

Case No.

1587

Application, Transcript,  
Small Exhibits, Etc.



BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE NO. 1365  
Order No. R-1126-A

APPLICATION OF CABOT CARBON COMPANY  
FOR AN OIL-OIL DUAL COMPLETION IN  
THE KING-DEVONIAN POOL AND KING-  
WOLFCAMP POOL IN LEA COUNTY, NEW  
MEXICO

ORDER OF THE COMMISSION

BY THE COMMISSION.

This cause came on for hearing at 9 o'clock a.m. on January 7, 1958, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the New Mexico Oil Conservation Commission in accordance with Rule 1214 of the Commission Rules and Regulations, and Order No. R-1126 was entered denying the subject application, and this cause came on for hearing de novo at 9 o'clock a.m. on April 16, 1958, at Roswell, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 28th day of April, 1958, the Commission, a quorum being present, having considered the application and the evidence adduced and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Cabot Carbon Company, is the owner and operator of the H. L. Lowe "B" Well No. 1, located 467 feet from the South line and 850 feet from the East line of Section 26, Township 13 South, Range 37 East, NMPM, Lea County, New Mexico.
- (3) That the said H. L. Lowe "B" Well No. 1 is presently completed in and producing from the King-Devonian Pool.
- (4) That the applicant proposes to dually complete the said H. L. Lowe "B" Well No. 1 in such a manner as to permit the production of oil from the King-Devonian Pool and King-Wolfcamp Pool through parallel strings of 1 1/2-inch Hydril "CS" Joint tubing.
- (5) That the applicant proposes to gas lift the production from either or both of the above-described producing horizons in the event that either or both of said zones require the use of artificial lift.



(6) That the applicant has proved that it is, in this particular instance, mechanically feasible to dually complete the subject well as proposed and that such a completion would not cause waste.

(7) That approval of the subject application will not violate the correlative rights of any other operator of either of the above-described pools.

(8) That the subject application should be approved.

IT IS THEREFORE ORDERED:

That the applicant, Cabot Carbon Company, be and the same is hereby authorized to dually complete its H. L. Lowe "B" Well No. 1, located 467 feet from the South line and 850 feet from the East line of Section 26, Township 13 South, Range 37 East, NMPM, Lea County, New Mexico, in such a manner as to permit the production of oil from the King-Devonian Pool and King Wolfcamp Pool through parallel strings of 1 1/2-inch Hydril "CS" Joint tubing.

PROVIDED HOWEVER, That subject well shall be completed and thereafter produced in such a manner that there will be no commingling within the well-bore, either within or outside the casing, of gas, oil and gas, or oil produced from either or both of the separate strata,

PROVIDED HOWEVER, That prior to the actual dual completion the operator shall make pressure tests of the casing to prove that no casing leaks exist. In the event a casing leak is apparent the operator shall take appropriate steps to adequately repair the leak. The results of these tests shall be reported to the Commission on Form C-103.

PROVIDED FURTHER, That upon the actual dual completion of such subject well applicant shall submit to the appropriate District Office of the Commission copies of Oil Conservation Commission Form C-103, Form C-104, Form C-110, and Form C-122, outlining the information required on those forms by existing Rules and Regulations, and two copies of the electric log of the well.

PROVIDED FURTHER, That said subject well for dual completion and production shall be equipped in such a way that reservoir pressures may be determined separately for each of the two specified strata, and further, be equipped with all necessary connections required to permit recording meters to be installed and used at any time as may be required by the Commission or its representatives, in order that natural gas, oil, or oil and gas from each separate stratum may be accurately measured and the gas-oil or gas-liquid ratio thereof determined, and

PROVIDED FURTHER, That the operator shall make any and all tests, including segregation and packer-leakage tests upon completion and annually thereafter during the Annual Gas-Oil Ratio Test Period for the King-Devonian Pool, commencing in the year 1959, and whenever the packer is disturbed, but not excluding any other tests and/or determinations as deemed necessary by the Commission; the original and all subsequent tests shall be witnessed by representatives of offset operators if any there be at their election, and the results of each test, properly attested to by



the applicant herein and all witnesses, shall be filed with the Commission within fifteen (15) days after the completion of such tests, and further, that applicant shall file with the Commission in duplicate a packer-setting affidavit, which affidavit shall be due within fifteen (15) days of the dual completion or whenever the packer is disturbed, and

PROVIDED FURTHER, That upon the actual dual completion of such subject well, applicant shall submit to the Commission a diagrammatic sketch of the mechanical installation which was actually used to complete and produce the seal between the strata, and a special report of production, gas-oil ratio or gas-liquid ratio, and reservoir pressure determination for each producing zone or stratum immediately following completion.

IT IS FURTHER ORDERED, That jurisdiction of this cause is hereby retained by the Commission for such further order or orders as may seem necessary or convenient for the prevention of waste and/or protection of correlative rights; upon failure of applicant to comply with any requirement of this order after proper notice and hearing the Commission may terminate the authority hereby granted and require applicant or its successors and assigns to limit its activities to regular single-zone production in the interests of conservation.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

MURRAY E. MORGAN, Member

A. L. PORTER, Jr., Member & Secretary

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BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE NO. 1365  
Order No. R-1126

APPLICATION OF CABOT CARBON COMPANY  
FOR AN OIL-OIL DUAL COMPLETION IN THE  
KING-DEVONIAN POOL AND KING-WOLFCAMP  
POOL IN LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on January 7, 1958, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the New Mexico Oil Conservation Commission, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 12th. day of February, 1958, the Commission, a quorum being present, having considered the application, the evidence adduced and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Cabot Carbon Company, is the owner and operator of the H. L. Lowe "B" Well No. 1, located 467 feet from the South line and 850 feet from the East line of Section 26, Township 13 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) That the said H. L. Lowe "B" Well No. 1, is presently completed in and producing from the King-Devonian Pool.

(4) That the applicant proposes to dually complete the said H. L. Lowe "B" Well No. 1 in such a manner as to permit the production of oil from the King-Devonian Pool and King-Wolfcamp Pool through parallel strings of 1½ inch tubing.

(5) That the applicant proposes to utilize gas-lift in the event either or both of the above-described producing horizons require the use of artificial lift.

(6) That the use of 1½ inch diameter tubing in the proposed dual completion would impair the flow efficiency of both producing horizons, thereby necessitating the premature use of artificial lift equipment.



-2-

Case No. 1365

Order No. R-1126

(7) That it would not be mechanically feasible to artificially lift the production from both zones simultaneously in the manner proposed by the applicant.

(8) That the proposed dual completion would be impractical and inefficient, and that the subject application should, therefore, be denied.

IT IS THEREFORE ORDERED:

That the application of Cabot Carbon Company in Case No. 1365, be and the same is hereby denied.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

MURRAY E. MORGAN, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

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DOCKET: EXAMINER HEARING FEBRUARY 4, 1959OIL CONSERVATION COMMISSION 9 a.m., Mabry Hall, State Capitol, SANTA FE

The following cases will be heard before ELVIS A. UTZ, Examiner:

- CASE 1587: Application of Cabot Carbon Company for an oil-oil dual completion. Applicant, in the above-styled cause, seeks an order authorizing it to dually complete its J. L. Reed Well No. 2 located 660 feet from the North and East lines of Section 35, Township 13 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the King-Wolfcamp Pool and King-Devonian Pool through parallel strings of 1½" tubing.
- CASE 1588: Application of Atlantic Refining Company to commingle the production from several separate oil pools. Applicant, in the above-styled cause, seeks an order authorizing it to commingle the production from the Ellenburger, McKee, Fusselman, Montoya, Blinebry, Drinkard, and Queen formations on its State "Y" Lease comprising the N/2 NE/4 and the SE/4 NE/4 of Section 25, Township 25 South, Range 37 East, Lea County, New Mexico. Applicant proposes to separately meter the production from each formation except the Queen prior to being commingled.
- CASE 1589: Application of Humble Oil & Refining Company for an exception to Rule 16 of Order R-586 and for an exception to Rule 303 of the Commission Rules and Regulations. Applicant, in the above-styled cause, seeks an order permitting the classification of a 48-degree gravity oil well as a gas well in the Tubb Gas Pool, said well being its dually completed State "V" Well No. 11 located in the NE/4 SW/4 of Section 10, Township 21 South, Range 37 East, Lea County, New Mexico. Applicant further seeks permission to commingle the liquid hydrocarbons produced from the Tubb zone of said State "V" Well No. 11 with Tubb oil produced from its State "V" Well No. 7 located in the SE/4 SW/4 of said Section 10. Applicant further seeks permission to commingle the Blinebry condensate produced from said State "V" Well No. 11 with the Blinebry oil produced from its State "V" Well No. 1 located in the SW/4 SW/4 of said Section 10.
- CASE 1590: Application of Rex Moore for an order authorizing a gas injection project in San Juan County, New Mexico, and for the promulgation of special rules and regulations in connection therewith. Applicant, in the above-styled cause, seeks an order authorizing it to inject gas into the Gallup formation of the Bisti-Lower Gallup Oil Pool through its Scott No. 5 Well located 2115 feet from the South line and 2080 feet from the West line of Section 3, Township 24 North, Range 10 West, San Juan County, New Mexico. Applicant further proposes that special rules and regulations be promulgated to govern the above-described project, which rules would provide for the transfer of the allowable from the injection well to producing wells, transfer of allowables from wells which have



been shut-in for observation or to increase the efficiency of the project, operation of the wells on a net gas-oil ratio basis giving allowance for gas injected, and such other rules and regulations as the Commission deems necessary.

CASE 1591:

Application of Angels Peak Oil Company for the assignment of minimum allowables to two gas wells in the Fulcher Kutz-Pictured Cliffs Gas Pool, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order assigning minimum allowables to two gas wells in the Fulcher Kutz-Pictured Cliffs Gas Pool in order to prevent premature abandonment thereof, said wells being applicant's Angels Peak Well No. 3 located 595 feet from the North line and 1240 feet from the East line of Section 11 and Angels Peak Well No. 5 located 285 feet from the North line and 1520 feet from the West line of Section 11, both in Township 28 North, Range 11 West, San Juan County, New Mexico.

CASE 1592:

Application of Amerada Petroleum Corporation for an order extending the horizontal limits of the Bagley-Upper Pennsylvanian Gas Pool and for a non-standard gas proration unit. Applicant, in the above-styled cause, seeks an order extending the horizontal limits of the Bagley-Upper Pennsylvanian Gas Pool to include the E/2 of Section 33, and the NW/4 of Section 34, all in Township 11 South, Range 33 East, Lea County, New Mexico. Applicant further seeks the establishment of a 320-acre non-standard gas proration unit in said pool consisting of the NE/4 of said Section 33, and the NW/4 of said Section 34, to be dedicated to the applicant's State BT "M" No. 2 Well located in the SE/4 NE/4 of said Section 33.

CASE 1593:

Application of The Texas Company for a non-standard gas proration unit. Applicant, in the above-styled cause, seeks an order authorizing a 241-acre non-standard gas proration unit in the Eumont Gas Pool consisting of the NE/4 of Section 5, Township 20 South, Range 37 East, and the S/2 SE/4 of Section 32, Township 19 South, Range 37 East, Lea County, New Mexico, said unit to be dedicated to applicant's J. W. Cooper Well No. 5 located 1668 feet from the North line and 1650 feet from the East line of said Section 5.

CASE 1196:

Application of The Ibex Company for permission to expand its water flood project in the Artesia Pool, Eddy County, New Mexico, and for eight unorthodox well locations. Applicant, in the above-styled cause, seeks an order permitting the expansion of its Artesia Water Flood Project No. 2, authorized by Order No. R-966 in the Artesia Pool, Eddy County, New Mexico, to convert to water injection a well in the NW/4 NW/4 of Section 28 and a well in the SW/4 NE/4 of Section 28, both in Township 18 South, Range 28 East. Applicant further seeks approval of eight unorthodox well locations in Sections 21 and 28 of the aforementioned township.



SUPPLEMENTAL DOCKET: EXAMINER HEARING FEBRUARY 4, 1959

Oil Conservation Commission 9 a.m., Mabry Hall, State Capitol, Santa Fe, NM.

The following case will be heard before Elvis A. Utz, Examiner:

CASE 1595: Application of John J. Dempsey Associates for the assignment of a minimum allowable to one gas well in the Fulcher Kutz-Pictured Cliffs Gas Pool, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order assigning a minimum allowable to one gas well in the Fulcher Kutz-Pictured Cliffs Gas Pool in order to prevent premature abandonment thereof, said well being the Hutchison Well No. 1 located 660 feet from the North line and 635 feet from the East line of Section 1, Township 29 North, Range 13 West, San Juan County, New Mexico.



CASE 1594: Application of The Ibex Company for permission to install three separate lease automatic custody transfer systems. Applicant, in the above-styled cause, seeks an order authorizing it to install three separate lease automatic custody transfer systems, one on its Welch Duke State Lease, one on its Resler Yates State Lease and the other on its McNutt State Lease, all in the Artesia Field, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico. Applicant further seeks permission to consolidate multiple tank batteries on said Resler Yates State Lease in exception to Rule 309 of the Commission Rules and Regulations.

CONTINUED CASE

CASE 1573: Application of Southwestern, Inc. Oil Well Servicing for permission to make a "slim hole" completion. Applicant, in the above-styled cause, seeks an order authorizing it to utilize the "slim hole" method of completion for a well located in the SE/4 NW/4 Section 32, Township 16 South, Range 30 East, Square Lake Pool, Eddy County, New Mexico. Applicant proposes to utilize 2½ inch tubing as a substitute for casing in the above-described well.



1587

# CABOT CARBON COMPANY

TELEPHONE MO 4-2581

P.O. BOX 1121 FAYETTE, TEXAS



Carbon Black • Oil and Gas • Oil Field Pumping Equipment

December 11, 1958

Re: Application for Permit to Dually  
Complete as an Oil-Oil Well  
Cabot Carbon Company's J. L. Reed  
Well No. 2, King Devonian and King  
Wolfcamp Pools, Section 35,  
Township 13 South, Range 37 East,  
Lea County, New Mexico

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

Gentlemen:

By this letter and the attached Application for Dual Completion, Cabot Carbon Company respectfully requests a hearing to consider this our application for permission to dually complete the J. L. Reed Well No. 2 in such a manner that the Devonian and Wolfcamp reservoirs may be produced through parallel strings of tubing, and in support thereof states as follows:

1. Cabot Carbon Company's J. L. Reed Well No. 2 is located 660 feet from the north and east lines of Section 35, Township 13 South, Range 37 East, Lea County, New Mexico.

2. The subject well has 5-1/2 inch casing set at 12,440 feet and cemented with 300 sacks. Top of cement at 10,000 feet. The well was then drilled to a total depth of 12,590 feet. On November 20, 1956, the open hole Devonian section was potentialied for 312 barrels of 47° API corrected gravity oil in 12 hours on a 23/64 inch choke.

3. Cabot plans to work over this well soon. A bridging plug will be set at 12,435 feet. The Devonian pay will be perforated from 12,068 feet to 12,084 feet and from 12,314 feet to 12,339 feet.

4. We propose to perforate the 5-1/2 inch casing opposite the Wolfcamp formation from 9247 feet to 9290 feet, from 9300 feet to 9309 feet and from 9315 feet to 9319 feet and conduct production tests through straddle packers.

