BEFORE THE

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

February 19, 1969

REGULAR HEARING

IN THE MATTER OF:

Application of Texaco, Inc., for an exception to Order No. R-3221, as amended, Lea County, New Mexico.

Case No. 4046

BEFORE: A. L. Porter, Jr., Secretary, Director
Alex J. Armijo, Land Commissioner
George Hatch, Counsel

TRANSCRIPT OF HEARING

MR. PORTER: Case No. 4046

MR. HATCH: Case 4046, Application of Texaco, Inc., for an exception to Order No. R-3221, as amended, Lea County, New Mexico.

MR. WHITE: If the Commission please, Charles White of Santa Fe, appearing for the applicant. I have one witness.

(Witness sworn.)

(Whereupon, Applicant's Exhibits Numbers 1 through 7, inclusive, were marked for identification.)

CARL L. WHIGHAM

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

DIRECT EXAMINATION

BY MR. WHITE:

Q State your full name, by whom you are employed, and in what capacity?

A My name is Carl L. Whigham, Jr. I am employed by Texaco, Inc., in Midland, Texas, as Division Proration Engineer for the Midland Division.

Q Have you previously qualified before the Commission?

A Yes, I have.

Q What does Texaco seek by this application?

A In this application, Texaco, Inc., seeks an order from

the Commission granting an exception to the provisions of Order No. R-3221, to authorize the continued disposal of produced salt water into an earthen disposal pit located on Texaco's New Mexico CR Lease which is located in Unit F, Section 32, Township 19 South, Range 32 East, Lea County, New Mexico.

In the alternative, Texaco, Inc., seeks an extension of the area that was previously excepted from the provisions of Order No. R-3221, by Order No. P-3221B, to include Section 32, Township 19 South, Range 32 East.

Q Would you refer to Exhibit Number 1, and describe the lease as to its size, number of wells, and the present production of oil and water?

A Exhibit Number 1 is a large scale area map showing the location of the Texaco's State CR Lease, located in Section 32, Township 19 South, Range 32 East. The lease is designated or indicated by a yellow color. This lease has been developed with three wells. The No. 1 well is completed as a Lusk Strawn well. Well No. 2 was a dry hole, and well No. 3 was completed as a Lusk Strawn well, and is currently temporarily abandoned.

MR. PORTER: So we have one producing well?

A Yes, sir. That one producing well at the present time is producing 18 barrels of oil a day, and 25 barrels of water per day. So the exception that we are requesting here today

would permit the continued disposal of the 25 barrels of water per day into that pit located on this particular lease.

Another exhibit to be presented later will show that both oil and water production are declining at a rather rapid rate, and we do not expect to be able to continue operating profitably for more than approximately one year from the present time.

Q Do you have any figures as to the amount of water that has been disposed of in this pit to the present time?

A Yes, we do. This lease was developed with the first completion in 1964. Since that time, 184,500 barrels of water have been disposed of in this pit.

Q Do you have any estimate as to the additional volume of water that you should like to have a right to dispose of in this pit?

A Yes, sir. Based upon an extrapolation of the production curves for an additional 12 months, we would estimate that an additional 9,000 barrels of water will be produced and will require disposal.

Q That would be the maximum?

A Yes, sir, that is not accounting for the decline. That is approximately 25 barrels a day times 365 days.

Q Will you explain Exhibit 2, please?

A Exhibit 2 is a set of performance curves for this lease. We have plotted since the lease was developed in 1964, oil production and water production on a daily basis.

The oil production reached a peak when the second well was completed in 1964, late in 1964, and the most that lease ever produced was 650 barrels of oil daily, and this has commenced an early decline and has continued to decline at a rapid rate to the present time.

This curve also shows the number of wells down at the bottom. This shows that the No. 3 well was temporarily abandoned in September, 1968. By that time it had ceased contributing any significant quantity of production. So since that time, only the No. 1 well is producing, and as mentioned previously, this production is down to 18 barrels of oil and 25 barrels of water daily, and continues to decline.

Q Now, will you explain Exhibit 3, and compare it with Exhibit Number 1, please?

A Exhibit 3 is a more detailed map of the area in the immediate vicinity of the subject lease.

Exhibit Number 1 has an area in the form of a square with seven sections on the side, surrounding Texaco's CR Lease, and this area shown on Exhibit 1 is the same area depicted in more detail by Exhibit Number 3.

In the center of this plat is Texaco's CR Lease in Section 32. The red border or boundary shown on both Exhibit Number 1 and Exhibit Number 3 shows the boundary of the large area that has previously been excepted from the Commission's no pit order.

