

J. M. HERVEY 1874-1953

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

WILLIAM C. SCHAUER
HOWARD C. BRATTON
S. B. CHRISTY IV

LAW OFFICES
HERVEY, DOW & HINKLE
FIRST NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO

January 20, 1955

*Arrange meeting
w/ Reider + Rhinier
for Feb 15.
See back #*

Mr. W. B. Macey
New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Macey:

I enclose copy of application of Jake L. Hamon and the Warren Petroleum Corporation for approval of 80-acre spacing and method of distribution of allowable in the Southeast Knowles Area, Lea County. You will recall that we discussed this matter generally with you in Santa Fe on January 14th and that you stated it would be necessary to have the application in your hands by not later than January 24th so that you could get in the necessary publication to include the matter on the docket at the regular hearing to be held on February 16th.

I have sent the original of the application to Dallas for Mr. Hamon to sign and his office will, in turn, send it to the Warren at Tulsa for the signature of the Warren, with instructions to send it direct to you air mail. I thought it might be helpful to have a copy so that you could go ahead and prepare the necessary notice and have it ready, as I feel reasonably certain that the signed copies of the application will reach you by the 24th.

While both the Gulf and Amerada have agreed in principle upon the plan which will be presented at the hearing, due to the rather small percentage of acreage owned by them and most of which is marginal, they preferred not to join in the application, but have indicated their approval by letters, copies of which will be attached to the original application, and I feel certain that representatives of both companies will be present at the hearing and indicate to the Commission their approval of the plan.

Representatives of Mr. Hamon and Warren and their engineer, together with the writer, expect to be in Santa Fe by around noon, February 15th, and as suggested by you, we would like to meet with your engineering staff to go over the plats, exhibits and other data which is being prepared by Dr. Branson for use at the hearing. If we could meet with your staff around 2:00 or 2:30 on the 15th, we feel that it will be very helpful.

Thanking you for your cooperating in connection with this matter, I am

Yours sincerely,

HERVEY, DOW & HINKLE

By 

CEH:mp
Encl.
cc - Mr. J. S. Ewing
Gen. Supt., Jake L. Hamon
cc - Dr. H. S. Branson, Jr.

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

APPLICATION OF JAKE L. HAMON
AND WARREN PETROLEUM CORPORATION
FOR APPROVAL OF 80-ACRE SPACING
AND METHOD OF DISTRIBUTION OF
ALLOWABLE IN THE SOUTHEAST KNOWLES
AREA, LEA COUNTY, NEW MEXICO, COM-
PRISING THE FOLLOWING DESCRIBED
LANDS, TO-WIT:

CASE NO. 879

T. 17 S., R. 38 E.
Section 12: $E\frac{1}{2}$, $SW\frac{1}{4}$
Section 13: All
Section 24: All

T. 17 S., R. 39 E.
Section 7: $W\frac{1}{2}$
Section 18: $W\frac{1}{2}$
Section 19: $W\frac{1}{2}$

Come the undersigned, Jake L. Hamon and Warren Petroleum Cor-
poration and respectfully show:

1. That Jake L. Hamon is a resident of Dallas, Texas, and
that the Warren Petroleum Corporation is a corporation duly organized
and existing under and by virtue of the laws of the State of Delaware,
with a certificate of authority to do business in the State of New
Mexico, and that Jake L. Hamon and the Warren Petroleum Corporation
are each the owners of an undivided $1/2$ interest in and to certain
oil and gas leases embracing the following described lands situated
in the "Southeast Knowles Area", Lea County, New Mexico, to-wit:

T. 17 S., R. 38 E., N.M.P.M.
Section 12: $NE\frac{1}{4}$, $SW\frac{1}{4}$
Section 13: $E\frac{1}{2}$, $NW\frac{1}{4}$
Section 24: $W\frac{1}{2}$, $S\frac{1}{2}NE\frac{1}{4}$, $SE\frac{1}{4}$

T. 17 S., R. 39 E., N.M.P.M.
Section 7: $NW\frac{1}{4}$, $W\frac{1}{2}SW\frac{1}{4}$
Section 18: $W\frac{1}{2}$
Section 19: $W\frac{1}{2}$

2. That the Gulf Oil Corporation is the owner of certain
leasehold interests covering the following described land situated in
the "Southeast Knowles Area", Lea County, New Mexico, to-wit:

T. 17 S., R. 38 E., N.M.P.M.
Section 12: $SE\frac{1}{4}$
Section 13: $SW\frac{1}{4}$

T. 17 S., R. 39 E., N.M.P.M.
Section 7: $E\frac{1}{2}SW\frac{1}{4}$

MEMORANDUM:

TO: Oil Conservation Commission of New Mexico

FROM: Campbell & Russell, Attorneys for Protestants
Case No. 819 -

Application of Jake L. Hamon and Warren Petroleum Corporation for approval of 80-acre spacing and method of distribution of allowable in the Southeast Knowles area, Lea County, New Mexico.

Pursuant to agreement between counsel the following is a partial tabulation of mineral ownership of various protestants in above-styled application:

<u>Name of Mineral Owner</u>	<u>Mineral Interest</u>	<u>Tract</u>
Powhatan Carter, Anderson	Entire	NW $\frac{1}{4}$ -7-17S-39E
Carter, Powhatan Carter, Jr.	160 A.	W $\frac{1}{2}$ -19-17S-39E
	160 A.	W $\frac{1}{2}$ -24-17S-38E
	320 A.	All-25-17S-38E
	160 A.	N $\frac{1}{2}$ -30-17S-39E
Vallye M. Hardin, John	45A.	W $\frac{1}{2}$ -24-17S-38E
R. Hardin	48A.	E $\frac{1}{2}$ -24-17S-38E
	48A.	E $\frac{1}{2}$ -19-17S-39E
	120A.	N $\frac{1}{2}$ -30-17S-39E
	220 A.	W $\frac{1}{2}$ -25-17S-38E
Robert H. Reeves, Carl L. Reeves	50 A.	All-24-17S-38E
Lee Carter	360 A.	E $\frac{1}{2}$ -24-17S-38E
		All-25-17S-38E
		W $\frac{1}{2}$ -19-17S-39E
		N $\frac{1}{2}$ -30-17S-39E
T. O. Porter	20 A.	All-12-17S-38E
C. A. Porter	49 A.	All-12-17S-38E
	40 A.	All-24-17S-38E

In addition to the foregoing the following protestants own various undivided mineral interests in the area:

Jenny A. Clinton
F. E. Chartier
Luther Cooper
C. C. Yearwood
Virgil Linam
Edna Fay Reinhardt
Artie E. Cone
T. E. Mears, Sr.

