

JEFF D. ATWOOD
ROSS L. MALONE, JR.
JACK M. CAMPBELL

ATWOOD, MALONE & CAMPBELL

LAWYERS

J. P. WHITE BUILDING
ROSWELL, NEW MEXICO

January 9, 1950

Mr. Don G. McCormick
% Oil Conservation Commission
Santa Fe, New Mexico

Re: Case No. 191

Dear Don:

Enclosed herewith is a copy of the requested Findings of Fact and Conclusions of Law of protestant, Texas Pacific Coal and Oil Company, in connection with Case No. 191.

We have not undertaken to furnish any memorandum brief of the law on matters which might arise under a ruling of the Commission authorizing 80-acre spacing as suggested by attorney for applicant, as we could not see that such a brief would serve any useful purpose at this time. In the event the Commission requires such a brief on any particular point of law, we will be glad, of course, to comply with their request.

We would appreciate a decision on this matter as soon as the Commission can properly do so, in order that development in this field may proceed with a definite understanding between the operators.

With kindest personal regards, I am

Very truly yours,

ATWOOD, MALONE & CAMPBELL

Jack M. Campbell
By: Jack M. Campbell

JMC:bk

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ROSS L. MALONE, JR.
JACK M. CAMPBELL

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LAWYERS

J. P. WHITE BUILDING
ROSWELL, NEW MEXICO

January 9, 1950

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

Re: Case No. 191

Dear Mr. Spurrier:

In compliance with the request of the Commission made at the conclusion of the hearing upon Case No. 191, we are enclosing herewith requested Findings of Fact and Conclusions of Law of protestant, Texas Pacific Coal and Oil Company, for filing in connection with this case. A copy of the requested findings is being forwarded to other members of the Commission.

Very truly yours,

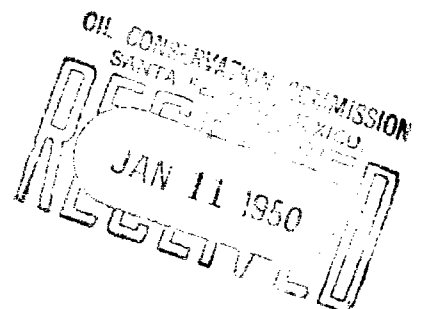
ATWOOD, MALONE & CAMPBELL

By: Jack M. Campbell

JMC:bk

cc: Mr. Guy Shepherd
Commissioner of Public Lands

Honorable Thomas J. Mabry
Governor of the State of New Mexico



2048 C

TEXAS PACIFIC COAL AND OIL COMPANY

GENERAL OFFICES
FORT WORTH 1
TEXAS

EUGENE T. ADAIR
GENERAL COUNSEL

March 13, 1950

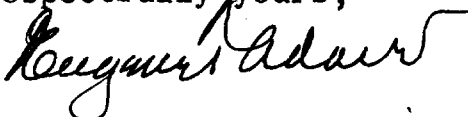
Hon. R. R. Spurrier
Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Spurrier:

In compliance with the Commission's request, we enclose herewith four complete copies of the Schlumberger log of our State "B" No. 1 Well, in the Bagley Field, Lea County, New Mexico.

We have ordered the copies of the core-graph which you requested, and they will be forwarded to you immediately upon their receipt by us.

Respectfully yours,



ETA:AW

cc:

Mr. Jack M. Campbell
Atwood, Malone & Campbell
Attorneys At Law
J. P. White Building
Roswell, New Mexico

Case
191

March 8, 1950

Mr. Jack Campbell
Atwood, Malone & Campbell
J. P. White Building
Roswell, New Mexico

Dear Jack:

We would like to order four copies of the Texas-Pacific Coal & Oil
Company's Schlumberger State B #1, Bagley Field, Sec. 2-12S-33E,
Lea County, New Mexico.

Thanking you, we are

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:hw

March 14, 1950

Mr. Jack Campbell
Atwood, Malone & Campbell
J. P. White Building
Roswell, New Mexico

Dear Mr. Campbell:

Further to our letter of March 3, we are also requesting additional copies of the Schlumberger Log on Texas-Pacific Coal & Oil Company's State B #1 well, Bagley Field, Sec. 2-12S-33E, Lea County, New Mexico.

Thanking you for your attention to this matter, we are

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw

cc: Texas-Pacific Coal & Oil Co.
Fort Worth, Texas.

JEFF D. ATWOOD
ROSS L. MALONE, JR.
JACK M. CAMPBELL

ATWOOD, MALONE & CAMPBELL
LAWYERS

J. P. WHITE BUILDING
ROSWELL, NEW MEXICO

March 10, 1950

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

Dear Dick:

I have your letter of March 8th requesting additional copies of the Schlumberger Log on the Texas Pacific well, and the Fort Worth office has advised me that these will be sent direct to you as soon as they can be prepared.

It occurs to me that March 20th, 21st, or 22nd will be an ideal time for a conference on procedure to be used in this case, in view of the fact that the State wide hearing and the hearing on the Knowles matter are set for March 21st. Gene Adair can be there at that time and I presume the Amerada attorneys will also be there for the Knowles hearing. George indicated that you might be in Oklahoma at that time, and I would appreciate hearing from you as to whether any of these dates would be satisfactory.

George Graham was going to send photostatic copies of Texas Pacific exhibits which I requested to Fort Worth, so that they could prepare some originals for you to certify for the Court record. I presume this has been done, although they had not been received in Fort Worth this morning.

Please be assured that we shall do everything possible to assist in sustaining the Commission's order, and in seeing that this first appealed case is properly handled from a procedural point of view, in order that it will serve as a precedent for cases which may be appealed in the future. I anticipate that with the increased activity in New Mexico, and with the new regulations concerning gas that in not the too distant future appeals to the Court will not seem so unusual to us.

With kindest personal regards, I am

Very truly yours,

Jack
Jack M. Campbell

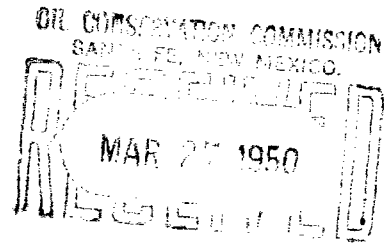
JMC/s

TEXAS PACIFIC COAL AND OIL COMPANY

GENERAL OFFICES
FORT WORTH 1
TEXAS

March 24, 1950

EUGENE T. ADAIR
GENERAL COUNSEL



Hon. R. R. Spurrier, Director
Oil Conservation Commission
Santa Fe, New Mexico

Dear Dick:

I am today mailing under separate cover a complete set of the plats and maps introduced by our Company at the Bagley hearing. It is my understanding that these plats and maps will be used in the preparation of certified copies which will be made a part of the transcript in this case on appeal.

I assume that the Commission already has had prepared photostatic copies of the oil and gas leases and other documentary evidence introduced and, therefore, we have made no effort to further reproduce those exhibits. However, as above stated, we are sending a complete set of all maps, cross-sections and other charts introduced, which have been reproduced in their original colors.

With kind personal regards.

Yours very truly,

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

ETA:AW

March 7, 1950

Texas Pacific Coal & Oil Company
Box 2110
Fort Worth, Texas

Gentlemen:

This office would like to obtain five or six copies of the coregraph prepared by the Rotary Engineering and Manufacturing Company, Inc. on the followings:

Company:	Texas Pacific Coal & Oil Co.
Well:	State B-1
Fields:	Bagley Siluro-Devonian
County:	Lea
State:	New Mexico
Depth:	From 10824 to 10914
Date:	11-20-49.

We would appreciate receiving the copies of this coregraph, at your earliest convenience.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

RRS:bw

April 27, 1950

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

RE: Exhibits in Case No. 191

Dear Mr. Campbell:

We have been arranging the exhibits in this case and find a few discrepancies we would like to discuss with you.

Texas-Pacific Coal & Oil Company

A. Photostatic copy of letter (1 copy) OK

B. Photostatic copies of three leases (1 copy each) These are marked "I"
"J" and "K"

There is also a map marked Exhibit "R" which probably represents the drainage area of the State Oil No. 1. This is the map on which Mr. Christie drew the circle

C. Lease ownership plat

D. Mineral fee ownership plat

E. Top of Glorieta - contour map

F. Contour map - Top Pennsylvanian

G. Contour map - Top Devonian

H. Schlumberger log - TP C/O, State B/1 (This was marked "E" and should be "H")

- I. How many of these should we have? Find only one marked "L" which takes in
- J. the intervals 10,824 - 837 and 10,874 - 914
- K.
- L. Core graph, mentioned above.
- M. Dense core - 10,874 - 830
- N. Prod. core
- O. Overlay contour map - Top Devonian
- P. Cross section from SW to NE
- Q. General Cross section

Annexes

- 1. Outlined area of Bagley, recommending required or designated spacing
- 2. Schlumberger of BTA
- 3. Schlumberger of ETC
- 4. Schlumberger of BTD

There are just a few differences, but we would like to straighten them out so the exhibits will be in good order. Thanks very much.

