

CASE 3123: Appli. of CONTINENTAL  
for special pool rules for the  
MONUMENT-TUBB POOL.

CASE No.  
3123

Application,  
TRANSCRIPTS,  
SMALL Exhibits  
ETC.

DRAFT

JMD/esr

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

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

CASE No. 3123

Order No. R- 2800

APPLICATION OF CONTINENTAL OIL  
COMPANY FOR SPECIAL POOL RULES,  
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 13, 1964, at Santa Fe, New Mexico, before Examiner  
✓ Daniel S. Nutter *Elmer A. Nutter*

NOW, on this 13 day of October, 1964, the Commission,  
a quorum being present, having considered the testimony, the record,  
and the recommendations of the Examiner, and being fully advised  
in the premises,

FINDS:

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

(2) That the applicant, Continental Oil Company, seeks the  
promulgation of special rules and regulations for the Monument-  
Tubb Pool in Township 20 South, Range 37 East, NMPM, Lea County,  
New Mexico, including a provision for 80-acre spacing units and  
a gas-oil ratio of 6000 to 1.

(3) That one well in the Monument-Tubb Pool can efficiently  
and economically drain and develop 80 acres.

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

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

OK (5) *That a limiting gas-oil ratio of 6000 to 1 would be excessive for this pool and may result in waste.*  
(5) That the special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(6) ~~5~~ That the special rules and regulations should provide for a limiting gas-oil ratio of <sup>4000</sup>~~6000~~ to 1 in order to allow each operator in the pool the opportunity to use his just and equitable share of the reservoir energy.

IT IS THEREFORE ORDERED:

That Special Rules and Regulations for the Monument-Tubb Pool are hereby promulgated as follows, *effective December 1, 1964:*

SPECIAL RULES AND REGULATIONS  
FOR THE  
MONUMENT-TUBB POOL

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

RULE 2. Each well 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 governmental quarter section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a ~~governmental~~ <sup>governmental</sup> 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.

*Each well shall be located no nearer than 330 feet to the outer boundary of the unit.*  
✓ RULE 4. ~~The first well drilled on every standard or non-standard unit shall be located in the \_\_\_\_\_ or \_\_\_\_\_ of a governmental quarter section. All wells shall be located within \_\_\_\_\_ of the center of a governmental quarter section.~~  
*Any governmental quarter-quarter section or lot line.*

*3154*  
RULE 5. The Secretary-Director may grant an exception to the ~~footage~~ 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, provided the well will be located no nearer than 330 feet to the outer boundary of the unit.~~ 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) shall be assigned an 80-acre proportional factor of 2.77 for allowable purposes, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

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

RULE 7. The limiting gas-oil ratio shall be <sup>4000</sup>~~6000~~ cubic feet of gas for each barrel of oil produced.

IT IS FURTHER ORDERED:

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

~~(2) That any operator desiring to dedicate 80 acres to a well presently drilling to or completed in the Monument-Tubb Pool shall file a new Form C-128 with the Commission on or before \_\_\_\_\_, 1964.~~

(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.

(2) That each well presently drilling to or completed in the ~~Monument~~ Monument - Tubb Pool or in the Tubb formation within one mile thereof shall receive a 40-acre allowable until a Form C-128 dedicating 80 acres to the well has been filed with the Commission.

GOVERNOR  
JACK M. CAMPBELL  
CHAIRMAN

State of New Mexico  
**Oil Conservation Commission**



LAND COMMISSIONER  
E. S. JOHNNY WALKER  
MEMBER

P. O. BOX 2088  
SANTA FE

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

November 10, 1964

Mr. Jason Kellahin  
Kellahin & Fox  
Attorneys at Law  
Post Office Box 1769  
Santa Fe, New Mexico

Re: CASE NO. ~~3124~~  
3122  
3123  
ORDER NO. ~~R-2796~~, R-2799 & R-2800  
APPLICANT Boo, Inc. & Continental

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 R-2796 (handwritten)

OTHER Mr. W. D. Girard (R-2799)

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. 3123  
Order No. R-2800

APPLICATION OF CONTINENTAL OIL  
COMPANY FOR SPECIAL POOL RULES,  
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 13, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 10th 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 the applicant, Continental Oil Company, seeks the promulgation of special rules and regulations for the Monument-Tubb Pool in Township 20 South, Range 37 East, NMPM, Lea County, New Mexico, including a provision for 80-acre spacing units and a gas-oil ratio of 6000 to 1.

(3) That one well in the Monument-Tubb Pool can efficiently and economically drain and develop 80 acres.

(4) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, special rules and regulations providing



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CASE No. 3123

Order No. R-2800

for 80-acre spacing units should be promulgated for the Monument-Tubb Pool.

(5) That a limiting gas-oil ratio of 6000 to 1 would be excessive for this pool and might result in waste.

(6) That the special rules and regulations should provide for a limiting gas-oil ratio of 4000 to 1 in order to allow each operator in the pool the opportunity to use his just and equitable share of the reservoir energy.

IT IS THEREFORE ORDERED:

That Special Rules and Regulations for the Monument-Tubb Pool are hereby promulgated as follows, effective December 1, 1964:

SPECIAL RULES AND REGULATIONS  
FOR THE  
MONUMENT-TUBB POOL

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

RULE 2. Each well 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 governmental quarter section; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a governmental 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

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CASE No. 3123  
Order No. R-2800

non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. Each well shall be located no nearer than 330 feet to any governmental quarter-quarter section or lot line.

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. 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) shall be assigned an 80-acre proportional factor of 2.77 for allowable purposes, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

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

RULE 7. The limiting gas-oil ratio shall be 4000 cubic feet of gas for each barrel of oil produced.

IT IS FURTHER ORDERED:

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

(2) That each well presently drilling to or completed in the Monument-Tubb Pool or in the Tubb formation within one mile thereof shall receive a 40-acre allowable until a Form C-128

-4-

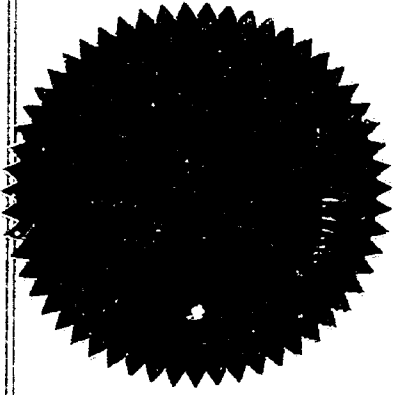
CASE No. 3123  
Order No. R-2800

dedicating 80 acres to the well has been filed with the Commission.

(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/

Case. 3/23,

Heard 10-13-64

Rec. 10-15-64

Grant Cont. request for 88 ac.  
spacing in the Monument Subb.  
oil Pool.