Exhibit Number 3 also shows circled the water wells nearest to the CR Lease. In fact, all of the water wells within about a three and a half, three or three and a half-mile radius of the lease are shown on Exhibit 3. You will note in Section 34, Township 19 South, Range 32 East, there are three abandoned water wells. Then the other location is down in the Williams Sink, in Section 32 just across the county line in Eddy County, in Township 20 South, Range 31 East, and that well has also been abandoned.

The exhibit also shows, of course, all of the wells and the operators, the lessees and lessors in this area. And the legend down at the bottom of the map shows how the completion intervals of these various wells are indicated. Most of the wells in the area are completed in the Lusk Strawn Pool.

Q Now, will you refer to Exhibit Number 4, and explain that exhibit?

A In explaining Exhibit Number 4, we might make reference to Exhibit Number 1, because we will be talking about these

various oil and gas pools in the vicinity of Texaco's CR Lease.

Exhibit Number 4 is a tabulation of all of these fields or these oil and gas pools in this area. We show the number of wells, the daily oil production, and the daily water production, and the chloride content, and the date that the pools were discovered. I would like to mention briefly the pertinent information concerning each one.

The first one we have listed is the Halfway Yates Pool. Now, the Halfway Yates Pool is located in Township 20 South, Range 32 East, and it is noted here that this pool is within the previously designated excepted area between Laguna Plata and Williams Sink, and this particular field produces, in addition to 20 barrels of oil a day, it produces 207 barrels of salt water daily, which is disposed of in open unlined earthen pits.

By far the largest field in the area is the Lusk Strawn in both Lea and Eddy Counties, and there are a total of 53 wells that produce 1,854 barrels of oil a day. However, the water production is practically nil. The water production from all of these wells is only 27 barrels daily, and as already mentioned, 25 of that is from this one well that Texaco has on the extreme southern limits of the Lusk Strawn area.

This is digressing a bit, but the main purpose of presenting Exhibit 4 is to show that not only could an exception

be granted here for Texaco's lease, but very little water is being produced from all of the other pools in the immediate vicinity.

The next pool, for example, is the Lusk Yates, which is located just north about two miles from Texaco's lease with seven completions. And it produces 16 barrels of oil daily, and 14 barrels of water. The Lusk Yates west pool has four wells producing only five barrels of oil daily, and it produces no water. Then the Lusk Morrow Gas Pool has five wells, and these wells only produce 1 barrel of water daily. Then a recent completion is listed here as undesignated Delaware.

I was out in this area last week, and as best I could tell, that well is located about a mile northeast of Texaco's lease. It has tested 30 barrels of oil daily, and 4 barrels of water daily. I would mention here that the total water production in this area--

Q That is outside the excepted area?

A Well, the total water production that we have listed on this table is 253 barrels daily.

Q How many barrels are produced outside the excepted area?

A All except 207. 207 subtracted from the total of 253.

Q 46?

A Yes, sir, 46 barrels daily, all of the water that is being produced from all of the fields outside of the currently existing excepted area.

Q Now, your water well information shown on Exhibit 5, will you explain that and correlate it with Exhibit 1?

A We have examined this entire area rather extensively, and have attempted to locate every water well in this vicinity. These wells are listed on Exhibit Number 5, and each one is designated with a red circle and a number in the circle.

Now, the circles and numbers correspond with those shown on Exhibit Number 1. We might take them in order.

The No. 1 well is located in Section 27, approximately four and a half miles west of Texaco's lease. The well is about 300 feet deep, producing from the Triassic, and is used for domestic purposes.

Well No. 2, or wells No. 2 are located in Section 28, which is in the same general area as well No. 1, being about five and a half miles west of Texaco's CR lease. And these wells are also completed into the Triassic at about 250 feet depth.

The No. 3 well is located four miles north of the CR lease. This is a shallow well completed at a total depth of about 75 feet in the Quaternary or alluvium, and it is used for stock purposes.

Wells designated No. 4 are deeper wells completed in the Triassic. There are three wells here. However, as previously mentioned, they have been abandoned. We have water analyses on most of these wells, but we do not have any analyses on these wells since they have been abandoned.

Well No. 5, these are two shallow wells completed in the Quaternary alluvium sands at a depth of about 78 feet, and are used for domestic and stock purposes.

Q How far away are they from the subject lease?

A They are approximately five miles south, southeast from the subject lease. And then about a half mile further southeastward are wells designated No. 6. They are shallow wells completed in the alluvium, and are used for stock purposes.

