled.

Q. Are you drilling that well?

A. I am.

Q. Is it in the Grayburg horizon?

A. Yes, sir, in the Grayburg horizon.

Q. Mr. Kersey, what general spacing pattern is in effect?

A. The spacing pattern is one well to forty acres generally-- spaced 330 feet from the north line of 40 and 660 feet from the east and west lines, and in one instance ten acre spacing was followed.

Q. In your opinion as a petroleum engineer, do you believe one well drilled on each 40-acre legal subdivision is sufficient

to obtain all recoverable oil from that 40 acres?

A. I do not believe that one well from 40 acres will recover all the oil. This is borne out by the fact that some of the other operators in the area have been drilling "five-spot" locations, and their recovery from those locations has been very good.

Q. And it is your opinion that by drilling the "five Spot" locations it would promote a greater recovery of oil?

A. I believe we could recover considerably more oil from "five spot" locations.

Q. Mr. Kersey, is it your opinion that the drilling of these proposed "five spots" at locations shown on application and on map attached to the application would be in the interest of conservation?

A. I do. I believe that a great deal more oil would be recovered than would be otherwise.

Q. Do you know what Danciger's plan is with reference to drilling the proposed wells?

A. Their plan is to drill one well at a time in orderly manner, and as the drilling progresses test and see what results are so that future drilling can be determined from that.

Q. It may be that after part of the drilling and the results are studied that Danciger may wish to modify the drilling plan?

A. That is right. If sufficient recovery were not obtained, they would probably stop and all twelve might not be drilled if sufficient production were not obtained.

Q. Now, if permission is granted to drill these well by the Commission, what does Danciger propose to do with reference to "five spots" as to allowable?

A. It is their plan to produce only the top allowable from the 40 acre subdivisions.

Q. In no event would the two wells on 40 acres produce in

excess of allowable fixed by the Commission?

A. In no event would an excess be produced.

MR. COCHRAN: Does the Commission desire to ask any questions?
That is all.

CHAIRMAN SHEPARD: Does anyone have anything further, anything
to say? If not, the order will be granted.

(Recess)

CHAIRMAN SHEPARD: The meeting will come to order. Mr. Iden
is talking on a long distance call. We will change the order
and hear Case No. 204.

(Mr. Graham read Notice of Publication in Case 204.)

MR. SETH: If it please the Commission, this is the application
for 80-acre spacing and is based on three wells Amerada drilled
in the pool. The area covered by the application and which
is known as the "Knowles Pool" is considerably larger, probably
twice as large as the "Knowles Field" as fixed by the nomen-
clature committee. Mr. Veeder will testify as geologist, and
Mr. Christie as engineer.

(Witnesses were sworn)

DIRECT EXAMINATION BY MR. SETH:

Q. Mr. Veeder, will you state your name.

A. I am John A. Veeder, Midland, Texas.

Q. By whom are you employed?

A. Amerada Petroleum Corporation.

Q. In what capacity?

A. Assistant District Geologist.

Q. What is your training and experience?

A. I have a B. S. degree; one year's graduate work at North-
western. I have worked for Amerada for twelve years. I worked
for six years in Oklahoma.

Q. In this case in the so-called "Knowles Field" in Lea County, New Mexico, I believe the first well discovered was drilled by Amerada?

A. That is right.

Q. Will you state to the Commission a description of this well?

A. Amerada's No. 1 is known as "W. W. Hamilton No. 1", and is located NE/4 SW/4 of Section 35, Township 16 South, Range 38 East.

Q. Will you give the depth?

A. This well was carried to a total depth of 12,656 feet in the Devonian. The top of the Devonian was called 12,451. The top of the pay was 12,457. Five and a half inch casing was set at 12,518 feet. Water was encountered at a depth of 12,628 feet. The well was then plugged back to depth of 12,600 feet. The well was treated with 2,000 gallons of acid and open hole from 12,518 to 600 was completed for IP of 935 barrels of oil in 24 hours through one half inch choke.

Q. What was the gravity of the oil?

A. The gravity was 46.9.

Q. What about the gas-oil ratio?

A. The gas-oil ratio was 180 to 1.

Q. What was the bottom hole pressure?

A. I do not have that.

MR. SETH: Do you have information on that, Mr. Christie?

MR. CHRISTIE: I have here a Schlumberger print with me with top of Devonian and pertinent production procedure on 1980' FS & W/L, Sec. 35 16S-38E.

CHAIRMAN SHEPARD: When was it completed?

MR. VEEDER: Amerada No. 1 Hamilton was completed May 4, 1949.

Q. Has it been producing since then?

A. It has.

Q. When was the next well drilled?

A. The next well would be the Amerada No. 1 Stella Rose in the SE/4 NW /4 of Section 35-16S-38E.

Q. When was that well completed?

A. That well was completed October 31, 1949.

Q. At what depth, give the same data with reference to this well as was given in connection with Hamilton well.

A. The Amerada Rose encountered top of Devonian at depth of 12,542. The top of pay was 12,557 feet; total depth 12,607. Five and a half inch casing was set at 12,596. The casing was perforated from 12,560 to 596. The open hole and perforations were acidized with 3 thousand gallons of acid. Amerada completed this well for IP flow at the rate at 532 barrels of oil in 24 hours through one half tubing choke. Gas-oil ratio 132; gravity 47.1.

MR. SETH: I would like to offer Schlumberger Reports 1, 2, and 3 in evidence.

CHAIRMAN SHEPARD: Accepted.

Q. Will you give us the same information for the next well?

A. The third well is located, Amerada No. 1 Rose Eaves, SE/4 SW/4 of Section 35-16S-38E. This well is also Devonian producer; encountered top of Devonian at depth of 12,336 corrected by Schlumberger. The total depth of 12,575; the top of the pay was called at 12,357; 7 and 5/8 inch casing set at 12,574. Casing was perforated from 12,532 to 573. This well was acidized with 4,000 gallons and completed for IP flow of 773 barrels of oil in 24 hours flowing through 3/4 inch tubing choke. Gas-oil ratio was 148; gravity 47.9, corrected.

Q. Has Amerada started another well?

A. Amerada is now drilling a well in Section 2-17S-38E.

This well is located in the Northwest Quarter of the Northeast Quarter of Section 2. It is now drilling around a depth of around 2200 feet.

Q. Is it deep enough to disclose anything?

A. It is not.

Q. Now, Mr. Veeder, have you A Schlumber log of Rose Eaves No. 1.

A. Yes.

Q. Now, in the three wells Amerada is producing, was any pay encountered between the surface and present production?

A. No commercial pay from the surface to the top of Devonian or present producing horizon.

Q. All exceeded 12,500 feet in depth?

A. That is right.

Q. Was there a show of oil in the first?

A. There was a show of oil in discovery No. 1, which we encountered in Paddock stone. They recovered 1280 feet of oil and 276 feet of salt water.

Q. Not a commercial showing?

A. We have not tested it by professional methods, but we do not believe it to be a commercial well.

Q. Was the same condition encountered in the other two wells?

A. Both wells to north and south were tested thoroughly--that is, porosity in stone was not present.

Q. Are the three wells the only wells drilled within the six sections mentioned in Amerada's application?

A. That is right.

Q. Is there another well to the north?

A. There is a well approximately one and three-fourths miles northwest of Amerada's No. 1 Hamilton. That is the Texas No. 1

Bennett Estate Well in the Northeast Quarter of the Northwest Quarter of Section 27-16S-38E.

Q. In your opinion are the six sections described in Amerada's Sections 34, 35, 36, township 16 South, Sections 1, 2, 3, township 17, range 38 East probable productive limits of area of these wells?

A. To the best of my knowledge at this time, I would say that is so.

Q. This area is larger than Knowles Field as fixed by the nomenclature committee?

A. That is right.

Q. From your experience and general knowledge of wells, would you recommend including these six sections?

A. I would think so.

Q. Mr. Veeder, in your opinion based on your knowledge as a geologist and conditions that these wells disclose, would you recommend spacing be put on 80-acre spacing?

A. I would.

Q. You believe that this 80-acre spacing put in and pattern range be so alternated would result in the ultimate recovery of larger amounts of oil?

A. I believe all recoverable oil would be obtained by that method.

Q. What would you recommend as to pattern of spacing?

A. I would recommend that pattern as spotted on the map.

Q. Does the map show wells and recommendation of Amerada as to spacing?

A. It does.

Q. I notice that the spacing pattern calls for wells in the Northwest and Southwest of corners of each quarter section?

A. That is right.

Q. The only exception is the discovery Hamilton in the Northeast of the Southwest of Section 35. That forty would be the only exception in the whole set up?

A. That is right.

Q. Should that well in your opinion be considered as the pattern well for that particular 80-acre tract?

A. That is right.

Q. Mr. Veeder, along the north line of Section 1, 2, and 3, in your opinion based on your experience, training, and knowledge of this particular area, do you recommend that an order be entered fixing spacing of 80 acres.

A. I do, essentially because of type of porosity in Devonian formation we have - vuglar and good vein porosity, and we would compare this field with the Jones Ranch Field approximately 12 miles to the north which we have production history on.

Q. In what way?

A. That is just northwest and is of same type of production. The production is from the Devonian dolomite of same texture and character. The porosity is very similar.

Q. Has that been developed on 80-acre spacing?

A. Yes.

Q. Is it working out satisfactorily?

A. It is.

Q. Your idea of spacing, your recommendation is that wells be placed in center of the forty in each instance?

A. That is right.

Q. And that some allowance or tolerance be allowed where topography requires slight deviations--150 feet?

A. Yes, sir, I believe that is right. I think the topography is fairly flat.

MR. SETH: That is all.

CHAIRMAN SHEPARD:

MR. CAMPBELL: Jack M. Campbell, representative of Texas Pacific Coal & Oil Company. Mr. Veeder, I gather at the time of the discovery well's completion, you did not feel you had sufficient engineering data on which to base a request for 80-acre spacing?

MR. VEEDER: I would believe that is right.

Q. Is it your understanding that the first three wells are 40-acre offsets north and south.

A. No, we do not consider them as 40-acre offsets.

Q. The first is Northeast Quarter of Southwest Quarter; and second, Southeast of Northwest; and third, Southeast of Southwest of 35?

A. That is right.

Q. The field wasn't contemplated as 80-acre spacing, wasn't started on that basis?

A. I would rather not answer, because I do not have that knowledge. I believe the engineer can answer that.

CHAIRMAN SHEPARD: Anyone else? Go ahead.

MR. SETH: Mr. Christie has testified before this Commission before. It is not necessary to state his qualifications.

Q. What position do you hold with Amerada?

A. Petroleum engineer.

Q. You have been familiar with the Knowles Field since its inception?

A. Yes, sir, I am.

Q. The testimony of Mr. Veeder with respect to these three wells being drilled and completed is substantially correct, and their depth of pay is substantially right?

A. Yes, sir.

Q. Now the question that Mr. what's his name asked. These three wells due north and south line, what is the purpose of that to ascertain height and whether some lower or higher, is that the idea?

A. To begin with when we found pay at Paddock in the discovery well, we offset to north with intention of testing upper formation and so determine whether the 40-acre basis on upper pay. As soon as we found it not productive Paddock, we stopped that, and found discovery well Hamilton No. 1 to test Devonian. Having found production in Devonian, we continued to drill north offset to Devonian. Reason for that particular spacing, we thought it advisable to verify as to location, struck units running east and west, so drilled third south well. Discovery well is the exception rather than the standard pattern. It is true that as more wells were completed in the reservoir, more now, we found better way of spacing. We found that we preferred 80-acre spacing.

Q. And what did the third--

A. The third well further confirmed that opinion.

Q. In your opinion, will the 80 acre spacing as set out in Amerada's Exhibit 4 and the location of wells as shown thereon result in the ultimate recovery of the recoverable oil in the pool.

A. Based on the engineering information that we have, I believe that is correct. We have production index on discovery well, Hamilton No. 1, and north offset to the Hamilton, which is the Rose No. 1. The productivity index of Hamilton No. 1 is as shown to be 1.03 barrels per pound drop flowing at the rate of 40 barrels per hour, which indicates good permeability productivity. Production Index on Rose No. 1 was .444 barrels

per pound drop flowing at the rate of 20.5 barrels for 24 hours test period. While it is not as good a well from productivity standpoint as Hamilton, it is still a good well in our opinion and has fair permeability. It is lower on structure--the lowest well drilled to date. Furthermore, we believe we have a water drive in discovery well. It tested approximately 12 barrels per hour of salt water with fair permeability. We think one well will drain at least 80 acres.

Q. Have you anything on the cost of the wells?

A. The discovery well cost \$351,000.00. The estimate on second well drilled was \$268,000.00. Of course, the discovery well always cost more, due to more testing, etc. \$300,000.00 estimate to \$335,000.00 or higher because running 7 and 5/8 inch casing through Devonian. \$268,000.00 is a fair estimate--approximately \$260,000.00 to \$270,000.00.

Q. Mr. Christie, along the line of north line of Sections 1, 2, 3, township 17 South, there are a series of lots following usual public land survey?

A. Yes, sir.

Q. They run to around thirty acres?

A. Yes, sir.

Q. What recommendation as to 80 acre spacing, I notice lots included in each of 80 acres, do you recommend that these lots, although less than 80 be made a unit?

A. Yes, we recommend that in consideration of government sub-divisions.

Q. Does Amerada seek more than 40-acre allowable?

A. No. We recommend 40-acre allowable for that division, which I believe is 264 barrels per day of oil.

Q. What other companies are there besides Amerada in this

six section area?

A. Exhibit 4 shows Magnolia owns the east half of Section one; Sinclair Oil Company, the southeast quarter of Section 2; and Danglade owns the Southwest Quarter of Section 1, the south 80 of the Northwest Quarter of Section 1.

Q. No, Amerada has that.

A. That is right.

Q. Except that Amerada has all rest of leases?

A. Yes, sir.

Q. Have Magnolia and Sinclair been notified?

A. Yes, sir.

Q. Do you know what Mr. Dan Glade's attitude is?

A. I understand he is agreeable to 80 acre spacing.

Q. He has been notified?

A. Yes, sir.

Q. I notice on this Exhibit 4 there are four or five exceptions where the 80 acres run north and south instead of east and west.

A. I believe six.

Q. Was reason for that to cover ownership?

A. Yes, sir, taking care of ownership, so it wouldn't be necessary to unitize.

Q. You recommend those exceptions to straight east and west?

A. Yes.

Q. Does that make any difference in well spacing pattern?

A. No, now only difference is Hamilton No. 1.

CHAIRMAN SHEPARD: Does anybody have any further questions?

Anyone anything to say?

MR. KEELER: Magnolia has acreage within the area designated by the applicant and its probable productive limits of this source of supply, and we wish to concur with the recommendations made

by the applicant.

CHAIRMAN SHEPARD: Anyone else?

MR. SPURRIER: I don't know if the record is clear, but in answer to Mr. Campbell's question, those three wells are 40-acre offsets?

MR. CHRISTIE: Yes, sir, they are; but they fit into the spacing pattern.

MR. SPURRIER: Do you have anything on porosity on Dolomite?

MR. VEEDER: No, we drilled two and cored third, diamond cored Amerada No. 1 Rose, had about one hundred per cent recovery, and that did show very good porosity, but it was not analyzed by a commercial laboratory.

MR. SPURRIER: You don't know what per cent, you know it is, as you describe it, good.

MR. VEEDER: That is right.

CHAIRMAN SHEPARD: What about the royalty owners, will they be compensated?

MR. VEEDER: It is set up so that problem wouldn't arise except for, in the north quarter, that 40 acres is separate ownership. We think that can be handled by agreement. Otherwise, all royalties are same under each unit; that is one reason for the arrangement.

CHAIRMAN SHEPARD: That will be all on this. We will take the case under advisement.

MR. SETH: I would like to ask that if it devolves as wells are drilled they are in same common source of supply, would you recommend that area be extended to area outside sections?

MR. VEEDER: Yes.

(Mr. Graham read Notice of Publication in Case 203.)

MR. IDEN: My name is E. C. Iden, address 715 First National Bank Building, Albuquerque, New Mexico. I appear here

representing the two applicants, the Santa Fe Pacific Railroad Company and Oil Development Company of Texas. The Santa Fe is the owner of mineral rights of the tract involved, and the Oil Development Company of Texas is lessee under an oil and gas lease. Everybody is familiar with what we are asking for. We are asking for an order allowing an exception from Commission's Order No. 779, of July 27, 1948, providing for 80-acre spacing pattern for wells in the Crossroads Pool, Lea County, New Mexico, and involves more specifically the Northwest Quarter of Section 27. The Oil Development Company of Texas has drilled a well in Southwest Quarter of Northwest Quarter of Section 27, shown on attached map, if any Commissioners care to refer to that, that resulted in a dry hole. The application is now before this Commission that that Company be permitted to drill a second well in Southeast Quarter of Northwest Quarter, in other words, east 40 acres of that 80 acre unit.

(Messrs. E. A. Paschal, R. F. Herron, E. O. Hemenway were sworn.)

MR. IDEN: We may not use all the witnesses here. They are present to present such information as anybody may wish to ask.

Q. What is your name?

A. E. A. Paschal.

Q. What company do you represent?

A. Oil Development Company of Texas.

Q. What is your connection with this company?

A. Manager of production.

Q. Before we proceed, you have certain Exhibits prepared-- a map as Exhibit A--is that correct?

A. Yes.

Q. The map speaks for itself. For the purpose of the record,

tell the Commission what the map shows and what was intended.

A. This map shows wells which have been drilled in the Cross-roads Field, giving emphasis to those that have been drilled to Devonian formations. It shows also the east west 80-acre pro-ration units established by the Commission for the Devonian in its order of July 27, 1948. There is also shown by the purple figures the subsea depth to top of the Mississippian formation on various wells.

Q. Those purple figures look red.

A. They are supposed to be purple. They show the top of the Mississippian formation on various wells. The green figures near each well show the subsea top of the Devonian formation in that well. There is also shown on the map attached a green line which represents the approximate location of a fault. On the west of the line all wells were salt water and no oil, and the wells on the east side contain oil.

Q. Does this map show acreage where your company has leases?

A. No, sir. We have west quarter section of Section 27 and 160 acres in east quarter of Section 28. We also have other leases shown on confines on the map--west half of Section 22, and the east quarter of Section 21.

Q. Now the well which has already been drilled by your company, is that shown in the southwest quarter of the northwest quarter of Section 27?

A. Yes, it is marked 1-27 on this map.

Q. I was going to the other exhibit, but I wish to point out a matter which comes to my attention with reference to various depths of various wells on either side of the fault, would you care to enlarge on this?

A. Well, it will be seen from the map that the well we count west of northwest of Section 27 is producing 880 feet lower

structure on top of Devonian.

Q. About how long ago was that well completed to salt water?

A. In October.

Q. Do you know whether any other well have been completed in this pool since that time?

A. No, sir, there haven't been any.

Q. Did the fault that you have shown on this map--would you care to state to the Commission on what facts you base your opinion that there is a fault at that approximate location.

A. This fault is based upon relative subsurface depth at which the Mississippian and Devonian formations are found in the various wells, which we think represents a faulted condition rather than a dip. We have placed this fault line midway between Midcontinent UD Sawyer in northwest of Section 34 and Midcontinent Dessie Sawyer No. 1 at southwest of Section 27. We have the line extending north digressing west. We did a Schlumberger type of survey which we took in our well 11-27 at southwest of northwest of 27. This showed a dip on all formations below about 10,500 feet and above the Mississippian line to be an average of south 79, digressing west or strike of 11, digressing west of north, and this line has been projected in that manner.

Q. And in the southeast of northwest of 27 you have placed a mark, a cross, on this exhibit?

A. Yes.

Q. And the placing of the cross is not in accordance with the present spacing plan for this pool. You could not drill there without the Commission allowing the exception?

A. That is correct.

Q. Why do you prefer to drill there rather than in the northwest of the northwest quarter?

A. If a well is drilled at this location in the south half of

the northwest of Section 27, we think it will be east of the fault, and it will produce. Thereby, we will be permitted production for this 80 acres by which we will protect our property against wells which are offsets to that location.

Q. The well in the west 40 was drilled to what depth?

A. 12,657 feet.

Q. It was salt water, no gas?

A. Yes, sir.

Q. What was the cost in round figures?

A. We have done considerable testing, pipe in well, plugging, testing--in excess of \$300,000.00 as the well now stands.

Q. Do you have any other comment to make to the Commission with reference to this particular Exhibit?

A. I think not.

Q. We show plat marked Exhibit B for identification, will you tell the Commission what that shows and what is intended to convey in a general way?

A. This Exhibit B is a west east cross section through the Crossroads Field. It is intended to show formations encountered in the drilling of the three Devonian oil wells located east of the fault and the formations encountered in two of salt water dry holes located west of the fault line.

MR. IDEN: We offer Exhibits A and B in evidence as part of the testimony.

CHAIRMAN SHEPARD: They will be received. Do you have any further information which you wish to state to the Commission?

MR. IDEN: So far as I know that is all I have in mind. I think not. If the Commissioners have any questions, we have two other witnesses, Mr. Hemenway and Mr. Herron, to answer any questions.

MR. CROCKER: J. H. Crocker, Midcontinent Petroleum Corporation.

Does the Santa Fe own mineral rights in the south half of Section 22?

MR. PASCHAL: Yes, they do.

MR. CROCKER: Magnolia has a lease on the east quarter?

MR. PASCHAL: Yes.

MR. CROCKER: You have an oil development lease on the southwest quarter?

MR. PASCHAL: Yes, sir.

MR. CROCKER: With respect to orthodox locations I am referring to the northeast quarter of the northwest quarter of Section 27, do you have any opinion as a geologist as to the probable productivity of that 40-acre tract?

MR. PASCHAL: Well, I hope that it will be productive, but we have no way of knowing. If the fault continues as indicated and no dip, it should be productive. There could be cross faults of which we know nothing. There are no wells drilled to give us any information to answer that question.

MR. CROCKER: If we might assume, production is possible future picture on the assumption that Magnolia might drill a well in the southeast quarter of Section 22 and get a producer, it is altogether probable, I take it, that the Santa Fe might want to utilize the orthodox location of northeast quarter of northwest quarter of Section 27?

MR. PASCHAL: I think so.

MR. CROCKER: That would be possible?

MR. PASCHAL: If that were done and if the Commission were to--

MR. CROCKER: If the Commission were to grant your application for an exception to the present spacing rule, it would result in the Santa Fe having a well, two wells say, on the east half of the northwest quarter of Section 27, would that be correct?

MR. PASCHAL: Yes.

MR. CROCKER: In that event it is entirely possible this spacing pattern as approved by the Commission and promulgated by it would be more or less disorganized to a point where we would just about have no 80-acre spacing because one exception might reasonably call for another, might it not?

MR. PASCHAL: I don't think it would necessarily open up the whole thing to do with 80-acre spacing. I can see, assuming that this fault line extended on northerly, where you might space wells better for drainage of the pool to get away from the Commission's Order, which is designated wells at southwest and northeast quarter sections of each section, where it might be better to change the pattern based on more knowledge than we had when this particular Order was written.

MR. CROCKER: I believe that is all. I would like to make a statement when you have the evidence all in.

MR. BORLAND: C. D. Borland with Gulf Oil Company. We are interested in the acreage. It is OK for any 40-acre spacing in the Crossroads Pool unless under conditions of reduced or adjusted allowable.

CHAIRMAN SHEPARD: Anyone else? Do you care to make a statement, Mr. Crocker?

MR. CROCKER: I will wait until Mr. Iden is through with his evidence.

MR. IDEN: I may conclude what I have to say, which will be very short. The facts before the Commission seem to be fairly clear and not involved. We feel in view of expending money and drilling a dry hole and in view of conditions as they now exist, we think this Commission should give consideration in the matter of making an exception in this instance. We believe it would be

the proper thing to do for pretesting and the orderly development of this pool, and we will ask the Commission to grant permission.

MR. CROCKER: If the Commission please, this Order wasn't a makeshift proposition by any means. Midcontinent Petroleum Corporation has the east half of 27 and the southwest quarter of 27. We have drilled the area that borders the Santa Fe tract on the east and on the south. We have drilled four wells in the pool. I believe seven or eight wells have been drilled, I am not sure. We likewise drilled a dry hole after we moved to an orthodox location south and west and got a dry hole. Our discovery well, in our opinion now, has a doubtful future as to whether it will ever pay out. We have \$1,160,000.00 on our operations in red figures. However, after the discovery well, being probably the deepest in the State at that time, there was a meeting in Tulsa by the operators. We were favored by having Mr. Spurrier, Mr. Staley, and Mr. Morrell, in addition to Santa Fe representatives and other operators. It was realized by that group the economics of the situation certainly required some kind of special action on the part of the Commission. I believe that 40-acre spacing had been pretty generally followed theretofore. We invoked the Commission's jurisdiction on the matter of spacing. A hearing was set for July 15, 1948. On the day previous to the hearing, the operators met in Santa Fe and prepared their case. The next day Mr. Hemenway and Mr. Paschal were in the meeting as engineers and geologists of other companies. We all came before the Commission with, I believe I can truthfully say, with everything being satisfactory without any dissents whatsoever, everybody agreed. I think there were four wells drilling at that time, and all four we had been able

to get from the discovery well. I presume when it came to the Commission it looked like about the biggest thing that had ever happened. We got a 500 barrel allowable. We studied the reservoir and gave our information to our neighbors, and we found that we were right on the water line. That made us all feel doubly sure that perhaps in reservoir conditions the hazards were so great that this was an entirely proper situation for 80-acre proration units. Mr. Spurrier just asked me if I recalled the reasons why the lines were drawn through the quarter sections from east to west instead of north and south. I don't remember, and I don't know whether anybody does. Anyway I do remember that through collaboration at the time that plat was made which was submitted to the Commission. We certainly have no quarrel with the Santa Fe, we regard them very highly. Any place that we could extend a courtesy, we would be more than happy to do so. We do feel constrained in this particular case and at this particular time to insist that it is premature for the Commission to grant that application. I think the matter was very capably handled on the part of the Commission and the U. S. Geological Survey. The Bureau of Mines was represented, and the thought was pretty generally exchanged over the conference table, and it was our agreement and our thought because of the enormous cost of these wells we would soon go broke trying to develop on a basis of 40-acre spacing. I realize perhaps we could get into a situation here with the Santa Fe later coming in and drilling orthodox location in the northeast quarter of the northwest quarter of Section 27. I take it would require appearing before the Commission in order to give them full allowable. We think that exceptions should be granted only on most compelling reasons, and it occurs to us that this pool is not

defined to the north and to the east, and it is quite probable we might have the Santa Fe in there exercising its prerogative to use that orthodox location. Now, I don't know how the attorney for the Commission or the attorney for the Santa Fe feels, but the matter came before the Commission after full and complete discussion, a meeting had been held. Even though additional wells have been drilled, it occurs to us that property has been created, invested, large sums of money were spent; and if the Commission grants this exception, certainly it should be on reduced and adjusted allowable. In our opinion, we don't think this spacing pattern can legally be changed probably without unanimous consent by everybody who has rights created by the Commission's order. I may be wrong on that; I find that I am so many times. So without taking up more of the Commission's time, we would like for the record to show that we object to the exception being granted. In the alternative, if the Commission by virtue of its power to make rules, figures it has power to grant an exception, and I don't question that. If they feel the reasons are sufficiently compelling, we ask that it be safeguarded by a reduced and adjusted allowable.

MR. CAMPBELL: Texas Pacific Coal & Oil Company has no interest in this particular application. I would have the record show that the statement was made on their behalf that this application coupled with the suggestion of Mr. Crocker that the Commission might not be able to legally change the spacing pattern without the unanimous consent of the operators points up the fact that inflexible spacing orders in the early stages of development can create considerable difficulty in the orderly development of these common sources of supply.

CHAIRMAN SHEPARD: Anyone else care to make a statement?

MR. IDEN: I wasn't before the Commission at the time of the hearing after which the Order of July 27, 1948 was issued, but it seems very clear that the Commission had in mind that it would be open for consideration of exceptions and changes in that pattern. Section 8 of that Order read, "The Commission retains jurisdiction of this case for the purpose of issuing such further and additional orders as may be necessary to meet changed conditions, preclude, amortize, and preserve correlative rights; or upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law." As I understand, at the time the hearing was held, there was only one well, the discovery well, and that the Commission more or less arbitrarily in either direction from that well set up this spacing program. As I understand, there is no drilling in that so-called Crossroads; development is somewhat at a standstill. That might be to some extent on account of the cost of drilling those wells. But it seems self-evident after this testing, that that standstill is because there is something wrong with the spacing. We have no quarrel with the spacing procedure. If this Commission in contemplating this matter feels free to exercise its discretion and its equitable consideration in a matter of this kind and grant the Order, our Company is in a position to drill at a place where it is proper and practical to do so.

CHAIRMAN SHEPARD: Anyone else? If there is nothing further, the case will be taken under advisement. The meeting is adjourned.

- - -

C E R T I F I C A T E

I HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission of New Mexico, in Santa Fe, New Mexico, on November 22, 1949, at 10:00 A.M., is a true record of such proceedings to the best of my knowledge, skill, and ability.

DATED at Albuquerque, New Mexico, this 30th day of November, 1949.

Margaret Powell
Reporter

DOMESTIC SERVICE	
Check the class of service desired; otherwise this message will be sent as a full rate telegram	
FULL RATE TELEGRAM	SERIAL
DAY LETTER	NIGHT LETTER

WESTERN UNION

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE	
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CODE	NIGHT LETTER

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
			OIL CONSERVATION COMMISSION	

Send the following message, subject to the terms on back hereof, which are hereby agreed to

Case 204

SANTA FE, NEW MEXICO
DECEMBER 12, 1950

MR. U. M. ROSE
BOX 1345
HOBBS, NEW MEXICO

THE LAST PARAGRAPH ORDER R-23 IN CASE 204 KNOWLES SPACING BY OIL COMMISSION PROVIDES FOR HEARING AND ADDITIONAL EVIDENCE ON DECEMBER 20, 1950. THIS IS YOUR NOTICE THAT CASE WILL BE HEARD ~~WEEK~~ UNLESS BY AGREEMENT OF ATTORNEYS, CONTINUANCE IS REQUESTED.

OIL CONSERVATION COMMISSION/GEORGE GRAHAM

STRAIGHT WIRE

J.O. SETH
A.K. MONTGOMERY
OLIVER SETH
WM. FEDERICI

SETH AND MONTGOMERY
ATTORNEYS AND COUNSELORS AT LAW
III SAN FRANCISCO ST.
SANTA FE, NEW MEXICO
December 17, 1949.

Case 204

Graham
Oil Conservation Commission
Santa Fe, New Mexico

Gentlemen:

Enclosed please find original and four
copies of draft of a proposed order in the matter
of the Knowles spacing, a hearing on which was had
on November 22nd last.

This, of course, is merely submitted for such
assistance as it may be to the Commission in draft-
ing an order in this case.

Very truly yours,

J. Suth

JOS:CB
Encls.

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 PRO-
RATION UNITS AND UNIFORM SPACING
OF WELLS IN THE KNOWLES POOL IN
LEA COUNTY, NEW MEXICO.

CASE NO. 204

ORDER NO. R-3

ORDER GRANTING REHEARING

The Commission having entered in Case No. 204 on 11
January, 1950, Order No. R-3, and the Amerada Petroleum Corporation
having filed the timely motion for rehearing,

IT IS, THEREFORE, ORDERED:

1. The application for rehearing filed by Amerada Petro-
leum Corporation is hereby granted.

2. The rehearing shall be held at the ~~Office of the Oil~~
~~Conservation Commission~~ *State Cap Bldg* in Santa Fe, New Mexico, on 21 February,
1950, commencing at 10:00 a.m.

Done at Santa Fe, New Mexico, this 2 day of ~~January~~ *Feb.*,
1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

By Thomas J. Mabry, Chairman

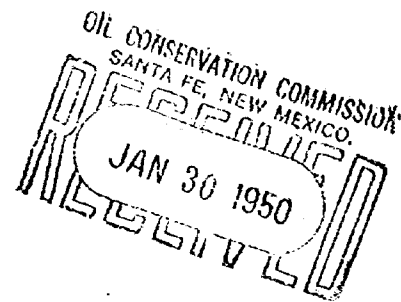
Guy Shepard, Member

R. R. Spurrier, Secretary

GEORGE L. REESE, JR.
DON G. MCCORMICK
S. M. RUTHERFORD, III

REESE AND MCCORMICK
ATTORNEYS AT LAW
BUJAC BUILDING
CARLSBAD, NEW MEXICO

January 28, 1950



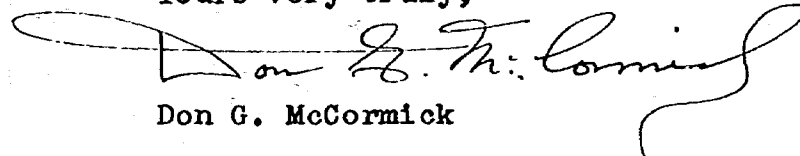
Mr. R. R. Spurrier
Oil Conservation Commission
Santa Fe, New Mexico

Dear Dick:

I have received a copy of the Application for Rehearing filed by Amerada Petroleum Corporation in Case No. 204 and also the Memorandum Brief in support of that application. As I have told you before, if the rehearing is not granted within ten days after it is filed the applicant is entitled to appeal to the District Court. Therefore, I think the application for rehearing should be granted even though I have no recommendations to make at this time as to the final action to be taken by the Commission. At least the Commission should give Amerada a chance to plead its cause, and then the Commission can decide what to do.