1. N/2, S/2, W/2, E/2 dedication.
2. Non rigid Pattern.
3. 330' from boundaries of either 40.
4. 6000:1 GOR.
5. Since permanent order mine  
pool is fully developed and no  
further data could be obtained.

Thur. J. J.

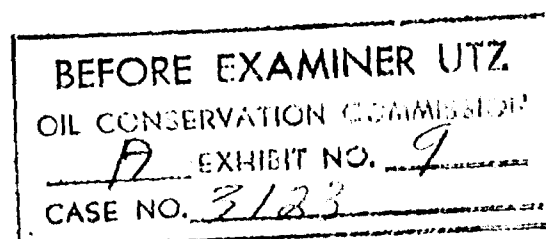
SPECIAL RULES AND REGULATIONS  
FOR THE MONUMENT TUBB OIL POOL

RULE 1. Each well completed or recompleted in the Monument Tubb Oil Pool or in the Tubb formation within one mile of the Monument Tubb Oil Pool, and not nearer to or within the limits of another designated Tubb 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 Monument Tubb 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 hereafter in the Monument Tubb Oil Pool shall be located within 330 feet from any boundary of a single governmental quarter-quarter section or lot; 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.



Special Rules & Regulations for the Monument Tubb Oil Pool  
Page 2

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 Monument Tubb Oil Pool shall be assigned an 80-acre proportional factor of 2.77 for allowable purposes, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion. The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable in the Monument Tubb Oil Pool as the acreage in such non-standard unit bears to 80 acres.

RULE 7. The limiting gas-oil ratio for the Monument Tubb Pool shall be 6000 cubic feet per barrel.

MAILED  
OCT 16 PM 1

TEXACO  
INC.

PETROLEUM PRODUCTS



DOMESTIC PRODUCING DEPARTMENT  
MIDLAND DIVISION

J. H. MARKLEY, DIVISION MANAGER

October 14, 1964

MAILED  
OCT 16 PM 1

P. O. BOX 3109  
MIDLAND, TEXAS

CASE 3123 APPLICATION FOR POOL RULES  
MONUMENT-TUBB OIL POOL  
LEA COUNTY, NEW MEXICO

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

Gentlemen:

Texaco Inc. concurs with the recommendations of Continental Oil Company as presented in Case No. 3123 held before the New Mexico Oil Conservation Commission in Santa Fe, Tuesday, October 13, 1964, and respectfully requests approval of these recommendations by the Commission.

The applicant in this case seeks the establishment of special pool rules including a provision for 80 acre spacing and a gas-oil ratio limit of 6000 standard cubic feet per barrel for the Monument-Tubb Pool in Township-20-South, Range-37-East, Lea County, New Mexico. Texaco Inc. is the lease holder and operator of the EHB Phillips "B" Lease consisting of 280 acres in Section 10 located in the north-central portion of the Monument-Tubb Pool. Two wells have been completed and are producing on this lease and additional development is planned. In the case of this operator, the approval of 80 acre spacing will enable the development of this lease with 3.5 wells instead of 7 wells, resulting in an approximate savings of \$300,000. The applicant has submitted a copy of their application to this office with reservoir pressure data which shows that wells drilled in this pool are capable of draining an area in excess of 80 acres.

As an operator in the Monument-Tubb oil pool, Texaco Inc. is vitally interested in the proposed special pool rules and respectfully requests approval of the rules proposed by Continental Oil Company in Case No. 3123.

Yours very truly,

*J. H. Markley*

CLW:j1



# SKELLY OIL COMPANY

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

October 7, 1964

Re: Case No. 3123  
Monument-Tubb Pool  
Lea County, New Mexico

New Mexico Oil Conservation Commission  
P. O. Box 2088  
Santa Fe, New Mexico 87501

Gentlemen:

The Commission has scheduled for hearing on Tuesday October 13, 1964, Case No. 3123 for application of Continental Oil Company for special pool rules for the Monument-Tubb Pool in Lea County, New Mexico. Continental Oil Company has advised us of this application and we understand that they seek, among other things, 80 acres for drilling and spacing units with the permitted well location not closer than 330' from the outer boundary of either quarter-quarter section and for a limiting gas-oil ratio of 6000 to 1 instead of 2000 to 1.

This is to advise that Skelly Oil Company as an interested operator in this pool concurs in the recommendation of Continental Oil Company in this case and urges the Commission to adopt the rules as proposed as to prevent waste and best protect the correlative rights of all interested parties.

Very truly yours,

*George W. Selinger*

RJJ/ww

cc-Continental Oil Company  
P. O. Box 460  
Hobbs, New Mexico



# PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING P. O. BOX 1410

FORT WORTH 1, TEXAS

October 8, 1964

WILLIAM V. GRISHAM  
DIVISION ENGINEER

File: GHF-371-986.510.1

Subject: NMOCC Case No. 3123  
October 13, 1964, Docket  
Application of Continental  
Oil Company Field Rules  
Monument Tubb Pool, Lea  
County, New Mexico

Mr. A. L. Porter, Jr., Secretary-Director  
New Mexico Oil Conservation Commission  
Box 871  
Santa Fe, New Mexico

Dear Sir:

Pan American Petroleum Corporation respectfully requests that its support of Continental Oil Company's application in Case No. 3123 be placed in the record of the hearing docketed for October 13, 1964. Pan American supports Continental's proposed field rules for the Monument Tubb Pool including 80 acre proration units, well locations not closer than 330' to outer boundary of either quarter/quarter section of proration unit, and a limiting gas-oil ratio of 6,000 cubic feet per barrel.

Pan American is the operator of three wells on its Gilluly Lease as well as a working interest owner in New Mexico Federal Unit acreage operated by Continental in the subject field.

In our opinion, adoption of the field rules recommended by Continental will result in protection of correlative rights and efficient recovery of hydrocarbons from the Monument Tubb Field.

Yours very truly,

*W. V. Grisham*

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE  
STATE OF NEW MEXICO

MAIN OFFICE 500

24 SEP 22 AM 8 00

IN THE MATTER OF THE APPLICATION OF  
CONTINENTAL OIL COMPANY FOR SPECIAL  
POOL RULES FOR THE MONUMENT-TUBB POOL  
INCLUDING PROVISIONS FOR 80-ACRE  
SPACING AND 6000:1 GAS-OIL RATIO  
LIMITATION.

