

CASE 2659: Application of CABOT CORP.  
for creation of NORTH BAGLEY-WLF.  
POOL AND FOR SPECIAL RULES.

~~John J. ...  
Per ...  
Wm. ...  
...~~

2659

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tion, Transcript,  
Exhib. 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 NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE No. 2659  
Order No. R-2347-B

APPLICATION OF CABOT CORPORATION  
FOR THE CREATION OF A NEW OIL POOL  
AND FOR THE ESTABLISHMENT OF TEMPO-  
RARY RULES AND REGULATIONS, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 28, 1964, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 24th day of November, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, 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 by Order No. R-2347, dated October 25, 1962, temporary Special Rules and Regulations were promulgated for the North Bagley-Wolfcamp Pool, Lea County, New Mexico.
- (3) That by Order No. R-2347-A, dated October 30, 1963, said temporary Special Rules and Regulations were continued in full force and effect for an additional one-year period.
- (4) That pursuant to the provisions of Order No. R-2347-A, this case was reopened to allow the operators in the subject pool to appear and show cause why the North Bagley-Wolfcamp pool should not be developed on 40-acre proration units.

-2-

CASE No. 2659

Order No. R-2347-B

(5) That no additional wells have been drilled in the subject pool since the issuance of Order No. R-2347-A and the drilling of additional wells in the future is not anticipated.

(6) That the applicant has not established that one well can efficiently and economically drain and develop 80 acres in the subject pool.

(7) That no necessity exists for the continuation of the Special Rules and Regulations promulgated by Order No. R-2347 and that said rules should therefore be abolished.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the North Bagley-Wolfcamp Pool promulgated by Order No. R-2347 are hereby abolished.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

*Jack M. Campbell*  
JACK M. CAMPBELL, Chairman

*E. S. Walker*  
E. S. WALKER, Member

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



esr/

GOVERNOR  
JACK M. CAMPBELL  
CHAIRMAN

State of New Mexico  
**Oil Conservation Commission**



LAND COMMISSIONER  
E. S. JOHNNY WALKER  
MEMBER

P. O. BOX 2088  
SANTA FE

STATE GEOLOGIST  
A. L. PORTER, JR.  
SECRETARY - DIRECTOR

November 24, 1964

Mr. Sam Christy  
Hinkle, Bondurant & Christy  
Attorneys at Law  
Post Office Box 10  
Roswell, New Mexico

Re: CASE NO. 2659  
ORDER NO. R-2347-B  
APPLICANT CABOT CORP.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

*A. L. Porter, Jr.*  
A. L. PORTER, Jr.  
Secretary-Director

ir/

Carbon copy of order also sent to:

Hobbs OCC   x  

Artesia OCC       

Aztec OCC       

OTHER

DRAFT

JMD/esr  
October 24, 1963

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. 2659

Order No. R-2347-A

APPLICATION OF CABOT CORPORATION  
FOR THE CREATION OF A NEW OIL POOL  
AND FOR THE ESTABLISHMENT OF TEMPO-  
RARY RULES AND REGULATIONS, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 9, 1963, 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            day of October, 1963, 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 Order No. R-2347 dated October 25, 1962, promulgated Special Rules and Regulations for the North Bagley-Wolfcamp Pool establishing temporary 80-acre proration units in said pool.

(3) That this case <sup>was</sup> ~~has been~~ reopened pursuant to the provisions of Order No. R-2347 to permit the applicant and all interested parties to appear and show cause why the North Bagley-Wolfcamp Pool should not be developed on 40-acre proration units.

(4) That the evidence is not sufficient to establish that one well in the North Bagley-Wolfcamp Pool can efficiently and economically drain and develop 80 acres.

CASE No. 2659  
Order No. R-2347-A

(5) That the temporary Special Rules and Regulations for the North Bagley-Wolfcamp Pool promulgated by Order No. R-2347 should be continued in effect for an additional one-year period in order to allow the operators in the subject pool sufficient time to gather <sup>additional</sup> information concerning the reservoir characteristics of the pool.

(6) That this case should be reopened at an examiner hearing in October, 1964, at which time the applicant and all interested parties should appear and show cause why the North Bagley-Wolfcamp Pool should not be developed on 40-acre proration units; that if the evidence at said hearing does not establish that one well in the North Bagley-Wolfcamp Pool can efficiently and economically drain and develop 80 acres, then said pool should thereafter be developed on 40-acre proration units.

IT IS THEREFORE ORDERED:

(1) That the temporary Special Rules and Regulations governing the North Bagley-Wolfcamp Pool promulgated by Order No. R-2347 are hereby continued in full force and effect, ~~for an additional period of approximately one year.~~

(2) That this case shall be reopened at an examiner hearing in October, 1964; that the applicant and all interested parties shall appear at said hearing and show cause why the North Bagley-Wolfcamp Pool should not be developed on 40-acre proration units; and that if the evidence at said hearing does not establish that one well in the North Bagley-Wolfcamp Pool can efficiently and economically drain <sup>and develop</sup> 80 acres, the North Bagley-Wolfcamp Pool <sup>shall</sup> ~~should~~ thereafter be developed on 40-acre proration units.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

DRAFT

JMD/esr

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

CF Subj. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

CASE No. 2659

Order No. R-2347-B

APPLICATION OF CABOT CORPORATION  
FOR THE CREATION OF A NEW OIL POOL  
AND FOR THE ESTABLISHMENT OF TEMPO-  
RARY RULES AND REGULATIONS, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on  
October 28, 1964, at Santa Fe, New Mexico, before Examiner  
Daniel S. Nutter.

NOW, on this \_\_\_\_\_ day of November, 1964, the Commission,  
a quorum being present, having considered the testimony, the record,  
and the recommendations of the Examiner, 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 by Order No. R-2347, dated October 25, 1962,  
temporary Special Rules and Regulations were promulgated for the  
North Bagley-Wolfcamp Pool, Lea County, New Mexico.

(3) That by Order No. R-2347-A, dated October 30, 1963,  
said temporary Special Rules and Regulations were continued in  
full force and effect for an additional one-year period.

(4) That pursuant to the provisions of Order No. R-2347-A,  
this case was reopened to allow the operators in the subject pool  
to appear and show cause why the North Bagley-Wolfcamp  
Pool should not be developed on 40-acre proration units.



(5) That no additional wells have been drilled in the subject pool since the issuance of Order No. R-2347<sup>A</sup> and the drilling of additional wells in the future is not anticipated.

<sup>B</sup> That no necessity exists for the continuation of the Special Rules and Regulations promulgated by Order No. R-2347 and that said rules should therefore be abolished.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the North Bagley-Woldcamp Pool promulgated by Order No. R-2347 are hereby abolished.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

*(6) That the applicant has not established that one well can efficiently and economically drain and develop 80 acres in the subject pool.*

J. M. HERVEY 1874-1953  
HIRAM M. DOW  
CLARENCE E. HINKLE  
W. E. BONDURANT, JR.  
GEORGE H. HUNKER, JR.  
HOWARD C. BRATTON  
S. B. CHRISTY IV  
LEWIS C. COX, JR.  
PAUL W. EATON, JR.  
CONRAD E. COFFIELD  
HAROLD L. HENSLEY, JR.

LAW OFFICES  
HERVEY, DOW & HINKLE  
HINKLE BUILDING  
ROSWELL, NEW MEXICO  
September 21, 1962

TELEPHONE MAIN 2-6510  
POST OFFICE BOX 10

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

Gentlemen:

Cabot Corporation hereby requests the following:

That a hearing be held before an Examiner for the creation of a new pool for oil production from the Wolfcamp formation to include the area surrounding Cabot Corporation's Humble-State #1 Well located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$  Section 23, Township 11 South, Range 33 East, N.M.P.M., Lea County, New Mexico.

It is further requested that upon such hearing temporary field rules be promulgated to include provisions for 80-acre proration units. Temporary rules to be in effect for one year.

It is our understanding that the above matter will come on for hearing before an Examiner October 10th.

Thank you for your attention to this matter.

Very truly yours,

HERVEY, DOW & HINKLE

  
Howard C. Bratton

HCB:lm

DOCKET MAILED

Date 9/28/62

DRAFT

JMD/esr  
October 19, 1962

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. 2659

Order No. R-2347

APPLICATION OF CABOT CORPORATION  
FOR THE CREATION OF A NEW OIL POOL  
AND FOR THE ESTABLISHMENT OF TEMPO-  
RARY RULES AND REGULATIONS, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on  
October 10, 1962, at Santa Fe, New Mexico, before Daniel S. Nutter,  
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 \_\_\_\_\_ day of October, 1962, 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 Corporation, seeks an order  
creating a new oil pool for Wolfcamp production, to be designated  
the North Bagley-Wolfcamp pool, in ~~Township 11 South, Range 33~~  
~~East, NMPM, Lea County, New Mexico.~~ The discovery well for said  
pool is the Cabot Corporation's Humble State Well No. 1, located  
in the ~~NW/4 NW/4 in Unit D, Section 23, Township 11 South, Range 33 East,~~  
Lea County, New Mexico. Said well was completed September 10,  
1962. The top of the perforations is at 8668 feet.

(3) That the applicant further seeks the promulgation of  
temporary special rules and regulations governing said pool,  
including provisions for 80-acre proration units.

(4) That ~~there is need for the creation of~~ a new oil pool <sup>should be created</sup> comprising portions of Sections 14, 15, 22, and 23, in Township 11 South, Range 33 East, NMPM, Lea County, New Mexico, for the production of oil from the Wolfcamp formation, said pool to bear the designation of North Bagley-Wolfcamp Pool.

(5) That the evidence presented concerning the reservoir characteristics of the subject pool justifies the establishment of 80-acre proration units for said pool for a temporary one-year period.

(6) That ~~the information presently available and presented~~ <sup>is</sup> evidence <sup>establishes</sup> ~~indicates~~ that the subject pool can <sup>presently</sup> be efficiently and economically drained and developed on 80-acre proration units, and that such development will prevent waste and protect correlative rights.

(7) That during the one-year period in which this order will be in effect, the applicant should gather all available information relative to drainage and recoverable reserves in the subject pool.

(8) That this case should be reopened at an examiner hearing in October, 1963, at which time the applicant should be prepared to prove by a preponderance of the evidence why the subject pool should not be developed on 40-acre <sup>units</sup>.

IT IS THEREFORE ORDERED:

(1) That a new pool in Lea County, New Mexico, classified as an oil pool for Wolfcamp production, is hereby created and designated as the North Bagley-Wolfcamp Pool, comprising the following-described acreage:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM

Section 14: S/2 SW/4  
Section 15: SE/4 SE/4  
Section 22: E/2 NE/4  
Section 23: NW/4

(2) That temporary special rules and regulations for the North Bagley-Wolfcamp Pool in Lea County, New Mexico, are hereby promulgated as follows, effective November 1, 1962.

SPECIAL RULES AND REGULATIONS  
FOR THE  
NORTH BAGLEY-WOLFCAMP POOL

RULE 1. Each well completed or recompleted in the North Bagley-Wolfcamp Pool or in the Wolfcamp formation within one mile of the North Bagley-Wolfcamp Pool, and not nearer to or within the limits of another designated Wolfcamp ~~oil~~ pool, shall be spaced, drilled, operated, and prorated in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well completed or recompleted in the North Bagley-Wolfcamp Pool shall be located on a ~~unit containing 80~~ <sup>standard</sup> ~~acres, more or less,~~ which consists of the N/2, S/2, E/2, or W/2 of a single governmental quarter section; <sup>F.O.K.</sup> ~~Provided, however, that~~ nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the 80-acre unit.

RULE 3. Each well projected to or completed in the North Bagley-Wolfcamp Pool shall be located within 150 feet of the center of either quarter-quarter section in the 80-acre unit. Any well which was drilling to or completed in the North Bagley-Wolfcamp Pool prior to November 1, 1962, is granted an exception to the well location requirements of this rule.

RULE 4. For good cause shown, the Secretary-Director may grant an exception to the requirements of Rule 2 without notice <sup>when an</sup> and hearing ~~when the~~ application <sup>has been filed in due form, and the month</sup> is for a non-standard unit <sup>for when the application</sup> comprising a single quarter-quarter section or lot ~~and~~ <sup>and all</sup> operators offsetting the proposed non-standard unit <sup>have been</sup> shall be notified of the application by registered or certified mail, <sup>and have given written</sup> ~~and the application~~ <sup>consent in the form of a waiver, or if,</sup> shall state that such notice has been furnished. The Secretary-Director may approve the application ~~if,~~ after a period of 30 days, no offset operator has entered an objection to the formation of such non-standard unit.

The allowable assigned to any such non-standard unit shall bear the same ratio to a standard allowable in the North Bagley-Wolfcamp Pool as the acreage in such non-standard unit bears to 80 acres.

For purposes of these Rules 79 changes, 81 contiguous surface acres shall be considered a standard unit.

Large blocks of the tract is due to a variation in the legal subdivision of the land shown

*Q Standard*  
RULE 5. ~~An 80-acre~~ proration unit ~~(79 through 81 acres)~~ in the North Bagley-Wolfcamp Pool shall be assigned an 30-acre proportional factor of 4.00 for allowable purposes, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from said wells in any proportion.

IT IS FURTHER ORDERED:

7 That all operators who propose to dedicate 80 acres to a well in the North Bagley-Wolfcamp Pool must file an amended Commission Form C-128 with the Hobbs District Office of the Commission by November 1, 1962.

IT IS FURTHER ORDERED:

That this case shall be reopened at an examiner hearing in October, 1963, at which time the applicant *and all interested parties* shall appear and show cause why the North Bagley-Wolfcamp Pool should not be developed on 40-acre proration units.

IT IS FURTHER ORDERED:

That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year herein-above designated.

