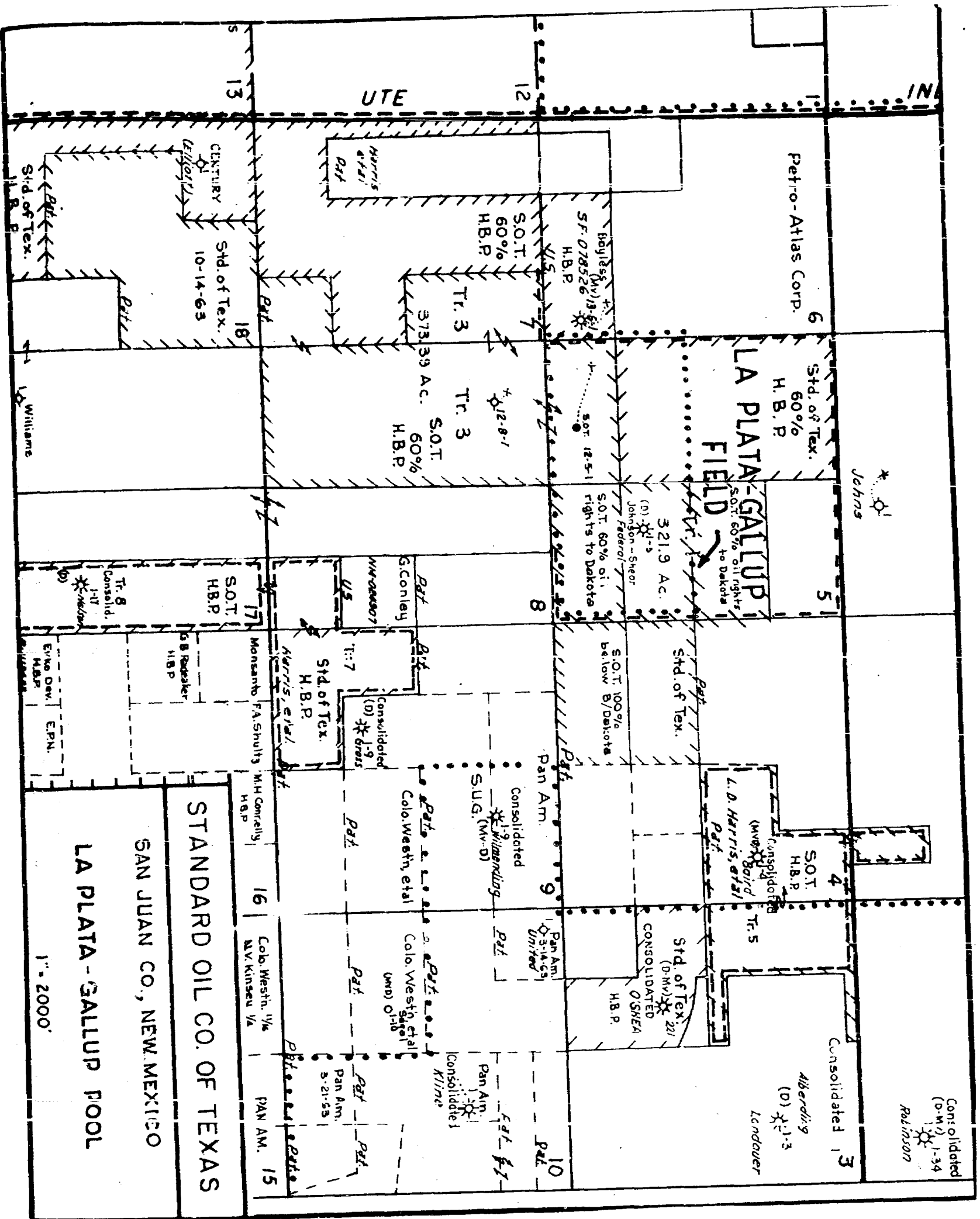


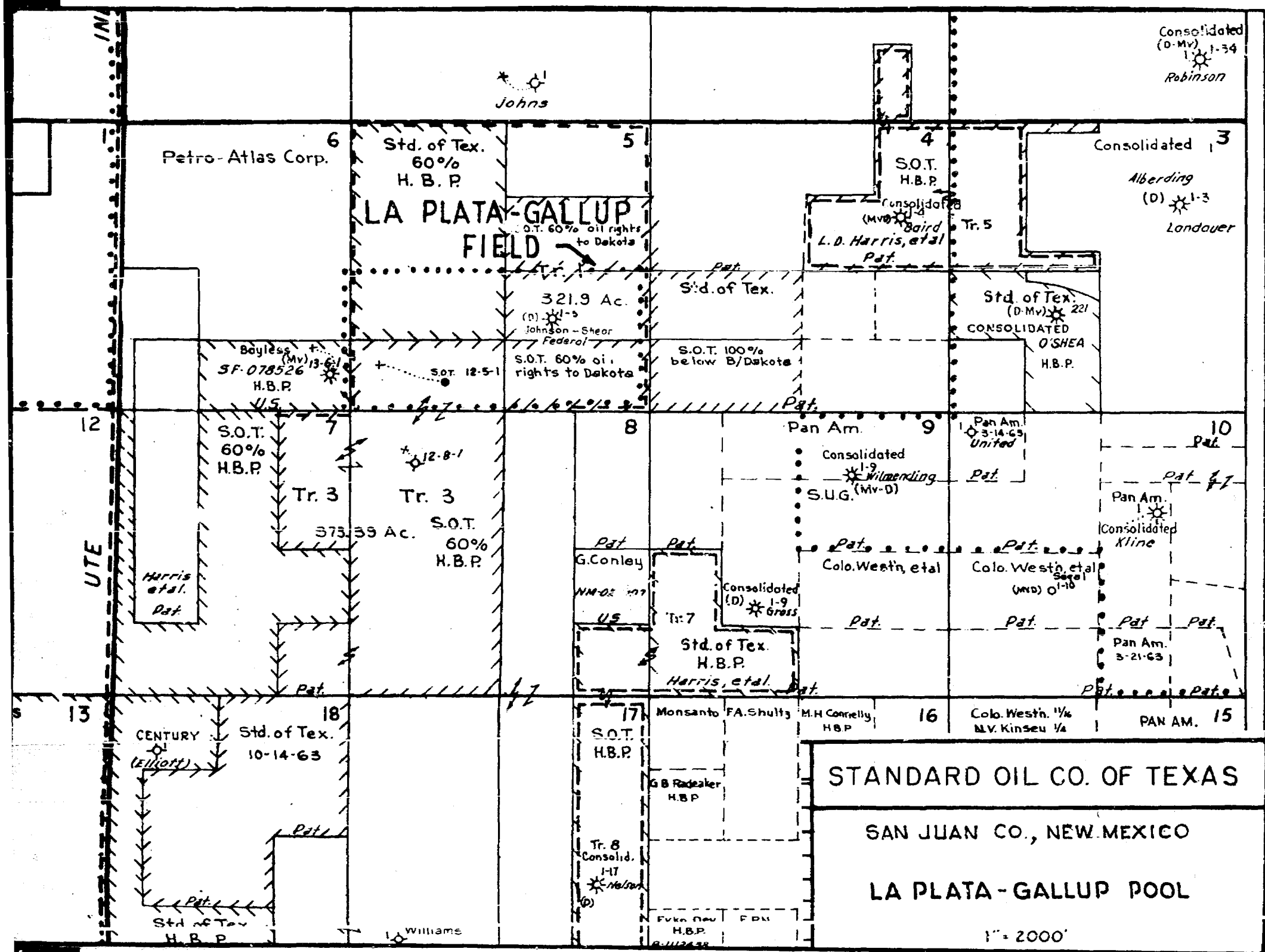
CASE 2857: Application of STANDARD
OIL CO. OF TEXAS for special rules
for BOULDER-MANCOS OIL POOL.

Case No.

2857

Application, Transcript,
Small Exhibits, Etc.







Mobil Oil Company

A Division of Socony Mobil Oil Company, Inc.

10737 SO. SHOEMAKER ROAD, SANTA FE SPRINGS, CALIF.

July 5, 1963

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico

CASE #2857 APPLICATION OF
STANDARD OIL CO. OF TEXAS
FOR SPECIAL FIELD RULES -
BOULDER MANCOS OIL POOL

Gentlemen:

Socony Mobil Oil Company, Inc., an operator in the Boulder Mancos Pool, Rio Arriba County, has reviewed the subject Application scheduled to be heard at the Examiner's Hearing on July 10, 1963.

Please be advised that we are in agreement with this Application and the proposed field rules and respectfully request that Socony Mobil Oil Company be recorded as supporting the Application.

Very truly yours,

SOCONY MOBIL OIL COMPANY, INC.

By H. H. Carrick, Jr.
H. H. Carrick, Jr.
Producing Superintendent
Santa Fe Springs District

FMBurback/rf

cc: Foutz-Bursum
Farmington, New Mexico

P & M Drilling Co.
1004 V & J Tower, Midland, Texas

Skelly Oil Co.
P. O. Box 1650, Tulsa, Oklahoma

Standard Oil Co. of Texas
P. O. Box 1249, Houston - Atten: Mr. R. L. McGannon

Mobil Oil Co. - Durango
Atten: M. J. Meyer

DRAFT

JMD/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 2857

Order No. R- 2543

APPLICATION OF STANDARD OIL COMPANY
OF TEXAS FOR SPECIAL POOL RULES, RIO
ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on
July 10, 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 August day of 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 the applicant, Standard Oil Company of Texas, seeks
the promulgation of special rules and regulations for the Boulder-
Mancos Oil Pool, including a provision for 80-acre spacing units.

(3) That the evidence ^{concerning reservoir characteristics} establishes that the Boulder-Mancos
Oil Pool can be efficiently and economically drained and developed
~~on 80-acre proration units.~~

(4)
That the establishment of 80-acre proration
units for the Boulder-Mancos Oil Pool will
prevent the economic loss caused by the drilling
of unnecessary wells, avoid the augmentation
of risks arising from the drilling of
an excessive number of wells, prevent
reduced recovery which might result
from the drilling of too few wells, and

IT IS THEREFORE ORDERED:

That special rules and regulations for the Boulder-Mancos Oil Pool are hereby promulgated as follows, effective ~~August 1,~~ ^{September 1,} 1963.