Melba Jean Aldridge
Roy G. Barton
H. V. Black
Fanny Holloway
Beatrice Howell

Respectfully submitted,

CAMPBELL & RUSSELL

By: Yack M. Campbell

Sinclair		JLH-1/2 Warren-1/2 10-30-55 *1457		JLH-1/2 Warren-1/2 4-10-55 *1410	
Shell 5-4-58		Roberts R. Halmes		C. J. Antron	
JLH-1/2 Warren-1/2 4-18-56 *1452 "A"		Gulf 11-6-54		JLH-1/2 Warren-1/2 11-6-54 *1413	
L. Cooper		R. K. Cone		R. K. Cone	
JLH-1/2 Warren-1/2 10-18-55 *1456		JLH-1/2 Warren-1/2 *1253		JLH-1/2 Warren-1/2 *1425	
J. G. Cox		Gulf 4-27-56		David Wilhoit	
Gulf 4-27-55		Fanny Holloway		Federal-Davis	
J. M. Gardner		H. V. Black		Amerada -55	
JLH-1/2 Warren-1/2 11-7-55 *1440 "C"		JLH-1/2 Warren-1/2 11-7-55 *1438 "A"		W. V. Lawrence	
W. V. Lawrence		W. V. Lawrence		W. V. Lawrence	

EXHIBIT "A"

Application of Jake L. Hamon et al for approval of agreed plan for the spacing of wells and method of distribution of allowable in the Southeast Knowles Area, Lea County, New Mexico

MEMORANDUM:

TO: Oil Conservation Commission of New Mexico

FROM: Campbell & Russell, Attorneys for Protestants
Case No. 819 -

Application of Jake L. Hamon and Warren Petroleum Corporation for approval of 80-acre spacing and method of distribution of allowable in the Southeast Knowles Area, Lea County, New Mexico.

Pursuant to agreement between counsel the following is a partial tabulation of mineral ownership of various protestants in above-styled application:

<u>Name of Mineral Owner</u>	<u>Mineral Interest</u>	<u>Tract</u>
Powhatan Carter, Anderson	Entire	NW $\frac{1}{4}$ -7-17S-39E
Carter, Powhatan Carter, Jr.	160 A.	W $\frac{1}{4}$ -19-17S-39E
	160 A.	W $\frac{1}{4}$ -24-17S-38E
	320 A.	All-25-17S-38E
	160 A.	N $\frac{1}{4}$ -30-17S-39E
Vallye M. Hardin, John	45A.	W $\frac{1}{4}$ -24-17S-38E
R. Hardin	48.A.	E $\frac{1}{4}$ -24-17S-38E
	48.A.	W $\frac{1}{4}$ -19-17S-39E
	120A.	N $\frac{1}{4}$ -30-17S-39E
	220 A.	W $\frac{1}{4}$ -25-17S-38E
Robert H. Reeves, Carl L. Reeves	50 A.	All-24-17S-38E
Lee Carter	360 A.	E $\frac{1}{4}$ -24-17S-38E
		All-25-17S-38E
		W $\frac{1}{4}$ -19-17S-39E
		N $\frac{1}{4}$ -30-17S-39E
T. C. Porter	20 A.	All-12-17S-38E
C. A. Porter	49 A.	All-12-17S-38E
	40 A.	All-24-17S-38E

In addition to the foregoing the following protestants own various undivided mineral interests in the area:

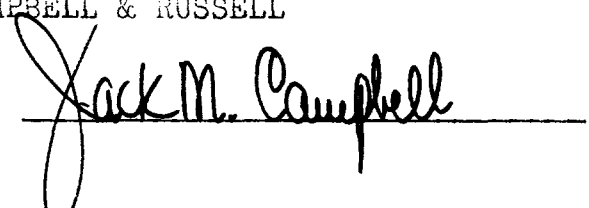
Jenny A. Clinton
F. E. Chartier
Luther Cooper
C. C. Yearwood
Virgil Linam
Edna Pay Reinhardt
Artie E. Cone
T. E. Mears, Sr.

Melba Jean Aldridge
Roy G. Barton
H. V. Black
Fanny Holloway
Beatrice Howell

Respectfully submitted,

CAMPBELL & RUSSELL

By:



PRODUCTION HISTORY
SOUTH KNOWLES FIELD
LEA COUNTY, NEW MEXICO

<u>Date</u>	<u>Number of Wells</u>	<u>Oil Production, Barrels</u>	
		<u>Daily Average</u>	<u>Cumulative</u>
1954			
May	1	90	2,798
June	1	286	11,391
July	1	260	19,447
August	1	270	27,829
September	3	622	46,489
October	3	820	71,901
November	4	904	99,022
December	6	878	126,235
1955			
January	6	1039	158,429
February	7	1067	188,318
March	8	1238	226,698
April	8	1006	256,882
May	9	1387	299,894
June	9	1233	336,887
July	9	1314	377,615
August	9	1267	416,878
September	10	1149	451,345
October	10	1215	489,013
November	10	1159	523,794
December	10	1359	565,938
1956			
January	10	1228	603,991
February	14	1487	647,113
March	14	1727	700,643
April	14	1727	752,455
May	14	1583	801,526

BEFORE THE
CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
H.W. EXHIBIT No. C
CASE 819

WELL DATA
SOUTH KNOWLES FIELD
LEA COUNTY, NEW MEXICO

<u>Operator, Lease, Well Number</u>	<u>Completion Date</u>	<u>Total Depth (Schlumberger)</u>	<u>Completion Depth (Subsea)</u>
Jake L. Hamon & Warren Petroleum Corporation - Federal Davis #1	5-54	12,174	8445 - 8476
Jake L. Hamon & Warren Petroleum Corporation - Federal Davis #2	1-55	12,290	8486 - 8518
Jake L. Hamon & Warren Petroleum Corporation - D. Wilhoit #1	9-54	12,554	8479 - 8509
Jake L. Hamon & Warren Petroleum Corporation - D. Wilhoit #2	5-56	12,325	D & A
Jake L. Hamon & Warren Petroleum Corporation - F. Holloway #1	9-54	12,213	8458 - 8502
Jake L. Hamon & Warren Petroleum Corporation - F. Holloway #2	9-55	12,133	8408 - 8440
Jake L. Hamon & Warren Petroleum Corporation - J. G. Cox #1	11-54	12,247	8489 - 8542
Jake L. Hamon & Warren Petroleum Corporation - L. Cooper A #1	3-55	12,263	8496 - 8531
Jake L. Hamon & Warren Petroleum Corporation - R. K. Cone #1	12-54	12,238	8497 - 8517
Jake L. Hamon & Warren Petroleum Corp. - W. V. Lawrence A #1	2-56	12,188	8445 - 8502
Jake L. Hamon & Warren Petroleum Corp. - W. V. Lawrence C #1	2-56	12,236	8500 - 8557
Gulf Oil Corporation - R. K. Cone #1	12-54	12,151	8422 - 8454
Gulf Oil Corporation - R. K. Cone #2	5-55	12,261	8443 - 8549
Gulf Oil Corporation - H. V. Black #1	2-56	12,165	8413 - 8468
J. C. Williamson - Amerada #1	2-56	12,126	8414 - 8434

