

CASE 4319: Application of TEXACO  
INC. FOR DOWNHOLE COMMINGLING,  
LEA COUNTY, NEW MEXICO.

Case Number

4319

Application  
Transcripts.

Small Exhibits

ETC.

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

209 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO



BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
March 25, 1970

EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco Inc. for  
downhole commingling, Lea County,  
New Mexico.

Case No. 4319

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: The hearing will come to order. Case 4319.

MR. HATCH: Case 4319. Continued from the March 4, 1970, Examiner Hearing. Application of Texaco Inc. for downhole commingling, Lea County, New Mexico.

MR. KELLY: Booker Kelly of White, Gilbert, Koch and Kelly, Santa Fe, on behalf of the Applicant. I have one witness and ask that he be sworn.

(Witness sworn).

(Whereupon, Applicant's Exhibits 1 through 9 were marked for identification).

MR. UTZ: Other appearances? You may proceed.

C. H. FINKAY

the Witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLY:

Q Would you state your name and address, please?

A C. H. Finkay from Midland, Texas.

Q By whom are you employed and in what capacity?

A Texaco Incorporated as a proration engineer.

Q Have you previously qualified as an expert petroleum engineer before this Commission?

A No, I haven't.

O Would you give the Examiner a brief resume of your education and professional background?

A I graduated from the University of Tulsa, 1949, with a Bachelor of Science in petroleum engineering; have worked with Texaco in Oklahoma, Illinois and Kansas and I recently transferred to Texas.

O Are you now involved in proration work in the fields that concern the application Texaco is presenting this afternoon?

A Yes, I am.

O Have you previously qualified as an expert witness in other states?

A Yes, I have.

MR. KELLY: Are the witness' qualifications acceptable?

MR. UTZ: Yes, sir, they are.

O (By Mr. Kelly) Now, referring to what has been marked Exhibit Number One, a plat of the area, would you briefly state what Texaco seeks by this application?

A Texaco seeks to downhole commingle two zones in triple completed wells in the Vacuum Field in Lea County, New Mexico. This map is colored-coated to show the production

from the Glorietta, Blinney, North Abo, Wolfcamp, upper-Pennsylvanian and Devonian.

Q And the two wells involved in this application are shown with the arrows; is that correct?

A Yes, that's correct.

Q What are the two zones involved?

A The two zones involved are the Abo North and the Wolfcamp.

Q And that's for both wells?

A Yes.

Q Now, are these wells located anywhere near the Mobil Well that was heard this morning?

A These are approximately one mile south of the Mobil Well that was heard this morning.

Q Now, have you sent copies of this application to offset operators that offset both of these wells?

A Yes, we have.

Q Now, let's start with the Texaco "O" Number Four Well located in the southeast of the southeast of Section 25. What is the present status of that well?

A The present status of this well is the Abo is flowing 9 barrels of oil and no water a day. The Wolfcamp has been shut in since March of '68 and the Penn Zone is

flowing 76 oil and no water a day.

Q And you have an exhibit that lists the well bore characteristics and the true characteristics of these two wells marked Exhibit Number Two?

A Yes.

Q Would you go over the significant portions of that exhibit for the Examiner?

A Okay. Exhibit Number Two is the data pertaining to the upper and lower pool that are to be commingled or asking to be commingled. Comparing them straight across, the Vacuum-Abo North and the Vacuum-Wolfcamp will be commingled downhole.

The Vacuum North is now flowing. The Vacuum-Wolfcamp is shut in. The bottom hole pressure in the Vacuum is 2775 as per a bomb test on 1-8-'70. The Wolfcamp, we estimate the bottom hole pressure to be 1850 PSI.

Both crudes are intermediate sweet crudes. The gravity of the Abo oil is 39.8 degrees; the Wolfcamp is 38.7 degrees. The GOR limit of the pool is two thousand to one in both fields.

The completion interval of the Abo is 8420 to 9251 and for the Wolfcamp, 9627 to 10,005. A test on January the 10th, 1970 showed the Abo to be producing nine oil and

no water with a COR of 4444 to 1. The Wolfcamp for the last test we had in September of 1967 showed a production of forty-six oil, forty-six water and a thousand and sixty-one GOR.

The selling price of the Abo oil is 3.34 a barrel and for the Wolfcamp would be 3.32 a barrel. The daily income from the Abo is \$30.06 a day and for the Wolfcamp would be \$152.72 a day. The commingled data shows the commingled oil should be 39 gravity oil at a selling price of 3.34 a barrel.

The daily income should be \$183.70 a day. We should gain ninety-two cents a day by virtue of increasing the gravity oil by commingling downhole.

Q Now, your estimate of forty-six barrels of oil on your Vacuum-Wolfcamp is based on your production rate before you lost that well; is that right?

A Yes, that's right.

Q And there would be no reason to think that would be any higher?

A No, we wouldn't. If it would be anything, it would be lower.

Q How about your water production. Do you have any reason to believe that would be any higher?

A This probably should decrease from experience in



this pool.

Q Now, are you aware of any plans to conduct secondary recover projects in this area?

A We are making no plans at this time.

Q Do you feel that commingling these two pools in this well would have any adverse effect on any future plans to?

A We don't think it would. Should we decide to waterflood, we will probably squeeze off the commingled zones and isolate them.

Q Now, going on to what has been marked Exhibit Number Three, your performance curves, would you explain that to the Examiner?

A This is the oil production plotted for these wells from the time they were first drilled. The solid line is the Wolfcamp production which has been shut in as of the early part of '68 and by continuing this decline, we estimate we will get an additional amount of oil by commingling.

The bar graph chart is the Abo production which is currently producing in this pool and this is on a decline. We don't think the sum of these two would be greater than the limits of eighty barrels a day for commingled production.

Q Go on to Exhibit Number Four now.

A Exhibit Number Four are the economics for New Mexico "Q" State Well Number Four. Comparing the remaining life of the pool, the Abo we estimate would remain 5.3 years, the Wolfcamp 7 years and the commingled zones 8 and one-half years.

The remaining reserves from the Abo are 8300 barrels, from the Wolfcamp 17,340 and the commingled zones 28,100. The economic limit for all cases would be two barrels a day. The cumulative production from the Abo to 1-1-'70 has been 47,331; from the Wolfcamp 38,643.

The ultimate recovery from the Abo should be 55631 and from the Wolfcamp 55983 and the commingled zones 114,074. This gives us an increase in reserves of 2460 barrels by commingling. The operating cost per day in the Abo is currently 450 and the Wolfcamp is 560 and the commingled zones would be 560.

Q Now, unless you were allowed to commingle, is there any other way you can produce your Wolfcamp?

A Not without an extensive work-over.

Q Would it be economic to work it over for the amount of oil you estimate is left there?

A This would make it on the marginal status.

Q All right. Let's go to Exhibit Number Five, your full sketch of how you would produce this oil.

A Okay. Proposed sketch of how we would produce this oil. We currently have a restriction or communication between the North Abo and the Wolfcamp at 8430. To eliminate this in our previous production, we had run a string of two and a sixteenth-inch in the Wolfcamp to keep the oil isolated from the Wolfcamp side of this triple completion.

