

CASE 3086: Application of TEXACO  
INC. for a waterflood project,  
Lea County, New Mexico.

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276  
336

CASE NO.

3084

Application,

TRANSCRIPTS,

Small Exhibits

ETC.

CLM-MM  
Attach.  
cc: NMOC  
L. C. White  
W. B. Hubbard

C. L. Whigham  
Division Production Engineer

Yours very truly,

Attached hereto is a copy of a letter with all necessary attachments to the New Mexico Oil Conservation Commission requesting that a hearing be scheduled to consider the application of Texaco Inc. for the above subject pilot waterflood project. A copy of all exhibits and information related to the request for hearing is attached hereto. The approval of your office for this proposed project is hereby respectfully requested by Texaco Inc.

Gentlemen:

State Engineer's Office  
Capitol Building  
Santa Fe, New Mexico

PILOT WATERFLOOD PROJECT  
RHODES FEDERAL "B" NGL-1 LEASE  
RHODES YATES OIL POOL  
LEA COUNTY, NEW MEXICO

June 16, 1964

P. O. BOX 110  
MIDLAND, TEXAS

TEXACO  
IN  
MAIN OFFICE OCC  
PETROLEUM PRODUCTS  
JUN 17 PM 1:36  
DOMESTIC PRODUCING DEPARTMENT  
MIDLAND DIVISION

TEXACO  
INC. MAIN OFFICE OCC

PETROLEUM PRODUCTS

JUN 17 PM 1136



P. O. BOX 3100  
MIDLAND, TEXAS

DOMESTIC PRODUCING DEPARTMENT  
MIDLAND DIVISION

June 16, 1964

PILOT WATERFLOOD PROJECT  
RHODES FEDERAL "B" NCT-1 LEASE  
RHODES YATES OIL POOL  
LEA COUNTY, NEW MEXICO

State Engineer's Office  
Capitol Building  
Santa Fe, New Mexico

Gentlemen:

Attached hereto is a copy of a letter with all necessary attachments to the New Mexico Oil Conservation Commission requesting that a hearing be scheduled to consider the application of Texaco Inc. for the above subject pilot waterflood project. A copy of all exhibits and information related to the request for hearing is attached hereto.

The approval of your office for this proposed project is hereby respectfully requested by Texaco Inc.

Yours very truly,

C. L. Whigham  
Division Proration Engineer

CLW-MM  
Attach.

cc: NMOCC  
L. C. White  
W. B. Hubbard

TEXACO  
INC.

PETROLEUM PRODUCTS

Case 3086  
MAIN OFFICE OCC

DOMESTIC PRODUCING DEPARTMENT  
MIDLAND DIVISION



1964 JUN 17 PM 1:35

P. O. BOX 8109  
MIDLAND, TEXAS

June 16, 1964

REQUEST FOR HEARING  
APPLICATION FOR SECONDARY RECOVERY  
RHODES YATES OIL POOL  
LEA COUNTY, NEW MEXICO

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

Gentlemen:

As provided by Rule 1203, Texaco Inc. hereby submits in triplicate a request for an Examiner hearing in Santa Fe, New Mexico, at your earliest convenience to consider the application of Texaco Inc. for approval to conduct a pilot waterflood project in the above subject field. It is planned to convert two of the presently producing wells to injection wells and to commence the injection of water as soon as possible. These wells are Texaco's Rhodes Federal "B" NCT-1 Well Nos. 7 and 10. Injection will be into the Yates and Seven Rivers Formations occurring at an average depth of approximately 3160' down to approximately 3280'. It is anticipated that initial injection rates will be approximately 200 to 300 barrels of water per well per day.

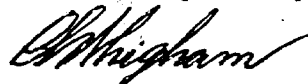
It is planned to use fresh water for the injection fluid which is available from three water wells located in Section 9, T-26-S, R-37-E, on Texaco's C. C. Cagle "A" Lease approximately three miles north of the proposed pilot flood. These wells were formerly used to furnish water for drilling operations in the area and to provide a Texaco camp with water. On a test conducted in 1952, one of the wells produced at the rate of 2000 barrels of water per day. These wells were drilled in about 1928 and completion records are not available. However, logs of more recent wells on the same lease indicate a water sand at a depth of approximately 260' to 400' which is the Santa Rosa Sand. Rock Island Oil & Refining Company is currently conducting a waterflood operation in Section 35 which is a south offset to Texaco's Rhodes Lease and is obtaining injection water from the same source reservoir. Their water wells located in Section 35 are approximately 550' deep.

June 16, 1964

In compliance with Rule 701 of the New Mexico Oil Conservation Commission rules, we are including with this application for hearing a plat of the project area showing all wells within a two-mile radius from the proposed injection wells. Also included are radioactivity logs of the two proposed injection wells showing the various formation tops. A diagrammatic sketch is included for both injection wells showing all information relevant to their current completion and proposed conversion to injection.

A copy of this application and all attachments are being forwarded under separate cover on this date to the State Engineer's office, Capitol Building, Santa Fe, New Mexico, requesting the approval of that office for this proposed pilot waterflood project.

