

LARGE FORMAT
EXHIBIT HAS
BEEN REMOVED
AND IS LOCATED
IN THE NEXT FILE

OIL RECOVERY CALCULATIONS

WOLFCAMP FORMATION

CABOT CORPORATION

HUMBLE-STATE NO. 1

Reservoir Volume Calculations

Assumed Porosity	5.7%
Water Saturation	20%
Net Pay	26 feet
Recovery Factor	30% of oil in place

Oil in Place (Bbls/Acre Foot)

$$(7758 \text{ Bbl/Ac.Ft.}) (0.057) (1 - 0.20) \left(\frac{1}{1.81} \right) = 195.5 \text{ Bbl/Ac.Ft.}$$

Recoverable Oil (Bbl/Acre Foot)

$$(195.5 \text{ Bbl/Ac.Ft.}) (0.3) = 58.7 \text{ Bbl/Ac.Ft.}$$

Oil in Place (Bbl/Acre)

$$(195.5 \text{ Bbl/Ac.Ft.}) (26 \text{ ft.}) = 5,083 \text{ Bbl/Acre}$$

Recoverable Oil (Bbl/Acre)

$$(5,083 \text{ Bbl/Acre}) (0.30) = 1,525 \text{ Bbl/Acre}$$

Oil in Place, bbls.	<u>40 acres</u> 203,320	<u>80 acres</u> 406,640
Recoverable Oil, bbls.	61,000	122,000

