STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCE DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF:
APPLICATION OF BASF CORPORATION FOR AMENDMENT OF ORDER NO. R-9255, AS AMENDED BY ORDER NO. R-9255-A, TO PROVIDE FOR A HORIZONTAL DRILLING PILOT PROJECT, SPECIAL OPERATING RULES THEREFOR, A NONSTANDARD OIL PRORATION UNIT, AND AN UNORTHODOX OIL WELL LOCATION, SAN JUAN COUNTY, NEW MEXICO.

CASE NO. 10303

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: MICHAEL E. STOGNER, Examiner

May 2, 1991
11:30 a.m.
Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on May 2, 1991, at 11:30 a.m. at the Oil Conservation Conference Room, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Susan G. Ptacek, a Certified Court Reporter No. 124, State of New Mexico.

FOR: OIL CONSERVATION DIVISION

BY: SUSAN G. PTACEK
Certified Court Reporter
CCR No. 124

I N D E X

May 2, 1991
Examiner Hearing
Case No. 10303

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E X H I B I T S

A P P E A R A N C E S

FOR THE DIVISION: ROBERT G. STOVALL, ESQ.
General Counsel
Oil Conservation Division
State Land Office Building
Santa Fe, New Mexico 87504

FOR BASF CORPORATION: CAMPBELL & BLACK, P.A.
Attorneys at Law
BY: WILLIAM F. CARR, ESQ.
110 N. Guadalupe
Santa Fe, New Mexico 87501

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EXAMINER STOGNER: Call the next case, 10303.

MR. STOVALL: Application of BASF Corporation for amendment of Division Order No. R-9255, as amended by Order No. R-9255-A, to provide for a horizontal drilling pilot project, special operating rules therefor, a nonstandard oil proration unit, and an unorthodox oil well location, San Juan County, New Mexico.

EXAMINER STOGNER: Call for appearances.

MR. CARR: May it please the examiner, my name is William F. Carr with the law firm of Campbell & Black, P.A., of Santa Fe. We represent BASF and I have one witness.

EXAMINER STOGNER: Any other appearances? Being none, will the witness please stand and be sworn?

(Whereupon the witness was duly sworn.)

DAVID HOWELL,

the Witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name for the record, please?

A. My name is David Howell.

Q. Where do you reside?

A. I live in Houston, Texas.

Q. By whom are you employed and in what capacity?

A. I'm employed by BASF Corporation as a petroleum engineer.

Q. Have you previously testified before the New Mexico Oil Conservation Division?

A. No, I have not.

Q. Would you briefly summarize for Mr. Stogner your educational background, and then review your work experience?

A. I graduated in January 1972 with a bachelor of science in petroleum engineering from Mississippi State University. Since that time I worked about five years for Amoco Production Company, followed by five years with El Paso Natural Gas Company, and for the last nine years I've been working for BASF Corporation.

Q. And all those positions did you work as a petroleum engineer?

A. That's correct.

Q. With El Paso were you working out of the Farmington area?

A. That's correct. I lived and worked out of Farmington.

Q. Are you familiar with the application filed in this case on behalf of BASF?

A. Yes, I am.

Q. Are you familiar with the well that is the subject of this case and the proposal for the reentry and new attempt to horizontally drill the well?

A. Yes.

MR. CARR: Are the witness' qualifications acceptable?

EXAMINER STOGNER: They are.

Q. (By Mr. Carr) Mr. Howell, could you briefly state what BASF seeks in this case?

A. BASF seeks to reenter it's 28-14 well in San Juan County, New Mexico, and drill a new horizontal well. BASF also seeks exceptions to the statewide rules as they apply to the Verde Gallup Royal pool, which permits the exemptions from -- or to permit exemptions from existing well locations and that we be required only to comply with the rules that provide for a setback from the outer boundary.

We also seek exceptions from the acreage dedication requirements to permit dedication of additional acreage to the well. And we also seek exceptions from the oil well allowable limitations to permit an increased allowable based on the total acreage dedicated to the well.