EXHIBITS FOR CASE NO. 2659

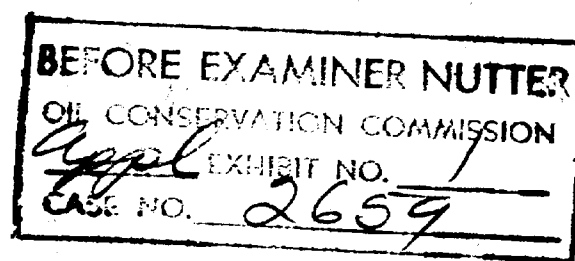
CABOT CORPORATION'S APPLICATION

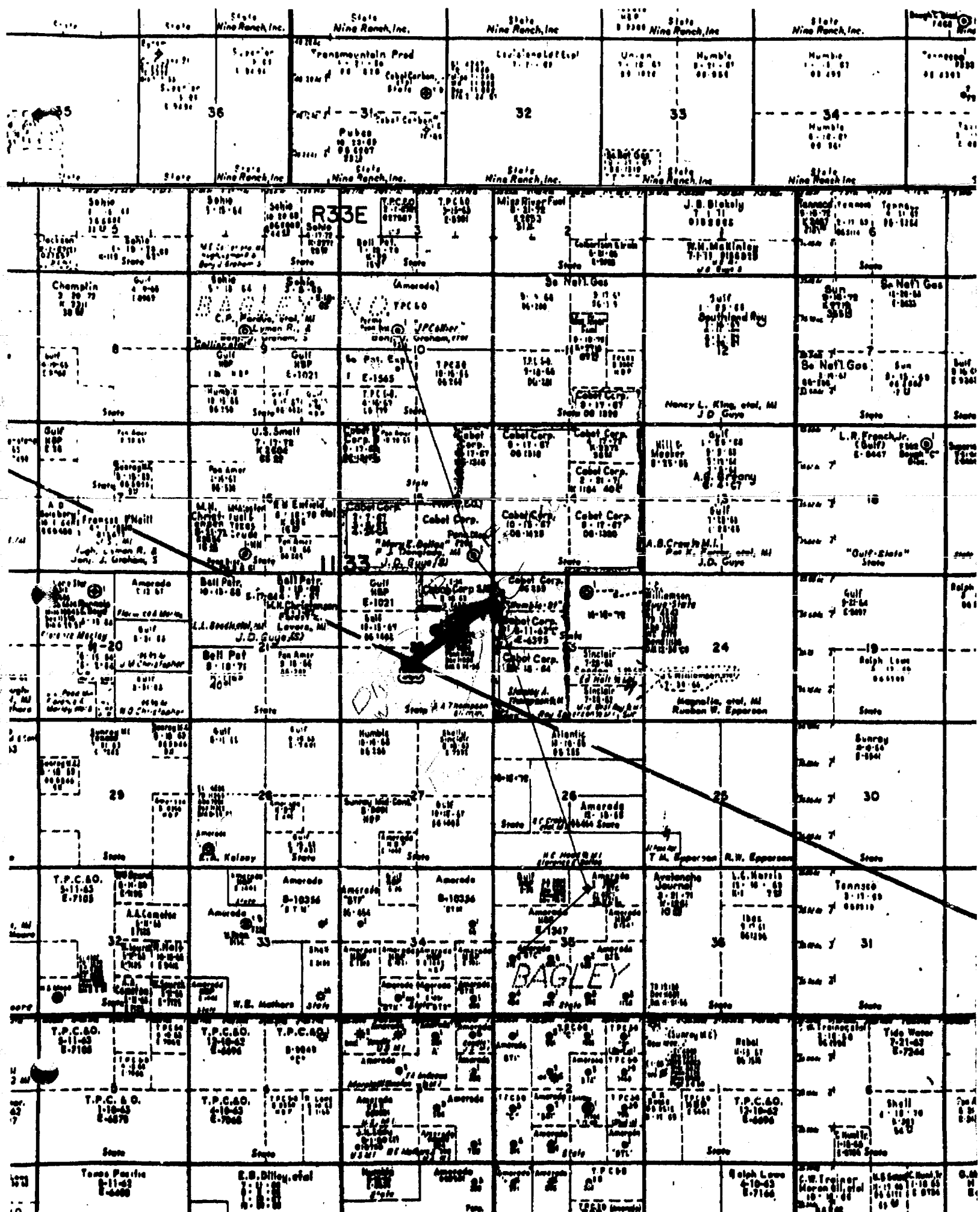
FOR ORDER CREATING

NEW POOL AND 80-ACRE SPACING

CABOT CORPORATION

HUMBLE-STATE NO. 1







WELL HISTORY  
WOLF CAMP FORMATION

CABOT CORPORATION  
HUMBLE-STATE NO. 1

Location: 660' FNL and 330' FWL of Section 23, T11S, R33E,  
Lea County, New Mexico

Total Depth: 9535'

Production String: 5-1/2" casing set at 9535'

Drill Stem Test: Wolfcamp formation tested from 8635' to 8711'  
Open 2 hours. Gas to surface in 4 minutes, gauged  
1,250 MCF. Oil to surface 5 minutes after shut-in  
for final pressure. Reversed out 2000' oil and  
gas-cut mud. Recovered 150' heavy oil and gas-cut  
mud and 30' oil.  
Initial shut-in pressure - 3094 psig/30 min.  
Initial flow pressure - 767 psig  
Final flow pressure - 453 psig  
Final shut-in pressure - 2962 psig/45 min.

Perforations: Initial - 9446' to 9452' (Upper Penn)  
Final - 8668' to 8679' and 8684' to 8689' (Wolfcamp)

Formation Treatment: Upper Penn formation 9446' to 9452' - acidized 1000 gals.  
Wolfcamp formation 8668' to 8679' - 1,500 gals. mud acid.

Potential Tests: \*On August 10, 1962 flowed 238 BO and 102 BW on 24/64"  
choke with flowing casing pressure of 1000 psig and  
flowing tubing pressure of 600 psig. GOR 1750/1.  
Gravity 49° API for Upper Penn perforations 9446' to  
9452'.  
  
\*This zone abandoned on September 4, 1962 because  
of high water production.  
  
On September 10, 1962 flowed 156 BO, 0 BW, on 11/64"  
choke with flowing tubing pressure of 1400 psig.  
GOR 1315/1. Gravity 50° API. Producing from Wolfcamp  
perforations 8668' to 8679' and 8684' to 8689'.

Initial Reservoir  
Pressure: 3112 psig @ 8600'.

**SCHLUMBERGER****SONIC LOG**SCHLUMBERGER WELL SURVEYING CORPORATION  
Houston, TexasCOUNTY LEA  
FIELD or  
LOCATION NORTH BAGLEY  
WELL HUMBLE STATE # 1  
COMPANY CABOT CORPORATION

COMPANY CABOT CORPORATION

WELL HUMBLE STATE # 1

FIELD NORTH BAGLEY

LOCATION SEC. 23-11S-33E

COUNTY LEA

STATE NEW MEXICO

Other Surveys  
MLL, LL

## Location of Well

660' FROM N/L  
330' FROM W/L*Walter*Elevation: K.B.: 4258  
D.F.: 4257  
or G.L.: 4246

Log Depths Measured From KB 12 Ft. above GL

RUN No.	ONE		
Date	7-22-62		
First Reading	9530		
Last Reading	0		
Feet Measured	9530		
Csg. Schlum.	-		
Csg. Driller	9 5/8" @ 3800		
Depth Reached	9536		
Bottom Driller	9535		
Mud Nat.	SALT GEL		
Dens. Visc.	10 46		
Mud Resist.	.146 @ 76 °F	@ °F	@ °F
" Res. BHT	.08 @ 139 °F	@ °F	@ °F
" pH	@ °F	@ °F	@ °F
" Wtr. Loss	16 CC 30 min	CC 30 min	CC 30 min
" Rmf	.096 @ 78 °F	@ °F	@ °F
Bit Size	8 1/2"		
Spacing:			
T 3 R 1 R 2	CSG. To TD	To	To
T R 1 R 2	To	To	To
Opr. Rig Time	6 1/2 HOURS		
Truck No.	2526-HOBBS		
Recorded By	DAVIS		
Witness	MORRISON		

FOLD HERE  
REMARKS VIC No.: X4 CR: B 80 440 82.5 SEN. 800 TC. 6 LOG SEN 400 IC 2/1 SPEED 30/60  
VIS No.: 171 IES CENTRALIZERS AND SONIC NOSE CENTRALIZER USED FPM  
SIP No.: 129 BOTTOM JOINT OF CASING OFF

871

SPONTANEOUS POTENTIAL  
millivolts

- | +

GAMMA RAY

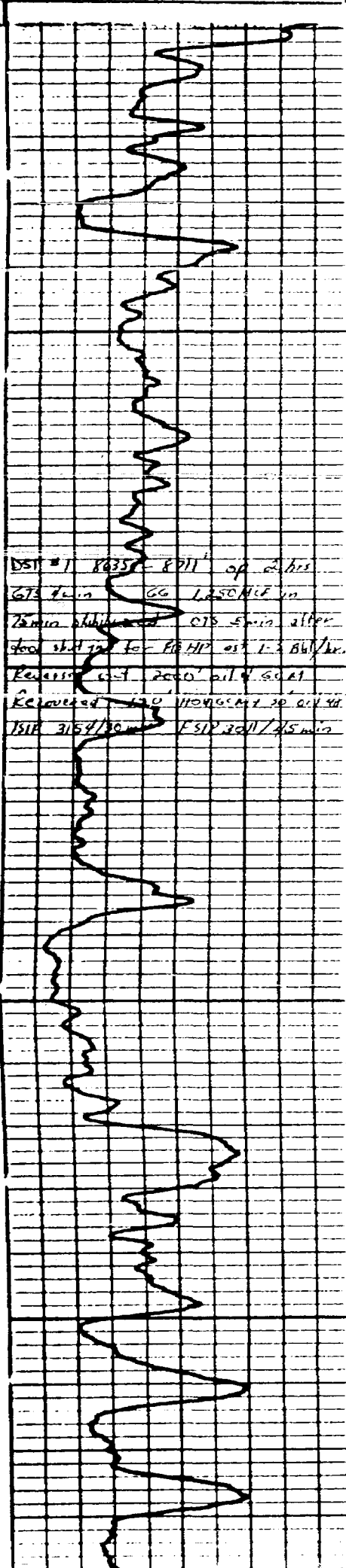
0 API UNITS 100

100 200

DEPTHS

INTERVAL TRANSIT TIME  
microseconds per foot  
← increases  
T<sub>3</sub>R<sub>1</sub> L<sub>1</sub>R<sub>2</sub>

100 70 40

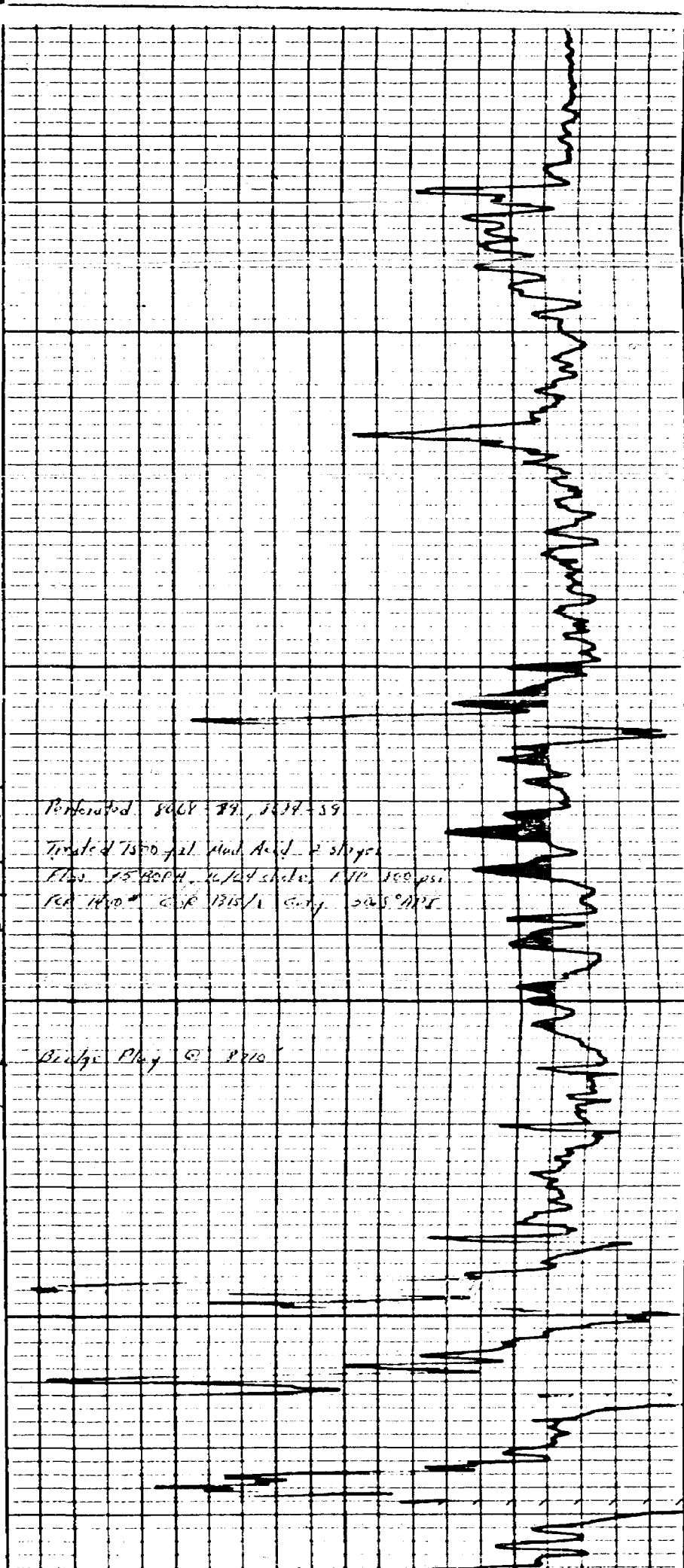


DST #1 R355-8711' of 2 hrs  
GTS 4 min 66 LBS/HCF in  
Gamma stabilized 075 5 min after  
flow shut in to - PUMP at 1.2 Bbl/hr.  
Pressure lost 2000' oil & GEL  
Recovered 120 HONGHAT 30 oil & GEL  
TSIP 3154/30 min FSIP 3211/45 min

OC

8600

8700



Perforated 8068-89, 8074-89  
Treated 7500 gal Mud Acid 2 stages  
Flow 75 BOPH, 26/24 stroke, 1/12 100 psi  
Per 1400' GOR 1315/1 Comp. 345° API

Bridge Plug @ 8710'

OIL RECOVERY CALCULATIONS  
WOLFCAMP FORMATION

CABOT CORPORATION  
HUMBLE-STATE NO. 1

Reservoir Volume Calculations

Assumed Porosity  
Water Saturation  
Net Pay  
Recovery Factor

5.7%  
20%  
26 feet  
30% of oil in place

Oil in Place (Bbls/Acre Foot)

$$(7758 \text{ Bbl/Ac.Ft.}) (0.057) (1 - 0.20) \left( \frac{1}{1.81} \right) =$$

195.5 Bbl/Ac.Ft.

Recoverable Oil (Bbl/Acre Foot)

$$(195.5 \text{ Bbl/Ac.Ft.}) (0.3) =$$

58.7 Bbl/Ac.Ft.

Oil in Place (Bbl/Acre)

$$(195.5 \text{ Bbl/Ac.Ft.}) (26 \text{ ft.}) =$$

5,083 Bbl/Acre

Recoverable Oil (Bbl/Acre)

$$(5,083 \text{ Bbl/Acre}) (0.30) =$$

1,525 Bbl/Acre

Oil in Place, bbls.

