STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

18 January 1989

EXAMINER HEARING

IN THE MATTER OF:

Application of Chevron USA, Inc. for an unorthodox oil well location and simultaneous dedication, Lea County, New Mexico. CASE 9576

BEFORE: Victor T. Lyon, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Robert G. Stovall
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I N D E X

E X H I B I T S

MR. LYON: We'll call next Case 9576.

MR. STOVALL: Application of Chevron USA, Inc., for an unorthodox oil well location and simultaneous dedication, Lea County, New Mexico.

MR. LYON: Appearances?

MR. KELLAHIN: Mr. Examiner, my name is Tom Kellahin of the Santa Fe law firm of Kellahin, Kellahin & Aubrey, appearing today on behalf of Chevron USA, Inc., the applicant in this case, and I have two witnesses to be sworn.

MR. LYON: Would you have both witnesses at the same time stand and raise your right hand?

(Witnesses sworn.)

MR. LYON: Mr. Kellahin, you may proceed.

MR. KELLAHIN: Thank you, Mr. Examiner.

Mr. Examiner, the applicant is seeking the approval of a well location that is unorthodox for this particular pool. This is a pool that is fully developed on 40-acre spacing. Chevron is seeking to use this well by which to determine the feasibility of infill

drilling and/or waterflood project purposes.

I have two witnesses for you this morning, Mr. Lindsey, who is a geologist, and Mr. Al Bohling, who's a reservoir engineer.

My first witness is Mr. Don Lindsey.

DON LEE LINDSEY,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Lindsey, would you please state your name and occupation?

A My name is Don Lee Lindsey. I'm a petroleum geologist with Chevron Corporation.

Q Mr. Lindsey, on prior occasions have you had an opportunity to testify before the New Mexico Oil Conservation Division?

A No, sir, I have not.

Q Would you take a few moments, sir, and describe your educational background as a petroleum geologist?

A Yes. I received a Bachelor of Science

degree in geology from Eastern New Mexico University in Portales in 1979.

Q Subsequent to graduation, Mr. Lindsey, would you summarize for us your work experience as a petroleum geologist?

A I began in 1980 with Gulf Oil Corporation, now Chevron USA, as a development geologist in their Odessa, Texas, office.

In the last nine years I've worked as a development or production geologist in various capacities in west Texas, the Persian Gulf area of the Middle East, and since 1985, the Permian Basin Area of southeastern New Mexico.

Q Pursuant to your employment have you made a study of the geology surrounding the Teague Blinebry Field in Lea County, New Mexico?

A Yes, I have.

Q And pursuant to that study have you caused to be prepared certain exhibits?

A Yes, I have.

Q And have you reached certain conclusions based upon your study for this particular case?

A Yes, I have.

MR. KELLAHIN: Mr. Examiner, we tender Mr. Lindsey as an expert petroleum geologist.

MR. LYON: Mr. Lindsey is qualified.

Q Mr. Lindsey, let me direct your attention, sir, to what is marked as the Applicant's Exhibit Number One. Before we discuss the details of your study, Mr. Lindsey, and the opinions you've reached based upon your study, would you take a moment and identify for the Hearing Examiner what is shown on Exhibit Number One?

A Yes, sir. In Exhibit Number One, it's a structural -- interpretational structure map which I prepared drawn on top of the Blinebry formation at Teague.

The contour interval is 25 feet. The map scale is one inch equal 1000 feet. Chevron acreage is colored in yellow and the proposed location for the C. E. LaMunyon No. 50 is indicated by the red dot.

All Blinebry oil producers, both past and present, are indicated by that circled completion symbol on the map.

Q Describe for us what has been the history of the exploration and development of the Teague Blinebry Field?

A The Teague Blinebry was discovered in 1967 and subsequent development to its current geographical extent followed in the following 18 months, through the end of 1968. No further development drilling has taken

place since that time.

Q In making your geologic study of the Teague Blinebry, Mr. Lindsey, what were you attempting to investigate?

A The task here was basically to examine all available geologic data and determine if there was additional or future opportunity here at Teague within the Teague Blinebry Oil Pool, for either primary, additional primary recovery of reserves, or possibly a future secondary waterflood project out here.

Q Based upon that geologic study, Mr. Lindsey, what have you concluded?

A I've concluded that the data basically is insufficient and we need additional data, therefore the drilling of the additional well; however, what data is available suggests that additional opportunity exists for the production or -- of additional primary reserve, as well as possibly opportunity in the future for secondary oil recovery here.