SPECIAL RULES AND REGULATIONS
FOR THE
BOULDER-MANCOS OIL POOL

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

RULE 2. Each well completed or recompleted in the Boulder-Mancos Oil Pool shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a single governmental quarter section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

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

RULE 4. Each well projected to or completed in the Boulder-Mancos Oil Pool shall be located within 150 feet of the center of a single governmental quarter-quarter section; provided, however,

that nothing contained herein shall be construed as prohibiting the drilling of a well on each quarter-quarter section in a standard unit.

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

RULE 6. A standard proration unit (79 through 81 acres) in the Boulder-Mancos Oil Pool shall be assigned an 80-acre proportional factor of 2.00 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 the wells on the unit in any proportion.

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

IT IS FURTHER ORDERED:

(1) That any well presently drilling to or completed in the Mancos formation within the Boulder-Mancos Oil Pool or within one mile of the Boulder-Mancos Oil Pool that will not comply with the well location requirements of Rule 4 is hereby granted an exception to the requirements of Rule 4. The operator shall notify the Aztec District Office in writing of the name and location of the well on or before ~~August~~ ^{September} 1, 1963.

(2) That any operator desiring to dedicate 80 acres to a well presently drilling to or completed in the Boulder-Mancos Oil

See under

Rule 7 An 80-acre allowable shall not be assigned to any well in the Boulder-Manitou Oil Pool until a productivity test covering a period of not less than 48 hours has been filed with the ^{on commission form C-116} District Office. At least three days prior to the test the operator shall notify the District Office in writing of the test and commence.

The Commission and all offset operators shall be allowed to test the well during the last 24 hours of the productivity test. The Commission shall determine the productivity of the well for proration purposes.

However, only the uniform rate.

Pool shall file a new Form C-128 with the Commission on or before ~~August 1, 1963~~. *The plat shall be accompanied by*
~~September 1, 1963, in order that the well may be assigned an 89-acre~~
~~allowable on the August preparation schedule.~~ *September 1, 1963, together with a new test within in accordance*
with Rule 7 above if an increase in allowable is sought.

(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.



STANDARD OIL COMPANY OF TEXAS

Drawer "S"
Monahans, Texas
August 29, 1963

File

CASE NO. 2857; ORDER NO. R-2543
SPECIAL POOL RULES-RIO ARriba COUNTY, N.M.
BOULDER-MANCOS OIL POOL

New Mexico Oil Conservation Commission
1000 Rio Brazos Road
Aztec, New Mexico

Gentlemen:

In accordance with Order No. R-2543 to notify the N.M.O.C.C. of name and location of completed wells in the Boulder-Mancos Oil Pool that will not comply with well location requirements of Rule 4, Order No. R-2543, Case No. 2857, the Standard Oil Company of Texas, A Division of California Oil Company respectfully submits the following information:

Well Name: Jicarilla 4-26 No. 1
Well Location: 660' FNL, 330' FWL; Unit D; Section 26; T-28 North,
R-1 West; Rio Arriba County, New Mexico

Well Name: Jicarilla 4-26 No. 2
Well Location: 660' FNL, 2310' FEL; Unit B; Section 26; T-28 North,
R-1 West; Rio Arriba County, New Mexico

Well Name: Jicarilla 4-26 No. 3
Well Location: 2310' FSL, 2310' FEL; Unit J; Section 26; T-28 North,
R-1 West; Rio Arriba County, New Mexico

Well Name: Jicarilla 4-26 No. 4
Well Location: 1785' FNL, 1840' FWL; Unit F; Section 26; T-28 North,
R-1 West; Rio Arriba County, New Mexico

Well Name: Jicarilla 4-26 No. 5
Well Location: 990' FSL, 990' FEL; Unit F; Section 26; T-28 North,
R-1 West; Rio Arriba County, New Mexico

Well Name: Jicarilla 4-26 No. 6
Well Location: 990' FSL, 1980' FWL; Unit N; Section 26; T-28 North,
R-1 West; Rio Arriba County, New Mexico



New Mexico Oil Conservation Commission
Page 2
August 29, 1963

Well Name: Jicarilla 4-35 No. 7
Well Location: 660' FNL, 2310' FEL; Unit B; Section 35; T-28 North,
R-1 West; Rio Arriba County, New Mexico

Yours very truly,

S. J. Mathews, Jr.
S. J. Mathews, Jr. *JB*
District Superintendent

GBV:jd





STANDARD OIL COMPANY OF TEXAS

Drawer "S"
Monahans, Texas
August 29, 1963

*File
Case 2857*

JICARILLA 4-26 WELL NOS. 2, 3 & 4
SECTION 26, T-28N, R-1W
BOULDER-MANCOS POOL
Rio Arriba County, New Mexico

New Mexico Oil Conservation Commission
1000 Rio Brazos Road
Aztec, New Mexico

Gentlemen:

Submitted herewith are Forms C-128 (Plats), C-116 (Productivity Test) and notification letter of well name and location. All forms are in compliance with Order No. R-2543, Case No. 2857, creating Special Pool Rules in the Boulder-Mancos Pool, Rio Arriba County, New Mexico. The Standard Oil Company of Texas, A Division of California Oil Company, respectfully requests that top allowable (base allowable x 2.00) be assigned to the subject wells on the basis of eighty acre dedication to each well.

The C-128 Plats for remainder of wells on Lease 240 are also submitted for eighty acre dedication although they are not capable of top allowable production.

Yours very truly,

S. J. Mathews, Jr.
S. J. Mathews, Jr.
District Superintendent

GBV:jd



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

1201 (4-00)

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

EA038 DC052

1963 JUL 10 AM 9 42

D MDA043 PD=MIDLAND TEX 10 1004A CST=

OIL CONSERVATION COMM=

CAPITOL BLDG SANTA FE NNEX=

ATTN MR D S NUTTER RE CASE #2857

P M DRILLING COMPANY IS OPPOSED TO 80 ACRE PRORATION UNITS IN THE BOULDER MANCOS FIELD HOWEVER IF 80 ACRE UNITS ARE ALLOWED, WE WOULD LIKE TO RECOMMEND THAT EACH WELL BE TESTED A MINIMUM OF 48 HOURS USING LAST 24 HOURS FOR POTENTIAL. THESE TESTS TO BE WITNESSED BY OFFSET OPERATORS IF THEY SO DESIRE. THANK YOU FOR CONSIDERING THIS POSSIBILITY BEFORE APPLYING ANY NEW FIELD RULES TO THE ABOVE=

P M DRILLING CO=

SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

August 27, 1963

C
O
P
Y

Mr. Billy Moore
P M Drilling Company
1004 V & J Tower Building
Midland, Texas

Dear Sir:

With further reference to your telephone conversation with my secretary Mrs. Rodriguez, we are enclosing a copy of the order entered in Case No. 2857.

I regret very much that you were displeased because you did not receive a copy of the original order.

In explanation, our procedure is to mail copies of the original order only to those people or companies who make appearances at the hearing who, because of their interest, request that copies be sent to them. In your case, although you sent a telegram, you did not make an appearance nor did we have a request for a copy of this order from you. If you are on our regular mailing list you will receive a copy of the order within a few days when it is printed for general distribution.

I am giving you this explanation to familiarize you with our procedures so that there will be no misunderstandings in the future.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir
Enclosure

**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. 2857
Order No. R-2543

**APPLICATION OF STANDARD OIL COMPANY
OF TEXAS FOR SPECIAL POOL RULES, RIO
ARriba COUNTY, NEW MEXICO.**

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on July 10, 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 9th day of August, 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 the applicant, Standard Oil Company of Texas, seeks the promulgation of special rules and regulations for the Boulder-Mancos Oil Pool, including a provision for 80-acre spacing units.
- (3) That the evidence concerning reservoir characteristics establishes that the Boulder-Mancos Oil Pool can be efficiently and economically drained and developed on 80-acre proration units.
- (4) That the establishment of 80-acre proration units for the Boulder-Mancos Oil Pool will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risks arising from the drilling of an excessive number of wells, prevent reduced recovery which might result from the drilling of too few wells, and will otherwise prevent waste and protect correlative rights.

CASE No. 2857
Order No. R-2543

IT IS THEREFORE ORDERED:

That special rules and regulations for the Boulder-Mancos Oil Pool are hereby promulgated as follows, effective September 1, 1963.

SPECIAL RULES AND REGULATIONS
FOR THE
BOULDER-MANCOS OIL POOL

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

RULE 2. Each well completed or recompleted in the Boulder-Mancos Oil Pool shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a single governmental quarter section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

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

RULE 4. Each well projected to or completed in the Boulder-Mancos Oil Pool shall be located within 150 feet of the center of a single governmental quarter-quarter section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each quarter-quarter section in a standard unit.

RULE 5. The Secretary-Director may grant an exception to the requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed unorthodox location shall be notified of the application

-3-

CASE No. 2857
Order No. R-2543

by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the unorthodox location within 20 days after the Secretary-Director has received the application.

RULE 6. A standard proration unit (79 through 81 acres) in the Boulder-Mancoas Oil Pool shall be assigned an 80-acre proportional factor of 2.00 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 the wells on the unit in any proportion.

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

RULE 7. An 80-acre allowable shall not be assigned to any well in the Boulder-Mancoas Oil Pool until a productivity test covering a period of not less than 48 hours has been filed on Commission Form C-116 with the Aztec District Office of the Commission. At least three days prior to the test the operator shall notify the Aztec District Office and all offset operators in writing of the date and time the test will commence. The Commission and all offset operators shall be allowed to witness the test. During the 48 hours of the productivity test, the well shall be produced at a constant and uniform rate. However, only the last 24 hours of the test period shall determine the productivity of the well for proration purposes.

IT IS FURTHER ORDERED:

(1) That any well presently drilling to or completed in the Mancoas formation within the Boulder-Mancoas Oil Pool or within one mile of the Boulder-Mancoas Oil Pool that will not comply with the well location requirements of Rule 4 is hereby granted an exception to the requirements of Rule 4. The operator shall notify the Aztec District Office in writing of the name and location of the well on or before September 1, 1963.

(2) That any operator desiring to dedicate 80 acres to a well presently drilling to or completed in the Boulder-Mancoas Oil Pool shall file a new Form C-128 with the Commission on or before September 1, 1963. The plat shall be accompanied by a new test taken in accordance with Rule 7 above if an increase in allowable is sought.