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

EXHIBIT No. 2

WELL TEST DATA
MAY - JULY, 1956

SOUTH KNOWLES FIELD
LEA COUNTY, NEW MEXICO

<u>Well Name & Number</u>	<u>Test Date</u>	<u>Oil Production, Barrels</u>	<u>Water Cut, Percent</u>	<u>Pressure, (1) June 1, 1956</u>
Hamon & Warren				
Cooper A #1	7-56	35	87	
Cone #1	7-56	43	93	
Cox #1	7-56	81	35	4638
Holloway #1	7-56	80	9	4743
Holloway #2	7-56	165	0	4825
Federal Davis #1	7-56	163	0	4777
Federal Davis #2	7-56	145	0	4820
Wilhoit #1	7-56	166	12	4779
Lawrence C #1	7-56	165	23	4818
Lawrence A #1	7-56	123	8	4825

Gulf

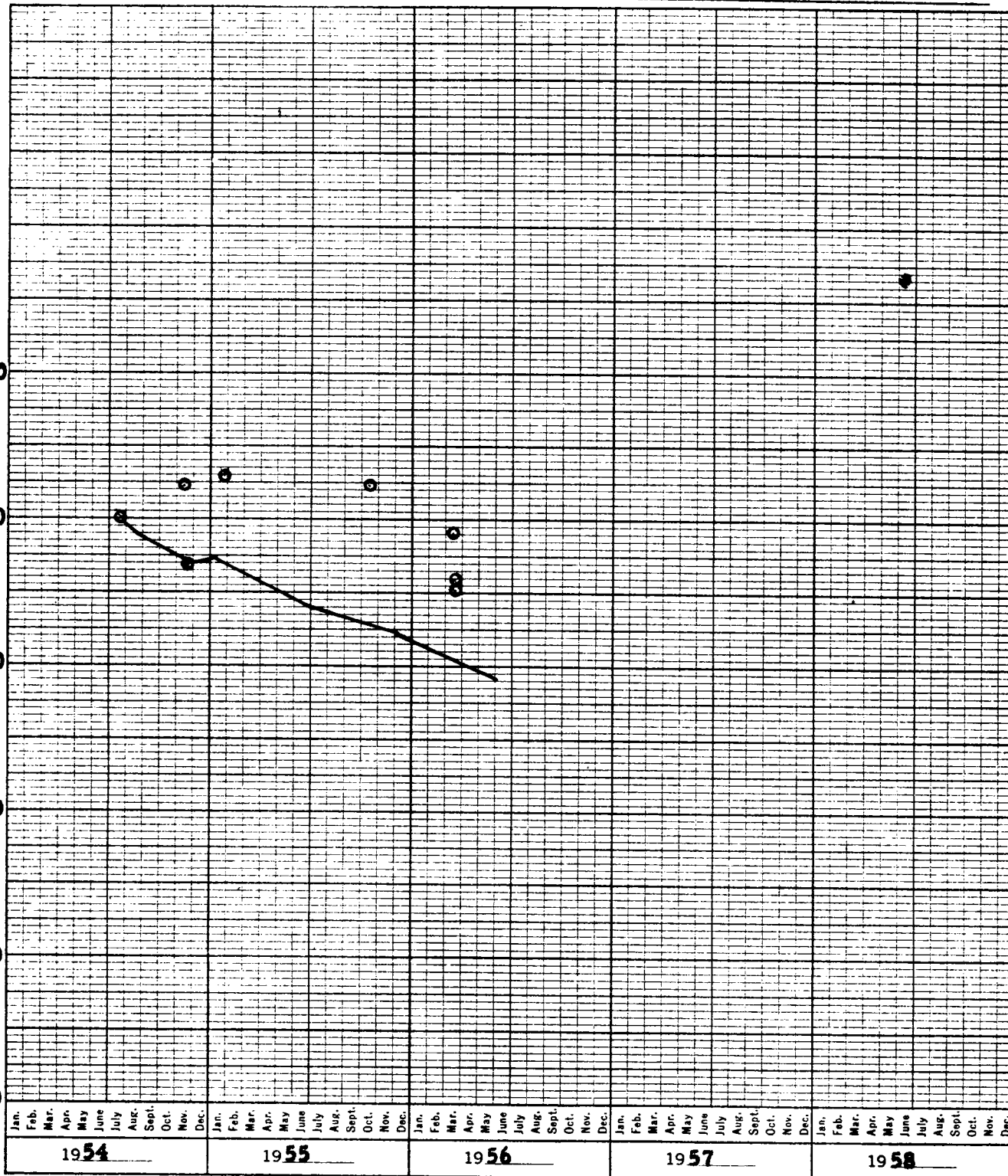
Cone #1	6-56	176	Trace	4774
Cone #2	5-56	157	10	4740
Black #1	5-56	176	4	4824

(1) Pressure at 8450 feet subsea after 48 hour shut in period.

Company _____ County Lea
 Well _____ State New Mexico Date 7-12-56
 Field South Knowles

Average Pressure at 8450 Feet Subsea

5000
4900
4800
4700
4600
4500



— Field Average
 ○ New Wells

BEFORE THE
 OIL CONSERVATION COMMISSION
 SANTA FE, NEW MEXICO
 EXHIBIT No. F
 CASE 819

UZZELL S. BRANSON, JR.
 Petroleum Engineering and Research
 DALLAS, TEXAS

Warren Petroleum Corporation

P. O. Box 1589

Tulsa 2, Oklahoma

January 21, 1955

RECEIVED 1955

JAN 21 1955

Case 819
Feb 16

Mr. Bill Macey
Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Dear Mr. Macey:

Enclosed herewith are an original and two copies of application of Jake L. Hamon and Warren Petroleum Corporation for approval of 80-acre spacing and method of distribution of allowable in the Southeast Knowles Area, Lea County, New Mexico.

Yours very truly,

WARREN PETROLEUM CORPORATION,
OIL DIVISION

R. C. Sears
R.C.

R. C. Sears

dw
Encl.

Natural Gasoline • Natural Gas

Crude Oil • Propane • Butane • Hexane • Heptane • Iso-Butane • Iso-Pentane

GENERAL OFFICES
120 BROADWAY NEW YORK

AMERADA PETROLEUM CORPORATION

BEACON BUILDING
P. O. BOX 2040

TULSA 2, OKLA.

January 19, 1955

Re: South Knowles Field
Lea County, New Mexico

Mr. Jake L. Hamon
First National Bank Building
Dallas, Texas

Dear Sir:

We have been informed of your intention to file with the New Mexico Oil Conservation Commission an application for a hearing to consider the adoption of 80-acre proration units in the South Knowles Field, Lea County, New Mexico.