Now, over on the map again, approximately six or seven

miles east of Texaco's CR lease, we have designated water well No. 7. We also have a water analysis on this particular well.

Q Have you made a personal inspection of the surface on this lease?

A Yes.

Q Will you describe the terrain, please?

A Yes, this area is in the plains area. It is part of about a 400 square mile area of extensive sand dunes in the extreme western edge of Lea County. The vegetation in this area is comprised entirely of the sparse scrub oak type.

Q What use is made of the surface, if any?

A Actually, driving through the area, it does not appear that it is used for any purpose. One can see an occasional cow out in that vicinity, but with this exception the land is not being used, and it doesn't appear that it could be used for any purpose.

Q In what direction is the surface runoff?

A The surface runoff in this area is generally toward this topographic feature indicated or designated Laguna Plata and Williams Sink. These are two depressions in the immediate vicinity. The Williams Sink is where National Potash Company is operating currently, and it is my understanding that approximately 3,000 barrels of brine are being disposed of into Williams Sink. But these two features, the Laguna Plata and the Williams Sink,

are approximately 50 to 100 feet lower surface elevation than the area three or four miles northward in the vicinity of Texaco's CR Lease.

Q What is the direction of the general flow of the underground water?

A The direction of flow or drainage of the underground water is the same as would be expected for the surface as we have just discussed. The drainage would appear to be southward. The ground water report Six entitled Geology and Ground Water Conditions in Southern Lea County, New Mexico, published by the State Bureau of Mines and Mineral Resources, contains an exhibit marked as Plate No. 1, and this shows the structural contours on top of the Red Beds. The structural contour on the Red Beds shows a low area in the same general vicinity as this area here where Williams Sink is located. So it could be assumed that any water that percolated or seeped through the alluvium and reached the top of the Red Beds would continue drainage down toward the area of Williams Sink, the same as any surface water that might drain on the surface.

Q In your opinion, will this pit in any way contaminate or affect any fresh water wells that you have shown on Exhibit 1?

A No, sir. 25 barrels of water daily placed in the pit on this lease could have no effect on well numbers 1 through 7,

all of the wells located here. That, of course, is based upon the assumption that all of the drainage is toward the south. And certainly all the information that we have been able to develop indicates that this is the case. It would be almost inconceivable that any of this water could drain upward toward any of these wells located to the east or to the west, or to the north.

And then, as far as wells No. 5 and 6 are concerned, the quantity and quality of the water produced there would be influenced so much more by the water disposal in the Halfway Yates Pool, and the brine condition in Laguna Plata, and all of the brine water over in Williams Sink.

Let me mention one other item that we haven't covered previously. On Exhibit 1, we also show an excepted area up here in the Tonto Yates-7 Rivers West. This is outlined in red. And the Salt Lake Yates Pool about six miles south is also circled in red, indicating that it is also excepted.

So in general, the water wells south of Williams Sink and Laguna Plata, if they are to be affected at all, would be affected by the large volumes of brine and salt water in the vicinity of Williams Sink, Laguna Plata, the Halfway Yates Pool, and the Salt Lake Yates Pool.

Q Exhibit 6 and 7 in regard to your water analysis, will

you point out the significant information that appears on these exhibits?

A Exhibits 6 and 7 are laboratory water analyses of the water wells that have previously been discussed and designated as numbers 1 through 7, with the exception of number 4, and a water sample was not available from that well.

Q That is the abandoned well?

A Yes, sir, that's correct. And all of these analyses indicate that the fresh water from these wells is of rather good quality.

Q The chlorides vary from 50 to 350?

A Yes, sir, that's correct. And total solid AP appear to be low, also.

Q Will this pit provide for storage space and evaporative surface?

A Yes, it has been quite adequate in the past, and water production is continuing to decline, so the small pit that is located there now will continue to serve this property.

Q Can this lease support the expense of otherwise disposing of the water?

A No, sir, we have investigated the possibilities of other types of disposal, and that remaining well is operating with a Kobe pump from a depth of 11,000 feet. Due to the

producing rate of 18 barrels a day from that depth, the operation could not support the cost of any other type of disposal operation.

Q In your opinion, will the granting of this application prevent waste and prolong the economic life of this well?

A Yes, sir.

Q Were Exhibits 1 through 5 prepared by you or under your supervision?

A Yes, sir.

Q And are Exhibits 6 and 7 correct, to the best of your knowledge and belief?

A Yes, sir.

MR. WHITE: That concludes our case.

