CASE 2658: Application of CABOT CORP. for temporary special rules for the N. BAGLEY-PENNSYLVANIAN POOL.

2658

Petition, Transcript,

Exhibits, Etc.

DRAFT
JMD/esr
October 25, 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. 2658

Order No. R-2346-A

APPLICATION OF CABOT CORPORATION
FOR THE ESTABLISHMENT OF TEMPORARY
SPECIAL RULES AND REGULATIONS FOR
THE NORTH BAGLEY-UPPER PENNSYLVANIAN
POOL, 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 by Order No. R-2346 dated October 31, 1962, temporary Special Rules and Regulations were promulgated for the North Bagley-Upper Pennsylvanian Pool.

(3) That pursuant to the provisions of Order No. R-2346, this case was reopened to allow the operators in the subject pool to appear and show cause why the North Bagley-Upper Pennsylvanian Pool should not be developed on 40-acre proration units.

(4) That the evidence established that one well in the North Bagley-Upper Pennsylvanian Pool can efficiently and economically drain and develop 80 acres.

(5) 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-2346 should be continued in full force and effect until further order of the Commission.

(6) That the Special Rules and Regulations promulgated by Order No. R-2346 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.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulaticns governing the North Bagley-Upper Pennsylvanian Pool promulgated by Order No. R-2346 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.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Cabot EXHIBIT NO. 1
CASE NO. 2658

EXHIBITS FOR CASE NO. 2658

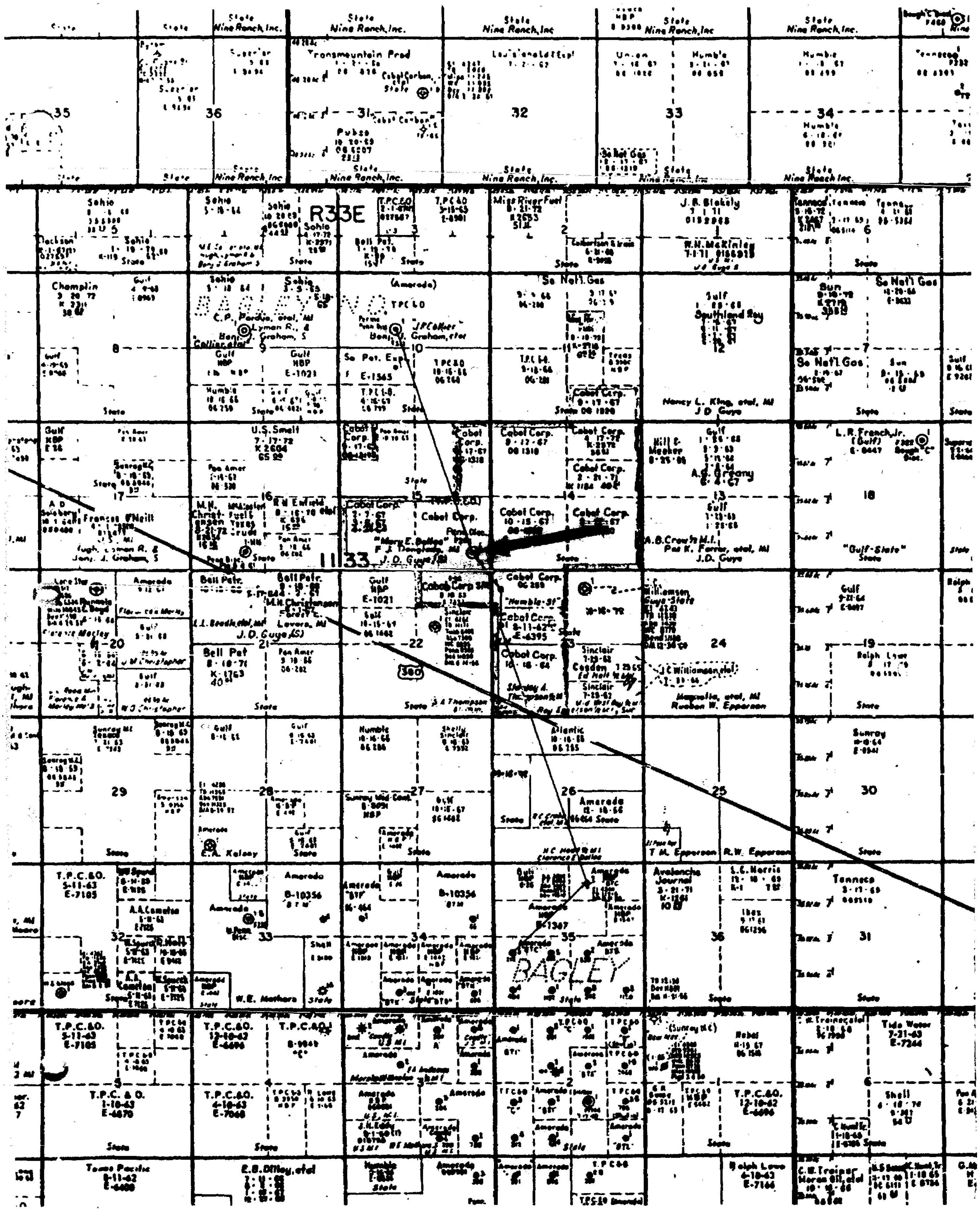
CABOT CORPORATION'S APPLICATION

FOR ORDER CREATING

TEMPORARY RULES AND 80-ACRE SPACING

CABOT CORPORATION

MARY ELLEN DALLAS WELL NO. 1



State
Nine Ranch, Inc.
Transmountain Prod
Humble
Union
Tenneco
Pubco
35
36
31
32
33
34
R33E
Sohio
T.P.C.&O.
Miss River Fuel
J. R. Blakely
W.H. McKinley
Champlin
Gulf
Amerada
So Nat'l Gas
Sun
Southland Roy
J.F. Collier
Benj. G. Graham, etal
So. Pet. Exp.
Cabot Corp.
Nancy L. King, etal, Mi
J D Guye
U.S.Smelt
L.R. French, Jr.
A.B.Crow's M.I.
Pat K. Farrar, etal, Mi
Bell Petr.
Bell Pet
J. D. Guye (S)
Humble-St
Sinclair
Cosden
Magnolia, etal, Mi
Reuben W. Epperson
Sunray
Atlantic
E.A. Kelsey
T. M. Epperson
R.W. Epperson
Avalanche Journal
S.E. Norris
Tenneco
Shell
W.E. Mathers
BAGLEY
T.P.C.&O.
Tide Water
E.B. Dilley, etal
Texas Pacific
Ralph Lowe
C.W. Trainer

WELL HISTORY

CABOT CORPORATION
MARY ELLEN DALLAS WELL NO. 1

Location: 660' FSL and 660' FEL Section 15, T10S, R33E, Lea County, New Mexico

Total Depth: 10,475'

Production String: 5-1/2" casing set at 9556'

Drill Stem Tests: Wolfcamp formation tested from 8650' to 8740'. Open 1-1/2 hours. Good blow. Gas to surface in 7 minutes. Recovered 1,710' free oil.
Initial shut-in pressure - 2,720 psi/30 minutes
Initial flow pressure - 336 psi
Final flow pressure - 509 psi
Final shut-in pressure - 2,072 psi/45 minutes

Upper Penn formation tested from 9100' to 9160'. Open 24 minutes. Gas to surface in 5 minutes. Mud to surface in 8 minutes, oil to surface in 12 minutes. Flowed oil for 12 minutes, estimated 10 - 20 BOPH.
Initial shut-in pressure - 3,288 psi/30 minutes
Initial flow pressure - 953 psi
Final flow pressure -1920 psi
Final shut-in pressure - 3,265 psi/45 minutes

Perforations: 9475' to 9484' (initial completion, later plugged off)
9143' to 9155' (completion on rework)

Formation Treatment: 9475' to 9484' - 500 gallons mud acid
9143' to 9155' - 1000 gallons acid

Potential Test: 9475' to 9484' - 204 BOPD + 36 BWPD flowing on 24/64" choke. (This zone died because of increasing water production and was abandoned).

