Recd by OCD 4-25-91

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

Cases No. 10211 and 10219

IN THE MATTER OF CASE NUMBER 10211 AND CASE NUMBER 10219, CONSOLIDATED, REGARDING COMPULSORY POOLING IN LEA COUNTY, NEW MEXICO.

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EXAMINER HEARING
BEFORE: JIM MORROW, HEARING EXAMINER

Friday, March 8, 1991
8:40 a.m.
Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on March 8, 1991, at 8:40 a.m., at Morgan Hall, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before: Gail D. Vinson, CCR, Certified Court Reporter Number 297, for the State of New Mexico.

FOR: OIL CONSERVATION DIVISION

BY: GAIL D. VINSON, CCR
Certified Court Reporter
CCR No. 297

I N D E X

March 8, 1991
Examiner Hearing
Cases No.10211 and 10219

I N D E X (Continued)

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 Commission State Land Office Bldg. 310 Old Santa Fe Trail Santa Fe, New Mexico 87501
FOR SANTA FE ENERGY:	HINKLE, COX, EATON, COFFIELD & HENSLEY Attorneys at Law BY: JAMES G. BRUCE, ESQ. 500 Marquette, N.W. Suite 800 Albuquerque, New Mexico 87102
FOR HANLEY PETROLEUM:	KELLAHIN, KELLAHIN & AUBREY Attorneys at Law BY: W. THOMAS KELLAHIN, ESQ. 117 N. Guadalupe Santa Fe, New Mexico 87501
FOR YATES PETROLEUM COMPANY:	CAMPBELL & BLACK, P.A. Attorneys at Law BY: WILLIAM F. CARR, ESQ. 110 N. Guadalupe, Suite 1 P.O. Box 2208 Santa Fe, New Mexico 87504

EXAMINER MORROW: State your appearances.

MR. BRUCE: I am James Bruce of the Hinkle law firm representing the applicant. I have four witnesses to be sworn.

EXAMINER MORROW: Any other appearances?

MR. KELLAHIN: I am Tom Kellahin, of the Santa Fe law firm of Kellahin, Kellahin and Aubrey, appearing on behalf of Hanley Petroleum, Inc. I request that you call the next case on the dockets, which is Hanley's application in Case 10219, and that these two matters be consolidated for purposes of hearing.

EXAMINER MORROW: Is that all right with you?

MR. BRUCE: Yes, sir.

EXAMINER MORROW: Case Number 10211 and Case Number 10219, for compulsory pooling in Lea County, New Mexico.

MR. CARR: May it please the Examiner, I am William F. Carr, of the Campbell & Black law firm. I represent Harvey E. Yates Company in both of these cases. And I do not have a witness.

MR. STOVALL: Mr. Bruce, you said you did have some witnesses?

MR. BRUCE: Perhaps four witnesses, and I'd like to have them all be sworn at this time.

(Mr. Stovall swore all the witnesses present in the conference room.).

MR. BRUCE: Call Mr. Murphy to the stand.

LARRY MURPHY

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

EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence?

A. My name is Larry Murphy and I'm from Midland, Texas.

Q. And who are you employed by?

A. My employer is Santa Fe Energy Resources. I am employed as a landsman.

Q. And what is the relationship of Santa Fe Energy Resources to Santa Fe Energy Operating Partners, L.P.?

A. Basically, this is a partnership that is owned 80 some-odd Santa Fe Energy by Santa Fe Resources. Any further detail from that would have to come from our management in Houston.

Q. And Santa Fe Energy Operating Partners would be the entity that owns a portion of the land that is involved in today's cases; is it not?

A. Yes.

Q. Have you previously testified before the OCD as a landsman?

A. Yes, I have.

Q. And are you familiar with the land matters involved in today's cases?

A. Yes, I am.

Q. Mr. Examiner, I tender the witness as an expert landsman

EXAMINER MORROW: Accept his qualifications.

Q. Mr. Murphy, state briefly what Santa Fe seeks in its case?

A. Santa Fe seeks an order pooling all mineral formations under the west half, northwest quarter of Section 8, Township 18, south, Range 33 east, for all pools or formations based on 80 acres. The unit will be dedicated to Santa Fe's Kachina"8" Fed. Well Number 2, to be located 660 feet from the west line and 1980 feet from the north line.

Q. Will you please refer to Exhibit Number 1 and describe its contents for the Examiner,

and also identify the parties Santa Fe seeks to force pool?

A. Exhibit Number 1 is a land plat showing the proposed unit and well location, outlined in red and well location shown in green. The location is 1980 feet from the north line, 660 feet from the west line, which is a standard under the South Corbin Wolfcamp Pool Rules. The uncommitted interest owner is Hanley Petroleum, Inc., which owns 100 percent of the northwest quarter northwest quarter.