Recoverable Oil, bbls.

40 acres  
203,320

61,000

80 acres  
406,640

122,000

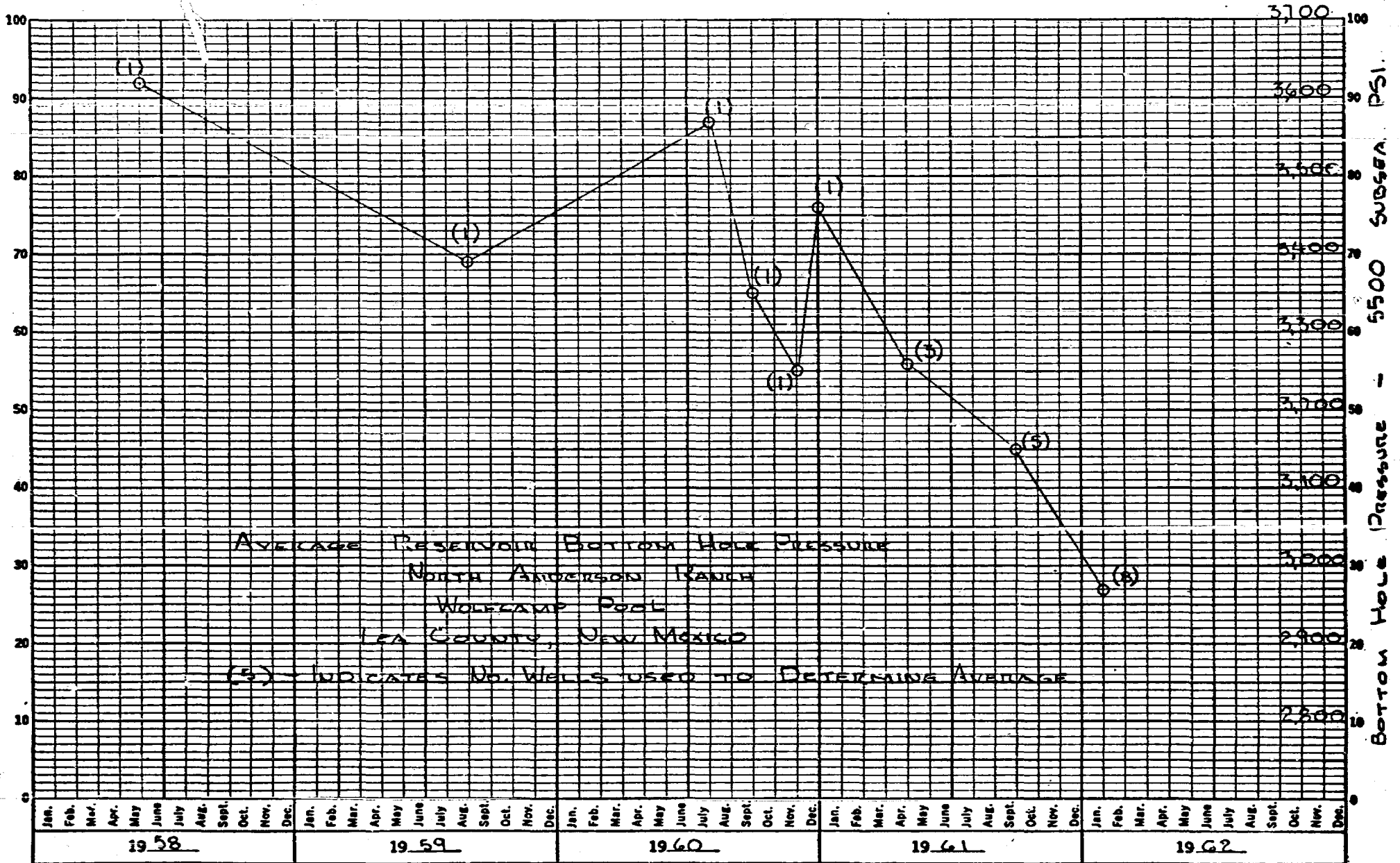
RESERVOIR ROCK AND FLUID PROPERTIES  
WOLFCAMP FORMATION

CABOT CORPORATION  
HUMBLE-STATE NO. 1

Depth of Formation, feet	8670
Gross Pay, feet	56
Net Pay, feet	26
Porosity, percent (from Sonic Log)	5.7%
Water Saturation, percent (assumed)	20%
Original Reservoir Pressure, psig	3112
Saturation Pressure, psig	2700
Reservoir Temperature, °F	159
Gas in Solution, cubic feet per barrel	1315
Formation Volume Factor, bbl/bbl	1.81
Oil Viscosity, cp.	0.18
Oil Gravity, °API	50

COMPARISON OF ROCK AND FLUID PROPERTIES  
NORTH ANDERSON RANCH WOLFCAMP POOL VS. HUMBLE-STATE NO. 1  
WOLFCAMP FORMATION

<u>Type Data</u>	<u>North Anderson Ranch Wolfcamp Pool</u>	<u>Cabot Corporation Humble-State No. 1</u>
Depth of Producing Formation, feet	9950	8670
Gross Pay, feet	80-100	56
Net Pay, feet	17-64	26
Porosity, percent	9.6	5.7
Water Saturation, percent	25	20 (est.)
Permeability, md.	5-100	0.5 (from DST)
Productivity Index	0.458	---
Original Reservoir Pressure, psig	3600+	3112
Saturation Pressure, psig	3435	2700
Original Gas in Solution, cu.ft./bbl	1833	1315
Reservoir Temperature, °F	140	159
Formation Volume Factor, bbl/bbl	1.96	1.81
Oil Viscosity, cp.	0.225	0.18
Oil Gravity, °API	41.7	50



DRILLING ECONOMICS  
WOLFCAMP FORMATION

GABOT CORPORATION  
HUMBLE-STATE NO. 1

	<u>40 acres</u>	<u>80 acres</u>
<u>Income</u>		
1. Recoverable Oil, bbls	61,000	122,000
2. Operator's Net Recoverable Oil, bbls (7/8 X 1)	53,375	106,750
3. Operator's Income, (\$2.92* X 2)	\$155,855	\$311,710
<u>Cost**</u>		
1. Drilling and Completing Humble-State #1	\$154,112***	
2. Flow Line and Tank Battery	<u>11,369 (est.)</u>	
Total Investment	\$165,481	

\* Crude price including casinghead gas = \$3.08 less taxes  
= \$2.92/bbl

\*\* Does not include operating costs and income taxes.

\*\*\* Includes cost of trying to complete in Upper Penn formation.  
Estimated average well cost will probably be closer to \$135,000.



DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 9, 1963

9:00 A. M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,  
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

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The following cases will be heard before Elvis A. Utz, examiner, or Daniel S. Nutter as alternate examiner:

CASE 2888: (Continued from the September 4, 1963 examiner hearing)

Application of the British American Oil Producing Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Jalmat Deep Unit Area comprising 10,568.61 acres of State land in Townships 21 and 22 South, Range 35 East, Lea County, New Mexico.

CASE 2903: (Continued from the September 25, 1963 examiner hearing)

Application of Coastal States Gas Producing Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Gulf State Well No. 1, located in Unit F of Section 20, Township 17 South, Range 36 East, Lea County, New Mexico, to produce oil from the Double-A Abo Pool and an undesignated Lower Leonard pool through parallel strings of tubing.

CASE 2907: (Continued from the September 25, 1963 examiner hearing)

Application of Penroc Oil Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Indian Hills-Upper Pennsylvanian Gas Pool underlying Section 19, Township 21 South, Range 24 East, Eddy County, New Mexico.

CASE 2908: (Continued from the September 25, 1963 examiner hearing)

Application of Penroc Oil Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Morrow Section of the Pennsylvanian formation underlying Section 19, Township 21 South, Range 24 East, Indian Hills Field, Eddy County, New Mexico.

CASE 2910: (Continued from the September 25, 1963 examiner hearing)

Application of Big (6) Drilling Company for extension of an existing oil pool and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the extension of the Scharb Bone Spring Oil Pool to comprise the W/2 of Section 5, all of Section 6, and the N/2 of Section 7, Township 19 South, Range 35 East, Lea County, New Mexico, and for special rules therefor, including 80-acre spacing and proration units to comprise any two contiguous 40-acre tracts, and for fixed well locations.

CASE 2911:

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Francis L. Harvey & Capital Counsellors and all other interested parties to appear and show cause why the Francis L. Harvey & Capital Counsellors Bunce-Federal Well No. 1, located 1586 feet from the North line and 1503 feet from the East line of Section 19, Township 29 North, Range 10 West, San Juan County, New Mexico, should not be plugged in accordance with a Commission-approved plugging program.

CASE 2912:

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Tamanaco Oil Company and all other interested parties to appear and show cause why the Tamanaco El Poso Ranch Well No. 11, located 680 feet from the South line and 2080 feet from the West line of Section 11; the Tamanaco Pound Ranch Well No. 14 located 740 feet from the North line and 1850 feet from the West line of Section 14, and the Tamanaco Pound Ranch Well No. 27 located 330 feet from the North line and 1501 feet from the East line of Section 27, all in Township 28 North, Range 1 East, Rio Arriba County, New Mexico, should not be plugged in accordance with a Commission-approved plugging program.

CASE 2913:

Application of Gulf Oil Corporation for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 280 acre non-standard gas proration unit comprising the NW/4, W/2 NE/4 and NW/4 SE/4 of Section 29, Township 23 South, Range 37 East, Jalmat Gas Pool, Lea County, New Mexico, to be dedicated to its C. E. LaMunyon Well No. 4, located in Unit D of said Section 29.

CASE 2660: (Reopened)

In the matter of Case No. 2660 being reopened pursuant to the provisions of Order No. R-2348, which order established temporary 80-acre proration units for the Middle Lane-Pennsylvanian Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

CASE 2678: (Reopened)

In the matter of Case No. 2678 being reopened pursuant to provisions of Order No. R-2359, which order established temporary 160-acre proration units for the East Saunders Permo-Pennsylvanian Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

CASE 2659: (Reopened)

In the matter of the Case No. 2659 being reopened pursuant to the provisions of Order No. R-2347, which order established temporary 80-acre proration units for the North Bagley-Wolfcamp Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

CASE 2658: (Reopened)

In the matter of Case 2658 being reopened pursuant to the provisions of Order No. R-2346, which order established temporary 80-acre

proration units for the North Bagley-Upper Pennsylvanian Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

CASE 2914:

Application of Humble Oil & Refining Company for an exception to Rule 107 (d) 1, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to produce oil from the Gallup formation through 4½-inch casing without tubing from its Navajo Tribe Tract 12 Well No. 1, located in Unit B of Section 19, Township 29 North, Range 15 West, San Juan County, New Mexico.

CASE 2915:

Application of Franco Western Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the South Seven Rivers Unit Area comprising 4,480 acres, more or less, of State, Federal and Fee lands in Township 20 South, Ranges 24 and 25 East, Eddy County, New Mexico.

Case 2659

Heard 10-9-63

Rec. 10-11-63

1. Denie Cabata request for a ~~temporary~~ permanent order for the A. Bagley Wolfcamp oil pool. No evidence as to drainage was presented at the hearing.
2. Grant them a 1 yr. extension to Order R. 2347.
3. Call a hearing in Oct 1964 to show cause why the pool should not revert to 40 A.c. + indicate that the pool will revert if <sup>80%</sup> proof of drainage is not shown.

Thos. D. H.

October 28 Examiner Hearing

CASE 2910 (Reopened):

In the matter of Case No. 2910 being reopened pursuant to the provisions of Order No. R-2589, which order established 80-acre spacing units for the Scharb-Bone Springs Oil Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 2659 (Reopened):

In the matter of Case No. 2659 being reopened pursuant to the provisions of Order No. R-2347-A, which continued the original order establishing 80-acre proration units for the North Bagley-Wolfcamp Pool, Lea County, New Mexico, for an additional year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

CASE 2904 (Reopened):

In the matter of Case No. 2904 being reopened pursuant to the provisions of Order No. R-2576, which order established temporary 80-acre spacing units for the Flying "M" Abo Oil Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 2678 (Reopened):

In the matter of Case No. 2678 being reopened pursuant to the provisions of Order No. R-2359-A, which continued the original order establishing 160-acre proration units for the East Saunders Permo-Pennsylvanian Pool, Lea County, New Mexico, for an additional year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

CASE 3136:

Application of William A. and Edward R. Hudson for expansion of a waterflood project and for certain unorthodox locations, Eddy County, New Mexico. Applicants, in the above-styled cause, seek authority to expand their Maljamar Grayburg-San Andres Waterflood Project by the drilling of three injection wells at unorthodox locations not more than 100 feet nor closer than 25 feet to the Northeast corner of Units H, M and P of Section 24, Township 17 South, Range 31 East, Eddy County, New Mexico. Applicants further seek authority to convert from oil production to water injection their Puckett "A" Well No. 26 located in the Southeast corner of Unit D and Wells Nos. 27 and 28 located in the Northwest corners of Units K and C, respectively, all in said Section 24.

CASE 3137:

Application of Southern Union Production Company for an unorthodox location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to complete its Navajo Indian Well No. 6 at an unorthodox location in the Blanco Mesaverde Pool 1700 feet from the North line and 910 feet from the West line of Section 6, Township 26 North, Range 8 West, San Juan County, New Mexico.