Very truly yours,

bpm

Secretary and Director

cc

COPY

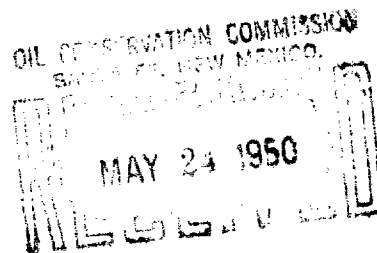
JEFF D. ATWOOD
ROSS L. MALONE, JR.
JACK M. CAMPBELL

**ATWOOD, MALONE & CAMPBELL
LAWYERS**

J. P. WHITE BUILDING
ROSWELL, NEW MEXICO

May 23, 1950

**Mr. George Graham,
Commissioner Public Lands
Santa Fe, New Mexico**



Dear George:

As you know, the pretrial conference on the Amerada appeal is set for May 29 at 9 o'clock A.M. in the District Court of Roswell. We presume you will be here and that you will have with you the complete transcript of proceedings before the commission.

Very truly yours,

ATWOOD, MALONE & CAMPBELL

By

JMC:hl

**cc: Mr. R. R. Spurrier,
Director of Oil Conservation Commission
Santa Fe, New Mexico**

January 23, 1950

Mr. John P. Hammond
Americada Petroleum Corporation
P. O. Box 2040
Tulsa, Oklahoma

Dear Mr. Hammond:

We enclose herewith, signed copy of Order No. R-2, issued in connection with Case No. 191, heard in Santa Fe, New Mexico, on September 8 and December 20, 1949.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary-Director

HRS:bw
encl.

Campbell - are

Transcript exhibits 12-20-49

1 outlined area of Bagley, in which we would
2 recommend required or designated spacing

2 Schlumberger BTA

? 3 Schl BTC

? 4 Schl BTD

A letter - farmout agreement

B photostatic copies of 3 leases
(leases marked H I J) to map marked
Ex "B". to accompany 3 leases? see p. 77
drainage area of BTD

C lease ownership plat

837
824
13

D mineral fee ownership plat

874

E Top of Glorieta - contour map

F Top Penn - contour map

G Top Dev. "

H Schl. TPCO, State B1

I what are they

J "

K "

L Core graph

824
M dense core - 830 20 perm 1.7% per. wts sat 30%

N prod. core - per 6.7% perm 12 mill

O overlay contour map - T Dev.

P Cross section fr SW to NE

Q General Cross section

ON CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

CLASS OF SERVICE
This is a full-rate Telegram or Cablegram unless indicated by a special symbol above or preceding the address.

DEC 16 1949

WESTERN UNION

1201

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

W. P. MARSHALL, PRESIDENT

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

LA12 KB300

K-BRA186 DL PD=BARTLESVILLE OKLA 16 413P=

=NEW MEXICO CONSERVATION COMMISSION=

ATTN OF GUY SHEPARD CHAIRMAN SANTA FE NMEX=

RE AMERADA APPLICATION SILURO DEVONIAN SPACING AND
PRORATION UNITS BAGLEY AREA LEA COUNTY NEW MEXICO SET
FOR HEARING DECEMBER 20 1949 DUE TO PRIOR COMMITMENT
PHILLIPS REPRESENTATIVE CANNOT BE PRESENT BUT PHILLIPS
PETROLEUM COMPANY DESIRES TO ENDORSE THE TESTIMONY AND
RECOMMENDATIONS OF THE AMERADA PETROLEUM CORPORATION
IN RESPECT TO EIGHTY ACRE SPACING AND PRORATION UNITS=

=C P DIMIT VICE PRESIDENT PHILLIPS PET CO=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING OUR SERVICE

DEC 16 PM 3 37

Case 191

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

1206

INTERNATIONAL SERVICE	
Check the class of service desired; otherwise this message will be sent at the full rate	
FULL RATE	DEFERRED
CODE	NIGHT LETTER

W. P. MARSHALL, PRESIDENT

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

SANTA FE, NEW MEXICO
MARCH 1, 1950

MR. JACK M. CAMPBELL
ATWOOD, MALONE AND CAMPBELL
J. P. WHITE BUILDING
ROSWELL, NEW MEXICO

PLEASE CONTACT HENRIE AND OTHERS FOR MEETING MY OFFICE TUESDAY
MARCH 7, 1000 ON CASE 191.

OIL CONSERVATION COMMISSION/SPURRIER

STRAIGHT WIRE

EXHIBITS
Case No. 191

Texas-Pacific Coal & Oil Company

✓ A.	Photostatic copy of letter	1 copy
✓ B.	Photostatic copies of three leases	1 copy each
✓ C.	Lease ownership Plat	1 copy
✓ D.	Mineral Fee Ownership Plat	1 copy
✓ E.	Contour Datum - Top Glorieta	1 copy
✓ F.	Contour - Top Pennsylvanian	1 copy
✓ G.	Contour - Top Devonian to base of black shale	1 copy
✓ H.	Schlumberger - St. B #1	1 copy
I.		
J.		
K.		
L.	Core graph	1 copy
M.	Core	1
N.	Core	1
O.	Overlay Contour Map - Top of Devonian	1 copy
P.	Well Cross Sections <i>SW - NW</i> <i>Grid 10</i>	1 copy
Q.	General Cross Sections <i>Grid Co. 165</i>	1 copy

Amersda Petroleum Corporation

1.	Red outlined map of Bagley area	3 copies
2.	Schlumberger - BTA #1	2 copies
3.	Schlumberger - BTG #1	1 copy
4.	Schlumberger - BTD #1	1 copy
	Property Map	6 copies

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF
AMERADA PETROLEUM CORPORATION FOR
THE ESTABLISHMENT OF PRORATION UNITS
AND THE UNIFORM SPACING OF WELLS IN
THE BAGLEY SILURO-DEVONIAN POOL IN
LEA COUNTY, NEW MEXICO

CASE NO. 191

ORDER NO. R-2

APPLICATION FOR REHEARING

Comes, now, Amerada Petroleum Corporation, Applicant herein, and alleges that on January 23, 1950, the Commission entered its order in the above styled case after due notice and hearing held on December 20, 1949, which said order denied the application heretofore filed herein by Amerada Petroleum Corporation for eighty-acre proration units and uniform spacing of wells in the Bagley Siluro-Devonian Pool, Lea County, New Mexico, and that such order is believed by Applicant to be erroneous in the following particulars, to wit:

1. That the Commission erred in finding the evidence insufficient to prove that the proposed plan of spacing would avoid the drilling of unnecessary wells, secure the greatest ultimate recovery from the pool, or protect correlative rights.

2. That the Commission erred in finding the evidence insufficient to prove that one well drilled on each eighty-acre tract would efficiently drain the recoverable oil from the pool.

3. That the order entered herein is contrary to and in disregard of the evidence introduced at the hearing which established by a preponderance thereof that eighty acres is the area that may be efficiently and economically drained and developed by one well, and that the establishment of eighty-acre proration units and uniform spacing of wells, as

requested by Applicant, will prevent waste, avoid the drilling of unnecessary wells and protect the correlative rights of all parties interested in said pool.

1. That the order entered herein is contrary to law.

WHEREFORE, Applicant respectfully requests that a rehearing be granted and after rehearing that the Commission enter its order establishing eighty-acre proration units and uniform spacing of wells in the Bagley Siluro-Devonian Pool, in Lea County, New Mexico, as requested by the application filed herein and evidence presented at the hearing in support thereof.

SETH & MONTGOMERY

By

[Signature]
[Signature]

Harry D. Page
Harry D. Page

Booth Kellough
Booth Kellough

Attorneys for Applicant,
Amerada Petroleum Corporation.

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) Case No. 191
for the common source of supply)
discovered in Amerada-State BTA)
No. 1 Well in NWSE1/4 Section 2,)
Twp. 12 S., Rge. 33 E., N.M.P.M.,)
in Lea County, New Mexico.)