Enclosed is a draft of Order Granting Rehearing and also Notice of Publication. If you concur in my views that the rehearing should be granted, the Order should be entered and notice given by publication in Lea County and Santa Fe County.

Yours very truly,


Don G. McCormick

DGM:bb

Enclosures

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

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

PROCEEDINGS
.....

The following matter came on for consideration before a hearing of the Oil Conservation Commission of the State of New Mexico, pursuant to legal notice, at Santa Fe, New Mexico, on March 21, 1950, at 10:00 A. M.

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 hearings to be held March 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:
.....

The Northwestern New Mexico Nomenclature Committee, Mr. Paul Umbach, its Chairman, the Southeastern New Mexico Nomenclature Committee, Mr. Dudley Sands, its Chairman, all operators in the areas, and notice to the public:

Case 214
.....

In the matter of hearing upon motion of the Oil Conservation Commission upon the recommendation of the Northwestern New Mexico Nomenclature Committee that;

- (1) Pool boundaries be set up around the following discovery well: Herbert Herff #1 Federal, NE NE Section 4, Twp. 27N, R. 8W.
- (2) The following area in San Juan County be designated the Largo Pool - Mesaverde:
Twp. 27N, Rge. 8W: Section 3 & 4, All
Twp. 28N, Rge. 8W: Section 33 & 34, All.
- (3) The following extension to the Fulcher Basin-Kutz Canyon Pool to be recommended for consideration:
Twp. 28N. Rge. 10W: Section 11, W/2; Section 14, W/2.

Case 215
.....

In the matter of hearing upon motion of the Oil Conservation Commission upon the recommendation of the Southeastern New Mexico Nomenclature Committee that;

- (1) A new pool be created to be designated as the "Saunders" pool to include S/2 Sec. 34, T 14S, R 33E and N/2 Sec. 3, T 15 S, R 33E, for Permo-Pennsylvanian production.
- (2) A new pool be created to be designated as "House-San Andres" to include the E/2 Sec. 11 and W/2 Sec. 12, T 20S, R 38E, for San Andres production.
- (3) A new pool be created to be named "Hightower-Permo-Pennsylvanian" to include Secs. 22, 23, 26 & 27, T 12S, R 33E, for Permo Pennsylvanian oil and gas production.
- (4) A new pool be created to be named "Nadine" to include all Sec. 23, T 19S, R 38E, for lower Drinkard production.
- (5) The Artesia pool be extended to include W/2 Sec. 25, T 18S, R 27E, for Grayburg production.
- (6) The Hare pool be extended to include NE/4 Sec. 21 & N/2 & SE/4 Sec. 22, T 21S, R 37E, for McKee production.
- (7) A new pool be created to be named "East Bough " to include SE/4 Sec. 7, SW/4 Sec. 8, NW/4 Sec. 17 & NE/4 Sec. 18, T 9S, R 36E, for Permo-Pennsylvanian production.
- (8) The Empire pool be extended to include S/2 Sec. 7, T 17S, R 28E, for Seven Rivers production.
- (9) The West Wilson pool be extended to include W/2 Sec. 15, T 21S, R 34E, for Seven Rivers production.
- (10) The Langlie-Mattix pool be extended to include W/2 Sec. 35, T 23S, R 37E, for Queen production.
- (11) A new pool be created to be named "South Leonard" to include all Sec. 24, T 26S, R 37E, for Queen production.
- (12) A new pool be created named "Teague-Ellenburger" to include S/2 Sec. 22 and N/2 Sec. 27, T 23S, R 37E, for Ellenburger production.

Case 216

.....
 In the matter of the application of Wilson Oil Company for an order granting it permission to drill an unorthodox location on its State B 6807 lease, located 2310 feet south of the north line and 1270 feet east of the west line (SW NW) Section 13, Twp. 21S, R 34E, N.M.P.M., in the Wilson pool of Lea County, New Mexico.

Case 204 (Rehearing)

.....
 In the matter of the Application of Amerada Petroleum Corporation for an order establishing proration units and uniform spacing of wells for the common source of supply discovered in the W. W. Hamilton #1 well, NE SW Section 35, Township 16 south, Range 38 east, N.M.P.M., Knowles pool, Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of
New Mexico, at Santa Fe, New Mexico, on March 6, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ R. R. Spurrier
/t/ R. R. SPURRIER, SECRETARY

SEAL

BEFORE:

Hon. Thomas J. Mabry, Governor (2:05 p.m.)

Hon. R. R. Spurrier, Commissioner

Hon. Guy Shepard, Commissioner

REGISTER:

Dan McCormick, Attorney
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

George Graham, Attorney
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

Ray Andrew
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

Weldon Brigauce
Ft. Worth, Texas
For Rowan Drilling Co., Inc.

R. G. Schuehle
Midland, Texas
For Texas Pacific Coal and Oil Company

E. T. Adair
Fort Worth, Texas
For Texas Pacific Coal & Oil Company

Raymond Lamb
Artesia, New Mexico
For Wilson Oil Company

Homer Dailey
Midland, Texas
For Continental Oil Company

E. E. Kinney
Artesia, New Mexico
For New Mexico Bureau of Mines

M. T. Smith
Midland, Texas
For Shell Oil Company

Wm. E. Bates
Midland, Texas
For The Texas Company

Ray O. Yarbrough
Hobbs, New Mexico
For the New Mexico Oil Conservation Commission

R. S. Blymn
Hobbs, New Mexico
For the New Mexico Oil Conservation Commission

Booth Kellough
Tulsa, Oklahoma
For Amerada Petroleum Company

Glenn Staley
Hobbs, New Mexico
For Lea County Operators

Frank C. Barnes
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

J. H. Crocker
Tulsa, Oklahoma
For Mid-Continent Petroleum Corporation

C. D. Borland
Hobbs, New Mexico
For Gulf Oil Corporation

F. J. Danglade
Lovington, New Mexico
For himself

Howard Jennings
Roswell, New Mexico
For Malco Refinery, Inc.

Ross L. Malone, Jr.
Roswell, New Mexico
For Atwood, Malone & Campbell

Jack M. Campbell
Roswell, New Mexico
For Atwood, Malone & Campbell

Frank D. Gardner
Midland, Texas
For Sinclair Oil & Gas Company

R. L. Denton
Midland, Texas
For Magnolia Petroleum Company

A. J. Monzingo
Kermit, Texas
For Magnolia Petroleum Company

Oliver Seth
Santa Fe, New Mexico
For Amerada Petroleum Company and Stanolind Oil Co.

B. J. Sinex
Monument, New Mexico
For Amerada Petroleum Company

C. V. Millikan
Tulsa, Oklahoma
For Amerada Petroleum Company

R. S. Christie
Ft. Worth, Texas
For Amerada Petroleum Company

E. Bain
For the New Mexico Oil Conservation Commission

I. R. Trujillo
For the New Mexico Oil Conservation Commission

Betty P. Wistrand
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

Elvis A. Utz
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

G. H. Gray
Midland, Texas
For Sinclair Oil & Gas Company

Cecil R. Buckles
Tulsa, Oklahoma
For Sinclair Oil & Gas Company

Mrs. Ralph Fitting, Jr.
Midland, Texas

W. R. Childers
Hobbs, New Mexico

Alice T. Childers
Hobbs, New Mexico

R. V. Fitting, Jr.
Midland, Texas

U. M. Rose
Hobbs, New Mexico

COMMISSIONER SHEPARD: The meeting will come to order. At this time I am going to introduce the new office manager, Ray Andrew. You will be dealing with him from now on.

Q. This pertains to setting of allowable.

MR. McCORMICK: Mr. Utz and Mr. Kinney, will you come forward please?

(Witnesses sworn.)

DIRECT EXAMINATION BY MR. McCORMICK:

ELVIS A. UTZ, having been first duly sworn, testified as follows:

Q. You are Elvis A. Utz?

A. That is correct.

Q. What position do you now hold with the State Oil Conservation Commission?

A. Engineer.

Q. Have you made a study of the market demand for oil in the State of New Mexico for the month of April 1950?

A. Yes, sir, I have.

Q. Have you received nominations from purchasers?

A. Yes, sir, I have.

Q. And have you tabulated them?

A. Yes, sir.

Q. What is the total nominations of purchasers for the month of April 1950?

A. The total nominations is 131,647.

Q. That is barrels per day?

A. Yes, sir.

Q. How does that compare with nominations filed with the Commission the previous month?

A. That is an increase of 371 barrels over last month.

Q. Have you made further studies of market demand aside from nominations?

A. Yes, we have.

Q. Have you any opinion as to what the reasonable market demand for the state will be for the month of April?

A. My opinion is 138,000 barrels.

Q. How much of that demand will be met by production in unallocated pools in Rio Arriba, McKinley, and Sandoval Counties?

A. A thousand barrels a day.

Q. Then the balance of 137,000 would be met by those in southeastern New Mexico?

A. That is correct.

Q. I will ask if the production capacity of all the wells in southeastern New Mexico is greater than 137,000 barrels per day?

A. I am sure that it is.

Q. In order to prevent waste is it necessary that production of oil for April be limited in Southeastern New Mexico?

A. Yes, sir, I believe so.

Q. How much oil can the wells in Eddy, Lea and Chavez Counties produce in your opinion without waste?

A. Within the market demand--137,000 barrels.

Q. What would you recommend for total allowable production for Southeastern New Mexico?

A. 137,000 barrels per day.

Q. In your opinion how should that production be distributed?

A. It should be distributed according to the present rules and regulations of the Commission.

Q. Do you recommend a normal unit allowable which should prevail?

A. Yes, sir, 42 barrels.

Q. That is the same as prevails for the month of March?

A. That is right.

Q. In your opinion, would the distribution of production in the manner you recommend be reasonable, prevent waste, and protect correlative rights?

A. Yes, sir.

MR. McCORMICK: Any questions by anyone?

(Witness dismissed.)

E. E. KINNEY, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. McCORMICK:

Q. Your name is E. E. Kinney?

A. Yes, sir.

Q. By whom are you employed?

A. New Mexico Bureau of Mines.

Q. In what capacity?

A. Petroleum Engineer.

Q. In the capacity as petroleum engineer of the Bureau of Mines have you made any study of market demand as to the State of New Mexico for the month of April?

A. I have.

Q. In your opinion what will be the market demand?

A. 138,000 barrels.

Q. Of that total what portion will be production in unallocated pools in northwestern New Mexico?

A. 1,000 per day.

Q. And the balance, 137,000, should be allocated to Southeastern New Mexico?

A. Yes, sir.

Q. That is your opinion and recommendation?

A. Yes, sir.

COMMISSIONER SHEPARD: Any questions? If there are no further questions, the witness will be excused.

(Witness excused.)

MR. SPURRIER: The question has come up in this matter of nominations whether the nominating company should nominate enough to insure that they will be able to purchase exactly what they want or nominate exactly the number of barrels they expect to get. I realize there is a problem there. In all instances actual production in New Mexico and allowable are two different figures. Production lags 7 to 10 per cent. If the nominating firm expects to purchase 30,000 barrels, it doesn't nominate 30,000, it adds 10 per cent so that it will come out with 30,000. We don't mean to work as a detriment against you, but we want the exact figure that you expect to buy. Are there any questions on that question. It was brought to me informally, and I bring it up at this time for clarification.

CHAIRMAN SHEPARD: At this time we will take up case 204.

(Mr. Graham read order of publication for Case 204.)

MR. McCORMICK: I would like to ask counsel as to what his desire is as to order of procedure.

MR. KELLOUGH: Our thought is that we make a very brief statement, not as argument of facts, but to bring the Commission up to date. Then we have a number of formal instruments we would like to introduce, then testimony. I suggest that at the close of the testimony, ours and that contrary to ours, that we all have the privilege to make statements or arguments. That is what we have in mind.

MR. McCORMICK: Is that agreeable, Mr. Aldrich?

MR. ALDRICH: Yes, sir.

MR. McCORMICK: You will go ahead.

MR. KELLOUGH: We will assume we are the applicants, which I assume we still are. I am Booth Kellough, Amerada Petroleum Corporation. On November 22, 1949, Amerada filed application for the establishment of 80 acre proration units, uniform spacing, in Knowles Pool of Lea County, New Mexico. In the application we requested the wells to be located in the center of the northwest and center of the southeast quarter sections. We also proposed a form of pattern of proration unit to consist of the south half and north half of each quarter. You will note that it gives lines east and west. The case came on for hearing November 22, 1949. I believe it was filed some time in July. At the hearing there was no opposition. There was no contest. Amerada introduced engineers' testimony. Exhibits were introduced. The testimony was uncontradicted in support of the application. At that time a representative of Magnolia Petroleum appeared on behalf of the applicant at the close of the hearing. On January 11, 1950, an order was entered denying Amerada's application on the ground of insufficient evidence. We have filed our petition for rehearing and the petition for rehearing

brief in support of it. The petition for rehearing was granted. This hearing is the hearing upon our petition to rehear the first case. That is about where we stand now. At this time I have a number of formal exhibits which I wish to offer in evidence. Before I do, I wish to call the Commission's attention to the joinders in the application for rehearing. Joinders have been filed by the Magnolia Petroleum Company, the Gulf Oil Corporation, the Sinclair Oil and Gas Company, and Mr. F. J. Danglade. The lease operators in this pool are Amerada, Sinclair, Mr. Danglade, and Magnolia. The Sinclair, I do not believe--yes, they have filed their application.

MR. McCORMICK: They should be filed and made part of the record probably.

MR. KELLOUGH: Yes, sir, these instruments constitute actual joinders. They all appear to be identical. (Reads)

"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 UNIFORM SPACING OF WELLS IN THE KNOWLES POOL IN LEA COUNTY, NEW MEXICO. CASE NO. 204. ORDER NO. R-3. JOINDER IN APPLICATION FOR REHEARING. COMES, NOW, F. J. Danglade, being interested in the above styled case, and joins amicus curiae with Amerada Petroleum Corporation in its application for rehearing filed in said case, and requests the Commission to enter its order establishing eighty-acre proration units and uniform spacing of wells in the Knowles Pool, Lea County, New Mexico, as requested by the application filed in this case. /s/ F. J. Danglade."

(Read joinders of Sinclair Oil and Gas Company, Gulf Oil Corporation, and Magnolia Petroleum Company, which were identical to the one above.)

MR. KELLOUGH: I also have a telegram addressed to the State of New Mexico Oil Conservation, Commission, Santa Fe, New Mexico, date March 20, 1950. "Reference Case #204 application of Amerada Petroleum Corporation for order establishing proration units and uniform well spacing for Knowles Pool. Regret the Texas Company can not be represented at hearing on March 21, 1950, and request that this wire be included in records of hearing. The Texas Company has no production in this pool at present time but has approximately 2560 acres leased immediately north and northwest of the present producing area. We are familiar with Amerada's application and are of the opinion that the adoption of their proposal will prevent the drilling of unnecessary wells and protect correlative rights. The Texas Company, C. B. Williams."

We now offer in evidence Applicant's Exhibit No. 1, in so far as it applies to case 204. This is a transcript of the hearing in this matter.

MR. McCORMICK: It will be accepted. Just a minute, Mr. U. M. Rose, attorney at law, Hobbs, New Mexico, is representing a number of royalty owners, so he may raise any objections.

MR. ROSE: No objections to any documents offered.

MR. KELLOUGH: We now offer in evidence Applicant's Exhibits 2, 3, 4, 5, which are the joinders; also Applicant's Exhibit 6, the telegram from the Texas Company.

CHAIRMAN SHEPARD: They will be accepted.

MR. KELLOUGH: We now offer into evidence Applicant's Exhibits 7, 8, and 9, which are Schlumbergers which were introduced at the original hearing and may technically transfer over, but we desire to reoffer them.

MR. ROSE: No objection.

CHAIRMAN SHEPARD: Admitted.

MR. KELLOUGH: We now offer Exhibit No. 10, which is a map of the Knowles Pool as prepared by Amerada. This exhibit also was introduced at the first hearing. It also may be considered as part of that transcript. We desire to reoffer it.

MR. ROSE: No objections.

CHAIRMAN SHEPARD: It will be admitted.

MR. KELLOUGH: I now offer Exhibit No. 11. It recites on its face, "Schedule of Leasehold and Mineral Ownership (Including over-riding Royalty Interests and Production Payment Interests), Knowles Pool, Lea County, New Mexico, as Shown by Abstracts, Together with Instruments Submitted to Amerada Petroleum Corporation, as of March 15, 1950." The purpose of this exhibit is in support of the suggested or proposed arrangements, proration units which are recommended by Amerada. The units as I explained have been outlined in the south half and north half of each quarter section with certain exceptions. The exceptions are recommended by reason of ownership to avoid unnecessary pooling of separately owned tracts that may fall within regular proration units in the south half and north half in every instance. This instrument represents the ownership as disclosed by the records of the applicant, Amerada. It pertains to the leases owned by Amerada. With this explanation, I offer No. 11 into evidence.

MR. ROSE: No objection.

CHAIRMAN SHEPARD: It will be admitted.

MR. McCORMICK: This is in accord with title opinions?

MR. KELLOUGH: This is in accord with title opinions made by New Mexico lawyers and supplemental opinions by other lawyers that have come into the records of Amerada. Of course, there probably has been some change of mineral ownership subsequent to the title opinions. This is as disclosed by Amerada's records.

(Recess.)

(Exhibits 12 through 18, maps, were marked for identification.)

CHAIRMAN SHEPARD: The meeting will come to order.

The following appearances were noted: Cecil R. Buckles, Attorney, Sinclair Oil & Gas Company; J. H. Crocker, Attorney, Mid Continent Petroleum Corporation Tulsa; C. D. Borland, Engineer, Gulf Oil Corporation, Hobbs; A. J. Monzingo, Magnolia Petroleum Company.

C. V. MILLIKAN, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. KELLOUGH:

Q. Will you please state your name.

A. C. V. Millikan.

Q. Where do you live?

A. Tulsa, Oklahoma.

Q. What is your profession, occupation?

A. Petroleum engineer.

CHAIRMAN SHEPARD: Please speak louder.

Q. By what company are you employed as a petroleum engineer?

A. Amerada Petroleum Corporation.

Q. How long have you been employed as a petroleum engineer?

A. Over twenty years.

Q. You are in charge of the engineering department?

A. That is right.

Q. Have you testified previously in the capacity of an engineer?

A. Yes, sir.

Q. Mr. Millikan, were you present at the first hearing in this matter?

A. Yes, sir.

Q. You are familiar with the evidence introduced at the first hearing?

A. Yes, sir.

Q. How many wells are now located in the Knowles Pool?

A. Three producing wells, one drilling, the same as at the time for the first hearing.

Q. What is the status of the drilling well?

A. The drilling well is drilling at 11,500 feet.

Q. What is the approximate depth of the completed wells?

A. The completed is around 12,500.

Q. All below 12,500?

A. Yes, sir, approximately, all three wells found top of pay are completed to a total depth of 12,000 and 13,000 feet.

Q. The exact depths of completed wells is disclosed in the transcript of the testimony at the previous hearing?

A. Yes, sir.

Q. At the previous hearing Mr. Veeder, geologist, testified as to that?

A. Yes, sir.

Q. And Mr. Christie testified at the previous hearing as engineer?

A. Yes, sir, both Mr. Veeder and Mr. Christie.

Q. They testified that one well in the Knowles Pool would drain effectively at least an area of 80 acres?

A. Yes, sir.

Q. Since that time do you have additional information bearing on that issue?

A. Well, we have a little additional information on the producing wells and the one drilling well is deep enough for more structural information, although it is not completed. It is about 500 feet off the Devonian on top of the Mississippian, substantially level with Rose Eaves No. 1. The Texas well referred to in the transcript is some three quarters of a mile or thereabouts northwest of the producing wells is something like 800 feet lower than the producing wells. I am not certain

whether it has been abandoned. I heard that they proposed to abandon it, and I also heard they proposed to carry it deeper.

Q. Have you taken any additional pressures?

A. We have some more pressure information. The Rose Eaves well at time of hearing, few days prior had been completed, had a productivity of .91, just a little lower than the discovery well Hamilton No. 1. And on the original discovery well taken in May was 5159 pounds, and average pressure in Hamilton and Eaves on March 15 was substantially the same, 5106, a decline of 53 pounds, and the total recovery up to date is approximately 167,000 barrels.

Q. Does the additional information which you now have tend to contradict the opinion previously expressed by Mr. Veeder and Mr. Christy as to the effective drainage area?

A. I feel that it fits in with what we could reasonably expect to happen in this interval of time.

Q. From your personal knowledge and study of the pool with the information which you have now, do you have an opinion of your own as to the effective drainage area?

A. I think the effective drainage area is considerably in excess of 80 acres. Fairly high productivity indicates, all indication of open type of porosity, some intermediate type perhaps due to a certain amount of secondary solution well, stratified, substantial area with amount of water for maintaining pressure and creating active water drive. That is more particularly been the experience of the Jones Ranch Field in which 80-acre spacing for which that field has been producing now for something over four years. And we had an additional decline on that for same amount of oil was a

little bit less than the decline here, but under higher rates of production. That is, the rates of decline increased until reconstruction in the first part of 1949. In the next six months, we got an increase of 65 pounds of pressure. During the next six months, I believe in January, we got another increase of about 5 pounds of pressure on average rate of production a little higher the last half of 1949 than the first half.

Q. In the Jones Ranch Field is the production also from the Devonian formation?

A. It is. Stratigraphically, it is exactly the same as the Knowles.

Q. Is the productivity record of the Jones Ranch Field comparable to that of the Knowles Pool?

A. They are quite comparable. There is not a great deal of variance in the Jones Ranch Field and the Knowles Pool. They are quite comparable to what they are in the Knowles Pool.

Q. It is your opinion that in the Knowles Pool one well would effectively, economically drain and develop an area of at least 80 acres, is that right?

A. Yes, sir.

Q. Mr. Millikan, let me ask you in the event that it should develop that for any reason an exception to the proposed spacing pattern should be requested for structural reasons, is it your recommendation that the Commission grant such an exception to the spacing pattern, or would you recommend that the spacing pattern be fixed?

A. No, sir, I think for good cause an exception should be granted.

Q. Do you have a recommendation to make in such instances as to the manner in which the correlative rights of the parties could best be protected in the event of an exception?

A. I think that should depend on the cause for which the exception is granted. If for structural advantage and nothing more, perhaps then they would give consideration to productive acreage within the identical economic limits of the pool and grant such exceptions as circumstances may justify based upon such information given in requests for exceptions.

Q. Then it is not your recommendation nor has it been the recommendation of the witnesses in behalf of Amerada's application that the spacing pattern be inflexible and should not under any circumstances be modified?

A. I think in any spacing pattern there may be conditions which would justify certain variances from precise locations of wells.

Q. In the first hearing Mr. Veeder testified as to his opinion what the probable productive limits of this pool were. It is your recommendation and has been the recommendation of the witnesses of Amerada, has it not, that the order which Amerada requested apply to the common source of supply even though it ultimately be determined to be beyond the particular limits testified to by Mr. Veeder?

A. I think it should apply to the common source of supply. You can't have one part under one form and another part under another.

Q. The area outlined in red on the map introduced in evidence represents Mr. Veeder's opinion as to the probable limits of the common source of supply based upon information which he has at this time, is that correct?

A. That is the testimony.

Q. Referring to the map, I will offer it in evidence now so that it may be in evidence as Exhibit No. 10. You will notice Amerada's Stella Rose Well, located in the southeast of the northwest of Section 35, 16S, 33E; that the discovery

well, the Hamilton, is located at the northwest of the southwest of the same section 35, and that the third, Rose Eaves, is located in the southeast of the southwest of section 35, that is correct, is it not?

A. Yes, sir.

Q. Will you please explain for the benefit of the Commission the reason for the location of those three wells?

A. The discovery well was located there believing that to be the best location. When they got to 6700 feet, there was a show of oil in the Paddock Zone.

Q. Approximately what depth?

A. About 6700--between 66 and 6800.

Q. Was a drill stem test made of the Paddock Zone?

A. Yes, sir.

Q. What did that indicate?

A. 1200 feet of oil and a little salt water.

Q. After making drill stem tests, did you continue to drill?

A. Yes, sir, it was eventually completed in the Devonian.

After that kind of showing in the Paddock, we thought we might have a pool. We started Stella Rose No. 1 looking forward to 40 acre spacing. On that we drilled through the Paddock Zone to a total depth of a little below 6800 feet approximately. There was no oil at all.

Q. While still drilling the Hamilton well, before it was completed, you commenced Stella Rose No. 1 well?

A. Yes, sir, it was commenced to the Paddock.

Q. Then after you reached the formation where the Paddock Zone oil was or should have been, you found none, what did you do?

A. We temporarily abandoned it.

Q. And you continued drilling Hamilton No. 1, the discovery well, to the Devonian?

A. Yes, sir.

Q. After that time, you went back and deepened the Stella Rose?

A. That is correct.

Q. Had you not deepened the Stella Rose well, but on the other hand commenced a new well which would have been on the present recommended pattern with reference to Hamilton well, would that have resulted in financial loss to the company?

A. We would have lost 6700 feet of casing, approximately 6800 feet.

MR. SPURRIER: Worth how much?

A. About \$70,000.00.

Q. The third, Rose Eaves No. 1, is some south of the discovery well. Referring to that well, was it commenced while the other Stella Rose well was drilling?

A. No, it was drilled after Stella Rose was completed.

Q. Was that location, the Rose Eaves well, was that made for the purpose of obtaining structural advantage which you knew about at that time?

A. Well, the Stella Rose was 100 feet lower than Hamilton, and then at that time we were looking at the possibility of 80-acre spacing. There was a choice of losing \$70,000 investment in the Stella Rose or carrying on to the Devonian. After we reached the Devonian if we wanted 80-acre spacing, we had a choice of making the Stella Rose or the Hamilton No. 1 to be the one requested for the exception. I do not know why we would have taken one rather than the other for the exception, but we did. It defined the dip 100 feet between the high part of the structure to the south. We considered the Hamilton No. 1 to be the exception, and the well located directly to the south of the Hamilton be made the regular location, and requested that to be the

exception in the regular pattern, because the sequence of drilling brought about by exploratory drilling as to the Hamilton No. 1 being the exception to the spacing pattern.

Q. But you thought at this time that you contemplated 80-acre spacing and that this was a Devonian Pool?

A. Not until after a good test of Hamilton 1.

Q. In your opinion does the well spacing pattern which you recommend protect the correlative rights of the parties?

A. Yes, I think it does.

Q. Have you prepared some exhibits to explain to the Commission your recommendations with reference to the pattern, the well spacing pattern on 80 acres?

A. I think perhaps the exhibits I have maybe will give a little picture of the geometry of spacing, which I think can be clarified a little. In the first Exhibit No. 1 (indicates on exhibit on board.) shows the plain 40-acre spacing in which all wells are located in the center of each 40, this is a quarter section.

Q. That exhibit shows the normal 40-acre spacing?

A. We think when we speak of 40-acre spacing that each well is in the center of 40 acres, 1320 feet on each side--the well located 660 feet from each of the sides and 1320 feet between wells.

Q. The drainage pattern of each well on that basis is in the form of a square?

A. Yes, sir, that is the picture we normally think of when we think of 10-acre, 20-acre, 40-acre, or 80-acre spacing. We think of it in the form of a square and that the well will efficiently drain reservoirs equidistant to the total distance of a diagonal of a 40-acre tract, 933 feet (refers to Exhibit 13) the same as that of 80-acre spacing. We have just eliminated every alternate well to give one well to 80 acres instead of one well to 40 acres. That makes a

rectangular 80-acre tract, ~~alternates~~ ends of an 80-acre tract.

Q. Which exhibit is that?

A. That is Exhibit No. 13.

Q. And that shows the spacing pattern such as that which is recommended in this case?

A. That shows a spacing pattern such as that recommended here. Now, we put the 80 acres in the form of a square.

Q. Just for the purpose of the record, the exhibit which reflects 80-acre spacing is which one?

A. It is Exhibit No. 14.

Q. I see. Please proceed.

A. That shows 80-acre spacing in the form of a square, and geometrically that is no different from the 80-acre spacing. (Arranged Exhibits 13 and 14 on top of each other). I think it shows through. It still forms one well in the center of each 80 acres contained in the form of a square.

Q. At what angle?

A. At an angle of 45 degrees.

Q. Exhibit 14 represents the same pattern with reference to 80-acre spacing as 12 does to 40?

A. Yes, sir.

Q. Exhibit 14 is superimposed over Exhibit 13, will you explain the drainage area? To repeat the question, the 80-acre drainage area in the form of a square is represented by Exhibit No. 14 superimposed over Exhibit No. 13 consists of the form of a square plus 4 triangular tracts?

A. Eighty acres consists of one 40-acre in the form of a square included within the 80 being four triangles, each corner equal in area, ten acres. Wells in the two diagrams when one is superimposed upon the other are mathematically the same exact distance between in Exhibits 13 and 14.

Q. That does then reflect the pattern of drainage on the basis of 80 acre spacing which will result in the form of a square on the same basis as 40-acre spacing?

A. Both are in the form of a square with a well located in the center.

Q. In other words, in both the conception of the drainage pattern is still in the form of a square?

A. Yes, sir.

Q. Put up Exhibit 15. (Exhibit 15 is put on the board.)

A. Exhibit 15 also shows 40-acre spacing under pattern authorized by present statewide rules. That is, they provide that a well can be located anywhere on the 40-acre tract up to within 330 feet of the quarter section line, which location does permit such a spacing program as this, giving each shown location 330 feet out of each corner of each quarter section or 160 acres.

Q. Exhibit No. 15 shows location under present statewide 40-acre spacing regulations?

A. That is correct.

Q. Put up Exhibit 16. (Exhibit 16 is placed on the board.)

A. Now, when we speak of 40-acre spacing, we limit that to the actual 40 acres. In other words, going back to Exhibit No. 12, which shows 40-acre spacing, we consider then that the well in the center of the 40 acres will drain from its location only to the boundaries of that particular 40 acres, and then when locations are made in each corner of quarter quarter sections as shown in Exhibit 15, then there is shown in Exhibit 16 by the shaded area which represents the area in each quarter quarter which is not drained by a well if you assume that the well would drain only to the limits of that 40-acre tract. That is the statewide pattern which has been in effect fifteen years, I don't know of anybody that

has made any complaint about it, therefore, it must be fairly accepted by the Commission and by the industry that wells located in corners of quarter sections as shown by this exhibit will drain over to the limits of that particular 40-acre tract or a distance of 990 feet, and that is shown more distinctly here where there is shown in red, still referring to Exhibit 15, and the most left hand side colored in red, outlined in red dashed line a 40-acre tract the southeast corner of which the right quadrant colored in pink, that color only over part of the regular 40 acres, which would be some ten acres. That does not extend into the shaded area.

Q. That particular area designated by red is what?

A. It is the area which is the same in Exhibit 12 to be within the area of each well.

Q. Which would result if we assumed the well would drain 40 acres and that area only?

A. But in practice we do know that it will drain on beyond the boundaries of that 40-acre tract, which means for any particular quarter quarter of that two and a half times the acres, or the entire area that is drained by the well 330 feet out from the quarter quarter section. It does reflect drainage to a total area of 90 acres, which is colored pink.

Q. What area is marked in pink?

A. That is the area of 90 acres as a basis. The central red part, still referring to Exhibit 16, shows the greatest drainage area recognized in which a well is located in the corner of each 40-acre tract.

Q. Then the practice in the present statewide orders authorizes wells to drain 90 acres?

A. I don't know that it authorizes. I think it recognizes that a well will drain an area equal to 90 acres.

Q. Present 40-acre spacing patterns actually constitute 90-acre drainage?

A. As far as drainage of a well is concerned, that is true.

Q. Assuming that instead of 40 acre spacing you have a pattern such as Amerada's except that a well is permitted to be located every other 40, 330 feet from the line of a 40 acre tract?

Assuming that set of facts, what drainage would that authorize?

A. It would be equal to 180-acre spacing.

Q. Such an order would authorize 180-acre spacing?

A. Rather than authorize, I say it would recognize that a well will drain an area equal to regular 180 acre spacing.

Q. It will be possible under that arrangement to have 180-acre spacing?

A. It will be possible under that arrangement to recognize that it will drain a distance which is equivalent to regular spacing of 180 acres. Actually it is a fine point. I don't want to be misunderstood. There are two things--40 acres usually, and under 40-acre spacing we get opposite corners, and we do place them in opposite corners, and if we get drainage of the area, and I believe we do. And I think many recognize, or at least no one complained, recognize that this 40-acre spacing which is authorized will drain equivalent to two and a half times that, or 90 acres. The same is true when this authorized 80-acre spacing with a well to be any place within 330 feet of the particular quarter section that would be recognizing that the drainage area of that will be equivalent to a distance of regular pattern of 180-acre spacing.

Q. But such a situation under the 80-acre spacing recommended by Amerada--

A. If that pattern were adopted with a tolerance of 100 feet out of the center, we would be getting a little beyond the

the exact distance of 80 acres.

Q. Only to the extent of 150 feet tolerance?

A. That is right.

Q. The possible results might be recognized under the present statewide order?

A. The possible results might be recognized under the present statewide order.

Q. Does that situation exist in any actual instances?

A. Yes, sir, it exists all over the southern part of New Mexico.

Q. Here is a map of the Hobbs Field which is colored in pink as Exhibit No. 17.

A. It has been colored pink all quarter quarter sections in which the well has not been located in the center. Some are located 330 feet of the corner in quarter quarter sections. In other cases, it is located within a few feet of the corner so that you have here wells which recognize substantially greater drainage than 40-acre drainage. This consists of 75 per cent of the wells in Hobbs.