CASE 2660 (Reopened):

In the matter of Case No. 2660 being reopened pursuant to the provisions of Order No. R-2348-A, which continued the original order establishing 80-acre proration units for the Middle Lane-Pennsylvanian Pool, Lea County, New Mexico, for an additional year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 28, 1964

9 A. M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,  
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Elvis A. Utz, Alternate Examiner:

- CASE 3113: (Continued from the September 30, 1964 Examiner Hearing). Application of BCO, Inc. for a unit agreement, San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks approval of the Escrito Gallup Pool Unit Area comprising 3123.88 acres, more or less, of State and Federal lands in Township 24 North, Ranges 7 and 8 West, San Juan and Rio Arriba Counties, New Mexico.
- CASE 3114: (Continued from the September 30, 1964 Examiner Hearing). Application of BCO, Inc. for a waterflood project, San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Escrito Gallup Oil Pool in its Escrito Unit Area by the injection of water into the Gallup formation through three wells located in Sections 17 and 18, Township 24 North, Range 7 West, and Section 12, Township 24 North, Range 8 West, San Juan and Rio Arriba Counties, New Mexico.
- CASE 3131: Application of Texstar Petroleum Company for a unit agreement, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Hospah Unit Area comprising 1160 acres, more or less, of State and Fee lands in Townships 17 and 18 North, Ranges 8 and 9 West, Hospah Pool, McKinley County, New Mexico.
- CASE 3132: Application of Texstar Petroleum Company for a waterflood project, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Hospah Pool in its Hospah Unit Area, by the injection of water into the Hospah Sand through 8 wells located in Section 1, Township 17 North, Range 9 West, and Section 36, Township 18 North, Range 9 West, McKinley County, New Mexico.
- CASE 3133: Application of George W. Strake for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Hackberry Deep Unit Area comprising 3,832.60 acres, more or less, of Federal and State lands in Townships 19 and 20 South, Ranges 30 and 31 East, Eddy County, New Mexico.
- CASE 3134: Application of Lone Star Producing Company for a non-standard location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to deepen its Federal Well No. 1-D and complete same in the South Prairie-Atoka Gas Pool. Said well is 660 feet from the North and East lines of Section 29, Township 8 South, Range 36 East, Roosevelt County, New Mexico, at a non-standard location for said gas pool.
- CASE 3135: Application of Lone Star Producing Company for a non-standard unit and a non-standard location, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard gas proration unit comprising the SW/4 of Section 21, Township 8 South, Range 36 East, South Prairie Atoka Gas Pool, Roosevelt County, New Mexico. Said unit to be dedicated to applicant's Federal Well No. 1-B at a non-standard location for said pool 660 feet from the South and West lines of said Section 21.

GOVERNOR  
JACK M. CAMPBELL  
CHAIRMAN

State of New Mexico  
**Oil Conservation Commission**



LAND COMMISSIONER  
E. S. JOHNNY WALKER  
MEMBER

P. O. BOX 871  
SANTA FE

STATE GEOLOGIST  
A. L. PORTER, JR.  
SECRETARY - DIRECTOR

October 30, 1963

Mr. Howard Bratton  
Hervey, Dow & Hinkle  
Attorneys at Law  
Post Office Box 10  
Roswell, New Mexico

Re: Case No. 2659  
Order No. 2247-2  
Applicant:  
CAROT CORPORATION

Dear Sir:

Enclosed herewith are two copies of the above-referenced  
Commission order recently entered in the subject case.

Very truly yours,

*A. L. Porter, Jr.*

A. L. PORTER, JR.  
Secretary-Director

ix/

Carbon copy of order also sent to:

Hobbs OCC X

Artesia OCC       

Antec OCC       

OTHER

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
October 9, 1963

EXAMINER HEARING

IN THE MATTER OF:

Case No. 2658 being reopened pursuant to the provisions of Order No. R-2347, which order established temporary oil conservation units for the North Babley-Welfcamp Pool, Lea County, New Mexico, for a period of one year. &  
Case 2658 being reopened pursuant to the provisions of Order No. R-2346.

Case No. 2659  
2658

BEFORE: MR. ELVIS A. UTE, EXAMINER

TRANSCRIPT OF HEARING

DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.  
PHONE 323-1182

SANTA FE, N. M.  
PHONE 963-3971

ALBUQUERQUE, N. M.  
PHONE 243-6691



DEARNLEY, MEIER, WILKINS and CROWNOVER

General Court Reporting Service

Suite 1120 Simms Building Albuquerque, New Mexico Phone 243-6691

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
October 9, 1963

EXAMINER HEARING

IN THE MATTER OF:

Case No. 2659 being reopened pursuant to  
the provisions of Order No. R-2347, which  
order established temporary 80-acre  
proration units for the North Babley-  
Wolfcamp Pool, Lea County, New Mexico, for  
a period of one year. &  
Case No. 2658 being reopened pursuant to the  
provisions of Order No. R-2346.

CASE NO. 2659  
& 2658

BEFORE: MR. ELVIS A. UTZ, EXAMINER

TRANSCRIPT OF HEARING

MR. UTZ: Case 2659.

MR. DURRETT: In the Matter of the Case No. 2659 being  
reopened pursuant to the provisions of Order No. R-2347.

MR. BRATTON: If the Examiner please, Howard Bratton  
on behalf of the applicant. We have one witness.

(witness sworn)

MR. BRATTON: If the Examiner please, could we consider  
also at the same time 2658?

MR. UTZ: It is the same area.



MR. BRATTON: Same area and two different formations. I believe we could probably consolidate the testimony in them pretty easily.

MR. UTZ: We will consolidate 2659 and 2658. I don't know why we got them turned around there. For the purposes of testimony, only.

MR. BRATTON: If the Examiner please, we will take a look at 2658 first, the Upper Pennsylvanian, if that would be satisfactory.

MR. UTZ: All right, sir.

MR. BRATTON: If the Examiner please, we would ask that the exhibits in the original case be considered a part of the case on rehearing, and actually, we would refer to them substantially throughout the testimony.

MR. UTZ: Do you have additional data, insofar as this pool is concerned, in addition to what you had in the original hearing?

MR. BRATTON: Yes, we do, unfortunately.

MR. UTZ: And the data contained in this, in those exhibits in the first hearing will still be proven to be correct?

MR. BRATTON: Yes, it will be supplemented, I believe.

MR. UTZ: We will recognize the exhibits in the first case as a part of the record in this case.

W. M. SARGENT, JR.

called as a witness herein, having been first duly sworn on oath,

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was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, by whom you are employed and in what capacity?

A W. M. Sargent, Jr., Cabot Corporation, Petroleum Engineer.

Q Have you previously testified before this Commission?

A Yes, sir, I have.

Q Did you testify before the Commission in connection with the original cases?

A I did.

Q Referring to your Exhibit Number One, in the original case, Mr. Sargent.

A This will be the one in 2658, marked on the front.

Q Now, that reflects the one well that was completed in the Upper Pennsylvanian at the time of the last hearing; is that correct?

A Yes.

Q All right, sir. Now, has there been another well completed in the Upper Pennsylvanian since that time?

A Yes, there has.

Q Where is that well located?

A Cabot's State M Number One in the Northwest of the Northeast of Section 22.

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Phone 243-6691



Q That is a diagonal offset on the Southwest of the discovery well; is that correct?

A Yes, sir.

Q Have there been any other wells completed in the Upper Pennsylvanian in this pool?

A Yes, sir. The five wells which have been drilled in this pool, all five of them have been completed at one time in the Upper Penn. Three of them were abandoned because of excessive water production and recompleted in the Wolfcamp formation.

Q So, that you have actually two completed producing wells in the Upper Pennsylvanian?

A Yes.

Q Where are the other three wells that could not be completed and produced due to water?

A They are Section 23, in the Northwest of the Northwest, Southwest of the Northwest and the Northwest of the Southwest, all in Section 23.

Q Would you go through that slowly?

A It is Cabot's Humble State Number One well in the Northwest Quarter of the Northwest Quarter of Section 23, Cabot's State M Number One well, in the Southwest of the Northwest Quarter of Section 23, and Cabot's John R. Thompson Number One well in the Northwest of the Southwest of 23.

Q All right, sir. And all of those had to be very immediately abandoned because of water production; is that correct?



A Yes, that is correct, very shortly after completion.

Q Now, turning to your Cabot M well, when was that completed?

A The "M" well was completed in January, 1963.

Q All right, sir. And your discovery well, the Dallas well, was completed when?

A In June, 1963.

Q 1962?

A '62. I beg your pardon. '62, yes.

Q All right, sir. What was the original reservoir pressure in the Dallas well?

A 3,242 PSIG at 9100 feet.

Q What was your pressure obtained in the "M" well?

A The pressure on February 6, 1963, at 9100 feet was 2,486.

Q Was that your coring depth?

A At 9100 feet. Surface elevations being approximately the same.

Q All right, sir. So, that you had a draw down of how many pounds pressure during that period of time?

A 756 pounds.

Q All right, sir. What has happened to your production in these two wells?

A These wells, the Dallas well from the date of completion through July, produced at top- - through June, 1963, produced



at top allowable. And July, this well fell rather sharply from top allowable and since that time has continued to decline at a rate, a rather steep rate.

Q What are those figures from, say, June on?

A June production on the Dallas was 5,269 barrels. July production, 2,371 barrels. August production, 1,541 barrels, September production, 977 barrels. As you can see, we have lost some 4300 barrels in four months.

Q All right.

MR. UTZ: Give me those first two months.

A June was 5,269. July, 2,371.

MR. UTZ: Thank you.

A Our State M Number One well begin producing in January, 1963, and produced at top allowable through May of 1963, at which time the well began to decline, at approximately the same rate evidenced by the Dallas well, although preceding it by approximately one month.

Q (By Mr. Bratton) What were the figures on it?

A In May, the "M" produced 5,369 barrels. June, 3,450 barrels. July, 1,419 barrels. August, 2,279 barrels, and September, 1,512 barrels. I might add in late July we did attempt a workover on the "M" well, and managed to raise the production slightly. However, it didn't hold.

Q To what do you attribute this rapid decrease in production?



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PAGE 8

A I attribute it to depletion of the reservoir.

Q Turn to your Exhibit Number One in the instant case.

Is that substantially your economic analysis?

A The economic analysis is shown at the bottom of the page, yes.

Q All right. Now, are these based on your information from both wells and best estimate you can make out of them?

A Yes, sir, they are.

Q Actually, our present rate of decline of these wells, is there any possibility of the "M" well reaching an 80,000 barrel production?

A Apparently not.

Q What is the total production to date on it?

A The "M" has produced 32,168 barrels through September.

Q And your Dallas well?

A It has produced 65,431 barrels through September.

Q It was completed approximately seven months prior to the "M" well?

A Yes, sir.

Q Therefore, would you anticipate that it might make a little more than the 80,000 barrels you anticipate in your analysis and your "M" well would make considerably less?

A It is possible, yes.

Q All right. Therefore, your analysis there would be approximately an average?



A Yes. Possibly a little on the bright side.

Q Is there any possibility of economically developing further wells in this pool on a 40 acre spacing pattern?

A None.

Q In your opinion, are these wells draining in excess of 40 acres?

A Yes, I believe they are.

Q In your opinion, is this just a very limited reservoir in the Upper Pennsylvanian?

A It is.

Q Mr. Sargent, what has happened to your gas-oil ratios?

A Gas-oil ratios have reacted as from a solution gas drive reservoir. As the pressures have fallen, the gas-oil ratios have increased accordingly. Also increased rather sharply with the decline in production.

Q Is there any possibility recompleting either of these wells in the Wolfcamp?

A Yes, sir. The Dallas has the Wolfcamp zone present. The "M" well did not have the Wolfcamp.

Q So that you can come back up and try this, the Dallas well, on the Wolfcamp?

A Yes.

Q But, the "M" well is just going to have to recover what little it can out of the Upper Penn?

A That is correct.





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Q Are there any other dry holes in the Upper Penn in this area, Mr. Sargent?

A Yes, sir. The Williamson Guy State Number One.

Q Where is that located?

A It is in the Northwest of the Northeast Quarter of Section 23. It was dry in the Pennsylvanian and Wolfcamp, Devonian. The dry hole shown in the Southwest of the Northeast of Section 22. The Sinclair One State, was a dry hole. However, they did not test the Pennsylvanian section in this particular zone. We do not know whether it is productive, or not.

Q This further substantiates your view that this is a very limited reservoir and that these wells are draining, or have drained a very substantial portion of it?

A Yes, sir.

Q Is there anything you care to point out in connection with your economic analysis and the reservoir information upon which it is based?

A In the original hearing we indicated there were two zones in the Upper Pennsylvanian. And these economics are based upon the combined recovery from the two zones. We have only produced this one zone primarily, because the lower of the two zones is heavily water productive. And would be strictly a salvage operation to go back into at this time. Possibly on the "M", when it is completely depleted, the upper of the two zones, we will attempt to pump it to see what characteristics the lower zone has



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and whether it will economically produce oil.

Q You would not anticipate that on the Dallas then?

A Possibly we may on all of these wells, once the primary producing zones are depleted. We may go back into the lower zone if it proves economically feasible.

Q Is there anything else you care to point out in connection with the hearing on the Upper Pennsylvanian Pool?

A Only that these are Pennsylvanian zones which are very similar to the zones producing in the South Lane Pool, some three, four or five miles east-northeast of this area, which were recently granted permanent 80 acre spacing rules.

Q In your opinion, can one well in this pool efficiently and economically drain 80 acres?

A Yes, sir.

Q In your opinion, would the drilling of wells on less than 80 acres result in economic waste?

A Yes, sir. One would be foolhardy to do so.

Q All right.

MR. BRATTON: I believe we have nothing further on the Upper Pennsylvanian, if the Examiner would want to examine on it at this time, sir.

\* \* \* \*

# EXAMINATION

BY MR. UTZ:

Q All right, sir. Mr. Sargent, the proof that you have



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here, unless I am missing something, that one well would drain more than 80 acres, is that this Number One well, the Dallas well, has already drained or recovered 65,000, and you have calculated only 40,000 reserve under a 40 acre tract?

A Yes, sir.

Q Other than that, you- -

A Well, I would point out the pressure difference between the initial pressure on the Dallas and the initial pressure on the State "M". There was some 700 pounds difference there.

Q That is the radius of drainage in excess of 80 acres?

A Yes, sir.

Q Insofar as you know, does Cabot have any intention of drilling any more Penn wells in that area?

A Not at the present time. We have- - we are not planning on drilling more wells. We have been trying to interest some of our offset operators in offsetting some of our acreage. However, we haven't been very successful in this. Based on what information we have now, we would not drill any more wells. It is too slim. I would say possibly if the South Lane Pool extended west so that we could drill in Section 14, then, we may drill in there. But, this would be a pool separate from where we are, separate by fault, some six or seven foot displacement.

MR. UTZ: Any questions of the witness?



EXAMINATION

BY MR. DURRETT:

Q Yes, I have got a question or two. Mr. Sargent, I am a little confused on one or two things. What did you say the accumulative barrels were on Well Number One?