9143' to 9155' on June 28, 1962 - flowed 184 BO/24 hrs., GOR 1900 to 1, on 24/64" choke. Tubing pressure 200 psi.

Initial Reservoir Pressure: 3242 psi at 9100'

OIL RECOVERY CALCULATIONS
UPPER PENN FORMATION

CABOT CORPORATION
MARY ELLEN DALLAS WELL NO. 1

Reservoir Volume Calculations

	9140' Zone	9470' Zone
Assumed Porosity	4%	9%
Water Saturation	24%	50%
Net Pay	15 feet	7 feet

Oil in Place (Bbls/Ac.Ft.)

$(7758 \text{ bbl/AF})(0.04)(1 - 0.24)(\frac{1}{1.85}) =$ 127.5

$(7758 \text{ bbl/AF})(0.09)(1 - 0.50)(\frac{1}{1.85}) =$ 188.7

Recoverable Oil (Bbls/Acre Foot)

(127.5 bbl/Ac.Ft.)(0.25) = 31.9
(188.7 bbl/Ac.Ft.)(0.40) = 75.5

Oil in Place (Bbls/Acre)

(127.5 bbl/Ac.Ft.)(15 ft.) = 1912.5
(188.7 bbl/Ac.Ft.)(7 ft.) = 1320.9
Total Oil in Place (Bbl/Acre) = 3233.4

Recoverable Oil (Bbls/Acre)

(1912.5 bbl/Acre)(0.25) = 478.1
(1320.9 bbl/Acre)(0.4) = 528.4
Total Recoverable Oil (Bbls/Acre) 1006.5

	40 Acres	80 Acres
Oil in Place, Barrels	129,300	258,600
Recoverable Oil, Barrels	40,260	80,520

RESERVOIR ROCK AND FLUID PROPERTIES
UPPER PENN FORMATION

CABOT CORPORATION
MARY ELLEN DALLAS WELL NO. 1

Depth of Producing Formation:	9140'	9470'
Gross Pay, feet	17	11
Net Pay, feet	15	7
Porosity, percent (Sonic log)	4	9
Water Saturation, percent	24	50
Permeability, md. (from pressure buildup)	46	
Permeability, md. (from PI test)	174	
Original Reservoir Pressure, psig	3242	3297
Saturation Pressure, psig	3100	
Reservoir Temperature, $^{o}F.$	164	154
Gas in Solution, cubic feet per barrel	1450	
Formation Volume Factor, Bbl/Bbl	1.85	
Oil Viscosity, cp.	0.18	
Tank Oil Gravity, ^{o}API	48	

PRODUCTIVITY INDEX AND PERMEABILITY CALCULATIONS
UPPER PENN FORMATION

CABOT CORPORATION
MARY ELLEN DALLAS WELL NO. 1

Productivity Index

Date of Test	9-8-62
Producing Rate (6 hours), Bbls/Day	286.0
Shut-in Reservoir Pressure, psig	2946
Flowing Bottomhole Pressure, psig	2896

$$P.I. = \frac{\text{Bbls/Day}}{\text{Drawdown, psig}} = \frac{286 \text{ Bbls/Day}}{2946 \text{ psig} - 2896 \text{ psig}} = \underline{5.72} \text{ BOPD/psi/psi}$$

Permeability Calculations from P.I.

$$K_o = \frac{(P.I.)(\mu_o)(\text{Log } r_e/r_w)(FVF)}{(0.00307)(h)} = \frac{(5.72)(0.18)(1.85)(\text{Log } 5280/0.328)}{(0.00307)(15)}$$

$$= \underline{174 \text{ md}}$$

Permeability Calculations from Pressure Buildup

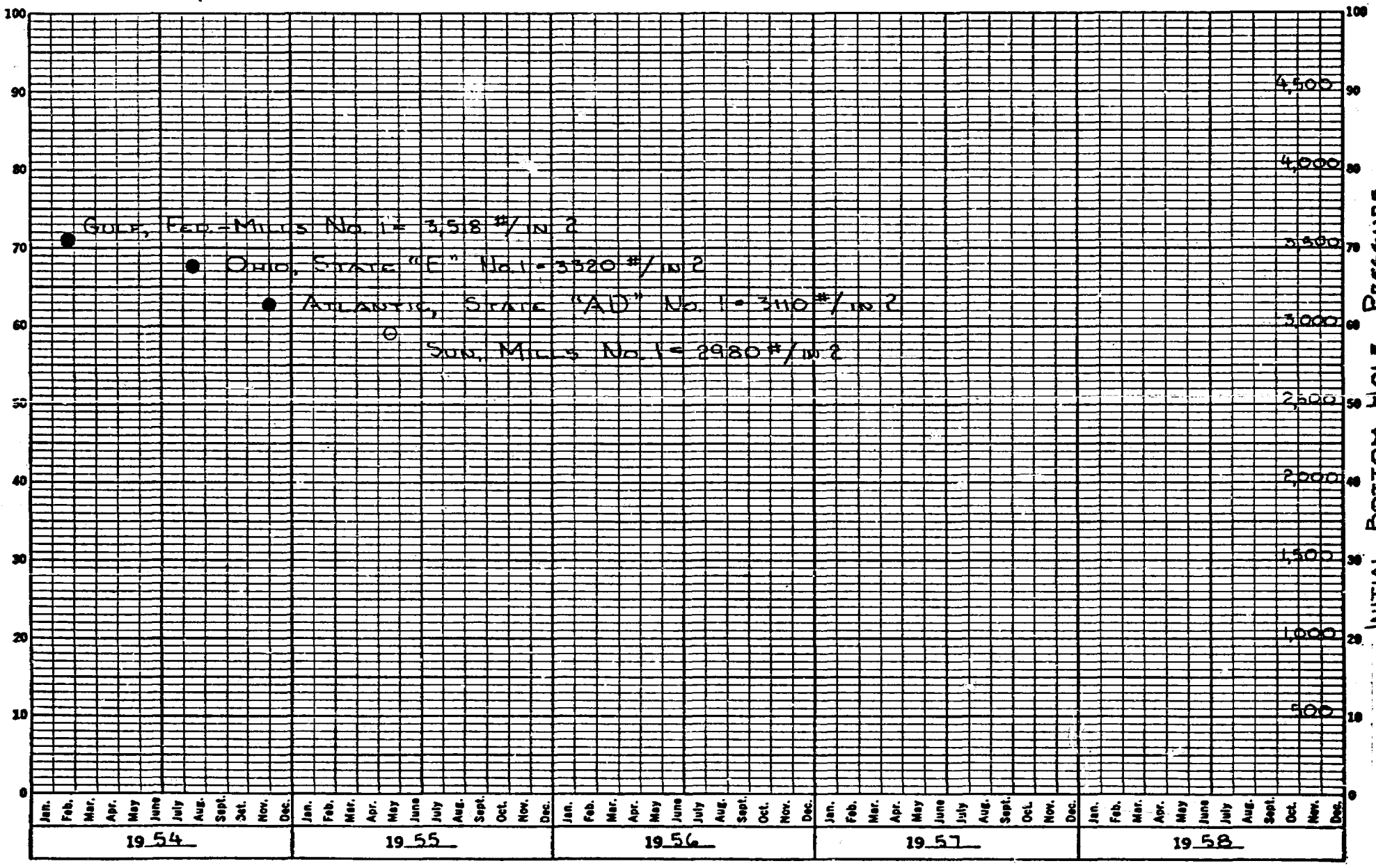
Slope of Pressure Buildup Curve, (M) - 27.5
Flow Rate, (Q) (BOPD) - 352