This is to advise we have no objection to the establishment of 80-acre units in this field and will favor an order of the Commission which provides for a reasonable development on an 80-acre unit basis.

Yours very truly,


J. E. Low
General Superintendent

RSC:mt

cc: Warren Petroleum Corporation
National Bank of Tulsa
Tulsa, Oklahoma
Attention: Mr. Roy Sears

Mr. Clarence E. Hinkle
Hervey, Dow & Hinkle
First National Bank Building
Roswell, New Mexico

EXHIBIT C

Application of Jake L. Hamon et al for approval of agreed plan for the spacing of wells and method of distribution of allowable in the Southeast Knowles Area, Lea County, New Mexico.



PETROLEUM AND ITS PRODUCTS

GULF OIL CORPORATION

P. O. DRAWER 1290 · FORT WORTH 1, TEXAS

FORT WORTH
PRODUCTION DIVISION

H. M. BAYER
VICE-PRESIDENT

January 20, 1955

Mr. Jake L. Hamon
First National Bank Building
Dallas, Texas

Warren Petroleum Corporation
Tulsa, Oklahoma

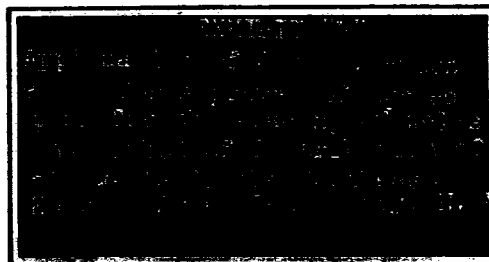
Gentlemen:

We understand that you contemplate making application to the New Mexico Oil Conservation Commission to enter an order for 660-1320 foot spacing in the Southeast Knowles Area, Lea County, New Mexico, and also for the formation of 80-acre proration units. Gulf Oil Corporation has a relatively small percentage of the total area involved and would be in accord with the Commission's entering an order providing for 80-acre proration units for the Devonian Reservoir in the Southeast Knowles Area as outlined in your application; we are also in accord with your recommendation that the normal 40-acre allowable, with the appropriate depth factor, be assigned to the 80-acre proration units.

For your information, Gulf Oil Corporation will have a representative present at the hearing to make a statement substantiating its position as outlined above.

Yours very truly,

H. M. BAYER



BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 819
Order No. R-638

THE MATTER OF THE APPLICATION OF
JAKE L. HAMON AND WARREN PETROLEUM
CORPORATION FOR AN ORDER ESTABLISHING
80-ACRE WELL SPACING AND AN ALLOCATION
FACTOR, DETERMINED AS THE PRODUCT OF A
STANDARD 40-ACRE ALLOWABLE AND THE
APPROPRIATE DEPTH FACTOR FOR THE COMMON
SOURCE OF SUPPLY DESIGNATED AS THE SOUTH
KNOWLES-DEVONIAN POOL OF LEA COUNTY,
NEW MEXICO.

APPLICATION FOR REHEARING

Come Jake L. Hamon and the Warren Petroleum Corporation
and hereby make application for rehearing with respect to the
matters hereinafter referred to determined by Order No. R-638
of the New Mexico Oil Conservation Commission in connection with
the above styled cause, and in support thereof respectfully show:

1. That this cause was heard before the Commission at
Santa Fe, New Mexico, on February 16, 1955, and on May 27, 1955,
an order was entered denying the application of Jake L. Hamon
and the Warren Petroleum Corporation for the approval of 80-acre
well spacing and an allocation factor determined as the product
of a standard 40-acre allowable and the appropriate depth factor
for the common source of supply designated as the South Knowles-
Devonian Pool.

2. That applicants believe said order is erroneous with
respect to the following matters:

(1) That Finding No. 2 of the Commission "that opera-
tions to date in the South Knowles-Devonian Pool have been con-
ducted on the basis of 40-acre drilling and proration units"
does not preclude the development of said pool on an 80-acre
basis because of the manner in which the respective leases are

located and that it was necessary to drill said wells in order to meet offset obligations existing with respect to the several leases involved and that the evidence clearly shows that 80-acre spacing or proration units can be assigned to the respective wells which have been drilled, in a manner which will protect all interested parties and be fair and equitable to the royalty owners.

(2) That Finding No. 3 of the Commission "that development in the South Knowles-Devonian Pool has progressed to a point where it is not practical to initiate a change in drilling and proration practices in said pool" is not supported by the evidence and, on the contrary, it is believed that the evidence conclusively shows that it is still practical to develop said pool on an 80-acre spacing pattern.

(3) That Finding No. 4 "that the establishment of 80-acre drilling and proration units in the South Knowles-Devonian Pool at this late date would not be in the best interest of conservation and would not protect correlative rights" is not supported by the evidence and, on the contrary, it is believed that the evidence conclusively shows that the establishment of 80-acre drilling and proration units would actually be in the interest of conservation in that it would promote the greatest ultimate recovery and conservation of reservoir energy and would fully and adequately protect correlative rights, including the interest of royalty owners.

3. That applicants would further show that in fairness and in equity, they are entitled to a rehearing upon all phases involved in connection with the original application upon the following additional grounds:

(1) That since the original hearing on February 16, 1955, there have been two additional wells completed in the reservoir, viz., Hamon & Warren L. Cooper A #1 and the Gulf Cone #2, from which information has been obtained which will have

a decided bearing on the further development of the reservoir.

(2) That the status or condition of the producing area has changed since the original hearing in that all wells having any section open as low as 8,530 feet sub-sea are producing water.

(3) Positive evidence is now available which confirms the thinness of the producing section and the resulting low per acre ultimate recovery and clearly indicating that if the area is required to be drilled on 40-acre drilling and proration units, that such wells would probably not return development costs.

(4) That because of the marked change in conditions since the original hearing, it is clearly indicated that said pool or area cannot be economically developed on a 40-acre spacing pattern and that the development of said pool on such a pattern would result in a severe economic loss to the operators on account of the depth of the producing horizon and the great cost of drilling and producing said wells.

(5) That the Gulf Oil Corporation, the Amerada Petroleum Corporation, Jake L. Hamon and the Warren Petroleum Corporation, being all of the working interest owners within the probable productive limits of the pool or area, have agreed upon a plan for the spacing of wells, which is more particularly shown by the plat attached hereto, made a part hereof and for purposes of identification marked Exhibit "A". That said parties have agreed that any well which any party elects to drill, will be drilled in conformity with the 80-acre spacing and proration units as shown by Exhibit A attached hereto and may be located in the approximate center of either 40-acre component comprising such unit, unless subsequent drilling should show a change in circumstances which would warrant some exception to said spacing plan. That said parties have further agreed upon a plan or method of distribution of the allowable to be fixed by the Commission for said pool or area by limiting the production from each well to not more than the standard 40-acre allowable and the appropriate depth factor

for the producing zone, and which said plan is in conformity with Section 13(e) of the New Mexico Conservation Act (69-213½ N.M. Stat. '41 Annot.; 65-3-14 N.M. Stat. '53 Annot.).