A 65,431 barrels as of September 30th.

Q And that is the one that is dropping off very rapidly; is that correct?

A Yes, sir.

Q But, you think that by the time it gets down to where it has very little production that you have made your original calculated 80,000 barrels?

A Very possibly, plus we may recover some oil from the lower of the two zones in the Pennsylvanian. This would bring that total up to pretty close to the 80,000.

Q Now, what is this Mary Ellen Dallas well capable of making right now?

A Apparently it is not capable of making more than 35 barrels a day. September production amounted to 977 barrels.

Q So, it can't really make a top unit allowable for 40 acres, can it?

A No, sir, cannot.

Q As far as allowable is concerned, and the production you would recover wouldn't make any difference whether the 80 acre order was retained, or you went back to 40?

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A Not unless the lower zone proved to be better than we think it is on pump test. We don't know what it can do on a pumping test. When it was completed originally, it was flowing.

Q What about that other well, what is the capability of it?

A The "M" apparently is about- - in September, it averaged 50 barrels a day.

Q So, it could still make a little more, at least, than a normal 40 unit allowable?

A No, sir. No. Normal 40 acres, it would be about 130 barrels a day.

MR. BRATTON: Depth factor.

Q (By Mr. Durrett:) So, it can't make it either, really?

A No, sir. No, sir. Neither one of these wells can make top for 80 or 40 acre allowable at the current time.

MR. DURRETT: Thank you.

MR. UTZ: Any other questions? You may proceed.

REDIRECT EXAMINATION

BY MR. BRATTON:

Q Turn then to the Exhibit Number One in the original hearing on the Wolfcamp zone. Now, at the time of that, you had the one well in the Northwest of the Northwest of 23 completed in the Wolfcamp; is that correct, sir?

A Yes, sir.

Q And I believe right at the time of the hearing, just



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immediately preceding it, you completed one in the Southwest of the Northwest of 23?

A Yes, sir, that is correct. I believe it was just - just after the hearing last year.

Q Now, what other wells have been completed in the Wolfcamp and what other attempts at completions have there been?

A The only other well completed in the Wolfcamp was our Don Thompson Number One in the Northwest of the Southwest Quarter of Section 23. This is the only other well completed in the Wolfcamp and in which a try has been made to complete in the Wolfcamp.

Q All right. There have been no other attempts at completions in the Wolfcamp?

A No, sir, just these three wells.

Q Have there been any other dry holes drilled in the Wolfcamp, or where the Wolfcamp was absent?

A Yes, sir. Our State "M" Number One in the Northwest of the Northeast of Section 23. The Wolfcamp zone in this well was cored and was at this time impermeable. The Williamson Guy State Number One in the Northwest of the Northeast Quarter of Section 23 was dry in the Wolfcamp, and as far as we know, the Sinclair well in the Southwest of the Northeast Quarter of Section 22 was dry in the Wolfcamp.

Q Now, so that leaves a line running north and south where there is apparently potential Wolfcamp production; is that



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correct?

A Yes, sir.

Q All right. What has been the performance and what is it since with regard to your three Wolfcamp wells, Mr. Sargent?

A The performance of these wells has been good to date. The Humble State Well has produced a total of 52,125 barrels through September, and is currently still producing at top allowable. Out State "M" Number One well has produced 33,840 barrels through September, and is still producing at top allowable.

MR. UTZ: How much was that?

A 33,840.

MR. UTZ: What was the other one?

A 52,125. The Thompson well has produced a total of 11,649 barrels through September, and is a marginal well at the current time.

Q (By Mr. Bratton) Is that the third well you drilled?

A Yes, sir.

Q In the Wolfcamp. What is the current total production?

A Apparently producing 20 barrels of oil per day.

Q All right, sir. Now, what do you base your permeability and porosity on; is that on the information from the Thompson well?

A Yes, sir. This is the information from a core in the Thompson well.

MR. UTZ: Where is the Thompson well located?



A It is in the Northwest of the Southwest of 23, immediately south of our State "M" One does not show on the map you have there, sir.

Q (by Mr. Bratton) It is the southern most of the three wells?

A Yes, sir.

Q All right. And it is the poorest producing well of the three by all odds?

A Yes, sir, it is.

Q And the information, your range of permeability on here is from it?

A Yes, it is.

Q Now, did you- -

MR. UTZ: I don't believe we have one of those exhibits.

MR. BRATTON: I am sorry. Excuse me.

Q (By Mr. Bratton) Mr. Sargent, what are you coming before the Commission on at this time, insofar as this Wolfcamp formation is concerned? Do you have drainage information, or is it strictly economics? What is your situation and what are you requesting and why?

A Well, we are requesting permanent establishment of temporary rules granted last year under this hearing, and however, we are basing it on economics more than drainage information as we actually have none. We have no pressure history as such, to show that there is drainage over 80 acres. Our wells are not





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spaced on an 80 acre drainage pattern either. The economics of the Wolfcamp are break even without operating cost on 40 acre spacing. And this is assuming a rather good recovery for a solution gas drive reservoir of the 30 percent. 80 acre spacing would allow us to make a small profit on these wells.

Q Why don't you have a pressure information on that Thompson well, Mr. Sargent?

A The Thompson well was, as I said, in the other hearing, was originally completed in the Upper Pennsylvanian formation, which went to water rapidly. Was recompleted in an Upper Wolfcamp zone, which was not present and the Humble State, or State "M" wells, this zone within a week after completion died, either because it was depleted, or for some reason unknown to us. After much expense of workovers, the well finally was completed in the Wolfcamp zone which producing to the north. This zone is not as well developed as the Wolfcamp zone in the Humble State, or State "M" wells, as evidenced by his production characteristics and the fact that the drillstem test on this zone initially was not near as productive as the Humble State wells.

Q Are you afraid to fool around with the well any more after all the trouble you had with it?

A Yes, sir. We were afraid. We had perforated and squeezed numerous times and we were not sure even when we recompleted it that we had a completely successful squeeze on the Upper zone.



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Q At this time, would you anticipate drilling any further wells in the Wolfcamp?

A No, sir, I would not.

Q In your opinion, Mr. Sargent, can wells be economically drilled on a 40 acre pattern in this pool?

A No, sir. I believe it would be just a matter of swapping dollars, if that.

Q You have anything further you care to point out in connection with your Wolfcamp application?

A I would like to mention that there is a well drilling in this pool at the present time, in the Southeast of the Northeast Quarter of Section 22. This being a direct offset to our State "H" well. My understanding that this well should be in or approaching the Wolfcamp formation this week.

Q Who is drilling that?

A Great Western Drilling Company is drilling that well.

Q So, somebody might drill some additional Wolfcamp wells but you wouldn't anticipate doing so?

A Not unless we are absolutely forced to.

Q Exhibits One and Two prepared by you or under your supervision?

A Yes, they were.

MR. BRATTON: We offer in evidence Applicant's Exhibits Numbers One and Two.

MR. UTZ: Exhibit Number One will be accepted as far



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as Case 2658 is concerned. Exhibit Number Two in Case 2659.

MR. BRATTON: I believe that is all we have at this time, sir.

MR. UTZ: Any questions of the witness?

Actually, on your best well, you have only recovered approximately half of the reserve that is estimated to be in the Wolfcamp?

A Yes, sir. On 80 acre spacing.

MR. UTZ: How about the pressures in these wells, are they holding up?

A We have had no indication that they have begun to drop appreciably yet. I would say-- We have not taken pressures this year. However, the gas-oil ratios have not increased appreciably. In fact, on the Humble State Well, they have been dropping within the last four or five months. So, I would say that the pressures are holding up rather well.

MR. UTZ: What would you attribute their small rate of production to?

A On which well, sir? On the Thompson? The Thompson is the only well not making top allowable. The Humble State wells are making top allowable at the present time.

MR. UTZ: They are not top now?

A Yes, sir. The Thompson well, because of the formation, is not as well developed. Permeability is not, probably not as great as in the Humble State and State "M" wells. And that the formation there is not quite as thick as the Humble State or State



"M" wells.

MR. UTZ: You don't have a core data for the other two wells, just the Thompson?

A No, sir, I do not.

MR. UTZ: You anticipate the permeability to be better in those two wells?

A Yes, sir. I would say that it is based on production history.

MR. UTZ: As far as you know, this isn't a fractured reservoir?

A No, sir, I don't believe. We did run a fracture log in this Thompson and it did not indicate this zone to be fractured.

MR. UTZ: Any other questions? You don't have any dual completions in the Penn and Wolfcamp in that area?

A No, sir, we do not. We anticipate having to pump the Penn and therefore, with sub-surface hydraulic equipment. We did not feel we wanted to get mixed up with dual completions in this area on that basis.

MR. UTZ: The witness may be excused. Any statements?  
The case will be taken under advisement.

\*\*\*\*\*

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Albuquerque, New Mexico

Phone 243-6691

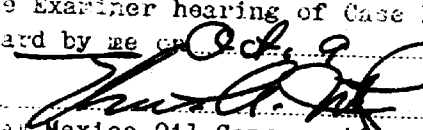
STATE OF NEW MEXICO I  
COUNTY OF BERNALILLO I

I, ROY D. WILKINS, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill, and ability.

WITNESS my Hand and Seal of Office, this 9th day of December, 1963.

  
NOTARY PUBLIC

My Commission Expires:  
September 6, 1967.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 26,584,59 heard by me on Oct. 9, 1963.  
 Examiner  
New Mexico Oil Conservation Commission



NORTH BAGLEY (WOLFCAMP) RESERVOIR CALCULATIONS

Assume 4 wells on 80 acres	= 320 acres
Average Thickness (4 wells)	= 18.5'
Acre Feet Contained in Assumed 320 acres	= 5,920 acre feet
$OIP = (7758)(0.047)(1 - 0.25)(\frac{1}{1.81})$	= 151 B/AF
Assume Recovery Factor	= 25%
Recoverable Oil = $(151)(0.25)(5,920 \text{ AF})$	= 223,500 bbl

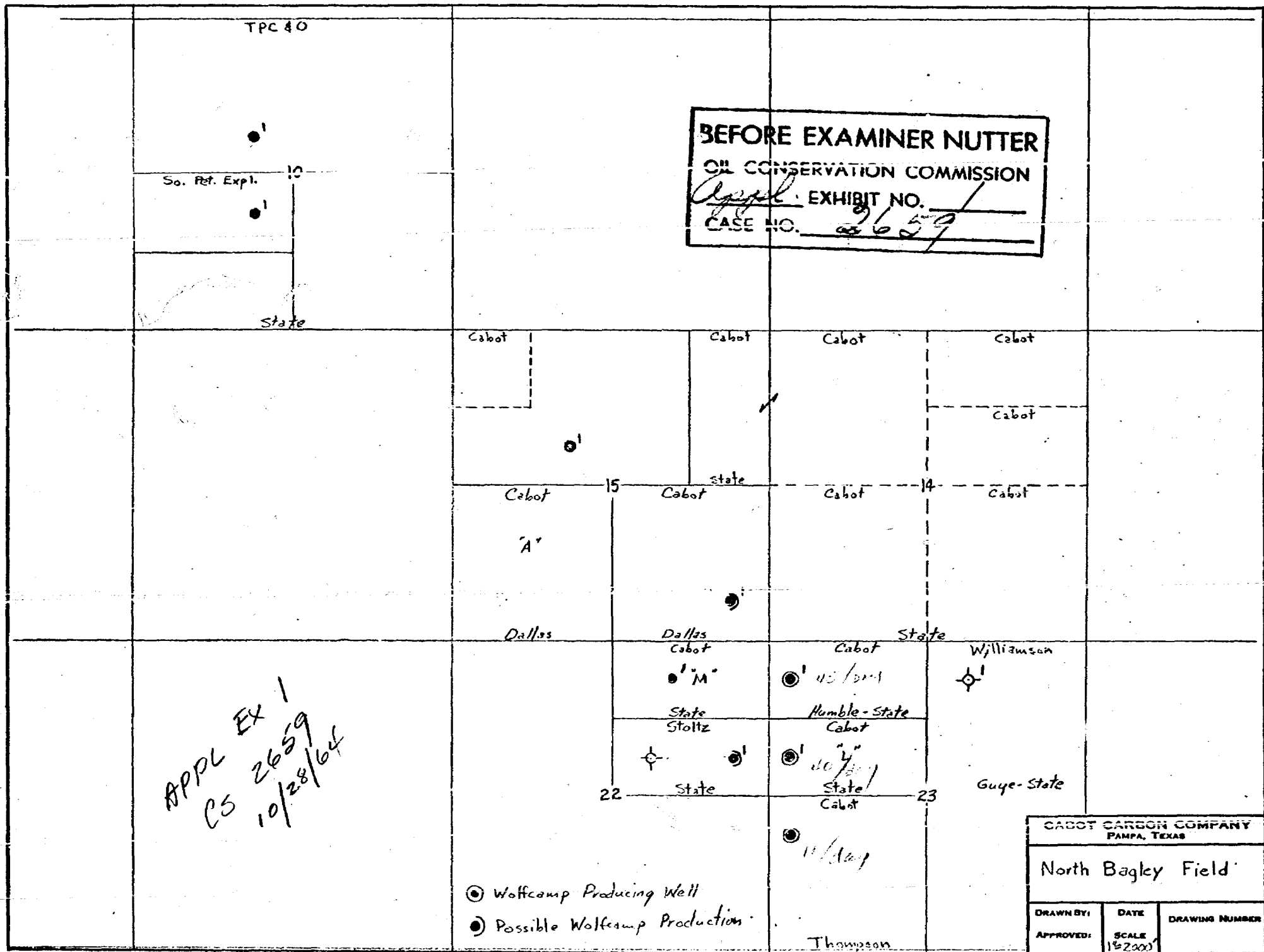
Recoverable Oil Calculated from Decline Curve Analysis

Humble-State No. 1:	Produced to 10-1-64	78,385	
	Est. Rem. Reserves	<u>31,918</u>	110,303 bbl
State "L" No. 1:	Produced to 10-1-64	60,317	
	Est. Rem. Reserves	<u>19,132</u>	79,449 bbl
Thompson No. 1:	Produced to 10-1-64	16,542	
	Est. Rem. Reserves	<u>16,361</u>	32,903 bbl
<b>TOTAL ESTIMATED RECOVERY FROM RESERVOIR:</b>			<b>222,655 bbl</b>

