

CASE 3003: Application of CABOT  
CORP. for the creation of new oil  
pool and special pool rules.

Well  
Humble  
Signal  
Technician

CASE No.  
3003

Application,  
TRANSCRIPTS,  
SMALL Exhibits  
ETC.

DRAFT  
JMD/esr

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:

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

CASE No. 3003

Order No. R- 2685-A

APPLICATION OF CABOT CORPORATION  
FOR THE CREATION OF A NEW OIL POOL  
AND FOR SPECIAL POOL RULES, CHAVES  
COUNTY, NEW MEXICO.



ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on  
April 28, 1965, at Santa Fe, New Mexico, before Examiner  
Daniel S. Nutter.

NOW, on this \_\_\_\_\_ day of May, 1965, 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-2685, dated March 31, 1964, tem-  
porary Special Rules and Regulations were promulgated for the  
Tobac-Pennsylvanian Pool, Chaves County, New Mexico.

(3) That pursuant to the provisions of Order No. R-2685,  
this case was reopened to allow the operators in the subject pool  
to appear and show cause why the Tobac-Pennsylvanian Pool should  
not be developed on 40-acre spacing units.

(4) That the evidence establishes that one well in the  
Tobac-Pennsylvanian Pool can efficiently and economically drain  
and develop 80 acres.

-2-

CASE No. 3003

Order No. R-2685-A

(5) That the Special Rules and Regulations promulgated by Order No. R-2685 have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil in the pool.

(6) That to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-2685 should be continued in full force and effect until further order of the Commission.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Tobac-Pennsylvanian Pool promulgated by Order No. R-2685 are hereby continued in full force and effect until further order of the Commission.

(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.

JMD/esr  
March 18, 1964

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

Order No. R- 2685

APPLICATION OF CABOT CORPORATION  
FOR THE CREATION OF A NEW OIL POOL  
AND FOR SPECIAL POOL RULES, CHAVES  
COUNTY, NEW MEXICO.

This cause came on for hearing at 9 o'clock a.m. on March 11, 1964, at Santa Fe, New Mexico, before Examiner 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 March, 1964, the Commission,  
a quorum being present, having considered the ~~supplemental~~ testimony,  
the record, ~~and the evidence~~ and the recommendations of the Examiner,  
-----, and being fully advised in the premises,

(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 the creation of a new oil pool for ~~Pennsylvania~~<sup>Pennsylvania</sup> ~~rough~~<sup>oil</sup> production and the promulgation of temporary special rules and regulations governing said pool, including a provision for 80-acre proration units.

(3) That the Signal State Well No. 1, located in Unit A of Section 29, Township 8 South, Range 33 East, NMPM, Chaves County, New Mexico, has ~~encountered~~ *discovered* a separate common source of supply which should be designated the Tobac-~~ough~~ <sup>Pennsylvanian</sup> Pool; that the vertical limits of said pool should be the Pennsylvanian formation and the horizontal limits of said pool should be the SE/4 of Section 20, the SW/4 of Section 21, the NW/4 of Section 28, and the NE/4 of Section 29, Township 8 South, Range 33 East, NMPM, Chaves County, New Mexico.

(4) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk <sup>arising</sup> ~~caused~~ from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations providing for 80-acre spacing units should be promulgated for the Tobac-Pennsylvanian Pool.

(5) That the temporary special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(6) That the top of the perforations in the Pennsylvanian formation in the Signal State Well No. 1 is at 9058 feet; that the special rules and regulations should therefore provide for an 80-acre proportional factor of 4.77 for allowable purposes.

(7) That the temporary special rules and regulations should be established for a one-year period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well.

(8) That this case should be reopened at an examiner hearing in April, 1965, at which time the operators in the subject pool should be prepared to appear and show cause why the Tobac-Pennsylvanian Pool should not be developed on 40-acre spacing units.

IT IS THEREFORE ORDERED:

(1) That a new pool in Chaves County, New Mexico, classified as an oil pool for Pennsylvanian production is hereby created and designated the Tobac-Pennsylvanian Pool, with vertical limits comprising the Pennsylvanian formation and horizontal limits comprising the SE/4 of Section 20, the SW/4 of Section 21, the NW/4 of Section 28, and the NE/4 of Section 29, Township 8 South, Range 33 East, NMPM, Chaves County, New Mexico.

(2) That <sup>temporary</sup> Special Rules and Regulations for the Tobac-Pennsylvanian Pool are hereby promulgated as follows, effective April 1, 1964.

SPECIAL RULES AND REGULATIONS  
FOR THE  
TOBAC-PENNSYLVANIAN POOL

~~GROUP POOL~~ <sup>Tobac-Pennsylvanian</sup>  
~~Pool~~ <sup>Pool</sup> or in the ~~formation~~ <sup>formation</sup> within one mile of the Tobac-  
~~Pool~~ <sup>Pool</sup>, and not nearer to or within the limits  
of another designated ~~pool~~ <sup>Pennsylvanian</sup> pool, shall be spaced, drilled,  
operated, and produced in accordance with the Special Rules and  
Regulations hereinafter set forth.

~~GROUP POOL~~ <sup>Tobac-Pennsylvanian</sup>  
~~Pool~~ <sup>Pool</sup> shall be located on a standard unit containing  
80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2  
of a single governmental quarter section; 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  
unit.

of the Commission  
RULE 3. The Secretary-Director/may grant an exception to  
the requirements of Rule 2 without notice and hearing when an  
application has been filed for a non-standard unit comprising  
a single quarter-quarter section or lot. All operators off-  
setting the proposed non-standard unit shall be notified of the  
application by registered or certified mail, and the application  
shall state that such notice has been furnished. The Secretary-  
Director may approve the application upon receipt of written  
waivers from all offset operators or if no offset operator has  
entered an objection to the formation of the non-standard unit  
within 30 days after the Secretary-Director has received the  
application.

~~GROUP POOL~~ <sup>Tobac-Pennsylvanian</sup>  
~~Pool~~ <sup>Pool</sup> shall be located within 150 feet of the center of  
a single governmental quarter-quarter section; provided, however,  
~~that nothing contained herein shall be construed as prohibiting~~

~~the drilling of a well on each quarter-quarter section in a~~  
~~standard unit.~~

RULE 5. The Secretary-Director may grant an exception to  
the requirements of Rule 4 without notice and hearing when an  
application has been filed for an unorthodox location necessitated  
by topographical conditions or the recompletion of a well previ-  
ously drilled to another horizon. All operators offsetting the  
proposed unorthodox location shall be notified of the application  
by registered or certified mail, and the application shall state  
that such notice has been furnished. The Secretary-Director may  
approve the application upon receipt of written waivers from all  
offset operators or if no offset operator has entered an objection  
to the unorthodox location within 20 days after the Secretary-  
Director has received the application.

<sup>Tobac-Pennsylvanian</sup>

RULE 6. A standard proration unit (79 through 81 acres) in  
the ~~Pool~~ <sup>Pool</sup> shall be assigned an 80-acre propor-  
tional factor of 4.77 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 the  
wells on the unit in any proportion.

<sup>Tobac-Pennsylvanian</sup>

The allowable assigned to a non-standard proration  
unit shall bear the same ratio to a standard allowable in the  
~~Pool~~ <sup>Pool</sup> as the acreage in such non-standard unit  
bears to 80 acres.

IT IS FURTHER ORDERED:

(1) That any well presently drilling to or completed in the Pennsylvanian formation within the Tobac-Pennsylvanian Pool or within one mile <sup>of said pool</sup> ~~thereof~~ that will not comply with the well location requirements of Rule 4 is hereby granted an exception to the requirements of said rule. The operator shall notify the Artesia District Office of the Commission in writing of the name and location of the well on or before <sup>May</sup> ~~April~~ 1, 1964.

(2) That any operator desiring to dedicate 80 acres to a well presently drilling to or completed in the Tobac-Pennsylvanian Pool shall file a new Form C-128 with the Commission on or before <sup>May</sup> ~~April~~ 1, 1964.

(3) That this case shall be reopened at an examiner hearing in April, 1965, at which time the operators in the subject pool may appear and show cause why the Tobac-Pennsylvanian Pool should not be developed on 40-acre spacing units.

(4) 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.



CLARENCE E. HINKLE  
W. E. BONDURANT, JR.  
HOWARD C. BRATTON  
S. B. CHRISTY IV  
LEWIS C. COX, JR.  
PAUL W. EATON, JR.  
CONRAD E. COFFIELD  
HAROLD L. HENSLEY, JR.  
MICHAEL R. WALLER

122 3003  
LAW OFFICES  
HINKLE, BONDURANT, BRATTON & CHRISTY  
HINKLE BUILDING  
ROSWELL, NEW MEXICO

February 24, 1964

1964 MAR 2 11 28  
TELEPHONE 622-6510  
AREA CODE 505  
POST OFFICE BOX 10

New Mexico Oil Conservation Commission  
P.O. Box 2088  
Santa Fe, New Mexico

Gentlemen:


Cabot Corporation respectfully requests that a new pool for production of oil from the Bough C Formation in the NE $\frac{1}{4}$  of Section 29, Township 8 South, Range 33 East, N.M.P.M., Chaves County, New Mexico, be established. The pool was discovered by Cabot Corporation's Signal State No. 1 well in the NE $\frac{1}{4}$ NE $\frac{1}{4}$  of Section 29.