5. If these Wolfcamp intervals are productive, we propose to set a temporary bridging plug at approximately 9400 feet to separate the Devonian and Wolfcamp formations in the well bore. The Wolfcamp interval will be produced until the equipment for dual completion can be obtained.



6. After arrival of dual completion equipment, we propose to set a permanent packer at approximately 9400 feet and a packer at approximately 9200 feet and produce each zone through 1-1/2 inch tubing.

7. We are attaching a plat showing the acreage to be dedicated to the well, well location, offset wells, and offset ownership.

8. Also attached is a diagrammatic sketch showing the proposed mechanical completion of the well.

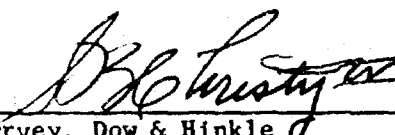
9. It is the opinion of the applicant that the manner and method proposed for the dual completion of this well is mechanically feasible and practical and is in the interest of conservation and the protection of correlative rights.

10. The applicant will comply with all rules and regulations of the New Mexico Conservation Commission to maintain separation of production from the two producing pay zones.

11. By copy of this letter and Application for Dual Completion all offset operators are notified of the proposed dual completion.

Respectfully submitted,

CABOT CARBON COMPANY

  
\_\_\_\_\_  
Harvey, Dow & Hinkle  
P. O. Box 547  
Roswell, New Mexico  
(Attorneys for Applicant)

Enclosures: Pool Plat  
Diagrammatic Sketch  
Electric Log

Copies to: Gulf Oil Corporation  
The Atlantic Refining Company  
Forrest Oil Corporation  
Kerr-McGee Oil Industries, Inc.



## NEW MEXICO OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

7-3-58

## APPLICATION FOR DUAL COMPLETION

Field Name <b>King Field, Devonian &amp; Wolfcamp Pays</b>		County <b>Lea</b>	Date <b>December 11, 1958</b>
Operator <b>Cabot Carbon Company</b>		Lease <b>J. L. REED</b>	Well No. <b>2</b>
Location of Well <b>A</b>	Unit <b>35</b>	Township <b>13 South</b>	Range <b>37 East</b>

1. Has the New Mexico Oil Conservation Commission heretofore authorized the dual completion of a well in these same pools or in the same zones within one mile of the subject well? YES ☒ NO ☐
2. If answer is yes, identify one such instance: Order No. **R-1126-A**; Operator, Lease, and Well No.: **Cabot Carbon Co. H. L. Lowe "B" #1**

3. The following facts are submitted:	Upper Zone	Lower Zone
a. Name of reservoir	<b>Wolfcamp</b>	<b>Devonian</b>
b. Top and Bottom of Pay Section (Perforations)	<b>9247-9319'</b>	<b>12,068-12,339'</b>
c. Type of production (Oil or Gas)	<b>Oil</b>	<b>Oil</b>
d. Method of Production (Flowing or Artificial Lift)	<b>Flowing</b>	<b>Flowing</b>

4. The following are attached. (Please mark YES or NO)

- Yes a. Diagrammatic Sketch of the Dual Completion, showing all casing strings, including size and setting, top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent.
- Yes b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease.
- Yes c. Waivers consenting to such dual completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.\*
- Yes d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed, it shall be submitted as provided by Rule 112-A.)

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

**Forrest Oil Corporation, P. O. Box 2066, Midland, Texas**

**Kerr-McGee Oil Industries, Inc., Production Dept., P. O. Box 1347, Odessa, Texas**

**Gulf Oil Corporation, P. O. Box 669, Roswell, New Mexico**

**Atlantic Refining Company, P. O. Box 871, Midland, Texas**

6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES ☒ NO ☐ . If answer is yes, give date of such notification **December 11, 1958**

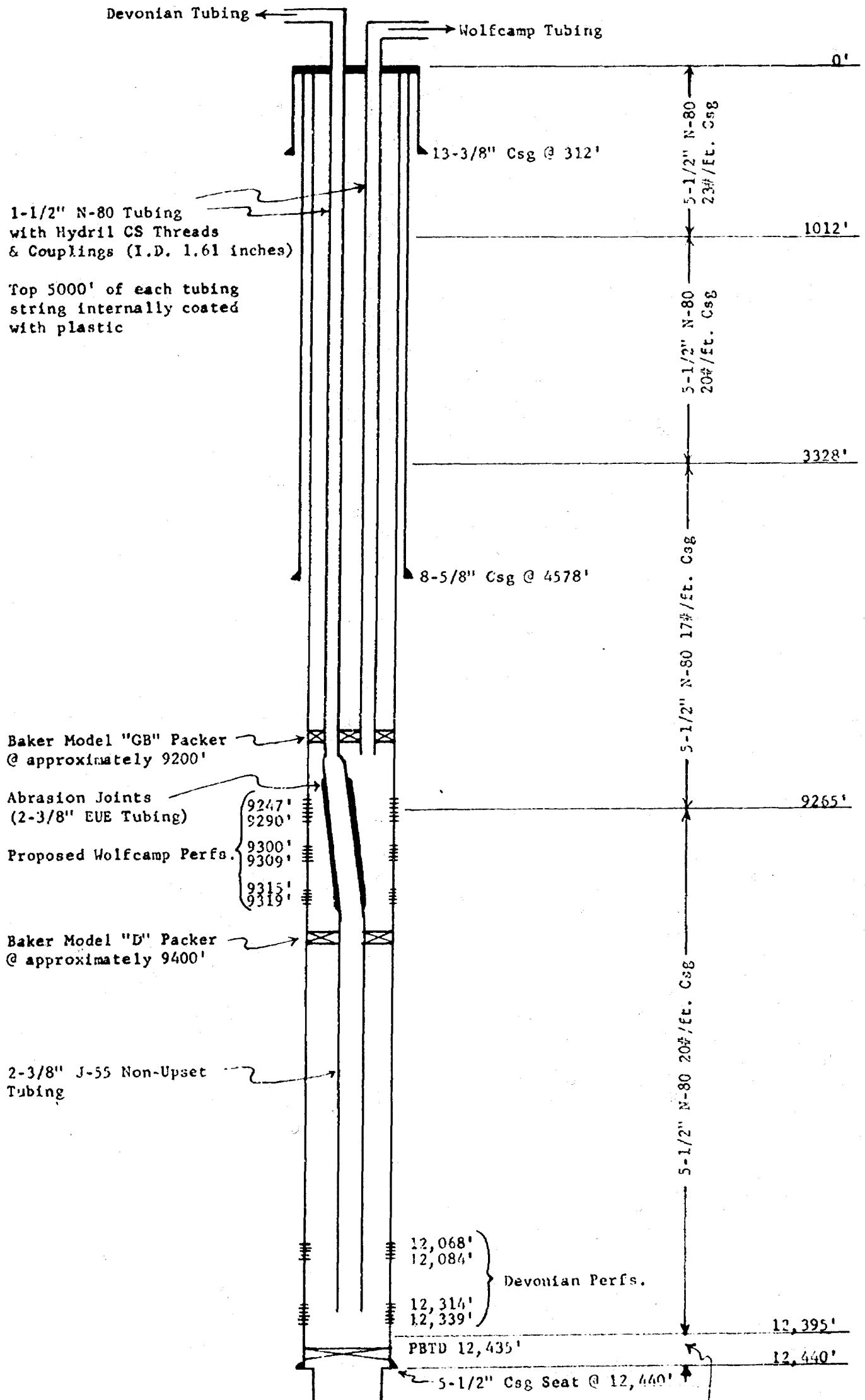
CERTIFICATE: I, the undersigned, state that I am the **Senior Petroleum Engineer** of the **Cabot Carbon Company** (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

*Joe M. Waniel, Jr.*  
Signature

- \* Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.
- NOTE: If the proposed dual completion will result in an unorthodox well location and/or a non-standard perforation unit in either or both of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.