We will pull the string out of the Wolfcamp completion and allow the present commingled perforation of 8430 fro Abo oil to migrate to the Wolfcamp string and produce this with a rod pump.

Q In your opinion, would this proposed installation prevent migration of fluids to any other zone?

A We think it would.

Q Now, in sum, is the situation here basically an administrative application except for the fact that you are dealing with a triple completion and that you are unable to produce your Wolfcamp at the present time?

A This is right.

Q Now, let's go back to Exhibit Number One, your plat and locate the second well. Now, what is its present status?

A The second well is in Unit "E" of Section 30, 17 South, 35 East. This well is currently dually completed in the Glorietta, the Abo and the Wolfcamp. The Glorietta is currently producing three oil and ten water, the Abo is producing four oil and no water and the Wolfcamp is producing thirty-three oil and two water.

Q Now, there is commingled production in this well at the present time?

A Yes, there is.

Q What zones are commingled?

A The Abo and the Wolfcamp.

Q All right. Going on to Exhibit Number Six is the same type of sheet that you prepared for the other well.

Would you briefly go over that for the Examiner?

A This sheet commingling the Upper Abo and the Wolfcamp which were producing thirty-seven barrels of oil and two barrels of water before they were commingled and after they were commingled they produced forty-eight barrels of oil and no water.

The data we had on these two wells were as follows, both zones were pumping at the time; the bottom hole pressure of the upper zone or North Abo was 900 PSI, estimated; the Wolfcamp was 1150, estimated.

They were both intermediate sweet crudes. The gravity of the Abo was 37.9; the gravity of the Wolfcamp was 37.4. The GOR limit once again was two thousand to one for both sides. The completion interval for the Abo was 9079 to 9214 and for the Wolfcamp 9612 to 9833.

A test on 10-25-'69 showed the Abo producing four oil and no water in twenty-four hours and the gas too slight to measure. The Wolfcamp on 10-26-'69 produced thirty-three oil and two water and a GOR of 1812 to 1.

The selling price of both crudes were 3.30 per barrel. The daily income from the Abo was \$13.20 a day and from the Wolfcamp was \$108.90 a day. The commingled gravity of the oil is 37.5 degrees and the selling price is 3.30 a barrel and a total income of \$122.10 a day. There has been no gain or loss on value of the oil from commingling.

Q Now, I assume that your testimony on the effect of any future secondary recovery project in the earlier well would be the same for here, that there would be no adverse effect on commingling if you did institute a secondary recovery project in the future?

A This is right.

Q And you have prepared Exhibits Number Seven and Eight which show the production history of the well and the

fact that if commingling was allowed, you would be able to produce more oil from both of these zones: is that correct?

A That is correct.

Q Now, going on to Exhibit Number Nine, which shows the installation which is presently in the well, I assume. Would you explain that to the Examiner?

A Presently this well has the Wolfcamp, the Abo and the Glorietta open. We plan on perforating this North Abo string with a circular shot to perforate all casing at approximately 9612 to 17 or has been perforated there.

We are pumping through a North Abo string with a rod pump and venting the gas through the Wolfcamp. This Glorietta string is set at approximately 7,000 feet and we think that cement between 7,000 and 10,000 will serve as a barrier to prevent migration between commingled zones and isolated zones.

Q Now, have you had any problem with communication in this installation?

A Not in this installation at all.

Q In your opinion, would the granting of this application as to both wells allow you to prolong the productive life of this well or both fields?

A Yes, it would.

Q Thereby prevent waste by allowing you to recover additional hydrocarbons?

A This is right.

Q In your opinion, would the granting of this application have any adverse effect on the correlative rights of any operators in the field?

A The lease is owned one hundred percent by the same operator and the royalty is one hundred percent.

Q Were Exhibits One through Nine prepared by you or under your supervision?

A They were.

MR. KELLY: I move the introduction of Texaco's Exhibits One through Nine.

MR. UTZ: Without objection, Exhibits One through Nine will be entered into the record of this case.

MR. KELLY: We have nothing further on direct, Mr. Examiner.

CROSS EXAMINATION

BY MR. UTZ:

Q In regard to your Exhibit Number Five, your diagrammatic sketch for the Number Four Well, do you have that tubing liner, two and a sixteenth in the well at this

time?

A Yes, we do.

Q Was that in there before commingled?

A This well is not currently commingled. What happened is that in perforating additional zones around 8420 to 30 we inadvertently put a hole in the Wolfcamp string. To isolate these zones we ran a string of two and a sixteenth-inch in below this to keep the two zones separated.

This zone ceased to flow in March of '68 and we attempted to run a rod pump in there and the pump stopped at 5700 feet with a kink in the tubing. Therefore, we could not produce the well.

Q You are going to leave that liner in there?

A We will pull the tubing in the Wolfcamp and pump both zones through the Wolfcamp in Well Number Four.

Q You won't perforate any more; you will just leave it like it is?

A Leave it like it is. We know it's commingled by testing before we ran the two and sixteenth-inch in there. I might add these two strings of casing, this two and seven-eighths-inch casing are set in this well so it will not be through the Pennsylvania Section.



Q There is enough cement around the tubing or the casing in this case?

A Yes. The two and seven-eighths-inch casing strings were cemented with 2500 sacks of Trinity Light Weight Cement through stages with approximately 200 percent of theoretic annular fill-up.

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

Q (By Mr. Utz) These wells did have previous administrative approval; is that correct?

A Just the Number Six Well.

Q Just the Number Six?

MR. UTZ: The witness may be excused in this case.

(Witness excused).

MR. UTZ: Statements? The case will be taken under advisement.

I N D E X

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E X H I B I T S

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Glenda Buss  
Notary Public

March 12, 1973

I do hereby certify that the foregoing is a complete record of the proceedings of the Hearing held on May 27, 1970, at 4319. *W. D. [Signature]*  
New Mexico Oil Conservation Commission

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-4691 • ALBUQUERQUE, NEW MEXICO



BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
March 4, 1970

EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco Inc. for  
downhole commingling, Lea  
County, New Mexico.

Case No. 4319

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: We will call Case Number 4319.

MR. HATCH: Case 4319: Application of Texaco Inc. for downhole commingling, Lea County, New Mexico.

That applicant has requested that the case be continued to March 25, 1970.

MR. NUTTER: Case Number 4319 will be continued to the Examiner Hearing to be held at this same time 9:00 o'clock A.M., March 25, 1970.

