

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
April 29, 1970

EXAMINER HEARING

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IN THE MATTER OF: )

Application of Lone Star Producing )  
Company for special pool rules, )  
Lea County, New Mexico. )  
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CASE NO. 4353

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: Case 4353.

MR. HATCH: Case 4353. Application of Lone Star Producing Company for special pool rules, Lea County, New Mexico.

MR. HINKLE: Clarence Hinkle, Hinkle, Pondurant, & Christy, Roswell, appearing on behalf of Lone Star. We have one witness I'd like to have sworn.

(Witness sworn.)

(Whereupon, Applicant's Exhibits 1 through 4 were marked for identification.)

MR. UTZ: Are there any other appearances?

You may proceed.

DEAN WOLF

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

DIRECT EXAMINATION

BY MR. HINKLE:

Q State your name, where you reside, and by whom you're employed.

A Dean Wolf, Midland, Texas, Lone Star Producing Company.

Q What is your position with Lone Star?

A I'm the District Petroleum Engineer.

Q Have you previously testified before this Commission?

A No.

Q Are you a graduate Petroleum Engineer?

A I graduated from the University of Texas with a Bachelor of Science in Petroleum Engineering in 1959.

Q State briefly your experience as a petroleum geologist.

A I went to work for Bayview Oil Corporation in Dallas and worked in all phases of Petroleum Engineering with them from Illinois Basin to Nebraska, New Mexico, Texas, Oklahoma, and Kansas.

Q Are you familiar with the operations of Lone Star in New Mexico?

A Yes.

Q Have you made a study of the Tres Papalotes area?

A Yes. Yes, I have.

Q Are you familiar with the operations of Lone Star in this area?

A Yes.

MR. HINKLE: Are the qualifications of the witness satisfactory?

MR. UTZ: Yes, they are.

Q (By Mr. Hinkle) Are you familiar with the applica-

tion of Lone Star in this case?

A Yes.

Q What is Lone Star seeking to accomplish by its application?

A Lone Star wants to obtain special pool rules for the Tres Papalotes Field, which would include 160-acre drilling and proration units.

Q Have you prepared or has there been prepared under your direction certain exhibits introduced to this case?

A Yes.

Q Refer to Lone Star's Exhibit Number 1 and explain what this is and what it shows.

A Well, this is a map of the acreage ownership and it shows the location of the discovery well that's marked in red, and all the acreage that we control either by lease or farmout at the present time, as colored in yellow.

Q Does this also show all of the wells that have been drilled in this area; that is, within the radius of two or three miles?

A Yes, sir.

Q And the ownership of all the acreage in there?

A Yes, sir.

Q Now, refer to Exhibit Number 2 and explain what this is and what it shows.

A Exhibit 2 is a structure map on top of the Saunders Lime. It also shows the discovery well in red. In Section 28, there is shown a location which is presently drilling and in the northwest quarter of 33, there is another location which we plan to drill. That's the next location we plan to drill. The green line on there delineates the cross section which is the next exhibit.

Q What information was this structural map based on?

A Well, it was drawn up from subsurface information of all the wells in the area.

Q Can you point out the wells that you had to base information on?

A Well, all the wells that were shown on the plat were used. It's pretty good control on this area in which we drilled, because there are dry holes that penetrated the Saunders Lime that are almost completely surrounding the area.

Q Dry holes you speak of there in Sections 32 and 34?

A Well, 34, 32, Section 5, up in Section 29 and 27.

Q Was this map or plat drawn before or after you drilled the well?

A This particular map here was drawn before the drilling of the well.

Q So that the drilling of the well and the discovery

didn't change materially the contours that you already had?

A No, sir.

Q What is the character of the acreage involved in the structure, as shown on Exhibit Number 2?

A The character of the acreage?

Q Yes. That is, I mean, whether it's Federal or State or --

A This is all State land. All of that that's colored in yellow on Exhibit 1 is State land, and all that's shown on this map, too.

Q Do you have any other comments with respect to this exhibit?

A No, sir.

Q Now, refer to Exhibit Number 3 and explain this to the Commission.

A Exhibit 3 is a cross section that was shown with the green line on Number 2. It also is shown or outlined on the bottom of the exhibit as to which wells are included. This shows our interpretation of the separation of this well or field from the East Saunders, and the High Plains, which are also Saunders Lime.

It was used in the application for the new field discovery, the discovery application which was granted on

the last -- I think on April 15. Yes, April 15.

Q This separation is emphasized by the two dry holes that are shown on the cross section?

A Yes, sir.

Q On either side of the structure?

A Right; Number 3. What is shown as Well Number 3 on this cross section is our discovery well and Wells Number 2 and 4, which are between it and any other producers are also shown.

Q What are the zones? I notice you have the top of the Saunders?

A Oh, yes.

Q The base of the Saunders.

A Yes.