It is further respectfully requested that the hearing include the establishment of special pool rules and regulations including provisions for 80 acre spacing and proration units with 80 acre allowables. It is further requested that the 80 acre units consist of any two contiguous 40 acre tracts in a quarter section, and that the well locations be within 150 feet from the center of either 40 acre tract.

If there is any further information which you need in connection with the above application, please let us hear from you.


Very truly yours,

HINKLE, BONDURANT, BRATTON & CHRISTY

  
Howard C. Bratton

HCB:bb

cc: Mr. William Sargent  
Cabot Corporation  
P.O. Box 1101  
Pampa, Texas

DOCKET MAILED  
Date 2-28-64  


COPY  
Memo

4/10/64

From  
D. S. NUTTER  
CHIEF ENGINEER

To Ann Christy

Order no R-2685  
(Cabot Corp., Tobac  
Pool) requires that  
exceptions to well locations  
and new plats be  
filed with the Artesia  
office of the Commission  
by May 1, 1964. These  
should be filed w/  
the Hobbs office of  
the Commission instead

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

# WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL = Day Letter  
NL = Night Letter  
LT = International Letter Telegram

1201 (4-00)

(26)

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination.

int of destination

LA026 SSF052

1965 APR 28 AM 9 48

L RWA011 PD=ROSWELL NMEX 28 920A MST=  
THE NMEX OIL CONSERVATION COMMISSION=  
SANTA FE NMEX=

APR 28 8 34 AM '65  
ATTN MR A L PORTER,

SUBJECT CASE #3003 REOPENED THE ATLANTIC REFINING  
CO RECOMMENDS THAT THE PRESENT TEMPORARY RULE PROVIDED  
UNDER ORDER R-2685 BE ADOPTED AS PERMANENT POOL RULE  
FOR THE TOBAC-PENN POOL=

W P TOMLINSON ATLANTIC REFINING CO=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

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

March 31, 1964

Mr. S. B. Christy  
Hinkle, Bondurant, Bratton & Christy  
Attorneys at Law  
Hinkle Building  
P. O. Box 10  
Roswell, New Mexico

Re: Case No. 3003  
Order No. R-2685  
Applicant:  
Cabot Corporation

DOCKET MAILED

Date 4-15-65

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 x

Astec OCC       

OTHER

TOBAC FIELD  
CHAVES COUNTY, NEW MEXICO

Location: 15 miles WSW of Milnesand, New Mexico in Township 8S,  
Range 33E.

Discovery: Discovered in February, 1964, with the completion of  
Cabot Corporation's Signal-State No. 1 well located  
660' FNL and 660' FEL of Section 29, T8S, R33E.

Producing Horizon: Pennsylvanian Bough "C" Formation at a depth of 9050'.  
*R-2685*

Development: Development has proceeded pursuant to provisions contained  
in New Mexico O.C.C. Order No. ~~R-2658~~ establishing  
temporary 80-acre proration units. Currently there are  
31 producing wells in the field and 11 wells in various  
stages of drilling and completion. There are 3 dry  
holes in the area.

Production: February production was 134,701 barrels of oil or 4,811  
BOPD. There is some water production along the southeast  
flank of the field.

<b>BEFORE EXAMINER NUTTER</b>	
<b>OIL CONSERVATION COMMISSION</b>	
<i>Appel</i>	EXHIBIT NO. <u>1</u>
CASE NO.	<u>3003</u>

*Report 4/24/65*

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 28, 1965

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 3217: (Continued from the March 10, 1965 examiner hearing)  
In the matter of the hearing called by the Oil Conservation Commission upon its own motion to permit S. S. Sutton, dba Eddy Oil Company and all other interested parties to show cause why the Eddy Oil Company Stanclind-State Wells Nos. 1 and 2, located in Units G and J, respectively, of Section 36, Township 19 South, Range 30 East, Eddy County, New Mexico, should not be plugged in accordance with a Commission approved plugging program.
- CASE 3240: Application of Gulf Oil Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Central Drinkard Unit Area comprising 2,600 acres, more or less, of State and Fee lands in Township 21 South, Range 37 East, Lea County, New Mexico.
- CASE 3241: Application of Gulf Oil Corporation for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Drinkard Pool, Lea County, New Mexico, in its Central Drinkard Unit Area by the injection of water into the Drinkard formation through six wells in Sections 28, 29, and 32, Township 21 South, Range 37 East.
- CASE 2676: In the matter of the application of Gulf Oil Corporation to  
(Reopened) reopen Case No. 2676 to reconsider applicant's request that a full 80-acre proration unit comprising the S/2 NW/4 of Section 23, Township 24 South, Range 37 East, Fowler Ellenburger Pool, Lea County, New Mexico, be approved for applicant's Lillie Well No. 3 located 2310 feet from the North line and 330 feet from the West line of said Section 23.
- CASE 3242: Application of Austral Oil Company Incorporated, for an unorthodox location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the well location requirements for the Blanco-Mesaverde Gas Pool for its Bunny et al Well No. 1 at an unorthodox location 1040 feet from the South line and 1190 feet from the East line of Section 10, Township 27 North, Range 9 West, San Juan County, New Mexico.

Examiner Hearing - April 28, 1965

CASE 3243: Application of Monsanto Company for special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Dagger Draw-Strawn Gas Pool and the Dagger Draw-Morrow Gas Pool, Eddy County, New Mexico, including a provision for 640-acre gas well spacing units.

CASE 3003: In the matter of Case No. 3003 being reopened pursuant to the provisions of Order No. R-2685, which order established temporary 80-acre proration units for the Tobac-Pennsylvanian Pool, Chaves 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.  
(Reopened)

CASE 2997: In the matter of Case No. 2997 being reopened pursuant to the provisions of Order No. R-2677, which order established 80-acre spacing units for the Vacuum-Lower 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 spacing units.  
(Reopened)

CASE 3244: Application of James E. Logan for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Rain Spring Unit Area comprising 10,542.00 acres, more or less, of State, Federal and Fee lands in Townships 22 and 23 South, Ranges 24 and 25 East, Eddy County, New Mexico.

TOBAC FIELD  
ROCK AND FLUID PROPERTIES

Producing Formation  
Gross Pay, Feet  
Net Pay, Feet

Porosity  
Water Saturation  
Permeability  
Range

Original Reservoir Pressure  
Saturation Pressure  
Original Gas in Solution, cu.ft./bbl  
Reservoir Temperature  
Estimated Formation Volume Factor  
Oil Gravity

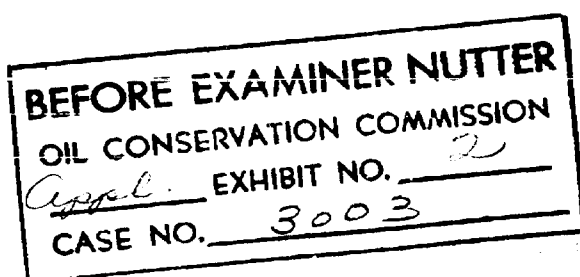
Producing Mechanism

Bough "C"  
20 - 30  
10 - 15

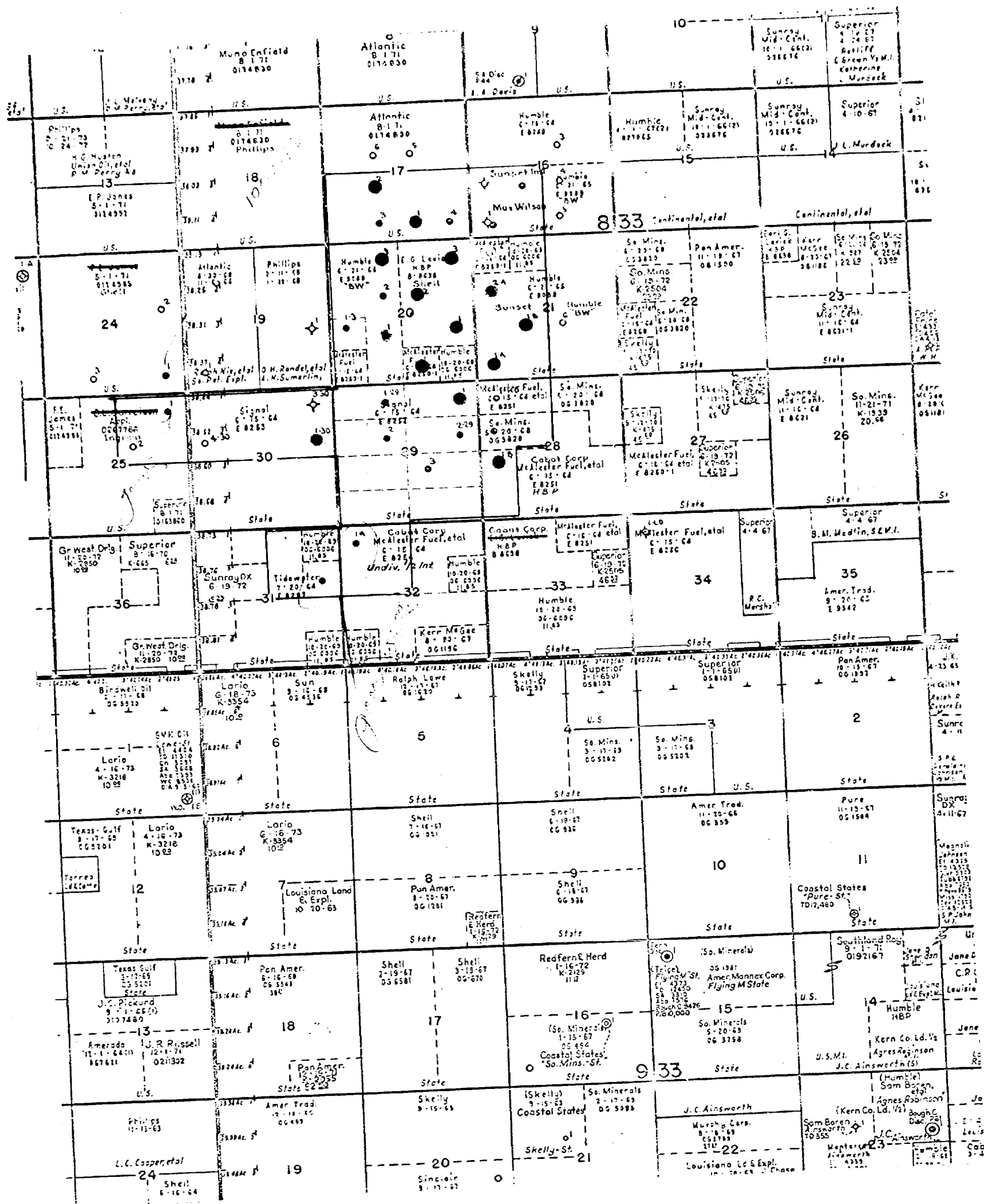
7.3%  
25% (est.)  
284 md.  
1 to 3,000 md.