DIAGRAMMATIC SKETCH OF  
 DUAL STRING COMPLETION  
 Proposed for  
 CABOT CARBON COMPANY'S J. L. REED WELL NO. 2  
 Section 35, Township 13S, Range 37 East





**Over-sized Map**

**Map Filmed As Follows**



R 3

Cabot

Ventura



T.D. 6300, I-C

*H. L. Lo*

Cabot

Cabot  
*Lowe*



T.D. 11,686

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7 E

, et al

Forest  
P.O. Box 2066  
Midland, Texas

2

T.D. 10,240

Cabot

1  
T.D. 13,145  
P.B. 10,408  
*H.L. Lowe, et al*

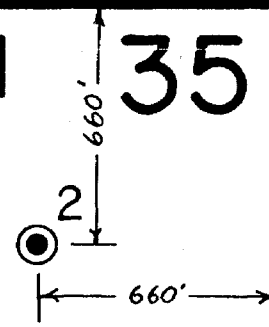
1-B  
Devonian - Wolfcamp  
Dual

T.D. 12,437

, et al 35

Cabot

Proposed  
Devonian -  
Wolfcamp  
Dual



40 Acre Unit

Cit. Serv.

2

T.D. 11,570

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*H. W. Fle*

KI

*To Mc Donald 8 Miles*



T.P.C. & O.

*State*



ed, et al

State

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Kerr-McGee, et al

P.O. Box 1347  
Odessa, Texas

Tex. Crude

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T.D. 12,839

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◇  
T.D. 10,250

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et, et al

NG PLANT

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Atlantic  
Reed

T.D. 12,864

1  
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KING FIELD  
LEA COUNTY, N.M.

SCALE: 1" = 500'

● Devonian Well

• Wolfcamp Well

◇ Dry Hole

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14  
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OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

February 13, 1959

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

Dear Mr. Christy:

On behalf of your client, Cabot Carbon Company, we enclose two copies of Order R-1332 issued February 12, 1959, by the Oil Conservation Commission in Case 1587, which was heard on February 4th at Santa Fe before an examiner.

Very truly yours,

A. L. Porter, Jr.  
Secretary - Director

bp  
Encls.



LAW OFFICES  
HERVEY, DOW & HINKLE  
HINKLE BUILDING  
ROSWELL, NEW MEXICO

TELEPHONE MAIN 2-6510  
POST OFFICE BOX 547

J. M. HERVEY 1874-1953

HIRSH M. DOW  
CLARENCE E. HINALE  
W. E. BONDURANT, JR.  
GEORGE H. HUNKER, JR.  
HOWARD C. BHATTON  
S. B. CHRISTY, IV  
LEWIS C. COX, JR.

PAUL W. EATON, JR.  
ROBERT C. BLEDSOE

January 9, 1959

Mr. Oliver E. Payne, General Counsel  
New Mexico Oil Conservation Commission  
P. O. Box 871  
Santa Fe, New Mexico

Dear Oliver:

Thank you for your letter of January 7 advising that it is not necessary to serve a copy of our application in behalf of Cabot-Carbon Company for an oil-oil dual completion of its J. L. Reed Well No. 2 in the King Pool, Lea County, New Mexico; we further note you suggest that as a matter of courtesy it would be preferable to send a copy to the offset owners despite the fact that this is not required by the Commission rules.

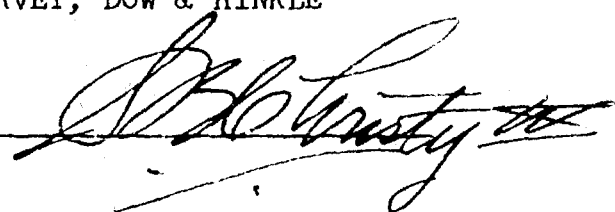
For the information of parties receiving a copy of this letter, we have today sent a copy of the application by certified mail to Gulf Oil Corporation, The Atlantic Refining Company, Forrest Oil Corporation, and Kerr-McGee Oil Industries, Inc.

Best regards.

Respectfully,

HERVEY, DOW & HINKLE

By



SBC:jy

cc: Mr. T. L. Stall  
Cabot-Carbon Company  
P. O. Box 4395  
Midland, Texas  
cc: Mr. Joe M. Daniel, Jr.  
Cabot-Carbon Company  
P. O. Box 1101  
Pampa, Texas



J. M. HERVEY 1874-1953

IRRAW M. DOW  
CLARENCE E. HINKLE  
W. F. BONOURANT, JR.  
GEORGE M. HUNKER, JR.  
HOWARD C. BRATTON  
S. B. CHRISTY IV  
LEWIS C. COOLEY, JR.

PAUL W. EATON, JR.  
ROBERT C. BLEDSOE

LAW OFFICES  
HERVEY, DOW & HINKLE  
HINKLE BUILDING  
ROSWELL, NEW MEXICO

December 12, 1958

TELEPHONE MAIN 2-6510  
POST OFFICE BOX 547

*Examined  
in  
Subpoena*

*100-1557*

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

Attention: Mr. Jack Cooley

Re: Application of Cabot-Carbon Company  
to dually complete as an oil-oil  
well its J. L. Reed Well No. 2 in  
the King Pool, Lea County, N.M.  
Our No. 124-42

Dear Jack:

We are enclosing herewith in triplicate Application of Cabot Carbon Company for a permit to dually complete as an oil-oil well its J. L. Reed Well No. 2 in Section 35, Township 13 South, Range 37 East (King Pool), Lea County, New Mexico; attached to the Application is the Commission's form of Application for Dual Completion 7-3-58, a diagrammatic sketch of the dual string proposed completion, and a plat showing the location of the well in question, the offset wells and leases, as well as the names and addresses of the operators of all offset leases.

This application is filed pursuant to amended rule 112-A effective July 3, 1958 under Order No. R-1214.

In reading the above rule, I am unable to locate the provision requiring notice to offset operators where the application is for a public hearing as in the present instance. We have sufficient copies of the application to send to offset owners, but I have not done this as yet, and would appreciate your advice on this point; I do notice the requirement of notice to offset operators where the application is for an administrative approval, but none in the present instance. I might state that the only offset operators to the well in question are companies owning an interest in the well in question (Atlantic, Gulf and Forest), but Kerr-McGee is an offset owner to the lease upon which the subject well is situate. If you feel it is necessary to notify offset owners, then I would further appreciate your advice as to whether this applies to offset operators to the lease or to the well.

*Docketed  
1-22-59  
8T*



December 12, 1958

If possible, we would like to have this application considered at an examiner's hearing in February of 1959.

Best regards.

Respectfully,

HERVEY, DOW & HINKLE

BY: 

SBC:jy

2 cc: Mr. T. L. Stall  
Cabot Carbon Company  
P. O. Box 4395  
Midland, Texas

1 cc: Mr. Joe M. Daniel, Jr.  
Cabot Carbon Company  
P. O. Box 1101  
Pampa, Texas



OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO

Date 2-5-59

CASE NO. 1587

HEARING DATE 2-4-59

My recommendations for an order in the above numbered case(s) are as follows:

Grant request as requested.