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DISCUSSION

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STATE OF NEW MEXICO     )  
                                   )     ss  
 COUNTY OF BERNALILLO    )

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



CA FENLEY - COURT REPORTER

I do hereby certify that the foregoing is  
 a true and correct record of the proceedings in  
 the hearing held on the 3rd day of March 1970  
 at 10:30 AM in Room 4319  
 of the New Mexico State Capitol Building  
 Santa Fe, New Mexico  
 before the New Mexico Oil Conservation Commission



# OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO  
P. O. BOX 2088 - SANTA FE  
87501

GOVERNOR  
DAVID F. CARGO  
CHAIRMAN

**LAND COMMISSIONER  
ALEX J. ARMijo  
MEMBER**

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

April 17, 1970

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

4319  
Re: Case No. 4322  
Order No. R-3946 & R-3947  
Applicant:  
Texaco Inc.

**Dear Sir:**

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

Very truly yours,

G. L. Porter, Jr.

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

ALP/ir

**Copy of order also sent to:**

Hobbs OCC            X

Artesia OCC

**Aztec OCC**

Other \_\_\_\_\_



BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 4319  
Order No. R-3946

APPLICATION OF TEXACO INC.  
FOR DOWNHOLE COMMINGLING,  
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on March 25, 1970,  
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 17th day of April, 1970, 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., is the owner and opera-  
tor of the New Mexico "Q" State Well No. 4 and the New Mexico "R"  
State Well No. 6, located, respectively, in Unit P of Section 25,  
Township 17 South, Range 34 East, and Unit L of Section 30, Town-  
ship 17 South, Range 35 East, NMPM, Lea County, New Mexico.

(3) That pursuant to authority granted by Administrative  
Orders MC-1420 and MC-1515-A said Wells Nos. 4 and 6 were com-  
pleted by the applicant as triple completions (tubingless) to  
produce, respectively, oil from the North Vacuum-Abo, Vacuum-  
Wolfcamp, and Vacuum-Upper Pennsylvanian Pools, and the Vacuum-  
Glorieta, North Vacuum-Abo, and Vacuum-Wolfcamp Pools.

(4) That the North Vacuum-Abo and Vacuum-Wolfcamp zones in  
each of the subject wells are capable of only low marginal produc-  
tion.

CASE No. 4319  
Order No. R-3946

(5) That the applicant now proposes to complete said Well No. 4 in such a manner as to produce oil from the Vacuum-Upper Pennsylvanian Pool through one string of 2 7/8-inch casing and to produce the low marginal production from the North Vacuum-Abo and Vacuum-Wolfcamp Pools through a single parallel string of 2 7/8-inch casing, commingling in the well-bore the production from the North Vacuum-Abo and Vacuum-Wolfcamp zones.

(6) That the applicant now proposes to complete said Well No. 6 in such a manner as to produce oil from the Vacuum-Glorieta Pool through one string of 2 7/8-inch casing and to produce the low marginal production from the North Vacuum-Abo and Vacuum-Wolfcamp Pools through a single parallel string of 2 7/8-inch casing, commingling in the well-bore the production from the North Vacuum-Abo and Vacuum-Wolfcamp zones.

(7) That the proposed commingling in each of the subject wells of the North Vacuum-Abo and Vacuum-Wolfcamp zones may substantially extend the productive lives of said zones in each of the wells.

(8) That the reservoir characteristics of the North Vacuum-Abo and Vacuum-Wolfcamp zones in the subject wells are such that underground waste would not be caused by the proposed commingling in the well-bores.

(9) That the proposed commingling may result in the recovery of additional oil from each of the commingled zones in the subject wells, thereby preventing waste, and will not violate correlative rights.

(10) That the mechanics of the proposed completions are feasible and in accord with good conservation practices.

(11) That in order to allocate the commingled production to each of the commingled zones in New Mexico "Q" State Well No. 4, approximately 30% of the future allowable and production should be attributed to the Abo zone, and approximately 70% to the Wolfcamp zone.

That in order to allocate the commingled production to each of the commingled zones in New Mexico "N" State Well No. 6, approximately 10% of the future allowable and production should be attributed to the Abo zone, and approximately 90% to the Wolfcamp zone.

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CASE No. 4319

Order No. R-3946

(12) That approval of the subject application will prevent waste and protect correlative rights.

(13) That Administrative Orders MC-1420, MC-1515-A, DHC-11, and DHC-35 should be superseded.

IT IS THEREFORE ORDERED:

(1) That the applicant, Texaco Inc., is hereby authorized to complete its New Mexico "Q" State Well No. 4, located in Unit P of Section 25, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico, in such a manner as to produce oil from the Vacuum-Upper Pennsylvanian Pool through one string of 2 7/8-inch casing and to produce oil from the North Vacuum-Abo and Vacuum-Wolfcamp Pools through a single parallel string of 2 7/8-inch casing, commingling in the well-bore the production from the North Vacuum-Abo and Vacuum-Wolfcamp Pools.

(2) That the applicant is hereby authorized to complete its New Mexico "N" State Well No. 6, located in Unit L of Section 30, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, in such a manner as to produce oil from the Vacuum-Glorieta Pool through one string of 2 7/8-inch casing and to produce oil from the North Vacuum-Abo and Vacuum-Wolfcamp Pools through a single parallel string of 2 7/8-inch casing, commingling in the well-bore the production from the North Vacuum-Abo and Vacuum-Wolfcamp Pools.

(3) That the applicant shall complete, operate, and produce said wells in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations insofar as said rule is not inconsistent with this order.

(4) That approximately 30% of the future allowable and production for the commingled zones shall be attributed to the Abo zone and approximately 70% to the Wolfcamp zone of the New Mexico "Q" State Well No. 4 until further order of the Commission.

That approximately 10% of the future allowable and production for the commingled zones shall be attributed to the Abo zone and approximately 90% to the Wolfcamp zone of the New Mexico "N" State Well No. 6 until further order of the Commission.

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CASE No. 4319  
Order No. R-3946

(5) That the commingling in the well-bores authorized by this order shall continue only so long as the commingled production of the two zones does not exceed 80 barrels of oil per day nor 160 barrels of water per day in said Well No. 4 and 70 barrels of oil per day nor 140 barrels of water per day in said Well No. 6.

(6) That the maximum amount of gas which may be produced daily from the commingled zones in each of the subject wells shall be determined by multiplying 2,000 by the top unit allowable for the North Vacuum-Abo Pool.

(7) That Administrative Orders MC-1420, MC-1515-A, DHC-11, and DHC-35 are hereby superseded.

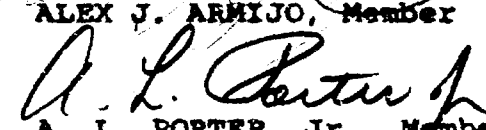
(8) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

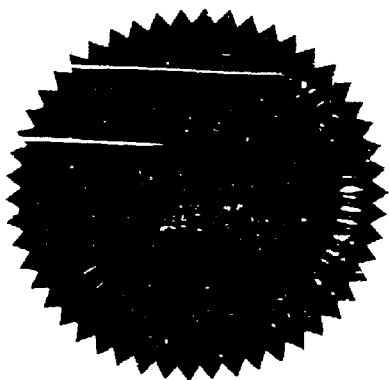
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

  
DAVID F. CARGO, Chairman

  
ALEX J. ARMIJO, Member

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



esr/

Case. 319

Heard 3-25-70

Rec. 3-31-70

Grant Texas permission  
to commingle the wellbore  
the H. Macrum - Abo + Gar-  
num - W.C. in two wells.

1. H. Mat. ht #4 - P-25-17-34

2. " " " " #6. L-30-17-35.

Both wells are tubingless  
driftless.

These two zones in both  
wells are marginal + waste  
will be prevented by allow-  
ing commingling.

Tests to be run before  
commingling shall be used  
to report to owners from  
each portion on a monthly  
basis.