Q In making your geologic study, would you describe for us what geologic data or information in your opinion is inadequate?

A At Teague we lack reservoir data, including permeabilities, for one. No core has been taken at Teague and we plan on taking core in the No. 50 if the pro-

posal should be approved.

Q What has caused you to pick the particular location identified on Exhibit Number One as the initial well in which to further test the efficiency of the production and development of the reservoir?

A That particular location, which is 1310 feet from the north line, 210 from the east line of Section 28, Township 23 South, 37 East, was chosen because it's a representative location of the field. Structural position came into play and was considered, as well as net pay consideration. A reasonable or average GOR can be expected in this portion of the field, and it lies within the contiguous Chevron operated tract of acreage.

Q In making your geologic investigation of the reservoir, Mr. Lindsey, have you also prepared a cross section through this area?

A Yes, I have. That's our Exhibit Number Two.

Q Let's turn to that, sir. Is this a structural cross section that you prepared, Mr. Lindsey?

A Yes, it is.

Q Describe for us the reason that you have picked these particular wells by which to then construct a structural cross section through the reservoir.

A I constructed this cross section to re-

flect and enable study of the porosity distribution in the Teague Blinebry Field.

Q Have you located and identified and studied wells on this cross section that in your opinion give you representative, typical examples of Teague logs within this reservoir?

A Yes, I have. I've studies them all and maybe you could be -- I need a little more clarification.

Q Well, my question is, why did you pick these particular wells and this particular orientation of wells to cut through the reservoir?

A This would show a typical section of the reservoir and the porosity distribution in the Teague Blinebry dolomite section, and this east/west line of cross section indicated by the A-A' on the index map, is in close proximity to our proposed location for the No. 50.

Q Having prepared the structural cross section, Mr. Lindsey, have you satisfied yourself as a geologist that the existing wells on 40-acre spacing are in the -- are effectively producing the different lenses or stringers within the Teague reservoir?

A The data available, although preliminary does suggest that we are not draining all primary reserves possible, due to the localized and lenticular nature of these porosity developments.

As you can see on the cross section, they are not continuous 100 percent from well to well.

Q Show us where on the cross section the proposed unorthodox well will fall.

A If projected south to the line of cross section, the well would fall between Wells Nos. 29 and 34.

Q It would be between the third and the fourth well on the display?

A That's correct.

Q All right, with the well located at that approximate position in the structure, what do you hope to accomplish with that well?

A We will be acquiring a core through this particular section and performing a special core analysis on this. We will be able with this additional data to ascertain if additional primary reserves remain that would drainable on 20's, 20-acre spacing, and that if indeed we do have an opportunity for future waterflooding efforts at the Blinebry.

Q From a geologist's perspective, Mr. Lindsey, do you have an equally acceptable standard location that could drilled on a 40-acre tract from which you could obtain the same geologic information?

A No, sir.

Q In your opinion is there a geologic

justification, then, for approval of the unorthodox location?

A Yes.

Q In looking at its physical location on Exhibit Number One, is it approximately equidistant from the four offsetting producing wells --

A Yes, it is.

Q -- in the reservoir?

A Yes, it is. It varies between -- around 900 to 1000 feet in each direction.

Q And what advantage does that give Chevron as the operator in planning for future waterflood operations?

A Well, one, it will be placed at what we believe to be an undrained portion of the reservoir for the recovery of primary reserves.

It will also serve as a centralized patterning for future waterflooding efforts should those be deemed feasible.

MR. KELLAHIN: That concludes my examination of Mr. Lindsey, Mr. Lyon. We move the introduction of his Exhibits One and Two.

MR. LYON: Is there objection? Exhibits One and Two will be admitted.

CROSS EXAMINATION

BY MR. LYON:

Q Mr. Lindsey, I'd like to ask you one question.

A Yes, sir.

Q I noticed on your Exhibit One that you have shown a number of leases in here. Some are identified as LaMunyon Federal; others are identified as C. E. LaMunyon. Is there a difference in those leases or is that all the same lease and it's just a matter of how it was labeled on -- when the map was done?

A It is all the same the lease. It's a matter of drafting labeling.

Q Okay, that's all I have. The witness may be excused.

MR. KELLAHIN: Mr. Examiner, my next witness is Mr. Al Bohling. He spells his last name B-O-H-L-I-N-G.

ALLEN BOHLING,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Bohling, would you please state your name and occupation, sir?