Yours very truly,



C. L. Whigham  
Division Proration Engineer

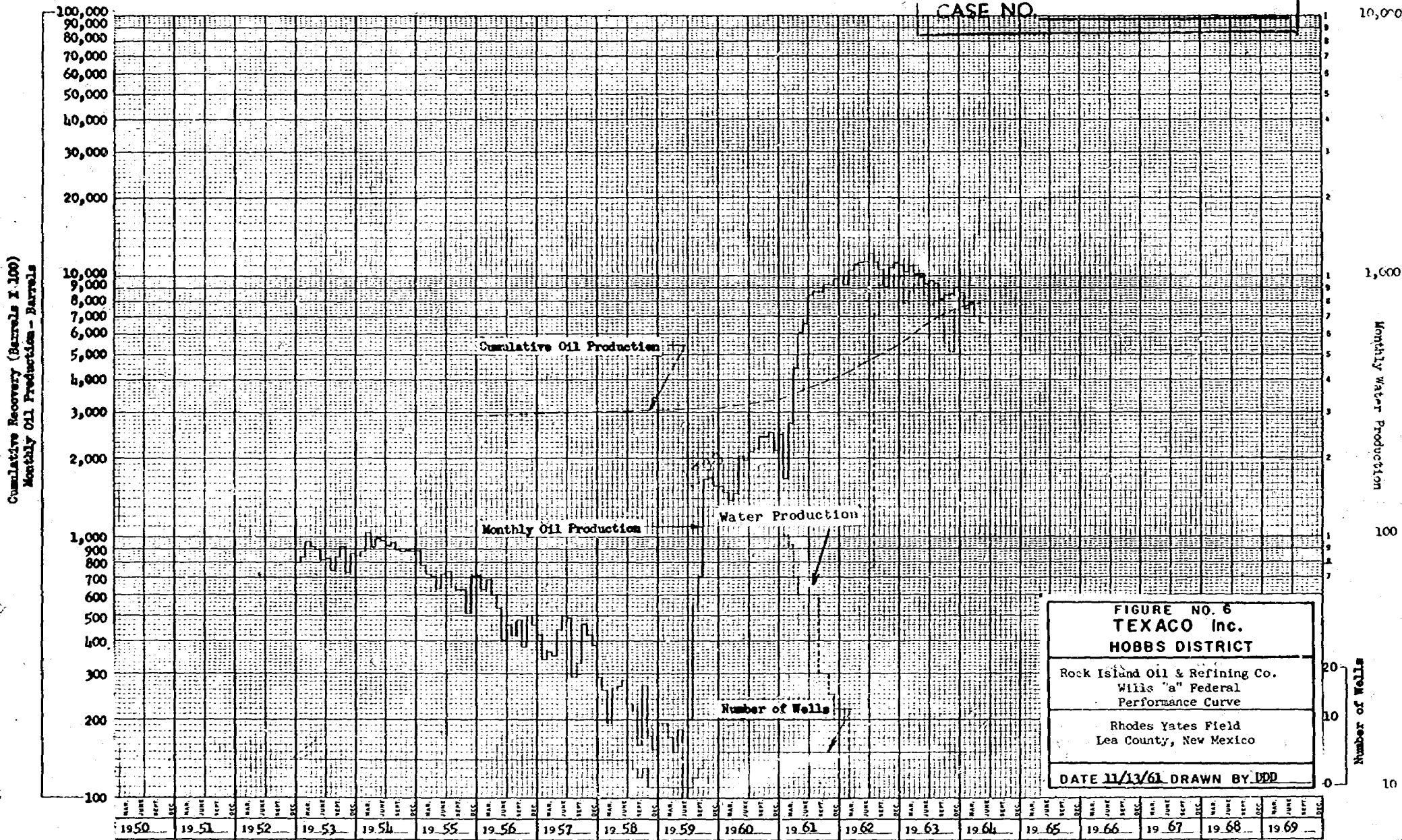
CLW-MM  
Attach.

cc: NMOCC-Hobbs  
State Engineer  
L. C. White  
W. B. Hubbard  
J. S. Rowe

DOCKET MAILED

Date 7/8/64

BEFORE EXAMINER NUTTER  
IL CONSERVATION COMMISSION  
3086 EXHIBIT NO. 6  
CASE NO.



TEXACO  
INC.

MAIN OFFICE OCC

PETROLEUM PRODUCTS



1964 JUL 24 PM 1:28

DRAWER 728

HOBBS, NEW MEXICO 88240

July 22, 1964

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

Attention Mr. Dan Nutter

Gentlemen:

As requested during the examiner hearing for TEXACO's application for waterflooding in the Rhodes Field, Lea County, New Mexico, on July 22, 1964, the following information is submitted to clarify certain data pertaining to W. H. Rhodes "b" (NCT-1) Well No. 10, proposed water injection well.

It is understood that the sketch presented at the hearing indicated production casing in the subject well is set at a depth of 3118', whereas the Radio Activity Log presented indicated the production casing to be set at a depth of 3018'. This is to advise that the true and correct depth of the 5-1/2" OD production casing in W. H. Rhodes' (NCT-1) Well No. 10 is 3118' as shown on the sketch presented at the hearing. The Radio Activity Log on this well erroneously shows 5-1/2 OD casing at 3018'. This incorrect indication is the result of an inadvertent error having been made when the casing shoe symbol was drafted on the Radio Activity log. The true and correct 5-1/2" OD casing depth of 3118' is correctly shown on the Radio Activity Log heading. The Radio Activity Log on this well was run through tubing and the collars marked on the log are tubing collars and not casing collars.

We trust the foregoing will clarify the inadvertent discrepancy in data presented at the hearing and regret that the drafting error on the log was not noticed and corrected prior to the hearing.

Please advise immediately if any additional information is required.

Yours very truly,

*D. M. Williams*

D. M. Williams  
District Petroleum Engineer

DMW:sg

cc: J. M. Williams





Case 3086

MAIN OFFICE OCC

STATE OF NEW MEXICO JUN 22 AM 7:53

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS  
STATE ENGINEER

June 19, 1964

ADDRESS CORRESPONDENCE TO:  
STATE CAPITOL  
SANTA FE, N. M.

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

Dear Mr. Porter:

Reference is made to the application of Texaco, Inc., which seeks approval of the water flood in the Rhodes Yates Oil Pool in Lea County which was submitted June 16, 1964. The two wells plan for conversion to injection are Texaco Rhodes Federal "B" NCT-1 Well Nos. 7 and 10. The diagrammatic sketches of the two wells indicate that injection will be through internally plastic coated tubing under a Guiberson type "AF" hookwall packer set at approximately 2830 feet below land surface.

This office offers no objection to the granting of this application provided the well construction and equipment plan shown on the diagrammatic sketches are not changed.