$$K_o = \frac{(162.5)(Q)(\mu_o)(F)}{(M)(h)} = \frac{(162.5)(352)(0.18)(1.85)}{(27.5)(15)} = \underline{46 \text{ md}}.$$

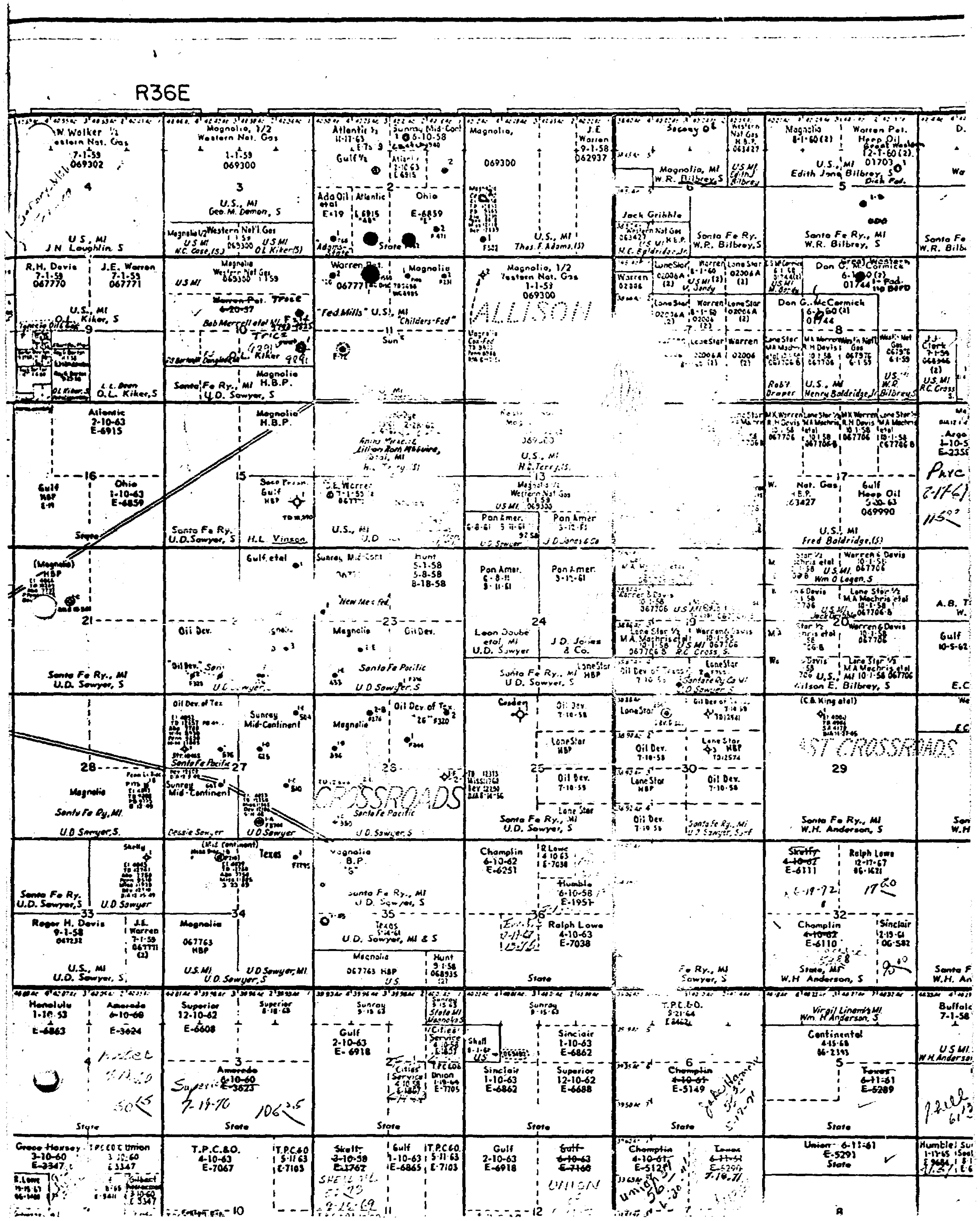
COMPARISON OF ROCK AND FLUID PROPERTIES
ALLISON PENN POOL VS. MARY ELLEN DALLAS WELL NO. 1
PENN FORMATION

Type Data	Allison Penn Pool	Cabot Mary E. Dallas No. 1
Depth of Producing Formation	9660	9140-9470'
Gross Pay, feet	30 - 50	28
Net Pay, feet	9	22
Porosity, percent	5.15	4 - 9
Water Saturation, percent	25	24 - 50
Permeability, md.	107.2	46
Productivity Index	5.01	5.72
Original Reservoir Pressure, psig	3,518	3,242
Saturation Pressure, psig	3,150	3,100
Original Gas in Solution, cu.ft./bbl	1,517	1,450
Reservoir Temperature, °F.	156	164
Formation Volume Factor, Bbl/Bbl	1.821	1.85
Oil Viscosity, cp.	0.19	0.18
Oil Gravity, °API	48	48

339-192 KEUFFEL & ESSER CO.
Five Years by Months on Long Side X 100 Divisions.
MADE IN U. S. A.