Q. Mr. Howell, what is the reason for this application?

A. The reason for this application is we want to

successfully encounter the fifth bench of a Gallup formation and attempt to connect the wellbore to as many natural fractures as possible, which we feel these fractures will contain commercial quantities of oil.

Q. What results, if you are successful, will you obtain with this project?

A. We expect to encounter multiple fractures in a down dip position from the Verde oil pool, and since the Verde oil field was classified originally as a gravity drainage reservoir, we expect there to be substantial volumes of unrecovered oil in place in these fractures.

Q. Mr. Howell, this case has -- this well has been the subject of two previous Oil Conservation Division cases; one approving a horizontal hole and another one amending that to move the surface location. Could you explain to Mr. Stogner what your role was in the original drilling of the well?

A. Actually the whole concept of drilling this horizontal well in this depleted Verde Gallup oil field I had a great deal to do with coming up with the idea. Unfortunately, after it went from an idea stage to an actual doing stage, I was not involved with the drilling of the well at all.

Q. Now, I think maybe what we ought to do is we ought to move to what has been marked as BASF Exhibit

No. 1, and using this exhibit, would you explain to Mr. Stogner what actually happened during your original effort to horizontally drill this well?

A. Okay. Exhibit No. 1 is a diagrammatic sketch furnished to us by the drilling -- horizontal drilling company, Smith International, and it shows the proposed original wellbore that was presented to the OCD last summer, also it shows the actual wellbore that was drilled last fall.

Q. Which is the proposed original wellbore?

A. If you look at the top, which says "vertical plane" and "horizontal plane," the straight line that goes from the cross section or the cross X there, straight line going to the bottom and to the right, that is the proposed wellbore. Then the line to the top of that, it kind of goes up and makes a jog off to the right and parallels the straight line is the actual path, trajectory, that the wellbore took.

Q. What actually happened here?

A. What happened was in the -- in this area the beds are steeping or steeply dipping, and we tried or at least the drilling contractors and the people that were out there tried very hard to keep what well straight; but it walked to the north. And once they brought in the directional tools, they didn't then turn the well to the

right and proceeded to drill the well in a path that was paralleling the original proposed wellbore path.

Q. Was an attempt made to complete this well?

A. Yes, it was. After casing was set up the hole and the well was directionally drilled in a horizontal and drilled only to the Gallup. We did attempt to -- when I got back into the project was pretty much during the completion stage, and we did attempt a completion but it was a miserable failure.

Q. Now, if we look at the vertical plane and the actual path of the wellbore as plotted on that, was there any kind of deviation tool or anything run on the well while it was being drilled hopefully as a vertical hole?

A. We ran different tools in the hole trying to keep the well straight, and before we ran casing we ran a gyro survey to tell us exactly how the well had -- or where it had gone, because at that point in time we did not have directional tools in the hole.

Q. At that time you knew -- or BASF knew the well had migrated to the north?

A. Well, they knew it had walked some to the north, yes.

Q. When did you first discover or know that the wellbore was actually where you now understand it to be from the information provided by the drilling contractor?

A. If you will notice on this exhibit, it's dated at the top here February 7, 1991. It was several -- two or three weeks after I received this report that I began to pay more attention to the north -- or the top picture rather than the south, or the one to the bottom of the page.

While the well was being drilled, the drilling engineers out on location pretty much paid attention to the bottom picture. They were primarily interested in how the well was following the original trajectory -- I mean the original proposed trajectory, and were they reaching horizontal and that sort of thing. So nobody really paid attention to where the well went north, but more how they followed the proposed plan.

Q. Were you able to do any logging of the well to determine its location prior to your effort to complete the well?

A. They did run a couple of logs that got them down the top of the Gallup, but unfortunately right in the bottom of the -- where they came out of the casing they made a sharp turn, caused what they call a dogleg where you change real rapidly in a short substance. That later proved to be a very detrimental fact, because it prevented any further logging of the well.

Q. So how were you able to determine or to what

extent were you able to determine the actual location of the well in regard to the particular Gallup zone that you were attempting to intersect?

A. They had to project it based on the geologist's picks of the tops that he had up to that point, and had to just actually project down to where he thought the G5 or the fifth member in the Gallup section was located.

