CASE 3869: Application of TEXACO FOR DOWN-HOLE COMMINGLING, LEA COUNTY, NEW MEXICO

Case Number

3869

Application

Transcripts.

SmaLL Exhibits

ETC.

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

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

October 22, 1968

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

Re: Case No. 3869
Order No. R-3526
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,

A. L. Porter, Jr.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
Other

October 30, 1972

Texaco Inc.
P. O. Drawer 728
Hobbs, New Mexico 88240

Attention: Mr. J. G. Blevins

Re: Administrative Order CTB-82
Commission Order R-3526

Gentlemen:

Reference is made to your letter advising that the two subject orders are no longer necessary and requesting cancellation thereof.

Administrative Order CTB-82, which authorized surface commingling of Paduca-Delaware production from your E. F. Ray Federal and Federal "B" leases, is hereby cancelled.

Commission Order R-3526, which authorized downhole commingling of Blinebry-Paddock production in your Lockhart Federal (NCT-1) well No. 3, in O-18-22S-38E, is hereby put in abeyance.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/DSN/dr
cc: Oil Conservation Commission - Hobbs
U. S. Geological Survey - Roswell
Oil & Gas Engineering Committee - Hobbs
OCC Data Processing Dept. - Santa Fe

Case file 3869

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. 3869
Order No. R-3526

APPLICATION OF TEXACO INC.
FOR DOWN-HOLE COMMINGLING,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 25, 1968, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 22nd day of October, 1968, 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 operator of the C. H. Lockhart Federal NCT-1 Well No. 3, located in Unit O of Section 18, Township 22 South, Range 38 East, NMPM, Lea County, New Mexico.

(3) That by Administrative Order DC-934-A, the subject well was authorized as a dual completion for the production of oil from the Paddock and Blinebry formations through parallel strings of tubing.

(4) That the subject well is presently producing approximately 10 barrels of oil per day by pump from the Paddock formation and 3 barrels of oil per day by pump from the Blinebry formation.

(5) That the applicant proposes to remove the packer and one string of tubing from said well and to produce the low marginal production from the subject zones through a single string of tubing.

(6) That the proposed commingling may substantially extend the productive lives of the subject zones in the aforesaid well.

(7) That the reservoir characteristics of each of the two zones are such that underground waste would not be caused by the proposed commingling in the well-bore.

(8) That the proposed commingling may result in the recovery of additional oil from both of the subject pools, thereby preventing waste, and will not violate correlative rights.

(9) That production tests should be conducted, prior to commingling, to determine the production from each zone.

IT IS THEREFORE ORDERED:

(1) That the applicant, Texaco Inc., is hereby authorized to complete its C. H. Lockhart Federal NCT-1 Well No. 3, located in Unit O of Section 18, Township 22 South, Range 38 East, NMPM, Lea County, New Mexico, in such a manner as to produce oil from the Paddock Oil Pool through perforations from 5144 feet to 5174 feet and from the Blinebry Oil Pool through perforations from 5589 feet to 5677 feet, commingling the production from each of said zones in the well-bore;

PROVIDED HOWEVER, that the production from each zone shall be established and future production allocated to the Paddock and Blinebry zones of the subject well in the proportion that the production from each zone bears to the combined production from both zones until further order of the Commission;

PROVIDED FURTHER, that commingling in the well-bore shall continue only so long as the commingled production does not exceed the top unit allowable for either of the zones in the subject well.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

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

esr/

CASE 3865: Application of Southern Union Production Company for an unorthodox location and a dual completion, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Jicarilla "A" Well No. 9 to produce gas from the Blanco-Mesaverde and Basin Dakota Pools at an unorthodox location for the Blanco-Mesaverde Pool 790 feet from the North line and 1670 feet from the West line of Section 14, Township 26 North, Range 4 West, Rio Arriba County, New Mexico.

CASE 3866: Application of Shell Oil Company for salt water disposal, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from approximately 3360 feet to 3512 feet in its Thelma Crosby "F" Well No. 1 located in Unit H of Section 17, Township 9 South, Range 30 East, Cato-San Andres Pool area, Chaves County, New Mexico.

CASE 3867: Application of Tenneco Oil Company for a unit agreement, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks approval of the South Hospah Unit Area comprising 476 acres, more or less, of federal lands in Section 12, Township 17 North, Range 9 West, South Hospah Upper Sand Oil Pool, McKinley County, New Mexico.

CASE 3868: Application of Texaco, Inc., for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks expansion of the Texaco BV Waterflood Project, Lazy J-Pennsylvanian Pool, by the conversion to water injection of its "BV" State (NCT-1) Well No. 5 located in Unit M of Section 26, Township 15 South, Range 33 East, Lea County, New Mexico.

CASE 3869: Application of Texaco, Inc., for a down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle the marginal production from the Blinebry and Paddock Oil Pools in the wellbore of its C. H. Lockhart Federal NCT-1 Well No. 3 located in Unit O of Section 18, Township 22 South, Range 38 East, Lea County, New Mexico.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 25, 1968

EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco, Inc., for a down-hole commingling, Lea County, New Mexico.

Case No. 3869

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: We'll call case 3869.

MR. HATCH: Case 3869, application of Texaco, Inc., for a down-hole commingling, Lea County, New Mexico.

MR. KELLY: Let the record show the same appearance.

(Whereupon, Applicant's Exhibits Numbers 1 through 12, inclusive, were marked for identification.)

(Witness sworn.)

CARL L. WIGAM

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

DIRECT EXAMINATION

BY MR. KELLY:

Q Would you state your name, position and employer, please?

A My name is Carl L. Wigam and I'm employed by Texaco, Inc., as Midland Division Proration Engineer, located in Midland, Texas.

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

A Yes, I have.

Q Will you state, briefly, what Texaco seeks by the application?

A In this application, Texaco seeks an order from the

Oil Conservation Commission that will permit commingling and well-bore production from the Paddock reservoir and from the Blinebry reservoir which are presently dually completed in Texaco's C.H. Lockhart Federal NCT-1 Well No. 3 located in Unit O, Section 18, Township 22 South, Range 38 East, in Lea County, New Mexico.

Q This, in effect, would be an exception to Rule 303-A, segregation of production from pools, is that right?

A Yes.

Q Now, referring to what has been marked as Exhibit Number 1, would you explain that exhibit to the Examiner?

A Exhibit Number 1 is a pool map delineating the Paddock oil pool indicated in a yellow outline showing the Blinebry oil pool outlined in blue and the Blinebry gas pool outlined in red. The purpose of this particular exhibit is to show that these are large pools comprised of approximately 50 square miles. Both of these pools were discovered in 1945 and are comprised of a very large number of wells that have been producing for quite some time.

Shown on this particular map down in Section 18 in Unit O is the subject well for which we are requesting well-bore commingling approval.

Q Now, the area outlined in black is the area shown on

Exhibit Number 2, is that right?

A Yes, that is correct.

Q Go ahead and refer to Exhibit Number 2.

A We prepared Exhibit Number 2 to show, in more detail, the locations and completions of the various wells in this southeastern extremity of the pool limits. On this particular map, a color code is used to show the wells completed in each of the reservoirs. The Paddock completions are indicated by red circles. The Blinebry oil completions are indicated by purple circles, and the Blinebry gas wells are indicated by green circles.

We would like to point out for you, in addition to these individual completion intervals, the location of the discovery wells for these two subject reservoirs. The Paddock pool was discovered by Gulf Oil Corporation with the completion in March of 1945 of their Paddock Well No. 1, which is located in Unit O of Section 1, Township 22 South, Range 37 East. You may note that that well is located about two and a half or three miles from Texaco's subject well.

The Blinebry oil pool was discovered in December, 1945 by Texaco, Incorporated by the completion of Well No. 2 on the C.H. Lockhart federal lease. This well is located in Unit D of Section 18, Township 22 South, Range 38 East and is on the same

lease as the subject well in this application, being located approximately one mile northwest of Well No. 3.

MR. NUTTER: And what was the discovery date on it, please?

THE WITNESS: December, 1945.

Q Now, what is the present status of the subject well?

A Until very recently, this well was operated as a conventional dual completion with two strings of tubing, with both zones separated by a packer. This equipment is still installed in the well bore. However, due to what is believed to be a casing leak -- I mean, correction on that -- what is believed to be a tubing leak, production was curtailed about 2 or 3 months ago, so at the present time, this well is shut in.

Now, whether the well is operated as a conventional dual completion or commingled single completion, this tubing leak would be repaired in the near future.

Q Could you give the Examiner a brief history of the well?

A Yes. The subject well was drilled in 1953 and it was originally completed as a dual completion in the Drinkard formation and the Paddock formation. Then in January of 1965, the Drinkard interval was cemented and permanently abandoned and the well was then converted to a dual completion in the

Blinebry zone and the Paddock zone.

Q Now, Exhibits 1 and 2 show, do they not, that these two pools are old and well-defined?

A Yes, that is correct.

Q And the subject well is on the southeast end of both pools?

A Yes, both the subject well and the two discovery wells are located in one of the older areas in the field.

Q Now, are there any secondary recovery projects in the area in either of these pools?

A There are no secondary recovery projects in the operation, in the Blinebry pool and none imminent. However, there is one pilot project operated by Humble Oil and Refining Company where water flood operations are being conducted on a pilot basis in the Paddock oil pool.

Referring again to Exhibit Number 2, the southeastern portion of this project area is shown up in the northwestern portion of this particular plat.

Q Does Texaco have any plans to initiate a secondary recovery project?

A No, we have no plans whatsoever. I might also add that water has been injected into this Humble pilot project for less than a year and no response to date has been indicated. At

the present time, it is still considered questionable that secondary recovery operations would be effective in the Paddock reservoir.

Q Going on to what has been marked as Exhibit Number 3, would you explain that to the Examiner?

A Exhibit Number 3 is entitled "Application for Well-Bore Commingling." Essentially, it is a data sheet that summarizes the most pertinent information containing each of the reservoirs. We identified the lease and the two pools that we would like to commingle, and we show the results of the latest tests that have been conducted in each of those two formations.

You will note that at the present time, or as indicated by the latest test last June, the Paddock formation exhibited productivity of 12 barrels of oil daily, one barrel of water, five MCF of gas, gas-oil ratio of 416, being a marginal producer in that reservoir.

The Blinebry reservoir exhibited productivity of three barrels of oil a day, one barrel of water a day, 25 MCF of gas with a gas-oil ratio of 8,333. Then as indicated on this exhibit, we have added these values to show our estimated productivity of the combined zones producing well as a single completion.

Then, further down on the sheet, we've shown the depth of these two reservoirs; the top of the Paddock is at about 5100 feet and the top of the Blinebry is 5600. Both of these pools are developed on 40-acre spacing. Of considerable importance is the estimated bottom hole pressure. In the Paddock, the reservoir pressure is estimated to be between 700 and 1,000 psi, and in the Blinebry, we anticipate a pressure of about 300 psi, greater in the order of 1,000 1300 psi. Essentially, the producing mechanism of both of these reservoirs is identical, being solution gas drive. However, some additional drive is, I believe, to exist in the Blinebry reservoir as a result of gas cap expansion. Again, we indicate the extent of these reservoirs, showing that there are 19 operators in the Paddock pool and there are 35 operators in the Blinebry oil pool.

Q Actually, your water production there is high in relation to some of your later exhibits, isn't that correct?

A Yes, later exhibits will show that the average water production is less than one barrel of oil per day.

Q Your exhibit, or your figures there for the difference in the bottom hole pressure, do you feel that the bottom hole pressures will remain that far apart if you do commingle this production?

A These bottom hole pressures, of course, will decline in time. At the present time, the difference of 300 psi is considered to be of minimal importance because the higher pressure is exhibited by the lower formation. The Blinebry zone, you will note, is 500 feet deeper than the Paddock zone. Now, depending upon where the pump is set is the commingled well bore, the well will either be pumped off and this difference in reservoir pressure will be unimportant, or if the pump is set high, the hydrostatic head of the fluid from the Blinebry zone up to the Paddock zone would roughly be equivalent to the bottom hole pressure in the Blinebry zone, so regardless of where the pump is set and whether or not the well is kept in a pump down condition, this difference in bottom hole pressure should have no adverse affect whatsoever upon the producing characteristics of either of these two reservoirs.

MR. NUTTER: While we're at this point, Mr. Wigam, what are the fluid levels in the two zones?