That it is believed that said agreement for the spacing of said wells and the method of distribution of the allowable fixed by the Commission for the pool or area will be fair and equitable to all interested parties and will protect correlative rights, including those of royalty owners, and that such plan is in the interest of conservation and the prevention of waste in that because of the economic factors involved, it is likely that said pool or area will never be fully developed or drilled in such a manner that the greatest ultimate recovery of oil can be obtained.

Respectfully submitted,

JAKE L. HAMON

WARREN PETROLEUM CORPORATION

By


Member of the firm of Hervey, Dow
& Hinkle, Roswell, New Mexico



PETROLEUM AND ITS PRODUCTS

GULF OIL CORPORATION

P. O. DRAWER 1290 · FORT WORTH 1, TEXAS

H. M. BAYER
VICE-PRESIDENT

June 20, 1955

FORT WORTH
PRODUCTION DIVISION

*File
Case 819*

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

Re - Case No. 819
Order No. R-638

Gentlemen:

We have been furnished a copy of the Application For Rehearing filed by Jake L. Hamon and Warren Petroleum Corporation in the above captioned case.

This is to advise that Subsection (5) of Section 3 of the Application For Rehearing correctly sets forth the agreements between Gulf Oil Corporation, The Amerada Petroleum Corporation, Jake L. Hamon and Warren Petroleum Corporation as working interest owners; and we respectfully request the Oil Conservation Commission to grant such Application For Rehearing.

Yours very truly,

GULF OIL CORPORATION

By

H. M. Bayer
Vice President

J. M. HERVEY 1874-1953

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

WILLIAM C. SCHAUER
HOWARD C. BRATTON
S. B. CHRISTY IV

LAW OFFICES
HERVEY, DOW & HINKLE
FIRST NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO

June 14, 1955

TELEPHONE 2160
L. D. 3

Mr. W. B. Macey
Executive Secretary
New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Macey:

We hand you herewith in triplicate application of Jake L. Hamon and the Warren Petroleum Corporation for rehearing in connection with Case No. 819, Order No. R-638. I hope that the Commission will see fit to give this matter prompt and favorable consideration, as you will note from the petition that conditions have changed considerably since the original hearing was held which, in my opinion, justify a rehearing in connection with this matter.

Yours sincerely,

HERVEY, DOW & HINKLE

By 

CEH:mp
Encl.

C
O
P
Y

May 27, 1955

Mr. Jack Campbell
CAMPBELL & RUSSELL
J. P. White Building
Roswell, New Mexico

Dear Mr. Campbell:

In behalf of your clients who made appearances in Case 819, we enclose copy of Order R-638 signed and entered by the Oil Conservation Commission on this date.

Very truly yours,

WBM:nr

W. B. Macey
Secretary - Director

C

O

P

Y

May 27, 1955

Mr. Clarence Hinkle
HERVEY, DOW AND HINKLE
ROSWELL, NEW MEXICO

Dear Mr. Hinkle:

RE: Case No. 819

In behalf of your clients, Jake L. Hamon and Warren Petroleum Corporation, we enclose a copy of Order R-638 issued in Case 819, which was heard on February 16.

As the copy of the telegram indicates, we have today advised Mr. Jeff Ewing of the fact that the order has been signed and entered as of May 27.

Very truly yours,

W. B. Macey
Secretary - Director

WBM:nr

cc: Mr. Jeff Ewing

3. That the Amerada Petroleum Corporation is the owner of certain leasehold interests covering the following described land situated in the "Southeast Knowles Area", Lea County, New Mexico, to-wit:

T. 17 S., R. 38 E., N.M.P.M.
Section 24: NE $\frac{1}{4}$ NE $\frac{1}{4}$

4. That the oil and gas leasehold interests hereinabove referred to owned by the undersigned applicants and the Gulf Oil Corporation and the Amerada Petroleum Corporation cover all of the lands which are believed to be within the productive limits of the "Southeast Knowles Area", which is more particularly shown by the plat attached hereto, made a part hereof and for purposes of identification marked Exhibit "A".

5. That Jake L. Hamon and the Warren Petroleum Corporation drilled the "Jake L. Hamon No. 1 Federal Davis" located in approximately the center of the NE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 13, T. 17 S., R. 38 E., N.M.P.M., which was the discovery well in the "Southeast Knowles Area" and which was completed as a well capable of producing oil and gas in paying quantities from the Devonian formation on or about May 19, 1954, at a depth of 12,171 feet. That since the drilling of said discovery well, there have been several additional producing wells completed in the area and from the information obtained in the drilling of these wells and geophysical surveys made of the area, the probable producing limits of the zone, reservoir or pool are believed to be reasonably well defined. That the plat attached hereto as Exhibit "A" shows the locations of the producing wells and the wells which are being drilled at the present time.

6. That the character of the production obtained in said field or area is such that due to the great cost of drilling said wells to a depth in excess of 12,000 feet, it would not be economical to develop said field or area by the drilling of one well to each 40-acre legal subdivision of the probable producing area. That the oil being produced from the Devonian formation underlying said area is actuated by a water drive and that the water table or level has been established with reasonable certainty and the porosity and permeability

of the producing horizon is such that one well will effectively, efficiently and economically drain 80 acres or more of the lands in said area and that the development of said area on an 80-acre spacing pattern would be the most economical and beneficial to all parties concerned and would be in the interest of conservation and have the effect of preventing waste, in that marginal wells would not be drilled if developed on a 40-acre spacing pattern due to the fact that the cost of drilling the same could not be recovered.

7. That the undersigned applicants are the owners of approximately 82.4% of the working interests in the oil and gas leases embracing the lands as shown on the plat attached hereto as Exhibit "A" covering the probable productive limits of the "Southeast Knowles Area" and have agreed upon a plan for the spacing of wells in the development of said area and also upon a plan or method for the distribution of the allowable fixed by the Commission for the pool or area. Under said plan, the area would be developed by the drilling of one well upon each 80-acre legal subdivision, the wells to be located not closer than 660 feet to any lease line and at least 1320 feet between wells, and the regular 40-acre allowable with deep well proportional factor set by the Commission each month for the pool or area would be allocated to each 80-acre subdivision constituting the proration unit for the well situated thereon. That the Gulf Oil Corporation is the owner of approximately 14.7% and the Amerada Petroleum Corporation is the owner of approximately 2.9% of the working interests in and to the oil and gas leases covering the said "Southeast Knowles Area" and both of said parties have indicated that they are in accord with said plan of development, as will more particularly appear by photostatic copies of letters of the Gulf Oil Corporation and Amerada Petroleum Corporation respectively, addressed to applicants, attached hereto, made a part hereof and for purposes of identification marked Exhibits "B" and "C" respectively.