Q. The wellbore actually migrated north of the dedicated acreage?

A. That's correct.

Q. Did it intersect the formation?

A. It intersected the Gallup formation but it did not intersect the primary zone of interest that we were targeting.

Q. You were brought back into this project; is that correct?

A. That's correct.

Q. And what is basically your assignment, to try and straighten this thing out?

A. That's it in a nutshell. The well after the attempt to complete it -- and as I said earlier was not successful, I was brought back in on the project to see if I could figure out what was wrong; do a complete evaluation of the well and, one, see if we had hit the primary target; and, two, if we did, why wasn't it fractured and why was

there no production because we recovered no oil whatsoever.

Q. When did you come back on to the project?

A. I came back on the project November, December of 1990.

Q. Then it was in February that you actually received these surveys from Smith the drilling contractor?

A. That's correct.

Q. What steps are you planning to take to avoid this kind of problem happening in the future?

A. Well, one, we're going to use a different drilling -- directional drilling company that incorporates an integral logging tool that's actually run as part of your drill stream, and that allows you to log as you drill rather than having to make a separate logging run with a wire-line-type tool or logging tool that you run on the bottom drill pipe and then push to the bottom, which is what they had tried last fall. This logging tool will enable us to pick tops as we go down and also allow us to know exactly where we are within the Gallup. This is not a logging tool to tell direction. It just tells you where you are geologically.

Q. Let's go to what has been marked as BASF Exhibit No. 2, and would you identify that and review that for Mr. Stogner?

A. Exhibit No. 2 is a land plat, pretty much

showing the six section of land that BASF has leased from Ute Mountain Indian Reservation. That area is highlighted in yellow. And the area highlighted in the pink, pinkish-reddish color, is the 40-acre land tract or the proration unit for this particular wellbore.

Q. There are some well spots within the yellow area. Do you know what formation those wells were or are completed in?

A. Those wells were completed in the Gallup formation. All of those wells since -- for many years now have been plugged and abandoned.

Q. There is no Gallup production in our area which you lease?

A. There is no Gallup production in the area that we lease. As a matter of fact, there is very little Gallup production. There's a couple of stripper wells located quite a bit of distance from where we are.

Q. Now, within the area outlined in yellow what is the status of ownership in that acreage?

A. BASF has that acreage leased 100 percent working interest, and the royalty is common, that being the Ute Mountain Indian Tribe.

Q. So the ownership is common throughout, not just the pink proration unit but the area shaded or outlined in yellow?

A. That's correct.

Q. Let's go to Exhibit Number 3. Could you identify that for Mr. Stogner?

A. Exhibit No. 3 is an electrical log that was run on our nearest well located about a half mile east northeast of the wellbore that we're talking about, and it is in particular across the Gallup formation. And if I will draw your attention to the area that I have highlighted in red, that is what we call the fifth member or the G5 of the Gallup formation, and it is the primary zone of interest that we are targeting. That zone was the primary zone of interest in both the original wellbore that we drilled and the one we propose to drill now.

Q. Approximately how thick is this particular Gallup 5 zone?

A. The best part of it we think is about 30-foot thick.

Q. Can you just generally describe the nature of this portion of the Gallup formation?

A. The Gallup formation we hope in G5 interval should be highly fractured. Based on the geology and the tectonics of that area, that being a hogback located there and the twisting and buckling going on, we think that section of the Gallup should be highly fractured.

Q. Is there orientation or general orientation to

the fractures in this area?

A. We believe the orientation pretty much runs northwest to southeast.

Q. Let's now go to what has been marked BASF Exhibit No. 4. Could you identify that for the examiner, please?

A. Yes, this is a simplified diagrammatic structure map at the Gallup objective horizon. If you will notice, I've got shown there the 28-14 surface location, and then the line that jogs up and to the right and is labeled original wellbore. That was the original wellbore that we drilled, and then the line going off to the northeast from that line is the wellbore we now propose to drill.

Q. Now, during the previous hearings on this there was a more typical structure map presented. In those exhibits the structure generally moved, I guess, just east-west across the area?