THE WITNESS: I don't have any information with me to indicate what the fluid levels would be, but they could be approximated from the gravity of the fluid and the amount of water and gas production based upon their current estimated bottom hole pressure.

MR. NUTTER: How could you estimate these bottom hole

pressures if you don't have the fluid level?

THE WITNESS: We have some additional exhibits that show bottom hole pressure in other wells in this immediate area.

MR. NUTTER: I see. Go ahead.

Q Now, going on to Exhibit Number 4, which is a sketch of your present completion and proposed completion, and explain that to the Examiner.

A The purpose of Exhibit Number 4 is to show, on the right-hand side of the page, the subsurface installation that is presently employed in this well and to compare it to the subsurface installation on the lefthand side of the page that would result after a well bore commingling. The well, at the present time, is a conventional dual completion inside five and a half inch casing with a Model C retrievable packer set between these two reservoirs to effectively segregate them. The Paddock produces from one string of tubing and the Blinebry producing from the other.

Now, upon approval of well-bore commingling, the entire installation will be removed and salvaged and a single string of tubing will be installed in the casing allowing both zones to commingle in the well bore, and the well would then be produced as a single completion.

Q What is the footage difference between the two zones?

A About 500 feet of depth separates the two intervals.

Q Do you feel that either of these two wells would be adversely affected by down-hole commingling?

A No, we do not see any chance of either reservoir being adversely affected. The water content of both reservoirs is nil and the bottom hole pressures are not expected to be a factor. There are no great differences in fluid composition, so we know of no reason why either of these reservoirs could be adversely affected to such extent that ultimate recovery would be decreased.

Q Going on to Exhibit Number 5, which is your economic comparison, explain that to the Examiner.

A Exhibit Number 5 tabulates all of the basic reserves and cost data that is used in a later exhibit to calculate economic limits and to determine the value of the oil. This exhibit is divided into two sections, and the first data presented is that which pertains to the operation of the well as dually completed, currently.

The Blinebry zone is shown to have remaining reserves of 918 barrels while the well is being operated as a dual completion, and the net value of this well production, including the associated gas, amounts to $1170.00.

The Paddock, which would continue to produce for the

life of the well, exhibits remaining reserves in the order of 9,044 barrels, and that production, including gas, would have a net value of $11,960.00.

Now, if these two reservoirs are commingled in the well bore, the reserves of the commingled completion will amount to 11,580, which is an increase in ultimate recovery of 1,618 barrels of oil with a significant volume of associated gas.

You will note down here that our net value is shown to be $22,950.00 as compared to $11,960.00 if the well continues to operate as a conventional dual completion. Now, I should call your attention to the fact that the $22,950.00 net value takes into consideration, not only the increase production, but also a reduction in operating costs.

Q You would have a, basically, one-year reduction in operating costs?

A that's correct.

Q om the Blinebry zone?

A Yes, and that is shown on some later exhibits.

Q Yes. Now, has Texaco had any experience in other areas of actually increasing production from lower zones when you have well-bore commingling?

A Yes, we have, during the past two or three years, in other areas commingled more than one reservoir, two or more

reservoirs, removing the packer and producing these wells as single completions without a packer, and in the great majority of cases, a production increase has been experienced in the lower zone and this is attributed to increasing the pump efficiency of the lower zone. Our estimates, therefore, as presented, thus far, could be considered conservative. It's quite possible that the Blinebry may produce more than three barrels of oil when the packer is removed.

Q Now, going on to Exhibit 6, which is a comparison of performance curves, explain that to the Examiner.

A We have presented, graphically here, the gas-oil ratio and water production for each of the two reservoirs that are completed in Well No. 3. The upper set of curves shows this information for the Paddock pool. This well currently is producing about 380 barrels of oil per month. The next curve is the gas-oil ratio curve and it shows that the well in this particular well currently exhibits a gas-oil ratio in the order of 500 cubic feet per barrel of oil. The lowermost curve is the water production curve on barrels of water per month and, currently, this production is in the magnitude of 24 barrels of water per month.

Now, as mentioned previously, that amount of water production is approximately one barrel of oil per month, but --

Q Per day?

A Per day, yes. But the plot on this production curve shows that, most of the time, the water production is considerably less than a barrel a day. Then, the lower set of curves shows the same information for the Blinebry pool. It shows that the oil production has declined to a current value of about 93 barrels per month. The gas-oil ratio is currently in the order of 5300 cubic feet per barrel of oil and the water production, at the present time, is zero.

Q Now, go on to Exhibit Number 7.

A Exhibit Number 7 is a plot of the Blinebry production and the Paddock production in Well No. 3 and it also shows these two curves extrapolated to their respective economic limits. In addition, a third curve shows the combined production or the total production from the well. This set of curves shows that in about August of 1969, the Blinebry zone will have reached its economic limit and, under conventional producing methods, at that time, it will be necessary to abandon the Blinebry zone and continue the well as a single well completion in the Paddock pool.

The additional recovery of 1,618 barrels of oil is shown on this exhibit by the cross-hatched area between the curve representing the Paddock production and the curve

representing the total production.

This Exhibit Number 7 actually depicts how the well would be operated as a dual completion and how the well would be operated if well-bore commingling is permitted, and it shows the additional recovery that would result from well-bore commingling.

Q Again, this would be a conservative figure, as you didn't take into account the possible more efficient pumping procedure?

A Yes, sir, that's correct.

Q Now, Exhibit Number 8, your economic limit calculations.

A We have shown our economic limit calculation on number 8 for the Paddock pool and the Brinebry pool operating as a conventional dual completion and then, below that, we have shown the same information for the well operated as a single completion with well-bore commingling.

We show here that dual completion operating costs are $250.00 a month, or $3,000.00 a year as compared to an operating cost of $142.00 per month for a single completion operation, amounting to $1700.00 per year. So the savings here is $1300.00 a year.

Now, we also show the sales value per barrel of oil for the Paddock and for the Blinebry and for the liquid that

would result when these two fluids are combined. Then we also show the calculation for the economic limit, dividing the $125.00 operating cost by the net value of the oil, would get an economic limit of 56 barrels a month for the Paddock, and using the same procedure, would get an economic limit of 43 barrels per month for the Blinebry.

And then under well-bore commingled conditions, dividing operating costs of $142.00 per month by the net by the net value of the product of $2.79 a barrel would get an economic limit of 51 barrels of oil per month.

Q Now, that $1300.00 figure for savings on operating costs would be limited to the one year that the Blinebry would continue to be in operation?

A Yes, that's correct.

Q We have not included in our cost data the value of salvage equipment nor the cost of converting the well?

A The equipment removed from the well can be salvaged for, probably, in excess of $10,000.00.

Q What would be the cost of removing the equipment?

A It would probably be less than a thousand dollars for the entire operation.

Q Go on to Exhibit 9 and 10, now.

A Exhibits 9 and 10 are performance curves for both of

these oil pools on a pool-wide basis. The purpose of presenting these exhibits is to show, again, the large size of both of these pools, the many years that they have been producing and the amount of cumulative oil production that's been obtained from each of the pools. We'll point out later or mention the relatively insignificant amount of oil remaining, oil to be produced from Well No. 3 as compared to the cumulative production from these two pools.

The additional information obtained, maintained in separate production records is not believed to be necessary.

Exhibit Number 9 shows, at the top of the page, that at the present time there are 127 wells producing in the Paddock oil pool. The cumulative oil production is 17,450,000 barrels of oil. At the present time, the oil production in barrels per month shown by the curve is 46,600. The oil production averages, at the present time, based upon the information from these curves, is 362 barrels of oil per well per month.

Then the lowermost curve shows the gas-oil ratio and it currently is in the order of 4,800 cubic feet per barrel.

Then the next exhibit, Number 10, shows the same production performance for the Blinebry pool. At the present time, there are 254 wells producing from the Blinebry oil pool and, from these wells, a cumulative production of 11,138,000

barrels of oil has been recovered. At the present time, production amounts to 105,000 barrels of oil per month from this pool. This averages out at 418 barrels of oil per month per well.

Then, again, the lowermost curve shows the gas-oil ratio of the Blinebry pool to be 16,900 cubic feet per barrel of oil.

Q Now, referring to Exhibits 11 and 12, which is your bottom hole pressure data, would you first locate those, the wells from which this data is taken from?

A Yes. We have no recent bottom hole pressure determinations in the subject wells, so we searched the files and the records for other pressure data that could be used to accurately estimate the bottom hole pressure in both formations in Well No. 3.

Exhibit Number 11 is entitled, "Average Pool Bottom Hole Pressure in the Paddock Pool." The plotted curve shows that the current pressure is 666 psi, and then a recent bottom hole pressure determination in early 1968 was measured in American Petrofina's Butler Well No. 1, and this well is plotted up in the upper right-hand corner of this graph and shows that it is in excess of 1700 psi.

Now, referring to Exhibit Number 2, the American

Petrofina Well No. 1 is located, two locations, due west of the subject well. It is just over a half a mile west of Texaco's Well No. 3.

MR. NUTTER: Carl, you said 1700. I think you probably meant 1070, didn't you, for that one?

THE WITNESS: Yes, that is correct. Actually, the point looks like it is plotted at 1,060 psi. That is correct.

And then as shown on our prior exhibit, using this information from Exhibit Number 11, we estimate the bottom hole pressure to be between 700 and a thousand psi in Texaco's Well No. 3 in the Paddock formation.

MR. NUTTER: What was the 666? That's the pool average?

THE WITNESS: Yes.

MR. NUTTER: From the official bottom hole pressure surveys that were taken?

THE WITNESS: Yes, sir, that are on file with the Commission's records.

MR. NUTTER: I see.

THE WITNESS: Now, this same procedure has been used to accurately estimate the bottom hole pressure in the Blinebry zone. Exhibit Number 12 shows the pool, bottom hole pressure in the Blinebry oil pool to be approximately 1,300; 1300 psi.

And then actual measurements of bottom hole pressure have been determined in American Petrofina's Well No. 5, and the latest pressure in that well is 1385 psi.

Referring, again, to Exhibit Number 2, the American Petrofina Well No. 5 is located approximately one mile northwest of Texaco's Well No. 3, and then we have another pressure in the Blinebry that was measured in Texaco's AH Blinebry NCT Well No. 9. This pressure was measured back in 1964 and, at that time, exhibited a reservoir pressure of 1115 psi as shown on this plot. So using this information, we estimated the pressure as shown on Exhibit Number 3 for the Blinebry reservoir to be between 1,000 and 1300 psi. These pressures are recent and they're in the immediate vicinity of Well No. 3, so we have every reason to believe that our estimates are quite accurate for reservoir pressure.

Q Do you feel that these pressure differences would result in any cross-flow in commingling?

A No. If the well is pumped down, there will be no possibility for cross-flow and if the well is permitted to fill up, the hydrostatic head of the head between the Paddock and the Blinebry will offset almost equally the bottom hole pressure of the Blinebry zone, so we see no possibility of cross-flow between these two reservoirs.

Q Now, what is the royalty interest situation in this well? Is there any diverse royalty interest between the two pools?

A No. The mineral interest ownership in both pools underneath Well No. 3 is identical at all depths.

Q Did you notify all operators in both pools of this application?

A Yes, we did. We wrote a letter addressed to each and every operator in the Paddock pool, and each and every operator in the Blinebry oil pool and advised them of what we planned to present to the Commission and requested that they advise us of their feelings on this application.

Q Did you get any adverse response?

A No, we got no adverse response whatsoever. We did receive letters from many operators concurring with our application.

Q And those letters were also sent to the Commission, as far as you know?

A Yes. We did receive one letter that was addressed directly to Texaco and it's quite possible that the Commission did not get a copy of that particular letter. I'd like to make that available to the Commission now. This is a letter from a mineral interest owner in California by the name of Marie --

MR. NUTTER: Kyte.

THE WITNESS: And it simply states that they concur in our application.

MR. NUTTER: And this is on this well?

THE WITNESS: Yes, it is.

MR. KELLY: We'll go ahead and mark this, Mr. Examiner.

MR. NUTTER: Okay.

(Whereupon, Applicant's Exhibit Number 13 was marked for identification.)

Q Now, in your opinion, would the granting of this application have any adverse effect on the production figures or the keeping of records on these two pools, as far as keeping accurate records?

A No. Maintaining separate production records for the two pools in this particular well would be very insignificant when you compare the volume of the remaining reserves in this well to the total amount of production that's been obtained from each of the reservoirs.