*Case 3123*

A P P L I C A T I O N

Comes now Applicant, Continental Oil Company, and respectfully requests the promulgation of special pool rules for the Monument-Tubb Pool, including provisions for 80-acre drilling and spacing units and gas-oil ratio limitation of 6000:1 and in support thereof would show:

1. The Monument-Tubb Pool as presently designated is comprised of the following described lands in Township 20 South, Range 37 East, Lea County, New Mexico:

W/2 Section 3  
SE/4 Section 9  
W/2, SE/4 Section 10  
W/2, NE/4 Section 15  
E/2 Section 16  
NE/4 Section 20  
N/2 Section 21, N/2 Section 22

2. Applicant is the owner and operator of leases and wells in said pool.

3. Applicant can show that special pool rules providing for 80-acre drilling and spacing units and a 6000:1 gas-oil ratio limitation will prevent waste and protect correlative rights.

WHEREFORE, Applicant respectfully requests that this application be set for hearing before the Commission's duly-appointed examiner and that upon hearing an order be entered promulgating special rules for the Monument-Tubb Pool as described above.

Respectfully submitted,  
CONTINENTAL OIL COMPANY

By *Frank Marshall*  
District Manager  
Of Production

JM-CL





# CONTINENTAL OIL COMPANY

P. O. BOX 460

HOBBS, NEW MEXICO

September 21, 1964

PRODUCTION DEPARTMENT  
HOBBS DISTRICT  
JACK MARSHALL  
DISTRICT MANAGER  
G. C. JAMIESON  
ASSISTANT DISTRICT MANAGER

1001 NORTH TURNER  
TELEPHONE: EX 3-4141

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

Attention of Mr. A. L. Porter, Jr., Secretary-Director

Gentlemen:

Re: Application for Special Pool  
Rules - Monument-Tubb Pool

We forward herewith application in triplicate for special pool rules for the Monument-Tubb Pool. You will note that the application requests for 80-acre spacing and limiting gas-oil ratio of 6,000 cubic feet per barrel.

We should appreciate your placing this matter on the earliest docket for Examiner hearing.

Yours very truly,

*Jack Marshall*

GCJ-MLH

Enc.

DOCKET MAILED

Date *10-1-64*

PIONEERING IN PETROLEUM PROGRESS SINCE 1875

DOCKET: EXAMINER HEARING - TUESDAY - OCTOBER 13, 1964

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

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

CASE 3108: (Continued from the September 30, 1964 examiner hearing)

Application of Monsanto Company for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Dagger Draw Well No. 1, located in Unit O of Section 6, Township 20 South, Range 25 East, Eddy County, New Mexico, to produce gas from the Strawn and Morrow formations through the casing-tubing annulus and through tubing, respectively.

CASE 3115: Application of Monsanto Company for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Lowe-State Well No. 1 located in Unit F of Section 36, Township 21 South, Range 23 East, Eddy County, New Mexico, to produce gas from the Cisco Canyon and Lower Morrow formations through parallel strings of tubing.

CASE 3116: Application of Tex-Star Oil & Gas Corporation for force-pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Pearl-Queen Pool underlying the NW/4 NW/4 of Section 24, Township 19 South, Range 35 East, Lea County, New Mexico.

CASE 3117: Application of Tex-Star Oil & Gas Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin-Dakota Pool underlying the E/2 of Section 26, Township 30 North, Range 14 West, San Juan County, New Mexico.

CASE 3118: Application of Gulf Oil Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the South Penrose Skelly Unit Area comprising 4,400 acres, more or less, of Federal, State and fee lands in Township 22 South, Range 37 East, Penrose Skelly Pool, Lea County, New Mexico.

October 13, 1964 Examiner Hearing

- CASE 3119: Application of Gulf Oil Corporation for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Penrose Skelly Pool in its South Penrose Skelly Unit Area by the injection of water into the Grayburg formation through six wells in Sections 5 and 6, Township 22 South, Range 37 East, Lea County, New Mexico.
- CASE 3120: Application of Dr. Sam G. Dunn for a Review of the Commission's Directive of August 27, 1964, concerning salt water disposal, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks a review of the Commission's Directive of August 27, 1964, prohibiting the disposal of produced salt water in unlined pits after November 1, 1964, in the Linda-San Andres Pool and adjacent areas in Townships 6 and 7 South, Range 26 East, Chaves County, New Mexico. Applicant specifically requests an extension of the November 1st deadline and a determination that salt water disposal in unlined pits in Sections 26, 27, and 34, Township 7 South, Range 26 East, among other areas, does not constitute a hazard to fresh waters and should be excepted from the Commission's directive.
- CASE 3121: Application of Dr. Sam G. Dunn for a water injection project, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a water injection project by the injection of water into the San Andres formation through one well located in Section 33, Township 6 South, Range 26 East, Linda-San Andres Pool, and by the injection of water into one well in Section 32 or 33, and one well in Section 27, Township 7 South, Range 26 East, all in Chaves County, New Mexico.
- CASE 3122: Application of Continental Oil Company for an unorthodox location and a non-standard unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to complete its Meyer B-4 Well No. 27 at an unorthodox location 5,610 feet from the South line and 660 feet from the East line of Section 4, Township 21 South, Range 36 East, Oil Center Blinebry Pool, Lea County, New Mexico. Said well would be dedicated to a 53-acre non-standard unit comprising that portion of Lots 1 and 8 of said Section 4 which is productive from the Oil Center Blinebry Pool.
- CASE 3123: Application of Continental Oil Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the establishment of special pool rules including a provision for 80-acre spacing and a gas-oil ratio of 6000 to 1 for the Monument-fubb Pool in Township 20 South, Range 37 East, Lea County, New Mexico.

October 13, 1964 Examiner Hearing

- CASE 3124: Application of Continental Oil Company to amend Order No. R-2566, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an amendment to Order No. R-2566, which authorized the Continental Baish-Yates Waterflood Project, to also provide authority for the injection into each well of approximately 500 barrels of LPG.
- CASE 3125: Application of Shell 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 Antelope Ridge Unit Well No. 4-1 in Unit B of Section 4, Township 24 South, Range 34 East, Lea County, New Mexico, to produce gas from the Antelope Ridge Pennsylvanian and Antelope Ridge Devonian Gas Pools through parallel strings of tubing.
- CASE 3126: Application of Murphy Oil Corporation for a pressure maintenance project, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project in the Many Rocks-Gallup Pool by the injection of water into the Gallup formation through five wells in Sections 17, 18 and 20, Township 32 North, Range 17 West, San Juan County, New Mexico. Applicant further seeks the promulgation of special rules for the operation of said project.
- CASE 2654: (Reopened)  
In the matter of Case No. 2654 being reopened pursuant to the provisions of Order No. R-2349, which order established temporary 320-acre gas proration units for the Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico, for a period of two years. The Commission will consider indefinite extension of Order No. R-2349 in the absence of evidence to the contrary.
- CASE 3127: Application of Shell Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the China Canyon Unit Area comprising 7611 acres, more or less, of Federal, State and Fee lands in Township 23 South, Ranges 23 and 24 East, Eddy County, New Mexico.
- CASE 3128: Application of Shell Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Grama Ridge Unit Area comprising 3052 acres, more or less, of Federal and State lands in Townships 21 and 22 South, Range 34 East, Lea County, New Mexico.