78,400  
60,300  
16,500  
155,200

APPL EX 2  
CS 2659  
10/28/64

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
EXHIBIT NO.	<u>2</u>
CASE NO.	<u>2659</u>



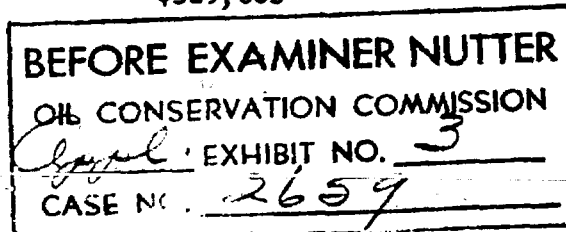
NORTH BAGLEY WOLFCAMP POOL

Discovery: September 7, 1962  
Producing Zone: Wolfcamp at about 8675'  
Original Pressure: 3112 psig  
Producing Mechanism: Solution gas drive  
Gross Pay: 56 feet  
Net Pay: 18.5 feet (average 4 wells)  
Porosity: 4.7%  
Water Saturation: 20%  
Permeability: 3.4 md range 0.2 to 23 (one well)  
Saturation Pressure: 3000 psig  
Reservoir Temperature: 159°  
Gas in Solution: 1,315 (estimated)  
Formation Volume Factor: 1.81 (estimated)  
Crude Gravity: 46° API  
Number of Wells: 3, including discovery

Economics based upon Humble-State No. 1

Well Cost (Drill, complete and equip): \$130,500  
Reserves based on 40-acre spacing: 55,150 bbls  
Operator's Gross Revenue based on 40-acre spacing before F.I.T.: \$164,742  
Reserves based on 80-acre spacing: 110,300 bbls  
Operator's Gross Revenue based on 80-acre spacing before F.I.T.: \$329,603

APPL EX 3  
CS 2659  
10/28/64





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. 2659  
Order No. R-2347

APPLICATION OF CABOT CORPORATION  
FOR THE CREATION OF A NEW OIL POOL  
AND FOR THE ESTABLISHMENT OF TEMPO-  
RARY RULES AND REGULATIONS, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 10, 1962, at Santa Fe, New Mexico, before Daniel S. Nutter, 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 25th day of October, 1962, 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 Corporation, seeks an order creating a new oil pool for Wolfcamp production, to be designated the North Bagley-Wolfcamp Pool. The discovery well for said pool is the Cabot Corporation's Humble State Well No. 1, located in Unit D of Section 23, Township 11 South, Range 33 East, NMPM, Lea County, New Mexico. Said well was completed September 10, 1962. The top of the perforations is at 8668 feet.

(3) That the applicant further seeks the promulgation of temporary special rules and regulations governing said pool, including provisions for 80-acre proration units.

(4) That a new oil pool should be created comprising portions of Sections 14, 15, 22, and 23, in Township 11 South, Range 33 East, NMPM, Lea County, New Mexico, for the production of oil from the Wolfcamp formation, said pool to bear the designation of North Bagley-Wolfcamp Pool.

(5) That the evidence presented concerning the reservoir characteristics of the subject pool justifies the establishment of 80-acre proration units for said pool for a temporary one-year period.

(6) That the evidence establishes that the subject pool can presently be efficiently and economically drained and developed on 80-acre proration units, and that such development will prevent waste and protect correlative rights.

(7) That during the one-year period in which this order will be in effect, the applicant should gather all available information relative to drainage and recoverable reserves in the subject pool.

(8) That this case should be reopened at an examiner hearing in October, 1963, at which time the applicant should be prepared to prove by a preponderance of the evidence why the subject pool should not be developed on 40-acre proration units.

IT IS THEREFORE ORDERED:

(1) That a new pool in Lea County, New Mexico, classified as an oil pool for Wolfcamp production, is hereby created and designated as the North Bagley-Wolfcamp Pool, comprising the following-described acreage:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM  
Section 14: S/2 SW/4  
Section 15: SE/4 SE/4  
Section 22: E/2 NW/4  
Section 23: NW/4

(2) That temporary special rules and regulations for the North Bagley-Wolfcamp Pool in Lea County, New Mexico, are hereby promulgated as follows, effective November 1, 1962.

SPECIAL RULES AND REGULATIONS  
FOR THE  
NORTH BAGLEY-WOLF CAMP POOL

RULE 1. Each well completed or recompleted in the North Bagley-Wolfcamp Pool or in the Wolfcamp formation within one mile of the North Bagley-Wolfcamp Pool, and not nearer to or within the limits of another designated Wolfcamp pool, shall be spaced, drilled, operated, and prorated in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well completed or recompleted in the North Bagley-Wolfcamp Pool shall be located on a standard unit which

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CASE No. 2659  
Order No. R-2347

consists of the N/2, S/2, E/2, or W/2 of a single governmental quarter section. For purposes of these rules, 79 through 81 contiguous surface acres shall be considered a standard unit. Provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the 80-acre unit.

**RULE 3.** Each well projected to or completed in the North Bagley-Wolfcamp Pool shall be located within 150 feet of the center of either quarter-quarter section in the 80-acre unit. Any well which was drilling to or completed in the North Bagley-Wolfcamp Pool prior to November 1, 1962, is granted an exception to the well location requirements of this rule.

**RULE 4.** For good cause shown, the Secretary-Director may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed in due form, and the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Lands Survey or when the application is for a non-standard unit comprising a single quarter-quarter section or lot and all operators offsetting the proposed non-standard unit have been notified of the application by registered or certified mail, and have given written consent in the form of waivers, or if, after a period of 30 days, no offset operator has entered an objection to the formation of such non-standard unit.

The allowable assigned to any such non-standard unit shall bear the same ratio to a standard allowable in the North Bagley-Wolfcamp Pool as the acreage in such non-standard unit bears to 80 acres.

**RULE 5.** A standard proration unit in the North Bagley-Wolfcamp Pool shall be assigned an 80-acre proportional factor of 4.00 for allowable purposes, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from said wells in any proportion.

**IT IS FURTHER ORDERED:**

That all operators who propose to dedicate 80 acres to a well in the North Bagley-Wolfcamp Pool must file an amended Commission Form C-128 with the Hobbs District Office of the Commission by November 1, 1962.

**IT IS FURTHER ORDERED:**

That this case shall be reopened at an examiner hearing in October, 1963, at which time the applicant and all interested parties shall appear and show cause why the North Bagley-Wolfcamp Pool should not be developed on 40-acre proration units.

-4-

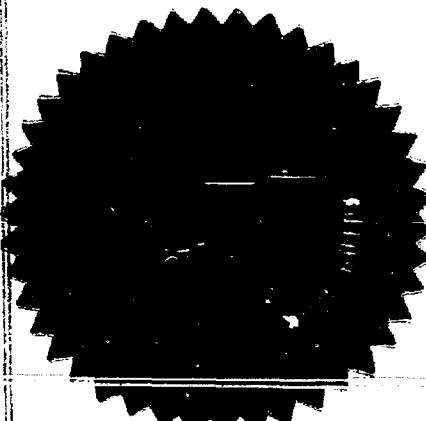
CASE No. 2659  
Order No. R-2347

IT IS FURTHER ORDERED:

That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION



*E L M*

EDWIN L. MECHEM, Chairman

*E S Walker*

E. S. WALKER, Member

*A L Porter, Jr.*

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

cat/

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. 2659  
Order No. R-2347-A

APPLICATION OF CABOT CORPORATION  
FOR THE CREATION OF A NEW OIL POOL  
AND FOR THE ESTABLISHMENT OF TEMPO-  
RARY RULES AND REGULATIONS, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 9, 1963, 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 30th day of October, 1963, 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 Order No. R-2347 dated October 25, 1962, promulgated Special Rules and Regulations for the North Bagley-Wolfcamp Pool establishing temporary 80-acre proration units in said pool.

(3) That this case was reopened pursuant to the provisions of Order No. R-2347 to permit the applicant and all interested parties to appear and show cause why the North Bagley-Wolfcamp Pool should not be developed on 40-acre proration units.

(4) That the evidence is not sufficient to establish that one well in the North Bagley-Wolfcamp Pool can efficiently and economically drain and develop 80 acres.

(5) That the temporary Special Rules and Regulations for the North Bagley-Wolfcamp Pool promulgated by Order No. R-2347 should be continued in effect for an additional one-year period in order to allow the operators in the subject pool sufficient time to gather additional information concerning the reservoir characteristics of the pool.

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CASE No. 2659

Order No. R-2347-A

(6) That this case should be reopened at an examiner hearing in October, 1964, at which time the applicant and all interested parties should appear and show cause why the North Bagley-Wolfcamp Pool should not be developed on 40-acre proration units; that if the evidence at said hearing does not establish that one well in the North Bagley-Wolfcamp Pool can efficiently and economically drain and develop 80 acres, then said pool should thereafter be developed on 40-acre proration units.

IT IS THEREFORE ORDERED:

(1) That the temporary Special Rules and Regulations governing the North Bagley-Wolfcamp Pool promulgated by Order No. R-2347 are hereby continued in full force and effect.

✓ (2) That this case shall be reopened at an examiner hearing in October, 1964; that the applicant and all interested parties shall appear at said hearing and show cause why the North Bagley-Wolfcamp Pool should not be developed on 40-acre proration units; and that if the evidence at said hearing does not establish that one well in the North Bagley-Wolfcamp Pool can efficiently and economically drain and develop 80 acres, the North Bagley-Wolfcamp Pool shall thereafter be developed on 40-acre proration units.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

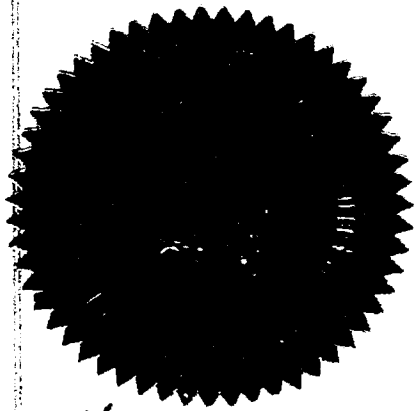
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

*Jack M. Campbell*  
JACK M. CAMPBELL, Chairman

*E. S. Walker*  
E. S. WALKER, Member

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



esr/

OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO

Date 11/20/64

CASE 2659

Hearing Date 9am 10/28/64  
DSN @ SF

My recommendations for an order in the above numbered cases are as follows:

Enter an order causing the  
North Bayley Walfeamp pool to  
revert to 40-acre spacing.

Applicant failed to show one  
well will drain 80 acres.

Stan Munn  
Staff Engineer

OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO

Date Oct 15, 1962

CASE 2659

Hearing Date 9 am Oct 10

My recommendations for an order in the above numbered cases are as follows: DSN @ SF

Create new pool, North Bayley wellcamp  
~~Establish temporary 80-acre~~  
~~protection units for North~~  
to comprise:

T 11 S R 33 E

Sec 14:  $3/2$  SW  $1/4$

Sec 15: SE  $1/4$  SE  $1/4$

Sec 22: ~~SW  $1/4$~~  E  $1/2$  NE  $1/4$

Sec 23: NW  $1/4$

Discovery well is Cabot Corp's Humble State # 1  
located in Unit D 23, 11 S, 33 E. It was compl.  
9-10-62. The top of the perf is at 8668.

Provide that pool shall have 80 acre  
protection units & that units may run E, W  
N or S. Well locs. shall be w/ 150  
of the center of either 40.

Use R 2284 as a guide except 80 acre prop  
factor shall be 4.00 make order effective  
Nov. 1 w/ new C-128's due by May that time.

Provide exception to  
well loc. requirements San Juan  
for any well already drilled  
Call another hearing for Oct 63



# Memo

Calcutt Corp. St. No. 121  
Humboldt St. No. 121

NW 1/4 NW 1/4 23 11 33

Completed in WCC

Creation of pool  
and. Temp pool holes incl  
provisions for grades

M. Ziegler, Wal. Camp

From

D. S. Nutter  
Chief Engineer

# Memo

Celest. Camp' St. No. 12  
Humboldt St. No. 12  
NW 1/4 NW 1/4 23 11 33

Completed in WC

creation of pool  
and. Camp pool tunnel incl  
provisions for 80 acres  
N. Bagley Wolfcamp

D. S. Nutter  
Chief Engineer

From

GOVERNOR  
EDWIN L. MECHEM  
CHAIRMAN

State of New Mexico  
Oil Conservation Commission

LAND COMMISSIONER  
E. S. JOHNNY WALKER  
MEMBER



STATE GEOLOGIST  
A. L. PORTER, JR.  
SECRETARY - DIRECTOR

P. O. BOX 871  
SANTA FE

October 25, 1962

Re: Case No. 2658 and 2659  
Order No. R-2346 & R-2347  
Applicant:

Mr. Howard Bratton  
Harvey, Dow & Hinkle  
P. O. Box 10  
Roswell, New Mexico

CABOT CORPORATION

Date 9-27-63  
*JP*

Dear Sir:

Enclosed herewith are two copies of the above-referenced  
Commission order recently entered in the subject case.

Very truly yours,

*A. L. Porter, Jr.*

A. L. PORTER, Jr.  
Secretary-Director

ir/

Carbon copy of order also sent to:

Hobbs OCC   X  

Artesia OCC       

Aztec OCC       

OTHER

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
October 10, 1962

EXAMINER HEARING

IN THE MATTER OF:

Application of Cabot Corporation for the creation of a new oil pool and the establishment of temporary rules and regulations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool to be designated the North Bagley-Wolcamp Pool for its Humble State Well No. 1, located in the NW/4 NW/4 of Section 23, Township 11 South, Range 33 East, Lea County, New Mexico. Applicant further seeks establishment of temporary rules and regulations governing said pool including provisions for 80-acre proration units.

CASE 2659

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: Call 2659.

MR. DURRETT: Application of Cabot Corporation for the creation of a new oil pool and the establishment of temporary rules and regulations, Lea County, New Mexico.

MR. BRATTON: Howard Bratton on behalf of the Applicant.  
We have one witness, who has already been sworn.

(Whereupon, Applicant's Exhibit  
No. 1 marked for identification.)

W. M. SARGENT, JR.

called as a witness, having been first duly sworn on oath, testified as follows:

DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.  
PHONE 325-1182

ALBUQUERQUE, N. M.  
PHONE 243-6691



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.  
PHONE 325-1182

SANTA FE, N. M.  
PHONE 983-3971

ALBUQUERQUE, N. M.  
PHONE 243-6691

# DIRECT EXAMINATION

BY MR. BRATTON:

Q

Are you the same Mr. Sargent who testified in Case 2658?