Santa Fe and Heyco jointly own the southwest quarter northwest quarter.

Q. Has Heyco agreed to join in this well?

A. Yes. Heyco has also consented to Santa Fe operating the well.

Q. Okay. Would you please describe your efforts to get Hanley to join in Santa Fe's proposed well? And I would refer you to Exhibit 3 -- skip an exhibit, please.

A. First of all, I'd like to go into the history of Santa Fe's Kachina 8 Fed. Number 1 well, located in the northeast quarter northwest quarter of Section 8.

Santa Fe had been working on this

prospect for a number of months, and in the summer of 1990 I called Hanley's office and asked if they would support the proposed 8 Number 1 well. It was Santa Fe's intention to drill the well as a north one-half northwest quarter laydown. I was told that Hanley was not interested in a farmout, purchase, or any kind of support for for the Kachina 8 Number 1 well.

As a result, Santa Fe reoriented the unit to an east half, northwest quarter standup. The well was spudded on September 29, 1990, and was drilled to the Wolfcamp formation.

Before it was completed, Santa Fe decided to proceed with the 8 Number 2 well, and sent its first letter to Hanley Petroleum on November 12, 1990, requesting joinder or a farmout of Hanley's acreage. Hanley responded by letter dated November 26, 1990, claiming that Santa Fe failed to give Hanley enough information and requesting all logs, reports and Santa Fe's geological interpretations.

As the Division is aware, Hanley subpoenaed certain data, which Santa Fe has supplied to Hanley. We originally objected to producing the data because it was confidential.

Hanley also wanted to pay for Wolfcamp costs only, and not any costs associated with the pools spaces on 40 acres such as Bone Springs. We feel that this request is inappropriate, because the Bone Spring at our location is wet and our geologist will discuss this further.

Under the operating agreement we proposed to Hanley, the west half northwest quarter would be a working interest unit and Hanley would share any production pools spaced on 40 acres. Furthermore, we offered to take a farmout from Hanley only as to the Wolfcamp, but they did not respond to this offer.

Third, Hanley was concerned about its override under a farmout because its lease has a sliding scale royalty. Santa Fe offered to insure Hanley a minimum override of two and a half percent. Finally, Hanley wanted to operate the well and I will discuss this later.

By letter dated December 3, 1990, and December 17, 1990, I responded to Hanley's letter. As I just discussed, we offered to take a farmout only as to the Wolfcamp, offered a minimum override, and stated that we wanted to operate the well due to our experience.

We offered to let Hanley see the logs and reports of the Kachina 8 Number 1 well through November 12, 1990, provided that Hanley agreed to join or farmout. The reason we set this date is because this is the date we decided to drill the proposed Kachina 8 Number 2 well, and Hanley would be given the same data that we used when we decided to drill the Number 2 well.

Hanley sent us a letter dated December 19, 1990, asking for an operating agreement, but essentially rejecting our offers. We point out that we have never received a counteroffer from Hanley.

We sent Hanley our proposed operating agreement, shown as Exhibit 5, which is the standard AAPL 1982 form, by letter dated December 20, 1990. There has been subsequent correspondence, phone calls and a meeting. On February 4, 1991, Hanley proposed an amendment to the operating agreement as to the rights below the base of the Bone Springs formation only.

We feel that we have made a good faith effort to get Hanley to join voluntarily in the well and ask that they be pooled into the well.

Q. Now, Exhibit 3 is various correspondence

between Santa Fe and Hanley; is it not?

A. Yes, it is.

Q. And it includes both Hanley's letters and Santa Fe's letters?

A. Yes, it does.

Q. And one other item on that February 4, 1991, letter, by that letter Santa Fe was informed that Hanley desired to drill the well on its acreage; did it not?

A. Yes, it did.

Q. Does Santa Fe request that it be named operator of this well?

A. Yes. We think that there are several good reasons why Santa Fe's the logical operator of this well.

Q. Referring to Exhibit 2, would you discuss some of those reasons?

A. Santa Fe has substantial experience in this pool having drilled or participated in nine wells within the pool, with three additional wells currently proposed for this year. Santa Fe operates approximately 125 wells in New Mexico, including nine Wolfcamp wells, located in this pool and other pools.

This is Santa Fe's prospect. We own

interest in over 3,000 acres in this area shown on Exhibit 2, and we are the ones who developed the geology and who proposed this well.

Q. By this lease, is that the north half of Section 8 except for Hanley's acreage?

A. Yet, it is. Santa Fe bought this lease in August 1990 and has drilled one well on the lease and plans to drill two more in the near future. Hanley sat on its 40 acre lease for years, until Santa Fe proposed the well. We believe that this should carry some weight because Santa Fe obviously desires to develop its lease.

