STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

CASE 9831

EXAMINER HEARING

IN THE MATTER OF:

Application of TXO Production Company for Directional Drilling and an Unorthodox Gas Well Location, Eddy County, New Mexico

TRANSCRIPT OF PROCEEDINGS

BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

November 29, 1989

ORIGINAL

A P P E A R A N C E S

FOR THE DIVISION:	ROBERT G. STOVALL Attorney at Law Legal Counsel to the Divison State Land Office Building Santa Fe, New Mexico
FOR THE APPLICANT:	W. THOMAS KELLAHIN, ESQ. Kellahin, Kellahin & Aubrey Post Office Box 2265 Santa Fe, N.M. 87504-2265

I N D E X

E X H I B I T S

TXO PRODUCTION EXHIBITS:

HEARING EXAMINER: Okay. Let's move to Case No. 9831. This is the application of TXO Production Corporation for directional drilling and an unorthodox gas drilling in Eddy County, New Mexico. Call for appearances at this time.

MR. BRUCE: Tom Kellahin of the Santa Fe law firm of Kellahin, Kellahin and Aubrey, appearing on behalf of the Applicant, and I have two witnesses to be sworn.

HEARING EXAMINER: Are there any other appearance in this matter? Will the witnesses please stand to be sworn and raise your right hands.

(Thereupon, the witnesses were sworn.)

HEARING EXAMINER: Mr. Kellahin.

MR. KELLAHIN: Thank you, Mr. Examiner.

JOHN FISCO

Called as a witness herein, after having been first duly sworn upon his oath, testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name and occupation?

A. My name is John Fisco. I am a staff geologist with TXO Production in Midland, Texas.

Q. Mr. Fisco, for the record, would you please

spell your last name.

A. F I S C O.

Q. Mr. Fisco, as a petroleum geologist, have you, on prior occasions, testified before the New Mexico Oil Conservation Division?

A. No, I have not.

Q. Would you give us a summary of your background, beginning with when and where you obtained your degree in geology?

A. I obtained a bachelor's degree in 1977, from the University of Wisconsin in Oshkosh. I did graduate work at the University of Southwestern Louisiana, Lafayette, and I started work with TXO from school in the summer of 1979, and I have been employed ever since with TXO Production, approximately 10 and a half years now.

Q. As part of your duties as a petroleum geologist for TXO, have you made a study of the available geologic information for an area that's known as the Burton Flats area of Eddy County, New Mexico?

A. Yes, I have.

Q. And have you reviewed and satisfied yourself that the information shown on Exhibits 1 through 5 is accurate and reliable to the best of your

knowledge, information and belief?

A. I believe so.

MR. KELLAHIN: At this point, Mr. Stogner, we tender Mr. Fisco as an expert petroleum geologist.

HEARING EXAMINER: Mr. Fisco is so qualified.

Q. Mr. Fisco, if you'll take for a moment what is marked as TXO Exhibit 1 as well as Exhibit 2--and let's look at them at the same time--would you describe for the Examiner what is the producing formation that is the target for the bottom hole location of this well that TXO seeks to directionally drill?

A. The formation is the Pennsylvanian H Strawn Formation.

Q. Would you identify for us the proposed spacing unit to be dedicated to the well?

A. The spacing unit is the 320-acre unit occupying the west half of Section 14 of Township 20 South, Range 29 East, in Eddy County.

Q. Describe for us the information depicted on Exhibit 1.

A. Exhibit No. 1 shows the immediate area surrounding the proposed location, and it has a couple of outlines on there in blue, which is the life mine

reserves limit that we obtained from the potash mine in the area.

The red line shows a half-mile buffer zone surrounding the LMR line. The yellow outline on there is the proration unit for the Burton Flat Federal No. 1.

In Section 11 you'll see the proposed surface location for the well, which is 900 feet from the south line and 1,815 feet from the west line, and there's a line coming from that due south, 3,045 feet, to the bottom hole location, which is supposed to be 2,145 from the north line of Section 14, and 1,815 feet from the west line of the same section.

Q. Let me direct your attention now to Exhibit No. 2, Mr. Fisco. Would you identify and describe the type of information shown on that display?

A. Exhibit 2 shows immediate sections surrounding our proposed location, and included on this is the various producing and other tests that were drilled in the immediate area, showing the various formations that produce.

The Strawn, which is the target formation, is outlined in green. There are presently four wells in the immediate area that are produced from the Strawn. Again, in yellow outline is the proposed

proration unit and our surface and bottom hole location are also outlined on that.