Yours truly,

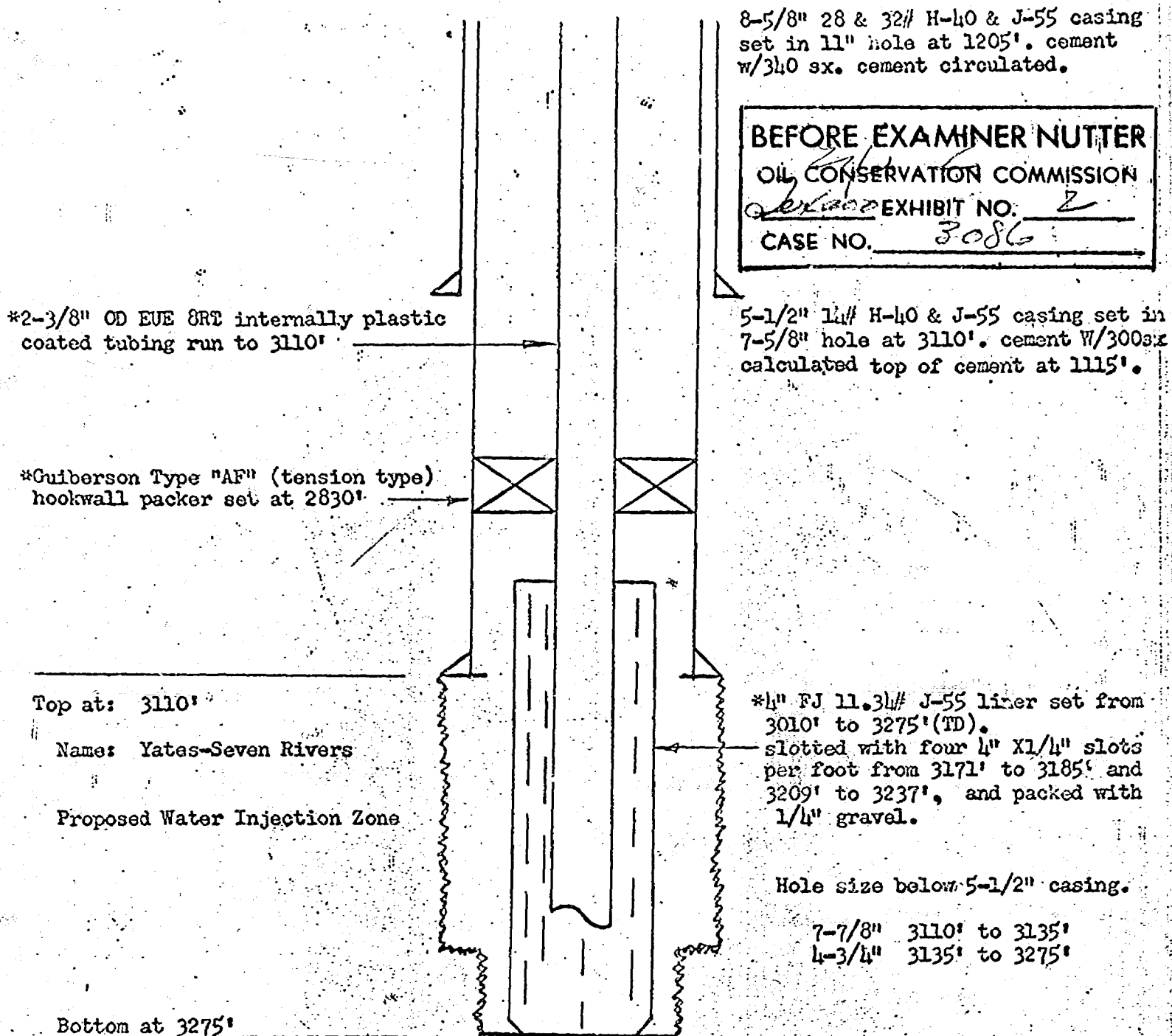
S. E. Reynolds  
State Engineer

FEI/ma

cc- L. C. White  
C. L. Whigham  
F. H. Hennighausen

By: *Frank E. Irby*  
Frank E. Irby,  
Chief,  
Water Rights Div.

PROPOSED WATER INJECTION WELL  
DIAGRAMMATIC SKETCH



COMPANY: TEXACO Inc.

LEASE: W. H. Rhodes "b" (NCT-1) Well No. 7

FIELD: Rhodes

COUNTY: Lea County, New Mexico

\*NOTE:

This well is currently completed in an open hole interval from 3110' to 3275' TD. The diagrammatic sketch indicates a liner and packer to be installed when converting the well to injection; therefore, packer depth, depth of liner top, and setting depth of tubing are approximate.

DOCKET: EXAMINER HEARING - WEDNESDAY - JULY 22, 1964

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

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

- CASE 3081: 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 in the Langlie-Mattix Pool by the injection of water through four wells at unorthodox locations in Section 21, Township 24 South, Range 37 East, Lea County, New Mexico.
- CASE 3082: Application of Union Oil Company of California for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation through perforations from 11,246 feet to 11,285 feet in its State-Gross Well No. 2 located in Unit L of Section 11, Township 12 South, Range 32 East, East Caprock Field, Lea County, New Mexico.
- CASE 3083: Application of General American Oil Company of Texas for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Premier Sand through twelve wells located in Sections 27, 28, 33 and 34, Township 17 South, Range 30 East, Eddy County, New Mexico. Certain of the aforesaid injection wells would be drilled at unorthodox locations.
- CASE 3084: Application of Fair Oil Company for a buffer zone extension and pool redelineation, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an amendment of Order No. R-2033 to extend the waterflood buffer zone authorized by said order to include the SE/4 NE/4 of Section 36, Township 17 South, Range 29 East, Eddy County, New Mexico. Applicant further seeks the extension of the Loco Hills Pool to include said quarter-quarter section, and the associated deletion of said acreage from the Grayburg-Jackson Pool.
- CASE 3085: Application of Humble Oil & Refining Company for two non-standard oil proration units, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of two non-standard 80-acre oil proration units in Section 7, Township 19 South, Range 35 East, Scharb Bone Springs Pool, Lea County, New Mexico. The first unit would comprise the NW/4 NE/4 and the NE/4 NW/4 of Section 7 and be dedicated to applicant's Alves Well No. 1 located in Unit B of said Section 7. The second unit would comprise the SW/4 NE/4 and the SE/4 NW/4 of Section 7 and be dedicated to applicant's Alves Well No. 2, which would be drilled in Unit G of said Section 7.
- CASE 3086: Application of Texaco Inc. for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Rhodes Yates Oil Pool by the injection of water into the Yates and Seven Rivers formations through two wells in Section 26, Township 26 South, Range 37 East, Lea County, New Mexico.