Q Actually, based on past production figures from this well, you could pretty well calculate what your production was from each zone, couldn't you?

A That is absolutely correct. In fact, the extrapolation after all the years that this well has been on production could

be just as accurate as measurement. We also anticipate no difficulty in the event that the Blinebry zone produces more oil after the packer is removed. We have already established the productivity from the upper Paddock zone which produces without a packer and we have no reason to believe that that volume will fluctuate when the subsurface installation is changed, so subsequent to well-bore commingling, any additional production could be attributed directly to the Blinebry reservoir.

Q In your opinion, would the well-bore commingling damage, in any way, any of these reservoirs?

A No. The water production is nil and there's nothing in the liquid hydrocarbons that could damage the reservoir, and the difference in pressure is insignificant so we know of no way that one of the reservoirs could be damaged by well-bore commingling.

Q In your opinion, would the granting of this application have any adverse affect on correlative rights of any other operators?

A No, we know of no possibility of damage to correlative rights. Also, the response that we have obtained from other operators in the field indicates that they share that opinion with us.

Q And I believe it's been your testimony that this

application, if granted, would prevent waste by producing oil and gas that otherwise would be left in place?

A Yes. We propose well-bore commingling as a means of conserving natural resources. It will certainly result in additional ultimate recovery.

Q Does Texaco have a policy position on this type of situation that they would like to make known to the New Mexico Commission?

A Yes, we do. Texaco recognizes that in some cases, but not in all cases, there are reasons why two zones should not be commingled in the well-bore, but when these specific reasons do not exist, why, our proponents are well-bore commingling. Now, these specific reasons are: First, if mineral ownership is different between the two reservoirs, then they should not be commingled in the well-bore without prior negotiations or agreements between the parties owning the minerals. Another reason for not commingling wells is if the fluid or reservoir characteristics are such that either of the reservoirs would be damaged to such an extent that ultimate recovery would be reduced, then well-bore commingling should not be permitted. In other words, it should be permitted when the ultimate recovery from the particular well will actually increase.

Then, another reason for approving or for not approving well-bore commingling is the value of maintaining separate production records. Now, in a new field, it's quite important to know exactly how much oil is produced from both reservoirs or all of the reservoirs that are produced in a given well. But after a field has been producing for many years and a well has produced and is in its later stage of development and production, these very small producing volumes are insignificant and, actually, serve no useful purpose.

So we would also be most in favor of commingling wells where all of the producing zones have declined to marginal or sub-marginal amounts. We would not propose commingling wells where any of the zones exhibit a high productive rate.

Q None of these limiting factors that you have mentioned are present in this subject well, is that right?

A That's correct.

Q Were Exhibits 1 through 12 prepared by you or under your supervision?

A Yes, they were.

MR. KELLY: I move the introduction of Texaco's Exhibits 1 through 12.

MR. NUTTER: Did you intend to also have that letter identified as an exhibit?

MR. KELLY: Yes, and we will have this letter from Marie Kyte, one of the mineral interest owners in the subject well, marked as Exhibit Number 13 and also move its introduction.

MR. NUTTER: Texaco's Exhibits 1 through 13 will be admitted into evidence.

(Whereupon, Applicant's Exhibits Numbers 1 through 13, inclusive, were received in evidence.)

MR. KELLY: I have nothing further on direct.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Wigam, what is the gravity of the oil produced by these two reservoirs?

A Thirty-seven degrees API for the Paddock and 38 degrees API for the Blinebry oil pool.

Q So the commingling wouldn't change the gravity, or the commingled product would essentially be the same gravity as the two individual wells, then, correct?

A Yes, sir, that's correct.

Q Now, why, Mr. Wigam, on Exhibit 8, did you have an operating cost of $125.00 for each well and then $142.00 for the combined wells? What would be the difference?

A The $125.00 a month represents one half of the monthly operating cost of a dual completion well. In other words, we

are assuming here that each of the two, that both of the reservoirs should contribute equally to the cost of operating a well.

Q What are you including in operating costs, Mr. Wigam?

A Well, every cost we have, other than the ones that are listed here, such as taxes and royalty, operating cost would include well maintenance and equipment maintenance and operation, administrative overhead and all other costs that are chargeable to the well.

Q In other words, this is actual field expense, plus administrative overhead?

A Yes, these are actual cost values for this particular well.

Q Why does it cost more to operate -- now, would a single well out there that wasn't a dual completion cost you $125.00 a month to operate, or would it cost you $142.00?

A It would cost $142.00. In other words, a single completion well would cost a little more than half the cost of operating a dual completion.

Q Now, referring to Exhibit Number 6, Mr. Wigam, up at the top there, your Paddock decline curve, it appears that through the first three six-month periods, a definite decline had set in there which was arrested at the middle of 1966. Then

production jumped up again and then there was a decline over the next twelve-month period, and the production jumped up again in the middle of 1967 and it has been declining just very moderately since. What has been the cause of those three or two increases in production; in effect, three different decline curves there?

A These fluctuations are caused by additional development in this pool.

Q Well, now, this is just for one well, though. I mean, on Exhibit Number 6, Mr. Wigam.

A I see.

Q It is just for the one well, the No. 3. You will notice, there, for the first three six-month periods.

A Yes, I see the fluctuation indicated on that exhibit and -- let me check with Mr. McCarter to see if he has any information on that.

(Whereupon, off-the-record discussion was had.)

A Mr. McCarter advises me that the production increases that are shown here are a result of pulling up the pump and repairing the pump and increasing pump efficiency.

Q In other words, this is a mechanical affect on the production and not any reflection on the reservoir's producing

ability?

A Yes, sir, that is correct. Actually, there is nothing else that that could be attributed to.

Q Well, now, stepping down to the lower curve here, we have a drastic decline in production in this well from the Blinebry pool commencing with about July of 1967. To what is this attributed?

A Well, actually, there are a few plateaus exhibited on this curve, also, and it would be my opinion that the curve, in general, does indicate a drastic decline in productivity. There are certain periods of time here when the production appeared to level off, but again, this could also be attributed to the erratic performance of the pumping installation and the same as it was for the Paddock pool. Also, production from below a packer can be quite erratic due to the accumulation of gas and gas entrain in the fluid.

Q Now, the water production on this lower zone has also drastically fallen off beginning with 1967. What was the cause for that?

A The only cause there, the only explanation there is that there is very little water production in this reservoir in this particular area. I would be of the opinion that we will notice very little water production from the Blinebry

interval from here on out.

Q And the Paddock water production has been very erratic all through the life of the well, apparently.

A Yes, sir, but the erratic nature is exaggerated by the scale of this plot because, actually, it varies, say, between a half a barrel a day and one barrel a day, for example.

Q The highest point there is just something over a barrel a day, something a little over 30 per month?

A Yes, that's correct. That's right, and I believe that feature is exaggerated due to the scale of this curve.

Q Now, on Exhibit Number 5, it shows that the net value of the two zones, commingled, would be 22,950. Actually, the increase in value of the oil that would be recovered because of the commingling is relatively insignificant, most of this 22,950 dollars, or most of the difference between the sum of the two individuals, and the 22,900 is gained and decreased operating costs, rather than gain and production.

A No, sir, I don't believe that would be true. In fact, we can only attribute approximately $1300.00 for a one year's operation as being savings resulting from reduced operating costs. One thing that provides for that increase in net value of remaining reserves is the additional gas production that will be obtained along with that Blinebry oil production, and

over on Exhibit Number 7, it shows that we will, if we are permitted to commingle the production in the well-bore, be able to keep the Blinebry zone on production for another five and a half years, in addition, or beyond the life of the well if we continue operating as dual completion.

Q Because it would reach its economic limit in 1969 as a single?

A Yes, sir.

Q But the combined economics on it would be at the end of '73?

A Yes, sir, that's correct.

Q On any of these exhibits, have you broken out the gas separately, Mr. Wigam, to show the amount of gas that would be recovered?

A No, we haven't, Mr. Examiner. The only place that we show that or indicate that information is on Exhibit Number 8.

Q Where you show the value per barrel, including that?

A Yes, sir. The amount of gas associated with the oil is included in the net value of the product after taxes and royalties.

Q And what is the value of the oil, itself, for the two zones?

A I don't have that information with me here because

all of these values here were determined to include the gas values. Let me see if Mr. McCarter has anything that he brought with him that might indicate these values.

MR. KELLY: Mr. Examiner, Mr. McCarter could -- he's still under oath and we could put him on.

MR. NUTTER: He could just confer.

MR. KELLY: I think he also has an explanation for that drop in production of the Blinebry that you were asking about.

THE WITNESS: The value of this production, Mr. Examiner, would be similar for both of the zones since the gravity is approximately the same; so, the primary difference shown on our prior exhibit is attributable to the gas contents.

MR. NUTTER: Mr. McCarter.

MR. KELLY: Just let the record show that Mr. McCarter is under oath.

MR. Mc CARTER: The value of the combined crude would be approximately two ninety-eight a barrel. This is the oil value on completion.

MR. NUTTER: And then do you have your individual oil values there?

MR. Mc CARTER: Yes. The Paddock crude, the value of the oil is two ninety-four per barrel. The Blinebry, income

per barrel is three twelve.

MR. NUTTER: Is one a sweet and one an intermediate, or sour?

MR. McCARTER: The Blinebry is intermediate sweet and the Paddock is sour.

MR. NUTTER: And the two ninety-eight then would be classified -- the combined oil, would that bring an intermediate or a sour price?

MR. McCARTER: It would bring a sour price purchased by the Texas-New Mexico Pipeline Company and they consider any cride, when it contains any sour production, as all sour.

Q (By Mr. Nutter) And then the difference, Mr. Wigam, between the prices that Mr. McCarter gave me for the oil and the prices shown on Exhibit Number 8 is the amount of gas that's produced with a barrel of oil, is that correct?

A That's correct, and the values he gave you is the value of the oil without the gas.

MR. McCARTER: The gas value is nine cents a thousand. That's for both zones.

MR. NUTTER: Both zones?

MR. McCARTER: Both zones.

MR. NUTTER: Mr. McCarter, I believe Mr. Kelly also said you had an explanation for the decrease in production from

the Blinebry zone of this well which occurred in the middle of 1967.

MR. Mc CARTER: Mr. Examiner, the Blinebry production of this well is entered into a commingled battery and the production is split back to the individual zones by a well test, and it is my opinion that after constructing these curves, and these were taken directly from the C1-15, that what it apparently had been doing that six-month period was a bad well test, or actually I think it's a three-month period, really, was a bad well test which caused an incorrect split of production.

So when you look at Exhibit Number 7 which shows the economic limit and the extrapolated production, you will see that the points as connected on the Blinebry zone are directly a straight line, excluding that one point.

MR. NUTTER: Mr. Wigam, this is another argument for down-hole commingling for you, that the allocation of production, when it's commingled in the well-bore, it can't be any more erroneous than the allocation of production on the surface.

Are there any further questions of Mr. Wigam? He may be excused. Do you have anything further, Mr. Kelly?

MR. KELLY: No, I don't.

MR. NUTTER: Do you have any correspondence you want

to tender in this case, Mr. Hatch?

MR. HATCH: The Commission has received a number of communications from N.B. Hunt, Acoma Oil Corporation, Sinclair Oil and Gas, Shell Oil Company, Tenneco Oil Company, Humble Oil and Refining Company, Getty Oil Company, McBee Royalties, Ohio Petroleum Company, Texas Pacific Oil Company, supporting the applicant in this case, and statements have already been received by the Examiner at the close of the previous case today, 3863, from Mobil and Pan American concurring.

MR. NUTTER: You will get those statements in the record at this time?

REPORTER: Yes.

(Whereupon, insertion of concurring statements by Mobil and Pan American made at the end of case Number 3863 are hereby incorporated as follows:)

* * * * *

MR. BUELL: May I ask a question? We're interested in case 3869, I believe, the application of Texaco. Do you have any communication from them? I haven't seen any Texaco people here.

MR. HATCH: They are here in town. We had a call from them this morning.

MR. BUELL: We were simply going to make a statement of concurrence. Would it disrupt things or inconvenience the

Examiner or the reporter if I could make such statement of concurrence now?

MR. NUTTER: How can you concur? You haven't heard the case.

MR. BUELL: I was trying to think of something clever to say back, but I couldn't.

MR. NUTTER: Do you concur with what they told you they were going to say, Mr. Buell?