1. 2-strings  $1\frac{1}{2}$  Hydint to 9200 ft. and one string  $2\frac{3}{8}$  EVE 9200 to 12,314.
2. Hot King - Wolfcamp and King Devonian will be ~~separated~~ by Baker Model "D" packer set at. 9400 ft. A Baker "AB" pack will be set at 9200 "
3. N.M. is. Cabot Canyon, Co. J. L. Reed #2, 660 from N + E. lines sec. 35-16 S-37 E

*Wm. A. [Signature]*

\_\_\_\_\_  
Staff Member



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. 1587  
Order No. R-1332

APPLICATION OF CABOT CARBON COMPANY  
FOR AN OIL-OIL DUAL COMPLETION IN THE  
KING-WOLFCAMP POOL, AND KING-DEVONIAN  
POOL IN LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on February 4, 1959, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 12<sup>th</sup> day of February, 1959, the Commission, a quorum being present, having considered the application, the evidence adduced and the recommendations of the Examiner, Elvis A. Utz, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Cabot Carbon Company, is the owner and operator of the J. L. Reed Well No. 2, located 660 feet from the North line and 660 feet from the East line of Section 35, Township 13 South, Range 37 East, NMPM, Lea County, New Mexico.
- (3) That the said J. L. Reed Well No. 2 is presently completed in the King-Devonian Pool.
- (4) That the applicant proposes to dually complete the said J. L. Reed Well No. 2 in such a manner as to permit the production of oil from the King-Wolfcamp Pool and the production of oil from the King-Devonian Pool through parallel strings of 1½-inch CS joint Hydril tubing.
- (5) That the applicant proposes to gas lift the production from either or both of the above-described producing horizons in the event that either or both of said zones requires the use of artificial lift.



-2-

Case No. 1587  
Order No. R-1332

(6) That the applicant has proved that in this particular case it is mechanically feasible to dually complete the subject well as proposed and that such a completion would not cause waste.

(7) That approval of the subject application will not violate the correlative rights of any operator.

IT IS THEREFORE ORDERED:

That the applicant, Cabot Carbon Company, be and the same is hereby authorized to dually complete its J. L. Reed Well No. 2, located 660 feet from the North line and 660 feet from the East line of Section 35, Township 13 South, Range 37 East, NMPM, Lea County, New Mexico, in such a manner as to permit the production of oil from the King-Wolfcamp Pool and the production of oil from the King-Devonian Pool through parallel strings of 1½-inch CS joint Hydril tubing.

PROVIDED HOWEVER, That applicant shall complete, operate, and produce said well in accordance with the provisions of Section V, Rule 112-A.

PROVIDED FURTHER, That applicant shall take packer-leakage tests upon completion and annually thereafter during the Gas-Oil Ratio Test Period for the King-Devonian Pool.

IT IS FURTHER ORDERED: That jurisdiction of this cause is hereby retained by the Commission for such further order or orders as may seem necessary or convenient for the prevention of waste and/or protection of correlative rights; upon failure of applicant to comply with any requirement of this order, after proper notice and hearing the Commission may terminate the authority hereby granted and require applicant or its successors and assigns to limit its activities to regular single-zone production in the interests of conservation.

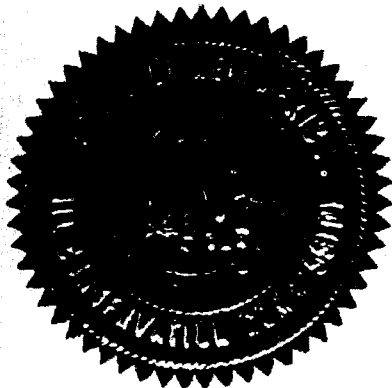
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

*John T. Burroughs*  
JOHN BURROUGHS, Chairman

*Murray E. Morgan*  
MURRAY E. MORGAN, Member

*A. L. Porter, Jr.*  
A. L. PORTER, Jr., Member & Secretary





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CERTIFIED NO.	STREET AND NO. OR P. O. BOX	
3199167	P. O. Box 547	
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	Roswell, New Mexico	

POD Form 3811 Jan. 1958

CS-10-71846-4

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Gulf Oil Corporation		
STREET AND NO.		
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CITY AND STATE		
Roswell, New Mexico		
<p>If you want a return receipt, check which:</p> <p><input checked="" type="checkbox"/> It shows to whom and when delivered</p> <p><input type="checkbox"/> It shows to whom, when, and address where delivered</p>		<p>If you want restricted delivery, check here</p> <p><input type="checkbox"/> 20¢ fee</p>

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	Hervey, Dow & Hinkle	
CERTIFIED NO.	STREET AND NO. OR P. O. BOX	
3199168	P. O. Box 547	
INSURED NO.	CITY, ZONE AND STATE	
	Odessa, Texas	

POD Form 3811 Jan. 1958

CS-10-71846-4

RECEIPT FOR CERTIFIED MAIL—15¢

SENT TO		<p>POSTMARK OR DATE</p> <p>1/9/59</p>
Kerr-McGee Oil Industries, Inc.		
STREET AND NO.		
P. O. Box 1347		
CITY AND STATE		
Odessa, Texas		
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SIGNATURE OR NAME OF ADDRESSEE (must always be filled in)

*Gulf Oil Corp. M. J. Scott*

SIGNATURE OF ADDRESSEE'S AGENT, IF ANY

DATE DELIVERED

JAN 10 1959

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SIGNATURE OR NAME OF ADDRESSEE (must always be filled in)

*Gulf Oil Corp. M. J. Scott*

SIGNATURE OF ADDRESSEE'S AGENT, IF ANY

*B. R. Rowe*

DATE DELIVERED

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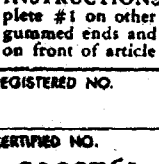
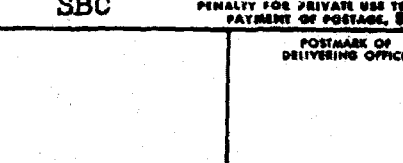

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		P. O. Box 547		
		Roswell, New Mexico		
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Forrest Oil Corporation		
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Midland, Texas		
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No 3199761

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INSURED NO.		CITY, ZONE AND STATE		
		RETURN TO 		
3199761		HERVEY, DOW & HINKLE		
		P. O. Box 547		
		Roswell, New Mexico		
CS-16-71940-6				

RECEIPT FOR CERTIFIED MAIL—15¢

SENT TO		POSTMARK OR DATE
The Atlantic Refining Company		
STREET AND NO.		
P. O. Box 871		
CITY AND STATE		1/9/59
Midland, Texas		
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*Forest Oil*

SIGNATURE OF ADDRESSEE'S AGENT, IF ANY  
*E. C. Long*

DATE DELIVERED **JAN 12 1959** ADDRESS WHERE DELIVERED (only if requested in item #1)

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SIGNATURE OR NAME OF ADDRESSEE (must always be filled in)  
*Planted by C.*

SIGNATURE OF ADDRESSEE'S AGENT, IF ANY  
*Richard Johnson*

DATE DELIVERED ADDRESS WHERE DELIVERED (only if requested in item #1)

CBS-16-71848-4 GPO

1. Stick postage stamps to your letter to pay:  
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5. Save this receipt and present it if you make inquiry.

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BEFORE THE  
OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE NO. 1507

TRANSCRIPT OF HEARING

DEARNLEY - MEIER & ASSOCIATES  
GENERAL LAW REPORTERS  
ALBUQUERQUE NEW MEXICO  
Phone CHapel 3 6691

February 4, 1959



BEFORE THE  
OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO

IN THE MATTER OF:

Application Cabot Carbon Company for an oil-oil dual completion. Applicant, in the above-styled cause, sees an order authorizing it to doubly complete its J. L. Reed Well No. 2 located 600 feet from the North and East lines of Section 35, Township 13 South, Range 31 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the King-Wolfcamp Pool and King-Devonian Pool through parallel strings of 1 1/2 inch tubing.

CASE NO.

1587

BEFORE:

Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: We will proceed to Case 1587.

MR. PAYNE: Case 1587. Application of Cabot Carbon Company for an oil-oil dual completion.

MR. CHRISTY: Sim Christy, of Hervey, Dow & Hinkle for the Applicant, Cabot Carbon Company. We have one witness, Mr. Daniel.

(Witness sworn.)

MR. UTZ: Are there other appearances to be made in this case? If not, you may proceed.