— E. M. O'J

DOCKET: EXAMINER HEARING - WEDNESDAY - MARCH 25, 1970

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 Elvis A. Ute, Examiner, or Daniel S. Nutter, Alternate Examiner:

- CASE 4321:** Application of Sun Oil Company-DX Division for 320-acre spacing, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks 320-acre spacing for the Cass Ranch-Morrow Gas Pool, Eddy County, New Mexico. Said pool was created prior to June 1, 1964, and therefore is not automatically eligible for 320-acre spacing. In the absence of evidence to the contrary, 320-acre spacing will be established for the pool.
- CASE 4324:** Application of Pennzoil United, Inc. for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the special rules and regulations governing the Lea-Bone Springs Pool to permit the completion of a well at an unorthodox location 2310 feet from the South line and 1800 feet from the East line of Section 35, Township 19 South, Range 34 East, Lea County, New Mexico.
- CASE 4325:** Application of Mobil Oil Corporation for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Vacuum-Wolfcamp Pool and the Vacuum-Upper Pennsylvanian Pool in the wellbore of its Bridges State Well No. 119, a triple completion, located in Unit F of Section 24, Township 17 South, Range 34 East, Lea County, New Mexico.
- CASE 4326:** Application of Newmont Oil Company for an unorthodox oil well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Rule 104 C T to permit the recompletion of a well at an unorthodox oil well location 1325 feet from the South line and 990 feet from the East line of Section 31, Township 17 South, Range 30 East, Loco Hills-Queen Pool, Eddy County, New Mexico.
- CASE 4327:** Application of Franklin, Aston & Fair for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico. Said exception would be for applicant's leases comprising the NE/4 and N/2 SE/4 of Section 1, Township 18 South, Range 29 East and the E/2, N/2 NW/4, and S/2 SW/4 of Section 6, Township 18 South, Range 30 East, Loco Hills Field, Eddy County, New Mexico. Applicant seeks authority to dispose of salt water produced by wells located or to be located on said leases in unlined surface pits.

Examiner Hearing - March 25, 1970

2

- CASE 4328: Application of Pubco Petroleum Corporation for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the undesignated Fictured cliffs gas pool underlying the SE/4 of Section 33, Township 30 North, Range 14 West, San Juan County, New Mexico. Said SE/4 to be dedicated to a well to be drilled in the SW/4 SE/4 of said Section 33. Applicant further seeks an order pooling all mineral interests in said gas pool underlying the NE/4 of Section 4, Township 29 North, Range 14 West, San Juan County, New Mexico. Said NE/4 to be dedicated to a well to be drilled in the NW/4 NE/4 of said Section 4. Also to be considered will be the costs of drilling said wells, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said wells.
- CASE 4329: Application of R. D. Collier for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico. Said exception would be for applicant's Sinclair Parke Well No. 1 located in Unit F, Section 22, Township 17 South, Range 30 East, Jackson-Abo Field, Eddy County, New Mexico. Applicant seeks authority to dispose of salt water produced by said well in an unlined surface pit in the vicinity of said well.
- CASE 4314: (Continued and readadvertised from February 25, 1970, Examiner Hearing and March 4, 1970 Examiner Hearing)  
Application of Coastal States Gas Producing Company for pool redelineation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the redelineation of certain pool boundaries to include the deletion of the W/2 and SE/4 of Section 21, Township 13 South, Range 33 East, Lea County, New Mexico, from the Lazy J-Pennsylvanian Pool and the extension of the North Baum Upper Pennsylvanian Pool to include said deleted acreage.
- CASE 4319: (Continued from the March 4, 1970, Examiner Hearing)  
Application of Texaco Inc. for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the North Vacuum-Abo Pool and the Vacuum-Wolfcamp Pool in the wellbores of its New Mexico "Q" State Well No. 4 and its New Mexico "N" State Well No. 6, triple completions located respectively in Unit P of Section 25, Township 17 South, Range 34 East and Unit L

(Case 4319 continued)

of Section 30, Township 17 South, Range 35 East, Lea County, New Mexico.

- CASE 4322: Application of Texaco Inc. for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Vacuum-Wolfcamp and Vacuum-Upper Pennsylvanian Pools in the wellbore of its Shell State Well No. 1, a triple completion, located in Unit J of Section 25, Township 17 South, Range 34 East, Lea County, New Mexico.
- CASE 4323: 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 by the injection of water into the Grayburg and San Andres formations through its USA Federal "C" Well No. 1 located in Unit P, Section 15, Township 17 South, Range 32 East, Maljamar (Grayburg-San Andres) Pool, Lea County, New Mexico.
- CASE 4330: Application of Tenneco Oil Company for an unorthodox location and dual completion, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion of its Hospah Well No. 37X to produce oil from the Hospah-Upper and South Hospah-Lower Sand Oil Pools at an unorthodox location for said pools 1280 feet from the North and West lines of Section 12, Township 17 North, Range 9 West, McKinley County, New Mexico.
- CASE 4331: Application of Wynn & Brooks for an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Federal "E" Well No. 3, to be located 790 feet from the North and West lines of Section 13, Township 27 North, Range 8 West, Blanco-Mesaverde and Basin-Dakota Pools, San Juan County, New Mexico.
- CASE 4264: (Continued from the February 4, 1970 Examiner Hearing)  
Application of Wynn & Brooks for an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Federal "J" Well No. 1, to be located 2390 feet from the South line and 2410 feet from the East line of Section 11, Township 27 North, Range 8 West, Blanco-Mesaverde and Basin-Dakota Pools, San Juan County, New Mexico.



CASE 4301: (Continued from the February 4, 1970 Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Robert T. Smith and all other interested persons to appear and show cause why the following Robert T. Smith wells located in Section 32, Township 20 North, Range 9 West, McKinley County, New Mexico, should not be plugged and abandoned in accordance with a Commission-approved plugging program:

State Well No. 1 located 487 feet from the North line and 990 feet from the East line;

State "A" Well No. 1 located 400 feet from the North line and 990 feet from the East line;

State Well No. 3 located 330 feet from the North line and 330 feet from the West line;

State Well No. 6 located 220 feet from the North line and 1485 feet from the East line;

State Well No. 6-Y located approximately 5 feet West of the above-described Well No. 6;

State Well No. 8 located 1155 feet from the North line and 2475 feet from the East line.

SOCONY MOBIL

25

TEXACO

ATLANTIC

30



"N"



BRIDGES  
MARATHON OIL

TEXACO MOBIL STATE  
TEXACO

MARATHON



TEXACO SHELL STATE

TEXACO  
"Q"



McCALLISTER

STATE

STATE

STATE

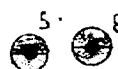
TIDEWATER OIL  
"F"

36

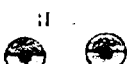
SOCONY MOBIL  
"H"

SKELLY  
"J"

31



TEXACO  
"O"



(NCT-1)



SOCONY MOBIL

AMERADA



"I"

"VB"



PHILLIPS

MARATHON



17  
S



SANTA FE

WARN  
STATE AC 1

SHELL  
"D"



STATE

TEXACO



"L"



"M"

LEGEND



GLORIETA



WOLFCAMP



BLINEBRY



UPPER PENNSYLVANIAN



NORTH ABO



DEVONIAN

BEFORE EXAMINER UT7

OIL CONSERVATION COMMISSION

EXHIBIT NO. 1

CASE NO. 4319

TEXACO Inc.