A. That's correct. It sort of had a northwest-southeast trend but mostly was east-west.

Q. How has this diagrammatic structure map been changed or how does it differ from those previous structure maps and why?

A. If you will notice, there has been a strike change in the beds or the beds have a little nose there about under where it says "W" there under original

wellbore. We didn't know that when we drilled the well, but trying to go back and piece together what happened to the well, and what caused it to perform or at least what I feel caused it to perform, the way it has, we sent our surface geologist -- or sent a geologist out there on the ground, and we also sent a surveyor out, and we had them physically survey in the original wellbore so we could see it at the surface.

And there is -- as I mentioned earlier, the beds are dipping very steeply in this area up to the surface, and you can see the bed dip at the surface. What we did when we surveyed that location of the wellbore out, we were able to see there is a little nose there where the strike of these beds has changed.

And when you're looking at the surface and not being used to drilling horizontal wells, we didn't really realize that wellbore had gone that far out when you looked at it at the surface. But by looking at the bed dips and the strikes of those beds at the surface, we were able to put together what we thought was a good case that the strike had changed, and then from that point we were able to come up with the idea that could explain why the well has performed as poorly as it has.

Q. Now, when you were trying to determine what the structure is in this area, what information do you have

available to you?

A. Very little. The existing Gallup wells that are in the area to the north and west where we are located, none of those had survey -- directional surveys run in them, so everyone assumed the wells went straight down. We pretty much now have the opinion that those wells probably walked to the north as well as ours did. As a result -- also there is no control to the west -- or to the east, rather. And we have the one wellbore, being a Dakota well, off to the east but some half mile away. We have very little control so we did the best we could with what we had.

Q. Is it fair to say you're basically projecting the structure from the information on a well a half mile to the east?

A. That's correct.

Q. And with the new drilling equipment that you propose to utilize you will actually have a logging tool some short distance behind the drill bit; is that right?

A. That's correct. And it will provide us with continuous readings, and we will be able to see the G2, G3, G4 and G5 tops as we go through them.

Q. By being able to see it as you go, will you be able to make such adjustments as are necessary to stay within your structural position?

A. That's correct. What we plan to do this time, I will be on location; we will have our geologist on location. We have a little program on a laptop computer that we can do our only directional work and do our own projections as to what course changes we may or may not need to do in order to reach the objective horizon.

Q. Let's go now to Exhibit No. 5, and I think, perhaps, Mr. Howell, the west way to review for the examiner how you plan to go about drilling the well and to show what it would likely look like when you complete your effort this time, it might be wise to go back to Exhibit No. 1 and start with that, look at Exhibit No. 1, and then move into Exhibit No. 5.

A. If you will look at the top schematic there, which shows the existing wellbore that I discussed earlier, where it goes up and jogs to the right and has the little dots in there, we will utilize most of that or a lot of that wellbore that is cased. The 9 5/8 intermediate casing was set to a depth of approximately 4435 and is set at an angle of 45 degrees. We will utilize that existing casing, and then plug the open hole horizontal section we now have drilled, and then come out of that casing at a new angle to more go along with the strike change that we now see. So that when we intercept the G5 section of the Gallup, we will be on strike rather than being south of strike as we

were on the first well.

Q. So basically the sketch that is set forth on Exhibit No. 1 shows the existing wellbore, and you will be using that to the casing point which is at about what depth?

A. Casing point at -- is 4435.

Q. Then you will put a cement plug in the wellbore?

A. That's correct. We will cement with 250 -- approximately 250 feet of casing -- I'm sorry -- of cement. 50-foot of that cement will extend up into the casing, and then that will be drilled out and come out at a different angle.

Q. You are using what, 9 5/8 casing?

A. That's correct.

Q. You said you would be at an angle when you come out?

A. Yeah, the casing is already set at 45 degrees, and we will come out of the casing and immediately start building angle of inclination again at about 12 degrees per hundred feet, and also correcting our direction to go north of the existing wellbore -- northeast, rather, of the existing wellbore.

Q. When you hit the fifth interval of the Gallup formation, the fifth zone, your target zone, will you be horizontal at that point?