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

-4-
CASE NO. 2857
Order No. R-2543

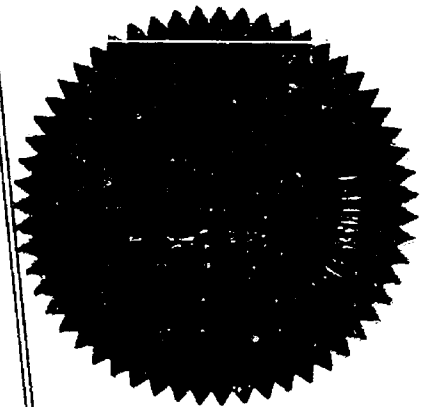
DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

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



est/

State of New Mexico
Oil Conservation Commission



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

August 9, 1963

Re: Case No. 2857
Order No. R-2543
Applicant:
Standard Oil Company of Texas

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

A. L. Porter, Jr.

OTHER: _____

County, New Mexico, including the conversion of additional wells to water injection.

CASE 2854: Application of Pan American Petroleum Corporation for an unorthodox location and a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its SMU Well No. 15 to produce oil from the Fowler-Blinebry and Fowler-Ellenburger Pools through parallel strings of tubing, said well to be at an unorthodox location for the Fowler-Ellenburger Pool at a point 660 feet from the North and East lines of Section 22, Township 24 South, Range 37 East, Lea County, New Mexico.

CASE 2855: Application of Pan American Petroleum Corporation for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its SMU Well No. 1 located in Unit J of Section 15, Township 24 South, Range 37 East, Lea County, New Mexico, to produce oil from the Fowler-Blinebry and Fowler-Ellenburger Pools through parallel strings of tubing.

CASE 2856: Application of Socony Mobil Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its State Bridges No. 97 well located in Unit O of Section 26, Township 17 South, Range 34 East, Lea County, New Mexico, to produce oil from the Blinebry and Glorieta formations, Vacuum Field, through parallel strings of 1.61 inch I.D. tubing.

CASE 2575: (Reopened)
In the matter of Case No. 2575 being reopened pursuant to the provisions of Order No. R-2267, which order established temporary 80-acre oil proration units and 320-acre gas proration units for the Lybrook-Gallup Pool, Rio Arriba 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 160-acre gas and 40-acre oil spacing.

CASE 2857: Application of Standard Oil Company of Texas for special pool rules, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the establishment of special pool rules for the Boulder-Mancos Oil Pool, Rio Arriba County, New Mexico, including provisions for 80-acre spacing therein.

CASE 2858: Application of Standard Oil Company of Texas for special pool rules, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the establishment of special pool rules for the La Plata-Gallup Oil Pool, San Juan County, New Mexico, including provisions for 80-acre spacing therein.

igg/

DOCKET: EXAMINER HEARING - WEDNESDAY - JULY 10, 1963

9 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 2848: Application of Skelly Oil Company for a unit agreement, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of its East Bisti Unit Area comprising 17,812 acres of Federal, State and Indian lands in Townships 24 and 25 North, Ranges 9, 10, and 11 West, San Juan County, New Mexico.
- CASE 2849: Application of Skelly Oil Company for a waterflood project, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Bisti Lower-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup formation through 34 wells in its East Bisti Unit Area.
- CASE 2850: Application of Shell Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the East Pearl-Queen Unit Area comprising 2440 acres of State and Fee lands in Township 19 South, Range 35 East, Lea County, New Mexico.
- CASE 2851: Application of Shell Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its East Pearl Queen Unit by the injection of water into the Queen formation through 29 wells in Sections 15, 21, 22, 26, 27, 34 and 35, Township 19 South, Range 35 East, Lea County, New Mexico.
- CASE 2852: Application of Amerada Petroleum Corporation for a triple completion and for commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the triple completion (combination) of its State NJ "A" Well No. 1 located in Unit A of Section 2, Township 25 South, Range 37 East, North Justis Field, Lea County, New Mexico, to produce oil from the McKee and Ellenburger zones through 1- $\frac{1}{2}$ inch tubing inside parallel strings of 3- $\frac{1}{2}$ inch casing and from the Montoya zone through 1- $\frac{1}{4}$ inch tubing inside 2- $\frac{7}{8}$ inch casing, all casing strings to be cemented in a common well bore. Applicant further seeks to add the Montoya zone to the commingling authority previously granted by Administrative Order No. FC-24.
- CASE 2853: Application of Humble Oil & Refining Company for an amendment to Order No. R-2154, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of the expansion of its Cha Cha-Gallup Pressure Maintenance Project, San Juan

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

APPLICATION OF STANDARD OIL COMPANY OF
TEXAS, A DIVISION OF CALIFORNIA OIL
COMPANY, FOR AN ORDER ESTABLISHING 80-ACRE
PRORATION UNITS FOR THE BOULDER-MANCOS
POOL, RIO ARriba COUNTY, NEW MEXICO

Case No. 2857

APPLICATION

Comes now Standard Oil Company of Texas, a Division of California Oil Company, and applies to the Oil Conservation Commission of the State of New Mexico for an order to provide for establishment of 80-acre proration units, the units to consist of adjacent quarter-quarter sections of a single governmental quarter section with wells to be located within 200 feet of the center of either quarter-quarter section of the unit, and for such other and further orders as the Commission may deem proper.

In support of this application, the applicant would show the Commission:

1. The applicant has oil and gas leases in Sections 15, 22, and 26, Township 28 North, Range 1 West, Rio Arriba County, within the designated boundaries of the Boulder-Mancos Pool.
2. That the applicant is the operator of five of the twenty-two wells presently completed in the Boulder-Mancos Pool.
3. That on the basis of information presently available, it is believed that an 80-acre proration unit can be efficiently and economically drained and developed by one well, and the establishment of 80-acre proration units is in the interest of conservation, would prevent economic loss caused by the drilling of unnecessary wells, would prevent waste, would avoid risks arising from the drilling of an excessive number of wells, and would protect correlative rights.

WHEREFORE, the applicant requests that this application be set for hearing and that after notice and hearing as provided by law the Commission enter its order establishing 80-acre proration units for the Boulder-Mancos Pool, Rio Arriba County, New Mexico, and such other and further orders as may be proper.

Respectfully submitted,

STANDARD OIL COMPANY OF TEXAS
A DIVISION OF CALIFORNIA OIL COMPANY

By

R. L. McGannon
R. L. McGannon, Attorney

PROPOSED RULES
BOULDER-MANCOS POOL
RIO ARriba COUNTY, NEW MEXICO

RULE 1. Each well completed in the Boulder-Mancos Pool or in the Mancos formation within one mile of the Boulder-Mancos Pool and not nearer to nor within the limits of another designated Mancos pool shall be spaced, drilled, operated, and prorated in accordance with the rules hereinafter set forth.

RULE 2. Each well completed or recompleted in the Boulder-Mancos Pool shall be located on a unit containing 80 acres, more or less, which consists of any two contiguous quarter-quarter sections of a single governmental quarter section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

RULE 3. All wells projected to or completed in the Boulder-Mancos Pool shall be located within 200 feet of the center of either quarter-quarter section in the unit.

RULE 4. For good cause shown, the Secretary-Director may grant an exception to Rule 2 without notice and hearing where an application has been filed in due form and where:

1. The non-standard unit consists of a single quarter-quarter section or lot.
2. The non-standard unit may be reasonably presumed productive.
3. The applicant presents waivers from all offset operators, or proof of notification of offset operators (in which case 20 days delay required).

RULE 5. For topographic reasons, the Secretary-Director may grant an exception to Rule 3 without notice and hearing upon presentation of waivers or proof of notification (after 20 days delay).

RULE 6. The allowable assigned to any non-standard proration unit shall bear the same ratio to a standard allowable in the Boulder-Mancos Pool as the acreage in the non-standard unit bears to 80 acres.

RULE 7. An 80-acre proration unit (79 through 81 acres) shall be assigned an 80-acre proportional factor of 2.0 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.

RULE 8. All wells completed in or drilling to the Boulder-Mancos Pool at the time this order becomes effective are hereby granted exception to Rule 3.