Plot of Initial Bottom Hole Pressure Vs. Time
Allison Pool, Lea and Roosevelt Counties, New Mexico



R36E
Magnolia, 1/2
Western Nat. Gas
1-1-59
069300
U.S., MI
Geo. M. Demon, S
Santa Fe Ry., MI
W.R. Bilbrey, S
Jack Gribble
R.H. Davis
7-1-59
067770
J.E. Warren
7-1-59
067771
ALLISON
Don G. McCormick
Atlantic
2-10-63
E-6915
Ohio
1-10-63
E-6859
Santa Fe Ry.
U.D. Sawyer, S
Magnolia
H.B.P.
U.S., MI
Fred Baldridge, S
Pan Amer.
Leon Daube
etal, MI
U.D. Sawyer
J.D. Jones
& Co.
U.S., MI
Wilson E. Bilbrey, S
Sunray
Mid-Continent
Santa Fe Pacific
CROSSROADS
Oil Dev.
7-10-58
Lone Star
HBP
Santa Fe Ry., MI
W.H. Anderson, S
Santa Fe Ry., MI
U.D. Sawyer, S
Champlin
6-10-62
E-6251
Humble
6-10-58
E-1951
Ralph Lowe
4-10-63
E-7038
Roger H. Davis
9-1-58
U.S., MI
U.D. Sawyer, S
Honolulu
1-10-53
E-6863
Amerada
6-10-60
E-3624
Superior
12-10-62
E-6608
Gulf
2-10-63
E-6918
Sinclair
1-10-63
E-6862
Superior
12-10-62
E-6688
Continental
State
T.P.C.&O.
4-10-63
E-7067
Union 6-11-61
E-5291
State

DRILLING ECONOMICS
UPPER PENN FORMATION

CABOT CORPORATION
MARY ELLEN DALLAS WELL NO. 1

Income

	40 acres	80 acres
1. Recoverable Oil, bbls	40,260	80,520
2. Operator's Net Recoverable Oil (7/8 X 1)(Bbls)	35,228	70,455
3. Operator's Gross Income ($2.98 X 2)*	$104,979	$209,956

Cost

1. Drilling and Completing Dallas No. 1**	$144,930
2. Flow Lines and Tank Battery	13,158
Total Costs***	$158,088

* Crude Price (including casinghead gas sale) = $3.08 - taxes
= $3.08 - $0.16
= $2.92/bbl

** Estimated for total depth of 9550 feet.

*** Total cost does not include operating costs or income taxes.

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date Oct 15, 1962

CASE 2658 Hearing Date 9 am Oct 10
DSN @ SF

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

Establish temporary 80-acre proration units for North Bagley-Penn Pool as requested by applicant.

Units may be N/2 S/2 E/2 or W/2 of governmental quarter section ~~and~~ Well locations within 150' of the center of either 40.

Use R-2284 ~~as~~ as order guide except 80-acre prop. factor should be 4.77.

Make order effective Nov. 1 with new C-128's due by that time.

Case another hearing for Oct 63

Staff Member

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

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

Re: Case No. 2659
Order No. R-2347
Applicant:
Cabot 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

ir/

Carbon copy of order also sent to:

Hobbs OCC __x__
Artesia OCC_____
Aztec OCC _____
OTHER_____

Case 26

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

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

TELEPHONE MAIN 2-6510
POST OFFICE BOX 10

September 21, 1962

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

Gentlemen:

Cabot Corporation hereby requests that a hearing be set for pool rules for the North Bagley Upper Pennsylvanian pool, Lea County, New Mexico, to include provisions for 80-acre proration units. It is requested that the pool rule be temporary for one year.

It is requested that this matter be set before an Examiner, and that it will be set for the docket of 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. 2658

Order No. R-2346

APPLICATION OF CABOT CORPORATION
FOR THE ESTABLISHMENT OF TEMPORARY
SPECIAL RULES AND REGULATIONS FOR
THE NORTH BAGLEY-PENNSYLVANIAN
POOL, 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 the promulgation of temporary special rules and regulations for the North Bagley-Pennsylvanian Pool, Lea County, New Mexico, including provisions for 80-acre proration units.

(3) 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.

(4) That the ~~information presently available and presented as~~ evidence indicates 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.

(5) 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.

(6) 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 units.

IT IS THEREFORE ORDERED:

That temporary special rules and regulations for the North Bagley-Pennsylvanian Pool are hereby promulgated as follows, effective November 1, 1962.

SPECIAL RULES AND REGULATIONS
FOR THE
NORTH BAGLEY-PENNSYLVANIAN POOL

RULE 1. Each well completed or recompleted in the North Bagley-Pennsylvanian Pool or in the Pennsylvanian formation within one mile of the North Bagley-Pennsylvanian Pool, and not nearer to or within the limits of another designated Pennsylvanian 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-Pennsylvanian Pool shall be located on a standard unit ~~containing 80 acres, more or less~~, which consists of the N/2, S/2, E/2, or W/2 of a single governmental section; ~~provided, however, that~~ For purposes of these Rules, a 79 through 81 contiguous surface acres shall be considered a standard unit. 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-Pennsylvanian 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-Pennsylvanian 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 ~~the~~ an application ~~is for a non-standard unit~~ 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. ~~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 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-Pennsylvanian Pool as the acreage in such non-standard unit bears to 80 acres.

RULE 5. ~~An 80-acre~~ proration unit ~~(79 through 81 acres)~~ in the North Bagley -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 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-Pennsylvanian 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 shall appear and show cause why the North Bagley-Pennsylvanian 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 hereinabove designated.

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 31, 1962

Re: Case No. 2658
Order No. R-2346
Applicant:
Cabot Corporation

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

DOCKET MAILED
Date 9-27-63

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

No. 28-63

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 9, 1963

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

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 10,568.81 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.

NORTH BAGLEY UPPER PENNSYLVANIAN POOL

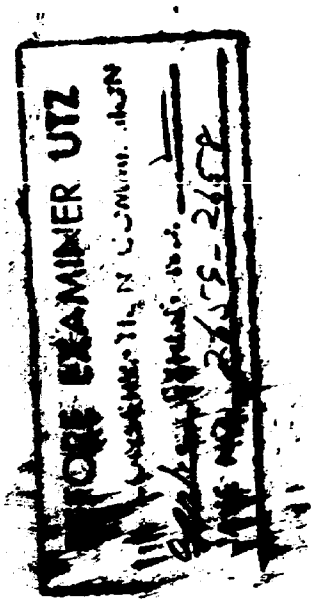
Discovery:	June 12, 1962
Producing Zone:	Pennsylvanian zones at about 9140' and 9470'. Zone at 9470' not being produced currently because of excessive water production.
Original Pressure:	3242 psig
Producing Mechanism:	Solution gas drive with a possible partial water drive
Gross Pay:	28 feet
Net Pay:	22 feet
Porosity:	8.0%
Water Saturation:	35%
Permeability:	174 md (one well)
Saturation Pressure:	2900 psi (estimated)
Reservoir Temperature:	164°F
Gas in Solution:	1275 (estimated)
Formation Volume Factor:	1.78 (estimated)
Crude Gravity:	46° API
Number of Wells:	2, including discovery well

Well Cost (Drill, complete and equip):	$137,500
Reserves on 40-acre spacing:	40,260 bbls
Operator's Gross Income on 40-acre spacing:	$110,715
Reserves on 80-acre spacing:	80,520 bbls
[illegible] on 80-acre spacing:	$221,430

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Applic EXHIBIT ... 1
CASE NO. 2658-2659

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:	26 feet
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