Q. When I look at Exhibit No. 2 and I look at the east half of Section 14, I find shown on that display a proposed bottom hole location and then a line of projection north to a surface location. What is intended by that information?

A. That is the proposed location for the Yates Zia-Fed. Com. No. 1. Again, their surface location is in the southeast quarter of Section 11 and projecting a bottom hole location in the east half of Section 14.

Q. Having reviewed the geology for the Strawn formation, can you conclude, as a petroleum geologist, that the proposed method by which both TXO and Yates will attempt to produce the Strawn formation is one that is best appropriate for the development of the section?

A. Yes, this is the most appropriate method.

Q. Well, let's see some of the information about the geology in the Strawn. Have you prepared a structure map on the Strawn?

A. Yes, I have.

Q. Is that Exhibit No. 3?

A. Yes, it is.

Q. Describe for us what you've done.

A. Again, it's the same immediate area around the proposed location. For a little more clarity I've removed the well mains and TD's of the shallow wells that don't penetrate the Strawn formation. Information of all the wells that penetrate the Strawn is still on the map.

The map, the structure map, is on the top of the Strawn formation contoured on a 50-foot contour interval. You'll notice that there is a general southeast trending dip in the area with a slight nosing being apparent from the mapping.

The producing Strawn wells that are on the map occupy positions throughout--well, from elevations or subsurface elevations of 7,141 in Section 15 on the TXO Williams-Fed. No. 24, down to a -7309 on the Yates Eland-Fed. in Section 13.

Q. Does the proposed bottom hole target that TXO is requesting for this development of the west half of the section, give you a good structural position in the Strawn for potentially producing that Strawn reservoir?

A. It gives an excellent position, intermediate between all of the existing production in the area.

Q. In addition to mapping the structure, have

you looked at the thickness and the size and the shape of the reservoir itself, in terms of mapping it either on a stratigraphic cross-section or an isopach, what that reservoir looks like?

A. Yes, I have.

Q. Let's turn to Exhibit No. 4, Mr. Fisco and have you identify and describe what you've shown here.

A. Exhibit 4 is a cross-section, 8 to 8 prime, which if you go back to Exhibit 3 is outlined on Exhibit 3 with a green enhanced dashed line, extending from the TXO Williamson-Fed. No. 4 Well in Section 15 to the west, and extending around through various wells in the area, down to the Odessa natural gas dually No. 1, to the southeast down in Section 24.

On the cross-section you'll notice that it's hung stratigraphically on the top of the Strawn, using the top of the Strawn as a datum. The Strawn formation proper is outlined in green, and two of the more prominent zones of production are enhanced with colors in blue, and a second shown enhanced and colored with orange.

The various DST intervals and perforations of the wells are outlined in red within the bore hole column, and each well is represented by induction or resistivity log of some type and a porosity log of

some type.

Q. Having examined the stratigraphic cross-section that has been prepared for this immediate vicinity, what does that tell you about how to develop or locate a well in the west half of Section 14?

A. The Strawn interval in the immediate area shows to be fairly uniform in overall thickness. Porosity within the Strawn varies from well to well, which we'll show you the trends that it's established on the next exhibit.

Q. Let's look at Exhibit No. 5, Mr. Fisco. Would you identify this display for us?

A. Exhibit 5 is an isopach map of the net Strawn porosity found within the Strawn formation in the immediate area. The area again is the same basic area as seen in the structure map, with the proposed location and the proposed proration unit.

You'll notice that the isopach shows a net Strawn porosity of greater than four percent, which I feel is the cutoff for effective porosity in the area, and there is a--well, it's contoured on a 20-foot interval and shows a general north, northeast trend.

Q. Where does the bottom hole target, as projected, put you in terms of reservoir thickness as

mapped on your Exhibit 5?

A. We're projecting that we may have something over 60 feet of total porosity at the bottom hole location.

Q. What is your ultimate conclusion with regards to the geology and its relationship to the west half of Section 14 and the proposed bottom hole target? Do we have a good bottom hole target, based upon the geology?

A. Based upon the geology, I think we have an excellent shot at finding the economic reserves in the Strawn formation.

MR. BRUCE: That concludes my examination of Mr. Fisco, Mr. Stogner. We move the introduction of Exhibits 1 through 5.

HEARING EXAMINER: Thank you.

EXAMINATION

BY MR. STOGNER:

Q. Mr. Fisco, now the purpose of this directional drilling is not to better your geological perspective of this particular wellbore, is it?

A. No. The directional drilling is necessary in order to conform to the laws concerning the potash reserves found in the immediate area.