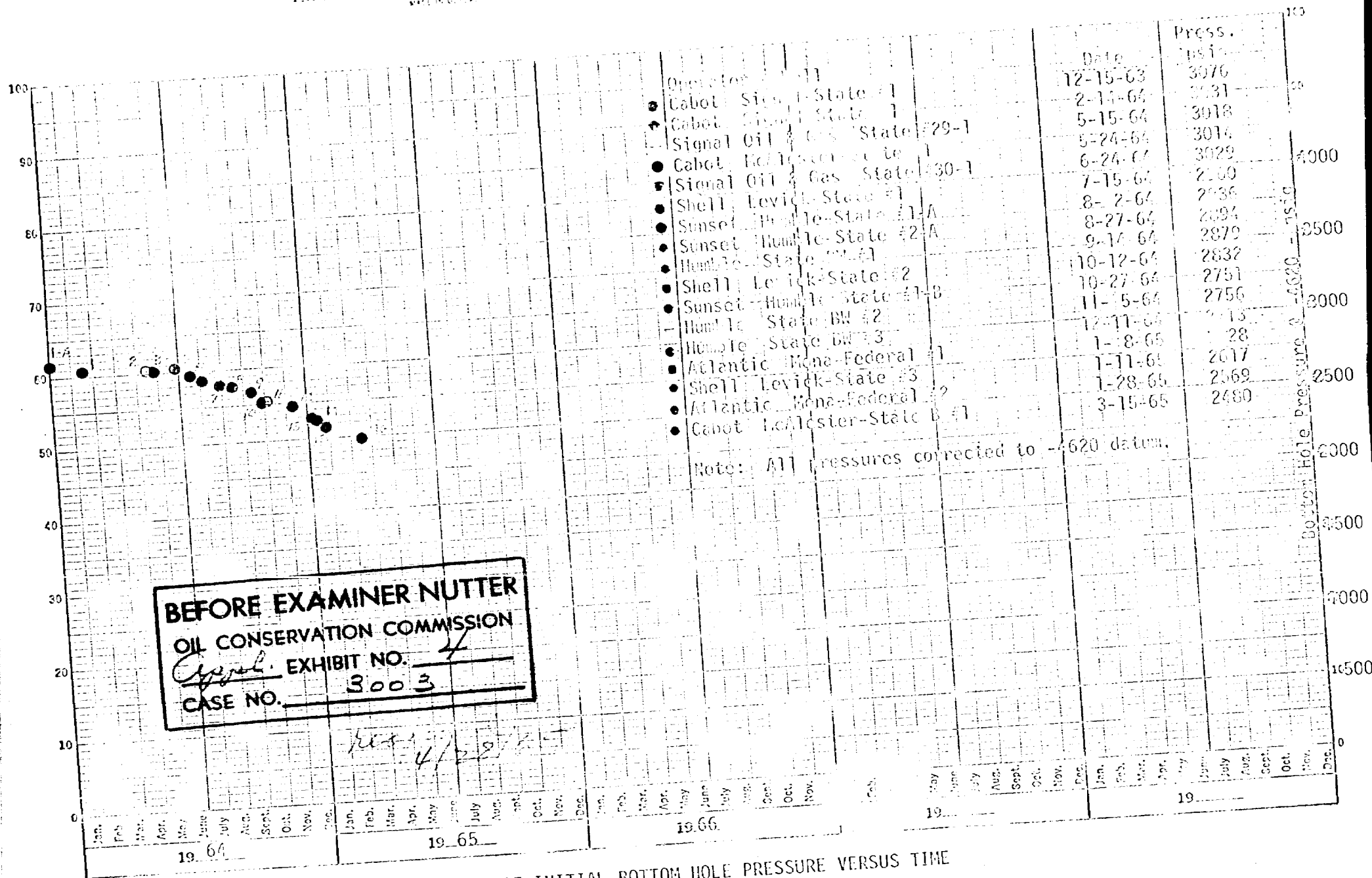
3031 psig @ -4620  
2950 (est.)  
1200 (est.)  
151°  
1.74  
41 -44° API

Solution gas drive with  
possibly very minor  
water drive along  
southeast flank.