Q. Now, you are referring to Exhibit 17.

A. That is not confined to the Hobbs map. The Monument area includes a few spots in the Eunice Field. But in the Monument area alone between 28 and 29 per cent of the wells are located in the corner of 40 acres, recognizing at Monument that drainage is in fact an area equivalent to 90 acres. So few are located in the center of the 40. It is all on one line or the other of the 40-acre tract. It is somewhat less than 90 but more than 80 acres.

Q. The Monument map is Exhibit 18?

A. Yes, sir.

MR. KELLOUGH: We offer in evidence Exhibits 12, 13, 14, 15, 16, 17, 18.

MR. ROSE: No objections.

CHAIRMAN SHEPARD: They will be admitted.

Q. The proposal which Amerada has made in this case will result in 80-acre spacing with the exception of the tolerance which you mentioned, is that your conclusion?

A. Yes, sir.

MR. KELLOUGH: That is all.

CHAIRMAN SHEPARD: We will be in recess until 1:30.

(Noon recess.)

CHAIRMAN SPURRIER: The meeting will come to order.

(Commissioner Shepard not present at afternoon session.)

CHAIRMAN SPURRIER: The Commission will take up where we left off before recess. In the absence of Commissioner Shepard no decisions will be rendered here at the hearing. I will sit for the purpose of taking the record only.

Mr. Rose has asked that Mr. Millikan and Mr. Christie be called for cross examination.

MR. ROSE: I would like to have Mr. Millikan first, the gentleman who testified this morning.

CHAIRMAN SPURRIER: In the absence of Mr. Millikan, we will have another five minute recess.

CROSS EXAMINATION BY MR. ROSE:

MR. ROSE: I would like to have my consultant over here with me.

MR. McCORMICK: Surely.

MR. ROSE: I am U. M. Rose, Hobbs, New Mexico.

CHAIRMAN SPURRIER: We will resume the hearing. Mr. Rose, will you please speak up. The accoustics are bad.

Q. Mr. Millikan, in the testimony this morning, you drew an analogy between the Knowles Field covered by this application and the Jones Ranch Field and all based on the fact that both

are water drive fields producing from the Devonian. Jones Ranch Field is in Texas, and we are in New Mexico. You referred to no other facts except those. Will you tell the Commission and tell us, and I would like full data. I believe there are eight producing wells in the Jones Ranch Field?

A. That is correct.

Q. Do you have a map of the Jones Ranch Field?

A. I think so.

Q. Spread it out where you and I can see and describe the locations to the Commission if that is necessary. Locate the eight wells in the Jones Ranch Field for us, please.

MR. KELLOUGH: Why not introduce it as an exhibit to show the locations. I think it would save quite a bit of time. I have no objection to its introduction.

MR. ROSE: Referring to this as Royalty Owners' Exhibit 1, I offer this map of Jones Ranch Field in evidence.

CHAIRMAN SPURRIER: It will be admitted.

Q. Mr. Millikan, what is the discovery well in the Jones Ranch Field?

A. It is Jones A-1.

Q. And when was it drilled, brought in?

A. In the later part of 1943, as I recall.

Q. And the other wells, when were they drilled?

A. During the next two years.

Q. You made a statement this morning, I believe, that you had a four-year production history of the Jones Ranch Field.

A. It is over four years.

Q. How many wells have you a four-year production history on, how many of the eight wells?

A. The last well was drilled, if I remember right, in 1946. That would make a four-year production history on that. I

may be wrong a few months.

Q. What was the PI on the discovery well?

A. It was approximately the same as Hamilton No. 1 in Knowles.

Q. What was the PI on the rest of the wells?

A. All except two of them ranged on an unusually narrow range varying from .7, I should say, up to one and a quarter.

Q. But only two below a PI of one.

A. That is my recollection.

Q. What changes, if any, have occurred since the drilling of the discovery well. That well was brought in in 1943 and found a PI of 1?

A. Not anything except a decline of reservoir pressure. I think the change is in B-2 which is producing a small amount of water. I think the others are substantially the same except for normal decline of pressure, if there be such a thing as normal decline of pressure.

Q. B-2 is the only one producing water?

A. I believe so unless one of Magnolia's is, I believe not.

Q. What is a small amount of water?

A. About 3 per cent.

Q. It is producing about 3 per cent of water?

A. Yes, sir.

Q. Where is the top of the pay in the discovery well?

A. It was a little above 11,000. I don't recall the exact depth, and I am not sure, about 11,100 and the pay is a little below 11,400, and then got some water, never should have, bottom part of water, only well that was a commercial well in that lower streak of pay.

Q. How many wells would you classify as high wells?

A. About four.

Q. Where was the top of the pay on the others?

A. It runs about two feet shallower than the discovery?

Q. How much pay?

A. Total pay almost 300 feet. The others are over 200 feet, as I recall. I am doing this by memory, but I think that gives the information, but as far as precise figures, don't hold that too close.

Q. What is the difference between the top of the pay in the highest well in the Jones Ranch Field, as well as you can tell, and water level?

A. About 300 feet.

Q. Have you done any coring in the Jones Ranch Field? Strike that question that I commenced, please. In view of the answers to those questions, do you consider that you have completely developed the area of the Jones Ranch Field?

A. Yes, sir.

Q. Have you done any coring in the Jones Ranch Field?

A. We cored one, and unfortunately got poor recovery.

Q. You haven't cored any others?

A. No.

Q. You have no information from cores whatever in the Jones Ranch Field?

A. We have got a few. Porosity 8 to 15 per cent with the exception of one, vuglar for most, Milli darcys run.

Q. In other words, from the core analyses you had made, I gather the cores did not show much permeability.

A. No, they didn't represent the reservoir at all. We don't consider they gave us any reliable reservoir information.

Q. Did they represent anything to you?

A. No, except some misinformation if interpreted literally.

Q. Has any faulting been indicated any where in the Jones Ranch Field?

A. No, sir.

Q. You haven't had very much water production in the Jones Ranch Field, haven't had coning or fingering?

A. I wouldn't call it coning or fingering.

Q. What would you call it?

A. I think normal water with bottom of hole in that B-2.

Q. How high is the bottom of B-2 above water level?

A. As I recall, some 40 or 50 feet higher than we had considered the water level, so whether it is actually the bottom water, there is some question. In my opinion, it hasn't increased fast enough to be conclusive. It may be intermediate water which frequently gets in.

Q. How long has it been making water?

A. As I recall, a little less than a year.

Q. This is a new development in the Jones Field, a well making water is a new development in the Jones Ranch Field?

A. Well, I don't call a year a new development.

Q. Do you know on that particular production how long--

A. About three years.

Q. I would like to call your attention to Mr. Christie's testimony on the Bagley Field at the hearing on December 20, 1949. (Read Mr. Christie's testimony on permeability.) Do you agree with Mr. Christie that the flow is greater in zones of higher permeability?

A. Yes, sir.

MR. SPURRIER: Will you talk lowder, please.

Q. When water is being produced, how do you know, Mr. Millikan, that oil is not being bypassed?

A. Is not?

Q. You testified that oil is not being by-passed?

A. No, I didn't say absolutely no oil is being by-passed.

Q. Is there not a greater likelihood of oil being by-passed on 80-acre spacing than on 40-acre spacing?

A. I don't think it will make much difference in that field.

Q. Now, let us get to the Knowles Field. We are somewhat lacking in technical information for the field. The only witnesses who appeared in the original hearing--there was no testimony offered on porosity in the Knowles Field. I am getting the Jones Ranch Field in here. Coming back to the Knowles Field--all questions are in relation to the Knowles Field. There was testimony about porosity in the case of the Knowles Field in the hearing of November 22, but no definite testimony about permeability. Permeability fair and good. They used those terms. Mr. Christie used those terms in regard to two. There was no testimony about permeability by Mr. Veeder at all about what he knew about permeability in the Knowles Field.

A. Any well with an index of one has got reasonable permeability.

Q. There is also testimony in that same hearing to the effect that they cored Rose Eaves No. 3?

A. Cored which? Rose Eaves No. 1.

Q. Rose Eaves No. 1 cored with practically 100 per cent recovery?

A. Yes, sir.

Q. Was a core analysis made?

A. No, sir, we didn't. We looked forward to coring one of the higher wells.

Q. Any other further PI's in the Knowles Pool in addition to that testified to on November 22?

A. In addition to what was testified to here this morning?

Q. That is correct. Have you made any more tests?

A. That is, three well have been completed.

Q. Have you PIs on the rates of flow from those testified to?

A. We had on Rose 1 two tests--one short and the other somewhat longer at slightly different rates of flow. It does show some decline.

Q. On November 22 in the testimony of Mr. Christie, he stated that in the SP Rose No. 1 found fair permeability. He used that word, do you remember?

A. I will accept that.

Q. Is that also your opinion?

A. Yes, sir.

Q. Is it still your opinion that there is fair permeability in that?

A. Yes, sir.

Q. Is it flowing its allowable?

A. No, sir, not at this time. I believe it was in November.

Q. Since the time for the former hearing, has that well been reacidized?

A. Yes, sir.

Q. When?

A. I knew it was acidized, but I didn't recall before.

Q. About what time?

A. About the time of the November hearing.

Q. With what results, did it flow its allowable after it was shot?

A. As I recall we were making a little more water, and we restricted its production somewhat.

Q. I would like to give you an opportunity to consult with persons in your company who are more familiar with the history of that, your answers don't indicate you are familiar with it at all.

MR. KELLOUGH: I don't want, if the Commission please, to restrict Mr. Rose, but we object to the conclusion and the

and the argumentative way of stating that this witness has no knowledge of Stella Rose No. 1. I think the testimony shows that he has.

CHAIRMAN SPURRIER: Sustained. This is all for the purpose of a clear record, and I think we are doing that.

MR. ROSE: I would like for the Commission to take judicial notice of its reports to the SP of Rose No. 1 for the months of October, November, and December in 1949 and the month of January 1950.

MR. McCORMICK: They will be considered.

MR. ROSE: I would like to submit to the Commission this way. On that well the allowable is 8804, production 7102; allowable for November 8520, production 8408; allowable for December 8804, production 5612; allowable for January 8804, production 7654.

Q. Mr. Millikan, do you desire to answer the question as to when the well was reacidized?

A. I think the record will speak. It is part of the Commission's records.

MR. McCORMICK: Judicial notice will be taken of the report of action taken on that well.

MR. ROSE: For the clarity of the record, I would just like to get this in. I hand you a copy marked original showing the file mark of the New Mexico Oil Conservation Commission applying for or rather reporting acidizing S.B. Rose No. 1 with 4,000 gallons of Dowell acid.

MR. McCORMICK: It is dated January 17, 1950, do you so identify it?

A. Well, it is so stamped.

Q. In other words, it was acidized January 17?

A. According to the report. I have no reason to question it.

Q. What date was it filed?

A. It is stamped there May 17, 1950.

Q. I believe we would like to have this in the record. I have a copy of the original which I would like to substitute.

CHAIRMAN SPURRIER: Let the record show that it is stamped March rather than May.

MR. MILLIKAN: Thank you, I am sorry.

MR. ROSE: I would like permission to withdraw the original and substitute a copy.

MR. KELLOUGH: No objection.

CHAIRMAN SPURRIER: You may do so.

Q. Do you think this particular well which has not been flowing its allowable would drain 80 acres?

A. I think so. We have had to restrict its flow to prevent excessive coning of water which it has been making for some time.

Q. When did it start producing water?

A. As I recall, it was completed making about 3 per cent.

Q. What is the history of its making water?

A. Slowly increasing to a current 7 per cent.

Q. If not restricted, speaking of coning, would you expect a rapid increase and fingering?

A. I don't know whether there would be fingering or not.

Q. In your opinion, will it require a longer period of time for that well to drain 80 acres than for Hamilton No. 1?

A. Assuming an equitable allowable, I assume about the same time.

Q. Do you know what it was producing on the interval on Stella Bennet Rose No. 1 on its former allowable?

A. You have it. You read it.

Q. Stella Bennet Rose No. 1 was producing from 47 foot interval.

In your opinion, does the fact that a well producing from a 41 foot interval can make its allowable, and a well producing from a 47 foot interval does not make allowable, does that in your opinion indicate variable permeability?

A. I don't think we ever contended that there was not variable permeability there.

Q. That is what I wanted.

GOVERNOR MABRY: Keep your seats, gentlemen. I am sorry I could not be here sooner. I had four other places which I had to attend.

Q. Do you have to have authority from the State of Texas for 80-acre spacing in the Jones Ranch Field?

A. By authority, do you mean spacing rules there, no.

Q. Have you applied for 80-acre spacing in Texas?

A. No, sir.

Q. Wells from that field have been producing since 1943, been in production almost seven years, and you have not applied in that state for 80-acre spacing, is that correct?

A. That is correct since 1945.

Q. You have had production since 1945 and have not made application?

A. That is right.

Q. In New Mexico in the Knowles Field which has less than one year's production, you are making this application on less than one year's production history?

A. Yes, sir.

Q. Now, in your testimony this morning you stated that you would contemplate in the event that recovery of oil appeared likely on the alternate 40 acres from the one on which the spacing pattern was, an application to drill on the alternate forty acres would be made. In other words, you desire, you have testified, I believe, that in the event geological information indicated that it was better, more likely, to

obtain oil from the alternate locations, you would expect application be made to drill, and the application should be granted, do I understand the position you are taking on the matter?

GOVERNOR MABRY: Could you state that in the form of a question?

Q. What is your position with reference to drilling on alternate 40 acres in the event recovery of oil seemed to be better?

A. A better chance of recovery of oil? I didn't intend to testify to that.

GOVERNOR MABRY: You mean northwest and southwest?

Q. This is clear in the Crossroads 80-acre spacing, and the pattern is the same as that, northwest and southwest. Is it true that in the event a dry hole has been drilled, would they not apply for the alternate 40 acres?

A. You mean the Santa Fe application, are you asking if they made application to drill on the other end of the 40 acres?

Q. Yes, sir.

A. When alternate 40 acres--perhaps that should be.

Q. All right. Is it your position that such an application would be made and should be granted?

A. Yes, sir.

Q. Does that not represent a change in position given in the earlier hearing when Mr. Veeder was apparently endeavoring to have the spacing pattern fixed as shown in this plan. I will read a portion of his testimony: "Chairman Shepard: What about royalty owners, will they be compensated? Mr. Veeder: It is set up so that problem wouldn't arise except for, in the north quarter, that 40 acres is separate ownership. We think that can be handled by agreement. Otherwise, all royalties are the same under each unit; that is one reason for the arrangement."

I would take that in support of a definite 80-acre pattern. Now, if you drill one dry hole where on 80-acre spacing well is supposed to be, would you expect to drill on the alternate 40?

MR. KELLOUGH: Counsel is asking a hypothetical question assuming an interpretation of testimony in the form of argument. He has misconstrued the testimony in a major premise.

MR. ROSE: This testimony is in the record. We have a right to use it.

MR. KELLOUGH: It is perfectly all right to ask for any facts which he has, but there has been a good deal of argument.

GOVERNOR MABRY: He may answer the question.

Q. If you left the pattern and drilled on alternate quarters-- is it your position that you would have the right to do so?

A. If the question means we took one position on the original hearing that we wanted no exceptions to the spacing pattern locations as suggested in there--

GOVERNOR MABRY: I think I know what he means.

A. If that is what he means, I didn't feel that way at the other hearing. In the experience of hearing applications by this Commission, I am not quoting, in the experience of what I have seen in this and other things, the Commission has the right to consider exceptions to any part of the orders when conditions arise which make it right to ask for an exception.

GOVERNOR MABRY: I think counsel is not consistent in his question.

MR. ROSE: The witness has answered the question. Thank you, sir.

Q. In the event application is made for the alternate 40, might not that be unfair to some persons, to some royalty owners?

A. That is possible.

Q. And that might be unfair thinking. Might that not be resisted by royalty owners and lease owners?

A. Quite possible.

Q. This is a copy of Exhibit No. 10 which is in evidence. This shows three of Amerada's wells which are now in production, and another exhibit will show that Amerada owns certain royalty interests under these three wells. Will any other royalty owner who is not in that half section where these three wells are located have oil produced from his land?

A. Yes, I think so. I think there is so much oil that comes from other land.

Q. Will you explain how that could be under such a spacing pattern. We have 120 acres here, and we have three wells on it.

A. We have three wells as shown on Exhibit No. 10.

Q. Will there be three wells on any other 120 acres on your spacing plan?

A. On our spacing plan there will be one well on each 80.

Q. On each productive 80?

A. I don't know, there would be a lot more. I just know there are three 40 acre tracts on which wells are located.

Q. Here is one of the exhibits, Mr. Millikan, will you please identify it?

A. Exhibit 14.

Q. Exhibit 14 which is superimposed upon Exhibit No. 13, as I understand it, showing in squares the drainage area of the proposed wells, is that the purpose?

A. That is the purpose of showing the locations of the wells.

Q. By what do you propose to show the drainage area of these wells?

A. Well, we have one well to each 80 acres of area, and the

the presumption is that it will drain more or less in all directions from each location.

GOVERNOR MABRY: I can't hear the witness.

Q. It does not contemplate cross line drainage across lines?

A. I think there is cross line drainage in almost any spacing pattern you put in there. In other words, we have never contended it runs up to some surface line without respect to the reservoir. So long as it is reasonably equidistant, the regular pattern afford reasonable opportunity to everyone to recover his share of oil in the reservoir.

Q. Will you come to the map so that you can see what I am pointing to, please. What on this map is the drainage area of this outline?

A. Well, looking at the 80 acre center of geometrical units that are square, then by the square shown there in Exhibit 14.

Q. This square here that is on top (indicating)?

A. Exhibit 14, is the center of overlay.

Q. It outlines outer drainage area, suppose that there is a fault within, occurs within those lines, will the owner under those circumstances recover his fair share.

MR. KELLOUGH: I wish to point out that this is supposing facts which have not been testified to. There is no evidence of a fault, no indication of a fault in this pool according to witnesses.

GOVERNOR MABRY: Doesn't it show drainage within that particular area?

MR. ROSE: The drainage, Governor, has been described in previous hearings as being circular. In this present hearing it was described as square this morning, and I am attempting to clarify the exhibits which have been introduced into evidence and testified to by Amerada.

Q. Is it not your theory that cross line drainage is fair only when compensatory one well to another?

A. That is correct whether square or circular. You indicated something about clarification. I did not contend that drainage occurs exactly within these lines. I used the square for certain geometrical illustration. In spacing patterns we think in terms of a square.

Q. Can you testify that there is no fault in Knowles Field?

A. No, sir.

Q. Going from an assumption, drainage from the area of this well would depend on whether there was a fault or not to interfere with compensatory drainage one well between that well and another?

A. If there was one fault or several, or edge of field, or what not, there is always an opportunity to come before the Commission and get an adjustment. Each operator should get his fair and equitable share of oil out of reservoir. When it is found that a reservoir has a fault, it is possible to come before the Commission with application for adjustment. That is always true regardless of what spacing whether 10 acre or 20 acre, 40 acre, or 80 acre.

Q. Now, if this were in 40-acre spacing instead of 80-acre spacing, would there be compensatory drainage?

A. Sure, each one would get his fair share. I think that is always present.

Q. Would it be present the same under any spacing pattern?

A. No, in any water driven field the up dip well will tend to get the greatest ultimate recovery. That is usually true regardless of the spacing.

Q. Let us assume a 40 acre tract on contemplated northwest southwest, and one cannot be drilled, there is an up drive dip, would there not be a loss to the lessor, to that owner as a result of drilling?

A. If there is one directly opposite to that pattern, it is certainly fair to come before the Commission and get an adjustment.

Q. You have your application, you might have resistance to the inequity of it?

MR. KELLOUGH: That is purely speculative and argumentative.

MR. ROSE: That is all.

CHAIRMAN SPURRIER: If there are no further questions, the witness is excused.

MR. KELLOUGH: Nothing further.

(Recess.)

MR. ROSE: I would like to make a statement as to the position of the Royalty Owners in Lea County. At the time the original hearing was held on the Knowles Field application, no royalty owner appeared to resist the same. Now it is the assertion of certain royalty owners who have signed the exhibit which I will hereafter seek to introduce into evidence to the effect that they did not appear for the reason they were under the impression that Amerada would be given double allowable on this proposed 80-acre spacing. The royalty owners did not know until the transcript came that Amerada was not seeking more than top unit allowable. Then the royalty owners came. That is why they were not here heretofore, at least not here to testify.

MR. ROSE: Have you any questions?

MR. KELLOUGH: I have a few questions to ask the witness.

W. R. CHILDERS, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. ROSE:

Q. Are you W. R. Childers?

A. Yes, sir.

Q. Did you circulate a petition?

A. I circulated part of it.

Q. At that time, did you know what area had been drawn by Amerada as the Knowles Field?

A. We took Amerada's leases. We never thought they would be spread out over anything else.

Q. You took Amerada's leases which were in the general area?

A. I don't know what the boundaries are going to cover.

MR. KELLOUGH: Are the signers of this petition owners of mineral rights in the Knowles Pool?

MR. ROSE: Not ownership of all persons. This exhibit is not introduced for the purpose of proving ownership. It is to represent people who would not otherwise have an opportunity to make a statement. Ownership has been proved by a certificate giving owners. This is introduced for the purpose of showing the position of these persons. Some are not owners in this field, and I desire that it so be understood.

MR. KELLOUGH: Simply state whether or not, if you know, Mr. Childers, if these persons are owners in the Knowles Pool.

MR. ROSE: Answer if you know.

A. They are owners in the Knowles area.

MR. KELLOUGH: I have one, at one time didn't you get the signatures of husband and wife regardless of whose name the record title may be in?

A. No, you see I was in kind of a rush. I called Guy if it was double allowable. He says, no. I asked if he would hold off the decision until I could get the petition. He said, yes, if I would rush it up right away. We got out and rushed it right up within a few days.

MR. KELLOUGH: Did you check whether they were mineral owners?

A. I knew most of the people.

GOVERNOR MABRY: This is under the protest of royalty holders who claim that they did not know that double allowable was not being sought at that first hearing. The protest will be considered for what it is worth--not too important.

MR. KELLOUGH: That is what we wanted to find out whether it was made by people who have an interest in this pool of record.

MR. ROSE: A wife's signature does not necessarily show ownership.

GOVERNOR MABRY: Mr. Kellough, do you question whether this represents a substantial part of the royalty men, or is that the question?

MR. KELLOUGH: That is the purpose of my question. I don't know whether it is a substantial part or whether in this area or out of this area. We have introduced into the record a statement of royalty, Amerada's leases. If it will be compared with that, we have no objection to that instrument.

MR. ROSE: That can be checked.

Q. Mr. Childers, did you obtain those signatures?

A. Not all of them?

Q. Did you obtain some of them?

A. Yes, I got all around town. Another man got those out in the country. Luther Cooper took it out to the farmers. He knew them better than I did.

Q. You yourself obtained those in town?

A. Yes, sir.

(Witness excused.)

MR. KELLOUGH: We admit it can be introduced into evidence. We have no objection.

MR. ROSE: We offer this petition in evidence as New Mexico Royalty Owners Exhibit No. 3.

GOVERNOR MABRY: Admitted.

MR. ROSE: We offer this certificate showing ownership, New Mexico Royalty Owners Exhibit No. 4.

MR. KELLOUGH: No objection.

GOVERNOR MABRY: Admitted.

MR. ROSE: If it please the Commission, I desire to interpose the statement that each and every signer who is actually a royalty owner under this application objects to it.

GOVERNOR MABRY: Does that purport to represent all the royalty owners?

MR. ROSE: It does not.

GOVERNOR MABRY: What proportion?

MR. ROSE: I couldn't say.

GOVERNOR MABRY: You don't know much about it.

RALPH U. FITTING, JR., having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. ROSE:

Q. You have testified before this Commission before?

A. Yes, sir.

Q. Will you give your name, where you reside, and your occupation.

A. My name is Ralph U. Fitting, Jr. I reside in Midland, Texas. I am consulting petroleum engineer and geologist. My studies in this occupation are confined to the field of West Texas and New Mexico.

Q. Are you a registered engineer?

A. Yes, sir, I am registered, under the law of the State of Texas. I am a graduate of Stanford University in 1932. I did post graduate work at the University of California in 1933.

MR. KELLOUGH: We admit his qualifications as an engineer.

Q. What has been your experience?

A. It has been in West Texas. I have been in Midland since 1938, and the first five years I was in the employ of the

Shell Oil Company as engineer and division production engineer, and with Shell Oil Company I was in charge of engineering in West Texas and New Mexico. When I left Shell in 1943 I was in charge of engineering for this area.

MR. ROSE: You have had experience in New Mexico?

A. Yes, sir.

GOVERNOR MABRY: That makes him qualified.

Q. Have you studied the Knowles Field and other Devonian Pools?

A. I have read the transcript of the prior hearing. I have made a study of the Fullerton Devonian, the TXL, the Dollarhide, the Ratliff, and Bedford and Wheeler Fields. While most of these are depletion type and do not have water drive, knowledge of these concerns a fund of information contained in Devonian reservoirs.

Q. Is Knowles Field a water drive field?

A. I don't think the evidence is conclusive. I think it is reasonable to expect that such a water drive may occur as occurred in the Fullerton and the Jones Ranch Field?

Q. Assuming that the Knowles Field is water driving as several of Amerada's witnesses have testified, what will be later variations?

A. There are zones or layers of greater or lesser permeability, which occur in nearly all fields I am familiar with, particularly in fields producing from the Devonian. There will be a section where there is wide variation in permeability as the effect of layers or migrations of water in the field. There may be zones of low permeability and zones of high permeability in water drive reservoirs. The effect of various zones of uncertain permeability is that the rate of production from the individual well, ordinarily speaking, in a section with high

permeability, at first the rate of production is higher.

This results in the flushing out of the less permeable layers, and it results that it will flow more rapidly in zones of high permeability than in zones of low permeability.

Q. Would this cause the by-passage of oil by water?

A. Yes, sir.

Q. Would the spacing pattern as set up by the statewide rules aggravate this by-passage?

A. In my opinion it would cause the coning of water. The greater the depth it would aggravate the coning of water.

Q. Coning and fingering of water tend to cause what?

A. By passing of oil in the lateral water oil ratios. You have to have a greater volume to secure the same volume of oil. This will result in the abandonment of oil which might otherwise be recovered.

Q. In your opinion, it would result in underground waste?

A. In my opinion, it would result in waste.

Q. Did you study this spacing pattern as a geologist?

A. Yes, sir.

Q. Would you say there would be cross line drainage?

A. There is cross line drainage in any spacing. In water drive fields cross line drainage is aggravated. If it is located in the center of the acreage, this drainage is compensated specifying alternate 40 acre tracts.

Q. Would correlative rights of royalty owners be taken care of?

A. It is not. Where there is cross line drainage in one well, and consequently one owner will secure more oil, and another owner will obviously secure less.

Q. What is the effect on the value of royalties in the field?

A. If the value of royalties is based on income per acre, in reducing the amount of oil, obviously the values of royalties will similarly be reduced.

Q. They are particularly affected this way assuming the testimony of the Amerada witnesses is correct that on 80-acre spacing they will ultimately recover all the recoverable oil, the royalty owners will receive their share if they live long enough. They would still get the same amount of royalty under 80-acre spacing with one unit as with two under 40-acre spacing if they lived long enough?

A. Based upon the assumption of the same ultimate recovery of oil, I assume they would be.

Q. You would have to live long enough in order to get it?

A. Yes, sir.

Q. In your opinion, does fixed spacing offer a greater possibility of getting a dry hole?

A. Yes, sir.

Q. Would this produce an incentive to step out?

A. It might. You certainly, you have to have available information concerning subsurface conditions to move locations which look like they are going to be dry. Frequently subsurface information and drilling of additional wells shows that the location is not dry and causes many fields to be extended. Dry hole hazards tend to result in incompleteness of the productive area.

Q. Come over here, will you please. You followed the introduction of these exhibits this morning by Amerada, of Exhibit No. 17, which shows the spacing of the wells in the Hobbs area?

A. Yes, I did.

Q. In your opinion, does that exhibit support the conclusion as to drainage which the Amerada engineer drew from it?

A. No, I don't think it does.

Q. He concluded that from 330 feet from the corner that the

rules of the State of New Mexico permit or authorize, I believe that was the word, 330 foot location to the other corner in the Hobbs Field, which he has colored. He has concluded wide drainage from that data. You also observe Exhibit No. 18 of the Monument Pool. Would you affirm his conclusions concerning the area to be drained from these spacing patterns which Mr. Millikan made, would you affirm his conclusions?

A. I neither confirm or deny. I might mention that on it that some are not drilled.

Q. Is that correct now?

A. Yes, I believe it is. The Commission has approved "five-spot" drilling in the Grayburg area.

MR. ROSE: That is all.

CROSS EXAMINATION BY MR. KELLOUGH:

Q. Mr. Fitting, you testified in your opinion there is a water drive in the Knowles Field?

A. I didn't say that.

Q. Would you say reasonable to expect?

A. I said--

Q. You think it is not a water drive?

A. I said reasonable from what is known, it hasn't been proven.

Q. You testified, I believe, that the location of the wells, one to each 80 acres, there would be a tendency oil--water to cone or by-pass areas, is that right?

A. I said that it would aggravate it if it followed an 80-acre pattern.

Q. The same results would apply in 40-acre spacing?

A. To a lesser extent, yes.

Q. The same thing would occur in 20-acre or 10-acre?

A. Yes.

Q. Would the rate of production affect that rate any?

A. Yes, the rate of production would.

Q. If you produce wells faster, it will have more of a tendency to cone than if you produce them slower?

A. Yes, sir, they would.

Q. You also testified as to cross line drainage. That same situation exists in the case of 40 or 20 or 10?

A. My point was that in a great many locations having been in the geographical center of the tract assigned to the well cross line drainage is not present to the extent that it would be under the 80-acre spacing that has been proposed.

Q. Under the State rule permitting 330 foot corner locations in 40-acre tracts--under that ruling the same situation exists?

A. The same as what?

Q. Cross line drainage?

A. Yes, they would.

Q. You have cross line drainage even then?

A. Yes.

Q. You could not correct the objection you speak of by changing to 40?

A. You could by placing them equidistant around that, under that circumstance.

Q. What is the present allowable, the current per well per day for New Mexico?

A. I think it is 42 barrels.

Q. In otherwise the same pool producing from 5,000 feet rather than 12,500 each well is authorized to produce 42 barrels per day?

A. That is my understanding.

Q. Do you know the current authorized amount, is it now in excess--

A. I believe the figure is 264 barrels.

MR. McCORMICK: 284.

A. I submit 284 barrels.

Q. Now, normally the depth of the wells which are in the Ellenburger, Hobbs, and Monument are producing at a depth of 9,000 feet, is that correct?

A. Substantially, I don't know the Ellenburger wells which are in the Hobbs Pool.

Q. In the Brunson Pool, for example?

A. That is correct, about 9,000 feet.

Q. Do you know how many barrels per well per day can be produced in the Ellenburger wells in the Brunson Pool?

A. Not off hand, no.

Q. Can you state the number of barrels per well per day that can be produced from a well of 9,000 feet?

GOVERNOR MABRY: That is in the rules.

A. I will ask what the answer to that is offhand?

Q. Isn't it a fact that it is three times 42?

A. 126.

CHAIRMAN SPURRIER: 3.7.

Q. The allowable on a well in a pool that is producing from a depth of 8 to 9,000 feet is 3.7 times current allowable. Will you please state how many barrels per well per day could be produced from a well which is produced from a depth of 8 or 9,000 feet?

A. 126.

Q. That is currently authorized production for one well?

A. Yes, sir.

Q. The wells in the Knowles Pool have an allowable of more than two wells?

A. That is correct.

Q. You also testified, I believe, that if the spacing is established for 80-acres, there will be a tendency to drill dry holes, is that substantially your testimony?

A. Dry holes or incompleting depth of productive area.

Q. Would that same situation exist on 40-acre spacing?

A. The distance of the step out for 80 is 1866 feet, or 40, 1320, staggered center 40's.

Q. How much on 10 acres?

A. How much? 660 feet. I didn't know that part of the question was in this hearing. The distance from one is 660 feet.

Q. Of course, you are not denying also, there could be dry holes on 40-acre spacing as well as on 80. Is it your testimony there would be more dry holes on 80 acre spacing than there would be on 40?

A. That would be the tendency because of the greater distance in drilling, getting farther away from the information.

Q. You know the approximate cost of the wells in the Knowles Pool, do you not?

A. That was testified to, on the order of a quarter of a million dollars for subsequent wells to the first.

Q. I believe that you inferred that there would be more incentive or there would be less incentive on behalf of the company to drill on 80-acre spacing than on 40-acre, is that substantially correct?

A. There would be less on the part of the operators on the basis of 80 than on the basis of 40? No, as to incentive, they would make a great deal more in wider spacing and leaving oil. The incentive is there for the operator certainly.

Q. I believe you stated the leaving of oil was relative, did you not?

A. Yes, sir.

Q. That was not in response to my question, I believe. Do you believe that there would be more dry holes on 30 acres and the incentive would be lessened?