Hobbs District

LEASE OWNERSHIP PLAT  
PORTION OF  
VACUUM (MULTI-PAY) FIELD  
LEA COUNTY, NEW MEXICO

Drawn By. De. Date 5-4-55

DATA SHEET FOR WELLBORE COMMINGLING

Operator: TEXACO Inc.

Address: P. O. Box 728 - Hobbs, New Mexico 88240

Lease and Well No: New Mexico "Q" State No. 4

Location: Unit P; 500 Feet from the South Line and  
700 Feet from East Line of Section 25;  
 Township 17-S, Range 34-E; Lea County.

Multiple Completion Order No. MC-1420

WELL DATA

	<u>Upper Pool</u>	<u>Lower Pool</u>
Name of Pool	<u>Vacuum Abo, North</u>	<u>Vacuum Wolfcamp</u>
Producing Method	<u>Flow</u>	<u>SI (See cover letter)</u>
BHP	<u>2775 psi (Bomb 1-8-70)</u>	<u>1850 psi (Est)</u>
Type Crude	<u>Intermediate Sweet</u>	<u>Intermediate Sweet</u>
Gravity	<u>39.80</u>	<u>38.70</u>
GOR Limit	<u>2000:1</u>	<u>2000:1</u>
Completion Interval	<u>8420' - 9251'</u>	<u>9627' - 10,005'</u>
Current Test Date	<u>January 10, 1970</u>	<u>September 6, 1967</u>
Oil	<u>9</u>	<u>46</u>
Water	<u>0</u>	<u>46</u>
GOR	<u>4444</u>	<u>1006</u>
Selling Price of Crude-\$/BBL.	<u>\$3.34</u>	<u>\$3.32</u>
Daily Income - \$/Day	<u>\$30.06</u>	<u>\$152.72</u>

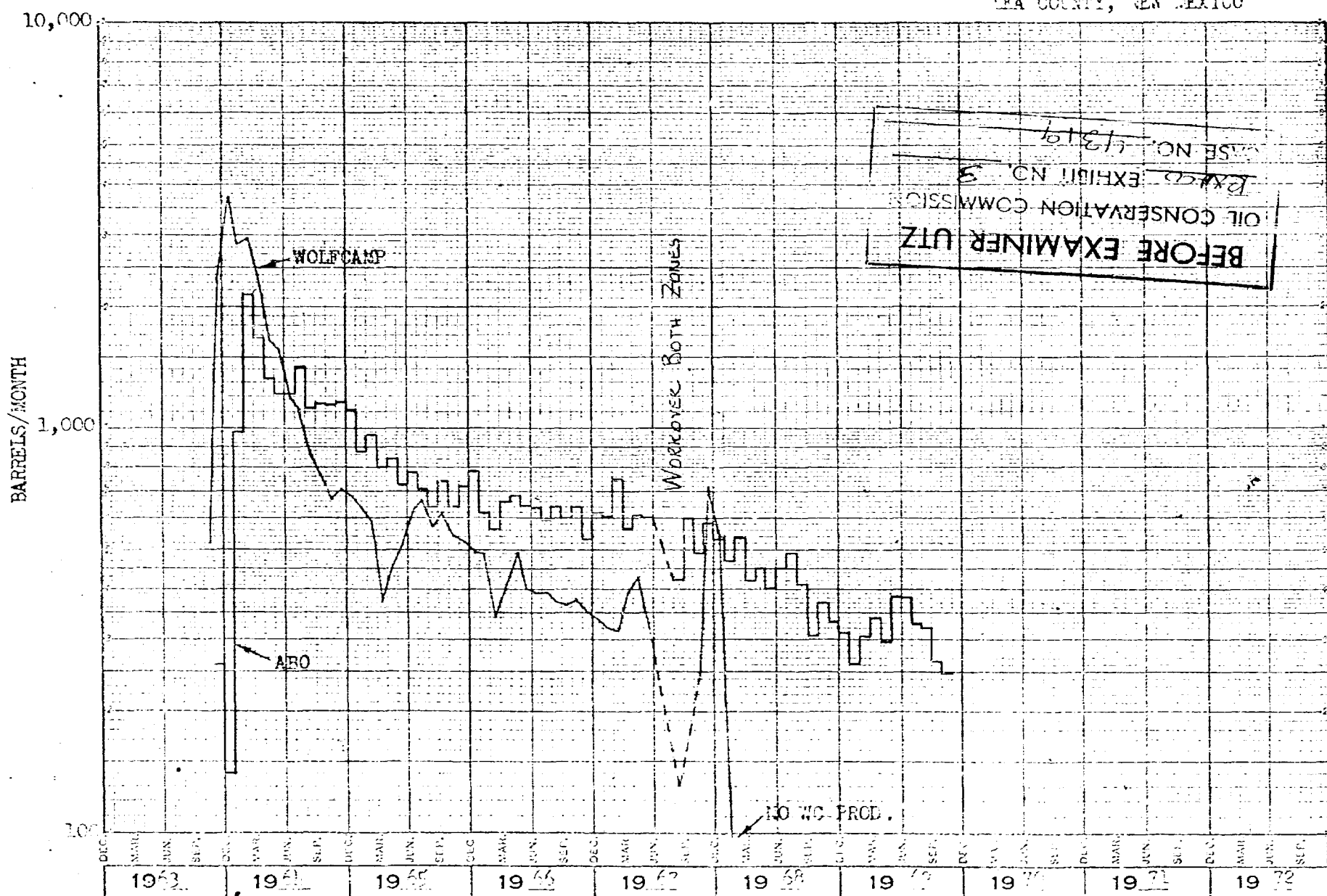
COMMINGLED DATA:

Gravity of Commingled Crude 39.00  
 Selling Price of Commingled Crude - \$/BBL. \$3.34  
 Daily Income - \$/Day 183.70

**BEFORE EXAMINER UTZ**  
 OIL CONSERVATION COMMISSION  
Texaco EXHIBIT NO. 2  
 CASE NO. 4319

Net (Gain) (Loss) From Wellbore Commingling - \$/Day 0.92  
 based on current producing rates.