PLOT OF INITIAL BOTTOM HOLE PRESSURE VERSUS TIME  
TOBAC POOL, CHAVES COUNTY

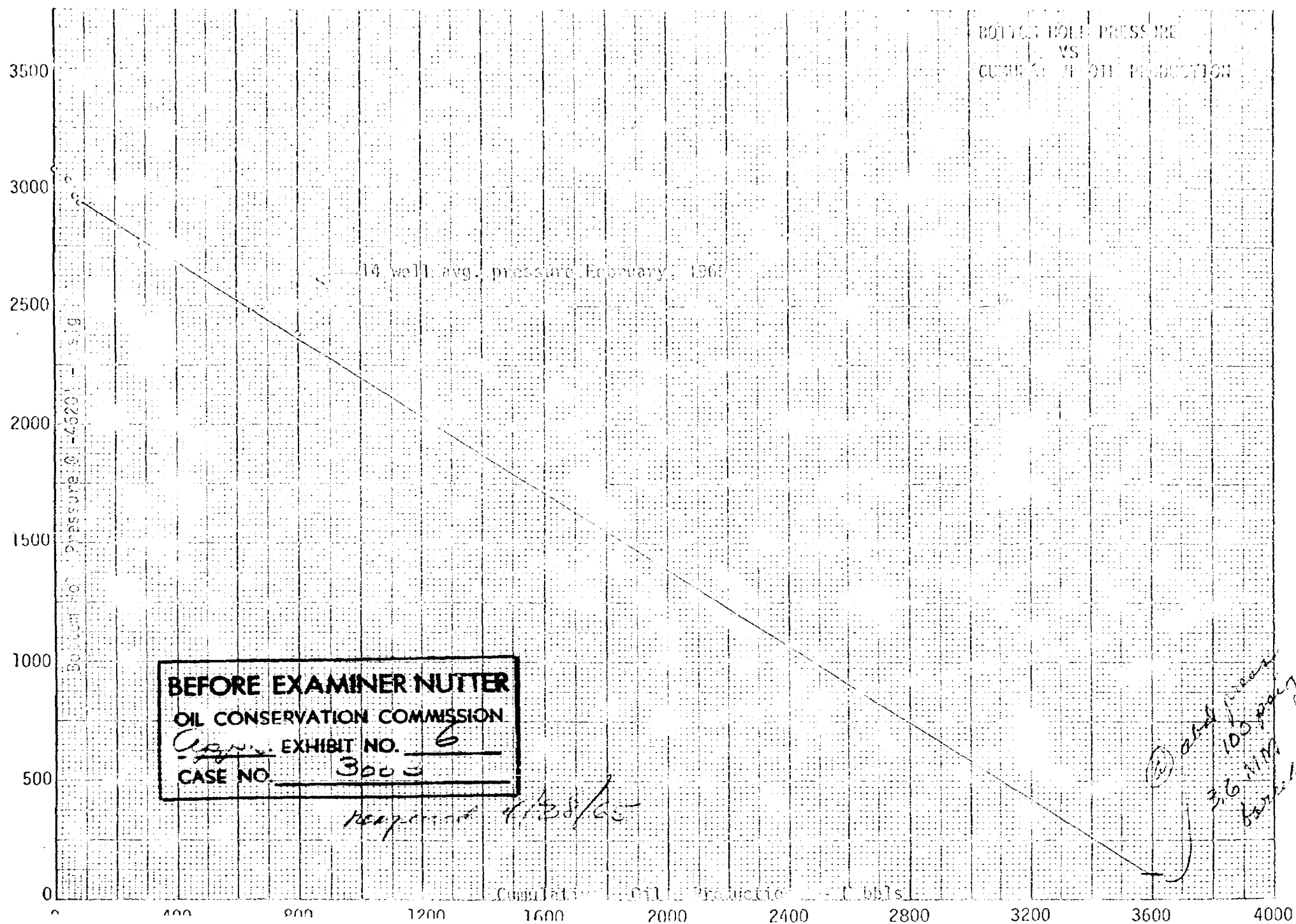
FEBRUARY, 1965 BOTTOM HOLE PRESSURES

T03AC POOL

COMPANY LEASE	WELL NO.	LOCATION S-T-R	DATE PRESS.RUN	TIME S... HRS/MIN	B.H.P@ POOL DATUM
ATLANTIC REFINING CO.					
Mona Fed.	1	17-8-33	2-19	24/00	2501
Mona Fed.	2	17-8-33	2-19	25/00	2497
Mona Fed.	3	17-8-33	2-19	25/00	2497
CABOT CORPORATION					
Signal State	2	29-8-33	2-18	24/00	2409
HUMBLE OIL & RFG. CO.					
N.M. St. BW	1	20-8-33	2-17	24/00	2509
N.M. St. BW	2	20-8-33	2-17	24/30	2514
N.M. St. BW	3	20-8-33	2-17	25/00	2506
Tobac Oil Unit	2	21-8-33	2-17	25/00	2446
Tobac Oil Unit	3	20-8-30	2-17	24/30	2512
INGRAM, TOM L.					
Garretson	1	25-8-32	2-20	24/00	3150
SHELL OIL COMPANY					
Levick	1	20-8-33	2-17	51/00	2495
SIGNAL OIL & GAS CO.					
State E	1	29-8-33	2-18	25/00	2490
SUNSET INTERNATIONAL PET. CORP.					
Humble State A	1	21-8-33	2-18	50/00	2470
Humble State A	2	21-8-33	2-18	51/00	2449
Humble State B	1	21-8-33	2-18	52/00	2440

**BEFORE EXAMINER NUTTER**  
**OIL CONSERVATION COMMISSION**  
*April* EXHIBIT NO. 5  
CASE NO. 3003

*100/100/12/1/55*



OIL RECOVERY CALCULATIONS

Indicated Ultimate Primary Recovery  
from main portion of Tobac Field  
by Pressure-Cumulative Production Curve\*

3,600,000 Bbl

\*Does not include development in  
Sections 24 and 25, T8S, R32E.

Indicated average per well Ultimate  
Primary Recovery from main portion of  
Tobac Field developed on 80-acre spacing\*\*

133,300 Bbl

\*\*Based upon 27 current completions  
excluding wells in Sections 24 and 25,  
T8S, R32E, and Sections 31 and 32, T8S, R33E.

BEFORE EXAMINER NUTTER  
OIL CONSERVATION COMMISSION  
*App'd.* EXHIBIT NO. 7  
CASE NO. 300 E

*reopened 4/28/66*

# DRILLING ECONOMICS

## FLOWING WELL\*

### Income

Recoverable oil, bbl  
Operator's Net Recoverable Oil (87.5%)  
Operator's Gross Income @ \$2.95/bbl\*\*

<u>40 acres</u>	<u>80 acres</u>
66,700	133,300
58,363	116,638
\$172,171	\$344,082

### Costs

Drilling and Completion (flowing well)  
Flow Line and Tank Battery

\$115,000  
11,000

Total Well and Battery Cost

\$126,000

Operating Cost (\$3,000/well/year) - 5 years

\$ 15,000

Total Drilling, Completing and Operating Cost

\$141,000

Before Tax Profit

\$ 31,171 \$203,082

Before Tax Profit to Investment Ratio

0.25

1.61

\* Pumping well costs \$20,000 additional.

\*\*Includes 9¢/bbl for casinghead gas.

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
EXHIBIT NO.	8
CASE NO.	3003

received 4/28/65

Cabot Corp

Creation post Bough

Camp near

and 80-acre prairie

Signal State Well No 1

NE NE 29-8-33

Chover

Camp NE/4 29

11 - 1/2 mi  
to base  
J. 2/19/64

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

# WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL = Day Letter  
NL = Night Letter  
LT = International Letter Telegram

1201 (4-60)

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME (54).

LA120 DB242

1965 APR 27 PM 5 41

D MDA140 PD 5 EXTRA=MIDLAND TEX 27 354P CST=  
OIL CONSERVATION COMMISSION=

STATE LAND OFFICE BLDG SANTA FE NMEX=

RE CASE #3003 SIGNAL SUPPORTS A CONTINUATION OF 80 ACRE  
PRORATION UNITS FOR THE TOBAC-PENNSYLVANIAN POOL CHAVES  
COUNTY NEW MEXICO, ECONOMICS AND RESERVOIR DATA INDICATE  
THAT 80 ACRE SPACING SHOULD DEFINITELY BE CONTINUED=

SIGNAL OIL AND GAS CO A C AMBLER DIVN PROD MGR  
MIDLAND TEX.=

=#3003 80 TOBAC 80.=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE



CLASS OF SERVICE  
This is a fast message  
unless its deferred char-  
acter is indicated by the  
proper symbol.

# WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

1201 (4-60)

SYMBOLS  
DL = Day Letter  
NL = Night Letter  
LT = International  
Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of ( 04 ) • TIME at point of destination

LA127 DB272

1965 APR 27 PM 4 25

D HSA745 PD=FAX HOUSTON TEX 27 451P CST=

NEW MEXICO OIL CONSERVATION COMMISSION=

STATE LAND OFFICE BLDG SANTA FE NMEX=

ATTN MR DAN S NUTTER=

IN RE CASE 3003-REOPENED. TIDEWATER IS WORKING  
INTEREST OWNER IN CABOT CORP. TIDEWATER STATE #1.  
TIDEWATER CONCURS WITH CABOT'S REQUEST THAT TEMPORARY  
RULES ADOPTED IN ORDER NO. R-2685 BE MADE PERMANENT=

TIDEWATER OIL CO JOHN S CAMERON JR=

=3003 #1 R-2685=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

**CLASS OF SERVICE**

This is a fast message unless its deferred character is indicated by the proper symbol.

# WESTERN UNION TELEGRAM

1201 (4-00)

**SYMBOLS**

DL = Day Letter  
NL = Night Letter  
LT = International Letter Telegram

W. P. MARSHALL, PRESIDENT

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME of destination

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A L PORTER JR, SECY DIRECTOR=

NMEX OIL CONSERVATION COMM SANTA FE NMEX=

IN THE MATTER OF CASE NO 3003 CONCERNING THE

TOBAC-PENNSYLVANIAN POOL CHAVES COUNTY NMEX SHELL OIL CO

SUPPORTS CABOT CORPORATIONS REQUEST THAT THE TEMPORARY

OPERATING RULES AND REGULATIONS OF ORDER NO R-2685 BE MADE

PERMANENT=

T H DWYER / SHELL OIL CO P O BOX 1858 ROSWELL NMEX==

=3003 TOBAC R-2685 1858=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

# WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

SYMBOLS

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1201 (4-00)

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL: (58)

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A L PORTER =

SECRETARY DIRECTOR NEW MEXICO OIL CONSERVATION

COMM SANTA FE NMEX=

CASE 3003 REOPENED HUMBLE OIL AND REINING COMPANY URGERS

THE ADOPTION BY THE COMMISSION OF PERMANENT 80 ACRE

PRORATION UNIT FOR THE TOBAC PENNSYLVANIAN POOL

CHAVEZ COUNTY NEW MEXICO=

HUMBLE OIL & REFG CO A L CARPENTER=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

# McALESTER FUEL COMPANY

McALESTER BUILDING

MAGNOLIA, ARKANSAS

April 21, 1965

PRODUCTION DEPARTMENT

CHAS. A. DILLARD, SUPERINTENDENT

VERNON TURNER, ASST. SUPERINTENDENT

New Mexico Oil Conservation Commission  
Post Office Box 2088  
Santa Fe, New Mexico 87501

Attention Mr. Daniel S. Nutter, Examiner

Gentlemen:

Re Case No. 3003  
Order No. R-2685  
Tobac-Pennsylvanian Pool  
Chaves County, New Mexico

McAlester Fuel Company does not plan to be represented in the above docket but takes this means of advising the Commission of our views in the matter.

As an operator in the above field, McAlester Fuel Company hereby joins Cabot Corporation et al in recommending that the present temporary field rules, including 80-acre spacing, be made permanent for the future development of this field.

Yours very truly,

McALESTER FUEL COMPANY



By Vernon Turner

VT:mos

cc: Mr. W. M. Sargent, Jr.  
Cabot Corporation  
P. O. Box 1101  
Pampa, Texas

Mr. P. C. O'Quinn  
Cabot Corporation  
P. O. Box 4395  
Midland, Texas

State of New Mexico  
Oil Conservation Commission



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

**May 7, 1965**

Re: Case No. 3003  
Order No. R-2685-A  
Applicant:  
  
**CABOT CORPORATION**

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

**OTHER** \_\_\_\_\_

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
March 11, 1964

EXAMINER      HEARING

IN THE MATTER OF:

Application of Cabot Corporation for the  
creation of a new oil pool and for special  
pool rules, Chaves County, New Mexico.  
Applicant, in the above-styled cause,  
seeks the creation of a new Bough "C" Oil  
Pool for its Signal State Well No. 1,  
located in Unit A of Section 29, Township  
8 South, Range 33 East, Chaves County,  
New Mexico, and for the establishment of  
temporary pool rules therefor, including  
a provision for 80-acre proration units.