J. C. M. DANIEL, JR., a resident of Pampa, Texas, on behalf of the Applicant, being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY: MR. CHRISTY:

Q Will you please state your name and address, please.

A Joe M. Daniel, Jr., of Pampa, Texas.

Q By whom are you employed and in what capacity?

A Cabot Carbon Company as their senior petroleum engineer.

Q Have you previously testified before the New Mexico Oil Conservation Commission as an engineer in matters similar to this application?

A Yes, sir.

MR. CHRISTY: Refer the Examiner to a prior hearing on a dual completion matter that Mr. Daniels testified to. Are his qualifications satisfactory?

MR. UTZ: If previously qualified, yes.

Q Are you familiar with the matter contained in the application in this case, Case 1587?

A Yes, sir.

Q Now, will you please explain to the Commission the purpose of this application, what you seek by it?

A The application is to dually complete as an oil-oil well using two tubing strings the Cabot Carbon Company's J. L. Reed Well No. 2, which is located 660 feet from the North and



East lines of Section 33, Township 13 North, Range 3 East, Lea County, New Mexico. In the King field. This well is currently producing from the Devonian formation.

We propose to perforate the 5-1/2 inch casing opposite the Wolfcamp formation from 9247 feet to 9290 feet, from 9300 feet to 9309 feet, from 9315 feet to 9319 feet, and from 9373 feet to 9380 feet, and conduct a production test through straddle packers on each perforated zone.

If the Wolfcamp intervals are productive, we will have a temporary bridging plug at approximately 9400 feet which will separate the Devonian and Wolfcamp formations in the well bore. The Wolfcamp intervals will be produced until the equipment for the dual completion can be obtained.

After arrival of the dual completion equipment, we propose to set packers at approximately 9400 feet and 9200 feet and produce each zone through 1-1/2 in tubing.

Q Now, I notice that you mentioned an additional zone of 9373 feet to 9380 feet, and I don't believe that this is shown in your application, is that correct?

A That is correct.

Q Now, this additional zone is in the Wolfcamp Pool?

A Yes, sir, and we desire to test this interval for oil production.

MR. CHRISTY: With that statement in mind, that it is a part of the same King Wolfcamp Pool, we move to amend the



application to show the additional interval to be performed and to amend Exhibit 2 of the application to that extent also. The revised Exhibit 2, Mr. Examiner, is a postcard in front of you to show the additional interval. The initial application was made to SO.

MR. UTZ: Is there objection to the amendment of the application as stated? If not, it will be so amended.

Q (By Mr. Christy) Now, Mr. Daniel, have you conducted tests on this well?

A Yes, sir.

Q Now, will you please explain the manner of current completion of this well and the tests taken and the results thereof?

A The subject well has 5-1/2 inch casing set at 12,440 feet and cemented with 300 sacks. Top of the cement behind the pipe was found to be 10,000 feet by estimation of fillup. The well was then rat holed to a total depth of 12,590 feet. The open hole section in the Devonian formation was completed natural and on the initial potential test taken November 20th, 1956, the well produced 312 barrels of 47 degree API corrected gravity oil in 12 hours through a 23/64 inch choke.

The open hole Devonian section is currently producing water and oil. A recent production test indicated the well will make 189 barrels of oil and 61 barrels of water per day. We plan in the very near future to plug off the open hole section by setting a bridging plug at 12435 feet. The 5-1/2 inch casing will be



perforated from 12,000 feet to 12,004 feet and from 12,112 feet to 12,116 feet opposite the Devonian formation and thereupon closed. At least a portion of the Wolfcamp is believed productive as a DST was run while drilling from 12,000 feet to 12,116 feet. In the DST the tool was open 2 hours, gas to the surface in 30 minutes, recovering 12 feet heavy gas oil, 30 feet free oil, and 1,004 feet heavy and-out oil. Estimated 75 per cent oil. The flowing pressures were 120 pounds to 100 pounds with the 20 minute shut in pressure being 1300 pounds.

Q Now, have these tests that you have taken indicated that the well is susceptible to production of oil in more than one zone?

A Yes, sir. The subject well was completed and is still producing from the Devonian horizon. A portion of the Wolfcamp horizon was indicated to be productive by the previously mentioned drill stem test. However, the Wolfcamp zones we propose to perforate have not been extensively tested in this well, nevertheless a study of the logs indicates these Wolfcamp intervals to be oil bearing. The procedure for the dual completion work over will permit thorough testing of the Wolfcamp prior to ordering our dual completion equipment. The work over proposed was set out in the application.

Q Now, will this proposed dual completion permit you to meet offset obligations and protect correlative rights?

A Yes, sir. The subject well is offset by two direct and two diagonal Wolfcamp producers on other leases.



Q Now, I refer you to Exhibit 1 and ask you if you will identify and explain it.

A Exhibit 1 is a plan of the King Pool showing the location of our J. L. Reed Well No. 2, and further shows its offset well, the producing horizons, and offset property owners.

Q Now, I refer you to Exhibit 2 and ask you if you will please identify and explain it.

A Exhibit 2 is a diagrammatic sketch showing the proposed mechanical completion of the well in question. We propose to perforate and complete in the Wolfcamp horizon between the depths of 9247 feet and 9386 feet. A Baker Model D permanent type packer is to be set at approximately 9400 feet. This packer will separate the two pay zones in the casing. The 1-1/2 inch tubing through which to produce the Devonian will be run next. We will have some 2700 feet of 2-3/8 inch non-upset tubing as tail pipe below the Model D packer. Above the Model D packer seating element we will have 200 feet of 2-3/8 inch EUE tubing which will be externally wrapped with fiber glass and plastic to protect this interval from abrasion. The upper packer will be a Baker Model GB packer, to be set at approximately 9200 feet. This packer will be run on the first string of tubing. Above the upper packer we will run approximately 9200 feet of 1-1/2 inch tubing with Hydrill CS couplings. After the Devonian string of tubing is in place with the upper packer set, we will run the short tubing string to the Wolfcamp pay. The upper tubing string will also be 1-1/2 inch with Hydrill CS



couplings. The top 3000 feet of each tubing string will be internally cemented with plastic for paraffin control.

Q Now, are these two reservoirs involved separated in the well behind the casing?

A Yes, sir, they are separated by some 3000 feet and 300 sacks of cement. However, we plan to perforate and produce below the Wolfcamp horizon as a safeguard.

Q Now, are all the fresh water zones and other producing horizons protected?

A Yes, sir. We used 2300 sacks of cement behind the intermediate 8-5/8 inch casing set at 4590 feet. The cement behind the 312 feet of 13-3/8 inch surface casing was circulated to the surface.

Q Now, in your opinion, do you feel that there is a possibility of communication or migration of fluids between the Wolfcamp and Devonian in the annulus between the casing and the well bore?

A No, sir.

Q In your opinion, is the proposed dual completion installation in accordance with good engineering practices and principles?

A Yes, sir.

Q Has this type of dual completion installation proven successful in actual field tests?

A Yes, sir.

Q Is this type of proposed dual completion customarily used



in Lea County, New Mexico?

A There are quite a few dual string installations using 2 inch tubing in Lea County. However, I understand there are very few installations using 1-1/2 inch tubing. Cabot Carbon Company has one 1-1/2 inch dual string installation in operation in New Mexico, which is a north offset to the subject well, and I understand that Humble has been granted permission for an inch and a half dual completion.

Q Would you explain Cabot Carbon's experience with this 1-1/2 tubing in the dually completed well you spoke of a moment ago?