REQUESTED FINDINGS OF FACT AND CONCLUSIONS OF LAW
OF PROTESTANT TEXAS PACIFIC COAL AND OIL COMPANY

Comes now protestant Texas Pacific Coal and Oil Company
by its attorneys and requests the Commission to adopt the fol-
lowing Findings of Fact and Conclusions of Law.

Findings of Fact

1. The lease owners in the Bagley Devonian pool here
involved have not all agreed upon a plan for the spacing of
wells.

2. None of the royalty owners, overriding royalty
owners, or owners of production payments have agreed upon the
plan proposed by applicant for spacing of wells in the pool
here involved.

3. The applicant failed to prove, by a preponderance
of the evidence, that the 80 acre fixed pattern spacing plan
proposed by applicant would have the effect of preventing
"waste", as such term is defined by Senate Bill No. 163, Acts
of the 19th Legislature, State of New Mexico, 1949.

4. The applicant failed to prove, by a preponderance
of the evidence, that the 80 acre fixed pattern spacing plan
proposed by applicant is fair to the royalty owners in such
pool.

5. The applicant failed to prove, by a preponderance
of the evidence, that wells drilled upon the 80 acre fixed
pattern spacing plan proposed by applicant would adequately
and efficiently drain the recoverable oil from the pool reser-
voir.

6. The lease owners in the pool here involved have not all agreed upon the plan or method of distribution of the allowables, as proposed by applicant hereunder, nor have such lease owners all agreed upon the amount of the allowable per well proposed by applicant herein.

7. None of the royalty owners, overriding royalty owners, or owners of production payments, in the pool here involved, have agreed upon applicant's proposed plan or method of distribution of allowables, nor have such royalty owners agreed upon the per well allowable proposed by applicant.

8. The applicant failed to prove, by a preponderance of the evidence, that its proposed plan or method of distribution of allowables, or its proposed per well allowable, is fair to the royalty owners in such pool.

9. The applicant failed to prove, by a preponderance of the evidence, that wells drilled upon a 40 acre spacing pattern, in conformity with the existing Statewide spacing order, would constitute the drilling of unnecessary wells.

10. The applicant failed to prove, by a preponderance of the evidence, that applicant's proposed 80 acre fixed pattern spacing plan would afford the opportunity, insofar as practicable to do so, to each owner in the pool to produce, without waste, his just and equitable share of the oil or gas in the pool.

11. Establishment of applicant's proposed 80 acre fixed pattern spacing plan would reduce, or tend to reduce, the total quantity of crude petroleum oil and natural gas ultimately recoverable from the pool here involved.

12. Establishment of applicant's proposed 80 acre fixed pattern spacing plan would not afford the opportunity, insofar as practicable to do so, to each owner in the pool to produce, without waste, his just and equitable share of the oil and/or gas in the pool here involved.

13. Establishment of applicant's proposed 80 acre fixed pattern spacing plan would not properly protect the correlative rights of the lease owners and royalty owners in the pool here involved.

14. Applicant failed to prove, by a preponderance of the evidence, any basis or justification for granting its requested exceptions to the Statewide rules governing spacing of wells and assignment of allowables thereto, in the pool here involved.

Conclusions of Law

1. Granting of the application would result in "waste", as such term is defined in Senate Bill No. 163, Acts of the 19th Legislature of New Mexico, 1949.

2. Granting of the application would not properly protect the correlative rights of the owners in the pool.

3. Applicant's proposed allocation of a 40 acre allowable to an 80 acre proration unit results in unreasonable and discriminatory allocation between oil fields in this State.

4. Granting of the application and the establishment of the 80 acre proration unit and the fixed pattern spacing plan in the pool here involved would violate the provisions of Section 13 (c) of Senate Bill No. 163, Acts of the 19th Legislature, New Mexico, 1949, which provides that the owner of any tract that is smaller than the drilling unit established for the field shall not be deprived of the right to drill on and produce from such tract, if same can be done without waste.

Respectfully submitted,

Eugene T. Adair
Jack M. Campbell

By Jack M. Campbell
Attorneys for Protestant
Texas Pacific Coal and Oil Company

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
BAGLEY SILURO-DEVONIAN POOL IN
LEA COUNTY, NEW MEXICO.

CASE NO. 191
ORDER NO. R-2

MEMORANDUM BRIEF IN SUPPORT
OF
APPLICATION FOR REHEARING

Amerada Petroleum Corporation filed its application for eighty-acre proration units and uniform spacing of wells in the Bagley Siluro-Devonian Pool, Lea County, New Mexico. The matter came on for hearing on December 20, 1949. Texas-Pacific Coal and Oil Company appeared in opposition to the application. At the close of the evidence the Commission requested that both sides furnish suggested findings of fact and conclusions of law and took the case under advisement. Pursuant to this request by the Commission, suggested findings of fact and conclusions of law and memorandum brief in support thereof was filed by Amerada Petroleum Corporation. Texas-Pacific Coal and Oil Company also filed its suggested findings of fact and conclusions of law. On January 23, 1950, the Commission entered its order denying the application. An application for rehearing has now been filed.

The merits of this case have been presented in the brief heretofore filed. However, there is a matter of great

significance to the oil industry in its operations in New Mexico applicable to this case and other similar cases which has not heretofore been presented and which is worthy of the most careful consideration.

The Bagley Siluro-Devonian Pool is a deep pool. It is located more than 10,000 feet below the surface. The nearby Knowles Pool is also a very deep pool, being located approximately 12,500 feet below the surface. The drilling of wells into these pools is a very expensive and hazardous undertaking. The discovery well in the Bagley Siluro-Devonian Pool cost approximately \$312,000.00 and the estimated cost of future wells was approximately \$225,000.00. The discovery well in the Knowles Pool cost approximately \$350,000.00, and the estimated cost of future wells in that pool was estimated to cost between \$260,000.00 and \$270,000.00. This is a tremendous sum of money for any operator, big or small, to risk in the drilling of one well. In addition to that the geophysical operations necessary to discover these pools require the expenditure of enormous sums of money.

There are undoubtedly many more deep pools below the depth of 10,000 feet in New Mexico, and if these pools are to be adequately explored and developed it is economically necessary to permit them to be developed on proration units larger than forty acres. The Commission has already considered the testimony as to the probable drainage area of one well in the Bagley Siluro-Devonian Pool and we do not think there is any serious controversy in that regard. The technical

witnesses who have studied that pool, and other pools, were of the opinion that one well would adequately drain at least eighty acres. Even if there be some doubt in the minds of the Commission as to the accuracy of these opinions, in view of the great depths of the wells and the tremendous cost and risk involved, it would seem only fair that the operators be permitted to develop the pools on the basis of eighty acres in accordance with their own beliefs and convictions as to drainage, and thereby obtain additional information from which other estimates with respect to drainage could be made if the original opinions appear to have been in error. It is economic waste to require the operators to spend an additional half-million dollars drilling two additional wells in each quarter section when it may ultimately be determined that this expenditure was unnecessary and that the oil could have been recovered without these extra wells. The only time the operator can be helped is in the early stage of the development of the pool. After the pool has been developed on forty acres it is too late. No one can be hurt by wide spacing during the exploratory period in the development of an oil pool. Additional wells can always be drilled but money wasted on unnecessary wells can not be recovered. The statement in the Order that it shall not be construed to require one well to forty acres, or as a determination that such spacing constitutes reasonable development under the implied covenants of the oil and gas leases, is a platitude that as a practical matter is of no value or assistance to the operator. As a matter of law, the order would not have that effect in any event.

It is our sincere belief that if the deep pools in New Mexico are to be adequately explored and developed that the Commission should permit such development on wider spacing than forty acres. We sincerely believe that to adhere to a rule of thumb requiring forty-acre proration units, regardless of the depth of the pools and the cost of the wells, is economically unsound, detrimental to the operators and contrary to the best interests of the State of New Mexico.

It is true that there may be some cases where the operator can recover the cost of his well by even drilling a well to every forty acres in certain parts of the pool. But in many cases it will be uneconomical to drill a well to such great depth on every forty acres in the pool. If an operator knows in establishing its budget for drilling expenses that it will be required to drill a well on every forty acres in the event oil is discovered at a cost of approximately \$250,000.00 per well, it may well look elsewhere to spend its money. On the other hand, if an operator knows that when oil is discovered at great depths it will be permitted to develop the properties on wider spacing than forty acres, it will be encouraged to spend its money in search for the deep pools in New Mexico. To any company, large or small, a dry hole at the cost of a quarter-of-a-million dollars is not and can not be lightly considered. Every operator knows that in the development of any oil pool there will be dry holes. If in addition to that the operator has to contemplate the drilling

of unnecessary wells at such tremendous costs it would be poor business judgment not to question the advisability of attempting to develop deep pools in New Mexico.