EXHIBIT NO. 5

GENERAL RESERVOIR DATA
BOULDER-MANCOS POOL
RIO ARriba COUNTY, NEW MEXICO

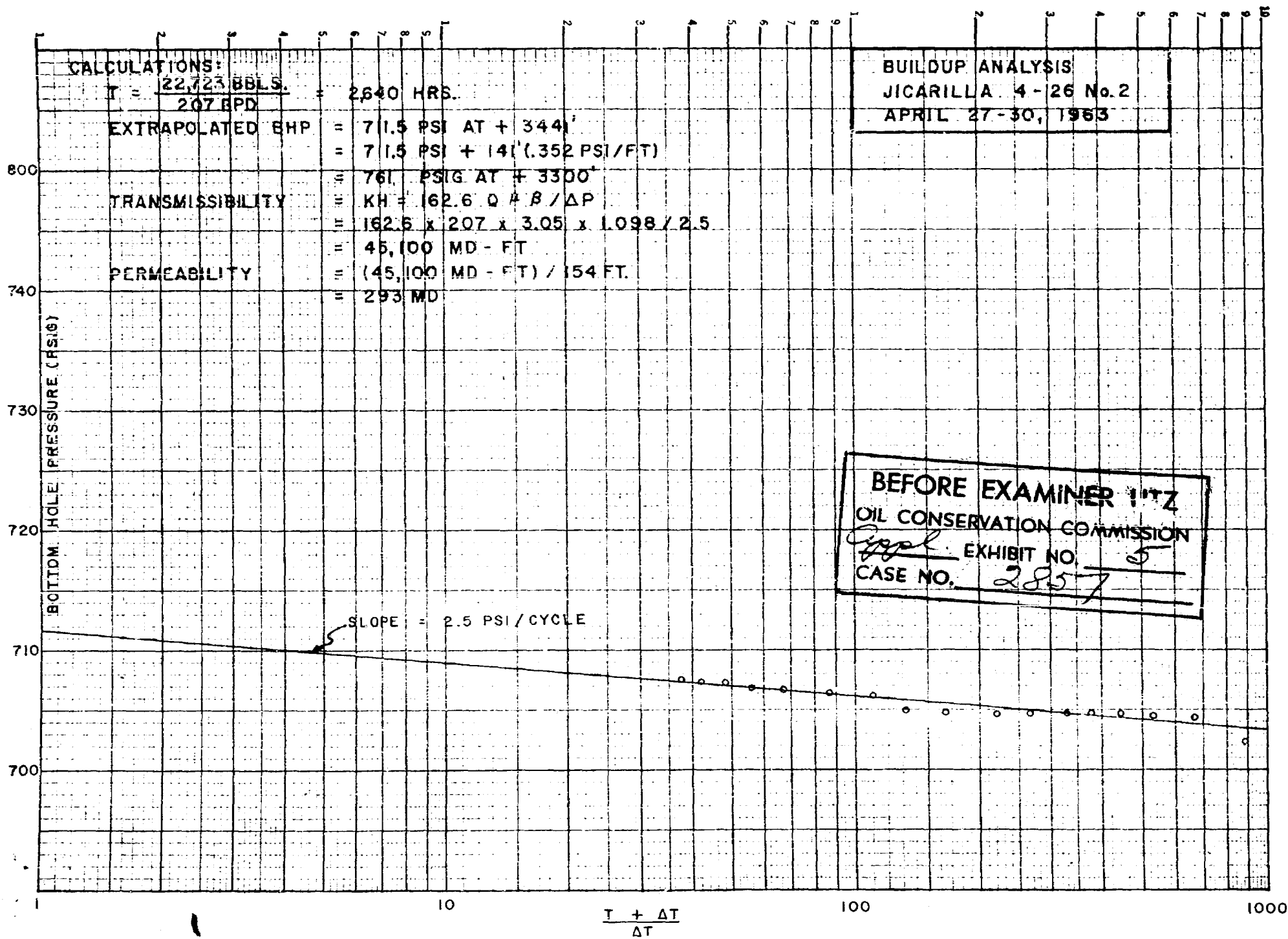
Reservoir:	Mancos formation
Type of Pay:	Fractured shale
Type of Structure:	Monocline
Type of Drive:	Liquid expansion, solution gas, and gravity
Number of Wells:	22 (June 1963)
Average Depth of Pay:	4,000'
Original FVF:	1.098
First BHP:	879 psig (10-1-62) @ +3,300'
Last BHP:	764 psig (4-30-63) @ +3,300'
Saturation Pressure:	802 psi
Reservoir Temperature:	141° F.
Gravity of Oil:	32° API
Specific Gravity of Gas:	0.885 @ Trap
Oil Viscosity in Reservoir:	3.05 cp above BP
Original Solution GOR:	138 cfpb
Average Producing GOR:	374 cfpb (February 1963)
Cumulative Production (Sotex Five Wells):	50,714 Barrels, 21,000 MCF (April 30, 1963)
Calculated Transmissibility:	31,800 md-ft. (average of three wells)
Calculated Permeability to Oil:	202 md. (average of three wells)

BEFORE EXAMINER UTZ

OIL CONSERVATION COMMISSION

Appel EXHIBIT NO. 5

CASE NO. 28-57



CALCULATIONS:

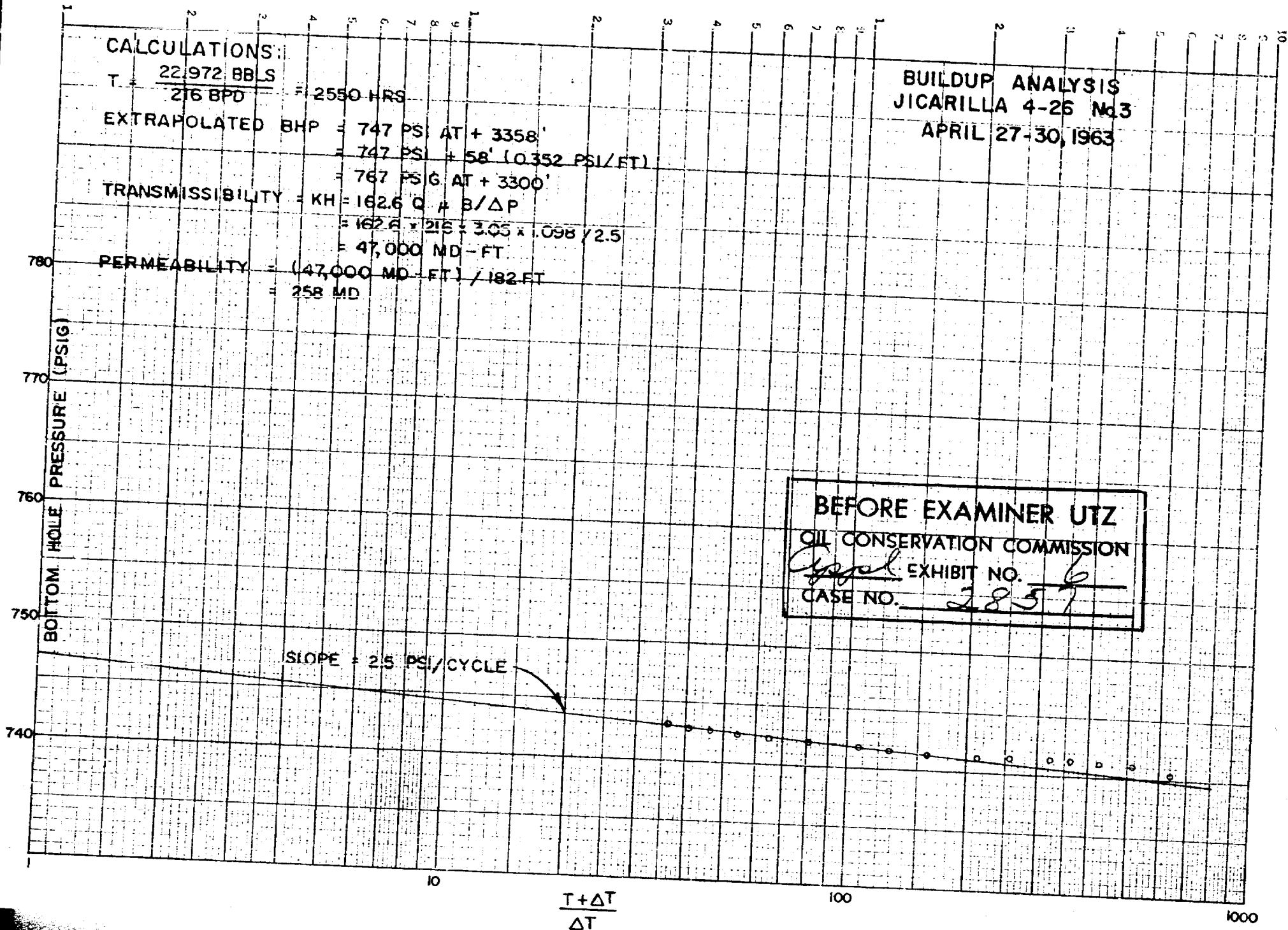
$T = \frac{22,972 \text{ BBLS}}{216 \text{ BPD}} = 2550 \text{ HRS}$

EXTRAPOLATED BHP = 747 PSI AT + 3358'
 = 747 PSI + 58' (0.352 PSI/FT)
 = 767 PSI AT + 3300'

TRANSMISSIBILITY = $KH = 162.6 Q \mu B / \Delta P$
 = $162.6 \times 216 \times 3.05 \times 1.098 / 2.5$
 = 47,000 MD-FT

PERMEABILITY = $(47,000 \text{ MD-FT}) / 182 \text{ FT}$
 = 258 MD

BUILDUP ANALYSIS
JICARILLA 4-26 No.3
APRIL 27-30, 1963



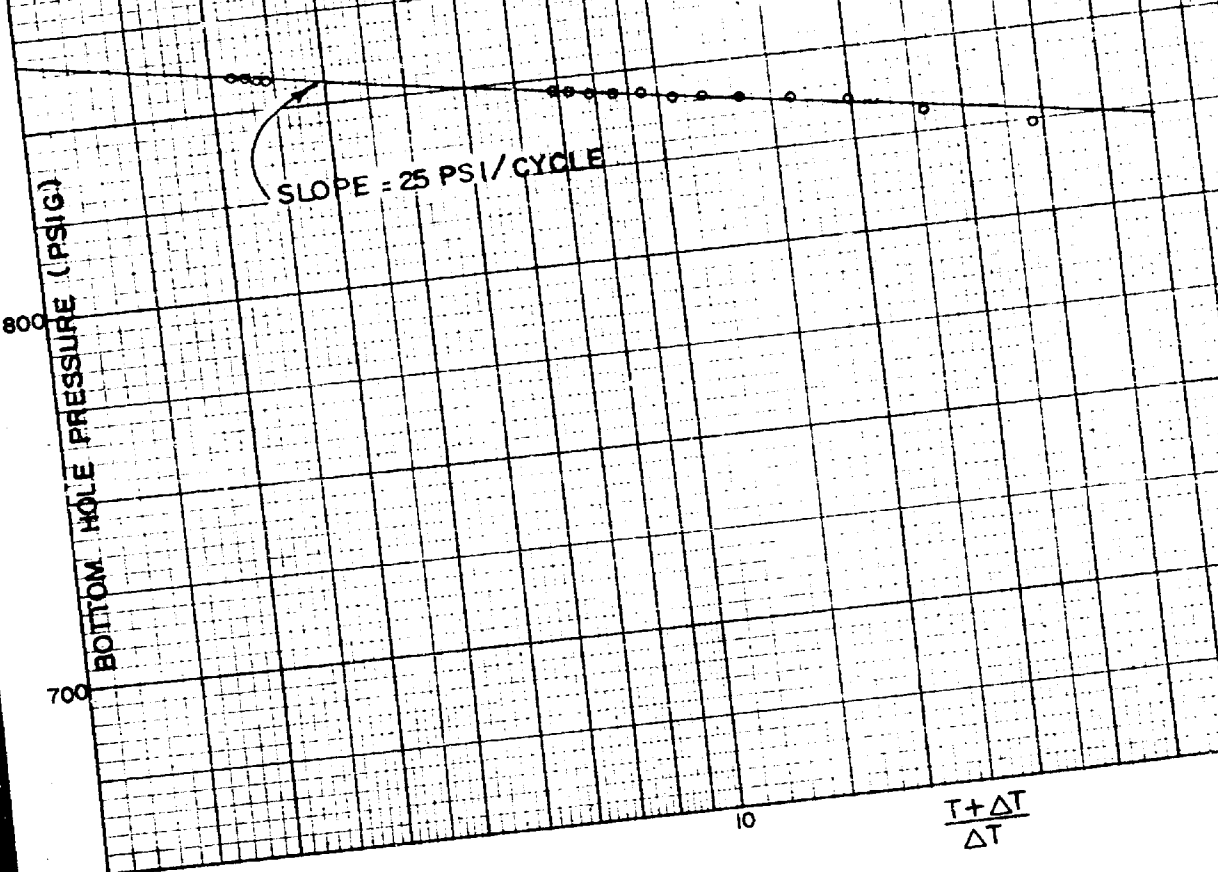
BUILDUP ANALYSIS
 JICARILLA 4-25 No4
 JAN. 1-16, 1963