Q. Referring back to Exhibit 2, the north half of Section 8, exempts forever Hanley's acreage lags it is ownership of that acreage?

A. Santa Fe owns 50 percent and Harvey E. Yates owns 50 percent.

MR. KELLAHIN: What section did you refer to?

MR. BRUCE: Section 8.

Q. And what about the south half of Section 8, Mr. Murphy, does Heyco own interest interest in that acreage?

A. No, they do not.

Q. And what is Santa Fe's interest in the

south half of Section 8 or in the southwest corner of Section 8?

A. Santa Fe owns approximately 19 percent.

Q. Okay. Referring to Exhibit 4, will you just briefly set forth the proposed well costs by Santa Fe?

A. This is Santa Fe's well cost estimate which indicates the dry hole estimate at just over $453,000 with the estimate of a completed well just under $722,000. I'd like to refrain from going into detail on this and leave it to our engineers who have more experience.

Q. Does Santa Fe believe that well costs, if the well is drilled at Santa Fe's location, should be apportioned?

A. No, Our engineer and geologists will discuss this issue further. Our basic position is there is no other objective than the Wolfcamp which supports the drilling of this well. Therefore, we request that Hanley Petroleum bear 50 percent of the total well costs.

Q. And what are your recommendations as to the drilling and supervision rates for Santa Fe's proposed well?

A. It is our recommendation that $6,260 per

month be allowed for a drilling well and $626 per month be allowed for a producing well.

Q. And are these comparable with 1990 Ernst & Young rates?

A. Yes -- to my knowledge.

Q. And are these amounts that you have just recommended in line with drilling and supervision rates for other wells of this type in this area?

A. Yes, they are.

Q. And what penalty do you recommend against Hanley if it goes nonconsent to this well?

A. We're requesting costs plus 200 percent. This is a figure used in operating agreements in New Mexico and our geologists will discuss the reasonableness of this proposed penalty.

Q. And was Hanley Petroleum notified of this case in writing?

A. Yes, they were.

Q. And is a copy of the notice letter submitted as Exhibit Number 6?

A. Yes, it is.

Q. And were Exhibits 1 through 6 one prepared by you or compiled from company records?

A. Yes, they were.

Q. And in in your opinion will the granting

of this application be in the interests of conservation, the prevention of waste, and protection of correlative rights?

A. Yes.

MR. BRUCE: MR. Examiner, at this time I would move the admission of Santa Fe Exhibits 1 through 6

EXAMINER MORROW: Exhibits 1 through 6 are admitted.

(Santa Fe Exhibits 1 through 6 marked for identification.)

EXAMINER MORROW: I have just a question. Besides, I thought it might be appropriate, Mr. Murphy, if you could refer to your Exhibit Number 2. The acreage shaded in yellow is acreage in which Santa Fe Operating Energy Partners has an ownership interest; is that correct?

THE WITNESS: Yes, it is.

EXAMINER MORROW: Do you operate wells in the south half of Section 8.

THE WITNESS: No, we do not.

EXAMINER MORROW: Are there Wolfcamp wells in those--

THE WITNESS: Meridian.

EXAMINER MORROW: And is that -- is the

well spot in the southwest east southwest; is that a Wolfcamp well?

THE WITNESS: Yes, it is.

EXAMINER MORROW: Do you know what acreage is dedicated to that well?

THE WITNESS: No, I do not.

EXAMINER MORROW: Mr. Kellahin?

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Murphy, your comments about the risk factor penalty requested in the pooling orders, the maximum 200 percent, If I understood you correctly, are based upon geologic reasons?

A. Yes.

Q. As you understand it, there are no land reasons to explain the risk factor, it is simply repetition of the conclusions reached by the geologists based upon geologic reason risks?

A. Yes.

Q. I apologize for not having more than one copy of the Ernst & Young 1990 survey, but perhaps we could share it collectively among ourselves. Perhaps we can have the witness identify and mark where he has pulled his overhead costs off of this book and -- to see how they might compare, and then

I'll show it to the Examiner?

EXAMINER MORROW: 1990, you say?

MR. KELLAHIN: Yes, it's the 1990 book.

Q. The overhead rates were $626 a month --

A. Yes.

Q. -- producing well rate and $6,200 a month drill well rate, did I remember that right?

A. $6,260 and $626.

Q. $6,260 and 626. Oh, I forgot the six. I'm going to show you the Ernst & Young book on Page 14, for a identical well in West Texas, and Eastern New Mexico. These Wolfcamp wells appear to me to be within the category of depth from 10,000 feet to 15,000 feet; is that correct?