These remarks are not only applicable to the case at hand involving the Bagley Siluro-Devonian Pool, but are equally applicable to other pools discovered and yet to be discovered in New Mexico below the depth of 10,000 feet.

As far as concerns the question of uniform spacing, we have presented our views in the brief heretofore filed, and wish only to further add that we earnestly believe that the best and most equitable way to develop any oil pool so as to protect the rights of all parties is on a uniform spacing pattern providing for exceptions in exceptional cases, with proper adjustments of allowable to meet the particular situation then existing.

We respectfully submit that it will be inimical to the interests of the State of New Mexico and unfair to the applicant to deny its application for eighty-acre proration units and uniform spacing in wells in the Bagley Siluro-Devonian Pool as requested in this case.

Respectfully submitted,

SETH & MONTGOMERY

By

Oliver Seth

Oliver Seth

Harry D. Page

Harry D. Page

Booth Kellough

Booth Kellough

Attorneys for

Amarado Petroleum Company

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
AMERADA-STATE BTS #1 WELL,
LOCATED IN NW/4 SE/4 SECTION 2,
TOWNSHIP 12 SOUTH, RANGE 33 EAST,
LEA COUNTY, NEW MEXICO

CASE NO. 191

FINDINGS OF FACT AND CONCLUSIONS OF LAW REQUESTED
BY APPLICANT, AMERADA PETROLEUM CORPORATION

FINDINGS OF FACT

1. That on July 26, 1949, the Applicant, Amerada Petroleum Corporation, completed a well known as the "Amerada-State BTA No. 1 Well" located in the center of the NW/4 SE/4 of Section 2-12S-33E, Lea County, New Mexico. Said well was drilled to a total depth of 11,766 feet and encountered the top of the Devonian formation at 10,734 feet. The well was plugged back and finally perforated from 10,950 feet to 10,965 feet, and is producing through said perforations. Upon testing the well flowed 400 barrels of oil in 5½ hours through a ½" choke with a gravity of 44.4 and a gas/oil ratio of 28 to 1. The top of the pay section in the Devonian formation is 10,790 feet and the base of the pay section is approximately 10,980 feet.
2. That the probable productive limits of the Devonian formation discovered in said well and from which it is producing is as follows, to wit:

E/2 of Sec. 34 and
All of Sec. 35 and
W/2 of Sec. 36, all in 11S-33E, and

E/2 of Sec. 3 and
All of Sec. 2 and
W/2 of Sec. 1 and
E/2 of Sec. 11 and
NW/4 of Sec. 12, all in 12S-33E,
Lea County, New Mexico

3. That the pool or reservoir discovered by said well and from which it is producing is a new common source of supply in the State of New Mexico and has been named and designated by the Oil Conservation Commission as the "Bagley-Siluro-Devonian Pool".

4. That in addition to the discovery well described above, there were, at the time of the hearing herein, then completed or drilling the following wells within the probable productive area of said new common source of supply described above, to wit:

- (a) Amerada-State BTC No. 1 Well, located in the center of the SE/4 SW/4 of Sec. 35-11S-33E;
- (b) Amerada-State BTD No. 1 Well, located in the center of the SE/4 SW/4 Sec. 2-12S-33E;
- (c) Texas Pacific Coal & Oil Company No. 1 State B- Account No. 1, located in the center of the SE/4 NE/4 of Sec. 2-12S-33E;
- (d) Amerada-State BTD No. 2 Well, located in the center of the NW/4 SE/4 Sec. 35-11S-33E, which well at the time of the hearing herein was drilling at a depth of approximately 7,000 feet;
- (e) Amerada-Simmons No. 1 Well, located in the center of the NW/4 NW/4 Sec. 11-12S-33E, which well at the time of the hearing herein was drilling at the depth of approximately 3685 feet;
- (f) Texas Pacific Coal & Oil Company No. 1 State C- located in the NW/4 NE/4 Sec. 2-12S-33E, which at the time of the hearing herein was drilling at the approximate depth of 4,000 feet;

That in addition to the wells described above, Applicant, Amerada Petroleum Corporation, drilled its Amerada No. 1 Caudle located in the center of the SE/4 NE/4 of Sec. 10-12S-33E, which tested salt water in the same stratigraphic horizon that is producing oil in the discovery well described above, and which has been completed as an oil well in a shallower formation.

That in addition to the wells described above, the Mid-Continent Petroleum Corporation drilled its No. 1 State

Land 65 Well, located in the center of the SW/4 NW/4 of Sec. 1-12S-33E, which well was not drilled to a sufficient depth to reach the Devonian formation from which the discovery well is producing, but said well was at the time of the hearing herein completed as an oil well in a shallower formation.

5. That the order entered herein should cover all wells now or hereafter drilled to and producing from the common source of supply from which the discovery well, as above described, is now producing, whether within the probable productive area as delineated above or any extension thereof, as may be determined by further development, so as to insure a proper and uniform spacing, developing and producing plan for all wells in this common source of supply.

6. That the Bagley-Silure-Devonian Pool, as found in the discovery well at the depths hereinabove set forth, 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 effective drainage area of each well located in said pool, and that proration units of eighty acres, or one-half of a governmental quarter section, are necessary and proper for the drilling and development of said common source of supply, such being the area which may be efficiently and economically drained and developed by one well.

7. That to protect the correlative rights of all parties hereto, and to prevent the unnecessary pooling of separately owned tracts within a proration unit, the units should be formed by dividing each governmental quarter section

by a line from North to South through the center thereof so that the unit shall comprise the East Half and the West Half of each governmental quarter section, except the following units, to wit:

N/2 NW/4 Sec. 35-11S-33E
S/2 NW/4 Sec. 35-11S-33E
N/2 NE/4 Sec. 2-12S-33E
SW/4 NE/4 and NW/4 SE/4 Sec. 2-12S-33E
SE/4 NE/4 and NE/4 SE/4 Sec. 2-12S-33E
S/2 SE/4 Sec. 2-12S-33E
N/2 NE/4 Sec. 11-12S-33E
S/2 NE/4 Sec. 11-12S-33E

8. 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.

9. That in the event the well referred to above, known as the "Mid-Continent Petroleum Corporation No. 1 State Land 65" located in the center of SW/4 NW/4 Sec. 1-12S-33E, is deepened to the Siluro-Devonian formation from which the discovery well is now producing, that said well should be granted an exception to this spacing order and should be considered the well for the proration unit on which it is located for the reason that said well was commenced prior to the completion of the discovery well.

10. 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 forty acres, applying the deep pool adaptation provided for in the general rules and regulations

of the Oil Conservation Commission and any other special orders that may, from time to time, be applicable, it being understood that the Commission hereby reserves the jurisdiction and right at any future time to increase the allowable if, after notice and hearing, the evidence submitted justifies such increase.

11. That in the event good cause is shown for the granting of an exception to the well location pattern herein provided for, such exception should be granted by the Commission after notice and hearing, but in the event such exception is granted the allowable for said well shall be reduced in an amount to be determined by the Commission in its discretion in accordance with the evidence presented at the hearing in order to protect the correlative rights of all parties in said common source of supply.

12. 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 referred to above, 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.

CONCLUSIONS OF LAW

That based upon the findings of fact set out above, Applicant requests the Commission to enter the following proposed

ORDER:

1. That the Amerada-State BTA No. 1 Well located in the center of NW/4 SE/4 Sec. 2-12S-33E, Lea County, New Mexico, producing from the Siluro-Devonian formation at the approximate depths hereinabove set forth, discovered a new common source of supply not heretofore discovered and produced

in this state, and that the probable productive area of said new common source of supply is as follows:

E/2 of Sec. 34
All of Sec. 35
W/2 of Sec. 36, all in 11S-33E

E/2 of Sec. 3
All of Sec. 2
W/2 of Sec. 1
N/2 of Sec. 11
NW/4 of Sec. 12, all in 12S-33E
Lea County, New Mexico

That said new common source of supply is designated the "Bagley-Siluro-Devonian Pool".

That the order entered in this case is intended to cover all of the common source of supply from which the Amerada-State BTA No. 1 Well, described above, is producing, and any and all wells drilled to and produced from said common source of supply, whether within or without the probable productive area delineated above, or any extension thereof, as may be determined by further development, shall be drilled on the spacing pattern hereinafter set forth.