A. Because there would be greater steps--you have the alternative of not drilling if subsurface conditions indicate it would be close to the water level, which I submit is substantially the testimony of Mr. Millikan. The history of the well is 100 feet, the structural position of the lower wells is 200 feet above water level in those wells.

Q. I want to know whether or not your testimony before this Commission is that the incentive to drill and develop would be lessened on 80-acre spacing?

A. There would be incentive for the operators because of the greater profit which they make on each well.

Q. And, of course, the operator will anticipate enough additional recovery to get back the extra quarter of a million dollars it cost to drill that well.

A. That is correct.

Q. You mentioned the Grayburg Pool a while ago, is that a water drive pool?

A. No, it is not.

MR. KELLOUGH: I believe that is all.

REDIRECT EXAMINATION BY MR. ROSE:

Q. Mr. Fitting, I have outlined here in a rough sketch two east west 80-acre spacing--here you can draw on this for me, please. The proposed spacing pattern contemplates wells in the southeast of the quarter section. I have shown the northwest of one and the southeast quarter section and another in the northeast of quarter section. They make a triangular

design with the base of the triangle being that between the northernmost and the southernmost well. Assuming that wells are drilling in the center as they would be if there was no surface obstructions to cause them to be moved from the center, how far apart would the wells be?

A. The base of the triangle would be a half mile long, and the diagonals of the wells drilled would be 1866 feet apart.

Q. Now, if you put a well in what I have been calling throughout this hearing an alternate 40-acres, what is the maximum distance between two wells on that diagram?

A. A quarter of a mile or 1320 feet.

Q. The maximum is 1640 feet, is that not correct?

A. That is correct.

Q. In any step out, do you have a chance of leaving your field, of going across the edge of it, have you?

A. Yes, sir.

Q. Is that chance not greater the farther you step out?

A. That certainly would follow, yes, sir.

RECROSS EXMINATION BY MR. KELLOUGH:

Q. Are you offering this in evidence. You can put this in evidence. He has a piece of paper. He made some dots and drew a line. It depicts a triangle. Assuming that you locate another well which would make the diagram a square rather than a triangle, then what would the distance represent in 40 acre spacing?

A. The sides of the square, 1866 feet, be the diagonal distance of 1640.

Q. The sides of the square represent the distance between two wells on the diagram?

A. He depicted three.

Q. I am assuming four.

A. By assuming four, well, the north, 2640, and east and west 2640 feet apart.

Q. Or actually the distance diagonally between two on 80-acre spacing?

A. That is correct.

Q. Did you testify as to the difference diagonally between two wells on 40-acre spacing?

A. No.

Q. What would it be?

A. It would be 1866 feet.

Q. Normally speaking, you expect drainage in the form of a circle?

A. It would depend upon the direction in which the water drive would occur, yes, sir.

MR. KELLOUGH: That is all.

(Witness excused.)

MR. MILLIKAN: I would like to correct that. I said 100 feet structural position from water level in the Jones Ranch Field, I believe. I misunderstood that. The answer is about 200 feet, not 100.

MR. ROSE: We are agreeable to showing accurate testimony. If the Commission please, the royalty owners rest.

MR. KELLOUGH: We have no rebuttal. We have a number here who by formal joinder joined in this. We would like the privilege of having them join in making statements before we present our argument.

MR. McCORMICK: I would like to ask Mr. Millikan a few questions. How many months at the present rate of allowable does it take at the present prices to pay out a well in the Knowles Field?

MR. CHRISTIE: Assuming \$2.00 net.

CHAIRMAN SPURRIER: Are you assuming net after royalties are paid. You can't operate for nothing.

MR. KELLOUGH: It takes too long.

GOVERNOR MABRY: It figures a few months over a year.

MR. MILLIKAN: Approximately a year and a half at current prices of \$2.58

MR. McCORMICK: 1.8 royalty?

MR. MILLIKAN: Yes, sir.

EXAMINATION BY MR. McCORMICK: OF MR. MILLIKAN:

Q. Not counting any initial investment from lessees as such?

A. I would like clarification as to what is considered would be an offset well if the Commission should adopt 80-acre spacing in consideration of the implied covenant to reasonably develop and the covenant to protect from drainage.

Q. Take Exhibit No. 10 and tell the Commission what you consider it will have to have to drilled as an offset?

A. This is an engineering answer, not a legal answer. If you have a producing well on the offset unit, it would be the offset on the adjacent unit.

Q. If any 80 touched the 80 that was producing, that 80 would be the offset location?

A. That is from the legal standpoint.

Q. So, notwithstanding whether one well will drain 80 acres?

A. Do what?

Q. How do you account for drainage if one well drains only that 80?

A. I don't see your question.

Q. Now, Mr. Millikan, I don't want to treat you unfairly, would you not say that one well would drain only 80 acres; you say it would fully?

A. I said at least. I think it will drain considerably more than that.

Q. Any 80 which touched the producing 80 would be an offset in respect to development?

A. That is the engineering answer. I am giving only engineering answers.

Q. Regardless of whether or not the spacing pattern required that well to be drilled a half mile away from the producing well?

A. Yes, sir.

Q. Do you have Exhibit 10 before you there?

A. Is this the map?

Q. On your Stella Rose No. 1, which is located in the southeast of the northwest of Section 35, I presume you would consider that east half of the northwest of 34 to be an offset well?

A. An offset unit.

Q. And reasonably develop that 80 acres in Section 34 by stepping out a half mile to the west?

A. That is correct.

Q. Of the Stella Rose?

A. That is correct.

Q. Now, Exhibit 10 does not show the size of the lots in sections 1, 2, 3, do you have information as to what the size of those lots are?

A. I don't. I know approximately. I am not sure whether I have the precise information or not.

Q. The point I am trying to get out here, this territory of 80 acres along the north 1, 2, and 3, is it more or less than 80 acres?

A. They would be less than 80, as I recall, approximately 74 or 75 acres. Actually government measurement somewhat smaller than 80 acres.

Q. Under the present rules, the allowable in such cases is reduced proportionately?

A. It is not done. Is it not similar to 40 acres. Some are below 35 acres and so forth. There has been no adjustment for that. I think the allowable has been based on quarter quarter

sections and not on the precise area of each government unit.

Q. This rule of the first of the year, has not been actively applied to this literally as it was written?

A. It recognized, if I remember, irregular government units and fixed the allowable at normal quantities. Now if the government does not see fit to do that, that is something else.

Q. But if they did give you full allowable on a 75-acre tract, there would be a disturbance of correlative rights of offset 80 acres?

A. Yes, sir, but it would still be less off than what has been done in quite a number of producing tracts in Lea County units.

Q. In your opinion, would these wells in the Knowles Pool, these three wells now producing, would they be produced at greater rates than they are now producing without damaging the wells and causing underground waste?

A. I wish I could. I question it a little bit. It has been given only regular unit allowable. It is quite possible, to maintain pressure there and not do any damage or create waste, that is possible.

Q. Do you have an opinion as to whether or not you could produce double allowable and not create damage and cause waste?

A. I question whether it could. However, if it was necessary we would not object to giving it a try. I think it could be done for a reasonable time. If it proves to be unsatisfactory, we can apply for relief if it seems to be desirable to prevent waste.

Q. Which wells are producing 7 per cent water?

A. The north well, the Rose well.

Q. Is that water increasing currently?

A. I believe not, at least not very rapidly.

Q. That well probably couldn't be increased without unduly increasing water?

A. That is our feeling. Once it is increased it is pretty hard to get rid of.

Q. Do you have water information for the other wells?

A. Yes, I believe the Hamilton has 4 or 5 per cent.

Q. Doesn't it produce now as fast as it is practical to do so?

A. That is our feeling in the matter. That is the reason that we made this recommendation as to allowable. We could probably produce a little oil at higher rates. I don't know. My opinion is that is about the maximum rate.

Q. Have you any wells completed since November?

A. Yes, Texas well up to the northwest.

Q. In Section 27?

A. Yes, sir.

Q. And you state it is in 700 feet lower structure?

A. Almost 800.

Q. Does that indicate the pool will not go any farther north?

A. Yes.

CHAIRMAN SPURRIER: Anything further about that?

GOVERNOR MABRY: That won't go as far as that dry hole?

A. That is my interpretation of it.

Q. Is the Rose Eaves the highest well?

A. Yes, sir.

Q. Do you have any markers on the well?

A. On top of the Mississippian, substantially level where the Rose Eaves is still some 500 feet off the Devonian. At least that is our estimate.

MR. KELLOUGH: I would like to ask a question for clarification. I ask this question with reference to what an offset well is. Did you by your answer mean your understanding of an offset well to be a well which would be required in reasonable development

of the pool or protection against drainage from a well on a known unit?

A. I answer only from engineering answers.

Q. You did not take into consideration whether it was a paying well and other matters which may enter into it?

A. I considered only from an engineering angle.

Q. One further statement about step out one half mile under 80 acre pattern proposed, would the wells be one half mile apart?

A. Maybe in specific instances. I referred to that would be the case because he referred to the location one half mile west of Stella Rose. That was a specific question as I understood it.

Q. In that instance?

A. Yes, sir.

MR. ROSE: I would like to ask one question. In the Rose Eaves has production been encountered in any level except the Devonian?

A. No, sir.

MR. ROSE: Was a distillate encountered?

A. I don't recall of it. It hasn't come to my attention if it was.

CHAIRMAN SPURRIER: Do you agree with me that you do not have a stated porosity determined from core?

A. That is correct. We made an estimate of from 8 to 15 per cent.

CHAIRMAN SPURRIER: We do not have a stated permeability, is that correct?

A. By laboratory tests, no. We have the equivalent permeability from actual performance of the well.

CHAIRMAN SPURRIER: Do you believe because of indicated production that there is another type of porosity other than that you could measure. In other words, may there be crevassing?

A. You have got two, Mr. Spurrier, another porosity referred to as crevassing. In my opinion this is not a fractured reservoir.

CHAIRMAN SPURRIER: You spoke of vugs, was that from one of these wells or the Jones Ranch Field?

A. The Jones Ranch field.

CHAIRMAN SPURRIER: What is a vug, and what is its effect on permeability?

A. A literal definition, a vug is a cavity in a rock. It is used by geologists in this country merely as a solution cavity. They do extend for or cover a considerable area. It is open porosity, can be almost cavernous. In other cases the openings are quite small.

CHAIRMAN SPURRIER: Do you anticipate cutting cores?

A. We are looking forward to taking a complete core in Rose Eaves A-1.

MR. ROSE: The question of double allowable. It was stated, the reason it was not sought was not brought up in direct testimony. It was introduced by Mr. McCormick of one of the engineer witnesses who testified whether or not if these wells were produced at double allowable it would be likely to damage the wells. That witness answered that question. Shouldn't the other witness be given an opportunity to answer the question.

GOVERNOR MABRY: Is that being considered now?

MR. ROSE: We will wait.

GOVERNOR MABRY: Go ahead, Mr. Rose, if you want.

MR. ROSE: We have nothing more.

MR. MCCORMICK: Anything from the companies who joined in this application?

MR. BUCKLES: My name is Cecil R. Buckles, lease attorney for the Sinclair Oil & Gas Company. I would like to get into the record the position of the Sinclair Oil and Gas Company. I have a copy of what I believe was previously designated as

Exhibit 10 introduced into evidence. But for the Sinclair Oil & Gas Company I have those colored in green and have added to it an extension to the west and south, the holdings of Sinclair, and we hope a part of the Knowles common source of supply. I would like permission to introduce this, if the Commission would like as Sinclair's Exhibit 1.

CHAIRMAN SPURRIER: It will be accepted.

MR. BUCKLES: From that exhibit you will notice at the present time the sections under discussion, and Sinclair has one tract in the Knowles Pool being the southeast of Section 2, 160 acres, and since there has been some discussion of royalty owners, we have royalty owners of six sections. I would like to have permission to submit the names of royalty owners under that as of August 2, 1949, last rental payment, People's Lease Security Company.

GOVERNOR MABRY: You want permission to submit this at another time?

MR. BUCKLES: Yes.

GOVERNOR MABRY: That will be permitted.

MR. BUCKLES: Sinclair is interested in this 80-acre spacing naturally for economic reasons. It costs money to build wells 12,500 to 13,000 feet as has been testified, and we think royalty owners are interested as well. After all their money is being spent. I just want to call to the attention of the Commission, if I may, to the facts as to the protection of correlative rights, the question of offset wells, and whether or not a well that has been completed as a paying producing well in considering the drilling of an offset well, as well as the case of the operator. In all states the criteria of offsets is pretty well determined--40,000,000 wells. You will be careful to drill 40-acre offsets which can be pretty

carefully determined to be paying. The trouble and cost of production as compared to 80 acre spacing is thought to go along with the protection of correlative rights. A lot of 40-acre tract offsets to one deep well where in reality any royalty that will bring or not bring should there be production from that well will not be sufficient to justify further drilling of offsets. Every royalty owner under that 40 participating in the 80 acre would be getting some benefit. Their correlative rights would be more greatly protected. If the Commission please, would it take judicial notice of the official magazine, the December issue of the Interstate Oil Packers Magazine, an article a portion of which applies to well spacing, which I would like to have placed in the record for such benefit as it may have. Panel discussion, page 42. (Read article.)

We think that article has considerable merit in the information for consideration in giving credence to testimony here with respect to 80-acre spacing. We have nothing from the experience as to physical facts, we have to rely on the evidence that has been presented and wells that have been drilled. As time goes along additional elements of any sort or method could be worked out easier than to go back. If it is found to be necessary, you can return to 40-acre spacing easier than to spend the additional money it would take to develop on the basis of 40 acres and find out that that wasn't necessary, which would result in increased costs, and therefore be an additional burden to correlative rights.

MR. MONZINGO: A. J. Monzingo, Magnolia Petroleum Company. I believe we have a lease on a small section of land, Twp. 17S, Section 1, Range 31E.

GOVERNOR MABRY: Speak a little louder.

MR. MONZINGO: Magnolia has Twp. 17S, Sec. 1, Range 31 E. We want to add our support for 80 acre spacing as it is purportedly a more economical basis for developing this pool. Other than that I don't think I have additional data. Magnolia joins in this application. I believe that is all.

MR. DANGLADE: F. J. Dangle, Southwest, New Mexico. I think as I am a royalty owner and an operator, I might state I am not in a position from a technical standpoint to join either side. But I would like to take a short time to discuss what I think might be the economical portion of the proposal. I don't think-- maybe in this there might be a little more oil taken out in 40-acre spacing than 80-acre spacing perhaps. This would be economical certainly to the operator. Of course, it is up to the Commission to decide. Whether it is economical to develop the pool on 80-acre spacing or not is important, therefore, I am not against 80-acre spacing, but I do think the question of royalty holders is also a factor. When I signed the joinder in the application for 80-acre spacing, it never entered my mind that Amerada was not asking for double allowable, instead it was asking for 80-acre spacing with 40-acre allowable. I believe legitimately it is proper that that should be taken into consideration. It doesn't cut it in half, but it does reduce it to a great extent. If double allowable fails to meet conservation standards and hurts the wells, then perhaps the drainage theory fails. I submit that is not necessarily our position. In the second place, we must consider the people on the edge. A man with an 80-acre tract has a 40 which might produce, but because of the location set up by the 80-acre spacing, the well should be drilled on the 40 which is dry, therefore he is dealt out. By adjusting the locations, this could be handled without too much trouble. I think there should be a

clear understanding as to what constitutes offsetting to protect the rights of adjoining owners. If 80 acre spacing will drain any 80 surrounding it, they are entitled to get their share even though it is a half mile.

MR. CROCKER: J. H. Crocker, Mid Continent Petroleum Corporation.

Our company has no acreage within the pool which is within this application. To that extent, we are an interloper in this proceeding. Our interest in general is only as lease owner and operator in the state. We feel in general with respect to the development in the state that in these areas where drilling is to the depth of 12 to 13,000 feet with the initial well costing probably \$300,000.00 and other wells probably a quarter of a million dollars if the reservoir will lend itself to wide spacing that the Commission should indulge as wide as possible spacing because of the costs that are involved. I don't know the thinking from the engineering phases. Engineering thinking may differ if it be true that reservoir conditions are such that you can produce approximately as much oil from two wells on a quarter section as four. It is obviously apparent the operator has a half million whereas otherwise a million dollar investment, all simple arithmetic. Now this Commission has shown an equitable position we think in the matter when it gave 80-acre spacing in the Crossroads, in which the Santa Fe is interested. There was some reference to it. The Santa Fe went to an orthodox location. It drilled a dry hole. It came before the Commission for permission to drill on an unorthodox location. I think the Commission readily perceived the equity of their situation. It granted the exception. It is true that when they came, we appeared, we suggested that perhaps an adjusted allowable should be considered and given by the Commission. However, the quarter section tract was

charged with respect to the proration units by giving the Santa Fe its requested exception and by the same token made it the orthodox location for the northwest corner of the quarter section, which takes it a little farther away from the well that is now drilling. Whether it might retard development in the state if the Commission positively puts its foot down on 80-acre spacing, if engineers can show this Commission that you can effectively drain and prudently operate with two wells or three wells where otherwise you would have to drill four wells, we think royalty owners and the state and the operators all derive benefit from that policy. We concur with the Amerada on the basis of economic reasons.

MR. BORLAND: C. D. Borland, Gulf Oil Corporation. Although Gulf has no acreage within the area considered in this application for spacing, and no knowledge of the reservoir characteristics from drilling operations, we are interested in this case inasmuch as Gulf has acreage in the near vicinity which might ultimately be productive.

It is an established fact that wells drilled to the depth at which oil was encountered in the Knowles Pool cost a very substantial sum of money and therefore will necessarily require greater ultimate recoveries to pay out the investment.

In order to encourage the development of deep structures and thus establish reserves which would otherwise not be developed, it is necessary that an operator have some additional incentive to venture his capital in the drilling of these deep wells. Increasing the allowable for the deep wells is some incentive; however, unless the margin of ultimate profit to be expected from the high cost wells is economically attractive and somewhat comparable percentage-wise to the margin of profit to be anticipated from the shallower wells,

then the operator is hesitant to develop the deep seated structure. This is true because the drilling of a few dry holes could substantially or completely offset the profits from the productive wells.

In order to foster development and encourage the operator to risk the capital necessary for deep development, Gulf is of the opinion that the Commission should grant spacing orders wider than 40 acres in the deep reservoirs such as the Knowles Pool whenever reservoir conditions appear to justify this action.

MR. SETH: My name is Oliver Seth, representing the Stanolind Oil and Gas Company. I would like to read this letter into the record. "Oil Conservation Commission of New Mexico, Santa Fe, new Mexico. Gentlemen: This will have reference to Case No. 204, Order R-3, and to Order R-6 which granted Amerada Petroleum Corporation rehearing on their application for the establishment of 80-acre proration units in the Knowles Pool, Lea County.

We wish to respectfully point out, that even though we have no material interest in any leases which may produce from the Knowles Pool, we have keen interest in the outcome of the hearing. From rather wide experience obtained from a good many years of drilling for and producing crude oil, qualifies us, we believe, to make the following statements concerning the economics of drilling for and producing deep wells.

The Knowles Pool is producing from the Devonian formation at an approximate depth of 12,500 feet. Our records show that it costs approximately \$294,000 to \$300,000 to drill and equip a flowing well at comparable depths in the Permian Basin, and further that the overall lifting costs on such wells are very high over the producing life of the wells. An operator, at best, will do well to break even on such operation, and will in all probability lose money after deductions are made for

royalties, for State and Federal taxes, and for lifting costs. This then would not provide sufficient capital to enable an operator to invest in further exploration, with the result that many deep reserves may never be explored, and there would certainly be no incentive for deep-well exploration. We believe that economics is certainly pertinent to waste in that the leaving of oil in the ground, due to the fact that the cost of drilling and producing the same is economically prohibitive, is certainly waste.

We wish to respectfully call attention to the Commission's past policy, recognizing economics in considering Field Rules. We refer specifically to your findings published under Order 779, issued July 27, 1948, and having reference to 80-acre proration units in the Cross Roads Pool. We believe that in a reservoir with pay continuity one well will do as efficient a job of draining 80 acres as will two wells, and that the only practical difference in ultimate recovery lies in the time element. Under proration one well will recover essentially the same volume of oil, but will require twice the time to accomplish this as two wells. The Commission, therefore, is faced only with the time element, and not with the degree of ultimate recovery. We do, however, appreciate the position of the royalty owner. His economic picture may be such that he would prefer to obtain twice his present income for a shorter period of time. However, it is not reasonable to expect operators to take an overall ultimate loss under these conditions.

We, therefore, respectfully request that you give serious consideration to all factors involved when you act on the Case No. 204, as we feel that the outcome of this hearing is of extreme importance."

MR. KELLOUGH: I would like to have an opportunity to summarize.

MR. McCORMICK: I want to ask Mr. Millikan one question.

Mr. Millikan, a very pertinent situation was brought out by Mr. Danglade. Suppose some operator or some lease owner has an 80-acre tract, and he drilled on the orthodox location according to the pattern and it proved to be dry, and he determined just as it occurred at Crossroads to drill on the other 40, would Amerada's position be that if he were allowed to drill on the other 40, having only the one 80, that he should only get half of an allowable?

MR. MILLIKAN: I would hesitate to say that would be our position. I think evidently not entitled to as much recovery as if the entire 80 were productive. Just a question of correlative rights, certainly consideration should be given. If circumstances justify half the amount, sure; if they justify three-fourths or whatever the evidence justified, I think the Commission, and in fact we would want the Commission to give it.

EXAMINATION OF MR. MILLIKAN BY MR. McCORMICK:

Q. Don't you think any operator would refuse to drill if he would only get half of an allowable at the cost of these wells?

A. No, I don't believe so. Not if they are going to be as productive as we hope Knowles will be. In other words, we have not at any time have we said we couldn't afford to drill more than one well, and we anticipate our recovery will produce more than enough on 40 acres to pay for that well. We contend, however, that the difference of recovery between one and two wells will by no means justify \$270,000.00. We believe that if we are obligated to drill that on an 80-acre basis and develop it, we might use that money to develop some

other reservoir somewhere in the State of New Mexico.

Q. Getting back to the pattern, if you got a dry hole and believed you would get a producing well by going to the other 40, why should you be penalized by having already drilled a well, the same situation is probably true according to all of the engineering data, etc., in 80-acre spacing where the other 40 was productive and the unorthodox location not productive?

A. I don't see that it applies to all. There is a possibility it might apply to some of them.

Q. Now, maybe we should recognize those in order to establish the correlative rights?

A. I have no objection, if it means as I understand, if it is considered in its entirety or is reasonable. Maybe the pattern locations there should be so adjusted.

Q. In a location with the question of whether the mere fact that a person has a plot of ground big enough to drill 10 or 12 inch holes gives that man the full right to recover enough oil from that hole if he can to pay for that well as is the correlative opportunity to recover his share of the oil in the reservoir.

A. I have always taken the latter position, not the former.

Q. From your knowledge, that is true. It might be exactly the same in the spacing of the 80-acres, one of the 40's might not be productive and the other might be be productive. In the development of wells, you might find the same situation in all pools?

A. We can make a pretty reasonable estimate from the control of wells the probable limits of the economic production. I don't believe we have to have a dry hole to prove that. We have been fortunate enough to have sufficient information on structure, water, and so forth, to develop maybe without a dry hole, but unfortunately you can't always do that.

Q. Have you made an estimate of your per acre recovery in this pool?

A. No, I wouldn't call it an estimate.

Q. Do you have an opinion?

A. I think, well, in excess of 10,000 barrels per acre.

Q. It is your position that even though one well to a 40 would pay out that it is not economical to drill more than one well to 80 acres as it will drain oil from 80 acres?

A. That is certainly true. I see no reason, and I don't believe that we should take the position that merely because it will pay out that we should be obligated to drill more.

There might be a producing well to one acre. Merely because they can pay for themselves--if it will pay out with one well to 40 acres, why should we be forced to drill one well to 20 acres. In other words, we think that reasonable development and recovery of oil should be done without undue expense.

MR. McCORMICK: No further questions.

(Witness excused.)

MR. KELLOUGH: I shall be brief. Since the question the engineer raised, I have one thought I wish to add. Mr. Millikan said it is not unreasonable to take the position in connection with correlative rights that an owner of an 80-acre tract which is entirely productive as a matter of right is entitled to a greater share of oil in the reservoir than an owner of 40 acres--an 80 half of which is non-productive. The illustration which was given was in the case where you know half of the 80-acre tract is non-productive. Then what do you do, certainly deny the right to drill an allowable well, have to be cut. The question of counterdrainage enters into the picture, not unreasonable to assume a situation where the tract underlying has more than half the amount, to some

extent it should be cut. The next problem seems to be what about exact information, maybe part is unknown, may be outside the pool. In those instances, Mr. Millikan believes that problem probably will not exist in many instances and is not the real answer to that. That man perhaps is recovering more oil than he is entitled to, that should be no reason to cause him--to prevent another from receiving more oil. It is a circumstance which might arise, but it is not a circumstance which is insurmountable. It has been met by other states. The same situation existed in Louisiana and Oklahoma. They have met the problem in one or two similar cases. If possible, readjust unit so that the owner may recover acres which is its proper proportion. That can be done if it arises. Does it ~~not~~ seem unreasonable that a man should get as much recovery as the man who owns a greater interest in the pool. You can point to no hard and fast rule. The matter can be solved by the Commission and has been solved by other Commissions, and by and large, has worked out very equitably to all persons.

Getting back to the evidence, I shall be brief. As to the evidence, I have in mind the first record. This first came to be heard November 22, 1949. No one appeared in opposition to the application. At that hearing geological and engineering information was given for Amerada. The geologist outlined, in his opinion, the probable productive limits of the pool, gave technical data on wells and formations. From the testimony all three of these wells are producing from a depth of below 12,500 feet. The proposed base spacing pattern locations of units were presented. All have been explained again here today. The geologist testified that it was producing from the Devonian, had a vugular and good vein porosity comparable to the Jones Ranch Pool. Engineer, Mr. Christie,

testified, in his opinion, the pool had an effective water drive, and based his opinion in part on the productivity. He said it indicated permeability productivity. Both engineer and the geologist testified that in their opinion one well would adequately drain an area of at least 80 acres. That record is in evidence of the first hearing. Mr. Millikan in this proceeding has expressed his opinion that one well would adequately drain at least 80 acres, and he has presented reasons for that opinion. He has further explained and presented information with reference to the Jones Ranch Pool, which is a comparable pool to the Knowles Pool, and is produced on 80-acre spacing and successfully. Data and details were brought out in cross examination. On that issue Mr. Fitting did not deny that one well would drain 80 acres. The substance of his testimony was that it would more effectively drain 40 acres than 80. He stated that it was a matter of degree. He stated that in some measure it was determined by the rate of production as well as spacing. At the first hearing, it was testified that the cost of the first well was \$351,000.00. It was further testified that the estimated cost of future wells was \$270,000.00.

Now, mention has been made by Mr. Millikan in the very recent discussion, he pointed out that merely because a well on every 40 acres can obtain sufficient production to pay for that well is no reason why that well should be drilled. Your legislature expressly stated the policy of this Commission on that point, and I don't want to read it as evidence. I do want to again call the Commission's attention to the Statute according to Sec. 13 (b), Chapter 168, 1949 law of New Mexico is as follows: (read to the Commission.) I would also like to call to the Commission's attention Section 10, Chapter 168, laws of 1949, provides that the Commission

is authorized to make orders (10) "To fix the spacing of wells." That is the law of New Mexico. When it appears that one well will drain an area of 80 acres, and there is nothing about the spacing pattern which destroys the correlative rights, fails to protect the correlative rights of parties then certainly an additional well at the cost of some \$270,000.00 is, under your laws, it is waste. We think as a matter of law and under the evidence submitted in the first hearing and the evidence submitted here establishes the fact that one well will drain at least 80 acres. As a matter of law, under the statute, the Commission should grant the application for 80-acre pro-ration units.

MR. McCORMICK: There has been nothing in the hearing as to acres, spacing--the point I am getting at is the disagreement right now. It is true, everyone knows in the oil and gas industry you develop leases according to covenants. The very reason for the existence of the oil conservation regulations is because to develop upon competitive efforts, implied covenants almost invariably result in waste. The reason for conservation and well spacing programs is to prevent waste.

MR. KELLOUGH: This Commission has been outstanding in conservation and prevention of waste both in what it has done and what it is continuing to do. It is our position that where an unnecessary well costs the sum of \$270,000.00 that constitutes waste.

MR. McCORMICK: Does anybody require you to drill more wells?

MR. KELLOUGH: Under the implied covenant, you are required to drill as many wells as are reasonably prudent to drill. If a well results in a paying well, then the implied reasonable covenant, you have got to drill it. It may be wasteful drilling. That is the very reason we have well spacing

statutes. It is a situation which could only be controlled by a state regulatory body, it could not be controlled by the lessee. That type of waste has to be controlled by the state. Now, in that connection and looking at the matter not from what the Commission should do as a matter of law. The policy in keeping with the Commission's policy to prevent what we think fair, necessary and equitable, they ought to do that if it is true that one well will drain 80 acres. If the evidence indicates that is true. The only time that they can prevent waste of drilling unnecessary wells is in the early life of a pool. You can't wait until it is completed and find that it wasn't necessary to drill one to each 40 to the cost of a half of a million dollars or more in the Knowles Pool for every quarter section. You can always go back to 40 acres if it does develop that the testimony was not accurate and that one well to each 80 is not sufficient. It is true that there may be some pools that can survive the extra freight of a half million dollars unnecessarily, but there are going to be a lot of pools where there are deep wells not being drilled where the pay will not be sufficient. Considering the matter from another point of view along that same line. Every company large and small operates on a budget. They have so much money to spend, and whether large or small no individual can consider and do not consider \$270,000.00 lightly. The companies must be ready to spend money on seismograph work and wildcat drilling if you look forward in deep pool development. I am talking about the period of development on the basis of 80-acre spacing, then they might be encouraged in their search of deep pools in New Mexico. But if they have to contemplate in addition to exploratory cost of drilling one deep well, which in their opinion will drain 80 acres, regulations making it necessary to drill many unnecessary wells and the possibility

of a dry hole or so and the tremendous cost, they will be slow to exploit deep pools in New Mexico. There are some of the broad aspects of this problem. It has been stated very sincerely, I believe that one well to 80 acres will adequately develop this pool. We firmly believe that if this pool has to be developed on a 40-acre basis, many millions of dollars will be spent in drilling unnecessary wells before that pool is finally drilled up. The question of double allowable in discussing our position has been explained by Mr. Millikan. His opinion is as an engineer that the present rate of production which is 184 barrels per well per day is adequate. I want to call the Commission's attention to that. Had it by chance been 5,000 feet instead of 12,500, there would have been 42 barrels per well per day from one well. Now 184, more than two wells in the Brunson Ellenburger. That is more per well than 99.44 per cent of the wells in Lea County under the present proration order that can be produced per well than any other pool in New Mexico unless four wells in the Crossroads wells, double approximately 500 hundred barrels. If I remember correctly. It is our position that if the Commission feels this should be double allowable, we have no quarrel with that. If the Commission wants to double, we would like to reserve the right if that should develop that the wells are being injured for a future hearing on the rate which they should be produced at. We ask the Commission that our application for this order be granted.

(Recess.)

MR. ROSE: It is unexpected when royalty owners, whom I represent, joined together to present evidence, feeling like to produce oil more cheaply, they be required to drill every 40 in the field covered by this application. I don't believe our legislature has gone so far as the opposing

operators claim in supporting the Oil Conservation Commission in making orders to enable the most oil recovery per dollar spent. No owner of property requires directly or even indirectly more than what is reasonably necessary to obtain his proportionate share of production. It looks to me as if the argument today is that these operators should get the most oil recovery per dollar spent if they can persuade the Commission to allow them to do that. Figures were put into the evidence as to the time it takes to pay off a well. I realize that things have to some extent be considered as to the time it takes to pay off, some demand for continued information, some continued explorations, etc., but just what a company will make on a quarter, how long is nowhere in the evidence, leave information for somebody else to figure out. Amerada drilled three expensive wells, and future wells will cost approximately a quarter of a million dollars. In the hearing of November 22, the testimony of Mr. Christie was that after drilling those wells, they found a better way of spacing, found that they preferred 80-acre spacing--better for whom? For a lot of people whom it will affect whether they have 80 or 40-acre spacing? For the State of New Mexico directly in Severance Tax? For the operators?

It has not been contradicted that one well will effectively drain 80 acres if given long enough. Amerada is a corporation with perpetual succession. Amerada should eventually receive all the benefits not being subject to human mortality. The royalty owners are going to have to use their royalty in one lifetime. A representative speaking for Sinclair has stated that the royalty owners in every instance would be benefited as well as the operators, might in some instances be better off with 80-acre spacing. Royalty owners with whom I have had the opportunity to talk relative to this do not agree.

They employed a qualified geologist to investigate and have taken the position that for royalty under Devonian production that they prefer that it be developed by 40-acre spacing pattern. The operator states that it can make more economical use of the money that would be required to drill wells on alternate 40 acres somewhere else. The people I represent don't know where else they would use that money. They want it used here. We assume we may at least argue it is the duty to offset. They want the amount used on their property. The operators give them no reason to assume that that money will be used elsewhere in New Mexico.