A On April the 26th, 1958, Cabot Carbon Company received permission from the New Mexico Oil Conservation Commission to dually complete their H. L. Lowe B Well No. 1, King Field. This was in Case No. 1305, Order No. R-1126-A. On July 22, 1958, the work over to produce the Wolfcamp formation was completed. The Devonian was temporarily plugged off. The Wolfcamp potentialled for 207 barrels of pipeline oil in 24 hours on a 14/64 inch choke. The Wolfcamp produced its allowable of oil with no water until the dual completion work over was started on September 10, 1958. At completion of the dual installation, the Wolfcamp was swabbed for two weeks without flowing due to excessive water production. The Devonian was then swabbed in and placed on production. Gas lift valves were installed on the Wolfcamp tubing string and production restored on November 6, 1958. The water and oil production gradually decreased. The first day on gas lift operations, the well produced



115 barrels of oil. By December 8, 1958, the production had reached 10 barrels per day. On December 8, 1958, a swabbing test recovered 90 barrels of fluid, 50 per cent water, and the static level remained at 1000 feet during swabbing test. The production valves were redesigned and the valves reopened as a result of the swabbing test. The new valves were placed in operation on January 6, 1959. Since January 6, we have been varying the gas injection volume and time cycle. The daily oil production has varied from 27 to 90 barrels per day and will average 45 barrels of oil and 30 barrels of water per day.

Q Now, I refer you to Exhibit 3 and 3-A and ask you if you will please identify those and explain them.

A These exhibits are graphic presentations of production and pressure history for the H. L. Lowe B well No. 1 using 2 inch tubing and 1 1/2 inch tubing.

Q Now, what have been the producing characteristics of the well using 1-1/2 inch tubing for the Devonian pay in the H. L. Lowe B Well No. 1?

A I can best answer this by referring to Exhibits No. 3 and 3-A. Exhibit No. 3 is a graphic presentation of the four production tests taken while 2 inch tubing was in the well. This well, while producing 250 to 300 barrels per day, required a 12/64 or 13/64 inch choke and the tubing pressure was 600 to 650 pounds. The gas-oil ration varied from 800 to 1400 cubic feet per barrel. Exhibit No. 3-A is a plot of the same data using



Q Now, what is the difference between the pressure in the tubing and the pressure in the well? A The difference is the pressure drop in the tubing. The pressure drop in the tubing varies from 500 to 1,000 psi, depending on the length of the tubing. In December, 1950, the average pressure drop was 1,000 psi. In January, 1951, it averaged 900 psi. One of the reasons why 1-1/2 inch tubing is more efficient than 2 inch tubing for our conditions; that is, for wells with a gas-oil ratio of around 1000 cubic feet per barrel and producing 700 to 800 barrels of oil per day from 12,000 feet. We explain this by the fact that we have several hundred pounds greater tubing pressure while producing at approximately the same production rate and GOR and using a smaller size choke. We believe this is the result of less friction loss in the small tubing because we have less slippage of gas through the oil while being lifted vertically. This means we can sustain flowing conditions longer with small tubing because a lower bottom hole flowing pressure will be required to lift the fluid.

In the last 12 months, our shut in bottom hole pressure has declined 110 pounds, which probably reflects a similar decline in our flowing bottom hole pressure, and yet we have observed greater surface flowing pressures.

Q Why has Cabot Carbon Company proposed using two strings of 1-1/2 inch tubing when other operators use 2 inch tubing?

A It is a matter of clearance. In wells with 7 inch



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casing, 5-1/2 inch 23 per foot casing or 5-1/2 inch 28 per foot casing. The well was originally cased with 5-1/2 inch casing, and it is a physical impossibility to get two strings of 5-1/2 inch casing in 5-1/2 inch casing.

Q. Now, I understand that you said that you would like to please identify and exhibit it.

A. Exhibit A is a description of the casing identified as 5-1/2 inch and 23 pound casing and various combinations of tubing sizes. The 5-1/2 inch 23 per foot casing is used in this well. This casing is the heaviest casing in our well, and is located in the top 1012 feet of our long casing string. All tubing run down this casing must pass through this heavy casing. The outside diameter of all 5-1/2 inch casing is the same, and the heavier weight casings have greater wall thickness, and therefore, the heavier casings have a reduction in inside diameter. The API has required all manufacturers of casing to guarantee a certain minimum inside diameter, called drift diameter. In other words, all casing of a certain size and weight has an inside diameter that can be no less than a prescribed minimum. For 5-1/2 inch 23 pound per foot casing, this inside drift diameter is 4.545 inches. Various combinations of tubing are used to give the clearance available when running the second string of tubing into the hole after the first string is already in place. It must be pointed out that the collars on the second string of tubing must pass the collars on the first string already in the well when running the second string into the



hole. It is to when you have a certain pressure of water in the well and the string.

Well now, could you use a 2 inch line? I believe so. I believe, I believe, has an inside diameter of 1.6 inches. And one string of 1-1/2 inch tubing, instead of using two strings of 1-1/2 inch tubing, which has, I believe, an inside diameter of 1.6 inches?

A We could run a string of 2-inch tubing, internal diameter of 1.75 inches, to the Devonian and a string of 1-1/2 inch tubing, internal diameter of 1.6 inches, to the Wolfeamp. This installation would be satisfactory as long as both zones were flowing and would give a clearance of .102 inches. This is reflected in Case 1 and 3 on Exhibit 3. When it becomes necessary to artificially lift the fluid from the Wolfeamp, we would have to remove both the strings and replace them with 1-1/2 inch tubing in order to run gas lift valves. It is our opinion that the Wolfeamp will require artificial lift in the reasonable near future. Exhibit No. 4 shows five various possibilities, and we believe it, together with the performance of the 1-1/2 inch tubing in the Lowe B Well No. 1, will show that the most effective and efficient tubing combination under the existing physical possibilities is as outlined in this application.

Q Now, how do you propose to lift the fluid from either or both pays when artificial lift is required?

A We propose to gas lift the oil. Gas lift valves are



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feasible for 3 1/2" well casing. Therefore, we will be able to artifi-  
cially lift the oil from either pay or water pay zone by lift.  
We will obtain our gas from our King field gas zone. We have  
obtained assurance from gas lift manufacturers that we can lift  
large volumes of fluid from these pay depths when and if necessary.

Q Have you ever considered using non-jumper or jumper  
of artificially lifting the fluid when it becomes necessary.

A Yes, we have, but that will require a large amount of energy to  
lift the required volume from our pay depth. The artificial lifting  
would mean that only one zone could be produced at a time.

Q Will the surface equipment be so designed and installed  
that the reservoirs will be separately produced and their fluids  
separately tanked and gauged for absolutely no commingling?

A Yes, sir, each producing zone will have its own  
separator and storage facilities.

Q Now, do you feel that the dual completion technique  
requested in this application, is it recognized and accepted in  
general by the oil industry and other state regulatory bodies?

A Yes, sir.

Q Well now, do you feel that corrosion would be a pos-  
sible objection to your proposed manner of dual completion?

A No, sir, we have observed no corrosion in the King  
Pool.

Q Does this dual completion technique possess any more  
possibility for leakage or communication of the reservoirs than



any other detection method?

A No, sir.

Q Will Cabot Corporation Company be willing to conduct pressure and leak tests, separation tests, and other tests which might be required by the Commission to determine if there is any seepage or leakage?

A Yes, sir.

Q Under the proposed method of dualing, is it possible to take bottom hole pressures on each separate zone, and if so, please explain how?

A Yes, it is possible. A bottom hole pressure hole can be run to the bottom of the long string of casing, within 50 feet of the Devonian formation. A hole can be run to the top of the upper packer in the short string of tubing, or within some 100 feet of the Wolfcamp formation.

Q Well now, will it be possible to check at frequent intervals for leakage across the packer separating the two pays?

A Yes, sir. As stated before, we will have separate facilities for each pay. The Wolfcamp pay will possibly have an oil gravity of 36 degree to 42 degree API and the Devonian pay has an oil gravity of 47 degree API. This difference in gravity will provide a daily check for leakage, because any change in gravity will be noted by operating personnel and/or pipeline gaugers.