A. Yes.

Q. And as I read across, it says that the mean monthly drilling well rate for 1990 is $5,184 and then the monthly producing well rate, the mean rate for 1990 for wells at this depth is 485. Let me show you what I'm reading from.

A. Yeah.

Q. Let me show it to the Examiner before you respond, Mr. Murphy.

Mr. Murphy, your proposed overhead rates appear to be in excess of the Ernst & Young

tabulation for 1990 for identical wells at this depth. How do you explain your conclusion that your rates are in line with that survey?

A. Well this is -- these numbers that I was given come from our accounting office that -- who provides the numbers. But if Hanley and OCD believe the rates in Ernst & Young are proper, we'll accept those.

Q. Let me go back to the ownership map and perhaps Number 2 is --

MR. STOVALL: Mr. Kellahin, let me just interrupt you. Do you want to mark it? Is it your intent to submit it so that we can refer to --

MR. KELLAHIN: Perhaps to keep the record straight, we might do that. I will tender that as Hanley Exhibit A. I do that because I've numbered my exhibits already from my presentation and it may confuse the records.

So during the break, Mr. Examiner, I would propose that the Ernst & Young - Murphy would be marked and then submitted as Hanley Exhibit A.

EXAMINER MORROW: Xerox both pages and submit that.

MR. KELLAHIN: Is that all right with you?

MR. BRUCE: That's fine.

MR. STOVALL: I didn't want to lose track of it.

Q. (By Mr. Kellahin) Let me direct your attention to Exhibit Number 2, when we look at Section 8, Mr. Murphy?

A. Yeah.

Q. The display on Exhibit Number 2 shows that with the exception of Hanley's 40 acre diagram in the northwest of the northwest of Section 8, the balance of the north half appears to be the same common federal base lease; is that correct?

A. This is correct.

Q. When we go to the south half of Section 8, has the south half been divided into two additional leases consisting of the southwest quarter and then the southeast quarter?

A. Yes.

Q. Let's deal with the north half?

A. Okay.

Q. Currently in the north half, Santa Fe has drilled the Kachina 8 Number 1 well.

A. This is correct.

Q. And that well, located in unit letter D being the northeast of the northwest -- Unit

letter C of that section?

A. Yes.

Q. The 80-acre spacing units the east half of the northwest quarter?

A. Yes.

Q. When I look at that adjoining spacing unit, the working interest owners will be the Santa Fe Energy Group, if you will, with 50 percent, and the Heyco Company with the balance 50 percent?

A. Yes.

Q. And then the Santa Fe Energy Group is divided among a limited partnership in the operating company in some fashion?

A. The 50 percent interest is owned solely by Santa Fe Energy Operating Partners.

Q. The production then from the Kachina Number 8 is shared equally between Heyco and Santa Fe Energy?

A. This is correct.

Q. When we look at the north half of the northwest corner, the proposed spacing unit in that well, regardless of where it's drilled, if that is the spacing unit, Hanley would have 50 percent of the working interest, Santa Fe energy would have 25 percent, and Heyco would have the last 25

percent?

A. This is correct.

Q. In looking at the application and the dockets for the hearing today in case 10211, you have asked for the forced pooling of not only those oil zones that would be spaced on 80 acres, but zones that would be spaced on 40 acres?

A. No, just on 80 acres.

Q. So there is not an issue before the Examiner about forced pooling any of the shallow rights with regards to Bone Springs or some other shallow oil zone?

A. No.

Q. When we look at the 40 acre tract where you propose to locate the well in the south quarter of that spacing unit?

A. Yes.

Q. All of the shallow rights above the top of the Wolfcamp oil zone would be shared fifty-fifty between Santa Fe and Heyco would they not?

A. Yes, this is correct.

Q. And Hanley would have no interest in those zones if they produced, if the well is located in the south 40?

A. Not under my original proposal.

Q. Okay. Under your original proposal that preceded the forced pooling case, you had discussed with Hanley the formation of a working interest unit that would be larger than the spacing unit that you could obligate under a forced pooling order?

A. This is correct.

Q. Okay. You said that your initial contacts for the Kachina 8 well were with Hanley representatives, discussing with them their interest in participating with Santa Fe in their 40 acre tracts so that arrangements would be made for the Kachina Number 8 well?

A. Yes.

Q. When did you make that contact?

A. That was done in May of 1990.

Q. And with whom did you speak?

A. I'm not able to recall the gentleman's name I spoke to.

Q. You spoke with a man, as opposed to a woman?

A. Yes.

Q. You don't recall who the man was?

A. I vaguely remember Don. I don't know what his last name was.

MR. STOVALL: You're talking about the

Kachina 8. The Kachina 8 is the lease name; is that correct?

MR. KELLAHIN: Kachina 8 is the existing offsetting producing well in the Wolfcamp in units letter Section 8.