PAGE -4-  
October 13, 1964 Examiner Hearing

CASE 3129: Application of Shell Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the West Wilson Deep Unit Area comprising 3360 acres, more or less, of State and Fee lands in Township 21. South, Range 34 East, Lea County, New Mexico.

ir/



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October 13, 1964

EXAMINER	HEARING
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IN THE MATTER OF: Application of Continental  
Oil Company for special pool rules, Lea  
County, New Mexico.

Case No. 3123

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

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MR. UTZ: We will now call Case 3123.

Application of Continental Oil Company for special pool rules, Lea County, New Mexico.

MR. KELLAHIN: I am Jason Kellahin of Kellahin & Fox, representing the Applicant. We have one witness.

I would like to have Exhibit's One through Nine marked for identification at this time.

(Whereupon, Applicant's Exhibit's One through Nine marked for identification.)

MR. UTZ: Will you stand and be sworn, please?

JACK BOB LEVINE, called as a witness herein, having been first duly sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A Jack Bob Levine.

Q By whom are you employed, and what position?

A Continental Oil Company, Senior Engineer.

Q Where are you located?

A Hobbs, New Mexico.

Q Have you ever testified before the Commission before?

A Yes, sir.

Q And you have made your qualifications a matter of

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record?

A Yes, sir.

MR. KELLANIN: Are the witness' qualifications acceptable?

MR. UTZ: Yes, sir; they are.

Q Mr. Levine, are you familiar with the application in Case Number 3123?

A Yes, sir.

Q Will you state briefly what is proposed by Continental in this Application?

A Case Number 3123 is the Application of Continental Oil Company for permanent pool rules providing 80-acre drilling and spacing units in the Monument Tubb Oil Pool in Lea County, New Mexico, and to increase the GOR limits of the pool.

Q Now, referring to what has been marked as Exhibit Number One, will you identify that Exhibit and discuss the information shown on it?

A Exhibit Number One is a location and ownership plat showing the boundaries of the Monument Tubb Oil Pool in red, the wells producing from the Monument Tubb Pool only, and the surrounding acreage. The ownership of the properties in the area is shown on each lease in the conventional manner.

Q Now, what was the discovery in this pool?

A The discovery well is Amerada Petroleum Corporation's

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State "Q" Number One, shown on Exhibit Number One, located 1980 feet from the south line and 2310 feet from the east line of Section 16, Township 20 South, Range 37 East. This well was drilled to a total depth of 6938 feet and completed in the Monument Tubb on June 20, 1959.

Q How many additional wells have been completed in the Pool?

A Nineteen additional wells have been completed as oil producers in the pool and one gas well, Britt "B" Number 13, which has been shut-in after recompletion and found the lower Tubb to be a marginal completion.

Q What kind of development pattern has been followed by the operator in drilling these wells?

A An irregular pattern has been followed which will readily lend itself to 80-acre spacing.

Q Would you describe, for the benefit of the Examiner, the reservoir rock?

A The Tubb formation has been cored in two wells, Britt "B" Number 22 and SEMU DT 70. The average porosity in the pay sections is 15 percent and the permeability is 10.5 millidarcies which has been further substantiated by pressure build-up analyses. The Tubb formation is primarily a fine to very fine crystalline dolomite with anhydrite inclusions. Vertical fractures were observed in a large portion of the cores.

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MR. UTZ: Excuse me. What was the two wells? Number 70 in Section 15; and what ---

A Yes, sir.

MR. UTZ: was the other one?

A Britt "B" Number Two in the southeast quarter of Section 10.

MR. UTZ: Thank you.

Q (By Mr. Kellahin) Now, referring to what has been marked as Exhibit Number Two, will you state what that is?

A Exhibit Number Two is a structure map of the Monument Tubb Pool and the surrounding area. The contours are on the top of a sand stringer in the producing interval which is correlative throughout the pool. The structural control is from those wells having penetrated the Tubb and supplemented by structural control of overlying shallow beds which is widely developed in the area. The Monument Tubb structure is shown to be a northwest southeast trending anticline.

Q In order to refer to what has been marked as Exhibit Number Three, will you identify that Exhibit and discuss it?

A Exhibit Number Three is a north-south cross-section through seven of the producing wells in the field. The cross section covers a distance of approximately 8200 feet extending from Continental's Britt "B" Number 20 through Continental Britt "B" Numbers 18, 19, 10, 9, and 11, and to Pan American

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Gillully Number 10. Each well is represented by the Gamma Ray-Sonic or Gamma Ray-Neutron log run in the wells. The cross-section shows the wells related to a common subsea datum so that structural differences between wells are shown. The shaded yellow area depicts one porosity zone which is correlative through each well indicating that the porosity is continuous through the pool.

Q Now, referring to Exhibit Number Four, will you state what that is?

A Exhibit Number Four is a west-east cross-section extending over a distance of 6800 feet starting at Amerada's State Q Number One thorough Amerada State Q Number Four, Continental Britt "B" Number 14 and Britt "B" Number Nine to Continental SEMU DT Number 70. This cross-section is presented in the same manner as the previous exhibit and once again shows one zone of correlative porosity throughout the pool.

Q Then based on the information as shown on Exhibits Three and Four, would you conclude that there is a continuous zone across the area involved here?

A The continuity of permeable and porous zones is excellent through the pool and is further substantiated by pressure data.

Q What was the original pressure measured in the pool?

A The original reservoir pressure of 2612 psi at a subsea datum of minus 2900 feet was measured in Britt "B" Number Nine on August 14, 1959.

Q Now, has any well completed in the pool, since the completion of Britt "B" Number Nine, encountered this pressure again?

A No, sir.

Q Would you please explain what has been marked as Exhibit Number Five?

A Exhibit Number Five is a tabulation of original pressures in each of the wells in the Monument Tubb Pool, where pressures were taken. Column three is the actual measured pressure at a subsea datum of minus 2900 feet. Column four of the tabulation shows the calculated anticipated original pressure for each of the wells and Column five is the percent deviation of the calculated pressures from the actual measured pressures. It should be noted that the original pressure measured in Britt "B" Number Nine was never again reached in any subsequent completion. This is shown in Column six where the drawdown from the original pressure has been recorded.