Well Cost (Drill, complete and equip):	$130,500
Reserves based on 40-acre spacing:	50,300 bbls
Operator's Gross Revenue based on 40-acre spacing:	$142,852
Reserves based on 80-acre spacing:	100,600 bbls
Operator's Gross Revenue based on 80-acre spacing:	$285,704

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

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

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NEW MEXICO OIL CONSERVATION, ATTN A L PORTER=
SEC DIRECTOR SANTA FE NMEX=

REFER TO CASE 2658 NORTH BAGLEY UPPER PENN CASE 2659
NORTH BAGLEY WOLF CAMP REOPENED BY ORDER R2346 AND
R2347 GREAT WESTERN DRILLING IS PRESENTLY DRILLING
IN THESE FIELDS FOR OUR OWN ACCOUNT. WE CONCUR IN
THE ESTABLISHMENT OF PERMANENT 80 ACRE PRORATION UNIT=
GREAT WESTERN DRILLING CO=

MAIN OFFICE OCC

2658 2659 R2346 R2347 80=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

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. 2658
Order No. R-2346

APPLICATION OF CABOT CORPORATION
FOR THE ESTABLISHMENT OF TEMPORARY
SPECIAL RULES AND REGULATIONS FOR
THE NORTH BAGLEY-UPPER PENNSYLVANIAN
POOL, 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 31st 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 the promulgation of temporary special rules and regulations for the North Bagley-Upper Pennsylvanian Pool, Lea County, New Mexico, including provisions for 80-acre proration units.

(3) 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.

(4) That the evidence indicates 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.

(5) 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.

(6) 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:

That temporary special rules and regulations for the North Bagley-Upper Pennsylvanian Pool are hereby promulgated as follows, effective November 1, 1962.

SPECIAL RULES AND REGULATIONS
FOR THE
NORTH BAGLEY-UPPER PENNSYLVANIAN POOL

RULE 1. Each well completed or recompleted in the North Bagley-Upper Pennsylvanian Pool or in the Pennsylvanian formation within one mile of the North Bagley-Upper Pennsylvanian Pool, and not nearer to or within the limits of another designated Pennsylvanian 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-Upper Pennsylvanian Pool shall be located on a standard unit which 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-Upper Pennsylvanian 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-Upper Pennsylvanian 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-Upper Pennsylvanian Pool as the acreage in such non-standard unit bears to 80 acres.

RULE 5. A standard proration unit in the North Bagley-Upper 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 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-Upper Pennsylvanian 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-Upper Pennsylvanian 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 hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

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 871
SANTA FE

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

October 30, 1963

Re: Case No. 2658
Order No. R-2346-A
Applicant:
CABOT CORPORATION

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

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
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. 2658
Order No. R-2346-A

APPLICATION OF CABOT CORPORATION
FOR THE ESTABLISHMENT OF TEMPORARY
SPECIAL RULES AND REGULATIONS FOR
THE NORTH BAGLEY-UPPER PENNSYLVANIAN
POOL, 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 by Order No. R-2346 dated October 31, 1962, temporary Special Rules and Regulations were promulgated for the North Bagley-Upper Pennsylvanian Pool.

(3) That pursuant to the provisions of Order No. R-2346, this case was reopened to allow the operators in the subject pool to appear and show cause why the North Bagley-Upper Pennsylvanian Pool should not be developed on 40-acre proration units.

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

(5) 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-2346 should be continued in full force and effect until further order of the Commission.

(6) That the Special Rules and Regulations promulgated by Order No. R-2346 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.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the North Bagley-Upper Pennsylvanian Pool promulgated by Order No. R-2346 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

E. S. Walker

E. S. WALKER, 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. 2658
Order No. R-2346

APPLICATION OF CABOT CORPORATION
FOR THE ESTABLISHMENT OF TEMPORARY
SPECIAL RULES AND REGULATIONS FOR
THE NORTH BAGLEY-PENNSYLVANIAN
POOL, 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 the promulgation of temporary special rules and regulations for the North Bagley-Pennsylvanian Pool, Lea County, New Mexico, including provisions for 80-acre proration units.

(3) 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.

(4) That the evidence indicates 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.

(5) That during the one-year period in which this order will be in effect, the applicant should gather all available

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

RULE 5. A standard proration unit in the North Bagley-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 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-Pennsylvanian 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-Pennsylvanian 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 hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

S E A L

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

esr/

information relative to drainage and recoverable reserves in the subject pool.

(6) 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:

That temporary special rules and regulations for the North Bagley-Pennsylvanian Pool are hereby promulgated as follows, effective November 1, 1962.

SPECIAL RULES AND REGULATIONS
FOR THE
NORTH BAGLEY-PENNSYLVANIAN POOL

RULE 1. Each well completed or recompleted in the North Bagley-Pennsylvanian Pool or in the Pennsylvanian formation within one mile of the North Bagley-Pennsylvanian Pool, and not nearer to or within the limits of another designated Pennsylvanian 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-Pennsylvanian Pool shall be located on a standard unit which 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-Pennsylvanian 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-Pennsylvanian 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.

Case 2658
Heard 10-9-63
Rec. 10-10-63

1. Grank Cabot Corp. a permanent order for R-2386 for the N. Bagley Penn. oil Pool.
2. Applicant presented proof that one well will drain 80 acres in this pool.

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

EXAMINER HEARING

IN THE MATTER OF:

Application of Cabot Corporation for temporary special rules and regulations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order promulgating temporary special rules and regulations for the North Bagley-Pennsylvanian Pool, Lea County, New Mexico, including provisions for 80-acre proration units. CASE 2658

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: The meeting will come to order, please.

The next case is 2658.

MR. DURRETT: Application of Cabot Corporation for temporary special rules and regulations, Lea County, New Mexico.

MR. BRATTON: Howard Bratton, appearing on behalf of the Applicant. We have one witness.

(Witness 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:

DIRECT EXAMINATION

BY MR. BRATTON:

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

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

MR. NUTTER: Is that S-a-r-g-e-n-t?

A That's right.

Q (By Mr. Bratton) Are you familiar with the matters in the area involved in Case No. 2658?

A I am.

Q Have you previously testified before this Commission?

A I have not.

Q Please state briefly your educational and professional background.

A I have a B.S. in Petroleum Engineering, Texas A & M, worked two years with Cities Service Oil Company as petroleum engineer and then went to work for Cabot Corporation in the past five and one-half years as a staff petroleum engineer.

Q Have you studied the area in question in this application?

A I have.

MR. BRATTON: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, sir, they are.

Q (By Mr. Bratton) What is Cabot asking in this case, Mr. Sargent?

A Cabot is asking for establishment of temporary field rules, including 80-acre spacing for the previously designated North Bagley-Upper Penn Field. This was designated by the Commission.

Q That was just last month, wasn't it?

A I believe so, yes.

Q Let's refer to your Exhibit No. 1 and turn to page 1, the land map. Does that show the well in question and the area in question?

A Yes, it does. The arrow points to the well in question.

Q And that's located where?

A In Section 15, 11 South, 33 East, Lea County, New Mexico.

Q Is that the only well completed in this pool at the present time?