- CASE 3087: Application of William A. and Edward R. Hudson for an unorthodox location, Eddy County, New Mexico. Applicants, in the above-styled cause, seek authority to drill their Puckett "A" Well No. 26 at an unorthodox location 1295 feet from the North and West lines of Section 24, Township 17 South, Range 31 East, Eddy County, New Mexico. Said well would be projected to the Paddock formation at approximately 5400 feet.
- CASE 3088: Application of Phillips Petroleum Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Ranger Lake Unit Area comprising 2,680 acres, more or less, of State land in Township 12 South, Range 34 East, Lea County, New Mexico.
- CASE 3089: Application of Phillips Petroleum Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Ranger Lake-Pennsylvanian Pool in its Ranger Lake Unit Area by the injection of water into the Pennsylvanian formation through nine wells in Sections 14, 23, 24, 25, 26, 27, 34 and 35, Township 12 South, Range 34 East, Lea County, New Mexico.
- CASE 3090: Application of Tenneco Oil Company for salt water disposal, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in the Pictured Cliffs formation through its Callow Well No. 2 located in Unit B, Section 33, Township 29 North, Range 13 West, West Kutz-Pictured Cliffs Pool, San Juan County, New Mexico.
- CASE 3091: Application of The British-American Oil Producing Company for a dual completion and pool commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its North Wilson Deep Unit Well No. 1, located in Unit O of Section 31, Township 20 South, Range 36 East, Lea County, New Mexico, to produce oil from the Upper Bone Spring formation and the Lower Bone Spring formation through parallel strings of tubing. Applicant further seeks authority to commingle the production from said pools after separately metering the Lower Bone Spring production.
- CASE 3092: Application of The British-American Oil Producing Company for the creation of a new oil pool and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Upper Bone Spring production for its North Wilson Deep Unit Well No. 1, located in Unit O of Section 31, Township 20 South, Range 36 East, Lea County, New Mexico, which well is perforated from 7888 to 7901 feet. Applicant further seeks the promulgation of special rules for said pool, including a provision for 80-acre proration units.
- CASE 3093: Application of The British-American Oil Producing Company for the creation of a new oil pool and special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Lower Bone Spring production for its North Wilson Deep Unit Well No. 1, located in Unit O of Section 31, Township 20 South, Range 36 East, Lea County, New Mexico, which well is perforated from 10,094 to 10,122 feet. Applicant further seeks the promulgation of special rules for said pool, including a provision for 80-acre proration units.

CLASS OF SERVICE

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

# WESTERN UNION

## TELEGRAM

W. P. MARSHALL, PRESIDENT

SYMBOLS

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

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

LA026 DC029

1964 JUL 8 AM 9:53

D MDA027 PD=FAX MIDLAND TEX 8 1002A CST

NEW MEXICO OIL CONSERVATION COMMISSION

STATE LAND OFFICE BUILDING SANTA FE NEW MEXICO

REFERENCE TEXACO LETTER JUNE 16 REQUESTING HEARING  
FOR RHODES WATER FLOOD. PLEASE ADVISE DATE OF HEARING

C L WHIGHAM

*Cas 3086*

*Called Border Kelly  
and he was to call*

*Mr Whigham*

*7-8-64*

*Do not*

*Mailed 7/8/64*

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

GOVERNOR  
EDWIN L. MECHEM  
CHAIRMAN

State of New Mexico  
Oil Conservation Commission



LAND COMMISSIONER  
E. S. JOHNNY WALKER  
MEMBER

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

P. O. BOX 2088  
SANTA FE  
87501

Mr. Charlie White  
Gilbert, White & Gilbert  
Attorneys at Law  
Post Office Box 787  
Santa Fe, New Mexico

Dear Sir:  
~~Sentiment:~~

Enclosed herewith is Commission Order No. R- 2748, entered in Case  
No. 3086, approving the Texaco Rhodes  
Water Flood Project.

*para* *as to allowable* *indicate that*  
~~According to our~~ calculations, when all of the authorized injection  
wells have been placed on active injection, the maximum allowable which this  
project will be eligible to receive under the provisions of Rule 701-E-3  
is 210 barrels per day,

Please report any error in this calculated maximum allowable immediately,  
both to the Santa Fe office of the Commission and the appropriate District  
proration office.

In order that the allowable assigned to the project may be kept current,  
and in order that the operator may fully benefit from the allowable provisions  
of Rule 701, it behooves him to promptly notify both of the aforementioned  
Commission offices by letter of any change in the status of wells in the project  
area, i.e., when active injection commences, when additional injection or  
producing wells are drilled, when additional wells are acquired through purchase  
or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status  
of the project and the wells therein will be appreciated.

Very truly yours,

cc: Hobbs OCC  
Frank Irby

A. L. PORTER, Jr.  
Secretary-Director

OIL CONSERVATION COMMISSION  
P. O. BOX 871  
SANTA FE, NEW MEXICO

July 29, 1964

C Mr. Charlie White  
Gilbert, White & Gilbert  
Attorneys at Law  
Post Office Box 787  
Santa Fe, New Mexico

O Dear Sir:

Enclosed herewith is Commission Order No. R-2748, entered in Case No. 3086, approving the Texaco Rhodes Waterflood Project.

P Injection is to be through the two authorized wells which shall be equipped with 2-3/8 inch tubing and packers set at approximately 2830 feet.

Y As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 210 barrels per day, provided however, that if the lease in Section 27 directly West of this project is of identical ownership or is unitized with the subject acreage, the maximum allowable would be 336 barrels per day.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

July 29, 1964

C Mr. Charlie White  
Gilbert, White & Gilbert  
Attorneys at Law  
Post Office Box 787  
Santa Fe, New Mexico

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OIL CONSERVATION COMMISSION  
P. O. BOX 871  
SANTA FE, NEW MEXICO

-2-

Mr. Charlie White  
Gilbert, White & Gilbert  
Post Office Box 787  
Santa Fe, New Mexico  
July 29, 1964

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Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

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

ALP/DSM/lr

cc: Oil Conservation Commission  
Hobbs, New Mexico

Mr. Frank Zrby  
State Engineer Office  
Santa Fe, New Mexico

July 29, 1964

C  
O  
P  
Y

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. 3086  
Order No. R-2748

APPLICATION OF TEXACO INC.  
FOR A WATERFLOOD PROJECT, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on July 22, 1964, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 29th day of July, 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, Texaco Inc., seeks permission to institute a waterflood project in the Rhodes Yates Oil Pool by the injection of water into the Yates and Seven Rivers formations through two injection wells in Section 26, Township 26 South, Range 37 East, NMPN, Lea County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

-2-

CASE No. 3086

Order No. R-2748

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Texaco Inc., is hereby authorized to institute a waterflood project in the Rhodes Yates Oil Pool by the injection of water into the Yates and Seven Rivers formations through the following-described wells in Section 26, Township 26 South, Range 37 East, NMPM, Lea County, New Mexico:

W. H. Rhodes "b" (NCT-1) Well No. 7, Unit L  
W. H. Rhodes "b" (NCT-1) Well No. 10, Unit N

(2) That the subject waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1119 of the Commission Rules and Regulations.