A. We won't be exactly horizontal but we will be very close. We will be between 80 and 85 degrees. That will still give us enough time or enough angle inclination to be able to see the G5 top, specifically, and recognize it, but then not drill out the bottom of it before we are able to change direction and drill to just go right through the guts of the G5.

Q. So the zone is thick enough so that you will hit at this angle and then you will be still at the angle until the logging tool gets into the fifth interval?

A. That's correct.

Q. At that point in time will you be able to control your drilling to then maintain a horizontal wellbore in that zone?

A. That's correct. Merely by -- because these beds are dipping steeply, just a course change to the right or to the left, you take advantage of the dip of the beds to help you gut shoot the G5.

Q. How many of a horizontal hole do you hope to be able to drill?

A. We would like to drill just like we had planned earlier, a thousand feet.

Q. In our application we had requested a setback of 50 feet from the outer boundary of the dedicated proration unit. In your opinion will there be excess drainage from

offsetting tracts because of this proposed wellbore?

A. We don't think so, but if there is, we own the surrounding acreage so it really doesn't make any difference on the ownership -- the royalty ownership is the same.

Q. If the proposed wellbore is successful, does BASF have any plans to drill additional horizontal wells in this area?

A. Most definitely. That's been our aim the whole time. We have some other agreements with the tribe that are tied to us being successful and going ahead and expanding this operation.

Q. What would be the producing life of a well of this nature, would you expect?

A. We would expect it to be very similar to a vertical, and that would be about 20 years.

Q. Let's go to what has been marked as BASF Exhibit No. 6, and I'd ask you to identify that for Mr. Stogner and then review it for him.

A. This Exhibit No. 6 shows the spacing unit that we're requesting, the 160 acres. It also shows a portion of the wellbore that is cased, that I've got highlighted there in green, 9 5/8 casing set at 4435. That will be the portion of the existing wellbore that we will use. The smaller green line that extends on out is shown to be

existing wellbore. That will be plugged off. Then the dashed blue cone area is the area -- target area that the new wellbore will penetrate.

Q. Why do you need a target area?

A. Because we really don't -- because of the lack of control, we're not as sure exactly where that wellbore needs to go. We know it will be inside that cone, but it will change from top to top, because we know that strike is changing and we've done the best we can with the surface geology. But to assume that the surface geology dips and are exactly the same at 4500 feet as they at the surface is probably not a good assumption, but we think they will be close. So we will target this area and stay in it, but we can't tell you exactly where it's going to be.

Q. That's going to depend on information from the logging tool?

A. That will depend on information from the logging tool as we drill.

Q. Now, we've got a proposed proration unit that makes sort of an L. Why were four 40s that are included in this proration actually included in your proration unit?

A. The reason why we included the four 40s in all honestly is because that's the four 40s that the existing wellbore and the new wellbore contact.

Q. Do you believe that all of those 40-acre tracts,

in fact, will be drained by the horizontal well?

A. We think most of it will be drained, but I'm not sure if all 160 acres will be drained.

Q. And the 40-acre tract on which the well is actually located, is it necessary to have that 40 acres included to obtain an allowable rate that you think is satisfactory for the development of this tract?

A. It's not necessary.

Q. So you're not just putting tracts together to get a higher allowable rate?

A. We are not. It's just the area that was contacted by the wellbore, and we do not have real strong feelings.

Q. What sort of production rate would you hope to be able to obtain with this well?

A. We would like to see 2 to 300 barrels a day, but that's just sheer speculation on my part.

Q. Would you request that the allowables that be assigned to the well be equal to the number of 40-acre -- combined allowable for the 40-acre tracts dedicated to the well?

A. That would be nice to have.

Q. Now, Mr. Howell, is Exhibit No. 7 a copy of an affidavit from Campbell & Black confirming that notice of this hearing has been provided as required by the rules and

regulations of the Oil Conservation Division?

A. Yes, it is.

Q. Has notice of the application been provided to the Bureau of Land Management and to the Bureau of Indian Affairs?

A. Yes, sir, it has.

A. Could you identify what has been marked as BASF Exhibit No. 8?

A. Exhibit No. 8 is the letter of waiver from the Bureau of Land Management, saying that they have no problem with us drilling a Verde horizontal well.