MR. BUELL: Yes, because we feel that in the proper circumstance, two separate zones can serve conservation as well as permit economic and physical waste.

MR. NUTTER: And is it your view that this is the proper circumstance?

MR. BUELL: They have talked with George Ford over the phone and convinced him that such is the case. They didn't talk with me.

MR. NUTTER: Okay. We'll get your statement in the record of case Number 3869 when it's called.

MR. BUELL: Thank you, Mr. Examiner.

MR. KREUZ: Excuse me, Mr. Examiner. Since Mr. Buell has opened this door, can Mobil Oil also concur with Texaco's application at this time?

MR. NUTTER: Do you know what they have to say?

MR. KREUZ: Yes, sir. We have reviewed their exhibits and their testimony.

MR. NUTTER: All right. Would you identify yourself and make your statement, then?

MR. KREUZ: Yes, sir. I'm Rawleigh Kreuz from Mobil Oil Corporation.

MR. NUTTER: You probably have to spell that for the reporter.

MR. KREUZ: K-r-e-u-z. Mobil has sent a letter to the New Mexico Oil Conservation Commission in regard to case Number 3869 and I'd like to read this letter at this time, Mr. Examiner.

MR. NUTTER: All right.

MR. KREUZ: "Gentlemen: Mobil Oil Corporation has reviewed Texaco's exhibits and testimony prior to this hearing. Mobil concurs in Texaco's application and urges that permission to down-hole commingle production be granted.

"It is Mobil's belief that, as pointed out in Texaco's case, a great deal of money is wasted with low producing wells or maintained as multiply completed producers. These expenditures result from the utilization of expensive equipment, excessive operating personnel and administrative

burdens.

"Commingling authority will not only release money which may be used to discover additional hydrocarbon reserves, but in addition, will more completely recover the presently located hydrocarbons.

"Essentially, dual completions are capable of producing all recoverable hydrocarbons from each multiple zone. There is, however, an additional comparatively small volume that can be recovered before reaching an economic limit if commingling authority is granted. These additionally recovered hydrocarbons directly result from the scintilla of difference existing between the economic limit of a multiply completed well versus the economic limit of a commingled well. Although this volume of additional recoverable hydrocarbons is small on a per-well basis, it becomes more significant as the reservoir's producing life ages and the number of candidates for abandonment increases.

"Mobil Oil Corporation, for these reasons, feels that Texaco's application is firmly grounded in conservation principles. Mobil therefor urges that Texaco's application be granted."

Thank you.

MR. NUTTER: Thank you.

* * * * *

MR. NUTTER: Does anyone have anything further they wish to offer?

MR. LYON: I have a statement.

MR. NUTTER: Mr. Lyon.

MR. LYON: V.T. Lyon, of Continental Oil Company. I have a copy of the statement I'll give you.

Continental Oil Company is one of the largest operators in Southeastern New Mexico. As such, we have a large number of dual completions. Producing rates on Continental's properties, like most properties in Southeastern New Mexico, are declining sharply to the extent that we are approaching the economic limit on many properties. One method of extending the economic limit is to reduce operating costs by commingling production in the well bore. By so extending the economic limit, oil recovery from both zones will be increased.

Continental has always strongly supported conservation practices and still advocates that conservation principles must not be sacrificed simply to make a greater profit. We believe that each type of dual completion must be studied carefully to insure that no physical waste will result. We have reviewed the

conditions involved in this application and concur with Texaco that the interests of conservation will be served by the approval of the application.

MR. NUTTER: Thank you. Does anyone else have any statements to make? If not, we'll take the case under advisement and recess the hearing until 1:45.

I N D E X

EXHIBITS	MARKED	OFFERED AND ADMITTED
Applicant's Exhibits 1 through 12	2	26
Applicant's Exhibit 13	22	26

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, CHARLOTTE MACIAS, 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.

Charlotte Macias
Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3869, heard by me on 9/25, 1968.

Examiner
New Mexico Oil Conservation Commission

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

WESTERN UNION TELEGRAM

W. P. MARSHALL, CHAIRMAN OF THE BOARD
R. W. McFALL, 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

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1968 SEP 24 PM 3 40

D LLN452 PDB=FAX DALLAS TEX 24 211P CDT=
NEW MEXICO OIL CONSERVATION COMMISSION=
STATE LAND OFFICE BLDG COLLEGE AVE SANTA FE NMEX=
TEXACO INC. WILL PRESENT AN APPLICATION TO THE COMMISSION SEPTEMBER 25, 1968 REQUESTINGAUTHORITY TO COMMINGLE PRODUCTION IN THE WELL BORE FROM THE DUAL OIL BLINEBRY AND PADDOCK RESERVIORS IN THE TEXACO C. H. LOCKHART FEDERAL NCT-1 WELL NO. 3 IN UNIT O, SECTION 18, T-22S, R-38E, LEA COUNTY, NEW MEXICO.=
N. B. HUNT STRONGLY URGES THAT THE COMMISSION GIVE THIS APPLICATION FAVORABLE CONSIDERATION RECOGNIZING THAT IT

WU1201 (R2-65) THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

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1235 J.

IS MOST DESIREABLE TO NEW MEXICO AND TO THE OIL INDUSTRY THAT PROCEDURES BE ESTABLISHED WHEREBY AND OPERATOR CAN COMMINGLE MARGINAL COMPLETIONS DOWN-HOLE THEREBY EXTENDING THE ECONOMIC PRODUCTIVE LIFE AND RECOVERY FROM SUCH WELLS=
YOURS TRULY=
N B HUNT, BY:N CURLISS==

25 1968 3 18 T-22S R-38E=

WU1201 (R2-65) THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Mobil Oil Corporation

P.O. BOX 633
MIDLAND, TEXAS 79701

September 24, 1968

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

TEXACO CASE #3869
SEPTEMBER 25, 1968
DOWNHOLE COMMINGLING APPLICATION
BLINEBRY AND PADDOCK POOLS
LEA COUNTY, NEW MEXICO

Gentlemen:

Mobil Oil Corporation has reviewed Texaco's exhibits and testimony prior to this hearing. Mobil concurs in Texaco's application and urges that permission to downhole commingle production be granted.

It is Mobil's belief that, as pointed out in Texaco's case, a great deal of money is wasted when "low producing wells" are maintained as multiply completed producers. These expenditures result from the utilization of expensive equipment, excessive operating personnel and administrative burdens. Commingling authority will not only release money which may be used to discover additional hydrocarbon reserves, but, in addition, will more completely recover the presently located hydrocarbons.

Essentially, dual completions are capable of producing all recoverable hydrocarbons from each multiple zone. There is, however, an additional comparatively small volume that can be recovered before reaching an economic limit if commingling authority is granted. These additionally recovered hydrocarbons directly result from the scintilla of difference existing between the economic limit of a multiply completed well vs the economic limit of a commingled well. Although this volume of additional recoverable hydrocarbons is small, on a per well basis, it becomes more significant as the reservoir's producing life ages and the number of candidates for abandonment increases.

Mobil Oil Corporation, for these reasons, feel that Texaco's application is firmly grounded in conservation principles. Mobil, therefore, urges that Texaco's application be granted.

Yours very truly,

John L. Sanders

John L. Sanders for
Ira B. Stitt
Division Operations Engineer

FLHart/bje

TEXAS PACIFIC OIL COMPANY
BOX 747
DALLAS, TEXAS 75221

RIVERSIDE 1-5033

September 23, 1968

2700 FIDELITY UNION TOWER BLDG.

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

Attention: Mr. A. L. Porter, Jr.

Subject: Docket No. 28-68
Case No. 3869

Gentlemen:

Texas Pacific Oil Company is in substantial agreement and urges your approval of Texaco's application for well bore commingling of the Blinebry and Paddock oil pools in their Lockhart Federal NCT-1 Well No. 3 located in Unit O, Section 18, T22S, R38E, Lea County, New Mexico.

Very truly yours,

R B Freels

R. B. Freels
Asst. to V. P. Production

RBF:ba

cc: Texaco, Inc.
P. O. Box 3109
Midland, Texas 79701
Attn: Mr. Darrell Smith
Division Manager

'68 SEP 25 AM 8 25

SOHIO PETROLEUM COMPANY

PRODUCTION AND EXPLORATION DIVISION

September 12, 1968

MIDLAND DISTRICT

BOX 3167
MIDLAND, TEXAS 79701

Case 3869

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

Attention: Mr. A. L. Porter, Jr.

Re: Texaco Hearing
September 25, 1968
Blinebry & Paddock Oil Pools
Lea County, New Mexico

Gentlemen:

Sohio Petroleum Company, as an operator in the Blinebry and Paddock oil pools, respectfully requests that the application by Texaco seeking permission to commingle in the well bore oil and gas production from the Blinebry and Paddock oil reservoirs be approved.

Very truly yours,

SOHIO PETROLEUM COMPANY

A. K. Hood
District Superintendent
Midland District

RCG:jc
cc: Mr. Darrell Smith
Division Manager
Texaco Inc.
P. O. Box 3109
Midland, Texas 79701

MABEE ROYALTIES, INC.
201 FIRST SAVINGS BLDG.
MIDLAND, TEXAS 79701

September 11, 1968

Case 3869

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

Re: Well Bore Commingling
Blinebry and Paddock Oil Pools
Lea County, New Mexico

Gentlemen:

In reference to Texaco's letter of September 4, 1968, requesting a hearing on the captioned, we agree with their application and respectfully request your approval of same.

Very truly yours,

E. H. Scobey

E. H. Scobey

EHS:ds
cc: Texaco, Inc.
P. O. Box 3109
Midland, Texas 79701
Attn: Mr. C. L. Whigam
Division Proration Engineer

Getty Oil Company

P.O. Box 1404, Houston, Texas 77001

Mid-Continent Division G. H. Truran, Production Manager H. E. Wendt, Assistant Manager

September 13, 1968

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

Case 3869

Attention: Mr. A. L. Porter, Jr.
Secretary and Director

Gentlemen:

In Re: Well Bore Commingling,
Blinebry & Paddock Oil Pools,
Lea County, New Mexico

We have been advised by Texaco Inc. that they will present an application before you on September 25, 1968, to permit commingling in the well bore all oil and gas production from the Blinebry and Paddock oil reservoirs currently dually completed in Texaco's C. H. Lockhart Federal NCT-1 Well #3 located in Unit O, Section 18, Township 22 South, Range 38 East, Lea County, New Mexico.

This is to advise that Getty Oil Company hereby supports Texaco's application as proposed and urges its approval. We request that this letter be entered in the record of the hearing on this application.

Very truly yours,

John S. Cameron, Jr.

John S. Cameron, Jr.

JSC/nw

cc: Texaco Inc.
P. O. Box 3109
Midland, Texas 79701
Attn: Mr. Darrell Smith

'68 SEP 16 AM 8 32

HUMBLE OIL & REFINING COMPANY

MIDLAND, TEXAS 79702

PRODUCTION DEPARTMENT
SOUTHWESTERN DIVISION
E. C. BARFIELD
OPERATIONS MANAGER

September 13, 1968

POST OFFICE BOX 1600

KSW
Case 3869

Well Bore Commingling
Blinebry and Paddock Oil Pools
Lea County, New Mexico

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

ATTENTION: Mr. A. L. Porter, Jr.

Gentlemen:

Texaco Inc. has informed us of their request to the New Mexico Oil Conservation Commission for a hearing to consider well bore commingling of production of oil and gas from the Blinebry and Paddock Zones in their C. H. Lockhart Federal NCT-1 Well No. 3. Humble, as an offset operator to this lease, concurs with this request as it will aid in conservation of oil and gas as well as reduce operating expenses.

Yours very truly,

E. C. Barfield

E. C. BARFIELD

HNR:csd

cc: Texaco Inc.
P. O. Box 3109
Midland, Texas

'68 SEP 15 AM 8 35

TENNECO OIL COMPANY · P. O. BOX 1031 · 1800 WILCO BUILDING · MIDLAND, TEXAS 79701

September 17, 1968

Case 3869

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

RE: Texaco Inc., Request
September 25, 1968,
Hearing, Well Bore
Commingling Blinebry and
Paddock Oil Pools, Lea
County, New Mexico.

Gentlemen:

Tenneco Oil Company is in agreement with Texaco Incorporated's contention that conservation of natural resources can best be served by well bore commingling in the cited fields. We wish to support Texaco's request in this hearing and suggest administrative procedures to permit such commingling in these and other reservoirs of similar circumstances throughout the state of New Mexico.