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

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

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

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

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

esr/

PROPOSED WATER INJECTION WELL  
DIAGRAMMATIC SKETCH

8-5/8" 28# H-40 casing set in 11" hole at 1193'. Cement w/300 sx. cement circulated.

BEFORE EXAMINER NUTTER  
OIL CONSERVATION COMMISSION  
EXHIBIT NO. 3  
CASE NO. 5002

H-40 5-1/2" 14 & 15.5# casing set in 7-5/8" hole at 3118'. Cement w/300sx calculated top of cement at 1088'.

\*2-3/8" OD EUE 8RT internally plastic coated tubing run to 3150'.

\*Gulberson Type "AFM" (tension type) hookwall packer set at 2830'.

\*4" BJ 11.3L# J-55 liner set from 3018' to 3324'. (TD) slotted with four 4" x 1/4" slots per foot from 3204' to 3226' and 1/4" gravel. Hole size below 5-1/2" casing. 7-7/8" 3118' to 3125' 7-3/4" 3125' to 3324'.

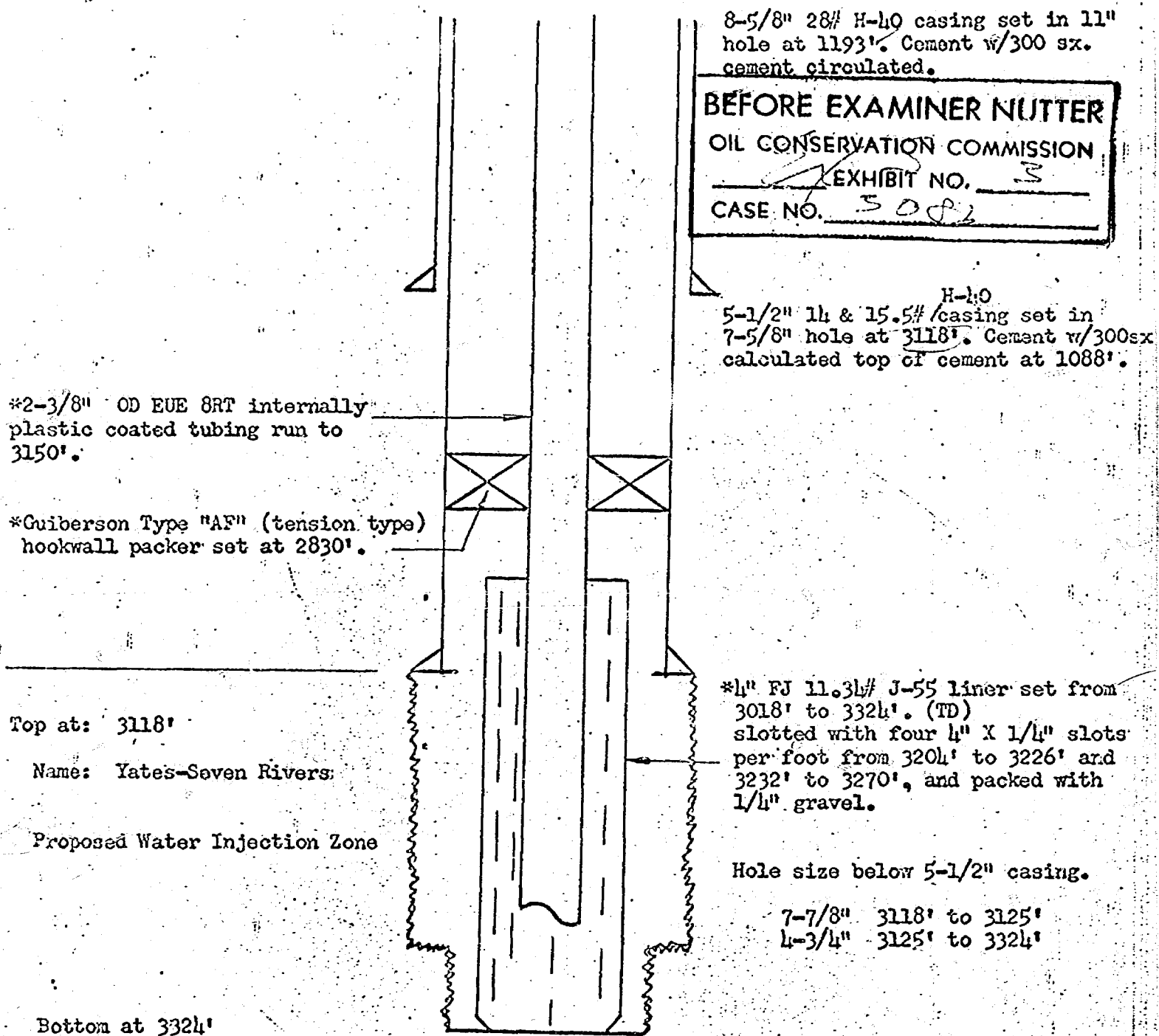
Top at: 3118'  
Name: Yates-Seven Rivers  
Proposed Water Injection Zone

Bottom at 3324'

COMPANY: TEXACO Inc.  
LEASE: W. H. Rhodes "B" (NCT-1) Well No. 10  
FIELD: Rhodes  
COUNTY: Lea County, New Mexico

\*NOTE: This well is currently completed in an open hole interval from 3118' to 3324' TD. The diagrammatic sketch indicates a liner and packer to be installed when converting of tubing are approximate.

PROPOSED WATER INJECTION WELL  
DIAGRAMMATIC SKETCH



COMPANY: TEXACO Inc.