Q. Geologically speaking, a bottom hole target

for this particular well--and, by the way, I am going off of this bottom hole target and the way it was advertised was based on the proposed survey that was provided me by TXO--and the term "bottom hole location" on Exhibit 1 is a little bit different than what's advertised today.

As I understand it, the top of the--please correct me if I'm wrong--the top of the Strawn formation will occur in this target hole, is that correct, or this target area?

A. Yes, it will.

Q. And then it will continue on down. And, there again, based on the proposed survey that was given me, will exit the Strawn formation or go through the bottom of the Strawn pay at a location 150 foot over target point 2,345 from the north and 1,815 from the west, is that correct?

A. That's what we anticipate.

Q. And that portion of it is the unorthodox location, so you will be entering the pay at a standard location but exiting in it or part of it has a potential of being unorthodoxed?

A. That's correct.

Q. But your Exhibit 5 and, as I understand your testimony today, even drilling further up to the

north to keep the well at a total orthodox location, the geological profile is, essentially, the same, is that correct?

A. It should be pretty much the same.

Q. And you're not moving closer to any known production, is that correct?

A. No, we are not.

HEARING EXAMINER: Okay. I have no other questions of this witness at this time. Mr. Kellahin?

TIM GOUDEAU

Called as a witness herein, after having been first duly sworn upon his oath, testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name and occupation.

A. My name is Tim Goudeau, G O U D E A U. I'm a drilling engineer for TXO Production.

Q. Mr. Goudeau, have you testified on prior occasions before the Division?

A. Yes, I have.

Q. Would you summarize for the Examiner what it is that you have specifically done with regards to this proposed well?

A. I've supervised the preparation of a schematic diagram of the Burton Flat Federal Com. No. 1, and our casing setting depth schematic, and also with our deviation schematic. We'll be setting--

Q. Before you describe that, have you satisfied yourself and we have, on prior occasions before the hearing, given the Division various projections on the directional drilling, and I want to make sure that you are familiar with the profile that's shown on Exhibit No. 6. Are you, sir?

A. Yes, sir, I am.

Q. We want to specifically outline for the Examiner the proposed method of drilling the well directionally, and your targets both at the top of the Strawn and at the base of the Strawn. Are you familiar with those?

A. Yes, I am.

MR. BRUCE: We would tender Mr. Goudeau as an expert drilling engineer.

HEARING EXAMINER: Mr. Goudeau is so qualified.

Q. Let me go back with you just a moment, Mr. Goudeau and show you Exhibit 1. As a point of reference, am I correct in understanding that the necessity for directionally drilling this well is

predicated on the existence of the potash oil rules of the Oil Conservation Division?

A. Yes, sir, it is.

Q. To the best of your knowledge, have you sought to comply with the requirements of the potash oil rules and regulations?

A. Yes, sir, we have.

Q. The schematic shown as Exhibit No. 1 simply portrays the approximate surface location and shows the relationship of a location to the buffer zones and the setbacks for the life of the mine reserves, does it not?

A. Yes, sir, it does.

Q. Let's take, now, Exhibit No. 6, and have you begin at the surface and give us the precise surface location in Section 11 at which you're going to commence the well.

A. The surface location will be 900 feet from the south line, 1,815 from the west line of Section 11, Township 20 South, Range 29 East, of Eddy County.

The targeted bottom hole location, which would be the targeted top of the Strawn, would be 2,145 from the north line and 1,815 from the west line of Section 14, Township 20 South, Range 29 East, of Eddy County.

Q. When we look at Exhibit No. 6 and we look at the right-hand margin, there's a plan view on the display?

A. Yes.

Q. Take us from the surface location and show us where we will be in terms of relationships to the surface lines when we are at the top of the Strawn formation as projected at a true vertical depth.

A. Okay. At the top of the Strawn formation we should be at the targeted 2,145 from the north, 1,815 from the west, which will be a total deviation at the top of the Strawn from the surface of 3,045 feet due south.

Q. All right. The 2,145 from the north is the north line of Section 14?

A. Yes, sir. And, of course, the continuing drilling of the well to the base of the Strawn will extend it 200 feet past, which will give you a total deviation of 3,245 but will actually be 2,345 from the north line of Section 14.

Q. In the application and in the advertisement of the case, Mr. Goudeau, TXO has sought a tolerance target, if you will, of 150-foot radius both at the top of the Strawn formation and at the base of the Strawn formation. What's the basis for requesting

that?

A. Well, we felt like that this 150-foot deviation tolerance was still within the orthodox window at the top of the Strawn. The production or the actual perforated intervals that you see blown up on the bottom, indicate that the Strawn production starts at plus or minus 30 feet out of the Strawn, so we felt like the top of the Strawn was the key target here, and that any tolerance that we should have would be at the top of the Strawn, and, of course, continuing on through the base of the Strawn.