Q. Have you also got in that material a letter -- you've got federal form and also a letter on which the Indian tribe has indicated it does not object or supports the effort?

A. That's correct. In addition to the BLM or Bureau of Land Management having no problem with us drilling, we have a signed letter from the chairman of the Ute Mountain Indian Tribe saying that they have no problem with us drilling a horizontal well in this area.

Q. Mr. Howell, will you or BASF run the directional survey on the well and provide a copy to the Oil Conservation Division once in fact it is drilled?

A. Yes, sir, we certainly will.

Q. In your opinion, will granting this application

enable you to produce reserves from the Gallup formation that otherwise will not be recovered?

A. Absolutely.

Q. In your opinion, will the application otherwise definitely be in the best interest of conservation and prevention of waste and the protection of correlative rights?

A. Yes.

Q. In addition to explaining what has happened to this we well to the Oil Conservation Division, are you also the individual that had to explain this to your management in Germany?

A. Yes. I had to put this all together and explain this to them. It was a very difficult thing to do, but we did get approval from them, and they are agreeable to let us redrill the horizontal part.

Q. And how soon could you be ready to go forward?

A. We could be ready to go within seven to ten days.

Q. So you would request to the extent the commission can expedite an order, it be expedited?

A. We would certainly appreciate it.

Q. Were Exhibits 1 through 8 either prepared by you or compiled under your direction and supervision?

A. Yes, they were.

Q. Will you personally be on the well during redrilling?

A. I definitely will be.

MR. CARR: At this time we would offer BASF Exhibits 1 through 8.

EXAMINER STOGNER: Exhibits the 1 through 8 will be admitted.

(BASF Exhibits 1 through 8 were admitted in evidence.)

MR. CARR: That concludes my direct examination of Mr. Howell.

EXAMINER STOGNER: I'm sure you've explained this many times and I hate to go over this again but.

EXAMINATION

BY EXAMINER STOGNER:

Q. In looking at Exhibit No. 1, on the bottom portion of it, is it my understanding that that horizontal -- the existing horizontal well did not go into your fifth bench that you wanted?

A. That's exactly correct. We got to within probably 10 to 15 feet of the G5 when we went horizontal, and in effect we were just paralleling the G5. And during that time we saw no evidence of fractures, no hydrocarbons, nothing. So we were right on to the top of the G5 but he never entered the G5.

Q. And G5, Gallup Bench No. 5, that's what you are referring to?

A. That's correct.

Q. Did you have the strike -- I mean the dip of the G5 pretty well mapped out following right down at about an 80 or 89 degrees?

A. That's correct. We were following right along the strike while the original well was being drilled, and just before we hit the G5, the strike changed. And if you go out and look at the surveyed location, we've got flags out there, and you can see right -- taking the survey that we have, points, you can see exactly where the strike changes and you get this deep -- you know, sinking feeling that you know that you're headed the wrong direction because the beds take off to the northeast and you're headed southeast.

Q. How will this wellbore, the existing one, be plugged or has it been plugged?

A. It has not been plugged. We intend to set 250-foot cement plug. As I said, 50 feet of that cement plug will extend up into the casing.

Q. Now, you already have -- the horizontal portion is a thousand foot long?

A. It's approximately a thousand feet. It's actually about 600 feet perfectly horizontal. The highly

deviate or highly angled hole is a little bit longer than that.

Q. But you said you're going to put a 250-foot cement plug?

A. Correct. Extending from inside the casing out 200 feet. Or whatever is required by the Bureau of Land Management and the state of New Mexico. That's just our preliminary --

Q. That's preliminary at this point, and if Mr. Chaves of the district office or the BLM has another --

A. Correct. If they have other ideas and other things they want us to do, we will certainly obliged. But we have not approached either office at this time.

Q. Okay.

A. The main point there is to have enough cement that extends up in your casing and far out into your open hole that you will be able to make the course change in hard cement. Because it takes a few feet to make your correction. You want enough hard dense cement that we will be able to turn to the northeast and get away from the old open hole.