It is believed that said 80-acre spacing pattern and plan or method for the distribution of the allowable will be in the interest of conservation and the prevention of waste and will promote the

greatest ultimate recovery of oil and gas from the area, as the characteristics of the reservoir are such that a too rapid rate of withdrawal and the coning effect caused by the drilling of one well upon each 40-acre legal subdivision will reduce the ultimate recovery from the pool or reservoir.

8. That it is believed that the well spacing plan and method of distribution of the allowable to be fixed by the Commission each month for the "Southeast Knowles Area" as hereinabove set forth, will be fair to the royalty owners having royalty and overriding royalty interests under the respective leases covering said area, in that by such method of spacing and development, each of the leases will be allocated a fair share of the recoverable oil from the pool or reservoir and that the ultimate recovery will be greater under such plan than by the drilling of one well upon each 40-acre legal subdivision and consequently, will be beneficial to and in the interest of said royalty owners as well as the working interest owners.

WHEREFORE, the undersigned applicants respectfully request that after notice and hearing hereon as provided by law, that the Commission enter an order approving the plan outlined herein for the spacing of wells and method of distribution of the allowable fixed by the Commission for the "Southeast Knowles Area" in accordance with the provisions of Section 13(e) (69-213 $\frac{1}{2}$ N.M. Stat. '41 Annot.; 65-3-14 N.M. Stat. '53 Annot.).

Respectfully submitted,


Jake L. Hamon

WARREN PETROLEUM CORPORATION

By  274

HERVEY, DOW & HINKLE

By 
Roswell, New Mexico
Attorneys for Applicants



PETROLEUM AND ITS PRODUCTS

GULF OIL CORPORATION

P. O. DRAWER 1290 · FORT WORTH 1, TEXAS

H. M. BAYER
VICE-PRESIDENT

January 20, 1955

FORT WORTH
PRODUCTION DIVISION

Mr. Jake L. Hamon
First National Bank Building
Dallas, Texas

Warren Petroleum Corporation
Tulsa, Oklahoma

Gentlemen:

We understand that you contemplate making application to the New Mexico Oil Conservation Commission to enter an order for 660-1320 foot spacing in the Southeast Knowles Area, Lea County, New Mexico, and also for the formation of 80-acre proration units. Gulf Oil Corporation has a relatively small percentage of the total area involved and would be in accord with the Commission's entering an order providing for 80-acre proration units for the Devonian Reservoir in the Southeast Knowles Area as outlined in your application; we are also in accord with your recommendation that the normal 40-acre allowable, with the appropriate depth factor, be assigned to the 80-acre proration units.

For your information, Gulf Oil Corporation will have a representative present at the hearing to make a statement substantiating its position as outlined above.

Yours very truly,

H. M. BAYER

EXHIBIT "B"

Application of Jake L. Hamon et al for approval of agreed plan for the spacing of wells and method of distribution of allowable in the Southeast Knowles Area, Lea County, New Mexico

GENERAL OFFICES
120 BROADWAY NEW YORK

AMERADA PETROLEUM CORPORATION

BEACON BUILDING

P. O. BOX 2040

TULSA 2, OKLA.

January 19, 1955

Re: South Knowles Field
Lea County, New Mexico


Mr. Jake L. Hamon
First National Bank Building
Dallas, Texas

Dear Sir:

We have been informed of your intention to file with the New Mexico Oil Conservation Commission an application for a hearing to consider the adoption of 80-acre proration units in the South Knowles Field, Lea County, New Mexico.

This is to advise we have no objection to the establishment of 80-acre units in this field and will favor an order of the Commission which provides for a reasonable development on an 80-acre unit basis.

Yours very truly,


J. E. Low
General Superintendent

RSC:mt

cc: Warren Petroleum Corporation
National Bank of Tulsa
Tulsa, Oklahoma
Attention: Mr. Roy Sears

Mr. Clarence E. Hinkle
Hervey, Dow & Hinkle
First National Bank Building
Roswell, New Mexico

EXHIBIT "C"

Application of Jake L. Hamon et al for approval of agreed plan for the spacing of wells and method of distribution of allowable in the Southeast Knowles Area, Lea County, New Mexico.

CASE 819

JAKE L. HAMON
OIL PRODUCER
FIRST NATIONAL BANK BUILDING
DALLAS, TEXAS

J. S. EWING
GENERAL SUPERINTENDENT
PRODUCTION DEPARTMENT

March 3, 1955

Mr. W. B. Macey, State Geologist
Secretary and Director
New Mexico Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Dear Mr. Macey:

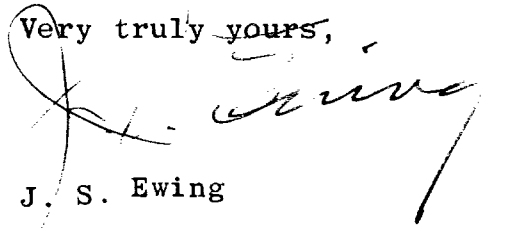
South Knowles-Devonian Pool
Lea County, New Mexico

Enclosed are core analyses and Schlumberger log received since the hearing on February 16.

Water was encountered in the Cooper "A" No. 1 on test from 8530-40' sub sea. It has been completed from 8496-8521' sub sea and will be potentialed in the near future. On test it was producing approximately 20% water.

We are anxiously awaiting the decision of the Committee on our application for 80 acre spacing. Any further information you may desire will be cheerfully furnished.

Very truly yours,


J. S. Ewing

mm

CAMPBELL & RUSSELL
LAWYERS

J. P. WHITE BUILDING
ROSWELL, NEW MEXICO

JACK M. CAMPBELL
JOHN F. RUSSELL

March 30, 1955

TELEPHONES
4975 - 4287

*Put in
Case file*

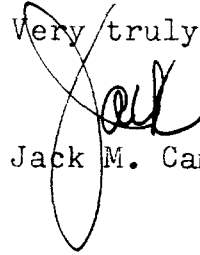
Mr. W. B. Macey
Director, Oil Conservation Commission
Santa Fe, New Mexico

Dear Bill:

I am enclosing herewith for the record in case number 819 a tabulation of mineral ownership insofar as I have been able to determine it from the records available to me.

With kindest personal regards, I am,

Very truly yours,


Jack M. Campbell

JMC:hh
Enclosures 3

(100-111)

JAKE L. HAMON
OIL PRODUCER
FIRST NATIONAL BANK BUILDING
DALLAS, TEXAS

March 22, 1955

J. S. EWING
GENERAL SUPERINTENDENT
PRODUCTION DEPARTMENT

Mr. W. B. Macey, State Geologist
Secretary and Director
New Mexico Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Dear Mr. Macey:

Pursuant to your conversation this afternoon with Mr. Hinkle, I am attaching a plat showing approximately the water and oil contact as we see it now on the South Knowles Field.