Q Now, why is it that the Britt "B" Number 14 completed in October, 1962, had a lower original bottom hole pressure than Britt "B" Number 21, which was completed almost two years later in April, 1964?

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A The reservoir withdrawals in the vicinity of Britt "B" Number 14 were higher as this was the most densely developed portion of the pool. Britt "B" Number 21 was widely separated from the more heavily drained portion of the pool but still suffered some drainage as is indicated by a drawdown of 129 psi from the original reservoir pressure.

Q Now what were the basic parameters in your calculation in the example calculation in Exhibit five based upon?

A The fluid characteristics such as oil viscosity, compressibility, and formation volume factor were taken from the fluid analyses taken in the Britt "B" Number 10 and Britt "B" Number 22. The permeability was determined from core analyses of the Tubb zone in SEMU DT Number 70 and Britt "B" Number 22 along with permeabilities calculated from pressure build-up analysis. The value,  $H$ , or net effective pay, is the pay section as determined from logs and cores. The two factors,  $K$  and  $H$ , are only average figures and are the reason for the inability to more accurately calculate the pressure in each well. The term " $T$ " is the number of days each well produced to the completion of the next well; and,  $Q$ , is the average barrels of oil per day production time, " $T$ ".

Q Then it is your opinion, there is lateral communication throughout the pool?

A Yes, sir, it is. The ability to correlate zones of



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porosity and permeability throughout the pool, plus the positive proof of pressure drawdown from the original in new completions, are positive indications that communication exists from one producer to the next.

Q What is your recommendation to the Commission in regard to well density in this pool?

A I recommend that the pool be further developed on 80-acre spacing and the existing wells and future completions be granted 80-acre allowables.

Q Is it your opinion that it will effectively drain, and economically drain 80 acres in this pool?

A Yes, sir.

Q Referring to what has been marked Exhibit Number Six, is this a map showing the method by which you would divide the presently producing wells into 80-acre proration units?

A Yes, sir. Exhibit Six shows the acreage which we would dedicate to each well. The only 80-acre unit that has two on it is the northwest half of the northwest quarter of Section 15; however, one well, Britt "B" Number 13 was recently recompleted in the lower Tubb as marginal producer and is presently shut-in.

Q You said the "Northwest half", you mean the west half of the northwest quarter?

A Yes, sir.

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Q Do you recommend this spacing on a permanent or temporary basis?

A I recommend that 80-acre spacing be placed in effect on a permanent basis. It has been proved that one well will drain 80-acres, and no additional information can be gained that is not now available.

Q What type of drive is present in the reservoir?

A Presently available data indicate that the primary producing mechanism is solution gas drive. Two fluid samples were analyzed and both indicated the reservoir to be under-saturated.

Q What was the solution gas-oil ratio determined to be from these fluid analyses?

A The fluid analyses from Britt "B" Number 10 run on March 17th, 1961, showed the solution GOR to be 768 cubic feet per barrel and the recent sample taken from Britt "B" Number 22 on July 9, 1964, indicated the solution GOR to be 659 cubic feet per barrel.

Q Have the producing GOR's verified these laboratory analyses?

A Yes. The wells are normally completed with gas-oil ratios in this general range; however, due to the fact that the bottom hole pressure is only slightly higher than the saturation pressure, the GOR's increase rapidly after only limited production.

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Q Are the laboratory analyses of such accuracy that a gas cap can be overruled?

A The fact that two fluid samples obtained three years apart have both indicated the reservoir to be undersaturated is considered significant. However, the Britt "B" Number Nine was initially completed as a gas well. Recently we attempted to recomplete this well lower in the Tubb in an effort to reduce the GOR. This work was not successful so we feel that either Number Nine was completed in a small local gas cap or had an isolated gas stringer open in the completion interval. This well currently has a GOR of about 12,000 which is not considered excessive and indicates that if this well was initially completed in a gas cap it would have had to be of very limited size and would not have been important as a reservoir drive mechanism.

Q Is it anticipated that other wells in the pool will have this increased gas-oil ratio in the future?

A As the bottom hole pressures fall below the saturation pressures, gas will break out of solution and it can be expected that the gas-oil ratios will increase. This is an inherent characteristic of a solution gas drive reservoir.

Q Is this shown in what has been marked as Exhibit Number Seven?

A Exhibit Number Seven is a graph showing cumulative production versus bottom hole pressure, and GOR shows this very

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clearly. After a cumulative production from the pool, excluding Britt "B" Number Nine, in the amount of 115,000 barrels of oil, the saturation pressure of 2265 psi was reached, and shortly thereafter the GOR increased rapidly and has stayed high. As previously mentioned cores have shown evidence of fracturing and high GOR's are typical of fractured carbonate reservoirs producing by solution gas drive.

Q Now, will you explain what is marked Exhibit Number Eight?

A Exhibit Number Eight is the production history of one well in the Monument Tubb Pool, Britt "B" Number 10; that clearly depicts the GOR before and after reaching the saturation pressure. An attempt was made to isolate and shut off the gas production with no success. This well has the potential of producing at a rate of 900 barrels of oil per day but is penalized to 29 barrels of oil per day. Now, it is believed that a gas zone above the oil productive interval is contributing to the gas production and further remedial work is required to lower the GOR that is presently developed in Britt "B" Number 15.

Q Now, would the fact that no water drive is present tend to dispute the need for an increase in the GOR limit?

A No, sir, just the contrary is true. Should a water drive be present, it is generally advantageous to minimize the gas withdrawal rates so that water encroachment could keep pace

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with total reservoir withdrawals. In a infinite water drive reservoir, the pressure can only decline when the reservoir voidage is greater than the water intrusion and this becomes obvious when the producing gas-oil ratio exceeds the solution GOR.

Q Would correlative rights be impaired by raising the gas-oil ratio limit?

A No, sir. As a matter of fact, the raise in the GOR limit would protect the correlative rights. As has been proven, one well will drain in excess of 80 acres, the operators who did not enjoy the benefits of early development have suffered a pressure decline under their acreage. This has in turn increased the producing gas-oil ratio, thereby forcing these operators to accept a penalized oil allowable after only limited production.

Q Will waste be created by increasing the gas-oil ratio limit?

A No. Waste will be created as a market is readily available for the increased gas production. Warren Petroleum has stated that they can accept the anticipated increase in gas volume with existing facilities.

Q What is the GOR limit for the Monument Tubh Pool?

A It is requested that the gas-oil ratio limit be raised from 2000 to 6000 per barrel in order to protect correlative rights without creating waste.

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Q What is your recommendation to the Commission with regard to well locations?