2. That proration units of eighty acres, or an area equivalent to one-half of a governmental quarter section are hereby established for the production of oil and gas from the "Bagley-Siluro-Devonian Pool", and in order to protect the correlative rights of the parties, said units shall comprise the East Half and the West Half of each governmental quarter section within said area, except the following units, to wit:

N/2 NW/4 of Sec. 35-11S-33E
S/2 NW/4 of Sec. 35-11S-33E
N/2 NE/4 of Sec. 2-12S-33E
SW/4 NE/4 and NW/4 SE/4 Sec. 2-12S-33E
SE/4 NE/4 and NE/4 SE/4 Sec. 2-12S-33E
S/2 SE/4 of Sec. 2-12S-33E
N/2 NE/4 of Sec. 11-12S-33E
S/2 NE/4 Sec. 11-12S-33E

3. That all wells drilled into said common source of supply known as the "Bagley-Siluro-Devonian Pool" 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 Mid-Continent Petroleum Corporation No. 1 State Land 65 Well, located in the center of the SW/4 NW/4 of Sec. 1-12S-33E, in the event said well is deepened and is productive in said common source of supply, in which event said well is hereby granted an exception to this order and shall be considered the well for the unit upon which it is located.

4. That the daily oil allowable of a normal unit of eighty acres, or an area equivalent to one-half of a governmental quarter section, assigned to each and every well hereafter drilled and produced in conformity with the spacing pattern hereinabove provided, shall be the proportional factor of 4.67 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 case, or general rules and regulations affecting the allowable of this pool as may be deemed necessary, provided that the Commission reserves jurisdiction to increase said allowable after notice and hearing if the evidence produced thereon justifies an increase.

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 Mid-Continent Petroleum Corporation No. 1 State Land #65 Well in the event it is deepened to the Bagley-Siluro-Devonian Pool), 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.

6. That all rules, regulations and orders heretofore issued by the Commission which may conflict herewith are superseded with respect to the Bagley-Siluro-Devonian Pool. Otherwise, said rules, regulations and orders shall be fully applicable hereto.

7. That the Commission retains jurisdiction of this case for the purpose of issuing such further and additional orders that may be necessary to carry out the terms and provisions hereof as set forth above, and to meet changed conditions, prevent inequities and to preserve the correlative rights upon the motion of the Commission or upon application of any interested party, after a public hearing and notices provided by law.

Respectfully submitted,

SETH & MONTGOMERY

By

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Amerada Petroleum Corporation

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 AMERADA-STATE BTA NO. 1
WELL, NW/4 SE/4 SEC. 2, TOWNSHIP 12
SOUTH, RANGE 33 EAST,
LEA COUNTY, NEW MEXICO

CASE NO. 191

MEMORANDUM BRIEF

This is the application of Amerada Petroleum Corporation for eighty-acre proration units and uniform spacing of wells in the Bagley Siluro-Devonian Pool in part of Townships 11 and 12 South, Range 33 East, Lea County, New Mexico.

There are two principal questions in this case.

(1) First is whether eighty-acre proration units and the well spacing pattern proposed by Amerada is justified from the standpoint of reservoir performance. (2) The second main question is whether the proposed order requested by Amerada will protect the correlative rights of all persons owning an interest in this pool, so that they may recover their just and fair share of the

oil and gas recoverable from the pool in accordance with their property ownership.

Amerada's technical witnesses presented testimony as to the type and quality of the subject reservoir and as to its predicted performance or production based on modern engineering concepts of reservoir performance and on the actual performance of other known reservoirs of similar characteristics. This testimony establishes that:

1. One well will adequately drain at least 80 acres, and

2. The correlative rights of all interested parties will be protected by the well spacing and production allocation order proposed by Amerada.

The Texas Pacific Coal and Oil Company, appearing in opposition to the proposed order, presented much evidence having nothing to do with the two essential points involved in this hearing, and practically no concrete or abstract evidence on these two essential points.

If the opposition made any clear point it was that they want a spacing and allocation formula which will permit them to gain the greatest amount of production for themselves without

regard to the ultimate recovery from the reservoir as a whole and without regard to the correlative rights of all interested parties.

Applicant is asking for the establishment of eighty-acre units, each of which (except certain exceptions referred to below to avoid pooling of separately owned tracts) shall comprise the East Half and the West Half of each governmental quarter section within the probable productive limits of the pool, as delineated on the map introduced as applicant's "Exhibit 1". The well spacing pattern proposed by applicant is that all wells be located in the center of the Northwest Quarter and the Southeast Quarters of each governmental quarter section. The map introduced as applicant's "Exhibit 1" shows the location of all drilled and drilling wells in this pool and shows the proposed location of all wells that may be drilled according to the spacing pattern by cross marks. The map also shows lease and royalty ownership but does not specifically set out each proration unit. Only the proration units which are exceptions to the general plan are shown on the map by dotted lines. For your convenience we are enclosing a copy of the map.

Pursuant to the request by the Commission, we are enclosing a draft of findings of fact and conclusions of law which we think should be entered in this case. We have

prepared the conclusions of law in the form of a proposed order, which we respectfully request the Commission to enter in this case.

ORDER PROPOSED BY AMERADA PETROLEUM CORPORATION

In substance, applicant's proposed order provides for the creation of eighty-acre proration units to be arranged as described above. All wells are then to be located according to the uniform spacing pattern as set out above, with a tolerance of 150 feet in any direction to avoid surface obstructions. The proposed order further provides that the Commission shall have the power and authority for good cause shown to permit an exception to the well spacing pattern herein proposed, after notice and hearing, but in the event such exception is granted that the allowable shall thereupon be reduced in an amount to be determined by the Commission in their discretion according to the evidence submitted at the hearing. The proposed order requested by applicant further provides that the allowable for each proration unit shall be computed as a forty-acre proration unit with the deep pool adaptation provided for in the general rules and regulations, with a provision that the Commission reserves the right at some future time, upon

proper application and after notice and hearing, to increase the allowable if the evidence so justifies.

A detailed analysis of the essential testimony presented at this hearing is given below, which we believe supports the above conclusions and justifies the proposed order.

(The letter "R" as used herein refers to the Record followed by the page number.)

1. ONE WELL WILL EFFECTIVELY DRAIN AT LEAST EIGHTY ACRES

The first question requires a brief look at the facts with reference to the character of this pool.

It is undisputed that the Bagley Siluro-Devonian Pool (which we shall for convenience call the "Bagley Pool") is producing from the Devonian formation at a depth of approximately 11,000 feet below the surface. (R. 10-11) In the BTA No. 1 Well, the top of the Devonian pay section was 10,790 (R. 11) and the base of the pay section is approximately 10,980 (R. 11). The well is producing through perforations from 10,950 to 10,965. (R.11) Other wells show that the formation dips rather steeply toward the southwest. (R. 12; 22-23) It will be noted that the wells drilled in this pool run in a line from southwest to northeast, except for Amerada-State BTC. This well is the highest well in the Bagley Pool. (R. 22) It is indicated by the completed wells that this pool has an axis running, roughly, north by

est to south by east, with a rather sharp dip off the the southwest. However, because of the location of the wells, they give a rather limited geological control and very little is known as to the exact dip of the formation outside of the limited area approximating a line between the various wells. (R. 67;77)

It was also undisputed that the energy of this pool is water drive. Mr. R. S. Christie and Mr. C. V. Millikan, both petroleum engineers for Amerada Petroleum Corporation, testified that this pool has an effective water drive. (R. 16; 51; 97-98) This was not denied by either of the witnesses for the Texas Pacific Coal and Oil Company (hereinafter called protestant) and was in fact substantially admitted by them and their entire hypothetical testimony and exhibit are based on an assumed water drive reservoir (R. 93).

It was further undisputed that the Bagley Pool is a reservoir of at least average, and probably better than average, porosity and permeability for Devonian formation pools.

Mr. Veeder, geologist for Amerada, testified that "This pool has good porosity and apparently permeability." (R. 13) And he further testified that it has continuous, although not uniform, porosity and permeability. (R. 25;31; 39; 44-45) Mr. Carter, geologist for protestant, testified that this pool has a porosity

which is average and in some places superior or better than most Devonian pools. (R. 71;82) His direct testimony was as follows:

"Mr. McCormick: How does that compare with other pools?