Q. Let's examine that issue. If we look at the vertical section and if you start at the bottom of the display, at the top of the Strawn, then, you have given us a point just above what is identified as the first zone?

A. Yes, sir, that's at 10,526 true vertical depth, which is 11,179 measure depth, which is where we project the top of the Strawn to come in, which is our projected target there at 2,145.

Q. Do you propose to change the angle between the point that you encounter the top of the Strawn until the time you encounter the base of the Strawn formation?

A. No, sir, we don't.

Q. What's the purpose of showing first zone and second zone? What is that?

A. That's to show that the anticipated producing horizons, if they come in as projected, will be still within the orthodox window and the tolerance window that we are trying to get here.

Q. Let's go back to the surface, then, on the vertical section of Exhibit No. 6, and describe for us what you're doing, commencing with the surface and drilling down through the point where you identify a kickoff point and commence the directional drilling?

A. We're drilling a 26-inch hole to 450 feet and setting 20-inch casing at that point, according to the R-111-P, the Potash Order, to the base hole Rustler formation, and then drilling on down and setting pipe, 13 and three-eighths at 1,500 feet, which is a salt protection strain, according to the R-111-P Potash Order, and then going down and setting eight and five-eighths casing to 3,100 feet, which is a capitan reef protection string.

We'll be kicking off at 3,200 feet and building angle down to 4,880, which is a measure depth, and then holding angle from there to the projected target.

Q. What is the plan for drilling, in terms of

how often you'll take a survey as to where you are within the Section 14 or within this spacing unit?

A. We anticipate taking surveys between 90 to 150 feet, just depending on where we are, which is pretty normal under these types of situations where you can encounter problems quickly, and they need to be adjusted fairly quickly, so we're probably in the average of the 100-foot range of taking surveys.

Q. Have you received any objection from any of the other operators or working interest owners in this area with regards to your proposed directional drilling of this well?

A. No, sir.

Q. Are you familiar in any way with how Yates proposes to directionally drill their well as proposed in the east half of this section?

A. I haven't taken a look at their order on one of our pieces of evidence that looks like they are proposing to drill it the same way we are. I don't know their specific kickoff points.

Q. You've not studied the details, then, of their drilling program, to directionally drill their half of the section?

A. No. I don't know that they have presented that to the public scrutiny.

Q. Is there anything else about Exhibit No. 6 that you would like to invite the Examiner's attention to?

A. No, sir. I don't believe so.

MR. KELLAHIN: That concludes my examination, then, of Mr. Goudeau. We move the introduction of his Exhibit No. 6.

HEARING EXAMINER: Exhibit No. 6 will be admitted into evidence.

EXAMINATION

BY MR. STOGNER:

Q. Mr. Goudeau, in what method are you going to be building angle?

A. We'll be running a one and a half degree vent sub out at 3,200, building our angle, and then going in with a semi-packed assembly to hold our angle.

Q. Now, you're going to build the angle with a down-hole motor?

A. Yeah, we'll be building angle with a six and a half degree slow speed motor, probably with some IBS stabilization.

Q. After that portion, then, you will continue with a down-hole assembly using rotary, is that correct?

A. Correct. We'll be holding angle with a semi-packed assembly using the rotary method.

Q. What size of casing do you propose to use as your long string after you get the hole down?

A. It will be four and a half.

Q. And that's all the way down to the plug-back depth, after it is a producer?

A. Yes, sir.

HEARING EXAMINER: I have no further questions of Mr. Goudeau. Mr. Kellahin?

MR. KELLAHIN: That concludes our presentation, Mr. Examiner. We have Exhibits 7 and 8; 7 is the potash operator's waiver letter, and Exhibit No. 8 is the certificate of notice.

MR. STOVALL: Mr. Kellahin, I think you have that backwards, if I'm looking at the exhibits correctly.

MR. KELLAHIN: Let me make sure with the sets here. Exhibit 8 is the waiver from the potash operator, that's correct, and 7 is the notices that I sent out.

That's all we have, Mr. Examiner.

HEARING EXAMINER: Does anybody else have anything further in Case 9831? This case will be taken understand advisement.

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Carla Diane Rodriguez Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL December 11, 1989.

Carla Diane Rodriguez
CARLA DIANE RODRIGUEZ
CSR No. 91

My commission expires: May 25, 1991

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9831, heard by me on 29 November 1989.

Michael E. Stogner, Examiner
Oil Conservation Division