CALCULATIONS:

$T = \frac{2872 \text{ BBLS}}{153 \text{ BPD}} = 45 \text{ HRS}$
 EXTRAPOLATED BHP = 868 PSI AT + 3133'
 = 868 PSI - 167' (0.380 PSI/FT)
 = 808 PSI AT + 3300'

TRANSMISSIBILITY = $KH = 62.6 Q \mu B / \Delta P$
 = $62.6 \times 153 \times 3.05 \times 1.098 / 25$
 = 3,300 MD-FT

PERMEABILITY = $(3300 \text{ MD-FT}) / 62 \text{ FT}$
 = 54 MD



BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
Angel EXHIBIT NO. 2857
 CASE NO. 2857

EXHIBIT NO. 11
 ECONOMICS OF 80-ACRE V. 40-ACRE SPACING
 BOULDER-MANCOS POOL.
 RIO ARRIBA COUNTY, NEW MEXICO

Consider the 400 acres comprising the NW/4, S/2 of NE/4, E/2 of SW/4, and W/2 of SE/4 of Section 26 (outlined in red on Exhibit No. 2). This area has been developed with five wells on 80-acre spacing. The following comparison shows the economics of developing this acreage on 80-acre spacing (Case I) and the economics of developing the same area on 40-acre spacing (Case II):

Case I: 80-Acre Spacing

Assumptions

Development Costs: \$394,091 (actual cost of the five wells)
 Ultimate Recovery: 319,500 barrels (calculated from pressure decline)
 Production Rate: Top Allowable 140 BOPD. Initial rate 143,445 barrels/year, declining 50% per year until reserves produced
 Crude Price: \$2.22/Barrel after trucking
 Operating Cost: \$10/Well-Day (maximum of five wells)

Case II: 40-Acre Spacing

Assumptions

Development Costs: \$788,182 (twice the cost of 80-acre development)
 Ultimate Recovery: 319,500 Barrels (same as 80-acre development)
 Production Rate: Top Allowable 70 BOPD. Initial rate 123,187 barrels/year, declining 25% first year, 50% thereafter
 Crude Price: \$2.22/Barrel after trucking
 Operating Cost: \$10/Well-Day (maximum of 10 wells)

Resulting Economics (Calculations Attached)

	Case I (80-Acre Spacing)	Case II (40-Acre Spacing)
Payout (Years)	2.183	None
Rate of Return (%)	38.119	None
Net Profit or (Loss)	\$123,611	(\$122,624)
Net Investment	\$225,647	\$451,294
Profit-to-Investment Ratio	0.548	(0.272)



EXHIBIT 12
BOULDER-MANCOS POOL
80-ACRE ECONOMICS

IPROG-PPEVAL NO-70310 DATE-06/14/63

YEAR	1	2	3	4	5	6
INVESTMENT						
TANGIBLES	87829.	0.	0.	0.	0.	0.
INTANGIBLES	3,6262.	0.	0.	0.	0.	0.
TOTAL INVESTMENT	394091.	0.	0.	0.	0.	0.
TAX CREDIT ON INTANGIBLES	168444.	0.	0.	0.	0.	0.
NET INVESTMENT	225647.	0.	0.	0.	0.	0.
PRODUCTION						
OIL IN BBL'S	38962.	125514.	62757.	31378.	15689.	5262.
GAS IN MCF	0.	0.	0.	0.	0.	0.
W I INCOME						
OIL	86496.	278642.	139320.	69660.	34829.	11682.
GAS	0.	0.	0.	0.	0.	0.
TOTAL W I INCOME	86496.	278642.	139320.	69660.	34829.	11682.
PRODUCTION AND PROPERTY TAXES						
ON OIL	5844.	18827.	9414.	4707.	2353.	789.
ON GAS	0.	0.	0.	0.	0.	0.
TOTAL PRD. AND PRCP. TAXES	5844.	18827.	9414.	4707.	2353.	789.
OPERATING COSTS						
ANNUAL WELL OPERATING COSTS	1095.	18250.	18250.	14600.	10950.	10950.
COMP. EQUIP. OR PLANT COSTS	0.	0.	0.	0.	0.	0.
TOTAL OPERATING COSTS	1095.	18250.	18250.	14600.	10950.	10950.
NET INCOME BEFORE INCOME TAX	69701.	241565.	111656.	50353.	21526.	-57.
DEPRECIATION	12241.	39432.	19716.	9858.	4929.	1653.
DEPLETION	0.	76627.	38313.	19156.	8298.	0.
TAXABLE INCOME	57461.	125506.	53627.	21339.	8298.	-1710.
INCOME TAX	31603.	69028.	29495.	11736.	4564.	-941.
NET CASH EARNINGS	38098.	172537.	82161.	38617.	16962.	884.
CUMULATIVE NET CASH EARNINGS	38098.	210634.	292796.	331413.	348374.	349258.

NET PROFIT -187549. 172537. 82161. 38617. 16962. 884.
CUMULATIVE NET PROFIT -187549. -15013. 67149. 105766. 122727. 123611.
IPROG-PPEVAL NO-70310 DATE-06/14/63

BEFORE EXAMINER UZ
OIL CONSERVATION COMMISSION
CASE NO. 123611
EXHIBIT NO. 12

NET CASH EARNINGS
CUMULATIVE NET CASH EARNINGS

NET PROFIT -187549. 172537. 82161. 38617. 16962. 884.
CUMULATIVE NET PROFIT -187549. -15013. 67149. 105766. 122727. 123611.
1PRDG-PPEVAL NG-70311 DATE-06/14/63

TOTALS

PROFIT TO INVESTMENT RATIO, 0.548
PAYOUT PERIOD IN YEARS 2.163
RATE OF RETURN IN PER CENT 38.119

INVESTMENT
TANGIBLES 87829.
INTANGIBLES 3,6262.
TOTAL INVESTMENT 394,091.

TAX CREDIT ON INTANGIBLES 168444.
NET INVESTMENT 225647.

NET PRODUCTION
OIL IN EBLS 279562.
GAS IN MCF 3.

NET INCOME
OIL 620629.
GAS 0.
TOTAL NET INCOME 620629.

PRODUCTION AND PROPERTY TAXES
ON OIL 41934.
ON GAS 0.
TOTAL PROD AND PROP TAXES 41934.

OPERATING COSTS
ANNUAL WELL OPERATING COSTS 83950.
COMP, EQUIP, OR PLANT COSTS 0.
TOTAL OPERATING COSTS 83950.

NET INCOME BEFORE INCOME TAX 434744.
DEPRECIATION 87829.
DEPLETION 142394.
TAXABLE INCOME 264521.
INCOME TAX 145486.

NET CASH EARNINGS 349258.
CUMULATIVE NET CASH EARNINGS 349258.
NET PROFIT 123611.
CUMULATIVE NET PROFIT 123611.

[illegible]

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11-PROG-PREVAL NO-7031C JOB NO-PUB 94 REQ BY-CAMERON
BOULDER-MANCOS SECTION 26P, 40-ACRE SPACING

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 11
CASE NO. 285-7

TOTAL W I INCOME

86496. 239291. 179468.

PRODUCTION AND PROPERTY TAXES

ON OIL
ON GAS

5844.	16168.	12126.	6063.	1733.
0.	0.	0.	0.	0.

TOTAL PROD AND PROP TAXES

5844.	16168.	12126.	6063.	1733.
-------	--------	--------	-------	-------

OPERATING COSTS

ANNUAL WELL OPERATING COSTS
COMP, EQUIP, OR PLANT COSTS
TOTAL OPERATING COSTS

10950.	27375.	36500.	29200.	21900.
0.	0.	0.	0.	0.
10950.	27375.	36500.	29200.	21900.

NET INCOME BEFORE INCOME TAX
DEPRECIATION
DEPLETION
TAXABLE INCOME
INCOME TAX

69701.	195747.	130841.	54471.	2009.
12241.	73211.	54908.	27454.	7845.
0.	0.	37967.	13508.	0.
57461.	122537.	37967.	13508.	-5836.
31603.	67395.	20882.	7430.	-3210.

NET CASH EARNINGS
CUMULATIVE NET CASH EARNINGS
NET PROFIT
CUMULATIVE NET PROFIT
1PROG-PEPEVAL NO-70310 JOB NO-PUB 94 REQ BY-CAMERON
BOULDER-MANCOS XSECTION 26D, 40-ACRE SPACING

38098.	128352.	109960.	47041.	5218.
38098.	166450.	276410.	323451.	328669.
-187549.	-97295.	109960.	47041.	5218.
-187549.	-284844.	-174884.	-127843.	-122624.

TOTALS

PROFIT TO INVESTMENT RATIO, -0.272
PAYOUT PERIOD IN YEARS 0.000
RATE OF RETURN IN PER CENT 0.000

INVESTMENT

TANGIBLES
INTANGIBLES

175658.	612524.
---------	---------

TOTAL INVESTMENT

788182.

TAX CREDIT ON INTANGIBLES

336888.

NET INVESTMENT

451294.

W I PRODUCTION

OIL IN 8BLS
GAS IN MCF

279562.	0.
---------	----

W I INCOME

OIL
GAS

620629.	620629.
---------	---------

TOTAL W I INCOME

620629.

PRODUCTION AND PROPERTY TAXES

ON OIL
ON GAS

41934.	0.
--------	----

TOTAL PROD AND PROP TAXES

41934.

OPERATING COSTS

ANNUAL WELL OPERATING COSTS
COMP, EQUIP, OR PLANT COSTS

125925.	0.
---------	----

TOTAL OPERATING COSTS

125925.

0.000
0.000
-0.202

175658.
612524.

$$\begin{array}{r} 612574. \\ \hline 788132. \end{array}$$

3368138.
451294.