"The Witness: Well, I am --

"Mr. McCormick (interrupting): I mean, is it good or bad or medium, or what, so far as porosity is concerned?

"The Witness: I would say it is approximately average in the type of reservoir that we have here.

"Mr. McCormick: Approximately what?

"The Witness: Approximately average for the type of reservoir that we have here. It might be a little higher than average.

"Mr. McCormick: That is the porosity?

"The Witness: Yes.

"Mr. McCormick: And the permeability, is that higher, higher than the average?

"The Witness: Well, I am not in a position to give those - I just don't know."

Based upon this evidence that this Bagley Pool has an effective water drive, and has at least an average, if not better porosity, as compared with other Devonian pools, and has a continuous permeability, it was concluded by both Mr. Millikan and Mr. Christie that one well would efficiently and effectively drain an area of at least eighty acres. This conclusion was based upon the further information obtained by

comparison with analogous Devonian pools of Hightower, Knowles, Crossroads and Jones Ranch, and further supported by the comparable bottom-hole pressure information obtained from the wells drilled in this Bagley Pool as compared with the bottom-hole pressure information in the wells in the analogous Devonian pools in the area, which are being developed on eighty-acre spacing. (R. 19; 97-98) The fact that there has been very little decline in pressure in the analogous pools and in this pool confirms this conclusion. The real test of drainage is the performance of the wells. The production from the wells drilled in the analogous pools on eighty-acre spacing shows that they are effectively draining the reservoir.

Mr. Millikan summed up the point, as follows: (R. 97-98)

"Q (by Mr. Kellough): Mr. Millikan, in your opinion on this Bagley Reservoir, will one well adequately and efficiently drain an area of at least 80 acres?

"A I believe it will.

"Q Would you care to make any statement to the Commission in explanation of your conclusion?

"A I think we have several points that indicate that it is a good water drive reservoir. I don't believe there has been any controversy of the testimony that it is a rather - that it is permeable, I would say more-than-average permeable reservoir. As a general rule, we find that low gas-oil ratios are present where we do have a good water drive, that in itself not being conclusive, however, but as a general rule that condition does exist.

"We have a pressure there that is about equal to hydrostatic head and about normal for that depth of reservoir. We have found a good quantity of water to the side and below the oil reservoir itself. The indications, I believe, are fairly good that we have a large aquifer, although we don't have sufficient control to demonstrate it definitely. We have, also, some other pools established in that same stratigraphic position that is the top of the Devonian in this general area, and on two of these I think we have evidence of a good water drive. One of those is Crossroads. I am not familiar too much with the detail of that, but it is my understanding there has been no declining pressure in the approximate year and a half that those wells have been in. I believe two of them are producing some water and the dry holes that have been drilled around them have shown evidence of an ample quantity of water. That also has a low gas-oil ratio, but not as low as is present in these Bagley wells.

"This field on which we have more history is just across the state line in Texas, in which there are eight wells in the field, which has been developed on eighty-acre spacing, and that pressure under an allowed of 240 barrels a day on the 31 a day allowed, did have a little decline in pressure; earlier this year when the production was reduced we had an increase in pressure, during the first eight months of this year. I think, combining all of that gives very good evidence that it is quite reasonable to expect a good water drive in the Bagley."

Now let us look at what protestants have offered in opposition to the conclusion that one well in this pool will effectively drain an area of at least eighty acres.

There is only one direct statement that one well will not effectively drain an area of eighty acres. It is Mr. Schaeble's answer to the following rather ambiguous question:
(R. 95)

"Q Do you think - in your opinion, do you believe that one well to 80 acres as proposed here will effectively drain all recoverable oil under the 80-acre tract, or under 80 acres of oil if you want to put it on that basis, in attempting to get away from correlative rights and move - say you got Jim Doe's oil, some of his oil, and he got some of yours. In any event, one well, regardless of how it is located, will not, in your opinion, regain effectively all recoverable oil under 80 acres?"

"A No, it won't. It will not."

This conclusion is wholly unexplained and unsupported. Furthermore, it is actually contrary to the rest of his entire testimony which assumed an effective water drive reservoir wherein one well would drain an area of 80 acres. His Exhibit "Q", prepared to show the drainage of a mythical water drive pool, assumed a drainage area of 80 acres per well. If his statement quoted above is correct then the rest of his testimony and his exhibit are wholly irrelevant.

Also Mr. Carter, protestants' geologist, stated that this pool is of equal or better porosity than the average Devonian pool and the undisputed evidence is that it has an effective water drive. Thus it must be Mr. Schachle's opinion that an average Devonian pool with an effective water drive cannot be effectively developed by one well to 80 acres. This is contrary to the actual experience in cases of other similar Devonian pools in the area which are being developed on 80-acre

units under orders of this Commission.

It is therefore difficult to believe that Mr. Schachle was serious in his flat assertion that one well will not drain 80 acres in the Hagley pool.

The only other effort of protestants on this point was the testimony of Mr. Carter with reference to the core analyses in the defendant's one well. Mr. Carter testified that there were dense sections in the well. However, he did admit that there was good porosity and although varied in character, as stated above, that the pool was of average or better porosity than generally is found in Devonian pools. He did not testify that this so-called dense area would prevent one well from effectively draining eighty acres. On this point Mr. Millikan testified as follows: (R. 98-99)

"Q Mr. Millikan, do you have any comment which you wish to make to the Commission with reference to the testimony regarding the dense areas which appeared in the core analysis introduced by the Texas Pacific Coal Company?

"A Well, those dense areas are, I think, as they stated, not anything unusual in these Devonian reservoirs, or for that matter in lime reservoirs, or for that matter, in any reservoirs. We have areas or intervals or strata of varying permeability, and very often the strata are of greater or lesser thickness that might not even show any presence of oil, which I believe in our examination of samples have rather consistently shown oil and I think the permeabilities have been, perhaps, too low to get any appreciable amount of oil, I think probably some of the testimony might be a little misleading regarding continuous

or discontinuous, or uniform porosity and permeability. I think, it seems to me, in summing it up that there was not a clear distinction between vertical permeability and horizontal permeability.

"Now, it is quite true, as was testified, I believe, by Mr. Schachle, or Mr. Carter, or perhaps both, that where we run into these dense areas, we probably do not have vertical permeability through those. In other words, this water that exists apparently entirely under this structure - the water movement is not directly vertical. I don't believe the point was made clear, but I think that we do have lateral permeability through this reservoir. In the first place, that is a common thing to expect in reservoirs. We have that in all reservoirs, and I think the concrete evidence of that is the fact that we do have an accumulation of oil above water, with such evidence as we have being that it is a relatively flat or level water table. And if we didn't have a continuous permeability through here, then how did the oil all get up there just in this, as someone referred to this morning, equivalent of a bowl turned upside down. And if we are going to have a water drive, which I think all have indicated probably exists - and if you are going to have a water drive, you have got to have that continuity of permeability throughout the reservoir."

To summarize, we think the conclusion that one well will effectively drain at least 80 acres is supported by the following evidence:

- (1) That the Bagley pool has an effective water drive. This is not disputed.
- (2) That the reservoir is of average or better porosity than most Devonian pools and has continuous porosity and permeability. This is admitted by protestants' own witnesses.
- (3) That the experience in comparable pools in

the area supports the conclusion that one well will effectively drain an area of at least 80 acres. The actual experience at Crossroads and Jones Ranch supports this conclusion and it is also indicated by performance to date in the Hightower and Knowles pools.

The only evidence to the contrary is Mr. Schachle's flat statement quoted above, which is wholly unsupported by the facts and actually contrary to protestants' own testimony on the issue of correlative rights.

If one well on each eighty-acre proration unit will effectively drain the pool, then an additional well on each eighty-acre unit, under any kind of a forty-acre pattern, would be an unnecessary well.

Section 69-213 of the New Mexico Statutes (1941 Ann.) provides in part as follows:

"No owner of a property in a pool should be required by the Commission directly, or indirectly, to drill more wells than are reasonably necessary to secure his proportionate part of the production. To avoid the drilling of unnecessary wells a proration unit for each well may be fixed, such being the area which may be efficiently and economically 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 and gas to the operator and thus also unnecessarily increases the cost of the products to the ultimate consumer."