The Luther Cooper No. 1 in the SE SW of 12 is now producing 66 bbls. of oil per day and approximately 30% water. The J. G. Cox No. 1 in the NE NW of 13 is producing around 95 bbls. oil per day with approximately 9% water. The Cone in the SW SW of 7 is now producing approximately 40 bbls. oil per day wide open with approximately 2% water and BS. The Federal Davis No. 2 we have been producing at the rate of about 100 bbls. a day on 13/64" choke with 400# on the tubing in an attempt to hold back the water encroachment. The Gulf R. K. Cone No. 2 topped the Devonian approximately 48 feet lower than our No. 1 Holloway and they are taking a drill stem test this morning from 12,224-61' and had a slight blow of gas after 2 hour test, which confirms our picture as to the structure dropping off to the North.

It is very apparent from the information we have that the field is going to be very small and be confined within the area of the red line. Thought this information that has become apparent in the last 30 days might be of help in evaluating the spacing program in this area.

Very truly yours,


J. S. Ewing

mm

JAKE L. HAMON
OIL PRODUCER
FIRST NATIONAL BANK BUILDING
DALLAS, TEXAS

February 21, 1955

J. S. EWING
GENERAL SUPERINTENDENT
PRODUCTION DEPARTMENT

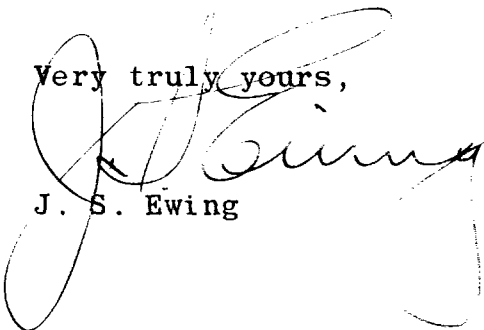
Mr. W. B. Macey, State Geologist
Secretary and Director
New Mexico Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Dear Mr. Macey:

Enclosed are Schlumbergers and core analyses of wells in the South Knowles Devonian Pool as per your request. Core analysis and Schlumberger on the last well drilled, the Cooper "A" No. 1, are not completed, although we have tested and water appeared at Minus 8548, Schlumberger measurement.

As soon as core analysis and Schlumberger are available on the Cooper they will be forwarded to you.

Very truly yours,


J. S. Ewing

mm

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

September 14, 1956

C

O

P

Y

Mr. Clarence Hinkle
Hervey, Dow & Hinkle
P. O. Box 547
Roswell, New Mexico

Dear Sir:

In behalf of your clients, Jake L. Hamon and Warren Petroleum Corporation, we enclose three copies of Order No. R-638-C issued September 13, 1956, by the Oil Conservation Commission in Case No. 819, which was heard July 18, 1956.

Very truly yours,

A. L. Porter, Jr.
Secretary-Director

jh
encls.

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

June 24, 1955

Mr. Clarence Hinkle
Hervey, Dow and Hinkle
First National Bank Bldg.
Roswell, New Mexico

Dear Mr. Hinkle:

RE: Case No. 819

In behalf of your clients, Jake L. Hamon and Warren Petroleum Corporation, we enclose a copy of Order R-638-A issued in Case 819.

Very truly yours,

W. B. Macey
Secretary - Director

WBM:brp
Enclosure

C
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OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

September 20, 1955

Mr. Clarence Hinkle
Hervey, Dow & Hinkle
First National Bank Bldg.
Roswell, New Mexico

Dear Sir:

In behalf of your clients, Jake L. Hamon and Warren Petroleum Corporation, we enclose a copy of Order R-638-B issued September 15, 1955, by the Oil Conservation Commission in Case 819, which was heard at the July 14th hearing.

Very truly yours,

W. B. Macey
Secretary - Director

WBM:brp
Enclosure

C
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CORE ANALYSIS REPORT
FOR
JAKE L. HAMON
FEDERAL DAVIS NO. 2 WELL
SOUTH KNOWLES FIELD
LEA COUNTY, NEW MEXICO
LOCATION: SEC. 13 - T17S - R38E



CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

January 17, 1955

REPLY TO
P. O. BOX 36
MIDLAND, TEXAS

Jake L. Hamon
501 First National Bank Building
Dallas, Texas

Attention: Mr. J. S. Ewing

Subject: Core Analysis
Federal Davis No. 2 Well
South Knowles Field
Lea County, New Mexico
Location: Sec. 13-T17S-R38E

Gentlemen:

The Federal Davis No. 2 well has been cored between 12,075 and 12,216 feet. Only shale was recovered from 12,075 to 12,187 feet, but slightly fractured and vuggy dolomite was recovered from 12,187 to 12,216 feet. All dolomite was sampled and analyzed for its productive characteristics. Analysis was performed by whole-core methods.

Results of these analyses indicate the zone, 12,187.0 to 12,204.2 feet, to be oil productive. Water production is expected from analyzed formation below 12,207.9 feet; however, permeability is low.

Estimates of recoverable oil by gas expansion and water drive mechanisms of recovery have been prepared for the zone, 12,187.0 to 12,204.2 feet. No economic limits on gas-oil or water-oil ratios have been taken into account.

It has been a pleasure to serve you, and we trust these data will assist in the evaluation of this property.

Very truly yours,

Core Laboratories, Inc.

R S Bynum Jr (pg)
R. S. Bynum, Jr.,
District Engineer

RSB:WCF:ma

6cc. - Addressee

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS

Page 1 of 1File LNML-195 SWell Federal Davis No. 2

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

CORE SUMMARY

FORMATION NAME	Devonian			
DEPTH, FEET	12,187.0-12,204.2			
% CORE RECOVERY	100			
FEET OF PERMEABLE, PRODUCTIVE FORMATION RECOVERED	15.5			
AVERAGE PERMEABILITY MILLIDARCYS	Max.: 44 90°: 26			
CAPACITY — AVERAGE PERMEABILITY X FEET PRODUCTIVE FORMATION	Max.: 682 90°: 403			
AVERAGE POROSITY, PERCENT	4.8			
AVERAGE RESIDUAL OIL SATURATION, % PORE SPACE	10.5			
GRAVITY OF OIL, °A.P.I.	45.3			
AVERAGE TOTAL WATER SATURATION, % PORE SPACE	48.1			
AVERAGE CALCULATED CONNATE WATER SATURATION, % PORE SPACE	48.1			
SOLUTION GAS-OIL RATIO, CUBIC FEET PER BARREL (1)	498			
FORMATION VOLUME FACTOR—VOLUME THAT ONE BARREL OF STOCK TANK OIL OCCUPIES IN RESERVOIR (1)	1.368			

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			
INCREASE DUE TO WATER DRIVE, BBLs. PER ACRE FOOT	80			
TOTAL AFTER COMPLETE WATER DRIVE, BBLs. PER ACRE FOOT (3)	102			

Core Laboratories, Inc.