A Each well completed or recompleted in the Monument Tubb Oil Pool shall be located on a standard unit containing 80 acres, more or less, consisting of the north half, south half, east half, or west half of a single governmental quarter section; and that no well be located closer than 330 feet from the boundaries of a single governmental quarter-quarter section.

Q Have you prepared a proposed set of field rules for the Commission for their consideration?

A Yes, I have a set of proposed rules embodying the recommendations which I have made during this hearing.

Q Has that been marked as Exhibit Number Nine?

A Yes, sir.

Q Do you recommend the adoption of these rules?

A Yes, sir.

Q Will the Unit as proposed by you call for any exceptions to be made on account of present drilling?

A No, sir.

Q Were Exhibit's One through Nine prepared by you or under your supervision?

A Yes, sir.

MR. KELLAHIN: At this time I would like to offer into evidence Exhibit's One through Nine inclusive.

MR. UTZ: Without objection Exhibit's One through Nine will be entered into the record of this Case.

MR. KELLAHIN: That's all I have.

CROSS EXAMINATION

BY MR. UTZ:

Q Number Nine specifies original pattern or flexible pattern? Do you understand what I mean by those two terms?

A If I understand your question correctly; the well can be drilled in either of the --

Q Yes, sir.

A -- Yes, sir. It can be drilled in either of the quarter quarter sections.

Q This pool is pretty well developed?

A Yes, sir, it is.

Q And it is drilled down flexible, right?

A Yes, sir.

Q Now, why do you feel that a 6000 to One GOR will reserve more reservoir energy than a 2000 to One?

A Under this type of drive mechanism with each barrel of oil it depends on the rock characteristic, how much gas is going to be produced. And we have no control over the amount of gas to be controlled with each barrel of oil.

Q Can't that be controlled by completion methods?

A No, sir; not if it is marking solution gas. There is no

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way to eliminate the excessive gas.

Q What is the solution gas -- You don't feel you have any gas zones?

A We know that we have gas zones above the oil zone, and we have shut this zone off in Britt "B" Number Nine, and unsuccessfully attempted to do it in Britt "B" Number Ten. The solution gas in Britt "B" Number Nine, which has been measured on four recent tests between six-one hundred and sixty-four hundred GOR is considered to be solution gas because the well, prior to workover was making 12,000 GOR, and we successfully excluded six thousand ratio in excess of solution gas.

Q Are all of these wells producing through tubing?

A Yes, sir.

Q There are no dual completions in the area?

A No, sir. Monument -- Yes, sir, there are. There are some Blinbry completions.

Q But all of the Tubb zones are producing through tubing?

A Yes, sir.

Q All the wells?

A Yes, sir.

Q And which was the discovery well again?

A Amadorada State "Q" One. The westerly location on Exhibit Number Six.



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Q What is the location of the well. I don't seem to be able to locate it.

A 1280 feet from the south line and 2310 feet from the east line, Section 16, Township 20 South, Range 37 East.

Q These wells are already receiving a depth factor: are they not?

A Yes, sir.

Q And what allowable are you asking for, an 80-acre allowable?

A Yes, sir.

Q Are these wells capable -- I will rephrase the question. Are all the wells capable in this pool of making a 2.77 allowable?

A No, sir; not all wells are capable.

Q How many of them do you think make that much here?

A I would say that approximately four wells would not be able to make the top allowable.

Q But the six thousand to one, they would be able to produce that volume of gas, you anticipate they will produce the volume of gas to 2.77 times six?

A Yes, sir.

Q And still not make an oil allowable?

A No, sir. In two instances Britt "B" Number Eleven will not benefit by any increase in GOR limits because it is a pumping

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well and Amerada State "Q" One is also a pumping well, and they will not benefit from any increase in any GOR; however, eleven will benefit because it can pump at a higher capacity than at the present rate.

Q So actually, the producing GOR, the Number Eleven will be higher than six thousand?

A No, not Number Eleven producing GOR; no, sir. It is a pumping well and it will -- the producing GOR is around twelve thousand.

Q And then, it is your opinion that it won't make the gas allowable --

A No, sir.

Q -- of six thousand.

Are there any other questions of this witness?

(No response.)

MR. UTZ: The witness may be excused.

That is the only witness you have?

MR. KELLAHIN: That's all, yes, sir.

MR. UTZ: Are there any other statements in this Case?

The Case will be taken under advisement.

The Hearing is adjourned until 1:30.

(Whereupon, the taking of the Hearing was concluded.)

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

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

IN WITNESS WHEREOF, I have affixed my hand and notarial seal this 27th day of October, 1964.

*Charles Floyd Walker*  
NOTARY PUBLIC

My Commission Expires:

March 25, 1968.

I do hereby certify that the foregoing is a complete record of the proceedings in the Exempt Case No. 3123, heard by the Oil Conservation Commission on 10/13/64.

*Charles F. Walker*  
Examiner  
New Mexico Oil Conservation Commission

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WITNESS

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JACK BOB LAWRENCE

Direct Examination by Mr. Kellahan

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Cross Examination by Mr. Utz

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EXHIBITS

<u>NUMBER</u>	<u>MARKED FOR IDENTIFICATION</u>	<u>OFFERED</u>	<u>ADMITTED</u>
Exhibit's One through Nine	2	14	15

NO. 3256. TEN YEARS BY MONTHS X 100 DIVISIONS.



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BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
EXHIBIT NO. 8  
CASE NO. 5124