It was suggested by Mr. Anderson, representing the Malco Refining Company (which company has no interest whatsoever

in this pool), that applicants have failed to prove that one well drilled to a density of forty acres would not recover the drilling, equipping and operation costs, and he stated that it was his opinion that if the oil recoverable by one well to forty acres would be sufficient to pay for the well, such well should be drilled on that basis. (R. 62 and argument not reported) This statement overlooks two basic facts. It first overlooks the fact that under the evidence in this case there would be no additional oil recovered by the extra well and, therefore, the additional recovery would not pay for the extra well. It further overlooks the New Mexico law quoted above, which seeks to prevent the drilling of unnecessary wells. If one well can effectively recover the oil from an area of eighty acres, under the New Mexico law the operator is not required to drill an additional unnecessary well even though the aggregate oil recovery would be sufficient to pay the cost of drilling, equipping and operating both wells. It would still be an unnecessary well even though it was a paying well. Therefore, whether the additional well required by forty-acre spacing would result in a paying well is not a proper or material issue in this case. The material question is whether such well would be an unnecessary well.

2. SPACING PATTERN PROPOSED BY AMERADA PETROLEUM CORPORATION PROTECTS CORRELATIVE RIGHTS OF ALL PARTIES

We now come to the second main question in the case,

which is whether the proposed spacing pattern protects the correlative rights of the owners of this pool so as to assure each owner of recovering the oil from this common pool to which, by reason of his ownership, he is justly entitled. It is important to bear in mind at the very outset that the doctrine of correlative rights does not mean that every owner of an interest in an oil pool is entitled to an equal amount of oil. In any pool there are relatively good leases and poor leases located favorably and unfavorably on the structure. The owner of the good lease is entitled to a greater recovery than the owner of the poorly located lease. The doctrine of correlative rights simply insures that each owner will recover proportionately the amount of oil and gas which is justified by reason of his ownership, depending upon the location of his property structurally in the pool. This can best be accomplished by uniform spacing of wells throughout the pool. The protestants' position is that there should be no uniform spacing of wells so that each property owner may locate a well anywhere upon his lease, which he considers the best position for himself, in disregard of his neighbor.

Protestants first contend that the creation of eighty-acre proration units with the well spacing pattern as recommended, will result in certain units around the edge of the pool having included therein some nonproductive acreage. However, their own geologist, Mr. Carter, on cross-examination admitted that this fact would be

the same on forty-acre spacing, or any other spacing for that matter, since there will always be units around the edge of any oil pool which will contain some nonproductive acreage. (R. 87) Therefore, this is not an argument against the well spacing pattern proposed by applicant. In fact, the order requested by applicant contains a provision where an exception could be granted in such case if the limits of the pool were known, so that the well could be located on the productive part of the unit and the allowable reduced to eliminate the non-productive acreage. This, of course, would be necessary to protect the correlative rights of the parties, since the unit at least as to productive acreage would be smaller than the normal productive unit.

It is next contended that a well drilled according to the well spacing pattern proposed by applicants will drain oil from under an adjoining owner's lease, and certain exhibits were prepared to illustrate this point. However, under protestants' own theory of well spacing which they propose the result would be no better. The illustration used by protestants assumed area of drainage comprising 80 acres around the Amerada B.T.D. well. Under protestants' theory a well might be drilled in the corner of NE of NW of Section 2, 330 feet from each lease line. If, as they apparently contend, one well will drain 40 acres, then such well would drain from under

the adjoining owner's lease to the same extent as in protestants' illustration. Mr. Carter admitted that this objection would not be corrected by applying protestants' theory of well spacing. (R. 83)

Protestants also contend in respect to the question of correlative rights that the wells under its theory should be located as high upon the structure as possible since this is an effective water drive pool and the water drive will force the oil up structure. In this way they argue that the owner of a particular lease will be able to recover more of the oil which underlies his particular lease. Mr. Schaehle prepared fictitious and hypothetical "Exhibit Q" presumably to illustrate this point. However, as stated at the very outset, this overlooks the fact that the doctrine of correlative rights is not and cannot, as a practical matter, be based upon each owner recovering every drop of recoverable oil from under his own lease, since this is a physical impossibility. Therefore, if one were to permit the location of wells at the top of the structure on each lease, the result may be decidedly inequitable to the owners of the leases on top of the structure. The owners of the top leases may by the very nature of the reservoir have a more valuable property right than the owner of a lease at the bottom of the structure in a water drive pool. Therefore,

the owners of the best leases under the doctrine of correlative rights are entitled to a greater recovery of the oil from the reservoir. The result of protestants' contention in this respect is that the location of the wells in the manner which they recommend will tend to equalize recovery. The doctrine of correlative rights is not intended to equalize recovery. The correlative rights of the parties are not protected by giving the owner of a poor lease a greater share of oil than he is entitled to recover at the expense of the owner of the better lease.

Protestants' last contention in this respect is that eighty-acre spacing will result in the drilling of more dry holes than will be drilled on forty acres. Protestants' concern for the operator in this instance is either feigned or misplaced. On cross-examination Mr. Veeder, geologist for Amerada, was asked an assumed question with respect to the Hightower Pool. (R. 35-37) In that pool the Amerada B.T.B. Well is a producing well, located in the middle of a forty-acre tract. Amerada on an eighty-acre spacing pattern then drilled a dry hole known as the "Roach Well" in the center of a forty-acre tract once removed to the south. The question was proposed that had the well been drilled in the center of the forty-acre tract immediately to the south of the B.T.B. Well, and assuming that it was a producing well, then Amerada would not have drilled the

dry hole in the Roach Well located in the center of the next forty-acre tract to the south. (R. 37) However, upon redirect examination (R. 45-46) Mr. Veeder exploded this misleading theory by pointing out that had Amerada drilled a well in the center of the forty-acre tract immediately south of the B.T.B. Well, it would then have been obligated, or Mr. Veeder as a geologist would have recommended, that his company then drill a third well in the center of the forty-acre tract still farther to the south which is the location of the Roach Well, and the result would be that instead of one well and one dry hole, Amerada would have drilled an extra unnecessary well at the cost of \$225,000.00 and would still have drilled the dry hole. Therefore, under this theory advanced by protestants in the interest of economy the operator, instead of losing \$225,000.00 by the dry hole, would have lost approximately a half million dollars by drilling an unnecessary well and a dry hole.

Mr. Millikan summed up the matter of correlative rights as follows:

"Q I have one further question, Mr. Millikan. Do you have any comments which you care to make as to whether the 80-acre spacing pattern, which has been proposed by Amerada, will result in a disruption of the correlative rights of the parties in the pool, which could be remedied by any other spacing program?

"A I do not see that 80-acre spacing, or 160-acre spacing, or 40-acre spacing, or 10-acre spacing, changes that picture at all.

"Certainly we have - in any oil pool, we reach the edge of the pool, and we find certain parts, whatever the spacing unit may be, that probably lie beyond the limits of oil production or beyond the limits of economic oil production. There may be some oil there, but it is not economic to drill. Then, that is, for all practical purposes, it becomes the limit of the pool. And there were no land lines there when that oil pool was formed. They have been put there subsequently, and they, as a general rule, are curve lines, as has been indicated in the testimony here; and regardless of the spacing, I think that those same conditions will exist. And the fact that we cannot recover all of the oil by 80-acre spacing, I don't see that it introduces any problems that wouldn't exist under any other spacing unit.

"Q Then, in your opinion, the spacing pattern which we have presented here will not prevent any of the owners in that reservoir from obtaining their fair and equitable share of the oil in the reservoir?

"A I think that under the recommendations that we have made here as to spacing and allocation, they will provide each operator, each landowner, each royalty owner, the opportunity to obtain his fair and equitable share of the oil from the reservoir.

PROTESTANTS' IRRELEVANT EXHIBITS

In order to dispel the thought that the length or size of the opposition is any measure of its quality, we have listed below all of protestants' exhibits to point out their utter irrelevancy to the questions involved in this case.

EXHIBITS:

"A" and "B" Farmout contract between T.F. and Amerada and copies of T.F.'s oil and gas leases. No title question is involved.

- "C" and "D" Colored maps showing mineral and royalty ownership. This was already shown by applicants' Exhibit "A" previously introduced into evidence.
- "E" and "F" Contour map of Glorietta Sand and of Pennsylvanian formation. Mr. Carter admitted neither of these maps had anything to do with this proceeding. (R. 81-82)
- "G" Contour map of Bagley Pool. Mr. Carter admitted it was not an accurate representation of the actual structure. (R. 67-77)
- "H" Schlumberger of protestants' well. This shows nothing inconsistent with applicant's theory.
- "I", "J",
"K", "M",
"N" Core information on protestants' well. Protestants' witnesses did not contend that the density is sufficient to prevent effective drainage of 80 acres by one well.
- "O" Celluloid copy of Exhibit "G"
- "P" Hypothetical cross-section. The purpose of this exhibit was not disclosed by the witness. (R. 78-81)
- "Q" Hypothetical cross-section of mythical water drive reservoir.