MR. STOVALL: Kachina 8 Number 1? Make sure we're talking about the right well and lease.

Q. The proposed Santa Fe well and the south 40 of the north half of the northwest does federal what -- what's the proposed well name?

A. Kachina 8 Number 2.

Q. All right. That's no wonder everybody is confused. Kachina 8 Number 1 is the existing well. For the record, Kachina Number 2 is the one we're talking about in this case.

A. Right.

Q. All right, I'm with you. Did you talk to Mr. Don Robbins? Do you think that's the man you talked to?

A. I'm not sure. I'm not going to be able to answer that.

Q. Did you ever -- did you follow up that conversation with any written document, correspondence or proposal to confirm the telephone conversation?

A. No, I did not.

Q. You just abandoned the suggestion that Hanley should contribute their acreage for the Kachina Number 8 Number 1 well based on that conversation?

A. We were eager do drill the well and were able to stand a well up, proceed it along those lines.

Q. Let me see if I understand now for the lays acreage that Santa Fe has in the north half of Section 8, that is a royalty of one-eighth burden is the base lease royalty an eighth?

A. Yes, it is.

Q. The next sequence of events is that Santa Fe and Heyco spuds the Kachina 8 Number 1 well on September 20th, 1990?

A. Yes.

Q. Am I correct in my recollection that the rig for that well was released on October 30, 1990?

A. I'm not sure about the release date.

Q. Am I correct in recollection that the completion of that well occurred on January 13th of 1991?

A. Yes, I think that is correct.

Q. Do you have an explanation as to why the

rig was released on October 30, 1990, and the well not completed until January 13th?

A. I do not know. You'll have to discuss that with an engineer.

Q. The statement you made earlier about the location of the well.

A. Yes.

Q. And the fact that if it's located in the south 40, your geologist tells you that the shallower zone, principally the Bone Springs, is going to be wet. And based upon that opinion you propose not to allocate the costs of the well if it's located in the south 40?

A. No.

Q. Any other basis for not allocating the costs other than that geologic opinion?

A. No, there's not.

Q. Are you involved as a landsman, Mr. Murphy, with any other aspects of the AFE for this well, or in fact any other well?

A. No, I am not.

Q. Other than distributing it to potential parties to submit it for their approval and discussion?

A. That is correct.

Q. So you would not be able to respond to specific questions about the reasonableness of the AFE?

A. No, I would not.

Q. And how it might compare to the actual costs for the Kachina 8 Number 1 well?

A. No.

Q. In terms of an operating agreement, Mr. Jim Rogers of Hanley and you, I think, have exchanged correspondence and discussions about the model operating agreements?

A. Yes.

Q. Can I conclude at this point that both you and Mr. Rogers have come to an agreement on the contents of the operating agreement if one is executed, or is there still a difference of opinion?

A. I think there is still a difference of an opinion, but I think there's no problem working that out.

Q. Am I correct in understanding your position is at this point, because the parties have obviously different choices on well locations for this well, they have differences on who is the operator, they have differences in the cost of the well, that we need the examiner's assistance in

order to determine how to proceed?

A. Our engineer will discuss this later. But basically, there's no difference in cost.

Q. Okay. Do you believe that there is an opportunity, with additional negotiations, to reach a settlement between the parties with regard to this well, or are we going to need the Examiner to decide some of these issues?

A. I think probably the Examiner will have to decide some of these issues.

Q. Is it your responsibility to issue press releases on behalf of your company with regards to the Kachina 8 Number 1 well?

A. No, it is not.

Q. Did you know that there was a press release --

A. Yes, I did.

Q. -- on that well?

A. Yes, I did.

Q. But that was not something you issued?

A. No, it was not.

Q. Is that something you can talk about or respond to?

A. Yes it comes from our Houston management.

MR. KELLAHIN: May I take a moment, Mr. Examiner.

EXAMINER MORROW: If it's all right, while you're doing that I'll ask a question to clear up a question Mr. Kellahin asked.

Did you say that Hanley and Santa Fe are essentially in agreement on what should be contained in the operating agreement or can come to an agreement?

THE WITNESS: Yes, I don't think there will be any problem with that.

EXAMINER MORROW: And on the well costs, also?

THE WITNESS: Well, the well costs are basically the same. RFE includes items that theirs does not, and our engineer will go into detail on those.

EXAMINER MORROW: Mr. Kellahin?

Q. (By Mr. Kellahin) Mr. Murphy, let me show you what I've had marked as Hanley Proposed Exhibit B and ask if this is the press release with which you are familiar?

A. Yes, it is.

Q. Is it customary for your company to issue press releases of this type on Wolfcamp oil

wells?