07020

279562.
3.

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[illegible]

1037

41934.

419.34.

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125925.

1259.25.

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175658.
51475.

225636.
124155.

3286159.

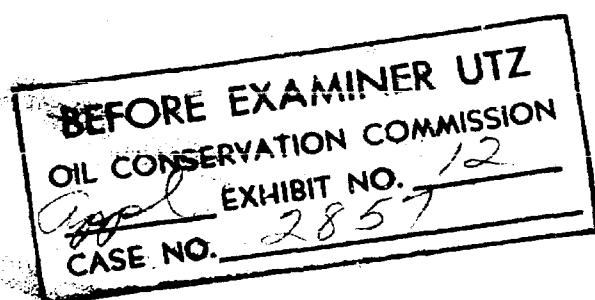
328659.
-122624.

-122624.

PRODUCTION TESTS

BOULDER-MANCOS POOL

<u>Well</u>	<u>Test Date</u>	<u>Production (24 Hr.)</u>
Jicarilla 4-26 No. 2	6-20-63	143 BO, 0 BW
Jicarilla 4-26 No. 3	6-21-63	145 BO, 0 BW
Jicarilla 4-26 No. 4	6-18-63	151 BO, 5 $\frac{1}{2}$ BW



PROPOSED RULES
BOULDER-MANCOS POOL
RIO ARriba COUNTY, NEW MEXICO

RULE 1. Each well completed in the Boulder-Mancos Pool or in the Mancos formation within one mile of the Boulder-Mancos Pool and not nearer to nor within the limits of another designated Mancos pool shall be spaced, drilled, operated, and prorated in accordance with the rules hereinafter set forth.

RULE 2. Each well completed or recompleted in the Boulder-Mancos Pool shall be located on a unit containing 80 acres, more or less, which consists of any two contiguous quarter-quarter sections of a single governmental quarter section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

RULE 3. All wells projected to or completed in the Boulder-Mancos Pool shall be located within 200 feet of the center of either quarter-quarter section in the unit.

RULE 4. For good cause shown, the Secretary-Director may grant an exception to Rule 2 without notice and hearing where an application has been filed in due form and where:

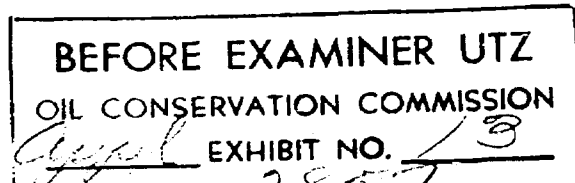
1. The non-standard unit consists of a single quarter-quarter section or lot.
2. The non-standard unit may be reasonably presumed productive.
3. The applicant presents waivers from all offset operators, or proof of notification of offset operators (in which case 20 days delay required).

RULE 5. For topographic reasons, the Secretary-Director may grant an exception to Rule 3 without notice and hearing upon presentation of waivers or proof of notification (after 20 days delay).

RULE 6. The allowable assigned to any non-standard proration unit shall bear the same ratio to a standard allowable in the Boulder-Mancos Pool as the acreage in the non-standard unit bears to 80 acres.

RULE 7. An 80-acre proration unit (79 through 81 acres) shall be assigned an 80-acre proportional factor of 2.0 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.

RULE 8. All wells completed in or drilling to the Boulder-Mancos Pool at the time this order becomes effective are hereby granted exception to Rule 3.



PRODUCTION TESTS
BOULDER-MANCOS POOL

<u>Well</u>	<u>Test Date</u>	<u>Production</u> <u>(24 Hr.)</u>
Jicarilla 4-26 No. 2	6-20-63	143 BO, 0 BW
Jicarilla 4-26 No. 3	6-21-63	145 BO, 0 BW
Jicarilla 4-26 No. 4	6-18-63	151 BO, 5½ BW

EXHIBIT NO. 11

ECONOMICS OF 80-ACRE V. 40-ACRE SPACING SOUTHERN-PACIFIC TRACT RIO ARriba COUNTY, NEW MEXICO

Consider the 400 acres comprising the NW/4, S/2 of NE/4, E/2 of SW/4, and W/2 of SE/4 of Section 26 (outlined in red on Exhibit No. 2). This area has been developed with five wells on 80-acre spacing. The following comparison shows the economics of developing this acreage on 80-acre spacing (Case I) and the economics of developing the same area on 40-acre spacing (Case II):

Case I: 80-Acre Spacing

Assumptions

Development Costs: \$394,091 (actual cost of the five wells)
 Ultimate Recovery: 319,500 barrels (calculated from pressure decline)
 Production Rate: Top Allowable 140 BOPD. Initial rate 143,445 barrels/year, declining 50% per year until reserves produced
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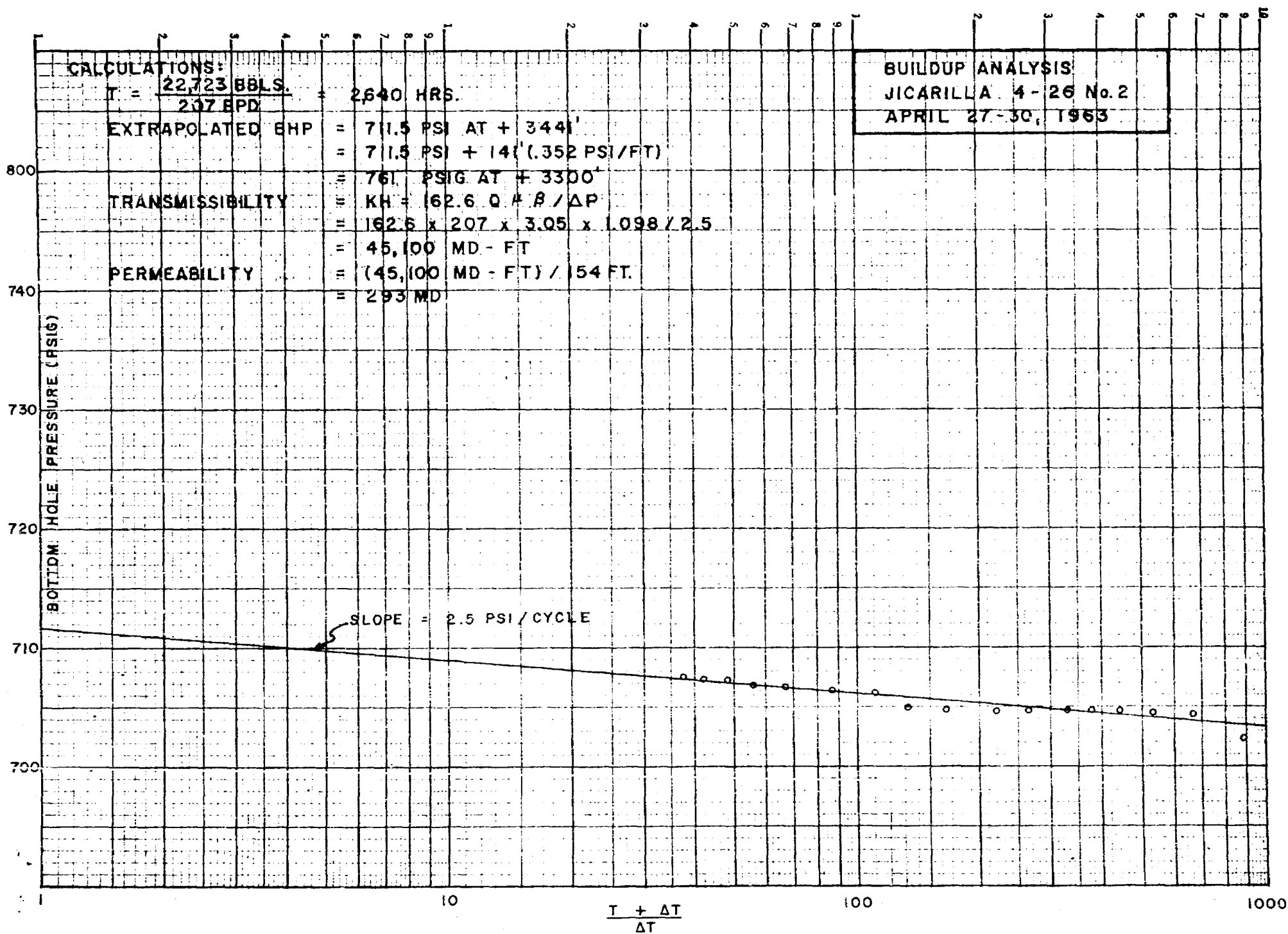
Case II: 40-Acre Spacing

Assumptions

Development Costs: \$788,182 (twice the cost of 80-acre development)
 Ultimate Recovery: 319,500 Barrels (same as 80-acre development)
 Production Rate: Top Allowable 70 BOPD. Initial rate 123,187 barrels/year, declining 25% first year, 50% thereafter
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 Operating Cost: \$10/Well-Day (maximum of 10 wells)

Resulting Economics (Calculations Attached)

	Case I (80-Acre Spacing)	Case II (40-Acre Spacing)
Payout (Years)	2.183	None
Rate of Return (%)	38.119	None
Net Profit or (Loss)	\$123,611	(\$122,624)
Net Investment	\$225,647	\$451,294
Profit-to-Investment Ratio	0.548	(0.272)



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
July 10, 1963

EXAMINER HEARING

IN THE MATTER OF:

Application of Standard Oil Company of Texas
for special pool rules, Rio Arriba County,
New Mexico. Applicant, in the above-styled
cause, seeks the establishment of special
pool rules for the Boulder-Mancos Oil Pool,
Rio Arriba County, New Mexico, including pro-
visions for 80-acre spacing therein.

CASE 2857

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The hearing will come to order. Case No.
2857.

MR. DURRETT: Application of Standard Oil Company of
Texas for special pool rules, Rio Arriba County, New Mexico.

MR. KELLAHIN: Jason Kellahin, Kellahin and Fox, Santa
Fe, representing the Applicant, in association with Mr. Dick
McGannon of the Texas Bar. We have two witnesses I would like
to have sworn.

(Witnesses sworn.)

(Whereupon, Standard Exhibits
Nos. 1 through 13 marked for
identification.)

ROBERT MURPHY

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

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PHONE 243-6691



DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A Robert Murphy.

Q By whom are you employed and in what position, Mr. Murphy?