Case No. 3003

BEFORE: DANIEL S. NUTTER, EXAMINER.

TRANSCRIPT OF HEARING

DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.  
PHONE 325-1182

SANTA FE, N. M.  
PHONE 983-3971

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

MR. NUTTER: We will call Case 3003.

MR. DURRETT: Application of Cabot Corporation for the creation of a new oil pool and for special pool rules, Chaves County, New Mexico.

MR. CHRISTY: Sim Christy of Hinkle, Bondurant, Bratton & Christy for the Applicant Cabot Carbon. We have one witness.

(Witness sworn.)

WILLIAM M. SARGENT, JR.

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

DIRECT EXAMINATION

BY MR. CHRISTY:

Q Would you please state your name, position, with whom you are employed and in what capacity?

A William M. Sargent, Junior, employed by the Cabot Corporation as a petroleum engineer.

Q Mr. Sargent, have you previously testified before this Commission and had your qualifications as a petroleum engineer accepted?

A Yes, I have.

Q Are you familiar with the application in Case 3003 before the Commission and what it seeks?

A Yes, I am.



Q Are you familiar with the well and general area--

A Yes, sir.

Q -- involved in the application?

A Yes, sir, I am.

Q Would you briefly tell the Examiner what is sought by the application in this case?

A Cabot has completed a Pennsylvanian discovery well in the Chaves County Panhandle in Section 29, Township 8 South, Range 33 East. We are requesting temporary field rules and designation of a new pool. We have requested the designation of the pool to be Tobac, T-o-b-a-c.

Q Do you have a map of the area and is it one of the instruments shown in your Applicant's Exhibit 1?

A Yes, sir, I do. The well location is pointed out by the arrow.

Q Would you please identify that by distances from the section line?

A The well is 660 feet from the North line and East line of Section 29, 8, 33.

Q Chaves County, New Mexico?

A Chaves County.

Q Do you have a well on the log and is that one of the instruments shown in Applicant's Exhibit 1?





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PAGE 4

A Yes, I do. On the log I have indicated the Bough "C" zone and the perforations in the well.

Q This is not a full log?

A No, this is only a portion of the log.

Q Tell us a little bit about the well history, and I might refer the Examiner to one of the pages in Applicant's Exhibit 1 on well history. There is only one well at the moment, is there not?

A Yes, sir, this is the only well in the area. This well was originally drilled to the Devonian at approximately eleven thousand four or five hundred feet. I'm not sure of the total depth on it. It was cased with 13-3/8ths surface casing at 207 feet, 8-5/8ths intermediate at 3650 feet, 5-1/2" production string at 10,332 feet.

The well was tested at 10,200 feet for possible gas production, but when this failed to materialize it was completed in the Bough "C" zone at 9,058 to 68 feet.

Q About when was the well completed?

A This well was completed approximately one month ago, as I recall. On potential test the well flowed 462 barrels of oil plus 352 barrels of water through 26/64 choke with a flowing tubing pressure of 650 pounds. The GOR was 1275 to 1.

Q I believe the Allison-Penn Pool about 22 miles to the



east over along the Lea-Roosevelt County lines is a comparable formation with that encountered in your Signal State No. 1?

A Yes.

Q Have you made a comparison of the rock and fluid studies of these areas?

A I have.

Q Would you tell us about that and refer to one of the other pages?

A The Allison-Penn and the Cabot discovery well are both producing from the Bough "C" zone of Pennsylvanian age. The net pays Allison-Penn is approximately nine feet. This is variable from well to well. Our well had 24 feet of what I considered to be net pay zone.

Q That's indicated on the logs?

A Indicated as on the logs. The porosity in the Allison is approximately 7%, and our well calculated from the log is 5%. Water saturation in the Allison is estimated at 25%, calculated from our log is 35%. The permeability of the Allison Pool has been reported at 200 millidarcies on the average. I calculated from the drill stem test of this zone in our well that the permeability was 190 millidarcies.

The Allison Pool had a reservoir pressure of 3363 compared to our measured pressure of 3055. The other data presented on this



sheet is data which has been taken from the literature to arrive at a data necessary to calculate reserves.

Q Now, sir, I believe your application also seeks pool rules for this area involved in the Signal State No. 1 Well. Did I understand you correctly before the hearing that the rules you seek are approximately those that were granted by this Commission in the South Lane Pool which is to the Southeast of the present area? Those rules being codified in Case 2554, Order R-2253 and 2253-A?

A Yes, sir, this is correct.

Q This is your suggestion to the Commission of rules?

A Yes, sir.

Q I believe those rules provide for 80-acre spacing and provide for drilling the well in any of the 40's?

A Yes, sir.

Q Is that correct?

A This is correct.

Q And dedicating any 80 East Half, South Half, East Half?

A Yes.

Q Are those rules the same as the Allison-Penn formation with the exception of the fixed well locations?

A Yes, this is correct.

Q Do you feel that fixed well locations are preferable



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at this time or do you feel that they should be variable well locations until the pool is further developed?

A I believe at this time we should have the liberty of locating our wells on either end of the 80-acre tract to be allocated to the well. One well we do not have enough information to determine the size of the area that we believe the pool will cover and the drainage pattern that would be best suited for this pool.

Q You would have no objection, though, to having that as a temporary portion of the rule at this time?

A The fixed locations?

Q Yes, the variable locations.

A The variable location?

Q Being temporary.

A No objection to it being temporary.

Q In your opinion, from what you know of the Signal State No. 1 well, will it effectively and efficiently drain 80 acres of Bough "C" production?

A It is my opinion that well will drain at least 80 acres.

Q Turning to the economics, or economic waste aspects of 80-acre proration which you propose in these new pool rules, have you prepared any comparison of 40 acres and 80-acre economic figures?



A Yes, sir, I have. I have calculated the reserves based upon the reservoir data that was previously presented on 40 acres and 80 acres. This indicates the reserve for 40 acres of approximately 42,000 barrels and for 80 acres of 83,500 barrels.

Q You are now referring to one of the other pages of the exhibit?

A Yes.

Q Go ahead.

A One of the sheets included in the exhibit. By applying these reserves and the economics to these reserves we estimate that the income from 40-acre location would be \$99,300, 400 dollars; from 80 acres, \$198,778. This is based upon a straight 1/8th royalty.

We have not considered any overrides which were involved in these economics. We estimate we can drill and complete a flowing well in this field for \$115,000 plus \$10,000 for the tank battery and flow line for a total cost of \$125,000 per well on a new lease. Of course, the second well on the lease would be approximately \$115,000. We anticipate that we will eventually have to pump these wells and would use a hydraulic pumping unit at a cost of approximately \$20,000.

Q That is a rather standard occurrence in the Bough "C" formation, they go to pumping wells rather quickly?



A This has been our experience in the South Lane field. Therefore, the total cost of the well, capital cost is estimated to be \$145,000. We estimate that the life of the well will be approximately five years and we can operate it at approximately \$3,000 per year for an operating cost of \$15,000. This makes our total investment in the well \$160,000.

Comparing this to the estimated income on 40 acres, we would have a loss of \$60,600, and an income of profit of \$38,800 on 80-acre spacing.

Q You testified that the recoverable oil in your 40 and 80 acres is as depicted in this sheet. You also, I believe, calculated how you arrived at these figures?

A Yes, sir, I have shown that on the sheet.

Q Would you briefly tell us that?

A Using the 5% porosity and 35% water and the formation volume factor of 1.74 determined from the literature and the fluid properties that we know, we determined the oil in place to be 145 barrels per acre foot, or 3,480 barrels. Applying a 30% recovery factor to these numbers we arrive at  $43\frac{1}{2}$  barrels per acre foot recoverable oil, or 1,044 barrels per acre recoverable oil.

Q Do you have any suggestions to the Commission with respect to the horizontal limits of the proposed pool?

A I believe the Commission standard designation of one



mile would be fine.

Q Mr. Sargent, do you see where the correlative rights of any interested party, royalty or working interest owner or other owners might be violated by the granting of an application involving 80-acre spacing?

A No, I do not. I believe under 80 spacing such rights will be protected.

Q I believe also in the South Lane Pool rules that the rules provide for locations within 150 feet of the center of the particular 40-acre drill site, would that be your suggestion in this instance?

A Yes, this would allow for any physical variations of the physical location itself.

Q Was the exhibit and instruments attached to Exhibit 1 prepared by you or under your direct supervision except for the log?

A Yes, they were.

MR. CHRISTY: I think that's all we have at this particular moment.

MR. NUTTER: Are there any questions of Mr. Sargent?

CROSS EXAMINATION

BY MR. NUTTER:

Q The plat which is a part of your exhibit shows a couple



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of dots, one in the Northwest, Northwest of 28 and one in the Southwest, Southeast of 20. Are those wells or just dots?

A No, sir. Those are proposed locations. We propose to drill the Northwest offset, MacAllister Fuel I understand is going to drill the east offset in the immediate future.

Q But only one well is drilled at the present time?

A There's only one well in the field.

Q And no core was taken of the Bough "C" in this zone?

A No. We plan to core future wells to actually determine rock properties.

Q Since no core was taken, what was the basis of your determination of 24 feet of net pay out of your gross? What was your cutoff point?

A I believe I used a 3% porosity cutoff from a sonic log. After looking at this log, comparing this to the Allison logs, I believe that 3% will produce.