A. To my knowledge on probably any well that we drill, that we have success on, we're going to have a press release on it.

Q. Let me ask you about your correspondence between you and Hanley. I'm interested in your letter of December 17th, Mr. Murphy.

A. Okay.

Q. What was the purpose of the December 17th letter. Without reading it in detail, Mr. Murphy, what was the idea that you were trying to convey to Mr. Rogers of Hanley?

A. Basically trying to set up something to allow them to join in the well, set up a time where they could refer the data that they requested for a commitment to join or farm out.

Q. If that was your objective with the letter, why had Santa Fe Energy asked your attorney to already file a forced pooling application that is submitted along with this letter that was dated December 11th, some six days before you signed the letter continuing discussions on participation in the well?

A. Just trying to cover all my bases.

Q. Well why would you propose to start

forced pooling action prior to exausting good faith efforts to get Hanley to participate in the well?

A. Because my management had put time frames on us to get wells drilled.

Q. What is that time frame, Mr. Murphy?

A. Well, it depends on which well it is.

Q. Is there a set procedure for you to follow in cases like this?

A. No there's not.

Q. When you send out the initial proposal to any parties like Hanley offering them to participate in a well, how long a time do you allow to expire before you file a forced pooling case?

A. It's case by case, each one is different.

Q. Did you make the judgment to decide when to file this forced pooling case against Hanley?

A. Yes, I did. I felt in my letters and their responses that it was going to be difficult to reach an arrangement, and in my experience that as soon as you have a forced pooling orders on the docket, it's easier to come to terms, quicker on both sides.

Q. If you'll look at the sequence of correspondence, you have proposed the well and soon

thereafter Hanley is asking you to provide them some data by which they could make an informed choice on this well.

A. Yes.

Q. And in response to that you seek a forced pooling order against them?

A. Yes.

MR. KELLAHIN: No further questions.

MR. BRUCE: Can I ask some follow-up questions?

EXAMINATION

BY MR. BRUCE:

Q. Mr. Murphy, Mr. Kellahin asked you if there were some issues you thought the Examiner might have to decide?

A. Yes.

Q. From what -- from your experience, is it your opinion that Santa Fe and Heyco on one side and Hanley on the other are very far apart on the issue of well location?

A. Yes, we are.

Q. And are you also pretty far apart on who should operate the well?

A. Yes, we are.

Q. And that's really separate from the

operating agreement, or the terms of that operating agreement?

A. Right.

Q. Now, referring back to your December 17, 1990 letter, there had already been several letters between the parties, had there not.

A. Yes, there had been.

Q. And is it your policy to continue to negotiate even after a forced pooling application is filed?

A. Yes, it is.

Q. Of course, since this letter three months have gone by, haven't they?

A. That's correct.

Q. And the parties have still not been able to reach terms, have they?

A. They have not.

Q. Would Santa Fe prefer to have Hanley join in its well?

A. Yes, we would.

Q. And not get forced pooling?

A. Yes.

Q. Now I believe Mr. Rogers' letter of November 26th did request certain well data; did he not?

A. Yes, he did.
Q. Did Santa Fe consider that data confidential?
A. Yes. We thought that information was confidential, and the only way we would give it up is for a commitment in the well.
Q. And really you thought you were following past OCD practice by withholding that data?
MR. KELLAHIN: Objection, he's leading the witness.
A. Yes.
Q. Well, Mr. Murphy,?
MR. MORROW: Would you rephrase your question?
MR. BRUCE: Sure, Mr. Examiner.
Q. In your opinion, what was the past practice of the division regarding turn over of well data?
A. To my understanding and my experience, the well data was never -- when it was subpoenaed was never turned over.
Q. Never required to be turned over?
A. Yes.
Q. And furthermore, Mr. Murphy, did

Santa Fe -- Santa Fe and Heyco took all the risk on the 8 Number 1 well; didn't they?

MR. KELLAHIN: Objection. Mr. Bruce is testifying for his clients. The question is leading.

EXAMINER MORROW: Try again, Mr. Bruce.

MR. BRUCE: Oh, sure.

Q. Who paid for the 8 Number 1 well?

A. Santa Fe Energy Operating Partners and Harvey E. Yates Company.

Q. Half and half?

A. Fifty percent each.

Q. So they took all the risk on that?

A. Yes, we did.

MR. BRUCE: Nothing further, Mr. Examiner.

MR. KELLAHIN: Couple of follow-up questions, based on Mr. Bruce's cross

EXAMINATION

BY MR. KELLAHIN:

Q. Let me understand the operating agreement position of your company, Mr. Murphy. Have you agreed to accept the operating agreement that Mr. Rogers, on behalf of Hanley, has submitted to Santa Fe?