Q. That was my next question. The cement that's going to be next to the casing in which you are going to be redrilling, will that be of a different grade and a different density than what the rest of the plug will be?

A. It will all be the same. It's all going to be a highly densified cement, very, very hard. You've got to have something pretty hard in order for that bit to bite and make that turn. We will have a double bend -- what they call a double bend sub in there. It's almost -- I don't want to say impossible, but it's very difficult to drill out crooked and get away from the old hole.

Q. How thick is the G5?

A. Approximately -- the good part, what we think is the excellent part of that zone, is approximately 30 feet.

Q. You're going to go -- if I am looking at it on the cross section, you are going to go about 20 feet deeper on your horizontal portion than your other one, your other horizontal?

A. Actually we won't be any deeper. We're just going up dip, up strike. When you've got these beds that are dipping the way they are, just by changing to the northeast it actually comes up to you. So the depth will be approximately the same. To be honest with you, this was so complicated for me to explain to our German friends, I actually built a little shoe box model to show them, and colored in the beds dipping at the proper angle, and then drilled a hole through it, and put a rod through there. I got a bunch of oohs and ahs over that. Finally they could understand because they could look at it and turn it and

look at it upside down and see what I was talking about. When you look at it in two-dimension on a piece of paper, it's difficult. It's a three-dimensional geologic problem.

MR. STOVALL: I was going to ask you if there was a three-dimensional model that explained this thing.

THE WITNESS: I did it with a shoe box basically, and I also did it with a computer.

MR. STOVALL: Is it still in Germany?

THE WITNESS: No, I have the shoe box in Denver. And everybody has got a big kick out of my model. Even the Ph.D. geologist came down and looked at that, kind of laughed, but it obviously was a good visual aide. It makes understanding it so much simpler.

MR. STOVALL: Is this the same BASF that doesn't make products but makes them better? Is that what we're --

THE WITNESS: That's correct.

EXAMINER STOGNER: Fortunately, I understand what's going on here. Kind of spooky. I don't have any questions.

THE WITNESS: I will say that we spent a lot of money on this well, and it was a very expensive mistake. And as a result of that, we're trying to recoup, you know, and try not to write this project off. We have a lot of hope for this area. It's an area that's long been depleted and it's been plugged for some 20-odd years. The tribe is not

generating any revenue from it. We think it's got potential, and we want to go forward with it. And we have already spent considerable amount of money to this point in time, and we are willing to spend more to prove this concept or disprove it, either way. But we don't want to leave this project half done, which is where we're at right now.

EXAMINER STOGNER: Who will be the horizontal drilling contractor this time?

THE WITNESS: The new contractor will be Sperry Sun. Sperry Sun has this integral logging tool, and by using them, plus their measurement while drilling, we will have just one company to talk to rather than mixing directional companies.

EXAMINER STOGNER: Any other questions of this witness? If not, he may be excused.

Mr. Carr, do you have anything further?

MR. CARR: Nothing further, Mr. Stogner.

EXAMINER STOGNER: Since there is nobody else in the room, I guess nobody else has anything further. Case number 10303 will be taken under advisement. Hearing adjourned.

(Whereupon, the hearing was concluded at the approximate hour of 12:00 p.m.)

* * *

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

REPORTER'S CERTIFICATE

I, Susan G. Ptacek, a Certified Court Reporter and Notary Public, do HEREBY CERTIFY that I stenographically reported the proceedings before the Oil Conservation Division, and that the foregoing is a true, complete and accurate transcript of the proceedings of said hearing as appears from my stenographic notes so taken and transcribed under my personal supervision.

I FURTHER CERTIFY that I am not related to nor employed by any of the parties hereto, and have no interest in the outcome thereof.

DATED at Santa Fe, New Mexico, this 7th day of June, 1991.

Susan G. Ptacek

SUSAN G. PTACEK
Certified Court Reporter
Notary Public

My Commission Expires:
December 10, 1993

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10303 heard by me on June 7 1991.

Examiner
Oil Conservation Division