Mr. Christie testifies that this plan has been used elsewhere in New Mexico and is not willing to assume that this is a novel plan of spacing. It is backed by very little experience. It is new to New Mexico. Certainly, this being a new field on which less than a year of production history is available. The question hasn't arisen in the State of Texas in the Jones Ranch Field which has a production history of seven years. Since the map of the Jones Field is in evidence, it wasn't pointed out on the map that this map shows five dry holes in that field to eight producing wells. Another geologist and engineer produced by the royalty holders has testified to the danger of loss of wells in a water drive field. Now, we have one well out of three in the Knowles Field which is not producing its allowable, S. B. No. 1. It didn't produce its allowable in October or November. In the month of December with an allowable of 854 barrels, it produced approximately 600. In the month of January it was shot, and it still didn't produce its allowable. We don't know whether it will be an effective well, the Stella Bennett

Rose well, or other wells that may be drilled in the future into the Knowles Pool.

Now, this equal recovery for all owners which has occupied a lot of the testimony today. It appears to me it assumes that conditions are uniform everywhere under the Knowles Pool. Obviously, is it not a geological fact that conditions anywhere not being uniform, I don't know how you can actually protect all correlative rights. Mr. Crocker mentioned the fact of Santa Fe's getting permission to drill in the Crossroads Pool the northeast of the southwest quarter of Section 27. I take it they required an appearance before the Commission in order to get the exception. Under only the most compelling reasons is an exception granted, and it occurs to us that this pool is not defined to the north and east. It is quite probable that we might have the same problem as Santa Fe, and we would be exercising our rights to come before the Commission for the granting of an exception, which would necessitate the spending of large sums of money in obtaining the exception.

This application covers a great space. It has been sought to be expanded to include twelve sections. It is sought on information shown from the drilling of only three wells in approximately the center of twelve sections.

CHAIRMAN SPURRIER: The record will show six sections.

MR. ROSE: There is a request to include any acreage in the common source of supply. Not knowing how far that this would go in an effort to take it very far from the three wells, which are the only wells on which there is any history on this. This appears to me at this time to be very premature. We don't know what if we came back and found it advisable to drill a well on alternate 40 acres, my clients were hoping that that would be granted and not with any assurance.

CHAIRMAN SPURRIER: Does anyone have anything further to say in this case.? At the risk of prolonging this three minutes longer, I would like to make a few statements myself. In considering a case of this kind, the Commission is faced with upholding the statute and Commission rules and Commission policy over some fifteen years. We try to decide these cases on the evidence presented. That is the only way we can decide them. We are not sitting here to take a poll. In this case we will consider all the evidence that has been presented. It is my thought in view of the rather inconclusive evidence. I am speaking generally, that the Commission might better get some more evidence, and that we might have to get it after more wells have been drilled. We have no permeability figures, no porosity figures except those indicated by the P.I.'s of the wells. As just one member of the Commission, I think I would recommend to the Commission that the case be continued until we can gather more conclusive evidence supported by core analyses and any other information that may be brought to light as more wells are drilled. What I have said reflects on no one, is not intended to, but I hope you can realize the Commission's position in trying to decide this case.

Mr. Graham, will you read the notice of publication for Case 214.

(Mr. Graham reads notice of publication for Case 214.)

FRANK BARNES, having been first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. McCORMICK:

Q. Your name is Frank Barnes?

A. That is correct.

Q. Do you hold an official position with the New Mexico Oil Conservation Commission?

A. Geologist with the New Mexico Oil Conservation Commission.

Q. In your work with the Commission have you become familiar with the area in the San Juan County?

A. I am a member of the Northwestern Nomenclature Committee.

Q. According to the committee's report, which was filed, there was a new discovery well here, Herbert Herff No. 1 Federal, NE NE Sec. 4, Twp. 27N, Range 8W, is that correct?

A. Yes, sir.

Q. Are you familiar with that well?

A. Yes, sir, I am.

Q. Is it producing oil or gas?

A. So far it has been producing gas.

Q. From what?

A. Mesaverde formation.

Q. Your committee has recommended that pool, a gas pool, be designated Largo Pool of Mesaverde to include Twp. 27N, Range 8W, Section 3 and 4, all. Twp. 28N, Range 8W, Section 33 and 34, all?

A. Yes, sir.

Q. In your opinion, would the boundaries of the pool as recommended by the committee be reasonable on the basis of present information?

A. Yes, sir, those boundaries would be consistent with the policy of the Oil Commission towards naming of such pools in the past.

Q. Would that be a reasonable classification in your opinion?

A. Yes, sir.

CHAIRMAN SPURRIER: Any other questions?

Q. You recommend that it be designated Largo Gas Pool?

A. Yes, I do.

(Mr. Graham reads notice of publication of Case 215.)

Case 215
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. Do you hold an official position with the State of New Mexico?

A. Petroleum engineer with the New Mexico Bureau of Mines.

Q. Are you a member of the Southeastern Nomenclature Committee?

A. Yes, sir.

Q. Are you familiar with the recommendations, the several recommendations made by that committee as set forth in this Case 215?

A. Yes, sir.

Q. Without questioning you about each separate pool, I will ask if all of those pools are oil pools?

A. On the basis of present information and procedure they are considered to be oil pools.

Q. In your opinion, would the classification and definition of those pools as recommended by the Nomenclature Committee be reasonable?

A. Yes, sir.

Q. You recommend to the Commission that the pools on Case 215 being twelve separate pools will be defined, named, and classified as oil pools with the boundaries as indicated?

A. Yes, sir.

Q. Any questions by anybody else?

CHAIRMAN SPURRIER: Any further questions or comments?

(Mr. Graham read notice of publication for Case 216.)

MR. LAMB: I am Raymond Lamb, representing the Wilson Oil Company in Case 216. This is a matter of permission for the Wilson Oil Company to drill an unorthodox location on its

State B 6807 lease located in the Sw/4 NW/4 of Section 13 Township 21 South, Range 34 East, N.M.P.M., in the Wilson Pool of Lea County, to be located 2310 feet south of the north line and 1270 feet east of the west line of said Section 13. From engineering and geological information, we think we can recover a considerable amount by drilling this well which would otherwise be lost. I think the application gives most of the information in detail. I am here to testify and to answer questions as a witness if you so desire.

CHAIRMAN SPURRIER: Would be sworn?

(Mr. Lamb sworn.)

CHAIRMAN SPURRIER: Mr. Lamb, you intend to testify, I take it you are qualified.

MR. LAMB: I have appeared at various times. I will give my qualifications. I am a registered engineer in the State of New Mexico.

Q. You have appeared as a geologist and engineer both?

A. Yes, sir.

CHAIRMAN SPURRIER: Your qualifications will be accepted.

MR. LAMB: This well will be drilled in the Wilson pay zone and completed along with other wells. The operator to the north has his property line 990 feet from the proposed location. The offset operator is Darrel Smith and Phillips Petroleum Company. They have been given notice, and no answer has been received from them as to their opinion in the case. As I stated, we think we would recover a lot of oil which would not otherwise be recovered. Our No. 11 was drilled in the center of this tract as a dry hole, and that is one of the reasons for the proposed location east of the west line of the 40-acre unit.

MR. MCCORMICK: How many top allowable wells do you have, seven?

EXAMINATION BY MR. MCCORMICK:

A. Yes, sir.

Q. How old, 1942?

A. Fourteen completed in 1944.

Q. You have drilled half of the 40, and it will not produce?

A. That is No. 11. It is probably non-productive.

Q. Are you asking for top allowable?

A. In our application we requested full top allowable for that 40-acre unit.

Q. You think it is proper in view of the dry hole?

A. We take that on a 40-acre basis. We will have two wells to pay for on that unit instead of one. We already have a dry hole. We have to get a producer to pay for both out of one well.

CHAIRMAN SPURRIER: Is this well one of the so-called "five-spot" wells which the Commission has considered?

A. It is not unitized with any other 40-acre unit. It has an allowable of its own.

Q. Rule 104 requires ten-day written notice be given by registered mail to all adjoining lessees of the proposed application. That has not been complied with to our knowledge?

A. Mr. McCormick, I did not know it was the duty of the operator to notify an offset operator as I understand Rule 104.

Q. Did you obtain a waiver or consent from Mr. Darrel Smith and Phillips Petroleum Company?

A. I notified Darrel Smith, and the fact that Phillips Petroleum Company is not here and they have been notified would lead me to believe they have no objection to the case.

Q. You will be willing to accept the burden--according to the rules, I do not understand it that way.

CHAIRMAN SPURRIER: Will you read that rule?

(Rule 104 read by Mr. McCormick.)

MR. LAMB: Would you want me to obtain one and supply it to the Commission at another time?

MR. McCORMICK: I am just wondering in view of avoiding any difficulty whatever from two adjoining operators--we had an unfortunate experience about that a month or two ago.

CHAIRMAN SPURRIER: Speaking of that for the benefit of all, that was the first case of its kind to come before the Commission since the new rules and regulations had been in effect. We, the Commission, had been negligent in complying with this regulation in regard to offset operators.

MR. McCORMICK: I might say this case has been advertised under the proper time limit, but there was an unfortunate mistake in the advertisement. So as a matter of legality, Mr. Lamb, it might be better to postpone this if you are not in a hurry?

MR. LAMB: It will probably be a month or six weeks before we are ready to move on it.

MR. McCORMICK: I will recommend that we start over on this one.

CHAIRMAN SPURRIER: I was going to ask the Commission's counsel if probably for legal reasons it would be better to set the case for the next hearing if there is not any hurry. And in the absence of any objection, Mr. Lamb's testimony as he presented it might stand for the record.

MR. McCORMICK: I recommend that.

CHAIRMAN SPURRIER: I will recommend to the Commission to readvertise the case, and that your testimony stand. Any further

questions here from anyone?

MR. LAMB: One thing, Mr. McCormick, is it the burden of the operator to obtain waivers?

MR. McCORMICK: It is the duty of the Commission to send out notices. My suggestion is that you proceed under the state of the record now, readvertise, we will notify the offset operators.

CHAIRMAN SPURRIER: If there is nothing further, the cases and all will be taken under consideration and the setting of the allowable. The meeting will be adjourned.

STATE OF NEW MEXICO:
: SS
COUNTY OF BERNALILLO:

I HEREBY CERTIFY, that the foregoing is a true and correct transcript of the proceedings had at the time and place first above written to the best of my knowledge, skill, and ability.

DATED this 22d day of April, 1950, at Albuquerque, New Mexico.

Margaret Powell
Reporter

1 BEFORE THE OIL CONSERVATION COMMISSION
2 STATE OF NEW MEXICO

3 IN THE MATTER OF THE APPLICATION
4 OF AMARADA PETROLEUM CORPORATION
5 FOR THE ESTABLISHMENT OF PRO-
6 RATION UNITS AND UNIFORM SPACING
7 OF WELLS IN THE KNOWLES POOL
8 IN LEA COUNTY, NEW MEXICO

CASE NO. 204
ORDER NO. _____

9 O R D E R

10 This matter came on for hearing at Santa Fe, New Mexico,
11 on 21 March, 1950, pursuant to Order No. R-6 granting a rehearing,
12 and pursuant to order of continuance entered in the minutes of
13 the Commission on 21 February, 1950. The applicant, Amerada
14 Petroleum Corporation, was represented by its attorneys, Booth
15 Kellough and Seth and Montgomery; Robert Childers, Alice L. Childers
16 and other royalty owners were represented by U. M. Rose of Hobbs,
17 New Mexico.

18 The Commission having considered the evidence introduced
19 and the argument of counsel finds:

20 1. The Amerada Petroleum Corporation drilled the dis-
21 covery well in the Knowles Pool in Lea County, New Mexico, and has
22 since completed two other wells, all of which produce from the
23 Devonian formation at a depth of approximately 12,500 feet. The
24 limits of the productive area surrounding said wells has not been
25 determined, but will probably be greater than the area now
26 officially designated as the Knowles Pool and will probably embrace
27 all the following lands:

28 Sections 34, 35 and 36, Township 16
29 South, Range 38 East, and Sections
30 1, 2, and 3, Township 17 South, Range
31 38 East, Lea County, New Mexico.

32 2. The cost of drilling additional wells in the above
33 area to the Devonian formation is approximately \$260,000.00 per
34 well.

35 3. Due to the relatively short history of the wells in
36 the Knowles Pool and the lack of adequate geological and
37 engineering data, it is impossible for the Commission to determine
38 at this time if a spacing pattern of one well to an 80-acre tract
39 will economically drain the oil within the common reservoir. It
40 is in the interests of conservation that a drilling pattern of one
41 well to an 80-acre tract be adhered to temporarily and until other
42 wells are completed which will furnish more complete data on the
43 characteristics of the common reservoir. ~~It would be contrary to~~
44 ~~the interests of conservation to permit wells to be drilled on a~~
45 ~~pattern of one well to 40 acres until further data is obtained.~~

46 IT IS, THEREFORE, ORDERED:

47 1. The drilling pattern proposed by Amerada Petroleum
48 Corporation for the area described above is temporarily approved,
49 and the following drilling pattern is hereby temporarily established:

50 a. Only two wells shall be drilled to

1 each quarter section of approximately
2 160 acres, the locations to be in the
3 center of the northwest and in the
4 center of the southeast 40-acre tracts
of each quarter section with a toler-
ance of 150 feet in any direction to
avoid surface obstructions.

5 b. The Amerada-Hamilton No. 1 well
6 located in the NE $\frac{1}{4}$ SW $\frac{1}{4}$, Section 35,
7 Township 16 South, Range 38 East, being
a completed well is hereby allowed as
an exception to the drilling pattern.

8 2. Each well now producing or hereafter completed as a
9 producer in the common reservoir described above shall have an
10 allowable ~~production~~ equivalent to that of a well drilled on a
40-acre proration unit to the same depth.

11 3. No wells shall be drilled in the area described
12 above except in conformity to said drilling pattern, until the
further order of the Commission.

13 4. As to all wells drilled in said area following the
14 issuance of this order, the operators of such wells shall, at their
15 expense, gather as complete geological and engineering data as
16 practicable, including cores, bottom hole pressure tests and other
like data.

17 5. During the period this temporary order remains in
18 effect no royalty owners or lease owners shall acquire any vested
19 property rights to a continuance of the spacing pattern and this
20 order shall be without prejudice to the right of the Commission to
later change the spacing pattern to that of one well to 40 acres.

21 6. This case is hereby continued until 20 December,
1950, at 10 a.m. at which time a further hearing will be held
22 at the State Capitol Building, Santa Fe, New Mexico, to determine,
23 on the basis of the evidence then submitted, a permanent spacing
pattern.

24 DONE this _____ day of *June* April, 1950.

25 OIL CONSERVATION COMMISSION
26 STATE OF NEW MEXICO

27 By _____
28 _____
29 _____
30 _____
31 _____
32 _____

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 UNIFORM SPACING OF WELLS FOR THE
COMMON SOURCE OF SUPPLY DISCOVERED
IN THE W.W. HAMILTON NO. 1 WELL,
NE/4 SW/4 of SEC. 35, TOWNSHIP 16 SOUTH,
RANGE 38 EAST, LEA COUNTY, NEW MEXICO.

CASE NO. 204

A P P L I C A T I O N

COMES, NOW, Amerada Petroleum Corporation, of
Tulsa, Oklahoma, and alleges and states:

1. That applicant has drilled and completed on
May 4, 1949, a well known as "W.W. Hamilton No. 1", located
in the center of NE/4 SW/4 of Section 35, Township 16 South,
Range 38 East, Lea County, New Mexico, and discovered a new
common source of supply, found in said well below the depth
of 12,000 feet, as hereinafter alleged.

2. That said discovery well was drilled to a
depth of 12,656 feet and encountered the top of the Devonian
formation at 12,451 feet. It was then plugged back to 12,600
feet and 5½" casing set to 12,518 feet, and is producing
through the open hole. The well tested 935.31 barrels of oil
in 24 hours through a ½" choke, with a gravity of 46.9 and
gas-oil ratio of 180, and B.S. and W. of 0.4%.

3. That the probable productive limits of said
new common source of supply include the following described
area, to wit:

All of Sections 34, 35 and 36, Township
16 South, Range 38 East, and All of Sections 1,
2 and 3, Township 17 South, Range 38 East,
Lea County, New Mexico,

said common source of supply being commonly referred to as
the "Knowles Pool".

4. That in addition to the discovery well re-
ferred to above, the following wells have been drilled or
are now being drilled to said common source of supply within
the area described above, to wit:

(a) Amerada-Stella Rose #1 Well, located in the SE/4 NW/4 of Sec. 35-16S-38E, which well has now been completed.

(b) Amerada-Rose Eaves #1 Well, located in the SE/4 SW/4 of Sec. 35-16S-38E.

(c) Amerada-Rose Eaves "A" #1 Well, located in the NW/4 NE/4 of Sec. 2-17S-38E.

5. That in addition to the above described wells, the following well is also now being drilled in the vicinity, but outside of the six-section area described above for which this spacing order is requested, to wit:

Texas Company-Bennett Estate Well, located in the NE/4 NW/4 of Sec. 27-16S-38E.

6. That in order to bring about the orderly and proper development of said common source of supply, prevent waste and to avoid the drilling of unnecessary wells, and to secure the greatest ultimate recovery therefrom, and to protect the correlative rights of the interested parties therein, it is necessary and proper for the Commission to enter its order providing for proration units of 80 acres each, such being the area which may be efficiently and economically drained and developed by one well, and to provide for the uniform spacing of wells drilled into said common source of supply.

7. That all wells drilled into said common source of supply should be located in the center of the Northwest and Southeast forty-acre tracts of each quarter section, with a tolerance of 150 feet to avoid surface obstructions.

8. That the discovery well referred to above, known as the "W.W. Hamilton No. 1 Well", located in the NE/4 SW/4 of Sec. 35-16S-38E, is located off of the spacing pattern herein requested and should be granted an exception to the spacing order established by the Commission hereunder, and should be considered the well for the proration unit on which it is located.

9. That the order herein prayed for should cover all of the common source of supply discovered in the producing formation of the W.W. Hamilton No. 1 Well, and any well drilled to said common source of supply should be drilled on the spacing pattern herein requested.

10. A plat showing the area described above and the location of all wells drilled or drilling in said area and in the vicinity is attached hereto, marked "EXHIBIT A" and made a part hereof.

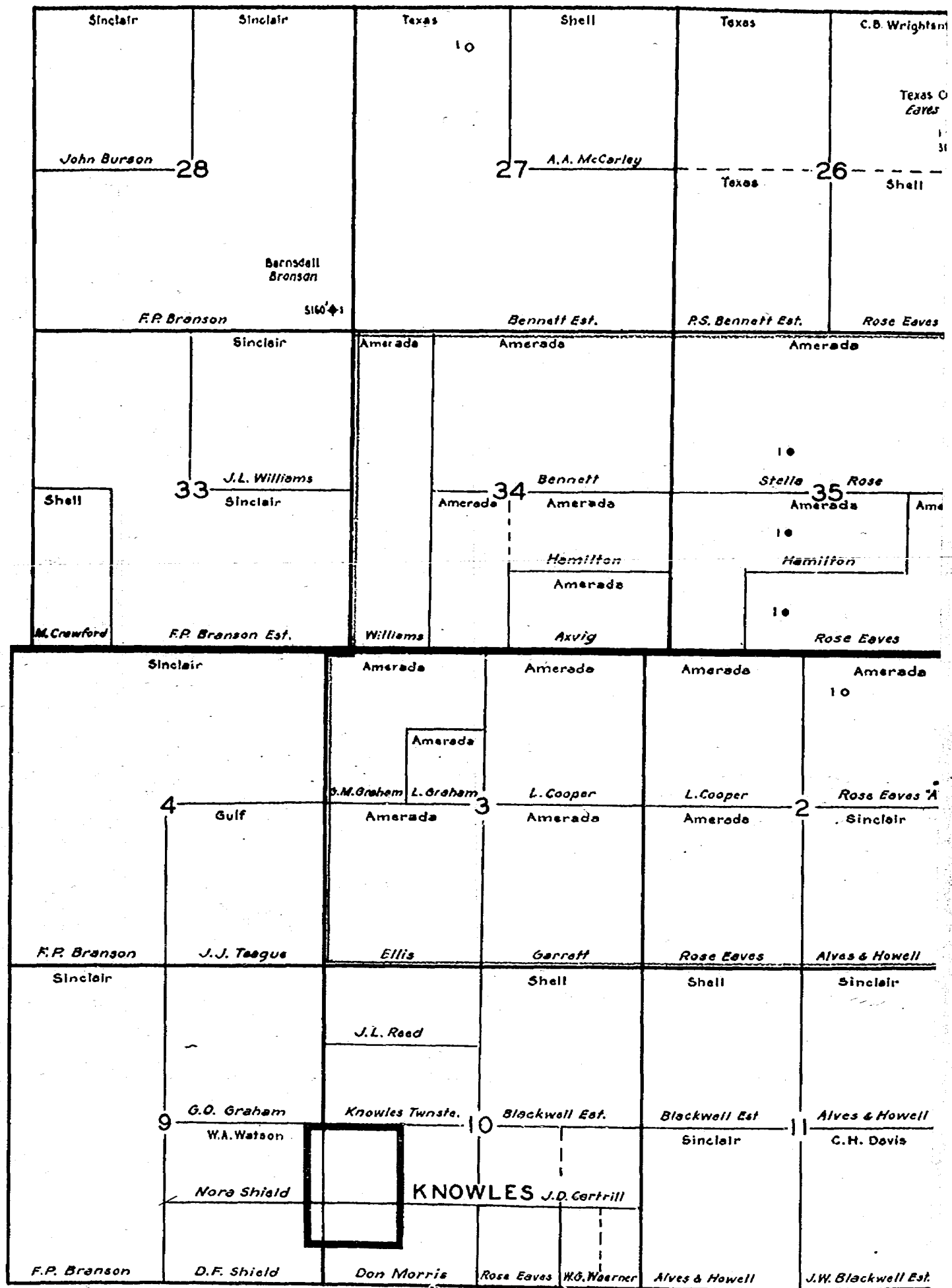
WHEREFORE, applicant respectfully requests that the Commission set this application for public hearing at a time and place to be fixed by the Commission, and due and proper notice be given as required by law, and that at the conclusion of said hearing the Commission make and enter an order determining and defining the probable productive limits of the common source of supply referred to above to include all of Sections 34, 35 and 36, Township 16 South, Range 38 East, and Sections 1, 2 and 3, Township 17 South, Range 38 East, naming said pool or common source of supply, establishing proration units of eighty (80) acres each, designating the location of all wells drilled to said common source of supply to be the center of the Northwest and Southeast forty-acre tracts of each quarter section, with a tolerance of 150 feet in any direction from said described location to avoid surface obstructions, and to provide for an exception in the case of the well known as "Amerada-W.W. Hamilton #1 Well", referred to above, and to further provide that said order shall apply to all of said common source of supply.

DATED this 4th day of November, 1949.

Harry D. Page
Harry D. Page

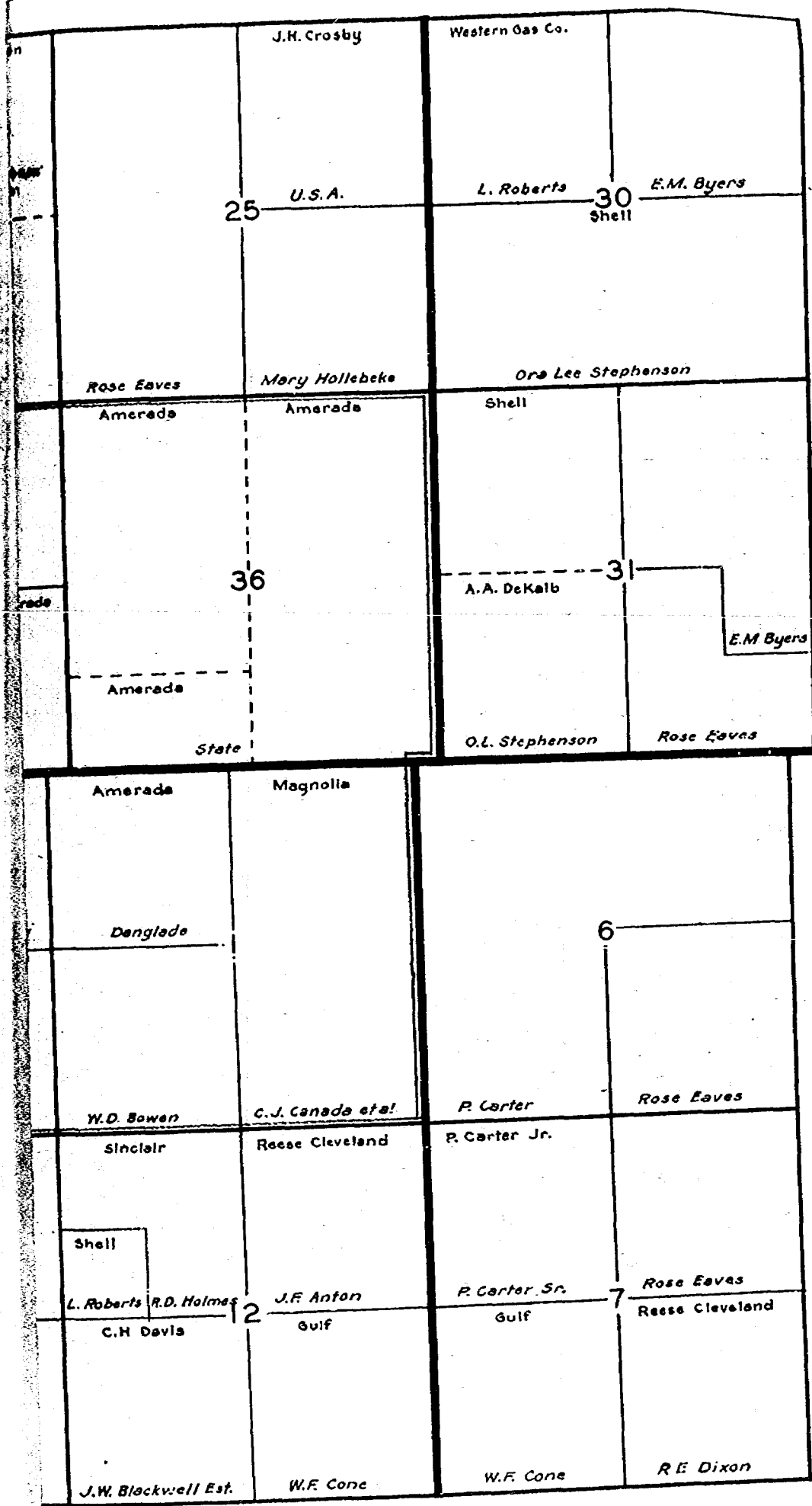
Booth Kellough
Booth Kellough

Attorneys for
Amerada Petroleum Corporation.



R 38 E

EXHIBIT "A"



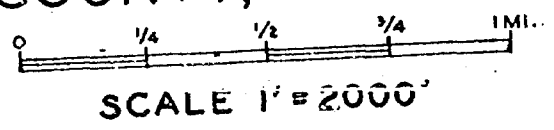
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KNOWLES FIELD LEA COUNTY, NEW MEXICO



BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

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

ORDER NO. _____

THE APPLICATION OF AMERADA PETROLEUM
CORPORATION FOR THE ESTABLISHMENT OF
PRORATION UNITS AND UNIFORM SPACING OF
WELLS FOR THE KNOWLES POOL, LOCATED
BELOW THE DEPTH OF 12,000 FEET,
DISCOVERED IN THE W.W. HAMILTON NO. 1
WELL, NE/4 SW/4 SEC. 35-16S-38E,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 10:00 o'clock
a.m., November 22, 1949, at Santa Fe, New Mexico, before the
Oil Conservation Commission of the State of New Mexico, herein-
after referred to as the "Commission".

Now, on this _____ day of _____, 1949,
the Commission, having before it for consideration the testi-
mony adduced at the hearing of said case and being fully ad-
vised in the premises:

FINDS:

1. That on May 4, 1949, the applicant, Amerada
Petroleum Corporation, completed a well known as "W.W. Hamilton
No. 1 Well", located in the center of the NE/4 SW/4 of Sec. 35-
16S-38E, Lea County, New Mexico. Said well was drilled to a
depth of 12,656 feet, and encountered the top of the Devonian
formation at 12,451 feet. It was plugged back to 12,600 feet
and 5½" casing set to 12,518 feet, and produced through the
open hole. The well tested 935.31 bbls. of oil, 24 hours
through a ½" choke, with a gravity of 46.9 and gas/oil ratio
of 180, and B.S. and W. of 0.4%.

2. That the probable productive area of the Devonian formation discovered in said well and from which it is producing, is as follows, to wit:

All of Sections 34, 35 and 36, Township
16 South, Range 38 East; and
All of Sections 1, 2 and 3, Township
17 South, Range 38 East,
Lea County, New Mexico.

That said new common source of supply discovered in said well has been named and designated by the Nomenclature Committee as the "Knowles Pool".

That in addition to the discovery well described above, there have now been completed or are now drilling the following wells within the probable productive area of said common source of supply, described above, to wit:

- (a) Amerada-Stella Rose #1 Well, located in the SE/4 NW/4 of Sec. 35-16S-38E;
- (b) Amerada-Rose Eaves #1 Well, located in SE/4 SW/4 Sec. 35-16S-38E;
- (c) Amerada-Rose Eaves A-#1 Well, located in NW/4 NE/4 Sec. 2-17S-38E;

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

3. That the Devonian formation as found in the discovery well below the depth of 12,000 feet, is a common source of supply which should be drilled and developed on proration units larger than those normally established under the present rules and regulations and orders of the Commission with respect to proration units, because of the depth of such wells, the time necessary to drill said wells, and the high

cost and expense required in the drilling and completion of said wells, together with the drainage area thereof; and the Commission finds that proration units of an area equivalent to one-half of a governmental quarter section are necessary and proper for the drilling and development of said common source of supply, such being an area which may be efficiently and economically drained and developed by one well.

4. 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 the parties interested therein, all wells drilled into said common source of supply should be located in the center of the Northwest and the Southeast quarters of each governmental quarter section, with a tolerance of 150 feet in any direction to avoid surface obstructions.

5. That the discovery well referred to above, known as the "W.W. Hamilton #1 Well", located in the NE/4 SW/4 of Section 35-163-38E, is located off of the spacing pattern herein ordered, being the first well drilled to said common source of supply and should be granted an exception to this spacing order and should be considered the well for the proration unit on which it is located.

6. That until further order of the Commission, the allowables for all wells drilled to said common source of supply should be computed on the same basis as in the case of other proration units of 40 acres, applying a deep pool adaptation of 6.75 times the top allowable for a unit, according to the rules and regulations and orders of this Commission.

7. That except as above specifically set forth, all of the present rules, regulations and orders of the Commission are adequate and sufficient to properly cover the drilling, equipping and operating of wells drilled into the new common source of supply as found in the above described well and, therefore, the general state-wide rules and regulations should remain in full force and effect except as modified, amended or superseded in the particulars specifically set out above.

IT IS THEREFORE ORDERED:

SEC. 1. That the Amerada Petroleum Corporation "W.W. Hamilton #1 Well", located in the center of the NE/4 SW/4 of Sec. 35-16S-38E, Lea County, New Mexico, producing from the Devonian formation below the depth of 12,000 feet, discovered a new common source of supply not heretofore discovered and produced in this state, and that the probable productive area of said formation is as follows:

All of Sections 34, 35 and 36, Township 16 South, Range 38 East, and all of Sections 1, 2 and 3, Township 17 South, Range 38 East, Lea County, New Mexico

That said new common source of supply is hereby designated "Knowles Pool".

That this order is intended to cover all of the Devonian formation common source of supply discovered in said Amerada-W.W. Hamilton #1 Well, described above, and any and all wells drilled to and produced from said common source of supply whether within the probable productive area delineated above or any extension thereof, shall be drilled on the spacing pattern hereinafter set forth.

SEC. 2. That proration units of an area equivalent to one-half of a governmental quarter section are hereby established for the production of oil and gas from the Devonian formation underlying the area described above, and in order to protect the correlative rights of all parties, said units shall comprise the South Half and the North Half of each quarter section within said area, except the following units, to wit:

W/2 NW/4 Sec. 34
W/2 SW/4 Sec. 34
E/2 SW/4 Sec. 34
NE/4 NW/4 and NW/4 NE/4 Sec. 34
SE/4 NW/4 and SW/4 NE/4 Sec. 34
E/2 NE/4 Sec. 34
W/2 SW/4 Sec. 35
NE/4 SW/4 and NW/4 SE/4 Sec. 35
SE/4 SW/4 and SW/4 SE/4 Sec. 35
E/2 SE/4 Sec. 35
All in T16S, R38E;

the location of all of said units being shown on the plat attached hereto, marked "EXHIBIT A" and made a part of this order.

SEC. 3. That all wells drilled into said common source of supply shall be located in the center of the Northwest and Southeast quarters of each governmental quarter section, with a tolerance in any direction of 150 feet to avoid surface obstructions, except the Amerada-W.W. Hamilton #1 Well, already drilled and completed in the center of NE/4 SW/4 of Sec. 35-168-38E, which said well is hereby granted an exception to this order and the proration unit upon which the well is located is hereby determined to be a fully developed and productive proration unit and entitled to a full allowable as herein provided.

SEC. 4. That the daily oil allowable of a normal unit comprising an area equivalent to one-half of a quarter section assigned to the discovery well and all other wells hereafter drilled and produced in accordance with this order shall be the proportional factor of 6.75 times the top allowable until such time as the Commission may issue such further and additional orders, whether general state-wide orders or special orders in this cause, or general rules or regulations affecting the allowable of this pool, as may be deemed necessary.