INCIDENTAL LEGAL QUESTIONS REGARDING FORCED
POOLING OF SEPARATELY OWNED TRACTS

Some wholly extraneous issues have been injected into the case.

1. Protestants proved that they owned a lease, forty acres of which is located in this Bagley Pool and the balance located some place outside. (R. 65) They argued that if

eighty-acre proration units were adopted it would require the pooling of this forty acres with an adjoining forty-acre tract owned by applicant, and the result would be that the well on protestants' forty-acre tract would not hold the outside acreage beyond the primary term of the lease. This is not a correct conclusion of the law, but first let us point out that the spacing pattern whether it be 160 acres, 80 acres, 40 acres, 20 acres or 10 acres, does not change the legal problem involved. The same question would be involved if two twenty-acre tracts were pooled into one forty-acre unit, or two ten-acre tracts into a twenty-acre unit, or what have you. The second point is that well spacing is a matter of conservation and it is of no proper concern to this Commission whether a lease outside of an existing oil pool will or will not be held beyond the primary term by a well located on that part of the lease within the oil pool. The law with reference to the implied covenants of oil and gas leases dictates the development which will be required of any operator. However, in any event, the question is settled in the case of *State ex rel Shell Corp. v. Worden, Commissioner of Public Lands* (1940), 44 N.M. 400; 103 P.(2d) 124, where it was held that in a state lease in New Mexico where a separate portion of the lease has been assigned and oil discovered on the separately assigned portion, such well will hold the entire lease beyond the primary term. The effect of

pooling is an assignment by each to the other of part of his lease rights in the pooled reservoir.

2. The question was asked whether the situation would have been the same if the well was located on that part of the unit not covered by the lease having the outside acreage. This is an open question in New Mexico, but has been decided by the Supreme Court of Louisiana in the case of *Bunter Company v. Shell Oil Company* (1947) 211 La. 893; 31 So. (2d) 10, which holds that a well on a forced unit in Louisiana holds each and every lease, part of which is in the unit, as to all acreage including the outside acreage. See Section 8-1138, New Mexico Statutes, 1941 Anno. and Sec. 69-213, New Mexico Stat. 1941 Anno.

However, again we wish to point out that this problem exists regardless of the size of proration units or the spacing of wells. It can apply, as stated above, with equal force to two twenty-acre tracts in a forty-acre unit, as well as it can to two forty-acre tracts in an eighty-acre unit.

3. It also was suggested that the Commission may have no authority to enter a pooling order applicable to state leases. This contention is answered by Sec. 69-213 and Sec. 8-1138, New Mexico Statutes Anno., referred to above. There is no question but that the statutory authority exists. The only reason for the exceptions to the location of the proration units recommended by applicant was an effort to avoid the necessity of pooling agreements or forced pooling applications

where, without disturbing in any manner the well spacing pattern, single ownerships could be combined. This, of course, is a matter for the discretion of the Commission. The insinuation at the trial that these exceptions were made by Amerada in order to include its poor acreage with the good acreage of the Texas Pacific Coal & Oil Co. is unwarranted, malicious and wholly unfounded in fact and designed only to prejudice the Commission. (R. 105-106)

CONCLUSION

When the entire matter is carefully considered, it appears that protestants' position boils down to the proposition that well spacing should be established according to lease ownership, and by that they mean protestants' lease ownership. They asked that they be permitted to drill anywhere upon their lease in order to crowd their neighbor and get all of the oil they can for themselves. Viewed from the purely selfish standpoint of protestants' own company, this may appear to be a laudable motive; however, it is not one which the other operators in the field think should be accomplished at their expense.

The operators in this field are Amerada Petroleum Corporation, Mid-Continent Oil and Gas Company, Phillips Petroleum Company, Gulf Oil Corporation and Texas Pacific

Coal and Oil Company. Out of all of these operators it is significant to note that the only company objecting to the application for a uniform spacing and eighty-acre proration units in this Bagley Pool is the protestant.

We respectfully submit that the proposed order herein submitted should be granted by the Commission.

SETH AND MONTGOMERY

By

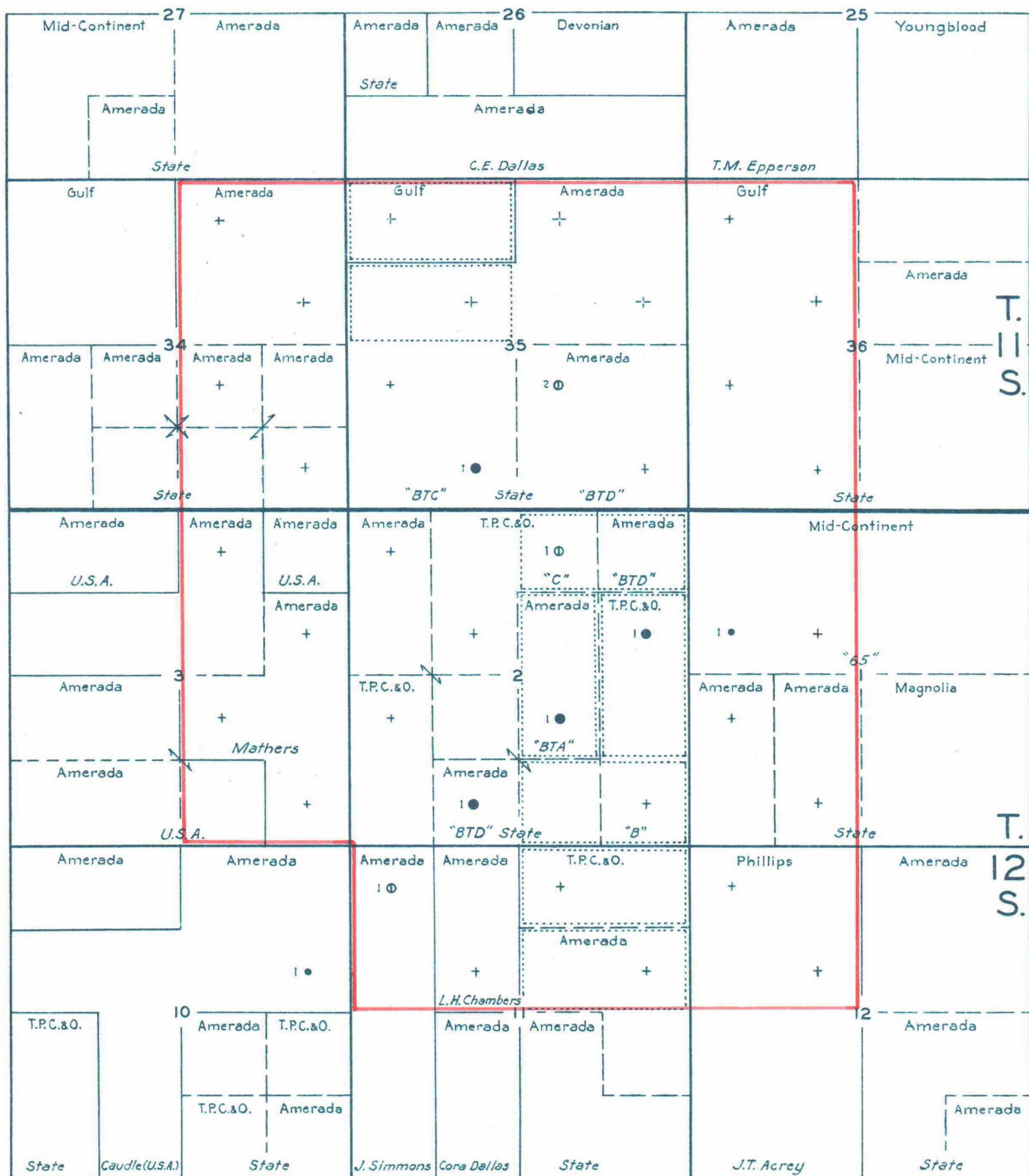
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R.33 E.

BAGLEY FIELD LEA COUNTY NEW MEXICO

- BAGLEY - SILURO-DEVONIAN POOL WELLS
- BAGLEY - PENNSYLVANIAN POOL WELLS

APPLICATION AMERADA PETROLEUM CORPORATION
DECEMBER 20, 1949