LEASE: W. H. Rhodes "b" (NCT-1) Well No. 10

FIELD: Rhodes

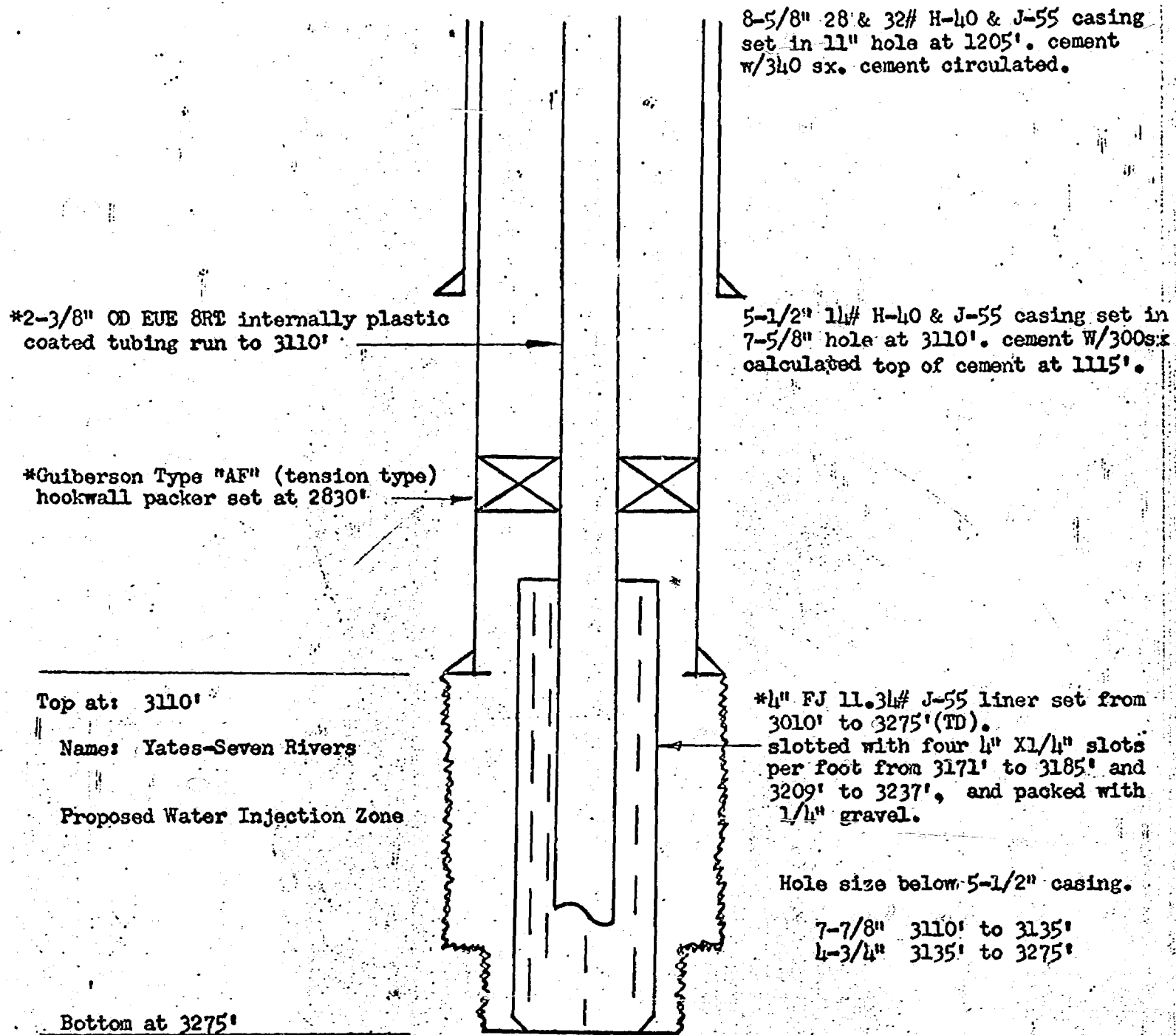
COUNTY: Lea County, New Mexico

\*NOTE:

This well is currently completed in an open hole interval from 3118' to 3324' TD. The diagrammatic sketch indicates a liner and packer to be installed when converting the well to injection; therefore, packer depth, depth of liner top, and setting depth of tubing are approximate.

PROPOSED WATER INJECTION WELL  
DIAGRAMMATIC SKETCH

Case 3086



COMPANY: TEXACO Inc.

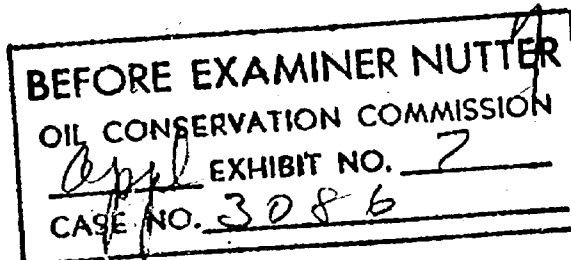
LEASE: W. H. Rhodes "b" (NCT-1) Well No. 7

FIELD: Rhodes

COUNTY: Lea County, New Mexico

\*NOTE:

This well is currently completed in an open hole interval from 3110' to 3275' TD. The diagrammatic sketch indicates a liner and packer to be installed when converting the well to injection; therefore, packer depth, depth of liner top, and setting depth of tubing are approximate.



June 19, 1964

C  
O  
P  
Y

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

Dear Mr. Porter:

Reference is made to the application of Texaco, Inc., which seeks approval of the water flood in the Rhodes Yates Oil Pool in Lea County which was submitted June 16, 1964. The two wells plan for conversion to injection are Texaco Rhodes Federal "B" NCT-1 Well Nos. 7 and 10. The diagrammatic sketches of the two wells indicate that injection will be through internally plastic coated tubing under a Guiberson type "AF" hookwall packet set at approximately 2830 feet below land surface.

This office offers no objection to the granting of this application provided the well construction and equipment plan shown on the diagrammatic sketches are not changed.

Yours truly,

S. E. Reynolds  
State Engineer

FBI/ma

cc- L. C. White  
C. L. Whigham  
F. H. Hennighausen

By:

Frank E. Irby,  
Chief,  
Water Rights Div.

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
July 22, 1964

EXAMINER HEARING

**DEARNLEY-MEIER REPORTING SERVICE, Inc.**

FARMINGTON, N. M.  
PHONE 325-1182

SANTA FE, N. M.  
PHONE 983-3971

ALBUQUERQUE, N. M.  
PHONE 243-6691

IN THE MATTER OF:

Application of Texaco Inc. for a water-  
flood project, Lea County, New Mexico.  
Applicant, in the above-styled cause,  
seeks authority to institute a waterflood  
project in the Rhodes Yates Oil Pool by  
the injection of water into the Yates and  
Seven Rivers formations through two wells  
in Section 26, Township 26 South, Range  
37 East, Lea County, New Mexico.

Case No. 3086

BEFORE: DANIEL S. NUTTER, Examiner.

TRANSCRIPT OF HEARING





MR. NUTTER: We will call Case 3086.

MR. DURRETT: Application of Texaco Inc. for a water-flood project, Lea County, New Mexico.

MR. WHITE: Charles White, Santa Fe, New Mexico appearing on behalf of the Applicant. We have one witness to be sworn at this time.

(Witness sworn.)

(Whereupon, Applicant's Exhibit No. 1 was marked for identification.)

CARL L. WHIGHAM

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

DIRECT EXAMINATION

BY MR. WHITE:

Q Will you state your full name, please?