TEXACO Inc.  
 PERFORMANCE CURVE  
 NEW MEXICO "Q" STATE NO. 4  
 VACUUM (NORTH ABO & WOLF CAMP) FIELD  
 LEA COUNTY, NEW MEXICO



25,640

100.0

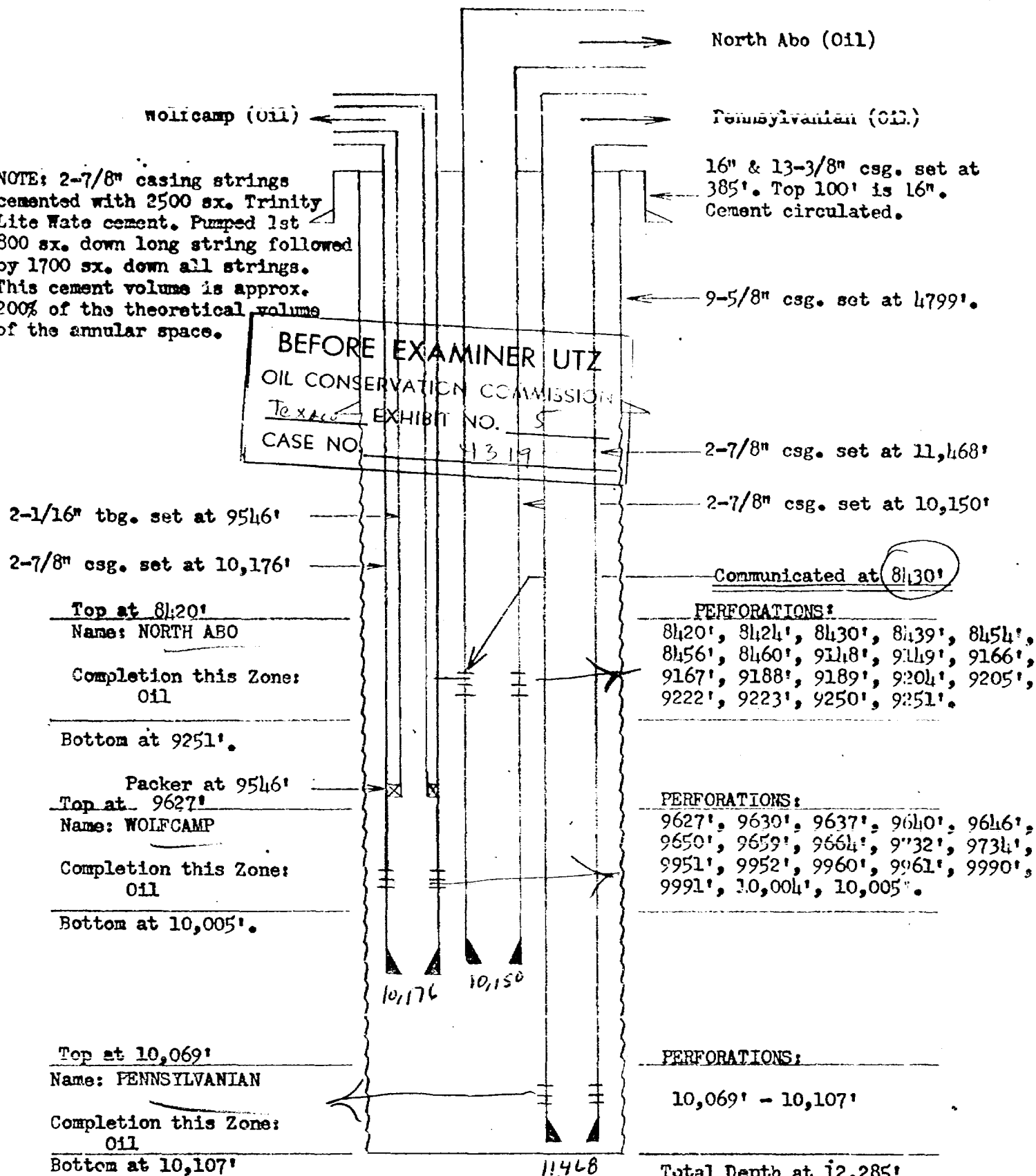
TABLE I  
Reserves And Economic Data  
New Mexico "Q" State Well No. h

	<u>Abo</u>	<u>Wolfcamp</u>	<u>Zones Commingled</u>
Remaining Life, Years	5.3	7 <i>6.7</i>	8.5
Remaining Reserves (1-1-70)	8,300 <i>32,300</i>	17,340	28,100
Economic Limit - BOPD	2	2	2
Cum. Prod., Bbls. (1-1-70)	47,331	39,643	-
Ultimate Recovery, Bbls.	55,631	55,983	114,074
Incr. Reserves., Bbls	-	-	2,460
Operating Costs - \$/Day	\$4.50	\$5.60	\$5.60

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
TEXAS EXHIBIT NO. 4  
CASE NO. 4319

DIAGRAMMATIC SKETCH OF TRIPLE COMPLETION INSTALLATION (TUBINGLESS)

NOTE: 2-7/8" casing strings cemented with 2500 sx. Trinity Lite Water cement. Pumped 1st 800 sx. down long string followed by 1700 sx. down all strings. This cement volume is approx. 200% of the theoretical volume of the annular space.



TEXACO INC.  
LEASE: State of New Mexico "Q" Well No. 4  
FIELD: Vacuum (N. Abo, Wolfcamp & Pennsylvanian)  
DATE: January 10, 1970

DATA SHEET FOR WELLBORE COMMINGLING

Operator: TEXACO Inc.

Address: P. O. Box 728 - Hobbs, New Mexico 88240

Lease and Well No: New Mexico "N" State No. 6

Location: Unit L; 460 Feet from the West Line and  
1980 Feet from South Line of Section 30;  
Township 17S, Range 35E; Lea County.

Multiple Completion Order No MC-1515-A  
WELL DATA

	<u>Upper Pool</u>	<u>Lower Pool</u>
Name of Pool	<u>Vacuum Abo, North</u>	<u>Vacuum Wolfcamp</u>
Producing Method	<u>Pump</u>	<u>Pump</u>
BHP	<u>900 psi (Est.)</u>	<u>1150 psi (Est.)</u>
Type Crude	<u>Intermediate Sweet</u>	<u>Intermediate Sweet</u>
Gravity	<u>37.9°</u>	<u>37.4°</u>
GOR Limit	<u>2000:1</u>	<u>2000:1</u>
Completion Interval	<u>9079' - 9214'</u>	<u>9612' - 9833'</u>
Current Test Date	<u>10-25-69</u>	<u>10-26-69</u>
Oil	<u>4</u>	<u>33</u>
Water	<u>0</u>	<u>2</u>
GOR	<u>TEST</u>	<u>1812</u>
Selling Price of Crude-\$/BBL.	<u>\$3.30</u>	<u>\$3.30</u>
Daily Income - \$/Day	<u>\$13.20</u>	<u>\$108.90</u>