Q Then you have S1, S2, 3, and 4. What does that denote?

A This is Lone Star's interpretation of the various zones within the Saunders Lime formation. We had porosity develop in only two of these in this well. We expect it will develop somewhere in the field in all four of them.

Q Now, the well that's shown in the center is a discovery well, is it not?

A Yes, sir.

Q Can you give briefly the history of this well?

A Yes, sir. It was snudded on December 4, 1969, and it was completed for production on January 28, 1970. It was drilled to a TD, or total depth, of 10,708, which was the log depth. The initial perforations were in what we show as the third zone from 10,468 to 74 and 10,481 to 88, and we filed a potential with the Commission of 449 barrels per day. Recently we perforated in the second zone from 10,404 to 10,420. We sent those perforations in; I believe it's C-103, I believe is the form number, and it showed the depths that we perforated.

The well tested was 669 barrels of oil per day on a 2664th choke with 530 PSI flowing pressure, a GOR of 1680.

Q How much pressure?

A Excuse me. 530. This was both zones together.

Q State again, both zones together have a potential of what?

A 669 barrels of oil per day.

Q Now, I believe you previously testified in connection with Exhibit Number 2 that you show the Number 2 well, which you're now drilling. What is the depth of that well at the present time?

A Well, unless they had trouble yesterday, we should be doing approximately 9800 feet this morning.



Q So that well will be open before too long?

A We probably will be logging it or testing it this weekend.

Q You also show the location of the third well. What is the status of that?

A We will spud that probably by Friday, May 1. Well, in fact, we'll have spudded it on or by Friday, May 1.

Q Does Lone Star have any plan to drill any additional wells, other than the two?

A We plan on developing this field as rapidly as we can.

Q By successive --

A We will keep one, at least one, and probably two drills running until we develop it.

Q I believe in connection with your Exhibit Number 2, it also shows the East Saunders and the High Plains pools, their relative location to this group; is that right?

A Yes, sir.

Q Have you made a study of these Saunders pools and this well, the discovery well?

A Yes, sir.

Q And all the other information available?

A Yes, sir. After we made this discovery, it appeared

that the East Saunders or that the Tres Pavalotes Field was very similar, or was going to be very similar to the East Saunders. So we studied it for some sort of projection of what will happen in our field. The East Saunders wells, as they are presently set up, will at the time of abandonment, should make approximately 650,000 barrels of oil per well. If you take a thirty-five percent recovery of the original oil in place, they would have to drain 380 acres in order to produce this much oil.

I used a thirty-five percent recovery because we think this is a water drive, at least a partial water drive, reservoir. At least the East Saunders is, and we base that on the fact that the large recoveries, as well as the fact that about the middle of 1969, the three highest wells started making a little bit of water, small amounts of water which they had not done previously.

Q As a result of your study, are you of the opinion that one well in this pool will effectively and efficiently drain more than 160 acres?

A Yes, sir.

Q Have you made an economic study --

A Yes, sir.

Q -- of the development of this area?

A Yes, sir. That's Exhibit 4.

Q Will you refer to Exhibit 4 and explain what this shows?

A This is an outline of the economics as we see them. First, we have up at the top, we have some of the reservoir characteristics; the average porosity over the interval in this discovery well is a little over, nearly five and a half percent. Water saturation is approximately eighteen and a half percent. This is from log information. Formation volume factor, as shown there, is 1.264, which we've used from production information or obtained from production information. The recovery factor estimated was thirty-five percent, based on the East Saunders, and we figure this will be a water drive similar to the East Saunders.

The net pay, as shown by one of our porosity logs, is twenty-one feet. Using those factors and standard formula, we come up with 260 barrels of oil per acre foot in place. Below that, the recoverable reserves show, using the thirty-five percent recovery, comes out to 94 barrels an acre foot or 1974 barrels per acre.

And then below that shows the expected recovery on forty acre, or 160-acre spacing, which would be 79,000, 158,000, 316,000 barrels per well.

Q What is your conclusion from this economic study with respect to drilling or developing on forty acres or eighty acres or 160 acres?

A Well, we would have to, based on the price per barrel, which we have now and average working interest, as the total working interest owner, our net interest in the wells, the operating costs, salt water disposal costs, and taxes, we would average for forty acres, we would have a total net income of \$120,000.00. For eighty acres, we would have \$240,000.00, and for 160 acres, we would have \$480,000.00.

And these incomes do not include any reduction for Federal income tax, depreciation, depletion or time factor.

Q In other words, on forty acres, how would you come out in that?

A Well, our development cost that is shown on here is \$230,000.00. \$208,000.00 of that is drilling and completion costs. The remaining \$22,000.00 would be artificial lift facilities which we will need in the future to recover all these reserves. The East Saunders Field is presently on an artificial lift. The forty acres, we just barely get back a little over fifty cents for every dollar that we spend. On eighty acres, it's just practically a break even proposition, and the only way we can justify drilling these is on a 160

acre spacing. The reason is this is a relatively thin zone at below ten thousand feet, which is also characteristic of the East Saunders Field.