A Carl L. Whigham.

Q By whom are you employed and in what capacity?

A I am employed by Texaco Incorporated as Division Production Engineer for the Midland Division.

Q Have you previously testified before the Commission?

A Yes, sir.

Q Are you familiar with the subject application in Case

3086?



A Yes, sir, I am.

Q What does Texaco seek by the application?

A Texaco Incorporated seeks the approval of the New Mexico Oil Conservation Commission to conduct a waterflood operation on the Texaco Rhodes BNCT-1 lease in Section 26, Township 26 South, Range 37 East, in Lea County, New Mexico.

Q Will you refer to Exhibit No. 1 and explain that ownership plat?

A Exhibit No. 1 is an ownership plat showing all the wells drilled in the project area within a radius of about two and a half miles from the proposed injection wells. It shows the zone in which each of the wells is completed. It also shows encircled in red the two proposed injection wells that Texaco plans to conduct injection operations after approval of this application.

Q Your proposed injection would be made into what formation?

A It's planned to inject water into the present producing intervals in Well No. 7 and Well No. 10, which is the Rhodes Yates Seven Rivers oil-producing reservoir located at an average depth of about 3,160 feet down to approximately 3,280 feet.

(Whereupon, Applicant's Exhibits Nos. 2 & 3 were marked for identification.)

Q I now refer you to your diagrammatic sketches, Exhibits



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2 and 3. Would you explain those, please?

A Exhibits 2 and 3 are diagrammatic sketches of the subsurface installation of both of the proposed injection wells. It shows the casing installation in each of the wells. It shows that they have been completed in an open hole interval and each of the wells has production casing set down to the top of the pay.

Well No. 7 shows that the top of the producing reservoir was encountered at a depth of 3,110, and the top of the producing pay in Well No. 10 is 3,118. In addition to the present subsurface installation it shows that the plan for water injection includes injection down 2 and 3/8ths-inch O.D. internally plastic-coated tubing set inside the production casing with a Guiberson type AF tension type packer. The amount of cement used in the casing installation is indicated and the sketch in general shows that there is no chance of contaminating other reservoirs by injecting fluid into the present producing reservoirs in these two wells.

Q In other words, the casing program and installation is such that there will be no communication between formations?

A Yes, that's correct.

Q Have you previously submitted to the Commission your radioactivity log for these two wells?

A Yes, they were submitted with our application for hearing and the tops of the various formations encountered in drilling are



marked on those logs.

MR. WHITE: If the Examiner please, could those logs be marked Exhibits 4 and 5 for the purpose of the record?

(Whereupon, Applicant's Exhibits Nos. 4 and 5 were marked for identification.)

Q Are these logs self-explanatory?

A Yes. They would be self-explanatory.

Q Do you intend to inject fresh water into these wells, and if so, what is your source of supply?

A Yes, it is intended to inject fresh water into this project and the source is the Santa Rosa formation. At the present time Texaco Incorporated has three water wells located in Section 9, Township 26 South, Range 37 East, on the C. C. Cagle, A lease which is approximately three miles north of the proposed waterflood. These wells were formerly used to furnish water for drilling operations in this area and also to provide water for the Texaco Camp a few years ago.

On a test conducted in 1952 one of these wells produced at a rate of 2,000 barrels of water per day, and at the present time tests are being conducted on the other wells, but we feel quite sure that this source will provide adequate water for this waterflood project.

Q What do you anticipate your initial water injection to



be?

A We anticipate that initial injection will be in the order of 200 to 300 barrels of water per day in each of the two wells.

Q Will this proposed water injection program be conducted or operated in conjunction with any other waterflood within the immediate area?

A Yes, it will. It will be on pattern with a flood that has been in operation since November, 1959, immediately south of the Texaco Rhodes BNCT 1 lease. This flood that I refer to is operated by Rock Island Oil and Refining Company on their Wills Lease in Section 35, Township 26, Range 37.

Q That's immediately to the south of your lease?

A Yes, it is.

(Whereupon, Applicant's Exhibit No. 6 was marked for identification.)

Q Will you refer to Exhibit 6 and explain that exhibit, please?

A Exhibit 6 is a chart showing the production performance of this secondary recovery project operated by Rock Island Oil and Refining Company. It shows that the initiation date of the waterflood was in November, 1959. It shows that a significant response was obtained from the remaining producing wells shortly after the



initiation of injection. It also shows that the current rate of oil production from the five producing wells is in the order of 6,500 barrels as of May, 1964. During that same month the current rate of water injection was 21,679 barrels. This water is being injected at an average pressure of approximately 1200 pounds per square inch.

In this flood since initiation in 1959 a total of 1,275,374 barrels of water have been injected into the reservoir. As previously stated, there are five producing wells and there are eight injection wells.

Q Then, in your opinion, this exhibit shows that the formation would be responsive to waterflooding?

A Yes, sir. It shows the Rhodes Yates formation to be highly susceptible to waterflooding operation.

Q Are your wells nearing the depletion stage at the present time?

A Yes, they have. They have approached the depletion point. Well No. 7 currently produces approximately eight barrels of oil per day and Well No. 10 produces about 18 barrels of oil per day.

Q Now, take down in the Rock Island waterflood project, what are those wells producing in comparison to your Wells 7 and 10?



A The three producing wells nearest Texaco's lease in an east-west direction produce respectively 60 barrels of oil per day, 50 barrels per day and 20 barrels per day.

Q Did you send a copy of your application with the attachments to the State Engineer's Office?

A Yes. On the same date that an application was made for hearing we sent a copy of the application with all attachments to the State Engineer's Office.

Q Did you receive a reply from the State Engineer?

A Yes, we received a carbon copy of the letter from the State Engineer to the Oil Conservation Commission approving this project.

(Whereupon, Applicant's Exhibit No. 7 was marked for identification.)

Q That is your Exhibit No. 7?

A Yes, sir.

Q In your opinion will the proposed project be in the interest of conservation and tend to prevent waste?

A Yes, sir, it definitely will.

Q Would you like the proposed order to permit expansion of this program by administrative approval?

A Yes, we would. We would like, if possible, to have the order include provisions for administrative approval of



expansion. This request is made in view of the fact that Texaco also has a lease on the East Half of Section 27, adjoining the Rhodes Federal BNCT 1 lease.

Q Were Exhibits 1 through 7 true and correct to the best of your knowledge and belief?

A Yes, sir, they are.

MR. WHITE: At this time we offer the exhibits, and that concludes our testimony.