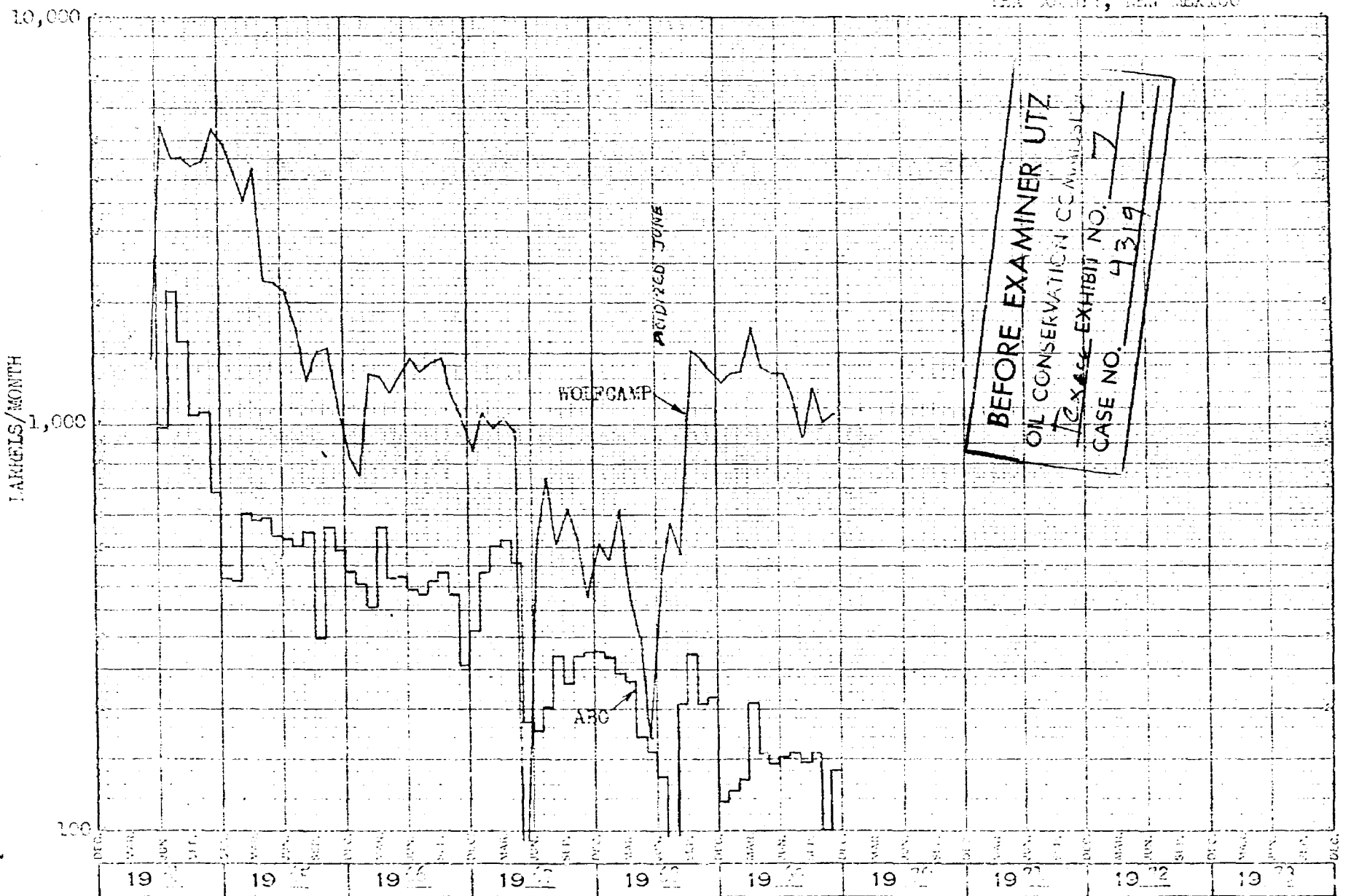
COMMINGLED DATA:

Gravity of Commingled Crude 37.5°  
Selling Price of Commingled Crude - \$/BBL. \$3.30  
Daily Income - \$/Day \$122.10

Net (Gain) (Loss) From Wellbore Commingling - \$/Day 0  
based on current producing rates.

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
TEXACO EXHIBIT NO. 6  
CASE NO. 4319

TRAVIS Inc.  
 PERFORMANCE CURVE  
 NEW MEXICO "M" STATE NO. 6  
 YACUUM (NORTH ABO & WOLF CAMP) FIELD  
 LEA COUNTY, NEW MEXICO



BEFORE EXAMINER UTZ  
 OIL CONSERVATION COMMISSION  
 EXHIBIT NO. 7  
 CASE NO. 4319



TABLE 1

RESERVES AND ECONOMIC DATA  
NEW MEXICO "N" STATE NO. 6

	<u>Abo</u>	<u>Wolfcamp</u>	<u>Zones</u> <u>Commingled</u>
Remaining Life - Years	2.3	6.0	7
Remaining Reserves (1-1-70)	3,198	23,982	20,334
Economic Limit - BOPD	2	2	2
Cum. Prod. (1-1-70)	26,458	106,910	-
Ultimate Recovery - BO	29,656	130,892	162,702
Incr. Reserves By Commingling	-	-	2,154
Operating Cost - \$/day	\$5.60	\$5.60	\$5.60