A Yes, it is. I beg your pardon, it is not. The Cabot State No. 1 located in the Southwest of the Northwest of Section 23 is also completed in the Upper Penn formation.

Q Let's turn to your next page of your exhibit. Is that the well history of this well?

A This is the well history of the Mary Ellen Dallas No. 1.

Q Would you state briefly off of it the significant factors? I don't believe you need to go into the full drillstem

test data.

A We had two drillstem tests, one in the Wolfcamp formation which recovered free oil, and one in the Upper Penn formation which is, in this case the test covered the Bough C formation, recovered oil flowing; on completion; we perforated a lower zone which is still within the limits of the Upper Penn formation as defined by the Commission. This zone initially potentialed for 200 barrels of oil per day and 36 barrels of water flowing and swabbing. Shortly after being put on production, the zone died because of increased water production and was temporarily abandoned. The well was then completed in the Upper Penn zone of the Upper Penn or the Bough C for a flowing well.

Q And your initial reservoir pressure as reflected there?

A Is 3242 at 9100 feet.

Q Is there anything else you wish to bring out about the well history of this well?

A I don't believe so.

Q Your next item in the exhibit is your log of the well in question?

A Yes, it is. This log, the two zones which have been perforated in this well are indicated on the log, the lower zone being at 9470 and the upper zone at 9138.

MR. NUTTER: This lower section down here at 9470 is the one that has been squeezed?

A It was not squeezed; a bridge plug was set at 9400 feet.

MR. NUTTER: I see.

A The zone is still open below the bridge plug; however, because of the water which was being produced in that zone we elected not to produce it at this time.

Q (By Mr. Bratton) Is there anything else reflected on that log?

A No.

Q Let's turn to your next exhibit, this short cross section. This cross section, the length of it is reflected on your first page, on your land map, is it not?

A Yes, it's reflected by the red line.

Q It starts from the left of the cross section -- it starts to the south down in the Bagley Pool, is that correct?

A That's correct, and runs through Cabot's three wells in the North Bagley Pool and up to the T. P. Collier No. 1 Well, which is also in the North Bagley-Lower Penn Pool.

Q Reflected on here are your three wells in the North Bagley, and the perforations in them and the zone in question, is that correct?

A Yes, sir.

Q What does it reflect with reference to the zone; is it continuous?

A The Bough C zone present in the Dallas Well is not continuous to the south. There is an apparent pinchout of porosity between it and our Humble State Well which is a direct southeast

offset. The zone apparently does not continue up to the T. P. Well.

Q What about your other stringer in here?

A The lower zone is continuous across our three wells. The three wells located in the center of the cross section.

Q All of these perforations are within the North Bagley-Penn as defined by the Commission?

A The Upper Penn as defined by the Commission.

Q North Bagley-Upper Penn?

A The limits of the Upper Penn are denoted on the cross section.

Q Is there anything else you wish to bring out in connection with this cross section?

A No, sir.

Q Turn now to your next exhibit, Mr. Sargent. Does that reflect the recovery calculations you've made as to this Upper Penn formation?

A It does.

Q First of all, did you have any cores in the area?

A No, we have no cores in this area.

Q So what information are you working off of?

A This information is based upon log calculations.

Q And you reflect two different zones?

A Zones within the Upper Penn, yes, labeled on this exhibit as the 9140-foot zone and the 9470-foot zone.

Q Would you go through briefly your key items in connection with your recovery calculations?

A The first zone is the 9140-foot zone, which is Bough C zone. Porosity from the log was 4 percent, water saturation calculated out to be 24 percent, the net pay from log was 15 percent --

Q 15 feet?

A 15 feet. The 9470-foot zone, porosity from log was 9 percent. Because of the high water production encountered in this zone, the water saturation was assumed to be 50 percent. The net pay from the log is 7 feet. The oil in place, recoverable oil calculations are standard and result in total recoverable oil in barrels per acre of 1,006.5 barrels per acre. Recovery factors used were 25 percent for the Bough C or 9140-foot zone, and 40 percent for the 9470-foot zone. These reflect an assumed depletion or gas solution drive for the 9140 zone, and water drive for the 9470 zone. Total recoverable oil, using these calculations, amounts to 40,260 under 40 acres; 80,520 under 80 acres.

Q That's using a total of 1,006.5 barrels recoverable oil per acre foot?

A Per acre, not per acre foot. Yes.

Q Let's go over to your next page, which is your rock and fluid properties. Here again you've reflected them in the two stringers or two zones here, is that correct?

A Yes, sir. The first portion is strictly a rehash of

the last page.

Q It shows your same net pay and your porosity and water saturation?

A Yes, sir. The next item is permeability calculations. These permeabilities were calculated, one, from a pressure build-up test run after a PI test; and, two, from the PI test itself. They apparently reflect permeabilities from two separate areas of the reservoir, the permeability from the pressure buildup of 46 millidarcys indicates the permeability within the drainage area affected by the buildup; and the permeability from the PI test of 174 millidarcys is calculated the permeability of the area being drained during the PI test, which would be less than the area represented by the buildup test.

Original reservoir pressure was measured with a bottom-hole pressure bomb, also the temperature. The gas in solution was estimated from the PI test. This was the actual ratio on the PI test, 1,450,000 cubic feet per barrel. The remaining factors were calculated from data in the literature. Saturation pressure of 3100 psi, formation volume factor of 1.85, oil viscosity of .18 centerpoises, the tank oil gravity is 48 degrees API.

Q Turning to your next exhibit, this is your productivity index and also the basis upon which you calculated your permeabilities, is that correct?

A Yes, sir, that is correct. This shows a productivity index of 5.72 barrels of oil per day per psi for the Mary Ellen

Dallas Bough C zone. Then the permeability calculations as shown below.

Q That, as you say, results in your permeability calculation of 46 millidarcys and 174?

A Yes, sir.

Q Is there anything further you care to bring out in connection with that, Mr. Sargent?

A I don't believe so.

Q Let's turn to your next page, which is a comparison of your various rock and fluid characteristics between this area and the Allison-Penn Pool. What does that reflect, Mr. Sargent?

A This reflects that the zone, actually this refers to the Bough C zone as being about 500 feet higher than the Allison-Penn; gross pay approximately the same; net pay in the Dallas Well greater than the average in the Allison-Penn Pool. Porosity, however, is possibly a little lower, being 4 percent in the Bough C and 9 percent in the lower zone. Water saturation in the Bough C, approximately the same. The permeability in the Bough C was 107.2, while ours calculated out to be 46 on the buildup test and 174 on the PI test, these are probably comparable; the PI's are comparable, 5.01 and 5.72 for the Dallas Well. Our well, being not as deep, would have a lower reservoir pressure, and this is reflected with the 300-pound difference between the two pools. Saturation pressures are approximately the same, the original solution gas-oil ratios approximately the same, reservoir tempera-

ture approximately the same. Formation volume factors are approximately the same. Oil viscosities, the same, and oil gravities are the same.

Q Basically, the general conclusion is this should be a little better area than the Allison-Penn?

A Based on the Dallas Well, that is correct.