Very truly yours,

TENNECO OIL COMPANY

F. J. McDonald
District Superintendent

HNK:cw

cc: Darrel Smith
Texaco
Midland, Texas

'68 SEP 20 AM 8 33

SHELL OIL COMPANY
PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

September 20, 1968

Subject: Case No. 3869
Docket of September 25, 1968
Application of Texaco Inc. for
Well Bore Commingling
Blinebry and Paddock Oil Pools
Lea County, New Mexico

New Mexico Oil Conservation Commission
Post Office Box 2088
Santa Fe, New Mexico 87501

Attention Mr. A. L. Porter, Jr.

Gentlemen:

Shell Oil Company supports the application of Texaco Inc. to commingle oil and gas production from the Blinebry and Paddock zones in the well bore of their C. H. Lockhart Federal NCT-1, Well No. 3. We feel that this request is in line with prudent conservation practices and that the establishment of procedures to allow operators to apply for authority to confluently produce marginal pumping wells will help to conserve natural resources and be in the best interest of the oil industry.

Yours very truly,

S. M. Paine

S. M. Paine
Production Manager
Midland Division-West

MRH:ERL

cc - Texaco Inc.
Post Office Box 3109
Midland, Texas 79701

'68 SEP 23 AM

SINCLAIR OIL & GAS COMPANY
P. O. Box 1470
Midland, Texas 79701
September 20, 1968

SOUTHERN REGION (West Texas)

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

Attention: Mr. A. L. Porter, Jr.
Secretary and Director

Re: Case No. 3869 to be
Held September 25, 1968.

Gentlemen:

Sinclair Oil & Gas Company, the Operator of several wells in the Blinebry and Paddock Oil Pools, Lea County, New Mexico, hereby supports Texaco Inc in their application to commingle in the well bore production from said pools in its C. H. Lockhart Federal NCT-1 Well No. 3.

Very truly yours,

R. M. Anderson
Region Regulatory
Engineer

RMA/ar

cc: Texaco Inc.
P. O. Box 3109
Midland, Texas 79701

Mr. N. F. Gulledge
File

'68 SEP 23 AM 8

GENERAL OFFICE
HAMM BUILDING
ST. PAUL, MINN.
55102

ACOMA OIL CORPORATION
812 CONTINENTAL LIFE BUILDING
FORT WORTH, TEXAS 76102

September 19, 1968

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

Re: Well Bore Commingling
Blinebry and Paddock Oil Pools
Lea County, New Mexico

Gentlemen:

Reference is made herewith to the application of Texaco Inc. to the New Mexico Oil Conservation Commission for a hearing in Santa Fe September 25, 1968, for the authorization to permit commingling in the well bore of oil and gas production from the Blinebry and Paddock oil reservoirs, currently producing in Texaco's C. H. Lockhart Federal NCT-1 well No. 3, located in Unit O, Section 18, Township 22 South, Ranger 38 East, Lea County, New Mexico.

We would like to express at this time our approval of this application being made by Texaco, not only for this particular well but for the establishment of procedures whereby operators can obtain authority for well bore commingling in any field or oil pool where such useful purposes as proposed in this application can be achieved.

We regret that we are unable to have a representative present at this hearing.

We respectfully ask that the Commission after due consideration will approve a procedure for well bore commingling of oil and gas.

Respectfully submitted,

ACOMA OIL CORPORATION

By Sam W Hogan
Sam W. Hogan
Petroleum Engineer

SWH:lhm

cc: Mr. Darrell Smith, Division Manager
Texaco Inc., Midland, Texas

Mr. R. W. Anderson, President
Acoma Oil Corporation, St. Paul, Minnesota

TEXACO

PETROLEUM PRODUCTS

DOMESTIC PRODUCING DEPARTMENT
MIDLAND DIVISION

TEXACO INC.
P. O. BOX 3109
MIDLAND, TEXAS 79701

September 4, 1968

REQUEST FOR HEARING
BLINEBRY & PADDOCK OIL POOLS
LEA COUNTY, NEW MEXICO

Case 3869

'68 Sep 5 PM 1 07

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

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

It is respectfully requested that an examiner hearing be scheduled September 25, 1968 in Santa Fe, New Mexico, to consider the application of Texaco Inc. for authorization to commingle in the well bore all oil and gas production from the Blinebry oil reservoir and the Paddock oil reservoir which are currently dually completed in Texaco's C. H. Lockhart Federal NCT-1 Well No. 3 in Lea County, New Mexico. Approval will be sought to allow all fluids to be produced through a single tubing string with the well equipped as a single completion. Authorization will be requested to allocate the marginal production from both reservoirs to the two subject oil pools based upon productivity rates established by past production performance.

The C. H. Lockhart Federal NCT-1 Well No. 3 is a conventional dual completion in 5-1/2" OD casing with a plug back total depth of 5840'. The Blinebry formation produces from perforations at a depth of 5589' to 5677' and the Paddock formation produces from perforations at a depth of 5144' to 5174'. The two zones are separated by a packer set at a depth of 5500'. As a dual completion, the two zones have been produced through two parallel strings of 2-1/16" OD tubing.

As shown on the attached plat, the subject well is located in Unit O, Section 18, T-22-S, R-38-E, Lea County, New Mexico, on Texaco's 400-acre Lockhart Lease. Also attached is a list of all operators in both reservoirs with the offset operators designated by an asterisk. Also attached is a list of all mineral interest

DOCKET MAILED
Date 9-13-68

owners in the subject lease. A copy of this letter is being sent to all offset operators and mineral interest owners to notify them of Texaco's proposed application.

Yours very truly,

C. L. Whigham
Division Proration Engineer

CLW:jl
Attachments

cc: Offset Operators
Mineral Interest Owners

Case 3869

MINERAL INTEREST OWNERS
C. H. LOCKHART FEDERAL NCT-1 WELL NO. 3
LEA COUNTY, NEW MEXICO

Atlantic Richfield Company
Box 354
Dallas, Texas 75221

Mrs. Blanche McCallister
St. Mary's Hospital
Roswell, New Mexico

Shriners Hospitals for
Crippled Children
323 N. Michigan Ave.
Chicago, Illinois 60601

U. S. Geological Survey
Oil Royalty
Box 1857
Roswell, New Mexico

Albuquerque Nat'l. Bank
Test Tst of Frank A. Andrews
Albuquerque, New Mexico

Mariee E. Kyte
Box 817
Los Altos, California 94022

Mrs. Selma E. Andrews
Agency No. 1335
c/o Trust Dept.
Republic Nat'l Bank of Dallas
Box 241
Dallas, Texas 75221

First Nat'l Bank of Denver
Test Trustee of Est. of
Josephine M. Smith
Box 5590
Denver 17, Colorado

David Bond Kyte
3887 State Street
Office 16-B
Santa Barbara, California 93101

Chase Manhattan Bank
Assignee - Argo Prod.
Payment Att. Gen. Loan 1-B
1 Chase Manhattan Plaza
New York 15, New York

Bank of California N. A. Trustee
400 California Street
San Francisco 20, California

Texaco Inc.
Oil Accounting
Houston, Texas

Lillian H. Coll Indv. & As
Exrx. & Tr. U/W of M. W. Coll
Box 919
Roswell, New Mexico

First Nat'l Bank of Roswell
Trustee Allie M. Lee Trust
Box 1977
Roswell, New Mexico 88201

Case 3869

OPERATORS
BLINEBRY & PADDOCK OIL POOLS
LEA COUNTY, NEW MEXICO

Amerada Petroleum Corp. (B&P)
Drawer 817
Seminole, Texas 79360

*American Petrofina Co. of Texas (B&P)
Box 1311
Big Spring, Texas 79720

Continental Oil Company (B&P)
Box 431
Midland, Texas 79701

*Gulf Oil Corp (B&P)
Box 1938
Roswell, New Mexico 88201

*Ernest A. Hanson (B&P)
Box 988
Luling, Texas 78648

*Humble Oil & Refining (B&P)
Box 1600
Midland, Texas 79701

MacDonald Oil Corp. (P)
711 Petroleum Life Bldg.
Midland, Texas 79701

Marathon Oil Company (B&P)
Midland Nat'l Bank Bldg.
Midland, Texas 79701

Mobil Oil Corp. (B&P)
Box 633
Midland, Texas 79701

Pan American Petroleum Corp. (B&P)
Box 1540
Midland, Texas 79701

J. W. Peery (B&P)
Box 401
Midland, Texas 79701

Shell Oil Company (B&P)
Box 1509
Midland, Texas 79701

Sinclair Oil & Gas Co. (B&P)
Box 1470
Midland, Texas 79701

*Sohio Oil Company (B&P)
Box 3167
Midland, Texas 79701

Sunray DX Oil Company (B&P)
1101 Wilco Bldg.
Midland, Texas 79701

Texas Pacific Oil Company (B&P)
Box 4067
Midland, Texas 79701

Texaco Inc. (B&P)
Box 3109
Midland, Texas 79701

Guy R. Zachry (P)
Address Unknown

Acoma Oil Corporation (B)
812 Continental Life Bldg.
Fort Worth, Texas 76102

Aztec Oil and Gas Company (B)
Box 847
Hobbs, New Mexico

Case 3869

Campbell & Hedrick (B)
Address Unknown

Cities Service Oil Company (B)
800 Vaughn Bldg.
Midland, Texas 79701

J. R. Cone (B)
Address Unknown

Getty Oil Company
Box 1231
Midland, Texas 79701

Harper Oil Company (B)
904 Hightower Bldg.
Oklahoma City, Oklahoma 73102

N. B. Hunt (B)
29th Floor
1401 Elm
Dallas, Texas 75202

E. F. Moran
Address Unknown

R. M. Moran (B)
Box 1919
Hobbs, New Mexico

Moran Oil Prod. & Drlg. Corp. (B)
Box 1919
Hobbs, New Mexico

Penrose Production Company (B)
Box 988
Eunice, New Mexico 88231

Phillips Petroleum Company (B)
Room B-2 - Phillips Bldg.
Odessa, Texas 79760

Skelly Oil Company (B)
Box 993
Midland, Texas 79701

Southern Petroleum Exploration (B)
905 Oil & Gas Bldg.
Wichita Falls, Texas 76301