A My name is Allen Ward Bohling and I am a reservoir engineer and I work from the Hobbs Division of Chevron USA.

Q Mr. Bohling, have you on prior occasions testified as a reservoir engineer before the New Mexico Oil Conservation Division?

A Yes, sir, it's been a few years.

Q And were your qualifications accepted at that time?

A Yes, sir, they were.

Q Would you describe generally what work you have performed along with Mr. Lindsey in evaluating the Teague Blinebry Field and its production?

A Well, I've looked at what reservoir information was available from Mr. Lindsey's work as well as other work, and have compiled and done several calculations.

Q Based upon those studies and that information, have you reached certain opinions and conclusions as a reservoir engineer concerning this application?

A Yes, sir, based on the data available, the Teague Blinebry Oil Pool, we really don't have too much to determine whether we are effectively and efficiently

draining the reservoir under the current spacing, 40-acre spacing.

MR. KELLAHIN: Mr. Examiner, we tender Mr. Bohling as an expert reservoir engineer.

MR. LYON: Mr. Bohling is qualified.

Q Mr. Bohling, let me begin by asking you to refer to Exhibit Number Three and identify for us those reservoir characteristics that you and Mr. Lindsey have available to you to work with.

A Okay, our Exhibit Number Three is a list of the reservoir characteristics which we have determined to be representative of the Teague Blinebry Oil Pool.

Currently the approximate productive acreage in the field is approximately 2560 acres. The wells are producing Teague Blinebry oil from an average depth of 5800 feet. We have an average porosity in the field of 7 percent and a net pay thickness which varies anywhere from 23 to 148 feet.

The estimated water saturation is approximately 35 percent.

Q In making your study of the reservoir engineering aspects for the field, Mr. Bohling, what specific issues were you seeking answers to?

A Well, I was looking at this data that

was available. I was trying to determine, essentially, number one, if a proposed location such as we're doing today, would possible capture additional reserves and prove that the present spacing is not adequate for efficient and effective drainage of the reservoir.

Q In terms of the way that information has been compiled and developed from existing wells, did you have a data base by which you could make any type of pressure or interference surveys among existing wells?

A No, sir, I did not.

Q Did you have any pressure information by which you could make material balance calculations or studies?

A No, sir.

Q Based upon available data, then, how did you as an engineer attempt to address some of those issues?

A Well, our Exhibit Number Four is a tabulation which summarizes some calculations I performed on each of the directly offsetting producing wells to our proposed location.

What I did was I calculated the volumetric oil in place for each of those offsetting wells on both the 40-acre area and the 20-acre area. I -- these are shown on Exhibit Number Four on the lefthand side.

Q Having made that calculation, what does

it show you as an engineer concerning 40-acre calculations? What percentage recovery do you show based upon 40 acres?

A Okay, what I -- what I did then was I compared these volumetrical place values with an estimated ultimate primary recovery I determined from decline curve analysis and on a 40-acre basis, as you can see on the righthand side of the exhibit, the overall average recovery factor for ultimate recovery as a percent of the original oil in place, is only 8.7 percent.

Q You said only 8.7 percent. Why did you say "only"?

A This appears low to me with my experience. Also, on a 20-acre basis I calculated, did the same calculations, came up with 17 percent.

From various preliminary studies of publications an acceptable primary recovery factor for a carbonate reservoir of the Permian age in -- in the Permian Basin, is -- ranges from anywhere from 15 to 20 percent.

Q Based upon that information, then, Mr. Bohling, what is your concern about the current situation in terms of development of this reservoir on 40-acre spacing?

A Well, it would appear from my calculations that the 20-acre values more closely approximate accepted values for a carbonate reservoir and I would have to

conclude that there's a possibility we are effectively and efficiently draining the Teague Blinebry Oil Pool on a 40-acre pattern.

Q In order to resolve that concern, Mr. Bohling, what are you proposing to do with the well located at the unorthodox location that's the subject of this hearing?

A We are proposing to drill this well in order to obtain through core analysis various relative permeability data, pressure data, and we're also planning to do some repeat formation testing and drill stem testing to derive some pressure values which we can utilize in possibly enhancing our reservoir analysis of the Teague Blinebry Pool.

Q Let me direct your attention, now, Mr. Bohling, to what is marked as Exhibit Number Five. Let's talk specifically about Exhibit Number Five. That's a copy of Commission Form C-102?

A Yes, sir.

Q And what is the source of this information?