A Standard Oil Company of Texas, as geologist.

Q Have you ever testified before the Oil Conservation Commission of New Mexico?

A I have.

Q And your qualifications have been made a matter of record?

A Yes, sir.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. UTZ: Yes, sir, they are.

Q (By Mr. Kellahin) Are you familiar with the area involved in the application of Standard Oil Company of Texas in Case 2857?

A I am.

Q Did it come under your jurisdiction as geologist?

A Yes.

Q Are you familiar with the application in this case?

A Yes, sir.

Q Would you state briefly what is proposed here?

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A Standard is attempting to establish 80-acre spacing in this pool.

Q Have you made a study of this pool from a geological point of view?

A I have.

Q Referring to what has been marked as Exhibit No. 1, would you identify that exhibit and discuss the information shown on it?

A Yes, sir. Exhibit No. 1 is a structure map of the Boulder-Mancos Field, Rio Arriba County, New Mexico; the scale is one inch to a thousand feet, contour interval is 100 feet.

The heavy contour lines are 500 foot contours. The blue outline represents the limits of this pool as established by an order March, 1963. The yellow area represents Standard's acreage in the immediate area of this pool. The red outline that you see at the southern end of the pool contains approximately 400 acres about which the engineering witness will discuss economics later.

This pool was discovered in early 1961 by the P. M. Bayless located in Section 15, 28 North, 1 West. As of the June proration schedule, June, 1963, there were 22 completed oil wells in the pool, 14 of which are capable of making top allowable. There are three dry holes in the pool, one on the west side, two on the east side. Three oil wells have been completed since, in the latter part of June or early July. The total depth of these



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wells ranges from 3100 feet on the east to about 6,000 feet on the west side of the field. The mapping point is the top of the Gallup member of the Mancos formation. This point is equivalent to the points that we use in our maps in the Escrito-Gallup and other fields to the southwest.

Although no Gallup sands are developed in this area, we consider this still a reliable correlative point on which to map. The production in this pool is from fractured shale in the 150 feet immediately above and below this mapping point. This area is located on the east rim of the San Juan Basin. We have a steep, relatively steep dip to the west. The dip ranges from 5/8ths degrees on the east to a maximum of 35 or 40 degrees in the field itself. The maximum limits of the field have been fairly well-defined on the west and east; however, the north and south limits have not been defined at all. I believe that's all I have on this.

Q During the course of the development of this pool, what has been the spacing pattern?

A The spacing is mainly on 80-acre spacing.

Q Are there any exceptions to that?

A In the East Quarter of 27, there are two wells that are not on it.

Q Do you know what the productivity of those wells is?

A The two in 27?

Q Yes.



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A It's very low, I'd say in the neighborhood of 10 barrels per day a well.

Q They would both be considered marginal wells?

A That's right.

Q Referring to what has been marked as Exhibit 2, would you identify that exhibit and discuss the information shown on it?

A The Exhibit 2 is the east-west cross-section hanging on the wall. This is drawn at right angles to the strike of the formation, and the section runs through the southern portion of the pool. The scale is one inch to 400 feet, both vertically and horizontally. In other words, there is no exaggeration, that's a true scale cross-section.

The yellow color on there outlines the Mancos-Gallup shale interval. Our mapping horizon is the line you see just above the word "Gallup" and the production in the field comes from a 150-foot interval immediately above and the 100 to 150 feet below this line, and you can see on this cross-section. the rather steep west dip as well as the continuity of the Mancos shale interval across the field.

Q On the basis of your two exhibits, No. 1 and 2, would you conclude that the reservoir is continuous throughout the area involved here?

A Yes, sir.

Q Is the formation fairly uniform?



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A Yes, sir.

Q Now this Mancos formation, does that include the Gallup marker?

A Yes, sir, it does. The Gallup name refers to sands which are generally present to the southwest. There is no sand developed in this interval in this area, but as I said earlier, we have mapped on the top of the Gallup in these fields to the south, Escrito, Bisti and other fields, and this is a good correlative point and we carried it further north into this area.

Q The production, as I understand your testimony, is from the Mancos, which includes the upper portion of what you call the Gallup interval of the Mancos?

A Yes. This interval in the Gallup is equivalent to the Gallup sands in the southwest.

Q There are no sands in the fractured shales?

A No, sir.

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

A Exhibit 1 was prepared by me and 2 was under my supervision.

MR. KELLAHIN: At this time I would like to offer in evidence Exhibits 1 and 2.

MR. UTZ: Without objection, Exhibits 1 and 2 will be entered into the record of this case.



(Whereupon, Standard's Exhibits Nos. 1 and 2 admitted in evidence.)

MR. KELLAHIN: That's all the questions I have on direct.

MR. UTZ: Are there questions of the witness?

MR. DURRETT: Yes, sir.

CROSS EXAMINATION

BY MR. DURRETT:

Q Mr. Murphy, did you state that this P. M. Bayless Well located in Section 15 was a discovery?

A Yes, sir.

Q What's the exact location, do you have that?

A I do not have the exact footage. It's in the Northeast Quarter of the Northeast Quarter of the Northeast Quarter of Section 15, 28 North, 1 West.

Q Northeast Quarter of the Northeast Quarter of the Northeast Quarter?

A Yes.

Q Would you happen to have the date it was completed?

A It was completed in January of 1961.

Q January, 1961. Do you know the top of the perforations on that well?

A There are no perforations. These wells are completed open hole, and casing is set near the top of the Gallup, what we show as Gallup on the cross-section. I can't tell you the exact

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in-hole depth, no, sir.

Q They all are open hole completions?

A Yes, sir. Casing is set by ourselves and other operators above the fractured interval in the Gallup. We drill a head with air to total depth and set a liner from the bottom of the casing, a slotted liner from the bottom of the casing to total depth.

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

MR. UTZ: Are there any other questions? The witness may be excused.

(Witness excused.)

JOHN T. CAMERON

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please?

A John T. Cameron.

Q By whom are you employed and in what position?

A Standard Oil Company of Texas, petroleum engineer in the Proration Department.

Q Have you ever testified before the New Mexico Oil Conservation Commission?

A No, sir, I haven't.

Q For the benefit of the Examiner, would you outline



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briefly your education and experience as a petroleum engineer?

A Petroleum Engineering and Geological Engineering degrees from Texas A & M College in 1955. Since that time I have been employed by Standard as a petroleum engineer, except for two years in the service.

Q Where have you worked as a petroleum engineer for Standard?

A I worked in Gainesville, Sherman, and Houston, Texas, in the Drilling Department as a production engineer and reservoir work.

Q Where are you located now?

A Houston.

Q In connection with your work in Houston, does the area involved in this application in the Boulder-Mancos Oil Pool come under your jurisdiction?

A It does.

Q Have you made a study of the Boulder-Mancos Oil Pool?

A I have.

MR. KELLAHIN: We submit the witness is qualified.

MR. UTZ: He is.

Q (By Mr. Kellahin) Mr. Cameron, referring to what has been marked as Exhibit No. 3, would you identify that exhibit and discuss the information shown on it?

A Exhibit No. 3 is a sheet of general reservoir data on the Boulder-Mancos Pool. Most of the information on it is



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self-explanatory. It's taken from fluid studies of one of Standard's wells. Some of the pertinent points are original bottom hole pressures: first bottom hole pressures in our wells are 879 psig; the last bottom hole pressure, 764 as of April. Saturation pressure was 802 psi. The gravity is 32 degrees, and so far the cumulative production from Standard's five wells, as of April 30, was 50,714 barrels.

Q Has there been any decline in the production from your wells?

A No, sir. The five wells that we did have, I believe we have one extra well now, but the five wells that we had before June the 15th, three of them were top allowable and had not declined, and the other two were limited capacity wells and they had not declined either.

Q In connection with this case, have you conducted any interference tests in the Boulder-Mancos Pool?

A Yes, sir, we have. I think we have that numbered as Exhibit No. 4 so far. Exhibit 4 is an interference test. There is a plot plan on the Exhibit No. 4 showing the location of the wells concerned. Wells No. 2, 3, and 4 were the ones on which the interference test was run. No. 2, 3, and 4 were shut-in for 72 hours and build-up pressures were run in No. 4. The No. 2 and No. 3 were opened up and produced approximately 105 barrels per day per well after getting approval from the New Mexico Oil Conservation Commission and using the transferred allowable from



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No. 4. The interference from No. 2 and No. 3 was seen in No. 4 at the point on the exhibit where the pressure in No. 4 begins falling. So you can see a fairly sudden indication of interference in No. 4. We continued this test for four months, measuring the pressure in No. 4 while No. 2 and No. 3 produced.

Q Before we go any further, in referring to these Wells No. 2, 3, and 4, would you identify and locate those wells by Section number, please?

A Yes, sir. These are Jicarilla 4-26 Nos. 2, 3, and 4. They're all in Section No. 26.

Q If you'll continue your discussion of the information gained by this interference test.

A Right. The pressure in No. 4 showed a drawdown over this test period of 47 psi; from extrapolated reservoir pressure it showed a drawdown of 40 psi from the maximum recorded in No. 4 before interference was noted. We feel that this shows a substantial interference between these three wells and that it shows further that one well will drain 80 acres, since these wells are on essentially 80-acre spacing.

Q This test was conducted by authority of the Commission, was it not?

A That's correct.

Q Was there a transfer of allowables involved?

A Yes, the allowable from Well 4 was transferred to 2 and 3, half on each well.



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Q The wells were produced continuously throughout the period of the test?

A That's right.

Q Your conclusion is that indicates that one well will drain in excess of 80 acres?

A That's correct.

Q Have you conducted any pressure build-up tests?

A Yes, sir. As I mentioned, we took a build-up on No. 4 at the commencement of this test. In addition, we have build-up tests on No. 2 and 3 taken at the end of this interference test. I think we have those numbered what?

Q 5, 6, and 7.

A Right. These build-up tests were run primarily to gain some knowledge of permeability in these three wells. As you will note, the permeability calculates in No. 2, 293 millidarcies; and No. 3, 258 millidarcies; and No. 4, 54 millidarcies, which we feel is substantial.

Q Do you consider those as rather high permeabilities?

A Yes, I surely do.

Q What are they the results of?

A You would expect high permeabilities if you had a good fracture system.

Q Is that the type of reservoir you have here?

A This is a fractured shale.