Q And this is very limited information available at this time as to this pool?

A Yes, it is.

Q Your next exhibit reflects actually just the drop in bottomhole pressure in the Allison-Penn, is that correct?

A That is correct. The four wells listed, these are the initial bottomhole pressures versus time for these wells, which indicates that as the pool was produced, the pressure dropped over the area involved and the location of these wells is shown on the next page on the map. This indicates good connection, communication in the reservoir, indicating that the pool will drain 80 acres or more.

Q Actually, Mr. Sargent, you would expect possibly not exactly the same excellent communication, but certainly substantially good communication in this pool, is that correct?

A Yes, I think our permeabilities are comparable and we could expect good pressure communication.

Q I might ask further, is this pool in the same area as the South Lane-Pennsylvanian Pool?

A The Dallas Well is approximately six miles southwest of the discovery well, the South Lane Pool.

Q Is that the same formation there that we're talking about here?

A Yes, the Bough C.

Q Also, where is this located with regard to the recently created Emby Pool?

A It is two miles directly west, if you will refer to the map, the first map, the Emby Pool is in Section 18, 11, 34. There is a well in the upper right-hand corner near, it says Bough C Discovery, that was the discovery well of the South Lane Pool. This gives the relationship of our well to these other two pools.

MR. NUTTER: You mean the discovery well for the Emby Pool?

A The Emby Pool is the French Well located in Section 18.

MR. NUTTER: Oh, I see. This one way up at the top of the page, that's the discovery well for the South Lane?

A Yes.

MR. NUTTER: Oh, I see.

Q (By Mr. Bratton) Then the Emby Pool is directly to the east?

A Directly to the east of our well, three miles.

Q We're talking about the same formation in all three of these pools?

A Yes.

Q Let's go back to your last page of your exhibit. This is your calculation of your drilling economics?

A Yes, sir.

Q Would you run through that briefly?

A Once again we have the recoverable oils on 40-acre and 80-acre, 40,260 and 80,520. Item number 2 is operator,7/8th, taking out 1/8th royalty, which gives us 35,228 on 40 and 70,455 barrels on 80. Operator's gross income, we receive $3.01 per barrel. I have used top price even though at the present time we do not have a pipeline connection in here, we are expecting one momentarily. I have also included in this casinghead gas revenue of seven cents per barrel. Then I have taken out taxes and come up with an operator's net of $2.98. This multiplied times operator's net oil gives one hundred, approximately $105,000 for the 40 acres and $210,000 for the 80 acres.

Our Dallas Well was drilled to the Devonian and the figure reflected here of $144,930 is corrected back for a total depth of 9550 feet. Our flow line,tank battery for the well cost $13,158 for the total estimated cost of $158,000; and as can be seen, we would not get our money back on 40-acre spacing and would have about 1.3 return on 80 acres. Now thisonce again does not include operating costs or taxes.

Q In connection with calculating these economics, Mr. Sargent, you are certain as to your net pay in this well but that

figure is reasonably optimistic in connection with experience in the other Penn pools in that area, is that correct? In other words, you might actually, throughout this pool, come out with a less net than 22 feet?

A Based upon what was the average in the Allison-Penn, our net is certainly greater here than they had up there, yes.

Q Of course, without cores you are operating on somewhat limited information as to your water saturation and possibly your porosity?

A Yes.

Q But even if your porosity should be substantially greater and your water saturation substantially less, 40 acres still would not be economically feasible in this pool, is that correct?

A That is correct.

Q You are asking for temporary rules in this pool, is that correct?

A Yes, sir.

Q What specifically are you requesting, Mr. Sargent?

A We're requesting 80-acre spacing with flexible well locations to be located with the 80-acre unit located either east-west or north-south within a quarter section, well, to be located within either quarter quarter section of an 80-acre unit within 150 feet of center of the quarter quarter section. Also we're asking for the standard Commission allowable factor of 4.77 depth

factor, I believe it's 4.77 for this depth.

Q Now you are requesting these rules for one year, is that correct?

A That is correct.

Q During that time you would be able to develop additional information as to the effectiveness of drainage, would you not?

A Yes, sir.

Q By what means?

A We would hope to certainly core these zones in future wells, also by the use of pressure surveys, possibly interference tests and any other means that we deem desirable.

Q Based on the information you have to date, is it your opinion that one well will efficiently and economically drain 80 acres in this pool?

A Yes, sir.

Q Would it be your opinion that the drilling of this pool on 40 acres would result in economic waste?

A I believe it would.

Q Is there anything further you care to put in in connection with this application, Mr. Sargent?

A No, sir.

Q Was Exhibit 1 prepared by you or under your supervision?

A Yes, it was.

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

Exhibit No. 1.

MR. NUTTER: Applicant's Exhibit No. 1 will be admitted in evidence.

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

MR. NUTTER: Does anyone have any questions of Mr. Sargent?

CROSS EXAMINATION

BY MR. NUTTER:

Q Now, Mr. Sargent, here on your second page in the brochure where you are giving a history of the Mary Ellen Dallas Well No. 1, this Pennsylvanian drillstem test was 9100 to 9160?

A Yes, sir.

Q Is that the Bough C zone?

A Yes, sir.

Q And then the original completion was 9143 to 55, and 9475 to 9484 both?

A No,sir. The initial completion was 9475 to 9484.

Q Is that a zone of the Bough C?

A No, sir, this is a zone which is, as far as I personally know, was found in this well and does not correlate with any zone producing within the immediate area.

Q You still call it Upper Pennsylvanian, don't you?

A Yes, sir, this was deemed --

Q This is the lower part of the Upper?

A This is the lower part of the Upper, yes, sir.

Q You would limit the Bough C to this relatively narrow little section from 9143 to 9155?

A Yes, sir.

Q Now on your cross section, just discussing your three wells here in the middle, how many of the wells have the Wolfcamp pay zone present?

A All three of the wells successfully drillstem tested the Wolfcamp section.

Q But only one well has been perforated in the Wolfcamp?

A Yes.

Q The drillstem in the one on the right and the one on the left were successful in the Wolfcamp?

A Yes.

Q Now the lower section of the Upper Penn which was the one that produced water and was subsequently plugged off in the Mary Ellen Dallas No. 1, is this section which is shown -- is that the well on the right?

A Mary Ellen Dallas is the one on the right.

Q It's shown having perforation, but that perforation is presently plugged off?

A That is correct.

Q The other two wells are perforated in that section?

A The Humble State was perforated in this section, and as you can see, 238 barrels of oil, 102 barrels of water per day, was subsequently plugged off and the well was perforated in the

Wolfcamp and is producing only from the Wolfcamp.

Q So it's a single completion in the Wolfcamp?

A All three wells are single completions. The State "L" is currently producing from the lower zone of the Upper Penn. It produces some water. If it acts as the other two wells did, this water will increase and the well will die and we'll be forced to come back up probably to the Wolfcamp zone.

Q But the State "L" and the Humble State neither one had the Bough C present?

A No, sir. The Humble State Well, we actually attempted a completion at 9127 to 38, and this was a very tight zone, would not accept treatment, and we swabbed it dry.