A This is a plat performed by John W. West Surveying, and it shows the proposed location for our C. E. LaMunyon No. 50 Well, that being 1310 feet from the north line and 210 feet from the east line of Section 28,

Township 23 South, Range 37 East, Lea County, New Mexico.

Q Do you as a reservoir engineer, Mr. Bohling, concur with Mr. Lindsey's geologic assessment that this proposed unorthodox location is the optimum location at which to drill this type of well to test the reservoir?

A Yes, sir, I do.

Q Let's turn to Exhibit Number Six and have you identify that exhibit.

A Exhibit Number Six is a waiver of objection letter from Damson Oil Company. Damson Oil Company is the only other operator which directly offsets the proposed proration unit in which we are wanting to drill this well. They offset us directly to the north.

This letter was sent out to them on November 2nd, received by them, and subsequently they have signed it and returned it to us.

Q And Exhibit Number Seven?

A Exhibit Number Seven is a copy of a return receipt request mail cards that indicate that we have notified the Bureau of Land Management, since this is on Federal property, and Damson Oil Corporation.

Q And finally, sir, would you turn to Exhibit Number Eight and identify that?

A Exhibit Number Eight is essentially two items. The second item is BLM's approval or acknowledge-

ment of receipt of our drilling proposal for this well, and it is covered with a letter from Mr. Sexton which essentially assigns an API number to this well.

Q Have you determined, Mr. Bohling, whether there are any interest owners, royalty or working interest owners, within the immediate area that might be adversely affected if this application is approved?

A There should be no working interest or royalty interest adversely affected. Our Land Department has provided title clearances, et cetera, for this well.

Q There are no disparities in percentages or individuals with regards to the spacing units that adjoin the proposed well?

A No.

Q I'm talking about the four Chevron wells around it.

A No, sir, they're all part of the same basic lease and Division order; therefore, they all carry the same interests.

Q In conclusion, then, you see no indication of the potential violation of any correlative rights?

A No, sir, I do not.

Q With regards to the prevention of waste, do you anticipate that you will either encounter additional reserves that are not currently being produced by any of

the offsetting wells and/or give yourself an opportunity to institute waterflood operations that will thereby increase ultimate recovery from the reservoir?

A Yes, sir.

MR. KELLAHIN; That concludes my examination of Mr. Bohling, Mr. Lyon. We move the introduction of this Exhibits Three through Eight.

MR. LYON: Is there objection?

Exhibits Three through Eight will be accepted into the record.

CROSS EXAMINATION

BY MR. LYON:

Q I'd like to ask a couple of questions, Mr. Bohling.

Exhibit Four, your first two columns to the right of the well numbers indicate your volumetric calculation of oil in place?

A Yes, sir, for a 40-acre area around the well and then a 20-acre area around the well.

Those are essentially planimetered values.

Q Then you've prepared an oil recovery map? Is that -- the reason I'm curious about it is that normally when you look at volumetrics, you assign twice as

much reserves to a 40-acre area as you do to a 20-acre area and I see that that is not the case here in this exhibit.

A My values were determined from planimetering of an isopach map, which may -- the overall volume associated to the 40 acres from the net pay isopach map may not necessarily be exactly twice that of --

Q I see, so you've assigned a circular are or a square area?

A Yes, sir, I have, uh-huh.

Q And then you did that by planimetering it.

A Yes, sir.

Q It just didn't look right. On Exhibit Five there are some dimensions shown on there. For instance, against the east line of Lot -- of Unit A there is a 3,288.3 and then 3,287.1. I'm curious as to what those dimensions are.

A Well, I'm afraid I don't -- I can't answer that.

Q Okay, well, it really is not material. I was just curious why they were there.

MR. LYON: I believe that's all I have, Mr. Kellahin, all the questions I have.

MR. KELLAHIN: To complete our presentation, Mr. Lyon, we have marked a certificate of

mailing which is further notice to Damson Oil Corporation of this hearing. They have already provided for record purposes their waiver, but Exhibit Number Nine is compliance with the hearing notice requirements and we would ask that that be admitted into the record at this time.

MR. LYON: Yes, Exhibit Nine will be admitted. Anything further?

MR. KELLAHIN: That completes our presentation.

MR. LYON: Well, I would like to commend Chevron. I think this is the type of project that is forward looking and something we probably need some more of in New Mexico and we appreciate it.

MR. LINDSEY: Thank you.

MR. LYON: The witness may be excused and we'll take the case under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C. S. R. DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9576, heard by me on Jan. 18 1989.

W. Byan, Examiner
Oil Conservation Division