Q In other words, you estimate there's 25 feet of gross pay here and 24 feet of net pay. Is this typical of the Bough "C" that you could calculate most of the gross net?

A I believe in this particular well the cutoff points appear to be close to the top and bottom of this actual lime zone. As I say, the porosity percent that will produce is a matter of individual opinion, and as I say, looking at recoveries from other





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fields and trying to see where this oil is coming from, I believe that 3% is going to produce in this area. I could just as well say that this whole 25 foot was net pay here.

Q In your estimate of economics you haven't given any consideration to the value of the gas, have you?

A No, sir, I have not. At the present time the closest line is some six or seven miles to the Southeast. I believe this line would be connected into the Lane Field. If this field develops into a sizeable area, which we hope it will, I'm sure that one of the gasoline plant owners will lay a line. In fact, we have already been approached by one owner; this, of course, will improve the economics.

MR. NUTTER: Are there any other questions of Mr. Sargent?

BY MR. PORTER:

Q Was this 462 barrel test, was that a 24-hour test?

A No, sir, that was not. I believe that was a six-hour test, calculated from a six-hour test.

Q It was projected to twenty-four hours?

A Yes, sir. I do have the production on March the 9th, last Monday, was 220 barrels of oil, 10% water on 10/64 choke. That is 750 pounds flowing tubing pressure. We feel that we have a well here capable of producing in excess of 1,000 barrels if it



was opened wide.

Q One other question, I think you gave it, what was your recovery factor?

A Thirty percent.

MR. PORTER: That's all I have.

MR. NUTTER: Are there any other questions of Mr. Sargent?

MR. DURRETT: Just one question.

BY MR. DURRETT:

Q Have you calculated any 80-acre allowable?

A It would be 187 barrels a day. The 40-acre allowable is 148.

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

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Christy?

MR. CHRISTY: Yes. We would like to offer in evidence Exhibit 1 with all the sheets attached to it.

MR. NUTTER: Applicant's Exhibit 1 will be admitted in evidence.

(Whereupon, Applicant's Exhibit No. 1 was offered and admitted in evidence.)

MR. CHRISTY: We have nothing further.



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MR. NUTTER: Anyone have anything further to offer in Case 3003? We will take the case under advisement.

STATE OF NEW MEXICO )  
 ) SS  
COUNTY OF BERNALILLO )

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 2nd day of April, 1964.

*Ada Dearnley*  
Notary Public-Court Reporter

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. 3003 heard by me on 3/11, 1964.

*James*, Examiner  
New Mexico Oil Conservation Commission



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. 3003  
Order No. R-2685-A

APPLICATION OF CABOT CORPORATION  
FOR THE CREATION OF A NEW OIL POOL  
AND FOR SPECIAL POOL RULES, CHAVES  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on April 28, 1965, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 6th day of May, 1965, 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-2685, dated March 31, 1964, temporary Special Rules and Regulations were promulgated for the Tobac-Pennsylvanian Pool, Chaves County, New Mexico.

(3) That pursuant to the provisions of Order No. R-2685, this case was reopened to allow the operators in the subject pool to appear and show cause why the Tobac-Pennsylvanian Pool should not be developed on 40-acre spacing units.

(4) That the evidence establishes that one well in the Tobac-Pennsylvanian Pool can efficiently and economically drain and develop 80 acres.

-2-

CASE No. 3003

Order No. R-2685-A

(5) That the Special Rules and Regulations promulgated by Order No. R-2685 have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil in the pool.

(6) That to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-2685 should be continued in full force and effect until further order of the Commission.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Tobac-Pennsylvanian Pool promulgated by Order No. R-2685 are hereby continued in full force and effect until further order of the Commission.

(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*

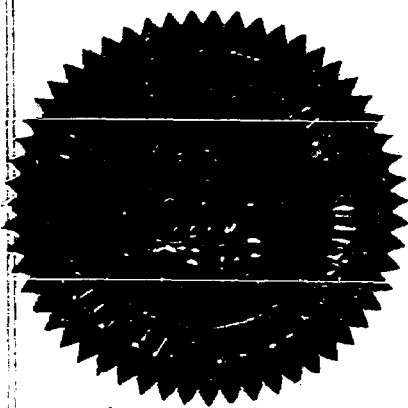
JACK M. CAMPBELL, Chairman

*Guyton B. Hays*

GUYTON B. HAYS, Member

*A. L. Porter, Jr.*

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



esr/

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. 3003  
Order No. R-2685

APPLICATION OF CABOT CORPORATION  
FOR THE CREATION OF A NEW OIL POOL  
AND FOR SPECIAL POOL RULES, CHAVES  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on March 11, 1964, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 31st day of March, 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 the applicant, Cabot Corporation, seeks the creation of a new oil pool for Pennsylvanian production and the promulgation of temporary special rules and regulations governing said pool, including a provision for 80-acre proration units.

(3) That the Signal State Well No. 1, located in Unit A of Section 29, Township 8 South, Range 33 East, NMPM, Chaves County, New Mexico, has discovered a separate common source of supply which should be designated the Tobac-Pennsylvanian Pool; that the vertical limits of said pool should be the Pennsylvanian formation and the horizontal limits of said pool should be the SE/4 of Section 20, the SW/4 of Section 21, the NW/4 of Section 28, and the NE/4 of Section 29, Township 8 South, Range 33 East, NMPM, Chaves County, New Mexico.

(4) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells,

-2-

CASE No. 3005  
Order No. R-2685

to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations providing for 80-acre spacing units should be promulgated for the Tobac-Pennsylvanian Pool.

(5) That the temporary special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(6) That the top of the perforations in the Pennsylvanian formation in the Signal State Well No. 1 is at 9058 feet; that the special rules and regulations should therefore provide for an 80-acre proportional factor of 4.77 for allowable purposes.

(7) That the temporary special rules and regulations should be established for a one-year period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well.

(8) That this case should be reopened at an examiner hearing in April, 1965, at which time the operators in the subject pool should be prepared to appear and show cause why the Tobac-Pennsylvanian Pool should not be developed on 40-acre spacing units.

IT IS THEREFORE ORDERED:

(1) That a new pool in Chaves County, New Mexico, classified as an oil pool for Pennsylvanian production is hereby created and designated the Tobac-Pennsylvanian Pool, with vertical limits comprising the Pennsylvanian formation and horizontal limits comprising the SE/4 of Section 20, the SW/4 of Section 21, the NW/4 of Section 28, and the NE/4 of Section 29, Township 8 South, Range 33 East, NMPM, Chaves County, New Mexico.

(2) That temporary Special Rules and Regulations for the Tobac-Pennsylvanian Pool are hereby promulgated as follows, effective April 1, 1964.

SPECIAL RULES AND REGULATIONS  
FOR THE  
TOBAC-PENNSYLVANIAN POOL

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

RULE 2. Each well completed or recompleted in the Tobac-Pennsylvanian Pool shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a single governmental quarter section; 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 unit.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a single quarter-quarter section or lot. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. Each well projected to or completed in the Tobac-Pennsylvanian Pool shall be located within 150 feet of the center of a single governmental quarter-quarter section.

RULE 5. The Secretary-Director may grant an exception to the requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed unorthodox location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the unorthodox location within 20 days after the Secretary-Director has received the application.

RULE 6. A standard proration unit (79 through 81 acres) in the Tobac-Pennsylvanian Pool shall be assigned an 80-acre proportional factor of 4.77 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 the wells on the unit in any proportion.

The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable in the Tobac-Pennsylvanian Pool as the acreage in such non-standard unit bears to 80 acres.



-4-

CASE No. 3003  
Order No. R-2685

IT IS FURTHER ORDERED:

(1) That any well presently drilling to or completed in the Pennsylvanian formation within the Tobac-Pennsylvanian Pool or within one mile of said pool that will not comply with the well location requirements of Rule 4 is hereby granted an exception to the requirements of said rule. The operator shall notify the Artesia District Office of the Commission in writing of the name and location of the well on or before May 1, 1964.

(2) That any operator desiring to dedicate 80 acres to a well presently drilling to or completed in the Tobac-Pennsylvanian Pool shall file a new Form C-128 with the Commission on or before May 1, 1964.

(3) That this case shall be reopened at an examiner hearing in April, 1965, at which time the operators in the subject pool may appear and show cause why the Tobac-Pennsylvanian Pool should not be developed on 40-acre spacing units.

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

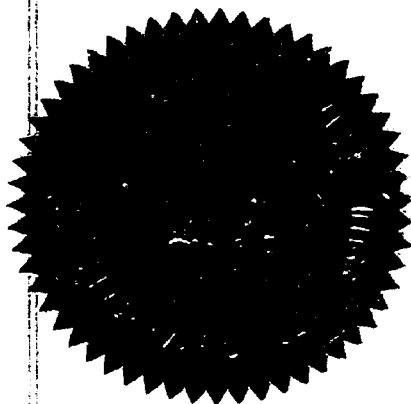
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

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

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

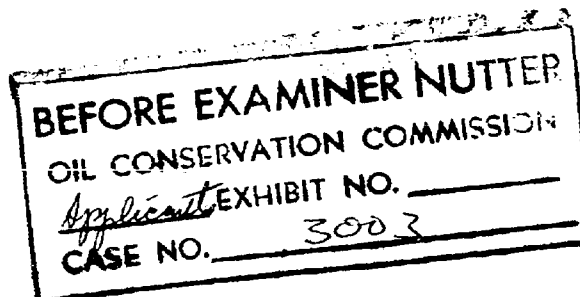
*A. L. Porter, Jr.*  
A. L. PORTER, Jr., Member & Secretary



esr/

EXHIBITS FOR CASE NO. 3003  
CABOT CORPORATION'S APPLICATION  
FOR ORDER  
CREATING NEW FIELD,  
TEMPORARY RULES AND 80-ACRE SPACING

SIGNAL STATE NO. 1  
Section 29, T8S, R33E  
Chaves County, New Mexico





CABOT CORPORATION

SIGNAL-STATE NO. 1

WELL HISTORY

**Location:** 660' FNL and 660' FEL Section 29, T8S, R33E,  
Chaves County, New Mexico

**Total Depth:**

**Casing:** 13-5/8" surface at 237', 350 sacks. Cement circulated.  
8-5/8" intermediate at 3,650', 350 sacks.  
5-1/2" production at 10,332', 300 sacks. Recemented  
through perforations 9,200' with 100 sacks.