SEC. 5. That the Commission may for good cause shown, after notice and hearing, permit the drilling of a well off of the spacing pattern herein provided, but, except for the exception herein granted to the discovery well described above, if any well is drilled off of the spacing pattern herein provided as the result of such an exception granted by the Commission after notice and hearing, the allowable for the proration unit on which said well is located shall be reduced, the amount to be determined by the Commission in accordance with the evidence presented at the hearing.

SEC. 6. That all rules, regulations and orders heretofore issued by the Commission which may conflict herewith are superseded with respect to the Devonian formation

in the Knowles Pool herein referred to, otherwise said rules, regulations and orders shall be fully applicable hereto.

SEC. 7. This order shall become effective on _____, 1949.

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

DONE at Santa Fe, New Mexico, this _____ day of _____, 1949.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Case No.

204 File #2

Application, Transcript,
Small Exhibits, Etc.

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. 204
ORDER NO. R-40

IN THE MATTER OF THE APPLICATION OF
AMERADA PETROLEUM CORPORATION FOR THE
ESTABLISHMENT OF PRORATION UNITS AND
UNIFORM SPACING OF WELLS IN THE KNOWLES
POOL IN LEA COUNTY, NEW MEXICO

ORDER OF THE COMMISSION

BY THE COMMISSION:

This matter came on for hearing at Santa Fe, New Mexico, on December 20, 1950, pursuant to Order No. R-23, and

The Commission having considered the matters and evidence presented;
and, upon motion duly made:

FINDS:

1. That hearing was heretofore properly continued by order duly entered, setting down this place and date for hearing.
2. That it is in the interests of conservation that a drilling pattern of one well to an 80-acre tract be established.

IT IS THEREFORE ORDERED:

1. That the Order No. R-23 entered in Case No. 204, be and the same is hereby made permanent with the following amendments and deletions:

a. The provisions contained in Paragraph 2 of the order portion thereof are amended to read as follows:

"2. Each well now producing or hereafter completed as a producer in the common reservoir described above, shall have a top unit allowable to be fixed by the Commission, but not to exceed twice the top unit allowable for a 40-acre unit with deep well adaptation."

b. That Paragraphs 4, 5 and 6 of the Order portion are deleted from said Order R-23.

DONE the 20th day of December 1950 at Santa Fe, New Mexico.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

THOMAS J. HABRY, CHAIRMAN

Guy Shepard
GUY SHEPARD, MEMBER

R. R. Spurrer
R. R. SPURRER, SECRETARY

January 2, 1951

Mr. Oliver Seth
Seth and Montgomery
Santa Fe, New Mexico

Dear Mr. Seth:

We enclose herewith, copy of Order No. R-40, issued in connection
with Case 204, heard in Santa Fe, New Mexico, on December 20, 1950.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

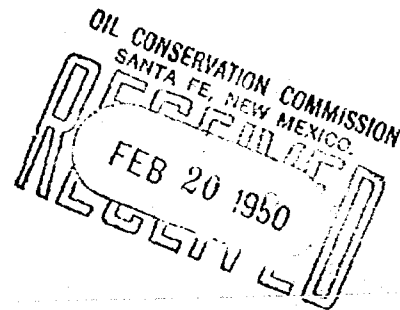
RRS:bw
encl.

PHONE
1014

U. M. ROSE
ATTORNEY AT LAW
111 NORTH DALMONT
HOBBS, NEW MEXICO

P. O. BOX
~~300X~~
1345

February 16, 1950



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

Re: Case No. 204 - New Mexico Oil
Conservation Commission -
Knowles Pool

Dear Sir:

I received copy of the transcript in the case
above captioned from the Oil Conservation Commission
and have mailed the Commission my check for the expense
of the same.

Thank you for your trouble and your assistance
to me in ordering this transcript.

Very truly yours,


U. M. ROSE

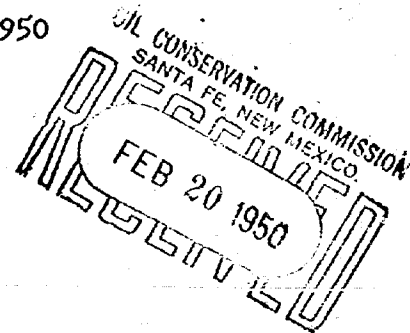
UMR/gb

PHONE
1014

U. M. ROSE
ATTORNEY AT LAW
111 NORTH GILMONT
HOBBS, NEW MEXICO

P. O. BOX
1345

February 16, 1950



New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Re: Case No. 204 - New Mexico Oil
Conservation Commission -
Knowles Pool

Gentlemen:

Enclosed herewith is your invoice of February 14,
in connection with Case No. 204, in the amount of \$5.40
together with my check for the same.

Thanking you for your service in providing me
with this transcript, I am

Sincerely yours,

A handwritten signature in cursive script, appearing to read "U. M. Rose".

U. M. ROSE

UMR/gb
Encls.

June 16, 1950

Oil Conservation Commission
P. O. Box 1545
Hobbs, New Mexico

Gentlemen:

We enclose herewith, the following signed copies of orders:

Case 204, Order R-23
Case 220, Order R-20
Case 222, Order R-19.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encls.

June 16, 1950

Mr. Oliver Seth
111 San Francisco Street
Santa Fe, New Mexico

Dear Mr. Seth:

We enclose herewith, signed copy of Order No. R-23, issued by the
Oil Conservation Commission, in connection with Case No. 204, heard
in Santa Fe, New Mexico, on March 21, 1950.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encl.

June 16, 1950

REGISTERED MAIL

Mr. Glenn Staley
Lea County Operators Committee
Draper Eye
Hobbs, New Mexico

Dear Mr. Staley:

We enclose herewith, the following signed copies of orders:

Case 204, Order R-23
Case 220, Order R-20
Case 222, Order R-19.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw
encls.

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 871
SANTA FE, NEW MEXICO
Box 1545
Hobbs, New Mexico
March 29, 1950

Oil Conservation Commission
Attention: Ray Andrews
Box 871
Santa Fe, New Mexico

Dear Ray:

Enclosed are "copies" of forms C-102 and C-103 covering acid treatment of Amerada Rose, # 1, in Knowles Pool. Also enclosed is original approved C-103 for your files. Please pull three approved copies C-102 covering this treatment from exhibits for Knowles Pool rehearing. Keep original for your files and return two carbon copies to Hobbs office. These "copies" are to be entered as exhibits in Knowles Pool rehearing file.

Yours very truly,

BY: Bob
R. S. BLYMN
Engineer

RSB/aeH

Returned 5-16-50

TRANSCRIPT OF MARCH 21 HEARING

FILED IN CASE 214

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO TO:

Amerada Petroleum Corporation
and all other interested parties:

Notice is hereby given that a hearing will be held before the
Oil Conservation Commission at Santa Fe, New Mexico, in the Office of
the Oil Conservation Commission on February 21, 1950, commencing at 10:00
a.m., in

Case No. 204

In the matter of the application of Amerada Petroleum Corporation
for the establishment of proration units and uniform spacing of wells in
the Knowles Pool in Lea County, New Mexico.

This being a rehearing granted on application of Amerada Petro-
leum Corporation.

Given under the seal of the Oil Conservation Commission at
Santa Fe, New Mexico, on February 2, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
R. R. SPURRIER, SECRETARY

SEAL

At be the latter

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 PRO-
DUCTION UNITS AND UNIFORM SPACING
OF WELLS IN THE KNOWLES POOL IN
LEA COUNTY, NEW MEXICO.

CASE NO. 204
ORDER NO. R-6

ORDER GRANTING REHEARING

The Commission having entered in Case No. 204 on January 11, 1950,
Order No. R-3, and the Amerada Petroleum Corporation having filed the
timely motion for rehearing,

IT IS, THEREFORE, ORDERED:

1. The application for rehearing filed by Amerada Petroleum
Corporation is hereby granted.

2. The rehearing shall be held at the State Capitol Building in
Santa Fe, New Mexico, on February 21, 1950, commencing at 10:00 a.m.

DONE at Santa Fe, New Mexico, this 2nd day of February 1950.

OIL CONSERVATION COMMISSION

THOMAS J. MABRY, CHAIRMAN
GUY SHEPARD, MEMBER
R. R. SPURRIER, SECRETARY

SEAL

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 PRO-
PORTION SIZES AND UNIFORM SPACING
OF WELLS IN THE SNOWLES POOL IN
LEA COUNTY, NEW MEXICO.

CASE NO. 204
ORDER NO. R-6

ORDER GRANTING REHEARING

The Commission having entered in Case No. 204 on January 11, 1950,
Order No. R-3, and the Amerada Petroleum Corporation having filed the
timely motion for rehearing,

IT IS, THEREFORE, ORDERED:

1. The application for rehearing filed by Amerada Petroleum
Corporation is hereby granted.
2. The rehearing shall be held at the State Capitol Building in
Santa Fe, New Mexico, on February 21, 1950, commencing at 10:00 a.m.

DONE at Santa Fe, New Mexico, this 2nd day of February 1950,

OIL CONSERVATION COMMISSION

THOMAS J. MABRY, CHAIRMAN
GUY SHEPARD, MEMBER
R. R. SPURRIER, SECRETARY

SEAL

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 PRO-
PORTION UNITS AND UNIFORM SPACING
OF WELLS IN THE KNOWLES POOL IN
LEA COUNTY, NEW MEXICO.

CASE NO. 204
ORDER NO. R-6

ORDER GRANTING REHEARING

The Commission having entered in Case No. 204 on January 11, 1950,
Order No. R-3, and the Amerada Petroleum Corporation having filed the
timely motion for rehearing,

IT IS, THEREFORE, ORDERED:

1. The application for rehearing filed by Amerada Petroleum
Corporation is hereby granted.

2. The rehearing shall be held at the State Capitol Building in
Santa Fe, New Mexico, on February 21, 1950, commencing at 10:00 a.m.

DONE at Santa Fe, New Mexico, this 2nd day of February 1950.

OIL CONSERVATION COMMISSION

THOMAS J. FABRY, CHAIRMAN
GUY SHEPARD, MEMBER
R. R. SPURRIER, SECRETARY

SEAL

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 PRO-
RATION UNITS AND UNIFORM SPACING
OF WELLS IN THE KNOWLES POOL IN
LEA COUNTY, NEW MEXICO.

CASE NO. 204
ORDER NO. R-6

ORDER GRANTING REHEARING

The Commission having entered in Case No. 204 on January 11, 1950, Order No. R-3, and the Amerada Petroleum Corporation having filed the timely motion for rehearing,

IT IS, THEREFORE, ORDERED:

1. The application for rehearing filed by Amerada Petroleum Corporation is hereby granted.
2. The rehearing shall be held at the State Capitol Building in Santa Fe, New Mexico, on February 21, 1950, commencing at 10:00 a.m.

DONE at Santa Fe, New Mexico, this 2nd day of February 1950.

OIL CONSERVATION COMMISSION

THOMAS J. MABRY, CHAIRMAN
GUY SHEPARD, MEMBER
R. R. SPURRIER, SECRETARY

SEAL

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 PRO-
DUCTION UNITS AND UNIFORM SPACING
OF WELLS IN THE KNOWLES POOL IN
LEA COUNTY, NEW MEXICO.

CASE NO. 204
ORDER NO. R-6

ORDER GRANTING REHEARING

The Commission having entered in Case No. 204 on January 11,
1950, Order No. R-3, and the Amerada Petroleum Corporation having filed
the timely motion for rehearing,

IT IS, THEREFORE, ORDERED:

1. The application for rehearing filed by Amerada Petroleum
Corporation is hereby granted.
2. The rehearing shall be held at the State Capitol Building
in Santa Fe, New Mexico, on February 21, 1950, commencing at 10:00 a.m.

DONE at Santa Fe, New Mexico, this 2nd day of February, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

THOMAS J. MABRY, CHAIRMAN

Guy Shepard
GUY SHEPARD, MEMBER

R. R. Spurrier
R. R. SPURRIER, SECRETARY

IT IS THEREFORE ORDERED:

1. The drilling pattern proposed by Amerada Petroleum Corporation for the area described above is temporarily approved, and the following drilling pattern is hereby temporarily established;

- a. Only two wells shall be drilled to each quarter section of approximately 160 acres, the locations to be in the center of the northwest and in the center of the southeast 40-acre tracts of each quarter section with a tolerance of 150 feet in any direction to avoid surface obstructions.
- b. The Amerada-Hamilton No. 1 well located in the NE $\frac{1}{4}$ SW $\frac{1}{4}$, Section 35, Township 16 South, Range 38 East, being a completed well is hereby allowed as an exception to the drilling pattern.

2. Each well now producing or hereafter completed as a producer in the common reservoir described above shall have a top unit allowable equivalent to that of a well drilled on a 40-acre proration unit to the same depth.

3. No wells shall be drilled in the area described above except in conformity to said drilling pattern, until the further order of the Commission.

4. As to all wells drilled in said area following the issuance of this order, the operators of such wells shall, at their expense, gather as complete geological and engineering data as practicable, including cores, bottom hole pressure tests and other like data.

5. During the period this temporary order remains in effect no royalty owners or lease owners shall acquire any vested property rights to a continuance of the spacing pattern and this order shall be without prejudice to the right of the Commission to later change the spacing pattern to that of one well to 40 acres.

6. This case is hereby continued until December 20, 1950, at 10 a.m. at which time a further hearing will be held at the State Capitol Building, Santa Fe, New Mexico, to determine, on the basis of the evidence then submitted, a permanent spacing pattern.

DONE this 14th day of June, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

THOMAS J. MABRY, CHAIRMAN

Guy Shepard
GUY SHEPARD, MEMBER

R. R. Spurrer
R. R. SPURRER, SECRETARY

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. 204
ORDER NO. R-23

IN THE MATTER OF THE APPLICATION OF
AMERADA PETROLEUM CORPORATION FOR THE
ESTABLISHMENT OF PRORATION UNITS AND
UNIFORM SPACING OF WELLS IN THE KNOWLES
POOL IN LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

This matter came on for hearing at Santa Fe, New Mexico, on March 21, 1950, pursuant to Order No. R-6, granting a rehearing, and pursuant to order of continuance entered in the minutes of the Commission on February 21, 1950. The applicant, Amerada Petroleum Corporation, was represented by its attorneys, Booth Kellough and Seth and Montgomery; Robert Childers, Alice L. Childers and other royalty owners were represented by U. M. Rose of Hobbs, New Mexico.

The Commission having considered the evidence introduced and the argument of counsel,

FINDS:

1. That due public notice having been given as required by law, the Commission has jurisdiction of the subject matter and of the interested parties.

2. The Amerada Petroleum Corporation drilled the discovery well in the Knowles Pool in Lea County, New Mexico, and has since completed two other wells, all of which produce from the Devonian formation at a depth of approximately 12,500 feet. The limits of the productive area surrounding said wells have not been determined, but will probably be greater than the area now officially designated as the Knowles Pool and will probably embrace all the following lands:

Sections 34, 35 and 36, Township 16
South, Range 38 East, and Sections
1, 2, and 3, Township 17 South, Range
38 East, Lea County, New Mexico.

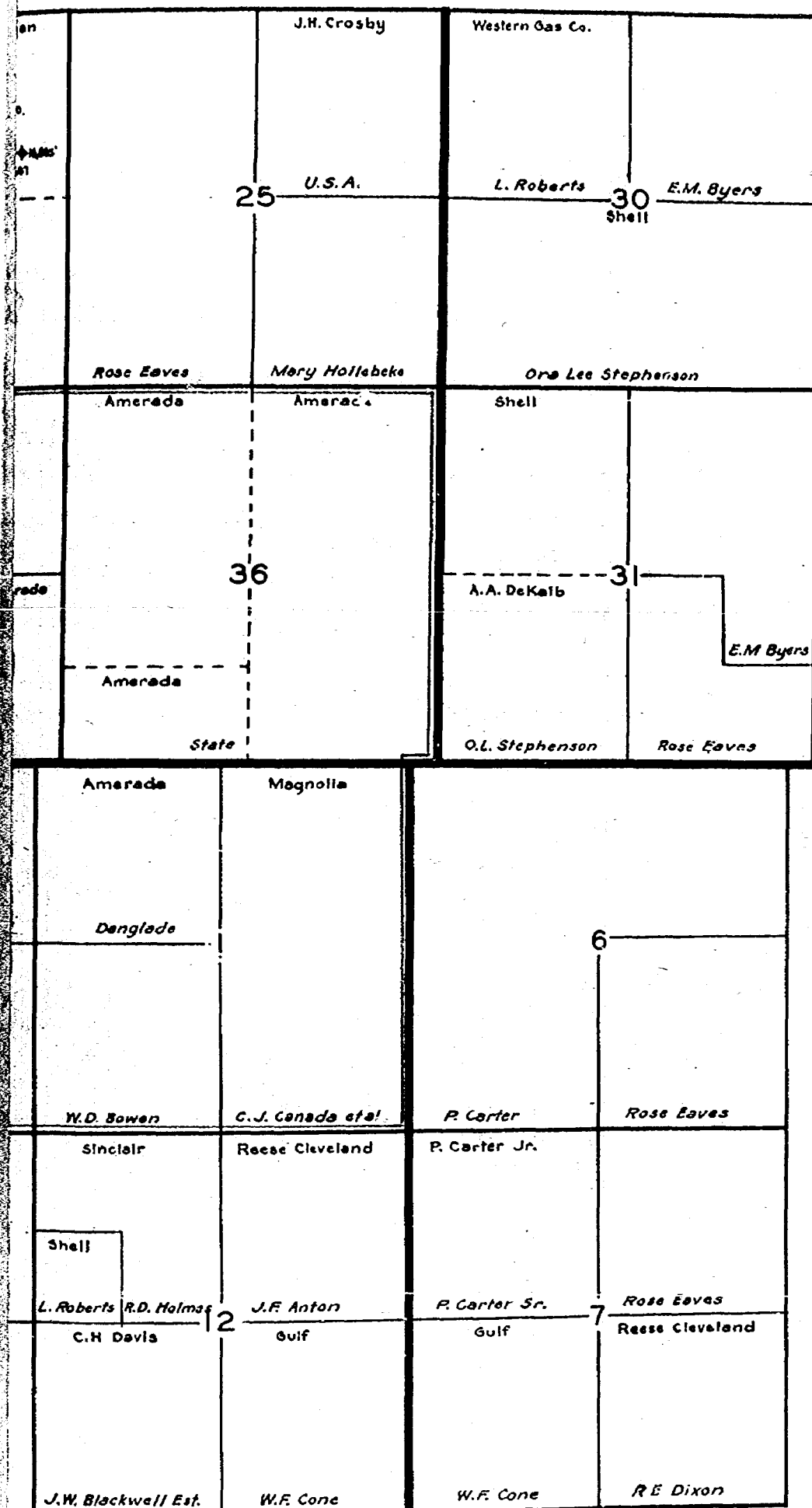
3. The cost of drilling additional wells in the above area to the Devonian formation is approximately \$260,000.00 per well.

4. Due to the relatively short history of the wells in the Knowles Pool and the lack of adequate geological and engineering data, it is impossible for the Commission to determine at this time if a spacing pattern of one well to an 80-acre tract will economically drain the oil within the common reservoir. It is in the interests of conservation that a drilling pattern of one well to an 80-acre tract be adhered to temporarily and until other wells are completed which will furnish more complete data on the characteristics of the common reservoir.

Sinclair	Sinclair	Texas 10	Shell	Texas	C.B. Wright
John Burson	28		27 A.A. McCarley	26	Texas C Eaves
	Barnsdell Branson				Shell
F.P. Branson	5160 1/2		Bennett Est.	R.S. Bennett Est.	Rose Eaves
	Sinclair	Amerada	Amerada	Amerada	
Shell	33 J.L. Williams Sinclair		34 Bennett Amerada	35 Stella Rose Amerada	
			Hamilton Amerada	Hamilton	
M. Crawford	F.P. Branson Est.	Williams	Axvig	Rose Eaves	
Sinclair		Amerada	Amerada	Amerada	Amerada 10
		Amerada			
4	Gulf	S.M. Graham L. Graham Amerada	3 L. Cooper Amerada	L. Cooper Amerada	2 Rose Eaves A Sinclair
F.P. Branson	J.J. Teague	Ellis	Garrett	Rose Eaves	Alves & Howell
Sinclair		J.L. Reed	Shell	Shell	Sinclair
9 G.O. Graham W.A. Watson		Knowles Twiste.	10 Blackwell Est.	Blackwell Est Sinclair	Alves & Howell C.H. Davis
Nora Shield		KNOWLES	J.D. Cartrill		
F.P. Branson	D.F. Shield	Don Morris	Rose Eaves	W.G. Warner	Alves & Howell
					J.W. Blackwell Est.

R 38 E

EXHIBIT "A"



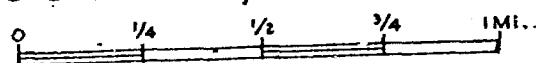
T
16
S

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17
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R 39 E

KNOWLES FIELD

LEA COUNTY, NEW MEXICO



SCALE 1" = 2000'

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 UNIFORM SPACING OF WELLS FOR THE
COMMON SOURCE OF SUPPLY DISCOVERED
IN THE W.W. HAMILTON NO. 1 WELL,
NE/4 SW/4 of SEC. 35, TOWNSHIP 16 SOUTH,
RANGE 38 EAST, LEA COUNTY, NEW MEXICO.

CASE NO. _____

A P P L I C A T I O N

COMES, NOW, Amerada Petroleum Corporation, of
Tulsa, Oklahoma, and alleges and states:

1. That applicant has drilled and completed on
May 4, 1949, a well known as "W.W. Hamilton No. 1", located
in the center of NE/4 SW/4 of Section 35, Township 16 South,
Range 38 East, Lea County, New Mexico, and discovered a new
common source of supply, found in said well below the depth
of 12,000 feet, as hereinafter alleged.
2. That said discovery well was drilled to a
depth of 12,656 feet and encountered the top of the Devonian
formation at 12,451 feet. It was then plugged back to 12,600
feet and 5½" casing set to 12,518 feet, and is producing
through the open hole. The well tested 935.31 barrels of oil
in 24 hours through a ½" choke, with a gravity of 46.9 and
gas-oil ratio of 180, and B.S. and W. of 0.4%.
3. That the probable productive limits of said
new common source of supply include the following described
area, to wit:

All of Sections 34, 35 and 36, Township
16 South, Range 38 East, and All of Sections 1,
2 and 3, Township 17 South, Range 38 East,
Lea County, New Mexico,

said common source of supply being commonly referred to as
the "Knowles Pool".
4. That in addition to the discovery well re-
ferred to above, the following wells have been drilled or
are now being drilled to said common source of supply within
the area described above, to wit:

(a) Amerada-Stella Rose #1 Well, located in the SE/4 NW/4 of Sec. 35-16S-38E, which well has now been completed.

(b) Amerada-Rose Hayes #1 Well, located in the SE/4 SW/4 of Sec. 35-16S-38E.

(c) Amerada-Rose Hayes "A" #1 Well, located in the NW/4 NE/4 of Sec. 2-17S-38E.

5. That in addition to the above described wells, the following well is also now being drilled in the vicinity, but outside of the six-section area described above for which this spacing order is requested, to wit:

Texas Company-Bennett Estate Well, located in the NE/4 NW/4 of Sec. 27-16S-38E.

6. That in order to bring about the orderly and proper development of said common source of supply, prevent waste and to avoid the drilling of unnecessary wells, and to secure the greatest ultimate recovery therefrom, and to protect the correlative rights of the interested parties therein, it is necessary and proper for the Commission to enter its order providing for proration units of 80 acres each, such being the area which may be efficiently and economically drained and developed by one well, and to provide for the uniform spacing of wells drilled into said common source of supply.

7. That all wells drilled into said common source of supply should be located in the center of the Northwest and Southeast forty-acre tracts of each quarter section, with a tolerance of 150 feet to avoid surface obstructions.

8. That the discovery well referred to above, known as the "W.W. Hamilton No. 1 Well", located in the NE/4 SW/4 of Sec. 35-16S-38E, is located off of the spacing pattern herein requested and should be granted an exception to the spacing order established by the Commission hereunder, and should be considered the well for the proration unit on which it is located.

9. That the order herein prayed for should cover all of the common source of supply discovered in the producing formation of the W.W. Hamilton No. 1 Well, and any well drilled to said common source of supply should be drilled on the spacing pattern herein requested.

10. A plat showing the area described above and the location of all wells drilled or drilling in said area and in the vicinity is attached hereto, marked "EXHIBIT A" and made a part hereof.

WHEREFORE, applicant respectfully requests that the Commission set this application for public hearing at a time and place to be fixed by the Commission, and due and proper notice be given as required by law, and that at the conclusion of said hearing the Commission make and enter an order determining and defining the probable productive limits of the common source of supply referred to above to include all of Sections 34, 35 and 36, Township 16 South, Range 38 East, and Sections 1, 2 and 3, Township 17 South, Range 38 East, naming said pool or common source of supply, establishing proration units of eighty (80) acres each, designating the location of all wells drilled to said common source of supply to be the center of the Northwest and Southeast forty-acre tracts of each quarter section, with a tolerance of 150 feet in any direction from said described location to avoid surface obstructions, and to provide for an exception in the case of the well known as "Amerada-W.W. Hamilton #1 Well", referred to above, and to further provide that said order shall apply to all of said common source of supply.

DATED this 4th day of November, 1949.

Harry D. Page
Harry D. Page

Booth Kellough
Booth Kellough

Attorneys for
Amerada Petroleum Corporation.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO TO:
Amerada Petroleum Corporation and all
other interested parties:
Notice is hereby given that a hearing
will be held before the Oil Conservation
Commission at Santa Fe, New Mexico, in
the Office of the Oil Conservation Com-
mission on February 21, 1950, commencing
at 10:00 a.m. in
Case No. 204.
In the matter of the application of
Amerada Petroleum Corporation for the
establishment of proration units and uni-
form spacing of wells in the Knowles Pool
in Lea County, New Mexico.
This being a rehearing granted on ap-
plication of Amerada Petroleum Corpora-
tion.
Given under the seal of the Oil Con-
servation Commission at Santa Fe, New
Mexico, on February 2, 1950.
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION
(SEAL) R. R. SPURRIER,
Secretary.
Pub. Feb. 5, 1950.

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, 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 adver-
tisements 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 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
5th day of February, 1950 and the last publica-
tion on the 5th day of February, 1950; 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.

PUBLISHER'S BILL

29 lines, one time at \$ 2.90
lines, times, \$
Tax \$
Total \$ 2.90

Received payment,

By

Will Harrison

Editor-Manager

Subscribed and sworn to before me this 2th

day of February, A.D., 1950

Anna K. Ormsbee

Notary Public

My Commission expires

June 14, 1953

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

PROCEEDINGS

The following matter came on for consideration before a joint hearing of the Oil Conservation Commission of the State of New Mexico, pursuant to legal notice, at Santa Fe, New Mexico, on November 22, 1949, at 10:00 A. M.

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives public notice pursuant to law of a public hearing to be held November 22, 1949, beginning at 10:00 o'clock A.M. of that day in the City of Santa Fe, New Mexico, in the Hall of Representatives.

STATE OF NEW MEXICO TO:

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

Case 200

In the matter of the Application of Worth Drilling Company, Inc. for an order approving an unorthodox location for A. C. Taylor well No. 7-A, 10 ft. from the south line and 1320 ft. east of the west line (SW/4) of Section 12 in Township 18 south, Range 31 east, N.M.P.M., in North Shugart pool, Eddy County, New Mexico.

Case 201

In the matter of the Application of Danciger Oil and Refining Company for an order granting permission to drill twelve unorthodox ("five spot") locations on its Turner "A" and Turner "B" leases in Sections 17, 18, 19 and 20, in Township 17 south, Range 31 east, N.M.P.M., in the Premier pool, Eddy County, New Mexico.

Case 202

In the matter of the Application of Rowan Oil Company for an order reducing the daily allowable of the Brunson pool, Lea County, New Mexico, to 90 barrels per day per well for a period of six months, within which period time through surveys and studies information may be had for the purpose of determining the maximum efficient rate of production of reservoir.

Case 203

In the matter of the Application of Santa Fe Pacific Railroad

Company and Oil Development Company of Texas, for an order allowing an exception from Commission Order No. 779, of July 27, 1948, providing an 80 acre spacing pattern for wells in the Crossroads pool, Lea County, New Mexico.

Case 204

In the matter of the Application of Amerada Petroleum Corporation for an order establishing proration units and uniform spacing of wells for the common source of supply discovered in the W. W. Hamilton #1 well, NE SW Section 36, Township 16 south, Range 38 east, N.M.P.M., Knowles pool, Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on November 7, 1949.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ R. R. Spurrier
R. R. SPURRIER, SECRETARY

SEAL

BEFORE:

Honorable Guy Shepard, Chairman
George Graham, Attorney
R. R. Spurrier, Secretary

REGISTER:

C. D. Borland
Hobbs, New Mexico
For Gulf Oil Corporation

J. H. Crocker
Tulsa, Oklahoma
For Mid Continent Petroleum Corporation

J. A. Seth
Santa Fe, New Mexico
For Amerada Petroleum Corporation

C. V. Millikan
Tulsa, Oklahoma
For Amerada Petroleum Corporation

J. A. Veeder
Midland, Texas
For Amerada Petroleum Corporation

R. S. Christie
Ft. Worth, Texas
For Amerada Petroleum Corporation

William C. Schauer
Roswell, New Mexico
For Worth Drilling Company

Roy O. Yarbrough
Hobbs, New Mexico
For the New Mexico Oil Conservation Commission

Jack M. Campbell
Roswell, New Mexico
For Texas Pacific Coal & Oil Company

Elvis A. Utz
Santa Fe, New Mexico
For the New Mexico Oil Conservation Commission

E. E. Kinney
Artesia, New Mexico
For the New Mexico Bureau of Mines

L. O. Storm
Hobbs, New Mexico
For Shell Oil Company

Glenn Staley
Hobbs, New Mexico
For Lea County Operators

Robert F. Herron
Amarillo, Texas
For Oil Development Company of Texas

E. A. Paschal
Amarillo, Texas
For Oil Development Company of Texas

E. C. Iden
Albuquerque, New Mexico
For Oil Development Co. of Texas
Santa Fe Pacific Railway Company

E. O. Hemerway
Albuquerque, New Mexico
For Santa Fe Pacific Railway Company

Harold Kersey
Artesia, New Mexico
For Danciger Oil & Refining Company

John E. Cochran, Jr.
Artesia, New Mexico
Danciger Oil & Refining Company

Ed McKellar, Jr.
Dallas, Texas
Magnolia Petroleum Company

E. P. Keeler
Dallas, Texas
Magnolia Petroleum Corporation

O. E. Van Meter
Midland, Texas
Magnolia Petroleum Company

Roy T. Durst
Ft. Worth, Texas
For Rowan Oil Company

Hamilton Rogers
Ft. Worth, Texas
For Rowan Oil Company

G. H. Gray
Midland, Texas
For Sinclair Oil & Gas Company

CHAIRMAN SHEPARD: Will the meeting please come to order.

(Mr. Graham read Notice of Publication.)

CHAIRMAN SHEPARD: The order of the cases has been changed slightly by the Commission--Case No. 202 will be heard first; Case 200 will be second; 201, third; 203, fourth; 204, fifth.

(Mr. Graham read Notice of Publication for Case 200.)

MR. ROGERS: I am Hamilton Rogers, representative of the Rowan Oil Company, applicant in this case. I have present one witness, Roy T. Durst.

(Witness sworn.)

MR. ROGERS: Mr. Chairman and Members of the Commission, I am here as representative of Rowan Oil Company. The application filed relates to the oil allowable in Brunson pool in Lea County. The applicant for itself as an independent party and in behalf of other operators similarly situated requests that the Commission enter an order reducing the allowable of the field on a temporary basis in order that information might be obtained with reference to reservoir energy in an effort to bring about corrective conditions for the pool. This application is made in the interest of conservation of natural resources of the State of New Mexico, and it is hoped that through this study, it will be detailed later, conditions can be brought about to insure the maximum recovery of oil from this pool. The subject matter of this hearing has been studied by the operators in the pool, their staffs, and by the engineering sub-committee of the Brunson Committee. Representatives of the operators met in the proration office in Hobbs in September to consider the report of the engineering sub-committee that had been made with reference to

the pool. The majority of the representatives present deemed it advisable that an allowable for the pool be reduced. This reduction in allowable was thought advisable because of the rapid decline in bottom hole pressures and the increasing irregular water encroachment. A second hearing was held in October, and at that hearing the majority of the operators present recommended that the application be filed before this Commission for the purpose of having the allowable for the pool reduced to 90 barrels of oil per day on a temporary basis for six months, and during that time study the pool. I have here the Supplemental Report of Brunson Pool Operators, dated June 30, 1949. I offer it as Exhibit A in this hearing.

CHAIRMAN SHEPARD: It will be received.

MR. ROGERS: And also a supplemental report with reference to Brunson Pool, Bottom Hole Pressures, Exhibit B.

CHAIRMAN SHEPARD: It will be received.

MR. ROGERS: Mr. Chairman, Mr. Durst is a graduate engineer. He has testified before regulatory bodies a number of times, will you accept his qualifications as a witness?

CHAIRMAN SHEPARD: Yes, they will be accepted.