Q Does that indicate then that a well will drain a wide



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area?

A Yes, it does confirm this interference test.

Q Have you made any reserve calculations?

A Yes, sir.

Q Referring to what has been marked as Exhibit No. 8, will you discuss that exhibit?

A Exhibit 8 is an estimation of reserves underlying the 400 acres which is outlined in red on Exhibit No. 1. This is an extrapolation of pressure decline as measured in three of these five wells that are on this 400 acres. The cumulative production which was contributed to by all five wells is plotted versus pressure. An extrapolation of that pressure to 100 psi yields an ultimate recovery of 319,500 barrels, which we predict will be the recovery from that 400 acres.

Q You said first that you had used this specific area of 400 acres. Why did you use that area?

A Well, this is an area that is completely developed by Standard of Texas wells on which we have all the production information, cost information; and it's handy to calculate reserves and economics from this area.

Q Is the area representative of the pool as a whole, in your opinion?

A I feel that it is. We have three top allowable wells and two capacity wells and this is a similar ratio to the field.

Q I believe in your testimony you said you made the



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pressure decline curves on three of the five wells?

A That's correct.

Q Is that because only three of them were top allowable wells?

A That's right, 2, 3, and 4.

Q In your opinion would the production from this unit be the same if it were developed on 80 acres as if it were developed on 40 acres?

A Yes, substantially the same.

Q Would there be any loss in the oil in the reservoir if developed on 80 acres as contrasted to 40 acres?

A No, I don't believe so.

Q Have you made a study of the economics of the development of this pool on the basis of 80-acre as against 40-acre spacing?

A Yes, I have, and we have three exhibits to support these economics.

Q Referring first to what has been marked as Exhibit No. 9, would you identify that exhibit and discuss it?

A Exhibit 9 is a write-up of the economics on this 400 acres that's outlined in red on Exhibit No. 1. First, on 80-acre spacing we've assumed actual cost of the five wells that are currently producing on that 400 acres. We have used the ultimate recovery that was calculated from this pressure decline. We have assumed that they would get an 80-acre allowable, which would be



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140 barrels per day per well. Three of those wells will make that and the other two, we have assumed they would produce at capacity and decline at such a rate as to produce this 319,500 barrels. In the second case we assumed the same 400 acres would be developed on 40-acre spacing which would mean 10 wells. We just used twice the actual cost of the five wells that are already on the 400 acres. We used the same ultimate recovery as we used on 80 acres; we used a top allowable of 70 barrels per day per well for the three wells, and capacity for the other two.

The results of those economics show on 80-acre spacing a well will pay out in 2.183 years with a rate of return of 38.119 percent, net profit of \$123,611 on investment of \$225,647, for a profit-to-investment ratio of 0.548.

On the 40-acre spacing, the well would not pay out, naturally there would be no rate of return, would result in a net loss of \$122,624 on an investment of \$451,294.

Q In your opinion, do you feel this is an economic operation to develop this pool on 40-acre spacing?

A No, sir, I do not.

Q You recommend that it be developed on 80 acres?

A Yes.

Q Have you made a study of the economics as to 80-acre spacing?

A Yes, Exhibits 10 and 11 simply support Exhibit No. 9. They are machine calculations of the pay-outs which give the



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results shown in Exhibit No. 9.

Q They're the underlying data on which No. 9 is based, is that correct?

A That's correct.

Q On the area in which you made the test, you stated there are three top allowable wells and two marginal wells?

A That's right.

Q Will the top allowable wells make an allowable which would be assigned to them on the basis of 80 acres?

A Yes, sir, they will. We tested these wells in June with the concurrence of the New Mexico Commission. All three wells showed that they will be capable of making in excess of 140 barrels a day, which will be the 80-acre allowable.

Q Is that shown on Exhibit No. 12?

A That is shown on Exhibit 12.

Q How many wells are there in this pool at the present time?

A Twenty-two wells. That was as of the June proration schedule there were 22 wells.

Q Of the 22 wells, how many are top allowable wells?

A Sixteen of them have top allowables assigned, according to our information only 14 are capable of making their top allowable.

Q Would those 14 make an allowable that would be assigned to an 80-acre unit, or do you know?



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A I can't say for sure on the other operators' wells, but I would assume that it would be similar to our own, and ours do, ours will make in excess of 140.

Q Have you prepared a set of proposed rules?

A Yes, sir, we have.

Q Referring to what has been marked as Exhibit 13, will you identify that exhibit and discuss it briefly?

A Yes, sir. This is the proposed rules for the Boulder-Mancos Pool. In summary, we're proposing the 80-acre rules, with the 80-acre unit to consist of any two contiguous quarter-quarter sections of a single governmental quarter section, with the location of the well to be within 200 feet of the center of either quarter-quarter section in the unit.

Q Any other recommendations you want to point out at this time?

A Well, I might mention that nothing in the rules will prohibit the drilling of a well on a single quarter-quarter section.

Q Now what is the basic risk in developing this pool on 40 acres, Mr. Cameron, in your opinion?

A Well, as I've shown on the economics here, we have three top allowable wells and two marginal wells or capacity wells, and that is really the risk involved is that you can either have a real good well or you get a marginal well that has just very minimum economics.



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Q Do you have 22 wells with 16 assigned top allowables?

A That's right.

Q So your ratio would be similar for the pool as a whole?

A That's right.

Q In your opinion, would approval of an order for 80-acre proration units encourage further development in this pool?

A I surely think it will. I think that the development of this field is at a virtual standstill. We have some undeveloped acreage to the south that could be developed, but because of the unfavorable economics on 40 acres, I doubt that they will be developed; and that all will be wasted otherwise.

Q Will that in your opinion then result in the recovery of oil that would not be ordinarily recovered?

A 80-acre spacing will provide for greater recovery of oil.

Q Were Exhibits 3 through 13 prepared by you or under your supervision?

A They were.

MR. KELLAHIN: At this time I would like to offer Exhibits 3 through 13.

MR. UTZ: Exhibits 3 through 13 will be admitted into the record of this case.

(Whereupon, Standard's Exhibits Nos. 3 through 13 received in evidence.)

MR. KELLAHIN: That's all the questions I have on direct



examination.

CROSS EXAMINATION

BY MR. UTZ:

Q On your Exhibit No. 4 I note that you have a considerable lapse of time in order to accomplish significant build-up on these wells. How long was that time on this graph? I haven't had time to figure it out.

A Exhibit 4, is that the interference test?

Q Yes, sir. Close to 400 hours, isn't it?

A I don't think I have the question.

Q How long did it take you to get significant build-up after you shut in your No. 4 well? It was your No. 4 that you shut in?

A Yes. We shut in 2 and 3 and 4 for 72 hours. It had built up to about 855 pounds at the end of 72 hours. Then at the end of approximately ten days we went back in and took some more tests. That was the last that -- at that point we started noticing interference within the No. 4 well.

Q This 860-pound point, is that for an average of the three wells or is that a point just for the No. 4 well?

A Just the No. 4 well.

Q What's the length of time it took that well to reach this 860 pounds?

A Yes, sir, that's 400 hours.

Q You state this is a fractured reservoir, is that correct?

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A Yes, sir.

Q In a fractured reservoir, why would it take 400 hours to get significant stabilization?

A Well, these build-up tests that I've entered here, if you'll note, Well No. 4 had 2872 barrels produced before it was shut-in for this build-up. With that much fluid produced, it takes us a long time for it to build back up to its maximum. In other words, if you only produce a small amount then you don't interfere with your reservoir back to a considerable distance from your well bore. If you produced it for a matter of years before you shut it in, your external boundary of your reservoir would be affected well out from your well bore, and it would take that much longer to build back up to maximum. This build-up test on No. 4 showed a permeability of 54 millidarcies. By Horner's build-up technique, even though at first glance it might look like it takes a long time for a pressure to build up, when it's considered that this amount of production preceded this build-up that's a fairly rapid build-up.

Q How many points did you take to affect your curve on your Horner method?

A Seventeen.

Q Was the No. 2 and 3 producing at the time that you read this 860 pounds?

A Yes, sir, they were.

Q It could account for your decelerated rate of build-up,



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too, couldn't it?

A Well, it could have, except if you'll notice on the build-up of No. 4, the points taken after opening up No. 2 and 3 were right on the straight line portion, continuation of the straight line portion of that curve, so it leads us to believe that interference didn't start until after that point. So actually it falls right on the line and we felt like that was a valid pressure.

Q On your Exhibit 9, you've used the entire -- what was it, 400 acres?

A That's right.

Q In both of your examples, right?

A Right.

Q So the only difference actually between the two is your twice the cost of development?

A That's correct. Well, the rate of producing these reserves would be a little different because you have a 140-barrel allowable in one case and 70 in the other. I take that back, it would be the same.

Q Maybe you can tell me without having to look it up, what is the casing shoe point on your discovery well?

A I don't have it in the discovery well, which is a foreign well. I have it in our well. 4147 is the depth of the casing, T.D. 4429, open hole.

Q So this pool will have an allowable consistent with



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5000-foot wells?

A That's correct.

Q Now in your proposed rules, did you pull these rules from some previous Commission order?

A Yes, sir. There are several fields that have very similar orders in Northwestern New Mexico. Unfortunately, I failed to list the fields that have those type of rules, but they are similar to rules in effect now.

Q Namely, the Cha Cha and those Gallup pools?

A I looked at the Cha Cha and the Bisti and Escrito. Many of them are a little different because they have gas rules and other special cases, but these are in general similar to them.

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

The witness may be excused.

(Witness excused.)

MR. UTZ: Are there any statements in this case?

MR. KELLAHIN: If the Examiner please, I believe there's a letter in the file from Socony-Mobil, is there not? We were informed that Socony-Mobil was sending a letter to the Commission concurring in the application of Standard Oil Company of Texas.

MR. UTZ: Well, they defaulted or the Commission defaulted, because there's not a letter.

MR. KELLAHIN: Skelly Oil Company authorized us to state that they concur in the application.

MR. DURRETT: Wholeheartedly?



MR. KELLAHIN: Well, wholeheartedly as Mr. Selinger usually does.

MR. UTZ: We'll take the case under advisement.

* * *

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

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

WITNESS my Hand and Seal this 5th day of August, 1963.

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:
June 19, 1967.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2557, heard by me on July 1, 1963.
[Signature] Examiner
New Mexico Oil Conservation Commission

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