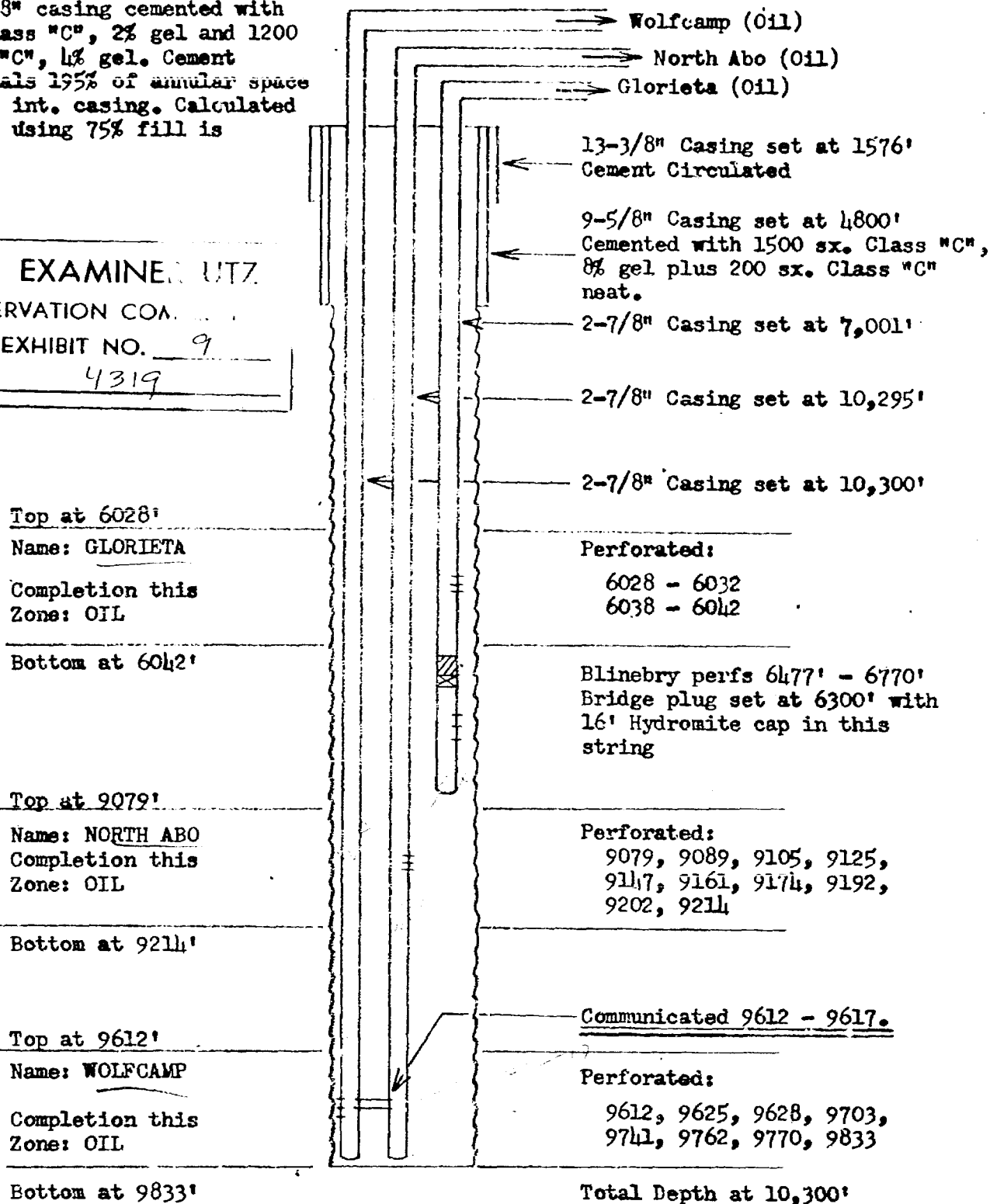
3198  
23982  
27180

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
Tax 800	EXHIBIT NO. 8
CASE NO.	4319

DIAGRAMMATIC SKETCH OF TRIPLE COMPLETION INSTALLATION (TUBINGLESS)

NOTE: 2-7/8" casing cemented with 600 sx. Class "C", 2% gel and 1200 sx. Class "C", 4% gel. Cement volume equals 195% of annular space from TD to int. casing. Calculated cement top using 75% fill is 3180'.

BEFORE EXAMINER UTZ  
OIL CONSERVATION COM.  
TEXACO EXHIBIT NO. 9  
CASE NO. 4319



TEXACO INC.

LEASE: NEW MEXICO "N" STATE WELL NO. 6  
POOL: VACUUM (GLORIETA, NORTH ABO, WOLFCAMP)  
DATE: MARCH 5, 1970

DRAFT

GMH/esr

April 2, 1970

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:

*GMH*  
CASE No. 4319

Order No. R- 3946

APPLICATION OF TEXACO INC.  
FOR DOWNHOLE COMMINGLING,  
LEA COUNTY, NEW MEXICO.

*[Signature]*  
ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on March 25, 19670,  
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this \_\_\_\_\_ day of April, 19670, 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., is the owner and opera-  
tor of the New Mexico "Q" State Well No. 4 and the New Mexico "N"  
State Well No. 6, located, respectively, in Unit P of Section 25,  
Township 17 South, Range 34 East, and Unit L of Section 30, Town-  
ship 17 South, Range 35 East, NMPM, Lea County, New Mexico.

(3) That pursuant to authority granted by Administrative  
Orders MC-1420 and MC-1515-A said Wells Nos. 4 and 6 were com-  
pleted by the applicant as triple completions (tubingless)  
to produce, respectively, oil from the North Vacuum-Abo, Vacuum-  
Wolfcamp, and Vacuum-Upper Pennsylvanian Pools, and the Vacuum-  
Glorieta, North Vacuum-Abo, and Vacuum-Wolfcamp Pools.

(4) That the North Vacuum-Abo and Vacuum-Wolfcamp zones in each of the subject wells are capable of only low marginal production.

(5) That the applicant now proposes to complete said Well No. 4 in such a manner as to produce oil from the Vacuum-Upper Pennsylvanian Pool through one string of 2 7/8 inch casing and to produce the low marginal production from the North Vacuum-Abo and Vacuum-Wolfcamp Pools through a single parallel string of 2 7/8-inch casing, commingling in the well-bore the production from the North Vacuum-Abo and Vacuum-Wolfcamp zones.

(6) That the applicant now proposes to complete said Well No. 6 in such a manner as to produce oil from the Vacuum-Glorieta Pool through one string of 2 7/8-inch casing and to produce the low marginal production from the North Vacuum-Abo and Vacuum-Wolfcamp Pools through a single parallel string of 2 7/8-inch casing, commingling in the well-bore the production from the North Vacuum-Abo and Vacuum-Wolfcamp zones.

(7) That the proposed commingling in each of the subject wells of the North Vacuum-Abo and Vacuum-Wolfcamp zones may substantially extend the productive lives of said zones in each of the wells.

(8) That the reservoir characteristics of the North Vacuum-Abo and Vacuum-Wolfcamp zones in the subject wells are such that underground waste would not be caused by the proposed commingling in the well-bores.

(9) That the proposed commingling may result in the recovery of additional oil from each of the commingled zones in the subject wells, thereby preventing waste, and will not violate correlative rights.

(10) That the mechanics of the proposed completions are feasible and in accord with good conservation practices.

(11) That in order to allocate the commingled production to each of the commingled zones in New Mexico "N" State Well No. 4, approximately 30% of the future allowance and production should be attributed to the Abo zone, and approximately 70% ~~to~~ to the Wolfcamp zone.

That in order to allocate the commingled production to each of the commingled zones in New Mexico "N" State Well No. 6, approximately 10% of the ~~of the~~ future allowance and production should be attributed to the Abo ~~to~~ zone, and approximately 90% to the Wolfcamp zone.

Upper Pennsylvanian Pool through one string of 2 7/8-inch casing and to produce oil from the North Vacuum-Abo and Vacuum-Wolfcamp Pools through a single parallel string of 2 7/8-inch casing, commingling in the well-bore the production from the North Vacuum-Abo and Vacuum-Wolfcamp Pools.

(2) That the applicant is hereby authorized to complete its New Mexico "N" State Well No. 6, located in Unit L of Section 30, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, in such a manner as to produce oil from the Vacuum-Glorieta Pool through one string of 2 7/8-inch casing and to produce oil from the North Vacuum-Abo and Vacuum-Wolfcamp Pools through a single parallel string of 2 7/8-inch casing, commingling in the well-bore the production from the North Vacuum-Abo and Vacuum-Wolfcamp Pools.

(3) That the applicant shall complete, operate, and produce said wells in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations insofar as said rule is not inconsistent with this order.

~~That the applicant shall complete, operate, and produce said wells in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations insofar as said rule is not inconsistent with this order.~~

(4) That approximately 30% of the future allowable and production for the commingled zones shall be attributed to the Abo zone and approximately 70% to the Wolfcamp zone of the New Mexico "Q" State Well No 4 until further order of the Commission.

That approximately 10% of the future allowable and production for the commingled zones shall be attributed to the Abo zone <sup>and</sup> ~~of the~~ approximately 90% to the Wolfcamp zone of the New Mexico "N" State Well No 6 until further order of the Commission.

this order shall continue only so long as the commingled production of the two zones does not exceed 80 barrels of oil per day nor 160 barrels of water per day in said Well No. 4 and 70 barrels of oil per day nor 140 barrels of water per day in said Well No. 6.

(6) ~~That~~ That the maximum amount of gas which may be produced <sup>the commingled zones in</sup> daily from each of the subject wells shall be determined by multiplying 2,000 by the top unit allowable for the North Vacuum-Abo Pool.

(7) ~~That~~ That Administrative Orders MC-1420, MC-1515-A, DHC-11, and DHC-35 are hereby superseded.

(8) ~~That~~ 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.