MR. ROGERS: Mr. Durst, will you give in narrative form an analysis of the reports and data contained in the report of the Brunson Pool Operators.

MR. DURST: Generally, Exhibit A reflects that the original bottom hole pressure of Brunson Pool was 2945 pounds per square inch during September of 1945 after the first well had been completed. From that time to June 1, 1949, the number of wells drilled, total number of wells in June 1, 1949, was 74. Bottom hole pressures were taken in the intervening time from September until June, 1949, and these bottom hole pressure

figures reflect cumulative pressure drop was 924 pounds while a total of 5,640,253 barrels of oil were produced. A substantial amount of water has also been produced, although those figures are not readily available. The cumulative decrease in reflects 6,104 barrels of oil have been produced for each pound dropped in bottom hole pressure during the first six months of 1949, while 1,520,922 barrels of oil were being produced. Pressure drop for the period was 267 pounds, approximately 29 per cent of the total drop since the field was first discovered. For comparative purposes with other Ellenburger pools, we introduce the following data from the TXL Ellenburger, Exeter County, Texas. The TXL Ellenburger is substantially larger in area than is the Brunson. However, the well spacing is identical, geological point of the formation of the TXL is the same age. TXL Ellenburger had an original bottom hole pressure, facts taken under December 1945, at which time the pressure was 4,071 pounds. From that time until September 30, 1949, a total sum of 150 wells had been completed. At latter date the average bottom hole pressure for this reservoir was 3,640 pounds per square inch. From December 1945 until September 1949, a total of 25,086,891 barrels of oil had been produced, which reflects average production of 58,247 barrels of oil have been produced for each pound dropped in bottom hole pressure as compared to the previously quoted 6,104 barrels for the Brunson pool. The production drop can readily be seen. TXL Ellenburger's drop has been some nine and a half times as great as that of the Brunson field. As Mr. Rogers mentioned, decline in bottom hole pressure in the Brunson Pool has been discussed by all operators, and it is the consensus of opinion that daily allowable for Brunson pool should be reduced to 90 barrels for a six months' test period only in order to perform many tests at reduced rates.

These could be observed in an effort to determine rates of production for the ultimate recovery of maximum amount of oil from the Brunson pool. Specific procedure to be followed and tests under reduced withdrawal rates are as follows: (1) A general bottom hole pressure survey will be taken of all wells in the Brunson field in the manner prescribed by the Oil Conservation Commission and immediately prior to the effective date of reduced allowable. (2) A limited number of key wells to be designated by the sub-committee of Brunson Pool Operators Committee, will have gas-oil ratio tests taken immediately prior to the bottom hole pressure survey outlined above. In addition, gas-oil ratio tests and bottom hole pressure tests as prescribed by the Commission will be taken on the designated key wells only at 60-day intervals until a total of six months has elapsed. (3) During the six month period, the top per well allowable for the Brunson field will be fixed at 90 barrels of oil per day. Wells producing gas in excess of the limiting gas-oil ratio of 2000 cubic feet per barrel will be penalized downward from 90 barrels per day. (4) Immediately prior to the termination of the six month test period, a general bottom hole pressure survey will again be taken of all wells in the Brunson field in the manner prescribed by the Oil Conservation Commission. (5) At the end of test period the top per well allowable for the Brunson Field will revert to the normal as presently prescribed by the Oil Conservation Commission. The results of all bottom hole pressure and gas-oil ratio tests enumerated above will be made available to all operators in the field for review and study. Further recommendations to the Commission will be made subsequent to the accumulation of this data, if recommendations are in order.

MR. ROGERS: In Exhibit A, Mr. Durst, the pressure production data shown for June 1, 1949, reflects pressure for period of 267 pounds, did you have supplemental information, Exhibit B?

MR. DURST: Yes, Exhibit B reflects from June 1, 1949, until early in November 1949, the field is experiencing an additional pressure drop of 132 pounds insofar as 56 comparable wells were concerned. An additional survey included a total of 64 wells, and results of these bottom hole pressure tests indicate in 64 wells the pressure drop has been 68.4 pounds since June 1, 1949. Incidentally, these figures are incomplete, not all the wells have been run that appear in the figures for June 1, 1949.

MR. ROGERS: Attached to Exhibit A, Mr. Durst, is a Water Map, what does that indicate with reference to irregular water encroachment in the pool?

MR. DURST: The Water Map shows those wells as of July 1, 1949, in the Brunson pool that were producing water. It is rather difficult to make an interpretation from this map although it is clear that the encroachment of water is extremely irregular. This could be due to several different things, possibly the details of which would bear quite a bit of study.

MR. ROGERS: If the Commission should grant the order requested, Mr. Durst, do you think in your opinion, would you say that the data compiled from the reservoir under the outlined procedure would afford the operators in the pool an opportunity to offer corrective steps to prevent any underground waste if such were reflected from that study?

MR. DURST: Yes, the results of a six months test under reduced rates of production should tend to furnish additional information to the operators and to the Oil Conservation Commission whereby its best judgement can be utilized in obtaining the maximum

output of recoverable oil from the reservoir.

MR. ROGERS: Mr. Chairman, that is all I have. I would like to say, however, that this application is filed as a result of recommendations of the operators' committee. We appear as the applicant for ourselves as an independent party and in behalf of others similarly situated, and we think, in the public interest in the conservation of reservoirs. Perhaps this is in the nature of an experiment, I don't of personal knowledge know that there is a precedent. It is not in self interest alone, not self-served. I think the operators in this pool are anxious to set up a system of production which will insure the maximum recovery of oil from the pool. We, therefore, request that the Commission enter an order which will grant the applicant the relief requested.

CHAIRMAN SHEPARD: Does anybody have anything further?

MR. KEELER: E. P. Keeler, Magnolia Petroleum Company. Magnolia is in full agreement with the applicant's request for reduction in allowable in the Brunson Pool to 90 barrels per day, however, there is one item in the application that we do not fully agree with, and that is item No. 5 which reads as follows: "At the end of the test period, the top per well allowable for the Brunson field will revert to the normal as presently prescribed by the Oil Conservation Commission." We feel that that rather automatically reverts to present allowable, that a study should be made of the data accumulated as a result of the tests recommended in this application, and that allowable to be adopted after the expiration of the temporary period should be based on the results obtained from these surveys. Just how that could be accomplished I don't know. It could be that possibly the 90 barrels allowable continue for seven

months and have a hearing during the seventh month at which time results of all these tests be presented and recommendations made for the future, or if possible if the time would permit, the hearing could be held at the end of six months. I don't know if that would be sufficient time to enable a thorough study of the survey taken at the end and the records checked and the results of the reduction in allowable as reflected by bottom hole pressure and gas-oil ratio survey. This should be the basis for further ratios adopted rather than automatically reverting to present allowable. One other suggestion, in our opinion there is rather a serious situation down there. If the Commission sees fit to issue an order reducing the allowable to 90 barrels per day, we suggest it be made effective December 1.

CHAIRMAN SHEPARD: Anyone else? Mr. Staley, do you have anything to say?

MR. STALEY: No, sir.

MR. ROGERS: One other thing in response to what the representative from Magnolia has said. I have here a telegram from Mr. House. It is in line with the general recommendations. I offer it in the case since it was sent to Mr. Rowan and does reflect substantially the same thing this gentleman has said. It reads as follows: "In re production rate Brunson pool, Lea County, New Mexico. Humble recommends 75 barrel top allowable instead of 90 for the 6 month test period, and at the end of the 6 month test period, the test data be reviewed, and the top allowable be determined from these data rather than reverting back to the 122 barrel top allowable, Humble Oil and Refining Company by J. W. House." I would like to offer this telegram in evidence as Exhibit C.

CHAIRMAN SHEPARD: It will be received.

MR. ROGERS: Our position in application for reversion back to top allowable is occasioned by agreement of operators present at the hearings mentioned, and we appear here as applicant to carry out wishes of that committee.

MR. BORLAND: C. D. Borland, Gulf Oil Corporation. At meetings held in Hobbs, we were the only Company that opposed six months period. At the end we did go along if at the end of that period the allowable reverts back to what would be normal. We still feel that way about it. We are opposed to any change in allowable except after a second hearing.

CHAIRMAN SHEPARD: Anybody else?

MR. GRAY: G. H. Gray, Sinclair Oil & Gas Company. We are in general agreement with this procedure. We don't object to this method.

MR. CHRISTIE: R. S. Christie, Amerada. We also concur with applicants request. We would leave it up to the Commission to decide whether the allowable is to revert to 122 barrels at end of six months period. If it seems proper to change it after a hearing or reverts back, we go along in either case.

CHAIRMAN SHEPARD: Anybody else?

MR. STORM: L. O. Storm, Shell Oil Company. We are in agreement with the application. It was our wish that allowable revert back to normal top allowable at the end of six months.

CHAIRMAN SHEPARD: Anyone else?

MR. SPURRIER: Mr. Durst, this is a general question, if you have an answer all right if you don't, it doesn't matter.

This pool is thought to be an absolutely water drive pool?

MR. DURST: I am not too well prepared to answer that specific question. From information available to me personally, it is my opinion that it is a water drive in view of the water pro-

duction that is being experienced by a number of wells in the field.

MR. SPURRIER: Are the permeability and porosity greatly different from that of TXL?

MR. DURST: Again I do not have the exact figures to quote to you. As I understand, some of the major companies represented here do have detailed analyses on cores taken from the Brunson and from the TXL Elleburger, and possibly comparative information is available present here this morning. But from the production data from the bottom hole pressure information, it is apparent to me that there is a vast difference in relative permeability in the two sources in question.

MR. SPURRIER: It would be your guess that the permeability is considerably less than that of the TXL?

MR. DURST: Substantially less, yes, sir.

MR. SPURRIER: Do any engineers have the information which I asked and he did not have?

MR. KEELER: Magnolia Petroleum Corporation has core information on one well in the field in Brunson Field. We have no production in the TXL and are not familiar with that, but Mr. Van Meter with Magnolia has this information.

MR. VAN METER: This core analysis was taken from Magnolia's E. O. Carson No. 17 in Ellenburger formation, Brunson Field. In this core we obtained at 15 feet of limestone core which was analysed by special analysis presently made by a commercial laboratory. The average porosity was 7.2 per cent; a permeability of 10.8.

MR. SPURRIER: I would like to have the representative from Gulf to tell us what specifically Gulf objects to--the procedure of testing or cutting allowable?

MR. BORLAND: Gulf's objections are not in agreement with the test. We would go along provided at end of six months the allowable would revert back to what would be called normal.

MR. SPURRIER: Would you advise us as to what Gulf's procedure would be?

MR. BORLAND: After obtaining information and a second hearing is called, we may object at that time to any change in allowable.

MR. SPURRIER: Your mind is made up at this time even before the tests is made?

MR. BORLAND: Yes.

MR. SPURRIER: This may or may not relieve the situation. The question in this case is ascertaining the maximum efficiency rate. I don't know whether this has appeared in the record before this. Has any one any comments to make on maximum efficiency rate?

MR. ROGERS: Mr. Spurrier, one comment, we have enough trouble in Texas with this, and we don't want it to get over here in New Mexico. I think what the operators in this pool are interested in, not only sea interest, from the point of conservation of natural resources and recovering the greatest amount of oil. Now how that information and how procedures worked may be emashed with what is referred to as M.E.R. we don't know. But we are not anxious to see this Commission get into too much of that either.

MR. SPURRIER: That is all.

CHAIRMAN SHEPARD: The case will be taken under advisement. The next case is No. 200.

(Mr. Graham read the Notice of Publication in Case 200.)

MR. SCHAUER: If it please the Commission, I am appearing for

Horvey Dow & Hinkle representing the Worth Drilling Company, Inc., My name is William C. Schauer. We have no witnesses and are prepared to submit the case on basis of the record. The matter before the Commission is in regard to the application by the Worth Drilling Company of Fort Worth, Texas, seeking approval to drill an additional well on an unorthodox "five spot" location. Notice of intention to drill was filed with the United States Geological Survey, and they made no objection to an additional well provided we obtained the consent and approval of this Commission. I would like to refer to and offer as an exhibit a letter now on file with the Commission from Foster Morrel of the United States Geological Survey to the Worth Drilling Company, dated November 4, 1949, which reads as follows: "This office offers no objection to the drilling of "five-spot" wells at unorthodox locations. However, we request in all such cases that the locations be no closer than 85 feet from any 40-acre subdivision line. Our approval of such location will be contingent upon approval by the New Mexico Oil Conservation Commission and to secure such approval it will be necessary to file a petition for a hearing the matter before the Commission. ..." I should like to offer as Exhibit 2 the plat which was filed with the original notice of intention to drill with the Commission, which shows the location of additional well to be drilled. This plat shows four wells that are being worked by the Worth Drilling Company as follows: No. 1 in the southwest quarter of the southwest quarter of Section 18. No. 2 of the southeast of quarter of Section 7. No. 3 in northeast of the northwest of Section 13. No. 4 in the northeast of Southwest quarter of Section 18 in Township 13 south, Range 31 east. The tentative proposed location of additional well is approximately

in the center of the four wells just mentioned and more particularly described as being 25 feet north of the south boundary and 1295 feet east of the west boundary of Section 12, Township 18 south, Range 31 east. The designation of this well was to be Well No. 7A. The field is the North Shugart Field located in Eddy County, New Mexico.

MR. SPURRIER: Mr. Schauer, while you are at this point, you have changed the proposed location from the application, have you not?

MR. SCHAUER: Yes, that was amended at the request, I believe, of the U. S. Geological Survey and the Oil Conservation Commission both. It is requested that the Commission take notice of facts within its knowledge and its reports to the effect that in the four wells just mentioned the production has fallen below the allowable, and in that regard reference is made to the proration order for November issued by the proration office of the Oil Conservation Commission indicating that production of the four wells fell below allowable from approximately 79 barrels to 24 barrels. It is, of course, our desire to drill this well so that we could equal that allowable, and in the event the Commission grants this request the allowable for the entire 160, that is, south half of the northwest of 12 and north half of the northwest of 13, Township 18, Section 31 east will be allocated to entire five wells.

CHAIRMAN SHEPARD: Is that all government property, are there any overriding royalties?

MR. SCHAUER: I don't have that fact within my possession.

MR. COCHRAN: May I say something, it so happens that I have knowledge as to the title of that particular lease. The ownership is uniform for entire 160 acres.

CHAIRMAN SHEPARD: I wanted to know if there were the problem

of unitizing. Does anybody have any questions?

MR. STALEY: You mentioned in Intention to Drill the fact that this well location calls for ten feet from the south line and 1380 feet east of west line. The general practice is to avoid placing of any well on legal subdivision line.

MR. SPURRIER: Mr. Staley, Mr. Schauer has amended the application so that location does not fall on the subdivision line.

CHAIRMAN SHEPARD: Anybody else, if no further objections the order will be granted.

(Mr. Graham read the Notice of Publication in Case 201.)

MR. COCHRAN: My name is John E. Cochran, Jr. Our witness is Harold Kersey. We represent the Danciger Oil and Refining Company in its application for permission to drill twelve unorthodox "five spot" locations on what is known as Turner "A" and Turner "B" leases located in the Premier pool, Eddy County, New Mexico. Both of these leases are on Federal land, and in this connection, I have a letter from Mr. Foster Morrel of the U. S. Geological Survey which states that his office has no objection to the drilling of these wells or the proposed spacing pattern, and that further they believe that the drilling of these wells will afford opportunity to recover considerably more oil from the lease. I offer this letter in evidence as Exhibit No. 1.

CHAIRMAN SHEPARD: It will be received.

(Witness sworn.)

MR. COCHRAN: In the interest of time, I might state to the Commission that Mr. Kersey is a graduate petroleum engineer of the University of Oklahoma and is engaged in the practice of his profession as oil operator and drilling contractor. If the Commission would like Mr. Kersey to detail his qualifications--

CHAIRMAN SHEPARD: He may go ahead and testify.

DIRECT EXAMINATION BY MR. COCHRAN:

Q. Mr. Kersey, are you familiar with the Turner "A" and the Turner "B" leases?

A. I am.

Q. What has been the occasion for you to observe and to become familiar with these leases?

A. I have drilled all the wells on Turner "A" and Turner "B", except one, which totals 51 wells.

Q. How many wells are there on Turner "A"?

A. There are 28 wells on Turner "A", fourteen of those are producing from the Grayburg Lime, at approximately 3400 feet and eight from the Seven Rivers Sand at approximately 1870 feet.

Q. How many wells are there on Turner "B"?

A. There is one well from the Premier Sand at 3100 feet; ten from the Grayburg Lime at 3400 feet; and eighteen from the Seven Rivers Sand at approximately 2100 feet.

Q. Is a well being drilled at the present time?

A. At present time Turner No. 33B is being drilled.

Q. Are you drilling that well?

A. I am.

Q. Is it in the Grayburg horizon?

A. Yes, sir, in the Grayburg horizon.

Q. Mr. Kersey, what general spacing pattern is in effect?

A. The spacing pattern is one well to forty acres generally--spaced 330 feet from the north line of 40 and 660 feet from the east and west lines, and in one instance ten acre spacing was followed.

Q. In your opinion as a petroleum engineer, do you believe one well drilled on each 40-acre legal subdivision is sufficient

to obtain all recoverable oil from that 40 acres?

A. I do not believe that one well from 40 acres will recover all the oil. This is borne out by the fact that some of the other operators in the area have been drilling "five-spot" locations, and their recovery from those locations has been very good.

Q. And it is your opinion that by drilling the "five Spot" locations it would promote a greater recovery of oil?

A. I believe we could recover considerably more oil from "five spot" locations.

Q. Mr. Kersey, is it your opinion that the drilling of these proposed "five spots" at locations shown on application and on map attached to the application would be in the interest of conservation?

A. I do. I believe that a great deal more oil would be recovered than would be otherwise.

Q. Do you know what Danciger's plan is with reference to drilling the proposed wells?

A. Their plan is to drill one well at a time in orderly manner, and as the drilling progresses test and see what results are so that future drilling can be determined from that.

Q. It may be that after part of the drilling and the results are studied that Danciger may wish to modify the drilling plan?

A. That is right. If sufficient recovery were not obtained, they would probably stop and all twelve might not be drilled if sufficient production were not obtained.

Q. Now, if permission is granted to drill these well by the Commission, what does Danciger propose to do with reference to "five spots" as to allowable?

A. It is their plan to produce only the top allowable from the 40 acre subdivisions.

Q. In no event would the two wells on 40 acres produce in

excess of allowable fixed by the Commission?

A. In no event would an excess be produced.

MR. COCHRAN: Does the Commission desire to ask any questions? That is all.

CHAIRMAN SHEPARD: Does anyone have anything further, anything to say? If not, the order will be granted.

(Recess)

CHAIRMAN SHEPARD: The meeting will come to order. Mr. Iden is talking on a long distance call. We will change the order and hear Case No. 204.

(Mr. Graham read Notice of Publication in Case 204.)

MR. SETH: If it please the Commission, this is the application for 80-acre spacing and is based on three wells Amerada drilled in the pool. The area covered by the application and which is known as the "Knowles Pool" is considerably larger, probably twice as large as the "Knowles Field" as fixed by the nomenclature committee. Mr. Veeder will testify as geologist, and Mr. Christie as engineer.

(Witnesses were sworn)

DIRECT EXAMINATION BY MR. SETH:

Q. Mr. Veeder, will you state your name.

A. I am John A. Veeder, Midland, Texas.

Q. By whom are you employed?

A. Amerada Petroleum Corporation.

Q. In what capacity?

A. Assistant District Geologist.

Q. What is your training and experience?

A. I have a B. S. degree; one year's graduate work at Northwestern. I have worked for Amerada for twelve years. I worked for six years in Oklahoma.

Q. In this case in the so-called "Knowles Field" in Lea County, New Mexico, I believe the first well discovered was drilled by Amerada?

A. That is right.

Q. Will you state to the Commission a description of this well?

A. Amerada's No. 1 is known as "W. W. Hamilton No. 1", and is located NE/4 SW/4 of Section 35, Township 16 South, Range 38 East.

Q. Will you give the depth?

A. This well was carried to a total depth of 12,656 feet in the Devonian. The top of the Devonian was called 12,451. The top of the pay was 12,457. Five and a half inch casing was set at 12,518 feet. Water was encountered at a depth of 12,628 feet. The well was then plugged back to depth of 12,600 feet. The well was treated with 2,000 gallons of acid and open hole from 12,518 to 600 was completed for IP of 935 barrels of oil in 24 hours through one half inch choke.

Q. What was the gravity of the oil?

A. The gravity was 46.9.

Q. What about the gas-oil ratio?

A. The gas-oil ratio was 160 to 1.

Q. What was the bottom hole pressure?

A. I do not have that.

MR. SMITH: Do you have information on that, Mr. Christie?

MR. CHRISTIE: I have here a Schlumberger print with me with top of Devonian and pertinent production procedure on 1980' FS & B/L, Sec. 35 16S-38E.

CHIEFMAN SHEPARD: When was it completed?

MR. VERDEN: Amerada No. 1 Hamilton was completed May 4, 1949.

Q. Has it been producing since then?

A. It has.

Q. When was the next well drilled?

A. The next well would be the Amerada No. 1 Stella Rose in the SE/4 NW /4 of Section 35-16S-38E.

Q. When was that well completed?

A. That well was completed October 31, 1949.

Q. At what depth, give the same data with reference to this well as was given in connection with Hamilton well.

A. The Amerada Rose encountered top of Devonian at depth of 12,542. The top of pay was 12,557 feet; total depth 12,607.

Five and a half inch casing was set at 12,596. The casing was perforated from 12,560 to 596. The open hole and perforations were acidized with 3 thousand gallons of acid. Amerada completed this well for IP flow at the rate at 532 barrels of oil in 24 hours through one half tubing choke. Gas-oil ratio 132; gravity 47.1.

MR. BETH: I would like to offer Schlumberger Reports 1, 2 and 3 in evidence.

CHAIRMAN SHEPARD: Accepted.

Q. Will you give us the same information for the next well?

A. The third well is located, Amerada No. 1 Rose Eaves, SE/4 SW/4 of Section 35-16S-38E. This well is also Devonian producer; encountered top of Devonian at depth of 12,336 corrected by Schlumberger. The total depth of 12,575; the top of the pay was called at 12,357; 7 and 5/8 inch casing set at 12,574. Casing was perforated from 12,532 to 573. This well was acidized with 4,000 gallons and completed for IP flow of 773 barrels of oil in 24 hours flowing through 3/4 inch tubing choke. Gas-oil ratio was 148; gravity 47.9, corrected.

Q. Has Amerada started another well?

A. Amerada is now drilling a well in Section 2-178-38E. This well is located in the Northwest quarter of the North-east quarter of Section 2. It is now drilling around a depth of around 2200 feet.

Q. Is it deep enough to disclose anything?

A. It is not.

Q. Now, Mr. Veeder, have you A Schlumber log of Rose Haves No. 1.

A. Yes.

Q. Now, in the three wells Amerada is producing, was any ~~my~~ encountered between the surface and present production?

A. No commercial pay from the surface to the top of Devonian or present producing horizon.

Q. All exceeded 12,600 feet in depth?

A. That is right.

Q. Was there a show of oil in the first?

A. There was a show of oil in discovery No. 1, which we encountered in Paddock stone. They recovered 1280 feet of oil and 276 feet of sulphur water.

Q. Not a commercial showing?

A. We have not tested it by professional methods, but we do not believe it to be a commercial well.

Q. Was the same condition encountered in the other two wells?

A. Both wells to north and south were tested thoroughly-- that is, porosity in stone was not present.

Q. Are the three wells the only wells drilled within the six sections mentioned in Amerada's application?

A. That is right.

Q. Is there another well to the north?

A. There is a well approximately one and three-fourths miles northwest of Amerada's No. 1 Hamilton. That is the Texas No. 1

Bennett Estate Well in the Northeast Quarter of the Northwest Quarter of Section 27-16S-38E.

Q. In your opinion are the six sections described in Amerada's Sections 34, 35, 36, township 16 South, Sections 1, 2, 3, township 17, range 38 East probable productive limits of area of these wells?

A. To the best of my knowledge at this time, I would say that is so.

Q. This area is larger than Knowles Field as fixed by the nomenclature committee?

A. That is right.

Q. From your experience and general knowledge of wells, would you recommend including these six sections?

A. I would think so.

Q. Mr. Veeder, in your opinion based on your knowledge as a geologist and conditions that these wells disclose, would you recommend spacing be put on 80-acre spacing?

A. I would.

Q. You believe that this 80-acre spacing put in and pattern range be so alternated would result in the ultimate recovery of larger amounts of oil?

A. I believe all recoverable oil would be obtained by that method.

Q. What would you recommend as to pattern of spacing?

A. I would recommend that pattern as spotted on the map.

Q. Does the map show wells and recommendation of Amerada as to spacing?

A. It does.

Q. I notice that the spacing pattern calls for wells in the Northwest and Southwest of corners of each quarter section?

A. That is right.

Q. The only exception is the discovery Hamilton in the Northeast of the Southwest of Section 35. That forty would be the only exception in the whole set up?

A. That is right.

Q. Should that well in your opinion be considered as the pattern well for that particular 80-acre tract?

A. That is right.

Q. Mr. Veeder, along the north line of Section 1, 2, and 3, in your opinion based on your experience, training, and knowledge of this particular area, do you recommend that an order be entered fixing spacing of 80 acres.

A. I do, essentially because of type of porosity in Devonian formation we have vuglar and good vein porosity, and we would compare this field with the Jones Ranch Field approximately 12 miles to the north which we have production history on.

Q. In what way?

A. That is just northwest and is of same type of production. The production is from the Devonian dolomite of same texture and character. The porosity is very similar.

Q. Has that been developed on 80-acre spacing?

A. Yes.

Q. Is it working out satisfactorily?

A. It is.

Q. Your idea of spacing, your recommendation is that wells be placed in center of the forty in each instance?

A. That is right.

Q. And that some allowance or tolerance be allowed where topography requires slight deviations--150 feet?

A. Yes, sir, I believe that is right. I think the topography is fairly flat.

MR. BETH: That is all.

CHAIRMAN SHEPARD:

MR. CAMPBELL: Jack M. Campbell, representative of Texas Pacific Coal & Oil Company. Mr. Veeder, I gather at the time of the discovery well's completion, you did not feel you had sufficient engineering data on which to base a request for 80-acre spacing?

MR. VEEDER: I would believe that is right.

Q. Is it your understanding that the first three wells are 40-acre offsets north and south.

A. No, we do not consider them as 40-acre offsets.

Q. The first is Northeast quarter of Southwest quarter; and second, Southeast of Northwest; and third, Southeast of Southwest of 35?

A. That is right.

Q. The field wasn't contemplated as 80-acre spacing, wasn't started on that basis?

A. I would rather not answer, because I do not have that knowledge. I believe the engineer can answer that.

CHAIRMAN SHEPARD: Anyone else? Go ahead.

MR. BETH: Mr. Christie has testified before this Commission before. It is not necessary to state his qualifications.

Q. What position do you hold with Amerada?

A. Petroleum engineer.

Q. You have been familiar with the Knowles Field since its inception?

A. Yes, sir, I am.

Q. The testimony of Mr. Veeder with respect to these three wells being drilled and completed is substantially correct, and their depth of pay is substantially right?

A. Yes, sir.

Q. Now the question that Mr. what's his name asked. These three wells due north and south line, what is the purpose of that to ascertain height and whether some lower or higher, is that the idea?

A. To begin with when we found pay at Paddock in the discovery well, we offset to north with intention of testing upper formation and so determine whether the 40-acre basis on upper pay.

As soon as we found it not productive Paddock, we stopped that, and found discovery well Hamilton No. 1 to test Devonian.

Having found production in Devonian, we continued to drill north offset to Devonian. Reason for that particular spacing, we thought it advisable to verify as to location, struck units running east and west, so drilled third south well. Discovery well is the exception rather than the standard pattern. It is true that as more wells were completed in the reservoir, more now, we found better way of spacing. We found that we preferred 80-acre spacing.

Q. And what did the third--

A. The third well further confirmed that opinion.

Q. In your opinion, will the 80 acre spacing as set out in Amerada's Exhibit 4 and the location of wells as shown thereon result in the ultimate recovery of the recoverable oil in the pool.

A. Based on the engineering information that we have, I believe that is correct. We have production index on discovery well, Hamilton No. 1, and north offset to the Hamilton, which is the Rose No. 1. The productivity index of Hamilton No. 1 is as shown to be 1.03 barrels per pound drop flowing at the rate of 40 barrels per hour, which indicates good permeability productivity. Production Index on Rose No. 1 was .444 barrels

per pound drop flowing at the rate of 20.5 barrels for 24 hours test period. While it is not as good a well from productivity standpoint as Hamilton, it is still a good well in our opinion and has fair permeability. It is lower on structure--the lowest well drilled to date. Furthermore, we believe we have a water drive in discovery well. It tested approximately 12 barrels per hour of salt water with fair permeability. We think one well will drain at least 80 acres.

Q. Have you anything on the cost of the wells?

A. The discovery well cost \$361,000.00. The estimate on second well drilled was \$268,000.00. Of course, the discovery well always cost more, due to more testing, etc. \$300,000.00 estimate to \$335,000.00 or higher because running 7 and 5/8 inch casing through Devonian. \$268,000.00 is a fair estimate--approximately \$260,000.00 to \$270,000.00.

Q. Mr. Christie, along the line of north line of Sections 1, 2, 3, township 17 South, there are a series of lots following usual public land survey?

A. Yes, sir.

Q. They run to around thirty acres?

A. Yes, sir.

Q. What recommendation as to 80 acre spacing, I notice lots included in each of 80 acres, do you recommend that these lots, although less than 80 be made a unit?

A. Yes, we recommend that in consideration of government sub-divisions.

Q. Does Amerada seek more than 40-acre allowable?

A. No. We recommend 40-acre allowable for that division, which I believe is 264 barrels per day of oil.

Q. What other companies are there besides Amerada in this

six section area?

A. Exhibit 4 shows Magnolia owns the east half of Section one; Sinclair Oil Company, the southeast quarter of Section 2; and Danglade owns the Southwest quarter of Section 1, the south 80 of the Northwest Quarter of Section 1.

Q. No, Amerada has that.

A. That is right.

Q. Except that Amerada has all rest of leases?

A. Yes, sir.

Q. Have Magnolia and Sinclair been notified?

A. Yes, sir.

Q. Do you know what Mr. Dan Glade's attitude is?

A. I understand he is agreeable to 80 acre spacing.

Q. He has been notified?

A. Yes, sir.

Q. I notice on this Exhibit 4 there are four or five exceptions where the 80 acres run north and south instead of east and west.

A. I believe six.

Q. Was reason for that to cover ownership?

A. Yes, sir, taking care of ownership, so it wouldn't be necessary to unitize.

Q. You recommend those exceptions to straight east and west?

A. Yes.

Q. Does that make any difference in well spacing pattern?

A. No, now only difference is Hamilton No. 1.

CHAIRMAN SHEPARD: Does anybody have any further questions?

Anyone anything to say?

MR. KEELER: Magnolia has acreage within the area designated by the applicant and its probable productive limits of this source of supply, and we wish to concur with the recommendations made

by the applicant.

CHAIRMAN SHEPARD: Anyone else?

MR. SPURRIER: I don't know if the record is clear, but in answer to Mr. Campbell's question, those three wells are 40-acre offsets?

MR. CHRISTIE: Yes, sir, they are; but they fit into the spacing pattern.

MR. SPURRIER: Do you have anything on porosity on Dolomite?

MR. VEEDER: No, we drilled two and cored third, diamond cored Amerada No. 1 Rose, had about one hundred per cent recovery, and that did show very good porosity, but it was not analyzed by a commercial laboratory.

MR. SPURRIER: You don't know what per cent, you know it is, as you describe it, good.

MR. VEEDER: That is right.

CHAIRMAN SHEPARD: What about the royalty owners, will they be compensated?

MR. VEEDER: It is set up so that problem wouldn't arise except for, in the north quarter, that 40 acres is separate ownership. We think that can be handled by agreement. Otherwise all royalties are same under each unit; that is one reason for the arrangement.

CHAIRMAN SHEPARD: That will be all on this. We will take the case under advisement.

MR. BETH: I would like to ask that if it devolves as wells are drilled they are in same common source of supply, would you recommend that area be extended to area outside sections?

MR. VEEDER: Yes.

(Mr. Graham read Notice of Publication in Case 203.)

MR. IDEN: My name is E. C. Iden, address 715 First National Bank Building, Albuquerque, New Mexico. I appear here

representing the two applicants, the Santa Fe Pacific Railroad Company and Oil Development Company of Texas. The Santa Fe is the owner of mineral rights of the tract involved, and the Oil Development Company of Texas is lessee under an oil and gas lease. Everybody is familiar with what we are asking for. We are asking for an order allowing an exception from Commission's Order No. 779, of July 27, 1948, providing for 80-acre spacing pattern for wells in the Crossroads Pool, Lea County, New Mexico, and involves more specifically the Northwest Quarter of Section 27. The Oil Development Company of Texas has drilled a well in Southwest Quarter of Northwest Quarter of Section 27, shown on attached map, if any Commissioners care to refer to that, that resulted in a dry hole. The application is now before this Commission that that Company be permitted to drill a second well in Southeast Quarter of Northwest Quarter, in other words, east 40 acres of that 80 acre unit.

(Messrs. E. A. Paschal, R. F. Herron, E. O. Hemenway were sworn.)