Q Do you know whether or not the Commission has heretofore approved the adoption of special pool rules on a 160 acre basis and proration units of the East Saunders Pool, and also for the High Plains Pennsylvanian Pool?

A Yes, sir.

Q Are you familiar with those rules?

A Yes, sir.

Q What is your recommendation to the Commission with respect to adoption of special pool rules for this field?

A We would like to see the pool rules approximately the same as the East Saunders and the High Plains, which have the 160-acre drilling and proration units. However, we would like to change it a little bit in that we would like to be able to drill our locations in any one of the forty-acre components of the drilling and proration units. And the well would be located in the center of the forty acres with the tolerance of 150 feet from the center. This would give us a little flexibility in developing this.

We want to stay in the center of the field, if possible.

Q Now, in your opinion, would the adoption of special

pool rules along the lines you've recommended be in the interest of conservation and prevention of waste and tend to protect correlative rights?

A Yes, sir.

MR. HINKLE: We would like to introduce Exhibits 1 through 4.

MR. UTZ: Without objection, Exhibits 1 through 4 will be entered in the record of this case.

(Whereupon, Applicant's Exhibits 1 through 4 were admitted into evidence.)

MR. HINKLE: That's all the Direct.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Wolf, you didn't do any coring in your Number 1 well?

A No, sir.

Q Did you intend to do any coring on any other wells?

A Not at the present time.

Q Don't you think it might be advisable in view of a temporary order?

A Well, the reason we didn't was because we are -- or we didn't plan it on the second well was because if it's a water drive field, we wouldn't actually need the information,

the additional information that we could probably obtain from the coring program for waterflood purposes.

Q Do you know anything about the permeability?

A Yes, sir. We have done some rather extensive pressure draw down and build up testing and the permeability runs around two hundred millidarcies in this well. It varies a little bit from zone to zone.

Q But your pressure draw down data shows about two hundred?

A Yes, sir; approximately two hundred millidarcies, probably.

Q Do you plan any interference tests of any kind?

A I'm sure, yes, sir, we will take bottom hole pressures on these wells after a suitable length of time. With this type of permeability, based on the testing that we did earlier, interference, we should be able to establish interference without too much difficulty.

Q But with your water drive, you won't, will you?

A With this type of rate, if it's not a hundred percent water drive, we'll be able to, and I don't believe it is. The East Saunders is not a hundred percent water drive, as far as the rates at which they are taking the oil out of the ground. But it is moving in now.

Q Do you think one year will give you time enough

to show what kind of drainage you really have in the pool?

A Yes, sir.

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

MR. HINKLE: Do you have any idea, at the rate of drilling you anticipate at the end of the year, how many wells you might have in if they are proved productive?

THE WITNESS: Let's see. By the end of 1970, we will have six to eight wells in the field, assuming that we are able to get the rigs to do the work.

MR. HINKLE: In your opinion, then, you'll have sufficient information at the end of the year to definitely determine rate of factors, would it not?

THE WITNESS: Yes, sir.

MR. UTZ: Providing you don't run into a water table, right?

THE WITNESS: Well, hopefully, they have got it pinned down fairly close.

MR. UTZ: Where do you think the water table is?

THE WITNESS: It shows on this, approximately, between 6225 and 6250. The McDonald Well in Section 32 tested water.

MR. UTZ: Are there other questions of the witness?  
He may be excused.

(Witness excused.)



MR. UTZ: Statements in the case?

MR. HINKLE: Thank you very much.

MR. UTZ: The case will be taken under advisement,  
and the hearing is adjourned.

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MR. HINKLE: Thank you very much.

MR. UTZ: The case will be taken under advisement,  
and the hearing is adjourned.

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MARKED

OFFERED AND  
ADMITTED

2

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STATE OF NEW MEXICO     )  
                                       ) ss  
 COUNTY OF BERNALILLO    )

I, DAVID BINGHAM, a 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.

*David Bingham*  
 COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Hearing before the New Mexico Oil Conservation Commission held by me on April 29, 1970.  
[Signature]  
 New Mexico Oil Conservation Commission



## OIL CONSERVATION COMMISSION

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

April 6, 1971

GOVERNOR  
BRUCE KING  
CHAIRMAN  
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A. L. PORTER, JR.  
SECRETARY - DIRECTOR

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Post Office Box 10  
Roswell, New Mexico 88201

Re: Case No. 4353  
Order No. R-3963-A  
Applicant:  
Lone Star Producing

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.  
Secretary-Director *ss*

ALP/ir

Copy of order also sent to:

Hobbs OCC   x    
Artesia OCC             
Aztec OCC           

Other Mr. Jason Kellahin