A

I am.

Q

Mr. Sargent, in Case 2659 we are talking about the same area and the same wells we were talking about in 2658, isn't that correct?

A

That is correct. The well in question here is the southeast offset to the Dallas, our Humble State No. 1 located in Section 23, 11, 33, Lea County.

Q

It's producing from an undesignated Wolfcamp Pool, is that correct?

A

That is correct.

Q

And you are seeking in this case temporary 80-acre production units for this formation in this pool?

A

Yes.

Q

Turning to your Exhibit No. 1, page 1, the location of the well is reflected on there, is that correct?

A

That is correct.

Q

And that's the well that Mr. Nutter determined is the only well producing from the Wolfcamp --

A

Yes, sir.

Q

-- in this area. Turn to your next page, Mr. Sargent. This is the well history of the Humble State No. 1, the Wolfcamp well?



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A Yes, sir.

Q Go through that briefly.

A This indicates a drillstem test in which we recovered oil. The oil surfaced five minutes after being shut-in for final shut-in pressure. The well was drilled on down through the Upper Penn section, and subsequent to running pipe on the well, the lower zone of the Upper Penn was perforated 9446 to 9452. This well was potentialized for 238 barrels of oil and 102 barrels of water per day. After being produced for something less than a month, the well, the water production increased on this well until it died, and we plugged the zone off, temporarily abandoned the zone and came back up and perforated 8668 to 8679 and 8684 to 8689 in the lower Wolfcamp. This well was potentialized for 156 barrels of oil and no water, on 11/64 inch choke. GOR of the well was 1315 to 1. Gravity of the oil, 50 degrees API. Initial reservoir pressure by bottomhole pressure was 3112 at 8600 feet.

Q Your next exhibit is your log of this well, is that correct?

A It is the log of the Wolfcamp section in this well. I did not include the lower zone on this well. It's included on the cross section, however.

Q It shows the perforation and it shows the bridge plug, is that correct?

A Yes, sir, the bridge plug set at 8710.

Q Anything else you care to bring out in connection with



that?

A The areas of net porosity I've picked are shown in dark blue on the sonic log. They amount to some twenty-six odd feet.

Q Turn to your next exhibit. Is that the same cross section --

A Yes.

Q -- that we discussed in connection with 2658?

A Yes, it is.

Q Is there anything additional or peculiar to the Wolfcamp that you want to bring out in connection with the hearing on this formation?

A The Wolfcamp, was proved by drillstem test to be continuous in Cabot's three wells. The Humble State is the only well producing from the Wolfcamp zone at this time.

Q Actually, are the other wells on the cross section significant insofar as the Wolfcamp is concerned?

A No, sir, they are not. I believe there are one or two, maybe three wells in the Bagley Field which are producing from the Wolfcamp but they have not been spaced.

Q Going to your next exhibit, your oil recovery calculations, here again you have no cores and a good deal of your information is based on logs and calculations from your PI tests, is that correct?

A The information shown here is based upon logs. The

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porosity, average porosity through the zone was 5.7 percent; the water saturation was estimated to be 20 percent, this was based upon my knowledge of the Wolfcamp and other areas in Lea County. The net pay was 26 feet from the log, and the recovery factor, I used 30 percent, once again based upon recovery from the Wolfcamp and other areas of Lea County.

Standard oil in place and recoverable oil calculations show 58.7 barrels per acre foot recoverable, or 1,525 barrels per acre. Recoverable from 40 acres, 61,000 barrels; recoverable from 80, 122,000 barrels.

Q What kind of drive mechanism is this?

A I assume that this would be a solution gas depletion type drive.

Q So your 30 percent is reasonably optimistic?

A It's very optimistic for depletion type drive.

Q Let's go to your next page, your reservoir rock and fluid properties.

A The Wolfcamp zone was found approximately 8670 feet. Gross pay, 56 feet; net pay, 26 feet. Porosity, 5.7 percent, and assumed water saturation of 20 percent. Original reservoir pressure, 3112, saturation pressure 2700 psi, this from Standing's charts. Reservoir temperature, 159 degrees measured. Solution gas-oil ratio, 1315, this was based on the potential and ratio produced from the formation volume factor. This again was based on Standing's charts. Oil gravity, 50 degrees API.





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Q Go to your next table, your comparison of the rock and fluid properties in this well with those in the North Anderson Ranch Wolfcamp.

A I used the North Anderson Ranch Wolfcamp Pool for comparison as it was the nearest Wolfcamp which had been spaced on 80 acres that I was able to find in the Commission's rules and regulations, nomenclature. The depth of the North Anderson Ranch is some 1300 feet below the Humble State; however, both zones are the Lower Wolfcamp. The gross pay in the North Anderson Ranch is 80 to 100 feet, some one and a half to two times as much as found in Cabot. The net pay in North Anderson Ranch ranges from 17 feet to 64 feet, while ours is 26. Porosity in North Anderson Ranch is 9.6 percent, and Cabot's from log analysis is 5.7. Water saturation is 25 percent in North Anderson Ranch; Cabot's well is 20 percent, estimated. Permeability in the North Anderson Ranch, based upon data presented at their spacing hearing, was from 5 to 100 millidarcys. We have not run a PI test on this well and the only data I had to work with was the drillstem test, and the calculated permeability was 0.5 millidarcys.

The productivity index of the North Anderson Ranch Pool is .458. The original reservoir pressure, 3600+ for the North Anderson Ranch, which is some 500 pounds higher than Cabot's well. However, the depth would account for that.

Saturation pressures are different. The solution gas-oil ratio, ours is somewhat lower than North Anderson Ranch,



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resulting in the lower saturation pressures. Temperatures, probably about the same. Formation volume factor, North Anderson Ranch, 1.96; on Cabot's 1.81, this difference being accounted for by the higher gas solution ratio on the North Anderson Ranch. Oil viscosity, .225 for the North Anderson Ranch, and .18 for Cabot. Oil gravity, 41.7 for North Anderson, while ours is 50 degrees.

Q Let's go back to your permeability in this well. Do you believe your .5 there is probably truly reflective of the permeability?

A No, I do not. As I say, this was calculated from the drillstem test on which we did not have a flowing recovery, actually, during the open period of the test. Calculations of the drillstem test indicated that this permeability represents an area maybe five feet around the well bore. This would be the area which would be contaminated by mud during drilling, resulting in reduction in permeability; flushing of the zone by water and reduction of permeability to oil in this area. The well on subsequent tests has flowed at rates in excess of 20 barrels of oil per hour, with flowing pressures of about 1400 psi. In order to recover oil at these rates, I believe that the permeability has to be much higher within the drainage area of this well.

MR. NUTTER: Would it have to exceed .5 of a millidarcy?

A Yes, sir.

Q (By Mr. Bratton) So you are confident that your



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permeability is substantially higher than your .5 of a millidarcy?

A Yes, I believe it is.

Q Is there anything further you care to bring out in connection with that exhibit?

A No, sir.

Q Let's go to your next exhibit.

A The next exhibit is a plot of the average reservoir bottomhole pressure for the North Anderson Ranch Pool versus time and indicated on it is the pressure of one well from 1958 up to 1961, and then the last point indicates the average pressure of eight wells in this reservoir. This plot indicates that there is good pressure communication between these eight wells.

Q Let's turn now to your drilling economics on the Wolfcamp.

A The recoverable oil under 40 acres, 61,000; under 80, 122,000. Operator's net, \$53,375 under 40; \$106,750 under 80 acres. Operator's net income, once again giving the top price of \$3.01 per barrel in the area plus seven cents per thousand on gas, times recoverable oil gives \$155,855 for 40 acres, and \$311,710 for 80 acres. The drilling and completing of the Humble State No. 1 was \$154,112.. This includes completion, the actual completion in the Upper Penn, and also the attempted completion in the upper zone of the Upper Penn, which failed. Flow line and tank batteries estimated to cost \$11,369, for a total of estimated cost of \$165,481. I estimated that the producing Wolfcamp well,



completed, would cost \$135,000, plus tank battery. This indicates that on 40 acres it's at most a break-even proposition, trading dollars; and on 80-acre spacing it would be a two to one return. Once again, I have not included operating costs in my calculations.

Q In connection with possible dual completions, as you've testified previously, if you were fortunate to be able to dually complete in the Wolfcamp and the Upper Penn, on 80 acres you would still have an outside of two to one recovery, roughly, is that correct?

A That is correct.

Q On 40 acres?

A Less than two to one.

Q It would be in the range of one and a half to one?

A Yes, between one and a half and two to one.

Q Here again you are asking for temporary one-year rules, is that correct?

A Yes, sir, I am.

Q During that year, would you be willing to run interference tests in the Wolfcamp?

A Providing other completions are made in the Wolfcamp in the area, we will do whatever is required to prove adequate communication between the wells on 80-acre spacing.

Q And if you drill any additional Wolfcamp wells in the area, would you be able to take cores and have that information available?

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A I would certainly attempt to convince our Production Department that we should do so.

Q Is there anything further you care to state with relation to these exhibits?

A Not with the exhibits, no.

Q Based upon the analysis you've made of this pool, in your estimate would a one-year order for 80-acre proration units be in the interest of conservation and prevention of waste?

A Yes, sir, it would.

Q Would the drilling of wells on 40 acres during that year in your estimation result in economic waste?

A Yes, sir, I believe it would.

MR. BRATTON: We would offer in evidence Applicant's Exhibit 1.

MR. NUTTER: Cabot's Exhibit 1 will be entered in evidence.

(Whereupon, Applicant's Exhibit No. 1 entered in evidence.)

# CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Sargent, are you requesting the same flexible pattern for spacing here that you requested in the previous case?

A Yes, sir, we are requesting the same pattern and the increased acre, 80-acre depth allowable.

Q 150 feet from the center of the tract dedicated to the well?



A Yes, sir.

MR. NUTTER: Any questions of Mr. Sargent?

MR. BRATTON: I believe one further thing, Mr. Nutter.

We would request exceptions to any of these existing wells that are closer to the line than the 150 from the center.

MR. NUTTER: You'll have to have an exception or pull them up and move them.

MR. BRATTON: That we would very much not like to do.

MR. NUTTER: If there's no further questions of the witness, he may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further you wish to offer in Case 2659, Mr. Bratton?

MR. BRATTON: No, sir.

MR. NUTTER: Does anyone have anything they wish to offer in this case? We'll take the case under advisement.

\* \* \* \* \*

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STATE OF NEW MEXICO )  
 ) ss  
COUNTY OF BERNALILLO )

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing was reported by me in stenotype, and that the same is a true and correct record of said proceedings, to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this 25th day of October, 1962, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

*Ada Dearnley*  
NOTARY PUBLIC

My Commission Expires:

June 19, 1963.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2659 heard by me on 10/31, 1962.

*[Signature]*  
Examiner  
New Mexico Oil Conservation Commission



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**EXAMINER**                      **HEARING**

Case No. 2659

TRANSCRIPT OF HEARING



MR. NUTTER: We will call Case 2659.

MR. DURRETT: In the matter of Case No. 2659 being reopened pursuant to the provisions of Order No. R-2347-A, which continued the original order establishing 80-acre proration units for the North Bagley-Wolfcamp Pool, Lea County, New Mexico, for an additional year.

MR. CHRISTY: Sim Christy; Hinkle, Bondurant and Christy, for the Applicant, Cabot Company.

(Witness sworn.)

W. M. SARGENT, JR.

called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CHRISTY:

Q Give me your name, address, occupation and by whom you are employed and what capacity?

A W. M. Sargent, Jr., Petroleum Engineer for Cabot Carbon Company in Pampa, Texas.

Q Have you been previously qualified by this body and had your qualifications accepted by the Commission?

A I have.

Q Mr. Sargent, I believe that this matter initially started about two years ago on pool rules for the North Bagley-Wolfcamp, and in 1963 an order was entered continuing the 80-acre



spacing portion of that rule and providing for the matter to come on to be heard again in October of '64, and for the operators to show cause, if any, why they should not be put on 40-acre spacing, is that correct?

A That's correct.

Q You previously testified in the other hearings in connection with these pool rules, have you not?

A I did.

(Whereupon, Applicant's Exhibit No. 1 was marked for identification.)

Q Now, Mr. Sargent, I refer you to what has been marked as Applicant's Exhibit 1, which appears to be some type of plat map. Would you identify the plat and tell us what it depicts?

A This is a plat of the North Bagley field showing the wells completed in it. The wells entirely circled in red are the presently producing Wolfcamp wells. The wells with the half-red circle around them are the wells which have had significant Wolfcamp shows while drilling.

Q Then as I understand you, there's still only the three wells that there were previously--

A Yes, sir.

Q -- that are producing?

A This is correct.

Q So, we have no other wells in the pool, is that correct?

A That's right.

Q Since the last hearing?

A That's right.

Q Do you feel the field is fully developed at this point?

A I do. The only possible further production would be in Cabot Corporation's Dallas No. 1 in the southeast of Section 15, and possibly in Dean Stoltz Guye No. 1 in the southeast of the northeast of Section 22.

The Stoltz well was tested during completion and they could not make a completion in it at that time, so they abandoned the Wolfcamp zone and completed in the Pennsylvanian.

The production of these wells does not justify the drilling of additional wells in this area for the Wolfcamp production.

Q As I see on Exhibit 1, it appears that Cabot is the owner of the working interest in the surrounding acreage with the exception of the northwest quarter, the south half northeast, and the south half of Section 22, and the east half of Section 23, is that correct?

A That is correct.

Q And you don't plan any additional drilling?

A No.

(Whereupon, Applicant's Exhibit No. 2 was Marked for Identification.)

Q I refer you to what has been marked as Applicant's Exhibit No. 2, and ask you if you'll please identify that exhibit and tell us what it depicts with reference to this case?

A Exhibit 2 is a calculation of the reservoir volume which would be contained under four 80-acre allocation units. I averaged the net pay thickness in the four Cabot wells.

Q Are you testifying from Exhibit 2 or Exhibit 3?

A You have this marked 2.

MR. NUTTER: Also, if you would, mark the date because this is the same case number.

MR. CHRISTY: I will.

A I averaged at an average thickness for the four wells of Cabot of 18-1/2 feet. Further assuming that each of these four wells would drain 80 acres, I multiplied the thickness times the 320 acres and arrived at a reservoir volume of 5,995 acre feet.

As indicated by the oil in place calculation, there is approximately 151 barrels of oil per acre foot in place in the reservoir.