MR. IDEN: We may not use all the witnesses here. They are present to present such information as anybody may wish to ask.

Q. What is your name?

A. E. A. Paschal.

Q. What company do you represent?

A. Oil Development Company of Texas.

Q. What is your connection with this company?

A. Manager of production.

Q. Before we proceed, you have certain Exhibits prepared-- a map as Exhibit A--is that correct?

A. Yes.

Q. The map speaks for itself. For the purpose of the record,

tell the Commission what the map shows and what was intended.

A. This map shows wells which have been drilled in the Cross-roads Field, giving emphasis to those that have been drilled to Devonian formations. It shows also the east west 80-acre production units established by the Commission for the Devonian in its order of July 27, 1948. There is also shown by the purple figures the subsea depth to top of the Mississippian formation on various wells.

Q. These purple figures look red.

A. They are supposed to be purple. They show the top of the Mississippian formation on various wells. The green figures near each well show the subsea top of the Devonian formation in that well. There is also shown on the map attached a green line which represents the approximate location of a fault. On the west of the line all wells were salt water and no oil, and the wells on the east side contain oil.

Q. Does this map show acreage where your company has leases?

A. No, sir. We have west quarter section of Section 27 and 160 acres in east quarter of Section 28. We also have other leases shown on confines on the map--west half of Section 28, and the east quarter of Section 31.

Q. Now the well which has already been drilled by your company, is that shown in the southwest quarter of the northwest quarter of Section 27?

A. Yes, it is marked 1-27 on this map.

Q. I was going to the other exhibit, but I wish to point out a matter which comes to my attention with reference to various depths of various wells on either side of the fault, would you care to enlarge on this?

A. Well, it will be seen from the map that the well we count west of northwest of Section 27 is producing 880 feet lower

structure on top of Devonian.

Q. About how long ago was that well completed to salt water?

A. In October.

Q. Do you know whether any other well have been completed in this pool since that time?

A. No, sir, there haven't been any.

Q. Did the fault that you have shown on this map--would you care to state to the Commission on what facts you base your opinion that there is a fault at that approximate location.

A. This fault is based upon relative subsurface depth at which the Mississippian and Devonian formations are found in the various wells, which we think represents a faulted condition rather than a dip. We have placed this fault line midway between Midcontinent UD Sawyer in northwest of Section 34 and Midcontinent Dessie Sawyer No. 1 at southwest of Section 27. We have the line extending north digressing west. We did a Schlumberger type of survey which we took in our well 11-27 at southwest of northwest of 27. This showed a dip on all formations below about 10,500 feet and above the Mississippian line to be an average of south 79, digressing west or strike of 11, digressing west of north, and this line has been projected in that manner.

Q. And in the southeast of northwest of 27 you have placed a mark, a cross, on this exhibit?

A. Yes.

Q. And the placing of the cross is not in accordance with the present spacing plan for this pool. You could not drill there without the Commission allowing the exception?

A. That is correct.

Q. Why do you prefer to drill there rather than in the northwest of the northwest quarter?

A. If a well is drilled at this location in the south half of

the northwest of Section 87, we think it will be east of the fault, and it will produce. Thereby, we will be permitted production for this 80 acres by which we will protect our property against wells which are offsets to that location.

Q. The well in the west 40 was drilled to what depth?

A. 18,657 feet.

Q. It was salt water, no gas?

A. Yes, sir.

Q. What was the cost in round figures?

A. We have done considerable testing, pipe in well, plugging, testing--in excess of \$500,000.00 as the well now stands.

Q. Do you have any other comment to make to the Commission with reference to this particular Exhibit?

A. I think not.

Q. We show plat marked Exhibit B for identification, will you tell the Commission what that shows and what is intended to convey in a general way?

A. This Exhibit B is a west east cross section through the Crossroads Field. It is intended to show formations encountered in the drilling of the three Devonian oil wells located east of the fault and the formations encountered in two of salt water dry holes located west of the fault line.

MR. IDEN: We offer Exhibits A and B in evidence as part of the testimony.

CHAIRMAN SHEPARD: They will be received. Do you have any further information which you wish to state to the Commission?

MR. IDEN: So far as I know that is all I have in mind. I think not. If the Commissioners have any questions, we have two other witnesses, Mr. Hemenway and Mr. Herron, to answer any questions.

MR. CROCKER: J. H. Crocker, Midcontinent Petroleum Corporation.

Does the Santa Fe own mineral rights in the south half of Section 28?

MR. PASCHAL: Yes, they do.

MR. CROCKER: Magnolia has a lease on the east quarter?

MR. PASCHAL: Yes.

MR. CROCKER: You have an oil development lease on the southwest quarter?

MR. PASCHAL: Yes, sir.

MR. CROCKER: With respect to orthodox locations I am referring to the northeast quarter of the northwest quarter of Section 27, do you have any opinion as a geologist as to the probable productivity of that 40-acre tract?

MR. PASCHAL: Well, I hope that it will be productive, but we have no way of knowing. If the fault continues as indicated and no dip, it should be productive. There could be cross faults of which we know nothing. There are no wells drilled to give us any information to answer that question.

MR. CROCKER: If we might assume, production is possible future picture on the assumption that Magnolia might drill a well in the southeast quarter of Section 28 and get a producer, it is altogether probable, I take it, that the Santa Fe might want to utilize the orthodox location of northeast quarter of northwest quarter of Section 27?

MR. PASCHAL: I think so.

MR. CROCKER: That would be possible?

MR. PASCHAL: If that were done and if the Commission were to--

MR. CROCKER: If the Commission were to grant your application for an exception to the present spacing rule, it would result in the Santa Fe having a well, two wells say, on the east half of the northwest quarter of Section 27, would that be correct?

MR. PASCHAL: Yes.

MR. CROCKER: In that event it is entirely possible this spacing pattern as approved by the Commission and promulgated by it would be more or less disorganized to a point where we would just about have no 80-acre spacing because one exception might reasonably call for another, might it not?

MR. PASCHAL: I don't think it would necessarily open up the whole thing to do with 80-acre spacing. I can see, assuming that this fault line extended on northerly, where you might space wells better for drainage of the pool to get away from the Commission's Order, which is designated wells at southwest and northeast quarter sections of each section, where it might be better to change the pattern based on more knowledge than we had when this particular Order was written.

MR. CROCKER: I believe that is all. I would like to make a statement when you have the evidence all in.

MR. BORLAND: G. D. Borland with Gulf Oil Company. We are interested in the acreage. It is OK for any 40-acre spacing in the Crossroads Pool unless under conditions of reduced or adjusted allowable.

CHAIRMAN SHEPARD: Anyone else? Do you care to make a statement, Mr. Crocker?

MR. CROCKER: I will wait until Mr. Iden is through with his evidence.

MR. IDEN: I may conclude what I have to say, which will be very short. The facts before the Commission seem to be fairly clear and not involved. We feel in view of expending money and drilling a dry hole and in view of conditions as they now exist, we think this Commission should give consideration in the matter of making an exception in this instance. We believe it would be

the proper thing to do for pretesting and the orderly development of this pool, and we will ask the Commission to grant permission.

MR. CHOOKER: If the Commission please, this Order wasn't a makeshift proposition by any means. Midcontinent Petroleum Corporation has the east half of 27 and the southwest quarter of 27. We have drilled the area that borders the Santa Fe tract on the east and on the south. We have drilled four wells in the pool. I believe seven or eight wells have been drilled, I am not sure. We likewise drilled a dry hole after we moved to an orthodox location south and west and got a dry hole. Our discovery well, in our opinion now, has a doubtful future as to whether it will ever pay out. We have \$1,160,000.00 on our operations in red figures. However, after the discovery well, being probably the deepest in the State at that time, there was a meeting in Tulsa by the operators. We were favored by having Mr. Spurrier, Mr. Staley, and Mr. Morrell, in addition to Santa Fe representatives and other operators. It was realized by that group the economics of the situation certainly required some kind of special action on the part of the Commission. I believe that 40-acre spacing had been pretty generally followed therefore. We invoked the Commission's jurisdiction on the matter of spacing. A hearing was set for July 15, 1943. On the day previous to the hearing, the operators met in Santa Fe and prepared their case. The next day Mr. Hemenway and Mr. Paschal were in the meeting as engineers and geologists of other companies. We all came before the Commission with, I believe I can truthfully say, with everything being satisfactory without any dissents whatsoever, everybody agreed. I think there were four wells drilling at that time, and all four we had been able

to get from the discovery well. I presume when it came to the Commission it looked like about the biggest thing that had ever happened. We got a 500 barrel allowable. We studied the reservoir and gave our information to our neighbors, and we found that we were right on the water line. That made us all feel doubly sure that perhaps in reservoir conditions the hazards were so great that this was an entirely proper situation for 80-acre proration units. Mr. Spurrier just asked me if I recalled the reasons why the lines were drawn through the quarter sections from east to west instead of north and south. I don't remember, and I don't know whether anybody does. Anyway I do remember that through collaboration at the time that plat was made which was submitted to the Commission. We certainly have no quarrel with the Santa Fe, we regard them very highly. Any place that we could extend a courtesy, we would be more than happy to do so. We do feel constrained in this particular case and at this particular time to insist that it is premature for the Commission to grant that application. I think the matter was very capably handled on the part of the Commission and the U. S. Geological Survey. The Bureau of Mines was represented, and the thought was pretty generally exchanged over the conference table, and it was our agreement and our thought because of the enormous cost of these wells we would soon go broke trying to develop on a basis of 40-acre spacing. I realize perhaps we could get into a situation here with the Santa Fe later coming in and drilling orthodox location in the northeast quarter of the northwest quarter of Section 87. I take it would require appearing before the Commission in order to give them full allowable. We think that exceptions should be granted only on most compelling reasons, and it occurs to us that this pool is not

defined to the north and to the east, and it is quite probable we might have the Santa Fe in there exercising its prerogative to use that orthodox location. Now, I don't know how the attorney for the Commission or the attorney for the Santa Fe feels, but the matter came before the Commission after full and complete discussion, a meeting had been held. Even though additional wells have been drilled, it occurs to us that property has been created, invested, large sums of money were spent; and if the Commission grants this exception, certainly it should be on reduced and adjusted allowable. In our opinion, we don't think this spacing pattern can legally be changed probably without unanimous consent by everybody who has rights created by the Commission's order. I may be wrong on that; I find that I am so many times. So without taking up more of the Commission's time, we would like for the record to show that we object to the exception being granted. In the alternative, if the Commission by virtue of its power to make rules, figures it has power to grant an exception, and I don't question that. If they feel the reasons are sufficiently compelling, we ask that it be safeguarded by a reduced and adjusted allowable.

MR. CAMPBELL: Texas Pacific Coal & Oil Company has no interest in this particular application. I would have the record show that the statement was made on their behalf that this application coupled with the suggestion of Mr. Crocker that the Commission might not be able to legally change the spacing pattern without the unanimous consent of the operators points up the fact that inflexible spacing orders in the early stages of development can create considerable difficulty in the orderly development of these common sources of supply.

CHAIRMAN SHEPARD: Anyone else care to make a statement?

MR. IDEN: I wasn't before the Commission at the time of the hearing after which the Order of July 27, 1948 was issued, but it seems very clear that the Commission had in mind that it would be open for consideration of exceptions and changes in that pattern. Section 8 of that Order read, "The Commission retains jurisdiction of this case for the purpose of issuing such further and additional orders as may be necessary to ~~not~~ changed conditions, preclude, amortize, and preserve correlative rights; or upon the motion of the Commission or upon the petition of any interested operator upon a public hearing, after notice as provided by law." As I understand, at the time the hearing was held, there was only one well, the discovery well, and that the Commission more or less arbitrarily in either direction from that well set up this spacing program. As I understand, there is no drilling in that so-called (crossroads) development is somewhat at a standstill. That might be to some extent on account of the cost of drilling those wells. But it seems self-evident after this testing, that that standstill is because there is something wrong with the spacing. We have no quarrel with the spacing procedure. If this Commission in contemplating this matter feels free to exercise its discretion and its equitable consideration in a matter of this kind and grant the Order, our Company is in a position to drill at a place where it is proper and practical to do so.

CHAIRMAN SHEPARD: Anyone else? If there is nothing further, the case will be taken under advisement. The meeting is adjourned.

- - -

C E R T I F I C A T E

I HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission of New Mexico, in Santa Fe, New Mexico, on November 22, 1948, at 10:00 A.M., is a true record of such proceedings to the best of my knowledge, skill, and ability.

DATED at Albuquerque, New Mexico, this 30th day of November, 1949.

Margaret Powell
Reporter

Oil Conservation Commission
of New Mexico
Santa Fe, New Mexico

Gentlemen:

This will have reference to Case No. 204, Order R-3, and to Order R-6 which granted Amerada Petroleum Corporation rehearing on their application for the establishment of 80-acre proration units in the Knowles Pool, Lea County.

We wish to respectfully point out, that even though we have no material interest in any leases which may produce from the Knowles Pool, we have keen interest in the outcome of the hearing. From rather wide experience obtained from a good many years of drilling for and producing crude oil, qualifies us, we believe, to make the following statements concerning the economics of drilling for and producing deep wells.

The Knowles Pool is producing from the Devonian formation at an approximate depth of 12,500 feet. Our records show that it costs approximately \$294,000 to \$300,000 to drill and equip a flowing well at comparable depths in the Permian Basin, and further that the overall lifting costs on such wells are very high over the producing life of the wells. An operator, at best, will do well to break even on such operation, and will in all probability lose money after deductions are made for royalties, for State and Federal taxes, and for lifting costs. This then would not provide sufficient capital to enable an operator to invest in further exploration, with the result that many deep reserves may never be explored, and there would certainly be no incentive for deep-well exploration. We believe that economics is certainly pertinent to waste in that the leaving of oil in the ground, due to the fact that the cost of drilling and producing the same is economically prohibitive, is certainly waste.

We wish to respectfully call attention to the Commission's past policy, recognizing economics in considering Field Rules. We refer specifically to your findings published under Order 779, issued July 27, 1948, and having reference to

Oil Conservation Commission
of New Mexico

-2-

Practical
80-acre proration units in the Cross Roads Pool. We believe that in a reservoir with pay continuity one well will do as efficient a job of draining 80 acres as will two wells, and that the only difference in ultimate recovery lies in the time element. Under proration one well will recover essentially the same volume of oil, but will require twice the time to accomplish this as two wells. The Commission, therefore, is faced only with the time element, and not with the degree of ultimate recovery. We do, however, appreciate the position of the royalty owner. His economic picture may dictate that he obtain twice his present income, *for a shorter period of time* and this, from his standpoint, is necessary. However, it is not reasonable to expect operators to take an overall ultimate loss to accommodate such royalty owners. *under these conditions.*

As such
We, therefore, respectfully request that you give serious consideration to all factors involved when you act on the Case No. 204, as we feel that the outcome of this hearing is of extreme importance.

Very truly yours,

would prefer to
STANOLIND OIL AND GAS COMPANY

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

PROCEEDINGS

The following matter came on for consideration before a joint hearing of the Oil Conservation Commission of the State of New Mexico, pursuant to legal notice, at Santa Fe, New Mexico, on December 20, 1950, at 11:35 A. M.

NOTICE FOR PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives public notice pursuant to law of a public hearing to be held December 20, 1950, at 10:00 A. M., of that day in the City of Santa Fe, New Mexico, at the State Capitol Building.

STATE OF NEW MEXICO TO:

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

CASE 204

In the matter of the hearing called by the Oil Conservation Commission of the State of New Mexico for the purpose of considering:

In the matter of the application of Amerada Petroleum Corporation for the establishment of proration units and uniform spacing of wells in the Knowles Pool in Lea County, New Mexico.

Given under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on June 14, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

/s/ R. R. Spurrier
R. R. Spurrier, Secretary

SEAL

BEFORE:

Honorable Guy Shepard, Chairman
George Graham, Attorney
R. R. Spurrier, Secretary

REGISTER:

R. S. Blynn
Hobbs, New Mexico
For the New Mexico Oil Conservation Commission

Cecil R. Buckles
Tulsa, Oklahoma
For Sinclair Oil & Gas Co.

C. V. Millikan
Tulsa, Oklahoma
For Amerada Petroleum Corporation

Booth Kellough
Tulsa, Oklahoma
For Amerada Petroleum Corporation

R. S. Christie
Fort Worth, Texas
For Amerada Petroleum Corporation

Oliver Seth
Santa Fe, New Mexico
For Amerada Petroleum Corporation

John A. Veeder
Midland, Texas
For Amerada Petroleum Corporation

CHAIRMAN SHEPHARD: Will the meeting please come to order.

(Mr. Graham read Notice of Publication.)

MR. KELLOUGH: I am Booth Kellough. I represent Amerada Petroleum Corporation. On behalf of the Amerada Petroleum Corporation, we ask the Commission for an extension or continuance of the present effective Order according to its present provisions, with one exception, which is that the paragraph providing for the allowable be changed so as to permit Amerada Petroleum Corporation to increase the allowable not to exceed double the allowable which would be applicable to a 40 acre unit with the deep pool adaptation. In that connection, I would like to ask Mr. C. V. Millikan, Chief Petroleum Engineer for Amerada Petroleum Corporation, to make a recommendation and give his opinion to the Commission in connection with the allowable increase.

(Mr. Millikan was then sworn.)

MR. MILLIKAN: If the Commission please, our reason for asking for that particular

provision be omitted from the permanent Order, which has been requested, is that we have had much better performance in this reservoir than we had expected, and we did expect good performance. The pool has produced, up to the first of this month, approximately 435,000 barrels of oil with decline in reservoir pressure of only 30 pounds. In view of this good performance, we believe that the current allocation to the pool can be substantially increased with no detriment whatever to the reservoir. I recommend that the allowable be increased to at least one and one half times the current allowable which is the allowable for a 40 acre spacing with deep well adaptation. In view of the 80 acre spacing, it would appear reasonable to ask for a double.....increase to double the current allowable. As a whole, I believe that this would cause no detriment to the reservoir. The only fear that we have is that the Hamilton No. 1 Well is currently making 11% water and we are somewhat concerned that too great an increase might be detrimental to this well. We are, however, quite agreeable to increasing the allowable up to double the current allowable and if there should be an indication on this particular well, or on other wells, of detrimental effect, we would so advise the Commission. In view of the conditions in the reservoir, it is suggested that the Commission consider one and 3/4ths times the current allowable to be effective January 1, 1951.

CHAIRMAN SHEPHARD: Any questions? Anybody have anything to say?

MR. KELLOUGH: So that there may be no misunderstanding as to Amerada Petroleum Corporation, we are asking the Commission for a permanent Order without time limitation, extending time on present Order with the exception of the allowable as recommended.

CHAIRMAN SHEPHARD: We will go ahead and grant this Order and just hold jurisdiction so that at any time we want to we can re-open it. At this time we will grant the Order.

MR. KELLOUGH: I assumed the Commission had that authority.

MR. SPURRIER: Right.

CHAIRMAN SHEPHARD: If there is nothing further, the meeting is adjourned.

C E R T I F I C A T E

I HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission of New Mexico, in Santa Fe, New Mexico, on December 20, 1950, at 11:35 A. M., is a true record of such proceedings to the best of my knowledge, skill, and ability.

DATED at Santa Fe, New Mexico, this 21st day of December, 1950.

Imogene Luckes
Reporter

Fred. W. Oil Con. Comm. Santa Fe.
 G. H. GRAY Sinclair Oil & Gas Co. Midland
 Genl R. Buckles, Atty. General Oil & Gas Co. Lubbock, Tex.
 Mrs. Ralph Fitting Jr. Midland
 J. P. Childers Hobbs
 Alice J. Childers Hobbs, N.M.
 R. V. Fitting Jr. Midland, Texas
 A. M. Rose Hobbs, N.M.

7:05 PM, Dr. Matry.

Case No.

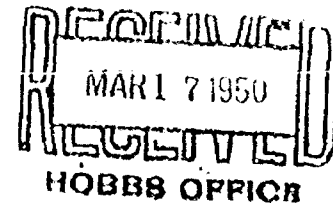
204 continued
exhibits

Application, Transcript,
Small Exhibits, Etc.

C O P Y

NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

MISCELLANEOUS NOTICES



Submit this notice in triplicate to the Oil Conservation Commission or its proper agent before the work specified is to begin. A copy will be returned to the sender on which will be given the approval, with any modifications considered advisable, or the rejection by the Commission or agent, of the plan submitted. The plan as approved should be followed, and work should not begin until approval is obtained. See additional instructions in the Rules and Regulations of the Commission.

Indicate nature of notice by checking below:

NOTICE OF INTENTION TO TEST CASING SHUT-OFF		NOTICE OF INTENTION TO SHOOT OR CHEMICALLY TREAT WELL	
NOTICE OF INTENTION TO CHANGE PLANS		NOTICE OF INTENTION TO PULL OR OTHERWISE ALTER CASING	
NOTICE OF INTENTION TO REPAIR WELL		NOTICE OF INTENTION TO PLUG WELL	
NOTICE OF INTENTION TO DEEPEN WELL			

Monument, New Mexico
Place

January 17, 1950
Date

OIL CONSERVATION COMMISSION,
Santa Fe, New Mexico

Gentlemen:

Following is a notice of intention to do certain work as described below at the

Amerada Petroleum Corporation S.B. Rose Well No. 1 in SE/4 NW/4
Company or Operator Lease
of Sec. 35 T. 16-S R. 38-E N. M. P. M. Knowles Field.
Lea County.

FULL DETAILS OF PROPOSED PLAN OF WORK

FOLLOW INSTRUCTIONS IN THE RULES AND REGULATIONS OF THE COMMISSION

This well was completed October 2, 1949 and produced 531.84 barrels fluid. 99.6 % oil. .4 % emulsion, in 24 hours after being acidized with 500 gallons of Dowell XP-18 acid through perforations from 12,560' to 12,596'. Since completion date production has decreased to 6392 barrels of oil for the month of December, 1949, or an average of 206 barrels in 24 hours. It is our intention to reacidize this well with 4000 gallons of Dowell acid through the perforations from 12,560' to 12,596' in an attempt to increase production.

Approved. MAR 17 1950 19
except at follows:

Amerada Petroleum Corporation
Company or Operator

By

Position Assistant District Superintendent
Send communications regarding well to

Name Amerada Petroleum Corporation

Address Drawer D, Monument, New Mexico

OIL CONSERVATION COMMISSION,

By

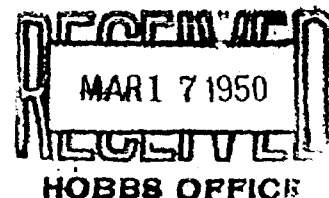
Title SOLA GAS INSPECTOR

COPY

OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

Miscellaneous Reports on Wells



Submit this report in triplicate to the Oil Conservation Commission or its proper agent within ten days after the work specified is completed. It should be signed and sworn to before a notary public for reports on beginning drilling operations, results of shooting well, results of test of casing shut off, result of plugging of well, and other important operations, even though the work was witnessed by an agent of the Commission. Reports on minor operations need not be signed and sworn to before a notary public. See additional instructions in the Rules and Regulations of the Commission.

Indicate nature of report by checking below.

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON REPAIRING WELL	
REPORT ON RESULT OF SHOOTING OR CHEMICAL TREATMENT OF WELL	####	REPORT ON PULLING OR OTHERWISE ALTERING CASING	
REPORT ON RESULT OF TEST OF CASING SHUT-OFF		REPORT ON DEEPENING WELL	
REPORT ON RESULT OF PLUGGING OF WELL			

January 22, 1950
DateMonument, New Mexico
Place

OIL CONSERVATION COMMISSION,
SANTA FE, NEW MEXICO.
Gentlemen:

Following is a report on the work done and the results obtained under the heading noted above at the
Amerada Petroleum Corporation S.B. Rose Well No. 1 in the

Company or Operator Lease
SE/4 NW/4 of Sec. 35, T. 16-S, R. 38-E, N. M. P. M.,
Knowles Field Lea County.

The dates of this work were as follows: January 18, 1950

Notice of intention to do the work was ~~RECEIVED~~ submitted on Form C-102 on January 17, 1950
and approval of the proposed plan was ~~RECEIVED~~ obtained. (Cross out incorrect words.)

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

Acidized with 4000 gallons of Dowell Acid (2000 gallons 20% L.T. and 2000 gallons of 15% L.T. acid) casing perforations from 12,560' to 12,596'. with Guiberson KV-30 Packer set at 12,419', tubing set at 12,599', tubing perforations from 12,596' to 12,599'. Stated acid in hole at 8:30 A.M. Spotted acid at 9:30 A.M. Job completed w/49 barrels of oil flush at 10:12 A.M. Minimum tubing pressure 1100#, maximum tubing pressure 1800# to 1200S, average injectin rate 1.6 barrels per minute. Immediately after treatment flowed well 20-hours through an open choke & recovered 255.31 barrels fluid, Average of 1.2 % BS & 15.6 % Water. On an 24 hour test ending 1-22-50 the well flowed 244.83 barrels oil, 7.05 bbls. water through a 25/64" choke. Gas volume 48,010 cu ft per day. GOR 196.

Witnessed by C. E. Nichols Amerada Petroleum Corporation Farm Boss
Name Company Title

Subscribed and sworn before me this.....

I hereby swear or affirm that the information given above is true and correct.

..... day of....., 19.....

Name.....

Position Assistant District Superintendent

Notary Public

Representing Amerada Petroleum Corporation
Company or Operator

My commission expires.....

Address Drawer D, Monument, New Mexico

Remarks:

APPROVED

MAR 17 1950

Date.....

Oil & Gas Inspector

Title

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 December 28, 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
case and notice to the public:

Case 247

In the matter of the application of Earl A. Benson and William V. Montin for the approval of the Gallegos Canyon Unit Agreement embracing 39,324.51 acres of land in Township 28 North, Ranges 11, 12 and 13 West and Township 29 North, Ranges 12 and 13 West, N.M.P.M., San Juan County, New Mexico.

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on December 4, 1950.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrer
R. R. SPURRER, SECRETARY

SEAL

New Mexico Royalty owners
Case 204
Exhibit 4

C E R T I F I C A T E.

THE STATE OF NEW MEXICO
COUNTY OF LEA.

THE LEA COUNTY ABSTRACT COMPANY, a corporation, incorporated under and by virtue of the laws of the State of New Mexico, does hereby certify that the hereinafter named persons appear as owners of the Mineral Interests set opposite their respective names;

John S. Eaves-	Sec. 1-17-38-5/32, int. in E/2-Recd. 66-334.
John S. Eaves-	Sec. 2-17-38-1/16, int. in SW/4 & NE/4, 111-32.
Roy G. Barton-	Sec. 2-17-38-12.5/304.31, int in NW/4, 110-293.
Luther Cooper-	Sec. 2-17-38- 1/4 int, in NW/4, 71-77.
J. Hiram Moore-	Sec. 2-17-38- 1/32 int in NW/4, 100-454.
F. E. Chartier-	Sec. 3-17-38- 40/151.16, int in NW/4, File #28.226.
J. Don Hudgens,	Sec. 3-17-38- 3/64ths int in NE/4, 109-501.
Roy G. Barton.-	Sec. 3-17-38- 12.5/304.31-int in NE/4, 110-293.
Luther Cooper-	Sec. 3-17-38-1/16 int in SE/4, 46-471.
" "	Sec. 3-17-38- 1/4 int in NW/4, 56-9.
" "	Sec. 3-17-38- 1/4 int in NE/4, 71-77.
J. Hiram Moore.	Sec. 3-17-38- 1/32 int in NE/4, 100-454.
W. R. Childers.	Sec. 34-16-38-3.75/240. int in NE/4 & NE/4 & SE/4 of NW/4
F. E. Chartier.	Sec. 34-16-38- 1/28, int in NE/4 & NE/4 & SW/4 of NW/4, 112-516.
F. E. Chartier.	Sec. 34-16-38- 5/128, NE/4 & E/2 of NW/4, 109-254.
F. E. Chartier.	Sec. 34-16-38- 1/16 int in N/2 of SE/4 & E/2 of SW/4, 115-76.
E. E. Kuykendall.	Sec. 34-16-38- 1/7 int. in NE/4 & E/2 of NW/4, 112-514.
J. Don Hudgens,	Sec. 34-16-38- 1/160, int. in N/2 of SE/4 & E/2 of SW/4-119-391.
Roy G. Barton,	Sec. 34-16-38- 5/240, int in NE/4 & E/2 of NW/4, 106-336.
Roy S. Davis,	Sec. 35-16-38- 1/64 int in N/2, 120-82.
Nannie May Blakey.	Sec. 35-16-38-1/64 int in N/2, 120-80.
W. R. Childers,	Sec. 35-16-38- 2.75/320. int in N/2- 119-33
F. E. Chartier.	Sec. 35-16-38- 1/28 int in N/2-112-516.
E. E. Kuykendall.	Sec. 35-16-38- 1/7, int in N/2, 112-514.
John S. Eaves.	Sec. 35-16-38- 1/16 int in NE/4 of SE/4 & SE/4 of SW/4, 111-32.
J. Don Hudgens,	Sec. 35-16-38- 6/320 int in N/2, 109-327.
Roy G. Barton,	Sec. 35-16-38- 5/320 int in N/2, 106-336.

We further Certify that we incur no liability for the issuance of this Certificate and/or the acceptance of same by any person, company or corporation and that we have only herein given the names and interests as the Records reflect. and We do not certify as to Taxes.

IN WITNESS WHEREOF, THE Lea County Abstract Company,
has caused this Certificate to be signed by its duly
authorized Officer and the Corporate Seal to be hereunto
affixed, at its Office in Lovington New Mexico.
this 17th day of March A.D. 1950, at 7:00 o'clock A.M.

LEA COUNTY ABSTRACT COMPANY.

By. L. B. McInty President.

New Mexico Royalty owners
Perse 204
Exhibit 3

P E T I T I O N

TO: The New Mexico Oil Conservation Commission
Santa Fe, New Mexico

WHEREAS Amerada Petroleum Corporation has heretofore filed with the State of New Mexico an application to fix the proration and spacing of wells, which application was the subject of a hearing in the Hall of Representatives of the State of New Mexico at 10:00 A. M., November 23, 1949, and which affected owners of minerals from a common source of the Hamilton No. 1 Well in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 35, Township 16 South, Range 38 East, in Lea County, New Mexico (Knowles Pool) and

WHEREAS the undersigned owners of mineral rights affected did not appear to resist said application for the reason that they had been under the belief that wells drilled in said area would be allotted a double allowable, which now appears to them not to be true, and

WHEREAS such Applicant seeks in said area an eighty-acre spacing for said wells instead of the conventional forty-acre spacing, to the detriment of the undersigned owners of mineral interests,

NOW THEREFORE the undersigned owners hereby petition the State of New Mexico that said application for eighty-acre spacing be denied and that the conventional forty-acre spacing upon said land be required.

IN WITNESS WHEREOF they have hereinbelow set their hands:

NAME

ADDRESS

W. R. Childers

104 N. Turner Hobbs

W. R. Childers

701 N. Turner

E. E. Cunningham

715 N. Turner Hobbs

J. E. Charter

Box 1388 Hobbs, N.M.

Gay E. Mack

Box 313 - Hobbs, N.M.

Arthur Cooper

Star Route B, Hobbs

Ted Roal

Hobbs

Mrs P S Bennett

Hobbs

NAME

ADDRESS

NAME	ADDRESS
Ray G. Barton	Hobbs N.M. 401 E. Broadway
Mrs. J. L. Williams	409 E. 5th St. Hobbs N.M.
Thompson	
Mrs. Nannie M. Blakey	Box 1176 Hobbs N.M.
John R. Brand	809 N. Thorpe Hobbs
Orval V. Weir	monument N.M.
Orval Cooper	Hobbs, N. Mex.
John H. Hargis	Hobbs, N. M.
J. Hiram Moore	409 N. Delaware Hobbs
Gernie Barton	413 W. Alston St. Hobbs N.M.
Rutha Canada	Box 1427 Hobbs
Greg. R. Hues	E. Star R. Lovington, N.M.
P. A. Collins	Box 1392 Marathon, Texas
Gladys M. Graham	Box 633 Lovington N.M.
Editha Q. Clardy	Lovington N. Mex.
Augusta Ester H. W. H. H.	Hobbs N. M.
Vergil L. L. L.	Box 128 Lovington, N. Mex.
Sphar N. Graham	Lovington N. Mex.
J. P. Reed	Lovington N. Mex.
R. C. Caves	Humble City N.M.
John Hatching	Oran, New Mex.
John S. Caves	Lovington, New Mexico.
Mrs. J. S. Caves	Lovington N. Mex.
Lee Stiles	Lovington N. M.
O. C. West	Lovington N.M.
J. E. Demmons	Lovington N. Mex.
Mildred A. Moore	Lovington N. Mex.
Paul C. Moore	Lovington N. Mex.
B. J. Carter	Lovington N. Mex.
Wm. Hamilton	Lovington N. Mex.
Katherine Hamilton	Lovington N. M.
W. L. Lawrence	Box Rt a Hobbs N.M.
E. V. Bulwer	Tyler Texas.

NAME

ADDRESS

Pass Walter
 Robert L Emerson
 Laska Cooper
 Eula Arnold
 Walter Toulman
 Sydney E Manning
~~L. M. G. Childers~~
 R. G. Childers
 L. M. G. Childers
 Alice Childers

Tyler Texas
 Hobbs, N. M.
 Murrellsboro
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