BRITT B NO 10

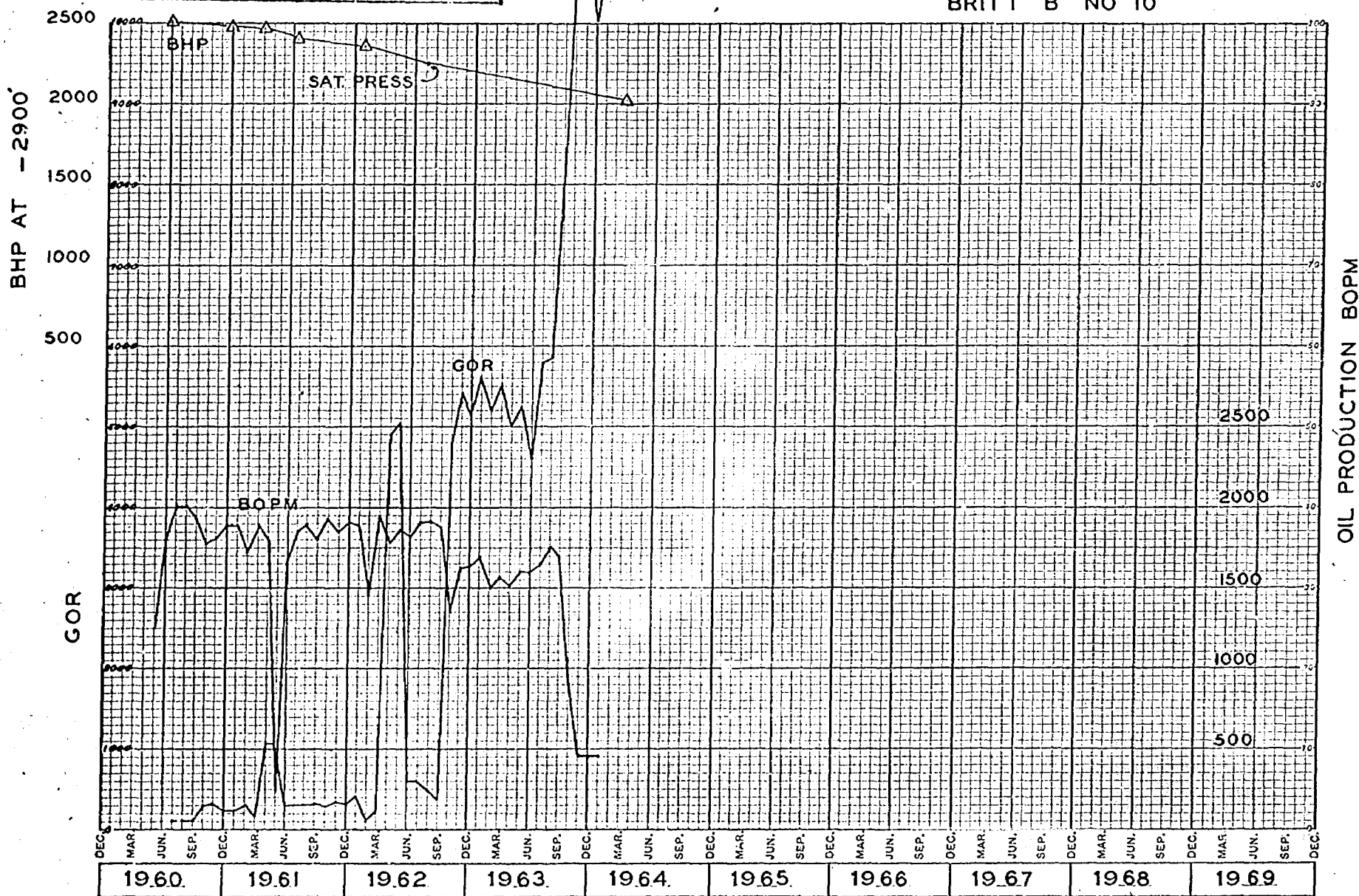


EXHIBIT NO 8

NO. 3256. TEN YEARS BY MONTHS X 100 DIVISIONS.

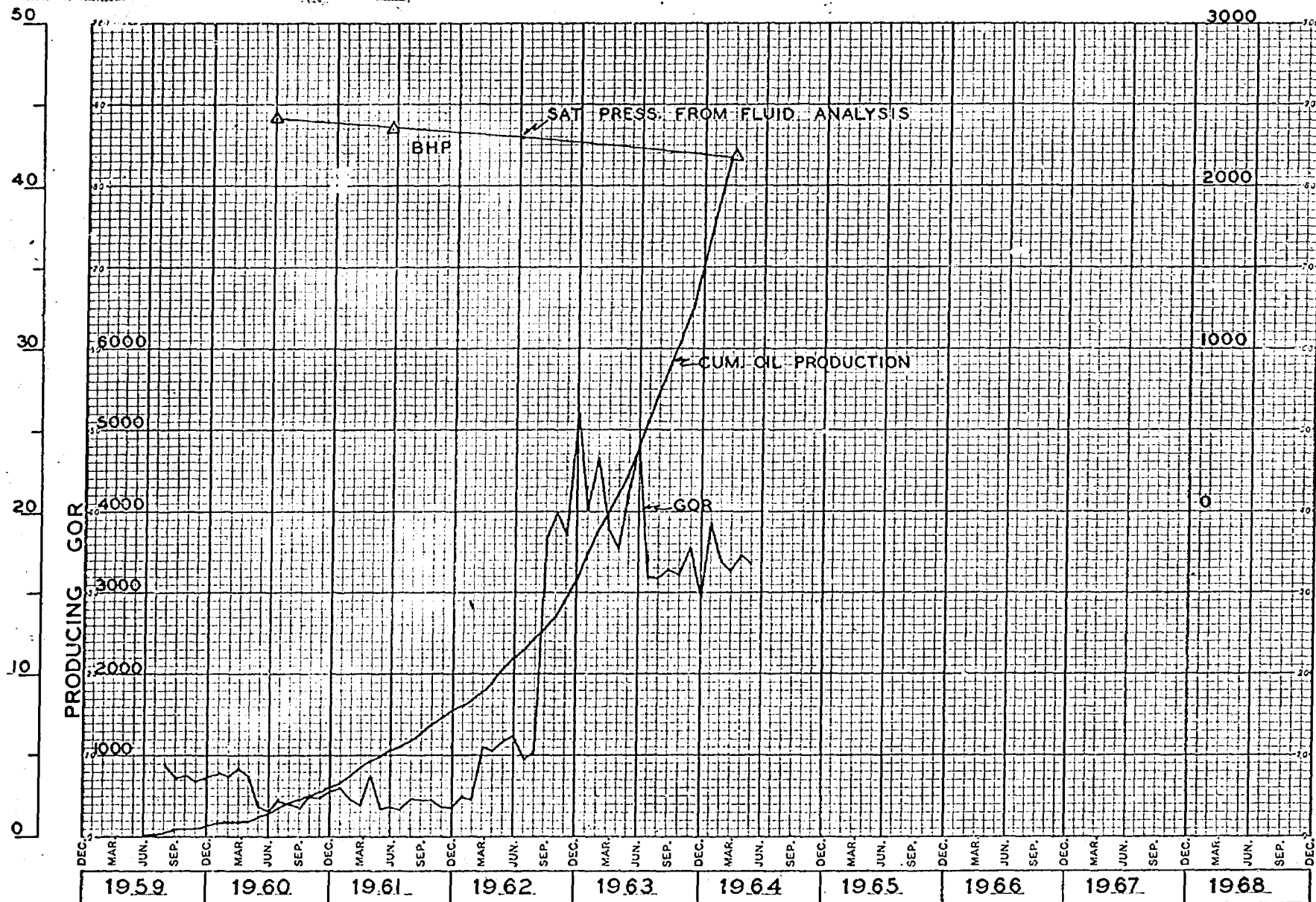
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BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
EXHIBIT NO. 2  
CASE NO. 3123