**Drill Stem Test:** Pennsylvanian Bough "C" tested from 90570-9080'.  
Open 1 hour, gas to surface in 3 minutes, mud in 17  
minutes, oil and water in 24 minutes, estimated 50% water.  
Flowed 15 barrels fluid per hour.  
Initial shut-in pressure - 3083#/30 minutes  
Initial flow pressure - 1490#  
Final flow pressure - 2976#  
Final shut-in pressure - 3083#/45 minutes.

**Perforations:** 9058-9068', 4 holes per foot

**Formation Treatment:** 1,000 gallons mud acid

**Potential Test:** Flowed 462 barrels oil plus 52 barrels water through  
20/64" choke, flowing tubing pressure of 650#.  
GOR 1,275/l. Gravity 44 degrees API.

**Initial Reservoir Pressure:** 3055 psig at 9066' datum

6 hr. test  
220 BOPD  
10/64 choke  
11/10-7/10

**COMPARISON OF ROCK AND FLUID PROPERTIES**  
**ALLISON PENN POOL VERSUS SIGNAL-STATE NO. 1**

	<b><u>Allison Penn Pool</u></b>	<b><u>Cabet Signal-State #1</u></b>
<b>Producing Formation</b>	<b>Bough "C"</b>	<b>Bough "C"</b>
<b>Gross Pay, Feet</b>	<b>30-50</b>	<b>25</b>
<b>Net Pay, Feet</b>	<b>9</b>	<b>24</b>
<b>Porosity, Percent</b>	<b>7</b>	<b>5 (log)</b>
<b>Water Saturation, Percent</b>	<b>25</b>	<b>35</b>
<b>Permeability, md.</b>	<b>200</b>	<b>190 (DST)</b>
<b>Original Reservoir Pressure, psig</b>	<b>3363</b>	<b>3055</b>
<b>Saturation Pressure, psig</b>	<b>3150</b>	<b>3050</b>
<b>Original Gas in Solution, cu.ft./bbl</b>	<b>1,517</b>	<b>1,275</b>
<b>Reservoir Temperature, °F</b>	<b>156</b>	<b>151</b>
<b>Formation Volume Factor</b>	<b>1.821</b>	<b>1.74</b>
<b>Oil Viscosity, cp.</b>	<b>0.19</b>	<b>0.22</b>
<b>Oil Gravity, °API</b>	<b>48</b>	<b>44</b>

OIL RECOVERY CALCULATIONS

BOUGH "C" FORMATION

CABOT CORPORATION  
SIGNAL-STATE NO. 1

Reservoir Volume Calculation

Porosity (from log analysis)  
Water Saturation (from log analysis)  
Net Pay

5%  
35%  
24 feet

Oil in Place (Bbl/Ac.Ft.)

$$(7,758 \text{ bbl/Ac.Ft.}) (0.05) (1 - 0.35) \left( \frac{1}{1.74} \right) = 145$$

Recoverable Oil (Bbl/Ac.Ft.)

$$(145) (0.30) = 43.5$$

Oil in Place (Bbl/Acre)

$$(145 \text{ bbl/Ac.Ft.}) (24 \text{ feet}) = 3,480$$

Recoverable Oil (Bbl/Acre)

$$(43.5 \text{ bbl/Ac.Ft.}) (24 \text{ ft.}) = 1,044$$

40 acres

80 acres

Oil in Place, Barrels

139,200

278,400

Recoverable Oil, Barrels

41,760

83,520

BP&F  
BP&F

DRILLING ECONOMICS - BOUGH "C" FORMATION

CABOT CORPORATION SIGNAL-STATE NO. 1

	<u>40 Acres</u>	<u>80 Acres</u>
<u>Income</u>		
1. Recoverable Oil, bbl	41,760	83,520
2. Operator's Net Recoverable Oil (87.5%)	36,540	73,080
3. Operator's Gross Income (\$2.72 X 2)*	\$99,389	\$198,778
<u>Costs</u>		
1. Drilling and Completion (flowing well)	\$115,000	
2. Flow Lines and Tank Battery	<u>\$ 10,000</u>	
Total Cost Flowing Well and Battery	\$125,000	
3. Pumping Unit (Hydraulic)	<u>\$ 20,000</u>	
Total Cost Pumping Well and Battery	\$145,000	
Operating Cost (5 years at \$3,000/year)	<u>\$ 15,000</u>	
 *Before Tax Profit (Loss)	 (\$60,611)	 \$38,778

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BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
April 28, 1965

EXAMINER HEARING

IN THE MATTER OF: Case No. 3003 being reopened)  
pursuant to the provisions of Order No. )  
R-2685, which order established temporary 80- )  
acre proration units for the Tobac- )  
Pennsylvanian Pool, Chaves 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 No. 3003  
(Reopened)

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING



BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
April 28, 1965

EXAMINER HEARING

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IN THE MATTER OF: Case No. 3003 being reopened )  
pursuant to the provisions of Order No. R-2685, )  
which order established temporary 80-acre )  
proration units for the Tobac-Pennsylvanian )  
Pool, Chaves 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 3003  
(Reopened)

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: The hearing will come to order, please.  
The next case will be Case 3003 (Reopened).

MR. DURRETT: In the matter of Case No. 3003 being  
reopened pursuant to the provisions of Order Number R-2685.

MR. HINKLE: Clarence Hinkle appearing on behalf of  
Cabot Corporation. We have one witness and eight exhibits. I  
would like to have Mr. Sargent sworn.

(Witness sworn.)

(Whereupon, Exhibits Nos. 1 through  
8 marked for identification.)

MR. HINKLE: The exhibits have been numbered in

consecutive order.

W. M. SARGENT, JR., called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HINKLE:

Q Your name is W. M. (Bill) Sargent, Junior?

A That is correct.

Q You are employed by the Cabot Corporation?

A Yes, sir.

Q In what capacity?

A As a petroleum engineer.

Q What is your title with the Cabot Corporation at the present time?

A Petroleum Engineer.

Q Were you the witness who testified originally in connection with this case?

A I am.

Q Pursuant to which the temporary field rules were adopted?

A Yes, sir.

Q At the time of the original hearing, how many wells had been drilled?

A One.

Q How many wells have been drilled since then?

A There have been 34 wells drilled in the field and pool, and there are 11 in various stages of completion at the present time.

Q Have you made a study of all the wells that have been drilled since the original well, studied the samples, the cores and all the electrical logs?

A With the exception of cores, I have studied the wells, yes.

Q You kept up with all the information available in the development of this pool?

A Yes.

Q Your qualifications are a matter of record in this case?

A Yes, sir, they are.

Q Have you prepared any exhibits in connection with this hearing?

A Yes, sir, I prepared Exhibits 1 through 8.

Q They were all prepared by you, or under your direction?

A Yes, sir.

Q Would you refer to your Exhibit Number 1 and explain what it shows?

A Exhibit Number 1 is just general data concerning the Tobac Pool of Chaves County, New Mexico. It was located 15 miles west of Milnesand in Township 8, Range 33 East. It was discovered in February, 1964 with the completion of Cabot

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Signal State Number 1 Well in the Bough "C" formation at a depth of 9,050 feet. Development has proceeded pursuant to provisions contained in New Mexico Oil Conservation Commission Order R-2685 which established temporary 80-acre spacing and proration units.

Currently there are 31 producing wells and three dry holes and 11 wells being drilled and completed at the present time in the field. In February of this year production was 134,701 barrels from the field, and the field has produced some 900,000 till the first of April of this year.

I have one correction here. I notice that there was a typographical error in the order number referred to on Exhibit 1. It should be 2685 instead of 2658.

Q Now, refer to your Exhibit Number 2 and explain what it shows.

A Exhibit 2 is a tabulation of the rock and fluid properties of the Tobac Field; and the rock properties I have taken from four core analyses which I had available, and log analyses. It was indicated that there was 20 to 30 feet of gross pay, out of which 10 to 15 feet can be considered net pay.

The average porosity from four core analyses was 7.3 percent. The estimated water saturation is 25 percent, and the average permeability from the four core analyses was 284

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millidarcies, with a range of 1 to 3,000 millidarcies.

The original reservoir pressure was 3031 psig at a minus 4620. Saturation pressure is estimated at 2950 psig. The original solution gas-oil ratio was estimated to be 1200 to 1. Reservoir temperature is 151 degrees. The estimated formation volume factor is 1.74. The oil gravity is 47 degrees; and once again this is a correction to the exhibit where it is shown 44 degrees.