**Sunshine Royalty Company
500 North Kentucky
Roswell, New Mexico

**Robert E. Chandler & John Yuronka
120 Central Bldg.
Midland, Texas

**Mabee Royalties, Inc.
Box 4006
Midland, Texas

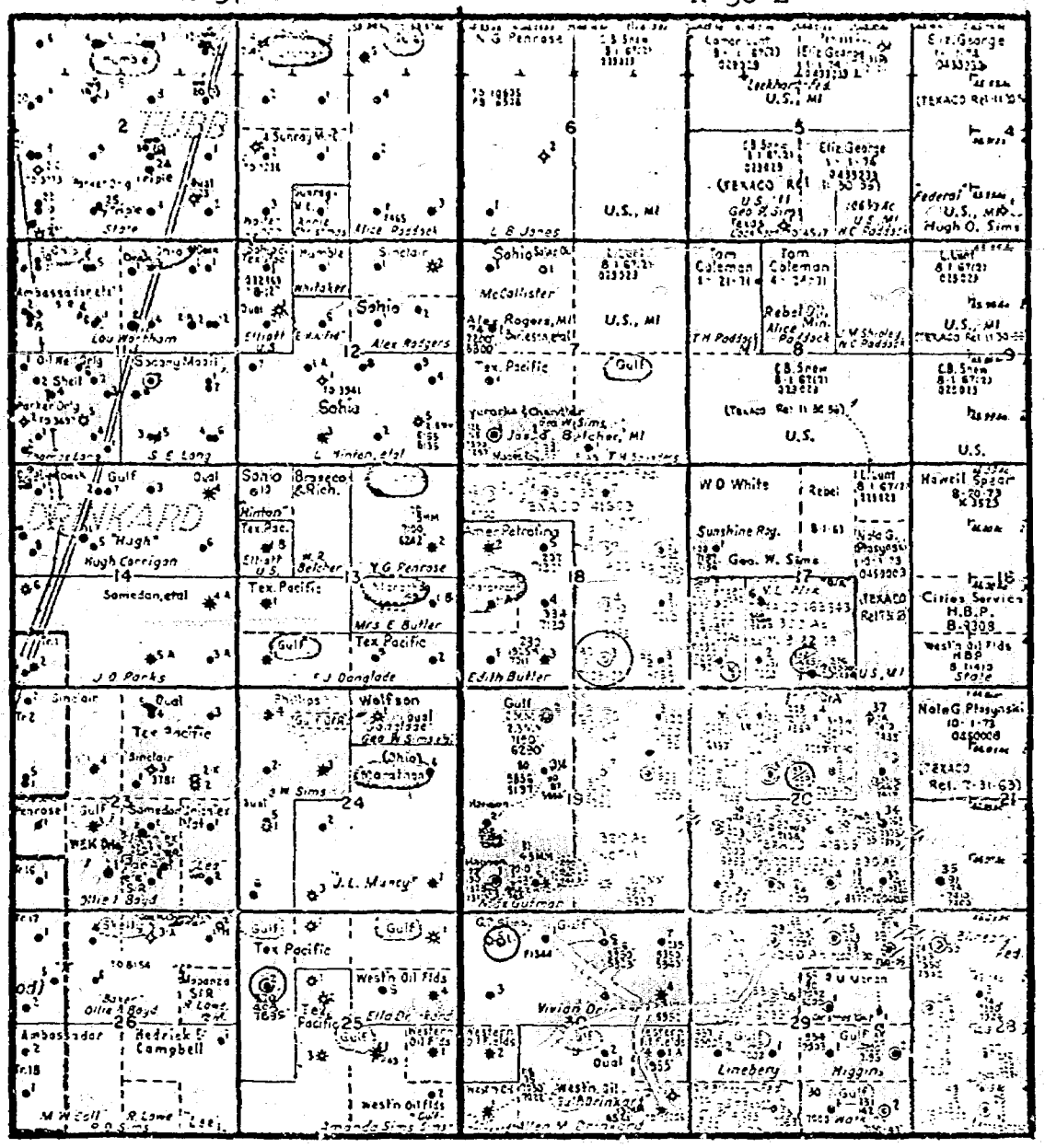
Sunset International Petr. Corp. (B)
2646 Humble Bldg.
Houston, Texas 77002

Tenneco Oil Company (B)
Box 1031
Midland, Texas 79701

Union Texas Petr. Corp. (B)
Box 2120
Houston, Texas 77001

Western Oil Fields, Inc. (B)
Box 1147
Hobbs, New Mexico

* Offset Operators
** Offset Lessees - Not Operators



TEXACO INC.

PORTION OF LEA COUNTY, NEW MEXICO

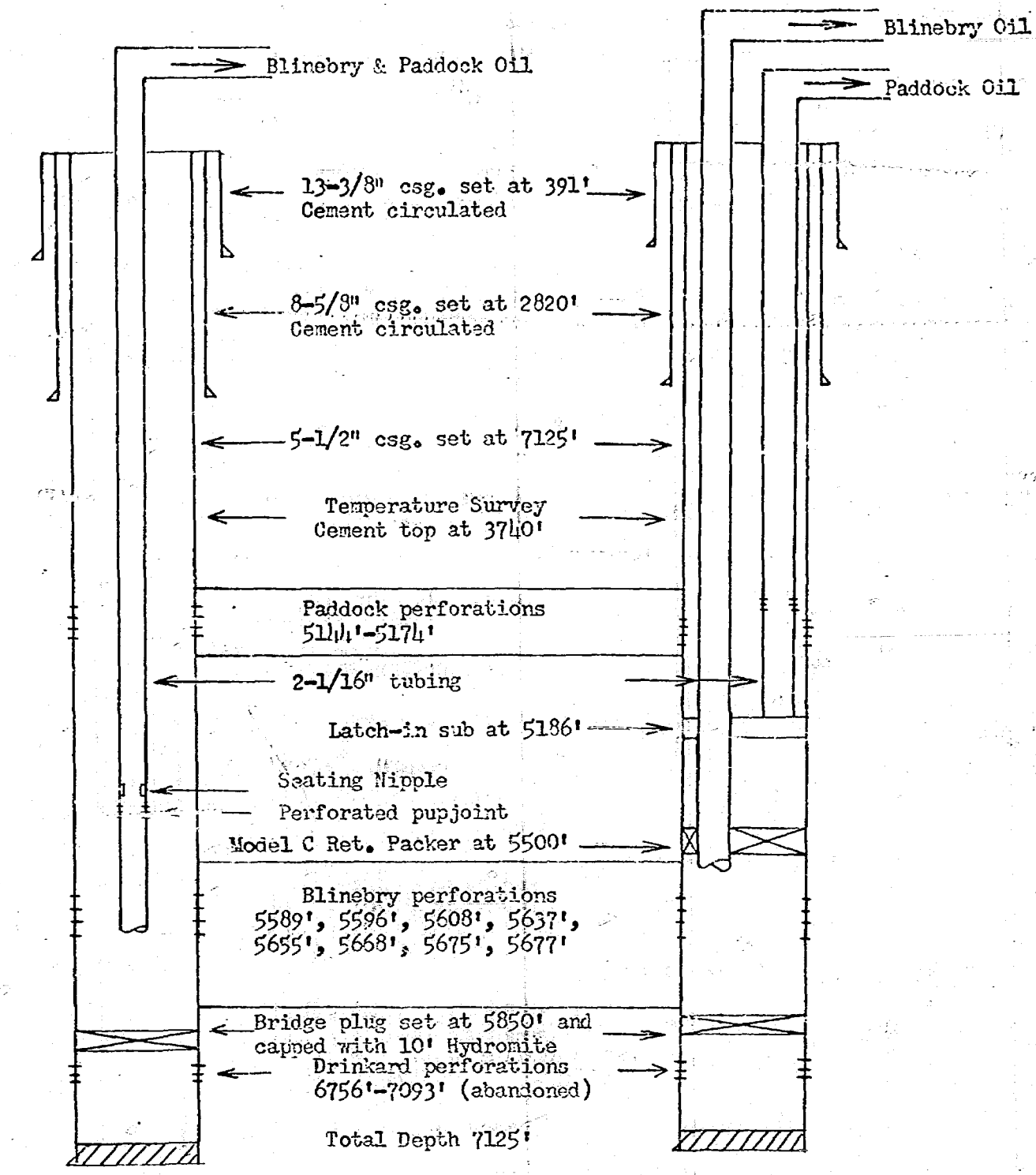
BLINEBRY AND PADDOCK OIL POOLS

SCALE: 1"=4000' SEPT. 4, 1968.

Case 3869

APPLICATION FOR WELL BORE COMMINGLING

C. H. Lockhart Fed. NCT-1 (Lease Name)	3 (Well No.)		Lea (County)
Pool Names	Paddock	Blinebry	
Date of Last Production			
Date of Latest Test	6-30-68	5-30-68	
Latest Test Results:			Estimated Commingled Production
Bbls. Oil/24 hrs.	12	3	15
Bbls. Wtr/24 hrs.	1	1	2
MCF gas/24 hrs.	5	25	30
Gas-Oil Ratio	416	8333	2000
Current Allowable	12	3	
Gravity	31°	38°	
Field Data:			
Avg. Depth To Top of Pay	5100'	5600'	
Proporational Factor	1.33	1.33	
Top Allowable (NUA-58)	78	78	
Proration Unit Size:	40 Ac.	40 Ac.	
Gas-Oil Ratio Limit	2,000	6,000	
Estimpated BHP, psia	700-1000 Est.	1000-1300 Est.	
Producing Mechanism	Solution Gas	Solution Gas & Gas Cap Expansion	
Number of Operators	19	35	
Number of Sec. Rec. Projects	1 (pilot)	0	



PROPOSED COMPLETION

PRESENT COMPLETION

TEXACO INC.
C. H. LOCKHART (NCT-1) WELL NO. 3
PADDOCK & BLINEBRY POOLS
LEA COUNTY, NEW MEXICO

BEFORE E[illegible] NUT[illegible]
OIL CONS[illegible] ISSIO[illegible]
CASE N[illegible] 3869

GENERAL ECONOMICS AND RESERVES

C.H. LOCKHART FED. NCT-1 WELL NO. 3
BLINEBRY AND PADDOCK POOLS
LEA COUNTY, NEW MEXICO

1170
1960
1313 0

Operated as dual completion, then as single completion when the Blinebry Zone reaches its economic limit

Blinebry Zone:
- Reserves: - 918 Bbls.
- Prod.Rate: - 3 BOPD Initial, 1.4 BOPD Final
- Life: - 1 year at 47% Decline Rate
- Net Value: - $1,170 (After Royalty, Taxes and Operating Expenses)

918
9044
9962

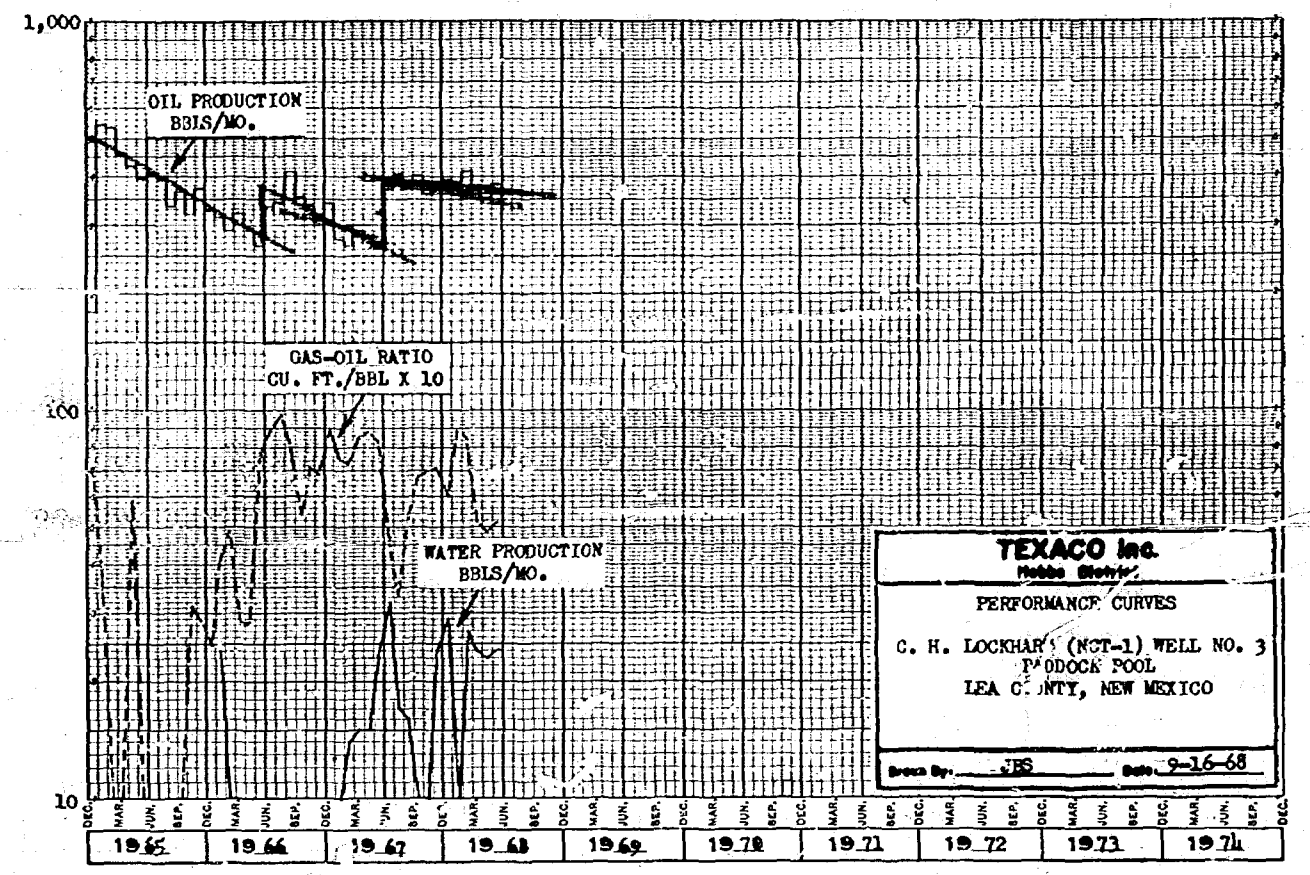
Paddock Zone:
- Reserves: - 9044 Bbls.
- Prod.Rate: - 10 BOPD Initial, 1.84 BOPD Final
- Life: - 5 years at 28% Decline Rate
- Net Value: - $11,960 (After Royalty, Taxes and Operating Expenses)