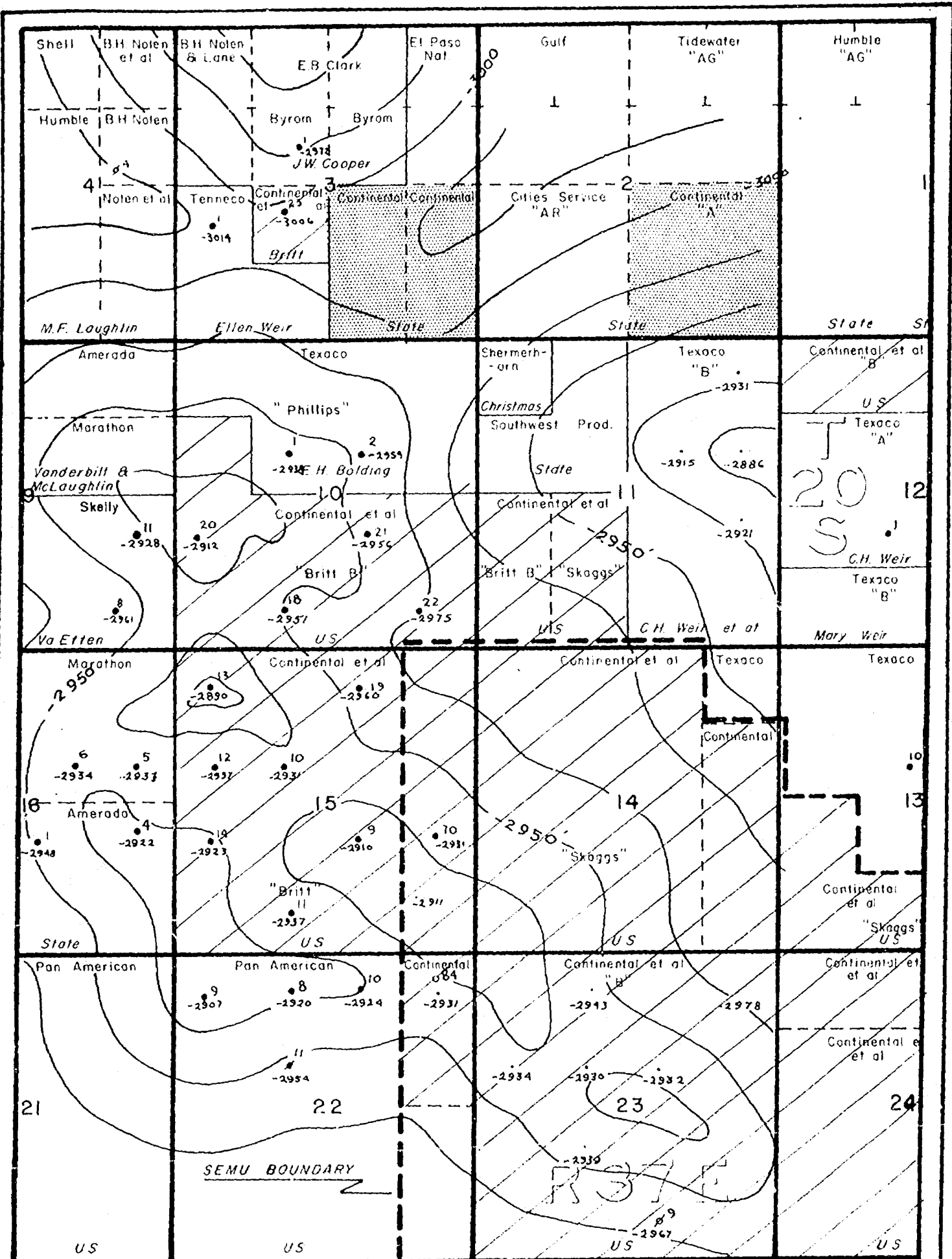
MONUMENT TUBB POOL  
(EXCLUDING BRITT B NO 9)

CUMULATIVE OIL PRODUCTION



BHP AT -2900'

EXHIBIT NO 7



# CONTINENTAL OIL COMPANY

PRODUCTION DEPARTMENT  
HOBBS DISTRICT

MONUMENT TUBB POOL  
Lea County, New Mexico

TUBB MARKER STRUCTURE MAP  
Contour Interval: 50'

Exhibit 2

SCALE

EXHIBIT NO. 5

MEASURED ORIGINAL PRESSURES COMPARED TO CALCULATED ORIGINAL PRESSURES

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>Well</u>	<u>Date</u>	<u>Original Measured</u>	<u>Pressures Calculated</u>	<u>Calculated Press. From Measured Press.</u>	<u>Drawdown From Orig. Res. Press. Actual Calc.</u>	
Britt B #9	8-14-59	2612	-	-	-	--
Britt B #10	8-20-60	2531	2557	-1.03	81	55
Britt B #11	12-5-60	2183*	2523	-15.55	429	89
Britt B #14	10-29-62	2349	2386	-1.58	263	226
Britt B #18	6-24-63	2520	2468	+2.06	92	144
Britt B #19	9-23-63	2441	2391	+2.04	171	221
Britt B #20	3-27-64	2233	2425	-8.60	379	187
Britt B #21	4-24-64	2483	2402	+3.25	129	210
Britt B #22	6-28-64	2297	2356	-2.58	315	256

\*Pumping Well - Pressure not completely built up.

EXAMPLE CALCULATION:

Calculated original pressure in Britt B No. 10 after producing Britt B No. 9 at a rate of 77 BOPD for 371 days.

$$P_{\#10} = P_{\#9} + \frac{qu Bo}{14.16 kh} Ei \left[ \frac{-r^2}{4 nt} \right]$$

where:  $q = 77$  BOPD ,  $h = 30'$

$u = .715$  cp ,  $r = 1700'$

$Bo = 1.35$  ,  $t = 371$  days

$k = .0105$  darcies,  $Ce = 10.8 \times 10^{-6}$  psi/psi,  $\phi = 10.8\%$

$$n = \frac{(6.32)(k)}{uCe \phi} = 7.96 \times 10^4$$

$$P_{10} = 2612 + \frac{(77)(.715)(1.35)}{(14.16)(.0105)(30)} Ei \left[ \frac{-2.88 \times 10^6}{(4)(7.96 \times 10^4)(371)} \right]$$

$$P_{10} = 2612 - 55 = 2557 \text{ psi}$$

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
<u>B</u>	EXHIBIT NO. <u>5</u>
CASE NO. <u>3123</u>	