Q Have you made an estimate of oil reserves that will be recovered from the Wolfcamp formation in this well?



A. Yes, sir. I believe the recovery is of the order of a million barrels of oil, 1,000,000 barrels.

Q. And will it only be for the life of the well?  
A. Yes, sir. In the Wolfcamp.

Q. Approximately \$14.00?

A. Right. What would it cost to finally complete the subject well?

A. Approximately \$57,000.

Q. Now, what are the economics involved when comparing the expected recoverable oil reserves with the cost of obtaining this oil from the Wolfcamp?

A. The value of one barrel of oil to us after our royalty and tax is \$2.20 per barrel. If we assume 40 cents per barrel for lifting cost, which is reasonable, the revenue to be received from our expected oil reserves in the Wolfcamp is \$153,000. If we drill a twin well, we would not get our money back. If we are permitted to dual the subject well, a reasonable profit may be expected.

Q. In your opinion, do you think that the ultimate oil recovery from the Devonian formation will be reduced as a result of this dual completion?

A. No, sir, the ultimate oil recovery from the Devonian will not be affected as a result of this dual completion. I base this on two facts: One, the producing efficiency using small tubing will improve flowing life of both pays, and when necessary,



we can artificially produce either or both zones to depletion, and two, it is expected that the Wolfcamp will have a shorter producing life than the Devonian. Therefore, when necessary, we will plug off the Wolfcamp, and produce the Devonian by the improved method.

Q All right. Now, if this application were not approved, how could correlative rights in this instance be protected?

A Only by drilling a twin well on the same 40-acre tract, which would not be economical.

Q Were exhibits one, two, three, and four prepared by you?

A Yes, sir.

Q Or under your direct supervision?

A Yes, sir, and they are identified as Exhibits 1, 2, 3, and four.

Q Do you have a log on this well?

A Yes, sir, and they are identified as Exhibit 5 and 5-A. Exhibit 5 is a microlog on Well 2, Exhibit 5-A is an electric log on Reed 2.

MR. CHRISTY: We offer in evidence Applicant's Exhibits 1, 2, 3, 3-A, 4, 5, and 5-A.

MR. UTZ: Are there objections to the entrance of Cabot Carbon Company's Exhibits 1 through 5-A? If not, they will be received in the record.

MR. CHRISTY: We have no further question from this



Witness, Mr. Examiner.

CROSS EXAMINATION

BY: MR. UPZ:

Q Mr. Daniel, what did you say the gravity was in the Wolfcamp?

A 30 to 42, and the Devonian. 47.

Q Did you state the pressure for the Wolfcamp?

A No, sir, I didn't. The drill stem test indicated 3320, but that's the upper portion of that interval.

Q What is your pressure in the Devonian?

A Currently, from the test taken in November -- October rather, of '58, it was 4580, I believe. Approximately 4580.

Q And both of these crudes are sweet?

A Yes, sir, both are sweet.

Q Will you tell me what the top of the cement is on your 8-5/8?

A I believe that was circulated to the surface.

Q Twenty-three hundred sacks?

A I believe it was circulated to the surface, sir. Let me check it. 8-5/8?

Q Yes.

A I don't have the top on that. I just have twenty-three sacks.

Q It was not circulated?

A Evidently not, but it was circulated to the surface.



Q I believe you stated the top of the cement on your 5-1/2 inch casing?

A On our side we calculate it by fillup, and it was 10,000 feet, but we did not run a temperature survey.

MR. JAYNE: Are there any questions of the witness?

MR. JAYNE: Yes, sir.

EXAMINATION BY MR. JAYNE:

Q Mr. Daniel, you will attempt to gas lift either or both in the event it becomes necessary?

A Yes, sir.

Q Now, in this H. L. Lowe B No. 1 well in which you have the twin strings of 1-1/2 tubing--

A Yes, sir.

Q --are you artificially lifting --

A Yes, sir, we are gas lifting the Wolfcamp.

Q You don't contemplate having to gas lift the Devonian within a relative short period of time, are you?

A No, sir, not with the pressure we have, unless water breaks through sooner than we expect.

Q And this H. L. Lowe Well also has 5-1/2 inch casing?

A Yes, sir.

Q Do you think it is mechanically feasible to gas lift from both zones simultaneously?

A It would be efficient, but not possibly as efficient as if you had one string, but we could probably get -- Well, I wouldn't



say exactly what we could recover, but we could lift probably a hundred to a hundred and fifty barrels of fluid, two hundred barrels of fluid from each zone.

Q Do you contemplate that during the life of this well you will have to gas lift both zones simultaneously?

A No, sir, we think that the Wolfcamp will be depleted before we will ever have to consider artificial lift for the Devonian.

MR. PAYNE: That you, that's all.

EXAMINATION BY MR. FISCHER:

Q Mr. Daniel, if the top of your cement is at ten thousand feet, your perforations are going to be in the nine thousand foot --

A As I stated, we plan on perforating and squeezing below the Wolfcamp formation before we start perforating the pay in the Wolfcamp.

Q And the only day to day packer leakage check you will have is the gravity check?

A That's true.

Q But you will perform normal packer leakage tests so far --

A Initially, and then when we put in the new string of gas lift valves in, in January, we have to run another packer leakage test.

Q Could you explain how you would perform your packer leakage test with your gravity valve in there please, on the







Q It is not shown on the diagram, but both of the strings of tubing will be pinned, plugged, or have a spring collar of some sort.

A I am sure the bottom one will. The upper one has a restriction on it due to the sealing element that nothing could fall through but the bottom will have a ball plug.

MR. FISCHER: Thank you.

EXAMINATION BY MR. UTZ:

Q Mr. Daniel, is there any difference between the mechanics of this dual completion and the one on the Lowe One B?

A To my knowledge it is almost identical, except for the depth variation.

MR. UTZ: Are there other questions of the witness?

MR. CHRISTY: For the record, Mr. Daniel, in response to a question a moment ago, I believe you stated two separate leakage tests were taken on the Reed No. 2.

A I mean on the Lowe B, excuse me.

EXAMINATION BY MR. PAYNE:

Q Mr. Daniel, which well is deeper, this one or the Lowe B. No. 1?

A Total depthwise?

Q Yes.

A Let me check on that. Plugged back total depth.

Q Oh, plugged back total depth?

A Yes.



Q All right.

A The Lowe 2 1 was casing out to 12,300 feet, and then was drilled out open hole to 12,300 feet.

Q So actually it is very similar to this?

A Yes, sir.

MR. PAYNE: Thank you.

EXAMINATION BY MR. FISCHER:

Q Mr. Daniel, in your Lowe 2 then, your Lowe 1 B rather, your Devonian is produced from the open hole?

A Yes, sir.

MR. FISCHER: Thank you.

MR. UTZ: Any other questions? If not the witness may be excused.

(Witness excused.)

MR. CHRISTY: That is all for the applicant?

MR. UTZ: Any other statements to be made in this case?

MR. CHRISTY: I have registered return receipts of service on all of the offset operators. I don't believe it is requested under the Rules, but it was suggested by the attorney for the Commission.

MR. UTZ: All right. No further statements in this case, the case will be taken under advisement and the hearing is adjourned.



STATE OF NEW MEXICO

COUNTY OF BERNALILLO

I, Joseph A. Trajano, Secretary of the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission was reported by me in Stenotype and reduced to typewritten transcript by me, and that the same is a true and correct record, to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this 12th day of February, 1959, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

*Joseph A. Trajano*  
NOTARY PUBLIC

My Commission Expires:

October 5, 1960

I do hereby certify that the foregoing is a complete record of the proceedings of the Executive Hearing of the New Mexico Oil Conservation Commission held on February 12, 1959, at Albuquerque, New Mexico.

*Joseph A. Trajano*  
New Mexico Oil Conservation Commission



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