A. They have not submitted to an operating agreement. They have submitted changes to the one I proposed to them.

Q. Are those changes acceptable to Santa Fe?

A. Some of them are; some of them are not.

Q. So we don't have an agreement on the operating?

A. That can be worked out.

Q. If the well is drilled in the north 40 acre tract, will Santa Fe participate in the well with Hanley?

A. Yes, we will.

Q. If the Division Examiner decides that Hanley will be the operator, will Santa Fe participate in the well?

A. Yes, we will, if the costs are apportioned out.

Q. You want the costs apportioned out if the well is located in the north 40?

A. Yes.

Q. But not apportioned out if it's in the south 40?

A. That is correct.

Q. Did you have any involvement in the

decision about the location of the Kachina 8 Number 1 well?

A. No, I have no --

Q. Are you aware that it's 500 feet from the common boundary with the east side of the spacing units that would be dedicated to the Kachina 8 Number 2 well?

A. No, I was not.

MR. KELLAHIN: Thank you, Mr. Examiner.

EXAMINER MORROW: Mr. Murphy, you talked about your experiences in the area. Would you point out the Wolfcamp wells that have been drilled and are operated by Santa Fe in this area?

THE WITNESS: We have the Kachina 8 Number 1, of course. And we are currently drilling the Kachina 5 Number 1. It's located in the -- lets see, excuse me for a moment. It's in the south west, southeast quarter of Section 5.

EXAMINER MORROW: All right. I believe I see it spotted right there.

THE WITNESS: Yes, sir. Our geologist can give you -- and our engineer can tell you more about the wells we do operate at the Wolfcamp than I can.

EXAMINER MORROW: Do you know how many

there are?

THE WITNESS: We operate nine total.

EXAMINER MORROW: In this area?

THE WITNESS: In this area I believe there's two, or maybe three.

EXAMINER MORROW: Two or three plus the one drilling?

THE WITNESS: Yes.

EXAMINER MORROW: All right.

MR. STOVALL: I think you asked my question. That's okay.

EXAMINER MORROW: All right. The witness may be excused.

Call Mr. Thoma to the stand.

(A recess was taken at 9:20 a.m.)

JOHN L. THOMA,

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

EXAMINATION

BY MR. BRUCE:

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

A. My name is John Thoma.

Q. And who do you work for and where, in what capacity?

A. I am a senior geologist for Santa Fe Energy Resources.

Q. And have you previously testified before the OCD as an expert geologist?

A. Yes, I have.

Q. And your credentials were accepted as a matter of record?

A. Yes, they were.

Q. And are you familiar with the geology involved in both the Santa Fe and Hanley cases?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I tender the witness as an expert.

MR. MORROW: We accept his qualifications.

Q. Mr. Thoma, would you please refer to Santa Fe Exhibit Number 7 and describe the geological basis for your Wolfcamp well location.

Q. Exhibit Number 7 is a montage of several prospective intervals within the lower Wolfcamp formation, in the area of interest. The cross-section on the bottom of the exhibit, cross-section B to B prime traverses the prospect area from the south, on the west end of the section at Point B, to the east, at B prime.

It runs through -- it starts in the south and Royalty West Corbin Federal Number 9, which is located in the southwest, southwest of Section 8, runs through the proposed Santa Fe Energy location, the Kachina 8 Number 2 in the southwest of the northwest of Section 8; continues into the Santa Fe Energy operated Kachina 8 Number 1, in the northeast of the northwest of Section 8; and then terminates in the Oxi Federal AG Number 2 and in southwest -- I'm sorry, southeast of the northeast of Section 8.

On that cross-section I've highlighted in brown the bounding marker beds for each of five prospective carbonate intervals. They are labeled from top to bottom AC, AD, AE, AF, and AG. Those would be the prospective carbonate intervals.

The isopaks -- or rather the maps on the right-hand side of the montage are isopaks, clean carbonate isopaks of carbonates in three of the five intervals. In the prospect area I believe that there will be three prospective carbonates, the AE, the AF, and the AG.

And that's based primarily on what we're seeing developed in the Kachina 8 Number 1, as well as what we have seen developed immediately south of

the area in the West Corbin Number 9, and in other wells on to the south of that.

The clean carbonate map utility utilizes a gamma ray cutoff of 40 API units. The intervals that are mapped, the thicknesses mapped are shown in blue on the cross-section. That blue is the carbonate thickness which is less than 40 API gamma ray units.

You can see from looking at the three isopak maps that the overall depositional trends of the carbonates, the productive carbonates in the area is from the north, northeast, to the south, southwest.

Each of these carbonate units were deposited, we believe, Santa Fe believes, as carbonate detritis shed from the Wolfcamp shelf edge to the north. The production that develops within these carbonate lenses is highlighted on each of the isopak maps.