MR. NUTTER: That should be 47?

A 47 degrees. The reservoir producing mechanism is a solution gas drive with possibly very minor water drive along the southeast flank of the field.

Q Do you have any further remarks with respect to this exhibit?

A No, sir.

Q Turn to Exhibit Number 3 and explain what it shows.

A Exhibit 3 is a map of the Tobac Pool area on which the wells are indicated, the wells that are currently producing, the drilling wells and the dry holes; also outlined is the current field nomenclature as defined by the Oil Conservation Commission; also several wells are colored, and these are for easy identification with the pressures shown on Exhibit 4.

Q Now refer to Exhibit 4 and explain what that shows.

A Exhibit 4 is just a plot of the initial bottom-hole

pressures of wells as they were completed in relationship to time. This plot indicates that from that initial pressure on Cabot Signal State Number 1 of 3031, that as each well was drilled subsequent to, but after the Number 4 Well, or the Cabot McAlister or the Signal Oil and Gas State 30-1, each well has had a subsequently lower pressure as it was completed. These pressures fall on a relatively straight line and indicate that the field is being drained by the wells currently producing.

Q What do you conclude from the information on this exhibit?

A I conclude that the Tobac Pool is being adequately and sufficiently drained by the current completions of the reservoir.

Q Turn to Exhibit Number 5 and explain what it is and what it shows.

A Exhibit Number 5 is a tabulation of the bottom-hole pressures run in February, 1965 by the New Mexico Engineering Committee.

Q Does this show relatively the same information as shown on your Exhibit Number 4?

A No, sir. This is the pressures on many of the same wells, but these pressures were taken within a three-day span in February of this year, and indicates that there is a spread, excluding the Ingram Garretson Number 1 Well, there's a spread

of only 114 pounds for the 14 wells listed.

Q How do you account for the difference in the Ingram Garretson Well?

A This well is located approximately one mile west of the field development in Section 25, 8, 32.

Q That's shown on Exhibit Number 3?

A Three, yes, sir. There is a possibility of a permeability barrier occurring between this well and the main portion of the field. To date there has been no direct offset connection for the field proper.

Q You said there was a variance in that well of about 114 pounds, is that normal or unusual, or what?

A This would be normal in this type of reservoir; and further indicates that the entire reservoir is being drained by the currently uncompleted wells.

Q Turn to your Exhibit Number 6 and explain what that shows.

A Exhibit 6 is a plot of pressure versus cumulative production, and once again I have used initially measured pressures for this plot, plus a 14-well average for the February, 1965, and you can note that this 14-well average falls on the straight line. This plot once again indicates that the field is being drained by the current completions.

MR. NUTTER: Were these the same 14 wells?

A The 14-well average pressure is the 14 wells I included on Exhibit 5, excluding the Ingram well.

MR. NUTTER: The same 14 wells you averaged the bottom-hole pressure at different times?

A No, the other points shown are the initial pressures, initial completion, just referred back to the cumulative production at the time these pressures were taken.

Q Does this exhibit also indicate the ultimate production from the pool?

A Yes. By extrapolating the line to an assumed abandonment pressure of 100 psig, the ultimate preliminary recovery from the field is indicated to be 3,600,000 barrels of oil.

Q What do you conclude from this exhibit, as far as one well draining 80 acres or more?

A Well, I conclude that the wells whose pressures I have used here have been drained by the wells previously completed, and that one well will drain 80 acres and more.

Q Is this about the best evidence that you can have of drainage of this kind in a pool?

A I feel that short of conducting an interference test between the wells, this is conclusive evidence of drainage of 80 acres, or of the entire pool by the currently completed wells.

Q Have you made any calculations with respect to the



total recovery?

A Yes, sir, on Exhibit 7 I have taken the 3,600,000 barrel indicated ultimate primary recovery from the field, not including the development in Sections 24 and 25 in 8, 32, which is the Ingram and Shell well to the west. I have divided that up among 27 current completions in the main portion of the field.

Now, referring to Exhibit 3, the map, this will exclude the wells in Sections 24 and 25 to the west, and in Sections 31 and 32 to the south, the Cabot MacAlister Fuel 1-A and the Cabot Tidewater State 1-A. These two wells are poor producers and produce only ten, fifteen barrels a day, and will not significantly contribute to recovery from this field.

Therefore, using the 27 current completions in the six section, seven section block to the north there, I arrived at 133,300 barrel ultimate recovery per well. Now, this is an average figure and it's not an absolute figure for any given well.

Q Have you made any calculations as to the economics of development of this pool on 40 acres and 80 acres?

A Yes, sir, I have. Inasmuch as the field is currently developed on 80-acre spacing, I have used the 133,300 barrel figure as a recovery factor for 80 acres, and half that amount for a recovery factor for 40 acres. Assuming one-eighth

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royalty and a gross income per barrel of \$2.95, the operator's gross income for 40 and 80 acres respectively is \$172,000.00 and \$344,000.00.

Q Are you referring to Exhibit 8 now?

A Yes, sir, I am. Our drilling costs are about \$115,000.00 per well, and an additional \$11,000.00 for tank battery and flow line. Operating costs for a well over a five-year period is estimated to be \$15,000.00, for a total drilling, completing and operating cost of \$141,000.00.

In the event a well has to be pumped, an additional cost of \$20,000.00 will be experienced. A before tax profit, based upon these costs is \$31,171.00 for a 40-acre location, and \$203,082.00 for an 80-acre location; or a before tax profit to investment ratio of .25 for a 40-acre location and 1.61 for an 80-acre location.

Q Are there any other wells in this vicinity, or in Lea, Chaves or Roosevelt Counties completed in the Bough formation?

A Yes, sir, there are numerous wells.

Q Are all of those pools or fields developed on 80-acre spacing?

A I can only say that several of them have been spaced and developed on 80-acre spacing and proration units. Now, as

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to whether all of them have been or not, I don't know. I know the main pools have been on 80 acres.

Q I take it from your testimony there's no question in your mind but what one well would effectively and efficiently drain more than 80 acres in this case?

A There's none.

Q Do you have any recommendations to make to the Commission with respect to the continuance of the present temporary field rules?

A It is my recommendation that the rules contained in Order R-2685 be continued on a permanent basis.

Q You have no recommendations to make as to any changes?

A No, sir.

Q Continue the same rules?

A That's right.

Q Do you know whether there's any objections from any of the operators in the pool or field to the continuance of these rules?

A I know of none. I personally contacted all but one operator, and they all agreed that development on 80-acres was what they desired, and most of them indicated that they would so notify the Commission.

Q You know of no protest, no objection?

A No, sir, I know of no objections.

MR. HINKLE: We would like to offer in evidence Exhibits 1 through 8, inclusive.

MR. NUTTER: Applicant's Exhibits 1 through 8 will be admitted in evidence.

(Whereupon, Applicant's Exhibits 1 through 8 were admitted in evidence.)

MR. HINKLE: I believe that's all.

MR. NUTTER: Does anyone have a question of Mr. Sargent?

MR. DURRETT: I have a question, please.

CROSS EXAMINATION

BY MR. DURRETT:

Q Who was the operator that you didn't get to contact personally?

A Tom Brown Drilling Company.

MR. DURRETT: Thank you.

BY MR. NUTTER:

Q Referring to your plat which is Exhibit Number 3, you mentioned that the wells down in 31 and 32 were poor wells.

A Yes, sir.

Q What about the wells over in 24 and 25?

A It is my understanding that the Ingram Well in Section 25 is a very good well, comparable to many of the wells in the main section of the field. Now, my geologist in Midland

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me that the Shell Well in Section 24 was completed just last week for a hundred barrels per day pumping.

Q I note two dry holes there, one in Section 19 and one in the northeast corner of Section 30?

A Yes, sir.

Q Do those go to the Bough "C"?

A Yes, sir, they are both Bough "C" wells which were drilled offsetting production. However, the Bough "C", though present, was completely impermeable.

Q And this is one of the reasons that you think maybe there's a permeability barrier that comes down through this area?

A Yes, that and the high pressure measured on the Ingram Well.

Q How about the Signal 1-30 in Section 30, is that a pretty good well?

A It was an excellent well. It was a complete surprise that their second well was dry. The Humble 1-3 Well in Section 20 was an excellent well, and I am sure Phillips is very disappointed their well was dry, offsetting it.

MR. NUTTER: Are there any other questions of Mr. Sargent? He may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further in this case?

MR. HINKLE: No, that's all.

MR. NUTTER: Does anyone have anything to offer in Case 3003 (Reopened)?

MR. DURRETT: I would like to state for the record that the Commission has received telegrams from Signal, Humble, Shell and Tidewater concurring with Cabot's request, and we have received a letter from MacAlister Fuel Company concurring with their request for permanent rules.

MR. NUTTER: Thank you. If there is nothing further in 3003 we will take the case under advisement.

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DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMAS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

STATE OF NEW MEXICO )  
 ) ss.  
COUNTY OF BERNALILLO )

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission Examiner at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal  
this 11th day of May, 1965.

Ida Dearnley  
Notary Public - Court Reporter

My Commission Expires:

June 19, 1967.

I ~~do~~ hereby certify that the foregoing is a complete record of the proceedings in the Exclusion hearing of Case No. 3003 kept held by me on 4/28, 1965.

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