MR. PORTER: Are there any questions?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Whigham, referring to your Exhibit Number 1, over here in Township 20-33, is that the windmill identified as No. 7 there?

A Yes, sir.

Q It doesn't appear on my copy of Exhibit Number 5. Do you have any data on that well?

MR. PORTER: Are you referring to Exhibit Number 3?

Q It is marked No. 1 here. Exhibit Number 1 is this one, isn't it?

A Yes, sir.

Q The windmill marked seven there in Township 20-33.

MR. PORTER: Let's eliminate this confusion. Now, what is this exhibit?

THE WITNESS: Number 3.

MR. NUTTER: I was looking at the smaller one, Mr. Porter, the one that has the windmill circled.

Q And the windmill identified as No. 7 is not shown on Exhibit 5, which is the detail on the water wells?

A Yes, sir. However, the water analysis for this well was shown on Exhibit Number 6.

Q Would it be Section 5?

A That's correct.

Q And then the other data that you have shown on Exhibit 5 for the other wells, I wonder if you could fill me in on that well?

A Not at this time. Mr. Nutter, I don't believe I have any additional information with me at this time. However, I can obtain the depth and producing rates, and what not, and mail that in.

Q Referring to your Exhibits 6 and 7 in which you report

the water analyses, can we pin those down and determine which of the circled wells on Exhibit Number 1 they are? Now, this first one on Exhibit Number 6, it is stated to be six miles east of your New Mexico CR State?

A Is that the well designated as No. 1?

Q Well, I don't see any designation of anything. Oh, that is the one that is designated well No. 7.

A Yes, sir.

Q Well, mine doesn't have any designation on it.

MR. WHITE: The reason for that was that we had three complete exhibits, and then we tried to furnish additional exhibits.

Q Now, you don't have a structural or a surface topography map included in your exhibits here, do you?

A No, I don't. My verbal testimony was based upon a U. S. G. S. topographic quadrangle map for that immediate vicinity. Those maps are available, of course, and I can obtain one, but the information I testified to was obtained from those standard topo maps.

Q Now, Mr. Whigham, I think you mentioned in your direct testimony that your lease there in Section 32 was some 50 feet above the level of the Williams Sink and the Laguna Plata?

A I said between 50 and 100 feet.

Q How about the elevation of your lease with respect to the shallow well that is located approximately four or five miles north, what would be the difference in elevation there?

A I could only guess. I don't remember the exact elevations, but the terrain appears to be increasing in elevation northward, and my reference to the topo map also indicated that.

Q After you passed, coming from the north going south, after you passed this low area where Williams Sink, Laguna Plata, and Laguna Gatuna are located, proceeding farther south, then you start rising again, is that correct?

A That is my understanding.

Q Now, Mr. Whigham, you mentioned that that well immediately west of the depression in Williams Sink, the windmill there, you mentioned was abandoned. When was that well abandoned, do you know?

A No, I don't, Mr. Nutter. I wondered, myself, when I obtained this information. It occurred to me that National Potash has been dumping water out in this lake there, and this lake has been in existence for many years, or several years. I should think that that water well was actually under water at this time. That appears to be in the center of the depression, so I should say that it is inundated.

Q What is the area on Exhibit Number 1 inside Williams

Sink, what does that little dotted area represent?

A Well, at the time this map was made, that was intended to designate the actual water level.

Q That is the pond in the sink?

A Yes.

Q And the well was west of the pond at the time?

A Yes. And I did not go out there and observe that particular well or inspect it. I could not answer your question concerning that well at this time.

Q How did you determine that it was abandoned?

A I had someone else do that for me, and he reported to me that it had been abandoned.

Q Now, recapping your testimony Mr. Whigham, would you indicate the location of the Quaternary water well and approximate distance from your lease on each of those Quaternary wells shown on Exhibit Number 1?

A Yes, I would do that by referring to Exhibit Number 5. The well designated No. 3 is a Quaternary well, and this is located approximately four miles north of Texaco's CR lease.

Well No. 5 and well No. 6 are also Quaternary wells, and these wells are located about five miles south, southeast from Texaco's CR lease.

Q And those are the only ones, as far as Exhibit Number

5 is concerned, that would be indicated as Quaternary, and you are not sure about well No. 7 over in 20-33?

A That's correct.

Q And its location or distance from the lease is approximately what mileage?

A In excess of six miles.

MR. NUTTER: I believe that is all.

MR. PORTER: Any further questions? The witness may be excused. The Commission will take the case under advisement.

I N D E X

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

I, SAMUEL MORTELETTE, 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.

Samuel R. Mortelette
COURT REPORTER