RESERVOIR ROCK AND FLUID PROPERTIES

WOLFCAMP FORMATION

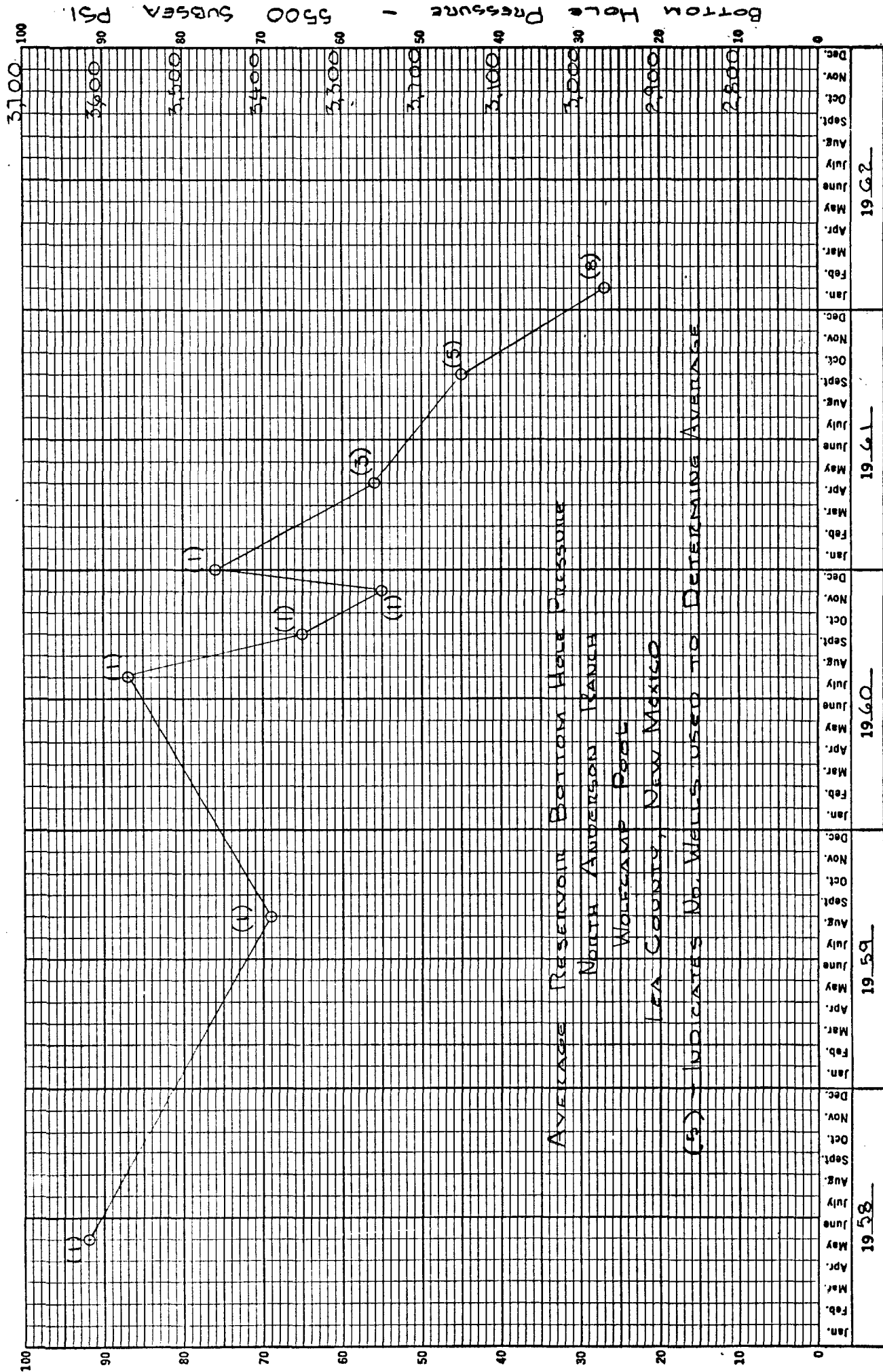
CABOT CORPORATION

HUMBLE-STATE NO. 1

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

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

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



DRILLING ECONOMICS
WOLFCAMP FORMATION

CABOT CORPORATION
HUMBLE-STATE NO. 1

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

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

** Does not include operating costs and income taxes.

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

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

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

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

ORDER OF THE COMMISSION

BY THE COMMISSION:

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

NOW, on this 24th day of November, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That by Order No. R-2347, dated October 25, 1962, temporary Special Rules and Regulations were promulgated for the North Bagley-Wolfcamp Pool, Lea County, New Mexico.

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

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

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CASE No. 2659

Order No. R-2347-B

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

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

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

IT IS THEREFORE ORDERED:

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

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

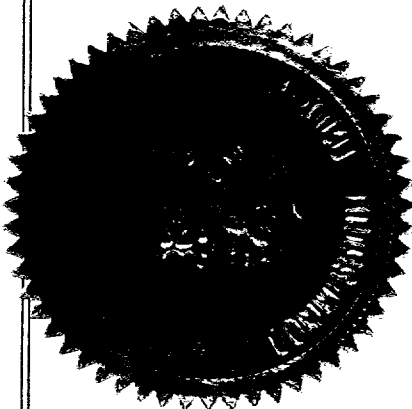
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell
JACK M. CAMPBELL, Chairman

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

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



esr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

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

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

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 9, 1963, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 30th day of October, 1963, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, and being fully advised in the premises,

FINDS:

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

(2) That Order No. R-2347 dated October 25, 1962, promulgated Special Rules and Regulations for the North Bagley-Wolfcamp Pool establishing temporary 80-acre proration units in said pool.

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

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

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

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CASE No. 2659

Order No. R-2347-A

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

IT IS THEREFORE ORDERED:

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

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

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

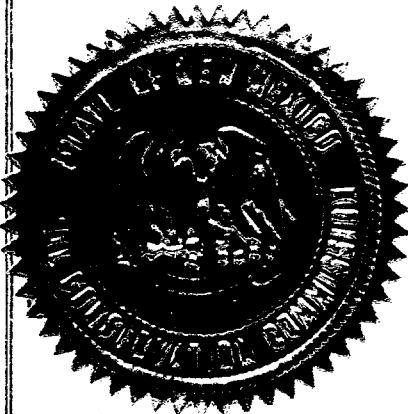
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell
JACK M. CAMPBELL, Chairman

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

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



esr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 2659
Order No. R-2347

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

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 10, 1962, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 25th day of October, 1962, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Cabot Corporation, seeks an order creating a new oil pool for Wolfcamp production, to be designated the North Bagley-Wolfcamp Pool. The discovery well for said pool is the Cabot Corporation's Humble State Well No. 1, located in Unit D of Section 23, Township 11 South, Range 33 East, NMPM, Lea County, New Mexico. Said well was completed September 10, 1962. The top of the perforations is at 8668 feet.

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

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

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

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

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

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

IT IS THEREFORE ORDERED:

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

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM

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

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

SPECIAL RULES AND REGULATIONS
FOR THE
NORTH BAGLEY-WOLFCAMP POOL

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

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

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

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

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

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

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

IT IS FURTHER ORDERED:

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

IT IS FURTHER ORDERED:

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

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CASE No. 2659
Order No. R-2347

IT IS FURTHER ORDERED:

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



EDWIN L. MECHEM, Chairman



E. S. WALKER, Member



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



esr/