MR. NUTTER: Applicant's Exhibits 1 through 7 will be entered in evidence.

(Whereupon, Applicant's Exhibits 1 through 7 were offered and admitted in evidence.)

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

MR. DURRETT: I have one question, please.

CROSS EXAMINATION

BY MR. DURRETT:

Q Mr. Whigham, concerning your request for an administrative procedure to expand your flood, you don't feel that the provisions of Rule 701 would be adequate concerning expansion of the flood when you receive a response?

A Yes, that would be satisfactory. The reason I made the request is to provide for expansion without hearing. That was





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the primary purpose.

MR. DURRETT: Thank you.

BY MR. NUTTER:

Q Referring to your Exhibit No. 3, which is the diagrammatic sketch of your Well No. 10 --

A Yes, sir.

Q -- I notice it says there that the 5- $\frac{1}{2}$ " casing is set at 3118 feet. Yet Exhibit No. 5, the radioactivity log of the Well No. 10 indicates that the 5- $\frac{1}{2}$ " casing is set at 3018. I wonder if this is an error in Exhibit No. 3 or Exhibit No. 5.

A Mr. Examiner, it undoubtedly is a typographical error in that it's exactly a 100-foot discrepancy. I believe that it would be best for me to check on that and advise you by letter so that we would be certain.

Q Then, some of these other figures, if the error is on Exhibit 3, there will be several figures there, probably the top of the formation at 3118 may be in error. That's possibly 3018. I have an idea from looking at the other well and looking at this one that an effort was made to set the pipe on the top of the Yates formation. So a couple of these figures will probably have to be corrected on free?

A Yes, sir.

Q If you'll advise us.



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A Yes, I surely will. Actually the tops would correlate better at a depth of 3118 for Exhibit No. 3, and that probably is correct, and the notation on the log is in error, but I will advise you by letter.

Q Since the production casing is set at the top, you propose to run a four-inch liner down through the pay, is that correct?

A Yes, that's correct.

Q Now, that liner wouldn't be cemented or anything, it will just be set in the hole and the tubing set in that with the packer above the top of the liner?

A Yes, that's right. The purpose of the liner is to exclude the sand production.

Q The tubing that will be run in both of these injection wells will be internally plastic coated?

A That's correct.

Q What's been the primary production on the Rhodes lease here in Section 26, or is that all one lease, the Rhodes in 27 and the Rhodes lease in 26?

A It's the same basic lease, but the one in Section 26 is designated as NCT 1 and the lease in Section 27 has a different designation.

Q All five of these wells are currently producing, is



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is that the case?

A That's correct.

Q What's the total cumulative production from the five wells on NCT 1 lease in Section 26?

A I don't have that figure with me.

Q What's the current rate of production?

A Well No. 7 is producing eight barrels a day. Well No. 8 is producing eight barrels per day, Well No. 10 is producing 18 barrels per day, No. 11 is producing 10 barrels per day, and No. 12 is producing one barrel of oil per day.

Q And the No. 7 and the No. 10 are the two injection wells?

A Yes, sir.

Q Have you made any estimates of your secondary recovery from this area?

A In general we would estimate that the additional recovery by secondary recovery operations would be at least fifty percent of the primary production from this lease.

Q Do you happen to know how the secondary recovery to date on the Rock Island Wills lease compares with the primary production?

A It would be difficult to estimate at the present time because those wells are still producing at a very significant



rate so we don't know what it would be ultimately.

Q This Exhibit No. 6 of yours --

A Yes.

Q -- where it picks up with the production in the primary life of the lease in 1953, is that the initial development or was there some primary life prior to that?

A It's my understanding that that was the primary development and the decline continued on down to 1958. Additional wells were put on production immediately prior to the initiation of their waterflood project, and this resulted in a significant increase in producing rate and it is up to about sixteen or seventeen hundred barrels per day; and then following that, within another year or eighteen months production had actually exceeded 10,000 barrels per month from those five producing wells, so they got a very significant response to their water injection project.

Q While their flood is still producing very significant quantities of oil, it does appear that it did peak out back in '62 probably?

A Yes, that's correct. It appears that the decline at the present time is actually about the same rate as it was in primary production.

MR. NUTTER: Are there any further questions of Mr. Whigham? You will furnish us with the information on that Exhibit

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No. 3?

A Yes, we'll correct that discrepancy, Mr. Examiner.

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

(Witness excused.)

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

MR. WHITE: No, sir, thank you.

MR. NUTTER: Does anyone have anything they wish to offer in Case 3086?

MR. SNYDER: A. E. Snyder with Amerada Petroleum Corporation. Amerada has substantial interest in this area and we concur with Texaco in this application for starting the water-flood project.

MR. NUTTER: Thank you. If there's nothing further in Case 3086 we will take this case under advisement.

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STATE OF NEW MEXICO )  
 ) ss  
COUNTY OF BERNALILLO )

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commmsion 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 31st day of July, 1964.

*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. 3086 heard by me on July 22, 1964.

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



DRAFT

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. 3086

Order No. R-2748

APPLICATION OF TEXACO INC.  
FOR A WATERFLOOD PROJECT, LEA COUNTY,  
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on  
July 22, 1964, at Santa Fe, New Mexico, before Examiner  
Daniel S. Nutter.

NOW, on this        day of July, 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, Texaco Inc.,  
seeks permission to institute a waterflood project in the Rhodes  
Yates Oil ~~in the~~ ~~Unit Area~~ Pool by the injection of water into the  
Yates and Seven Rivers formation through two injection wells in  
Section 26, Township 26 ~~North~~, Range         
37 ~~West~~, NMPM, Lea County, New Mexico.  
East

(3) That the wells in the project area are in an advanced  
state of depletion and should properly be classified as "stripper"  
wells.

(4) That the proposed waterflood project should result in the  
recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Texaco Inc.,  
is hereby authorized to institute a waterflood project in the  
Rhodes Yates Oil ~~in the~~ ~~Unit Area~~ Pool by the injection of water into the  
Yates and Seven Rivers formations through the following-described wells  
Section 26,  
in/Township 26 ~~North~~, Range 37 ~~West~~,  
South East  
NMPM, Lea County, New Mexico:

*W.H. Rhodes "b" (NCT-1) well No 7, Unit L*  
*W.H. Rhodes "b" (NCT-1) well No 10, Unit N*

(2) That the subject waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and <sup>1119</sup>~~1119~~ of the Commission Rules and Regulations.

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

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