RS Bynum Jr (P8)
R. S. Bynum, Jr.

NOTE:

(*) REFER TO ATTACHED LETTER.

(1) REDUCTION IN PRESSURE FROM measured 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 measured 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,

**CORE ANALYSIS REPORT
FOR
JAKE L. HAMON
FEDERAL-DAVIS NO. 1 WELL
WILDCAT
LEA COUNTY, NEW MEXICO
LOCATION: SEC. 13 - T17S - R38E**

CORE

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering
DALLAS, TEXAS

May 21, 1954

REPLY TO
P. O. BOX 36
MIDLAND, TEXAS

Jake L. Hamon
Box 4162
Odessa, Texas

Attention: Mr. H. W. Shaw

Subject: Core Analysis
Federal-Davis No. 1 Well
Wildcat
Lea County, New Mexico
Location: Sec. 13-T17S-R38E

Gentlemen:

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

The Devonian formation was cored from 12,142 to 12,171 feet. All recovered core was analyzed for permeability, porosity and fluid saturations by whole-core methods in order to take into account the effects of vugs and fractures upon the productive characteristics of the formation. Results of these analyses indicate the analyzed interval to be oil productive where permeable; however, commercial completion will be dependent upon there being additional oil productive section above or below the analyzed interval.

Because of the limited section analyzed, estimates of recoverable oil have been withheld.

We trust these data will be of assistance.

Very truly yours,

Core Laboratories, Inc.

RS Bynum Jr (RS)

R. S. Bynum, Jr.,
District Engineer

RSB:WCF:ma

10cc. - Addressee

CORE ANALYSIS REPORT
FOR
JAKE L. HAMON
WARREN PETROLEUM CORPORATION

D. F. WILHOIT NO. 1 WELL
HAMON - DEVONIAN FIELD
LEA COUNTY, NEW MEXICO
LOCATION: SEC. 18 - T17S - R39E



CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

September 7, 1954

REPLY TO
P. O. BOX 36
MIDLAND, TEXAS

Jake L. Hamon
102 Western Building
Midland, Texas

Attention: Mr. A. C. Elliott

Subject: Core Analysis
Jake L. Hamon and
Warren Petroleum Corporation
D. F. Wilhoit No. 1 Well
Hamon-Devonian Field
Lea County, New Mexico
Location: Sec. 18-T17S-R39E

Gentlemen:

The D. F. Wilhoit No. 1 well was cored using diamond coring equipment and water base mud. The core was logged and quick-frozen by a representative of Core Laboratories, Inc., and transported to the Lovington laboratory where it was sampled and analyzed.

The Woodford formation was cored from 12,134 to 12,152 feet, and the Devonian formation was cored from 12,152 to 12,551 feet. Permeability, porosity and fluid saturations were measured by whole-core methods in order to take into account the effects of vugs and fractures upon the productive characteristics of the formation. Results of these analyses indicate the zone, 12,134 to 12,156.5 feet, to be nonproductive. Oil production is expected from formation between 12,156.5 feet and 12,257 feet; however, the bulk of capacity occurs from 12,156.5 to 12,200 feet. Because of its low permeability and porosity, the zone 12,257 to 12,501 feet is considered to be nonproductive. Fluid saturations from 12,355 to 12,392 feet are favorable to oil production, but no significant flow is expected due to low capacity. Formation between 12,501 and 12,509 feet is water productive. Fluid saturations below 12,509 feet indicate water production; however, the limited productive and storage within this region are not expected to permit flow.

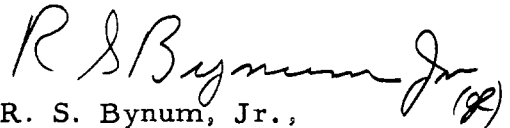
Those permeability measurements followed by an asterisk are representative of only the matrix material, as the samples were broken and unsuitable for full-diameter permeability measurement.

Estimates of recoverable oil by gas expansion and water drive mechanisms of recovery have been prepared for the interval, 12,157.0 to 12,255.0 feet. Samples having a trace or less residual oil saturation have been omitted from these calculations.

We trust these data will be of assistance.

Very truly yours,

Core Laboratories, Inc.


R. S. Bynum, Jr.,
District Engineer

RSB:WCF:ma

16cc. - Addressee

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS

Page 1 of 1File LNML-158 SWell D. F. Wilhoit No. 1

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

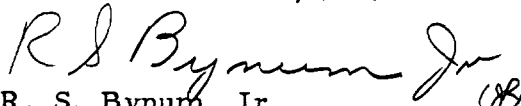
CORE SUMMARY

FORMATION NAME	Devonian			
DEPTH, FEET	12,157.0-12,255.0			
% CORE RECOVERY	100			
FEET OF PERMEABLE, PRODUCTIVE FORMATION RECOVERED	52.8			
AVERAGE PERMEABILITY MILLIDARCYS	Max.: 10 90°: 2.9			
CAPACITY — AVERAGE PERMEABILITY X FEET PRODUCTIVE FORMATION	Max.: 528 90°: 153			
AVERAGE POROSITY, PERCENT	4.0			
AVERAGE RESIDUAL OIL SATURATION, % PORE SPACE	6.7			
GRAVITY OF OIL, °A.P.I.	43.8			
AVERAGE TOTAL WATER SATURATION, % PORE SPACE	55.1			
AVERAGE CALCULATED CONNATE WATER SATURATION, % PORE SPACE	55.1			
SOLUTION GAS-OIL RATIO, CUBIC FEET PER BARREL (1)				
FORMATION VOLUME FACTOR—VOLUME THAT ONE BARREL OF STOCK TANK OIL OCCUPIES IN RESERVOIR (1)				

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)	17			
INCREASE DUE TO WATER DRIVE, BBLs. PER ACRE FOOT	67			
TOTAL AFTER COMPLETE WATER DRIVE, BBLs. PER ACRE FOOT (3)	84			

Core Laboratories, Inc.



R. S. Bynum, Jr. (88)

NOTE:

(1) REFER TO ATTACHED LETTER.

(2) REDUCTION IN PRESSURE FROM estimated SATURATION PRESSURE TO ATMOSPHERIC PRESSURE.

(3) AFTER REDUCTION FROM ORIGINAL RESERVOIR PRESSURE TO ZERO POUNDS PER SQUARE INCH.

(4) RESERVOIR PRESSURE MAINTAINED BY WATER DRIVE AT OR ABOVE estimated ORIGINAL SATURATION PRESSURE.

(5) NO ESTIMATE FOR GAS PHASE RESERVOIRS.

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