Assuming a recovery factor of 25 percent, which is

a fair factor for a solution gas drive reservoir, the recoverable oil calculates to be 223,500 barrels.

I then extrapolated the decline curves on the Cabot Humble-State No. 1, State L No. 1, and Thompson No. 1.

Q Those are the three producing wells as shown on the plat, Exhibit 1?

A These are the three producing wells. To an economic limit of 100 barrels per day per well, or 100 barrels per month per well, and some of these total estimated recoveries and arrived at a figure of 222,655 barrels.

This is in very close agreement with the calculated recovery of 223,500 barrels for the 320 acres. From this I deduced that these wells will effectively drain 80 acres.

In other words, Exhibit 2 shows two methods of calculation arriving at approximately the same answer, is that correct?

A That is correct.

Q Did you testify that the 25 percent if a fair assumed recovery factor?

A Yes, sir, I did.

Q And it seems to be borne out by your recovery calculations shown in the second part of Exhibit 2?

A Yes, sir.

(Whereupon, Applicant's Exhibit 3 marked for identification.)

Q I'll ask you if you'll refer to Applicant's Exhibit

3 and identify it and tell us what it depicts with respect to the matters involved in this case?

A Exhibit 3 is a copy of the exhibit presented last year concerning the rock characteristics and reservoir characteristics of the North Bagley-Wolfcamp Pool.

There have been three changes made on this exhibit under net pay, 19-1/2 feet, which is the average of the four Cabot wells. Then, under the economics based on the Humble State No. 1, the reserves here have been increased to 55,150 barrels for 40 acres and 110,310 barrels for 80 acres.

This is the estimated ultimate recovery from the Humble State No. 1 well.

As shown, the operators' gross revenue before Federal Income Tax on 40-acre spacing is \$164,000.00 for expenditure of \$130,000.00. On 80-acre spacing, the operators' gross revenue would be \$330,000.00 for the same \$130,000.00 expenditure. This would allow us to make a fair return on our investment.

Q I believe on the State 1 No. 1, for example, the recovery factor would be about 1.9 to 1?

A I believe this is correct.

Q On 80 acres?

A This is correct according to an economic analysis I have made.

Q These figures are before operating expenses and taxes?

A Yes, sir.

Q Do you therefore have an opinion as to whether or not it's economically feasible to develop the North Bagley-Wolfcamp Pool on a 40-acre basis?

A We would not develop on 40 acres.

Q You do not feel it's economically sound?

A No, I do not feel it's sound at all.

Q Then I will ask if the granting of permanent rules for 80-acre spacing in this pool would tend to avoid waste including economic waste?

A Yes, sir, it would.

Q Do you have a recommendation to the Commission with respect to 80 versus 40-acre permanent rules of the North Bagley-Wolfcamp Pool?

A It is my recommendations that the temporary rules now in effect be made permanent for the North Bagley-Wolfcamp Pool.

Q Were Exhibits 1, 2, and 3, prepared by you or under your direct supervision?

A Yes, sir, they were.

MP. CHRISTY: That's all I have for this witness.

MR. NUTTER: Any questions of Mr. Sargent?

MR. DURRETT: I have a question, please.

CROSS EXAMINATION

BY MR. DURRETT:

Q What is the allowable on an 80 for this pool?

A I believe it's 187 barrels a day; it has a factor of 4.77.

Q 4.77?

A Yes.

Q It's coming out someplace about 180?

A Yes.

Q Are these wells making that?

A No, sir.

Q What were they making?

A The Humble State Well is making approximately 45 barrels per day; the State L, approximately 40 barrels per day, and the Cabot Thompson, approximately 11 barrels per day. This has been a poor well since the beginning.

Q They're just about making a 40-acre allowable now, is that correct, I mean the good ones?

A No, we're not even making a 40-acre.

Q Not even making the 40 with the depth factor?

A The depth factor allowable would be approximately 150 barrels per day.

MR. DURRETT: I think that's all I have.



BY MR. NUTTER:

Q You stated that Stoltz had tested the Wolfcamp in his well. Did Cabot test the Wolfcamp in the Dallas well?

A On a drill system, it tested oil and gas.

Q You don't have any contemplated drilling plans?

A Not in this area. If there is any additional drilling to be done, I think it will be done in the southwest of 15, probably on a wildcat or Pennsylvania extension basis.

Q Do you think that you may recomplete the Dallas well in the Wolfcamp?

A It is my feeling that we have probably depleted this zone, or are depleting this zone to the presently depleted wells.

Q And the wells to date have produced approximately 155,000 barrels, is that correct, and you estimate there's about 220 some thousand barrels recoverable total oil?

A Yes, that is correct.

MR. NUTTER: Are there further questions of the witness? He may be excused.

(Witness excused.)

MR. CHRISTY: At this point we would like to offer into evidence Applicant's Exhibits 1, 2, and 3.

MR. NUTTER: Applicant's Exhibits 1, 2, and 3 dated 10/28/64 will be admitted in evidence.

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PAGE 11

(Whereupon, Applicant's Exhibits  
1, 2, and 3 were offered and  
admitted into evidence.)

MR. NUTTER: Does anyone have anything they should  
like to offer in Case 2659? We will take the case under  
advisement and call Case 3133.



I N D E X

<u>WITNESS</u>	<u>PAGE</u>
W. M. SARGENT, JR.	
Direct Examination by Mr. Christy	2
Cross Examination by Mr. Durrett	9
Questions by Mr. Nutter	10

E X H I B I T S

<u>Number</u>	<u>Marked</u>	<u>Offered</u>
1	3	11
2	5	11
3	6	11

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PAGE 13

STATE OF NEW MEXICO )  
 ) SS  
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 6th day of November, 1964.

*Ada Dearnley*  
NOTARY PUBLIC

My Commission Expires:

June 19, 1967.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2659 heard by me on 10/28, 19 64.

*James* Examiner  
New Mexico Oil Conservation Commission

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PAGE 1

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
October 28, 1964

EXAMINER HEARING

-----  
IN THE MATTER OF: Case No. 2659 being reopened  
pursuant to the provisions of Order No.  
R-2347-A, which continued the original order  
establishing 80-acre proration units for the  
North Bagley-Wolfcamp Pool, Lea County, New  
Mexico, for an additional year. All  
interested parties may appear and show cause  
why said pool should not be developed on  
40-acre proration units.  
-----

Case No. 2659

BEFORE: DANIEL S. NUTTER, EXAMINER

TRANSCRIPT OF HEARING

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MR. DURRETT: In the matter of Case No. 2659 being reopened pursuant to the provisions of Order No. R-2347-A, which continued the original order establishing 80-acre proration units for the North Bagley-Wolfcamp Pool, Lea County, New Mexico, for an additional year.

MR. CHRISTY: Sim Christy; Hinkle, Bondurant and Christy, for the Applicant, Cabot Company.

(Witness sworn.)

W. M. SARGENT, JR.

called as a witness, having been first duly sworn, was examined and testified as follows:

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BY MR. CHRISTY:

Q Give me your name, address, occupation and by whom you are employed and what capacity?

A W. M. Sargent, Jr., Petroleum Engineer for Cabot Carbon Company in Pampa, Texas.

Q Have you been previously qualified by this body and had your qualifications accepted by the Commission?

A I have.

Q Mr. Sargent, I believe that this matter initially started about two years ago on pool rules for the North Bagley-Wolfcamp, and in 1963 an order was entered continuing the 80-acre

spacing portion of that rule and providing for the matter to come on to be heard again in October of '64, and for the operators to show cause, if any, why they should not be put on 40-acre spacing, is that correct?

A That's correct.

Q You previously testified in the other hearings in connection with these pool rules, have you not?

A I did.

(Whereupon, Applicant's Exhibit No. 1 was marked for identification.)

Q Now, Mr. Sargent, I refer you to what has been marked as Applicant's Exhibit 1, which appears to be some type of plat map. Would you identify the plat and tell us what it depicts?

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Q Then as I understand you, there's still only the three wells that there were previously--

A Yes, sir.

Q -- that are producing?

A This is correct.

Q So, we have no other wells in the pool, is that correct?

A That's right.

Q Since the last hearing?

A That's right.

Q Do you feel the field is fully developed at this point?

A I do. The only possible further production would be in Cabot Corporation's Dallas No. 1 in the southeast of Section 15, and possibly in Dean Stoltz Guye No. 1 in the southeast of the northeast of Section 22.

The Stoltz well was tested during completion and they could not make a completion in it at that time, so they abandoned the Wolfcamp zone and completed in the Pennsylvanian.

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Q As I see on Exhibit 1, it appears that Cabot is the owner of the working interest in the surrounding acreage with the exception of the northwest quarter, the south half northeast, and the south half of Section 22, and the east half of Section 23, is that correct?

A That is correct.

Q And you don't plan any additional drilling?



A No.

(Whereupon, Applicant's Exhibit No. 2 was Marked for Identification.)

Q I refer you to what has been marked as Applicant's Exhibit No. 2, and ask you if you'll please identify that exhibit and tell us what it depicts with reference to this case?

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As indicated by the oil in place calculation, there is approximately 151 barrels of oil per acre foot in place in the reservoir.

Assuming a recovery factor of 25 percent, which is

a fair factor for a solution gas drive reservoir, the recoverable oil calculates to be 223,500 barrels.

I then extrapolated the decline curves on the Cabot Humble-State No. 1, State L No. 1, and Thompson No. 1.

Q Those are the three producing wells as shown on the plat, Exhibit 1?

A These are the three producing wells. To an economic limit of 100 barrels per day per well, or 100 barrels per month per well, and some of these total estimated recoveries and arrived at a figure of 222,655 barrels.

This is in very close agreement with the calculated recovery of 223,500 barrels for the 320 acres. From this I deduced that these wells will effectively drain 80 acres.

Q In other words, Exhibit 2 shows two methods of calculation arriving at approximately the same answer, is that correct?

A That is correct.

Q Did you testify that the 25 percent is a fair assumed recovery factor?

A Yes, sir, I did.

Q And it seems to be borne out by your recovery calculations shown in the second part of Exhibit 2?

A Yes, sir.

(Whereupon, Applicant's Exhibit 3 marked for identification.)

Q I'll ask you if you'll refer to Applicant's Exhibit

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3 and identify it and tell us what it depicts with respect to the matters involved in this case?

A Exhibit 3 is a copy of the exhibit presented last year concerning the rock characteristics and reservoir characteristics of the North Bagley-Wolfcamp Pool.

There have been three changes made on this exhibit under net pay, 19-1/2 feet, which is the average of the four Cabot wells. Then, under the economics based on the Humble State No. 1, the reserves here have been increased to 55,150 barrels for 40 acres and 110,310 barrels for 80 acres.

This is the estimated ultimate recovery from the Humble State No. 1 well.

As shown, the operators' gross revenue before Federal Income Tax on 40-acre spacing is \$164,000.00 for expenditure of \$130,000.00. On 80-acre spacing, the operators' gross revenue would be \$330,000.00 for the same \$130,000.00 expenditure. This would allow us to make a fair return on our investment.

Q I believe on the State L No. 1, for example, the recovery factor would be about 1.9 to 1?

A I believe this is correct.

Q On 80 acres?

A This is correct according to an economic analysis I have made.

Q These figures are before operating expenses and taxes?

A Yes, sir.

Q Do you therefore have an opinion as to whether or not it's economically feasible to develop the North Bagley-Wolfcamp Pool on a 40-acre basis?

A We would not develop on 40 acres.

Q You do not feel it's economically sound?

A No, I do not feel it's sound at all.

Q Then I will ask if the granting of permanent rules for 80-acre spacing in this pool would tend to avoid waste including economic waste?

A Yes, sir, it would.

Q Do you have a recommendation to the Commission with respect to 80 versus 40-acre permanent rules of the North Bagley-Wolfcamp Pool?

A It is my recommendations that the temporary rules now in effect be made permanent for the North Bagley-Wolfcamp Pool.

Q Were Exhibits 1, 2, and 3, prepared by you or under your direct supervision?

A Yes, sir, they were.

MR. CHRISTY: That's all I have for this witness.

MR. NUTTER: Any questions of Mr. Sargent?



MR. DURRETT: I have a question, please.

CROSS EXAMINATION

BY MR. DURRETT:

Q What is the allowable on an 80 for this pool?

A I believe it's 187 barrels a day; it has a factor of 4.77.

Q 4.77?

A Yes.

Q It's coming out someplace about 180?

A Yes.

Q Are these wells making that?

A No, sir.

Q What were they making?

A The Humble State Well is making approximately 45 barrels per day; the State L, approximately 40 barrels per day, and the Cabot Thompson, approximately 11 barrels per day. This has been a poor well since the beginning.

Q They're just about making a 40-acre allowable now, is that correct, I mean the good ones?

A No, we're not even making a 40-acre.

Q Not even making the 40 with the depth factor?

A The depth factor allowable would be approximately 150 barrels per day.

MR. DURRETT: I think that's all I have.

BY MR. NUTTER:

Q You stated that Stoltz had tested the Wolfcamp in his well. Did Cabot test the Wolfcamp in the Dallas well?

A On a drill system, it tested oil and gas.

Q You don't have any contemplated drilling plans?

A Not in this area. If there is any additional drilling to be done, I think it will be done in the southwest of 15, probably on a wildcat or Pennsylvania extension basis.

Q Do you think that you may recomplete the Dallas well in the Wolfcamp?

A It is my feeling that we have probably depleted this zone, or are depleting this zone to the presently depleted wells.

Q And the wells to date have produced approximately 155,000 barrels, is that correct, and you estimate there's about 220 some thousand barrels recoverable total oil?

A Yes, that is correct.

MR. NUTTER: Are there further questions of the witness? He may be excused.

(Witness excused.)

MR. CHRISTY: At this point we would like to offer into evidence Applicant's Exhibits 1, 2, and 3.

MR. NUTTER: Applicant's Exhibits 1, 2, and 3 dated 10/28/64 will be admitted in evidence.

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(Whereupon, Applicant's Exhibits  
1, 2, and 3 were offered and  
admitted into evidence.)

MR. NUTTER: Does anyone have anything they should  
like to offer in Case 2659? We will take the case under  
advisement and call Case 3133.

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I N D E X

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STATE OF NEW MEXICO )  
 ) ss  
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 6th day of November, 1964.

*Ada Dearnley*  
NOTARY PUBLIC

My Commission Expires:

June 19, 1967.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2659 heard by me on 10/28, 1964.

*[Signature]*, Examiner  
New Mexico Oil Conservation Commission