Q Do you anticipate that the lower section in the Humble State, being the perforation that potentialed for 238 and 102, will ever be produced again?

A Yes, sir, I do, some future date. The reason we elected not to produce them now, we would have to put pumping equipment on this at quite a bit of expense. We would rather flow the well for as long a period as we possibly can.

Q Right now you are flowing from the Wolfcamp?

A From the Wolfcamp, yes, sir.

Q The State "L" still is producing with water?

A It was last Monday. In fact, it had died and they were going to try and perforate a zone that apparently had some gas in to try and lift flowing.

Q Was the Bough C present in the State "L" No. 1 at all?

A To my knowledge, no. It appears that the zone is probably there, but it doesn't look very good on the log.

Q And it never was perforated?

A No, sir.

Q On the next page following the cross section, you show recoverable oil of 478 barrels from the 9140 zone, and 528 from the 9470. Is this what you actually expect to recover from each of these two zones? I mean you've got one of them shut off. It seems to have the most oil.

A It also has water production and will have to be pumped, as I say.

Q Is this well flowing from the Bough C?

A Yes, it is flowing from the Bough C. All three of our completions are flowing wells.

Q From one zone or the other?

A Yes.

Q But no well is presently producing from a second zone?

A No, sir, all of them are single completions.

Q On the next page, your formation volume factor of 1.85, is that from an actual fluid analysis?

A No, sir, this was calculated from Standing's charts.

Q Do you have a fluid analysis?

A No, sir, we don't. I hope we will have one.

Q What's your solution gas estimate based on?

A It was based upon the lowest on the PI test. We had a three point PI test run to determine the optimum or MER of the well, and this was the lowest GOR recorded during that test.

Q Now the PI test, that's in here somewhere?

A It's the next page after the one we were just looking at.

Q Is this from the 9140-foot zone only?

A Yes, sir.

Q Do you have any PI on the lower zone?

A No, sir, we do not. We plugged off maybe a week after we perforated it; when it went to water we plugged it off.

Q So all of these reservoir rock and fluid properties are either estimated or calculated using charts or calculated from the logs?

A That is correct.

Q Here in your economics, which is the last page in this exhibit, these are the costs estimated for a single completion?

A Yes, sir.

Q You took into consideration the possibility that some of these wells may prove productive in two of the three zones that are present in all of them?

A That is correct.

Q And you have taken into consideration the value of the casinghead gas at seven cents per barrel of oil?

A Yes, sir.

Q That's based on this solution ratio of 1450?

A That is based on the price that we are currently receiving on the Dallas Well. This was our first monthly statement when El Paso came up to seven cents a barrel.

Q How would that compare, if you compared it on the solution ratio?

A I believe that would compare favorably. Possibly it would be high. Possibly our producing ratio is 17, 1800 to 1.

Q At this time?

A This would be on the lower allowable producing rate, which was less than our optimum PI rate.

Q Is the Mary Ellen Dallas Well No. 1 producing top allowable at the present time?

A Yes, sir, to my knowledge it is.

Q Is that well capable at this time for making top allowable for an 80-acre unit?

A Yes, sir. I believe the PI test indicated a productive capacity of about 15,000 barrels per day.

Q That was at a flowing rate of 286 or something like that, wasn't it?

A Yes, it was 356, I believe was the PI rate.

Q The producing rate, 286 barrels per day on six-hour test?

A Yes, 286.

MR. NUTTER: Any further questions of Mr. Sargent?

MR. BRATTON: One further question.

REDIRECT EXAMINATION

BY MR. BRATTON:

Q In line with Mr. Nutter's question, could you estimate what your cost would be to dual complete one of these wells?

A I believe it would probably cost us another $35,000 to dually complete the well. Now I'm not, I have not dealt with the production and drilling costs. However, I am estimating that based upon some figures I have seen recently submitted to the Commission.

Q So roughly you would be talking about an investment of $200,000 on a dual completion?

A About $190,000 or $200,000, yes, sir.

Q This is actually jumping ahead to the next case, but if you were fortunate enough to get dual completions from your Wolfcamp and from your Upper Penn in all of them, still would your economics be such that you'd recover about 150 percent on your investment?

A I believe this would give us a return of about two and one-half to one, based upon the economics of the Wolfcamp completion.

Q You are talking about on 80 acres?

A Yes, on 80 acres. On 40 acres it would amount to --

Q About one and a half to one?

A It would amount to one point -- about one and a quarter to one.

Q So that would be the most optimistic that you could now foresee, if you were fortunate enough to be able to dual complete each of these?

A That is correct. However, when I say this return would be one and a quarter to one, you must bear in mind that I have not included operating costs in my economics.

MR. NUTTER: The Devonian was dry in this area?

A The Devonian tested water.

MR. NUTTER: Any further questions? He may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further?

MR. BRATTON: Not in 2658.

MR. NUTTER: Does anyone have anything they wish to offer in 2658? We'll take the case under advisement.

* * * * *

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 the said proceedings, to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this 25th day of October, 1962.

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. 2638, heard by me on 10/11, 1962.

, Examiner
New Mexico Oil Conservation Commission

SKELLY OIL COMPANY

P. O. Box 1650
TULSA 2, OKLAHOMA

PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT
W. P. WHITMORE, MGR. PRODUCTION
W. D. CARSON, MGR. TECHNICAL SERVICES
ROBERT G. HILTZ, MGR. JOINT OPERATIONS
GEORGE W. SELINGER, MGR. CONSERVATION

Case file

October 3, 1962

Re: Case 2658-9
Temporary Rules
North Bagley (Penn) and
North Bagley (Wolfcamp) Pools
Lea County, New Mexico

Mr. A. L. Porter, Jr.
Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Dear Mr. Porter:

On Wednesday, October 10, 1962, the Commission Examiner will hear the application of Cabot Corporation for temporary special rules for the North Bagley (Penn) Pool and the North Bagley (Wolfcamp) Pool, including provisions for 80-acre proration units for each pool.

As interested party in this immediate area, we wish to advise that this Company favors the establishment of such reasonable rules and regulations, including the provisions for 80-acre proration units for each of the two pools involved in these applications.

Yours very truly,

George W Selinger

GWS:br

cc-Cabot Corporation
750 Petroleum Club Building
Denver 2, Colorado

BEFORE THE
NEW MEXICO 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 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

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,

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.

discovery wells in that pool?

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

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General Court Reporting Service
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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. Jule 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?

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?

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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 ratioes?

A Gas-oil ratioes have reacted as from a solution gas drive reservoir. As the pressures have fallen, the gas-oil ratioes 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

and whether it will economically produce oil.

Q Youwould 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

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 55,000, 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?

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CONTINUATION

BY MR. BURGETT:

Q Yes, I have got a question or two. Mr. Burgett, I am a little confused on one of the 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, six.

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?

A Not unless the lower zone proved to be better than we think it is on this 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

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

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

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.

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 inthis 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 "M" 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 ratioes 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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STATE OF NEW MEXICO)

COUNTY OF BERNALILLO)

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. 2658 & 59 heard by me on Oct. 9, 1963

Examiner
New Mexico Oil Conservation Commission