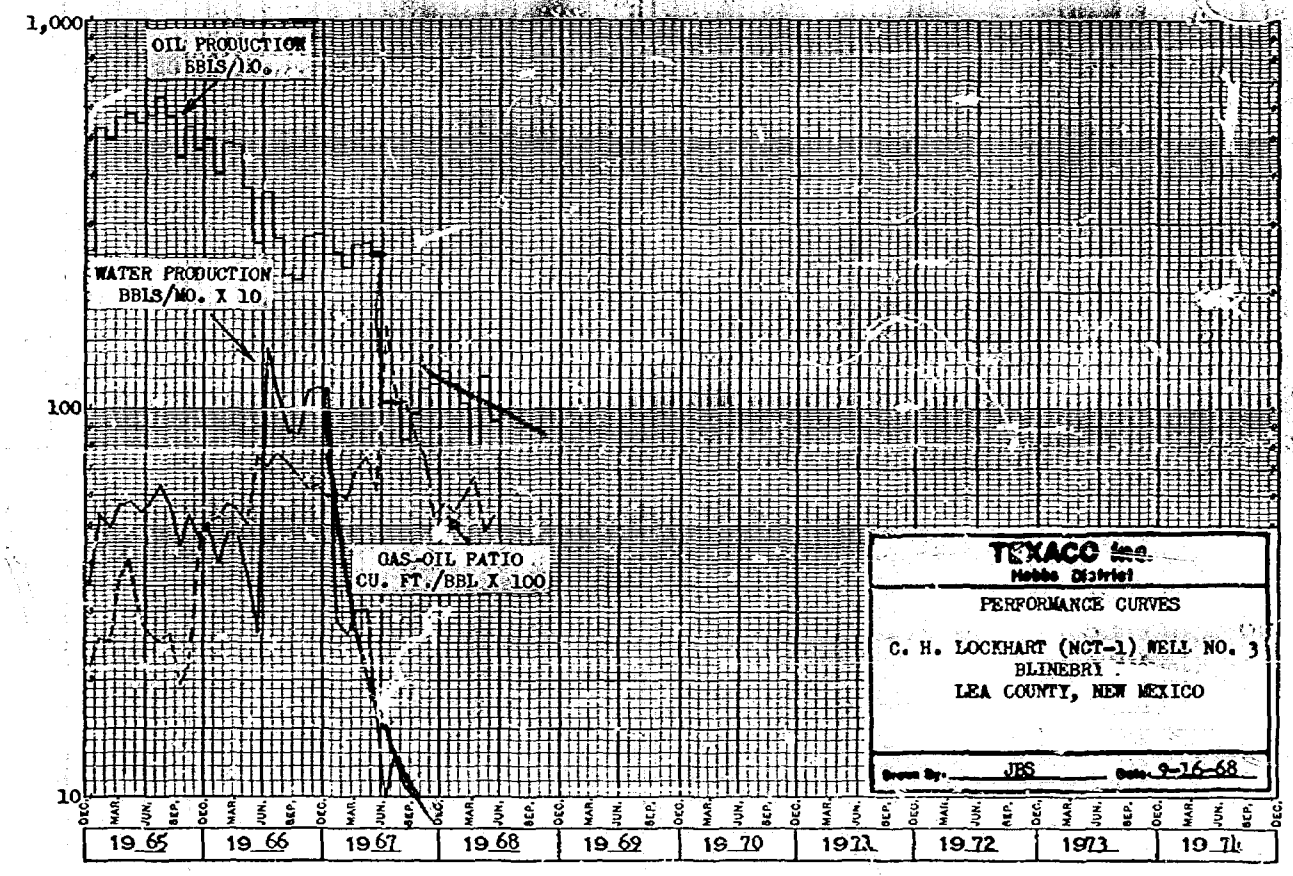
11580
9962
1618

Operated as Single Completion with Well Bore Commingling

- Reserves: - 11,580 Bbls.
- Prod.Rate: - 13 BOPD initial, 1.68 BOPD Final
- Life: - 5 1/2 years at 30% Decline Rate
- Net Value: - $22,950.00 (After Royalty, Taxes and Operating Expense)

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 3869


1,000
100
10
OIL PRODUCTION
BBLS/MO.
GAS-OIL RATIO
CU. FT./BBL X 10
WATER PRODUCTION
BBLS/MO.
DEC. MAR. JUN. SEP.
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
TEXACO Inc.
Hobbs District
PERFORMANCE CURVES
C. H. LOCKHART (NCT-1) WELL NO. 3
PADDOCK POOL
LEA COUNTY, NEW MEXICO
Drawn By: JBS
Date: 9-16-68


1,000
100
10
OIL PRODUCTION
BBLS/MO.
WATER PRODUCTION
BBLS/MO. X 10
GAS-OIL RATIO
CU. FT./BBL X 100
DEC. MAR. JUN. SEP.
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
TEXACO Inc.
Hobbs District
PERFORMANCE CURVES
C. H. LOCKHART (NCT-1) WELL NO. 3
BLINEBRY
LEA COUNTY, NEW MEXICO
Drawn By: JBS
Date: 9-16-68

TEXACO INC.
HOBBS DISTRICT

PERFORMANCE CURVES

SHOWING INCREASED RECOVERY BY WELL BORE COMMINGLING OF THE BLINEBRY AND PADDOCK ZONES IN C. H. LOCKHART FEDERAL NCT-1
WELL NO. 3
LEA COUNTY, NEW MEXICO
EDMc 9-16-68

BARRELS OF OIL PER MONTH

- BLINEBRY
- PADDOCK
- COMBINED

ADDITIONAL RECOVERY DUE TO DOWNHOLE COMMINGLING

E.L.

E.L.

E.L.

DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC. MAR. JUN. SEP. DEC.

19 65	19 66	19 67	19 68	19 69	19 70	19 71	19 72	19 73	19 74

ECONOMIC LIMIT CALCULATION

Paddock:

Operating Expense	$125.00/mo.
Sales Value per Bbl. (including gas) 2.94/bbl	2.98/Bbl.
Taxes	.16/Bbl.
Royalty	.58/Bbl.
Net Value (after taxes and royalty)	2.24/Bbl.
Economic Limit	56 BBls/mo.

Blinebry:

Operating Expense	$125.00/mo.
Sales Value per Bbl. (including gas)	3.87/Bbl.
Taxes 3.12/bbl	.21/Bbl.
Royalty	.75/Bbl.
Net Value (after taxes and royalty)	2.91/Bbl.
Economic Limit	43 Bbls/mo.

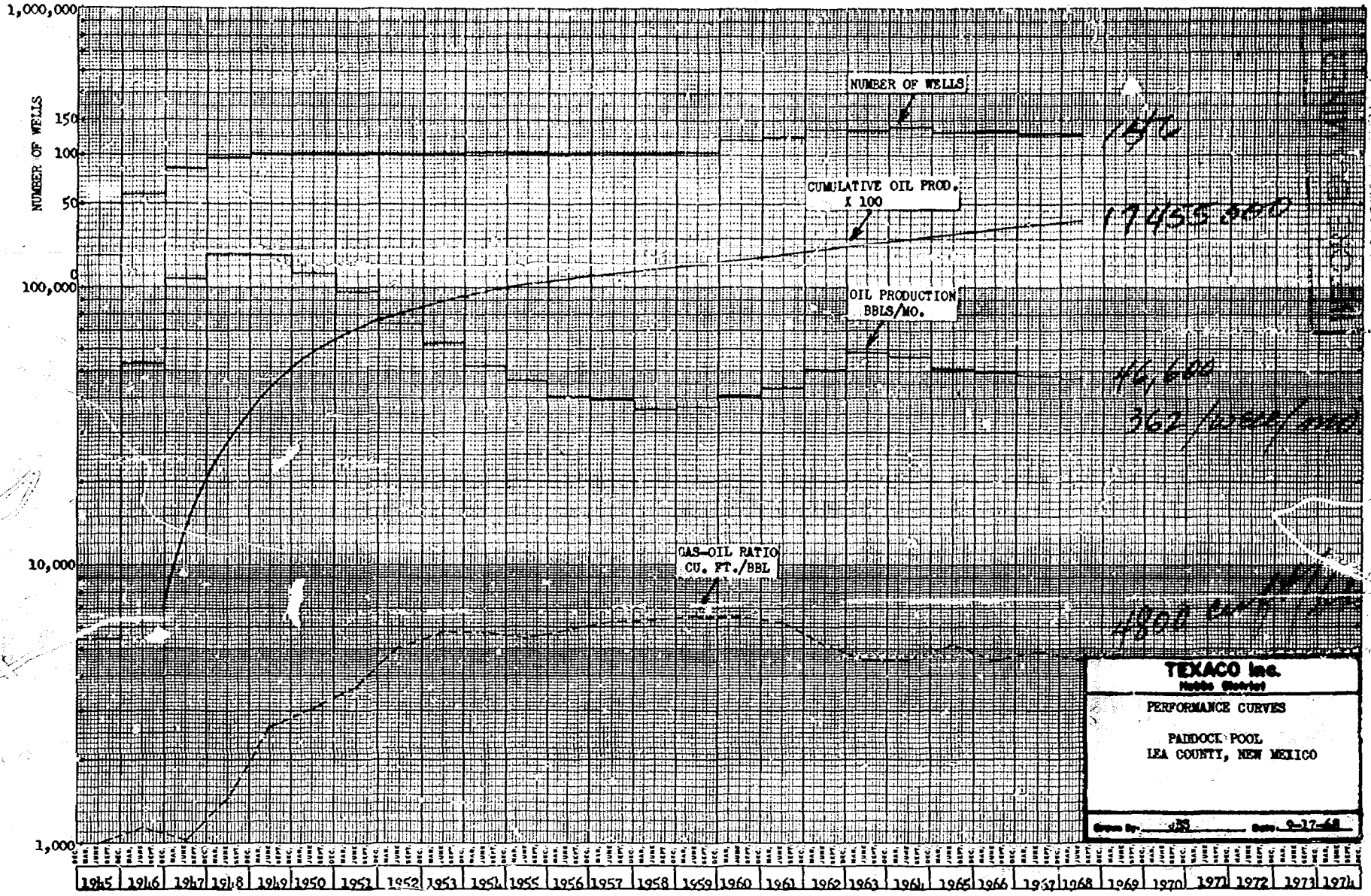
Well Bore Commingled Crude

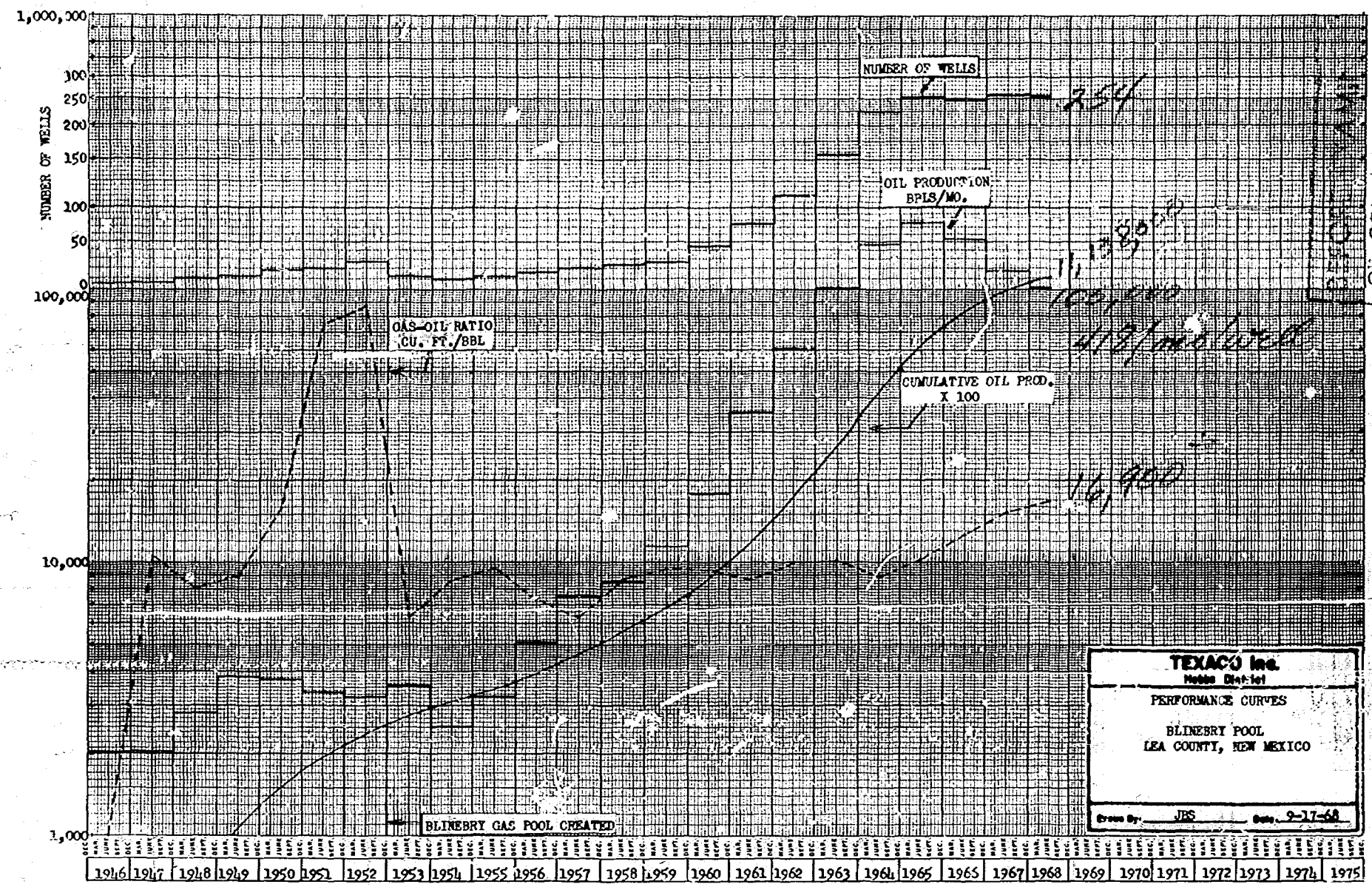
Operating Expense	$142.00/mo.
Sales Value (including gas) 298/bbl oil	3.72/Bbl.
Taxes	0.21/Bbl.
Royalty	0.72/Bbl.
Net Value (after taxes and royalty)	2.79/Bbl.
Economic Limit	51 Bbls/mo.

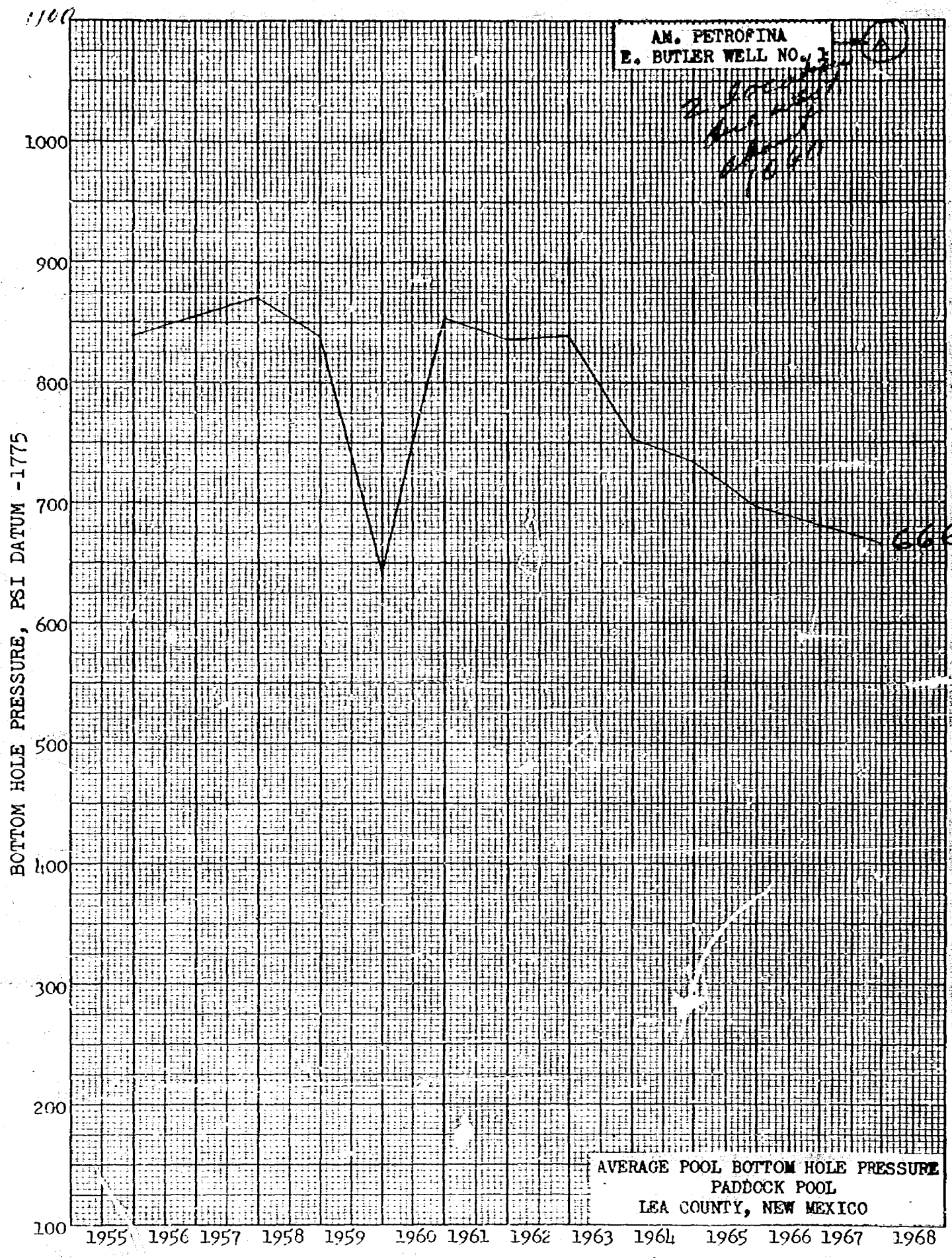
NOTE: Working and Net Interest are common to the two zones as follows:

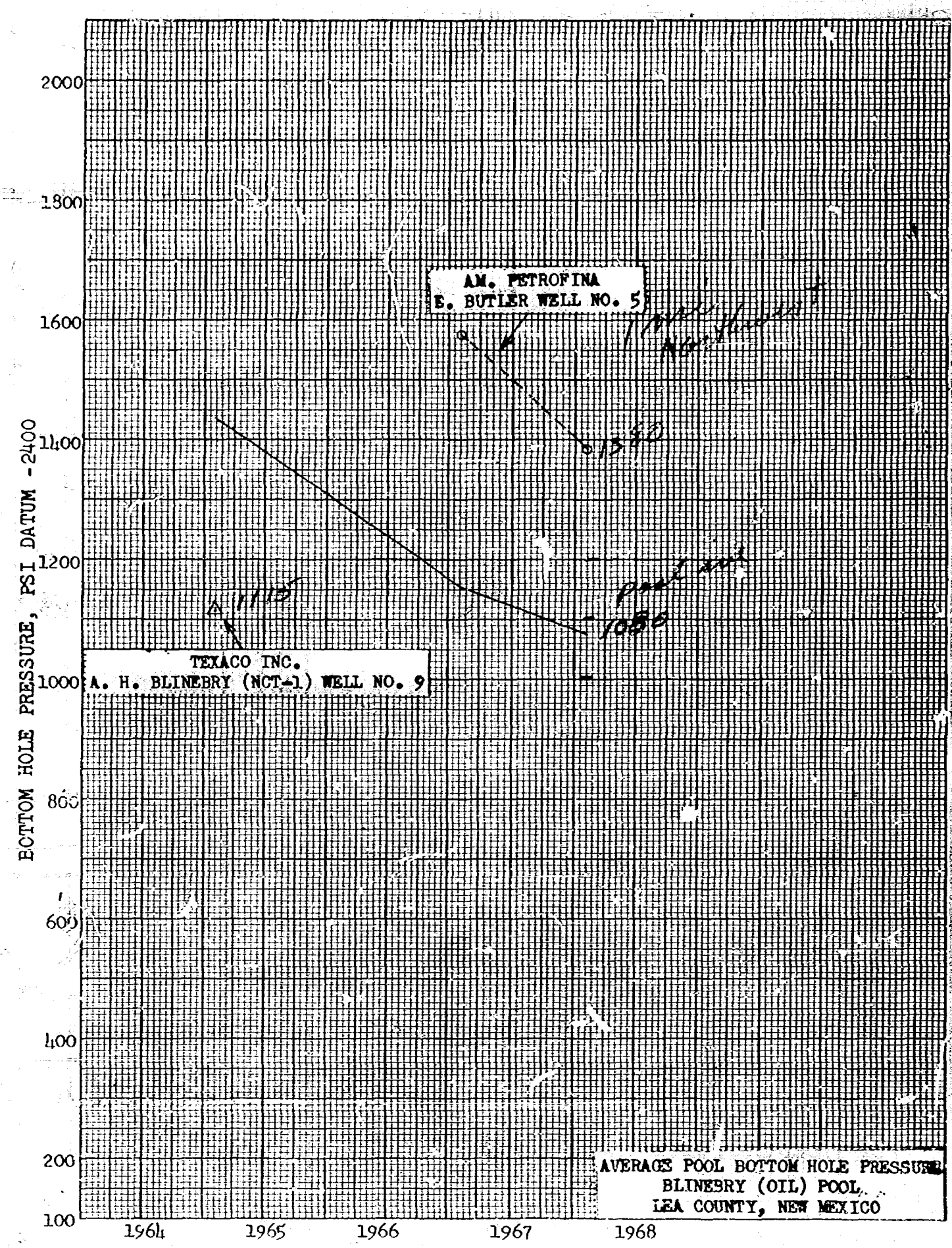
Working Interest	100%
Net Interest	80.7%

gas price: 9¢/MCF


1,000,000
150
100
50
0
100,000
10,000
1,000
NUMBER OF WELLS
NUMBER OF WELLS
CUMULATIVE OIL PROD. X 100
OIL PRODUCTION BBLS/MO.
GAS-OIL RATIO CU. FT./BBL
1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974
TEXACO Inc.
Hobbs District
PERFORMANCE CURVES
PADDOCK POOL
LEA COUNTY, NEW MEXICO
Drawn By: JBS Date: 9-17-68


NUMBER OF WELLS
1,000,000
100
250
200
150
100
50
0
100,000
10,000
1,000
NUMBER OF WELLS
OIL PRODUCTION BPLS/MO.
GAS-OIL RATIO CU. FT./BBL
CUMULATIVE OIL PROD. X 100
BLINEBRY GAS POOL CREATED
254
16,980
1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1965 1967 1968 1969 1970 1971 1972 1973 1974 1975
TEXACO Inc.
Hobbs District
PERFORMANCE CURVES
BLINEBRY POOL
LEA COUNTY, NEW MEXICO
Drawn By: JBS
Date: 9-17-68


AM. PETROFINA
E. BUTLER WELL NO. 3
666
BOTTOM HOLE PRESSURE, PSI DATUM -1775
1100
1000
900
800
700
600
500
400
300
200
100
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
AVERAGE POOL BOTTOM HOLE PRESSURE
PADDOCK POOL
LEA COUNTY, NEW MEXICO


2000
1800
1600
1400
1200
1000
800
600
400
200
100
BOTTOM HOLE PRESSURE, PSI DATUM -2400
1964
1965
1966
1967
1968
AM. PETROFINA
E. BUTLER WELL NO. 5
TEXACO INC.
A. H. BLINEBRY (NCT-1) WELL NO. 9
AVERAGE POOL BOTTOM HOLE PRESSURE
BLINEBRY (OIL) POOL
LEA COUNTY, NEW MEXICO

MARIEE I. KYTE
P. O. BOX 817
LOS ALTOS, CALIFORNIA 94022

August 18, 1968

Texaco Inc.,
P O Box 3109
Midland, Texas 79701

ATTN: Darrell Smith
Division Manager

Dear Sir:

Per your request dated Sept. 9, 1968 you are suthorized to consider this letter as my concurrence - as a mineral interest owner - to permit WELL BORE COMMINGLING in the BLINEBRY AND PADDOCK OIL POOLS in Lea County, New Mexico.

Very truly yours,

Mariee I. Kyte

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Offle EXHIBIT NO. 13
CASE NO. 3869