For example, looking at the map in the upper right-hand corner the AG carbonate -- the producing wells from this carbonate are shaded green. The other wells, which have thicknesses of the AG present, may or may not have been tested in the zone to date.

And the same is generally true of the AF map and the AE map, the producing wells from that interval are shown. You can see that there's a wide scatter of production from each of these zones in the area immediately south of the prospect location, the 8 Number 2.

Further, it appears that there is a general relationship between carbonate thickness and the probabliity of encountering producible reservoir conditions in the Wolfcamp. The Wolfcamp reservoir in this area is notoriously unpredictable in the development of reservoir quality within clean carbonate lenses.

In the Santa Fe Kachina well, for example, we encountered a large thickness of clean carbonate in the AF zone. And if you'll look at the two logs on the section, I've got a porosity log on the left and a recidivity log on the right. And you can see that there is very good porosity developed.

I would define good porosity as anything greater than 4 percent. We have up to 10, 12 percent in this well. And we've probably got, if you use a 4 percent cutoff, upwards of 50 to 60 feet of matrix, good matrix porosity.

If you move directly south into the south land royalty well you can see that you have very thick, clean carbonate section, but very little porosity developed. You can go ahead and map porosity, which I have done in the area, and it generally follows these depositional thicks -- the carbonate thicks, but not in all cases.

So whether you use an iso porosity map or a clean carbonate map, I think either one will -- is useful as a prospecting tool and useful in high grading locations from one location to another. I've chosen to use a clean carbonate map.

And you can see that the Kachina well, the 8-1, is located right along the axis of a fairly well developed carbonate thick trend in each of the three interval maps.

You can also see that the location, the proposed location, the 8 Number 2, is located generally along depositional strike, with the Kachina 8 Number 1. And so I'm anticipating that we will encounter at least the same clean carbonates conditions, and hopefully the same degree of porosity development that we've seen in each of these zones.

The Haily location on the other hand in

the northwest of the northwest quarter of Section 8 is clearly moving towards the depositional edge of these carbonate deposits. And so I feel that in the Wolfcamp you are increasing your risk, statistically increasing your risk, by moving towards the edge of the lobe at the Hanley location.

And I feel that the better of the two locations -- the lower risk of the two locations for the Wolfcamp would be in the southwest of the northwest of Section 8 where Santa Fe has located the well.

Q. Why don't you move on to Exhibit 8 and discuss the Bone Spring in the area of interest?

A. Okay. In the Bone Springs I've mapped what we believe is the primary commercial target in the prospect area. And there are two dolomites developed in the first Bone Spring carbonate. I've labeled them here as the Sniper dolomite and the Young deep dolomite on the cross-sections. The cross-section on this montage A to A prime starts over in Young north field at a Santa Fe operated producing location, the Sharpshooter Number 2, State Number 1.

That well was completed in -- it was

completed in October of 1989, and is currently producing at top allowable Bone Spring rates which is 234 barrels of oil a day from the Sniper zone, with no water.

Moving east toward the prospect area, we move into an Meridian operated well, the Soutland Royalty West Corbin Federal Number 9 -- 19, excuse me. Santa Fe Energy has a working interest in this well. Both the Sniper dolomite and the Young deep dolomite is present in this well. There is a clearly defined oil/water contact in the West Corbin Federal Number 19.

If you'll look at the two logs again on a cross-section, the log on the left is a porosity log, the log on the right is a resistivity log. And the oil/water contact is clearly defined by the transition from higher resistivity, two or three hundred in this area upwards to 500 dolms dropping down to less than 100 dolms for the balance of the reservoir.

In fact, the well was tested across that oil/water contact, as the perforations are shown, and the well was completed producing a fairly large amount of water. It was completed producing 54 barrels of oil, 276 barrels of water per day.

And it has remained at about those rates since completion.

Continuing west into the Southland Royalty West Corbin Federal Number 7, again there is a very well developed dolomite, porous dolomite development, in both the Sniper and the Young deep zone. In the Sniper it was both drill stamp tested and production tested, and it was proven to be wet.

From both DST and -- actually, the DST was sort of encouraging. They did recover some gas to surface and a little bit of oil. They went in, perforated it and recovered -- produced the -- a little while during testing, we were recovering rates of 9 barrels of oil and 120 barrels of water a day.

You can see that well is proximal to the projected oil/water contact as defined in the West Corbin Federal 19.

I might point out if you look, as we have, at a number of these wells across this boundary on the structure map, you can see the oil/water contacts, and many of these wells over here as well. And, in fact, the wells along there that have been completed from the Sniper zone have

produced a fairly large amount of water with the oil. And, in fact, some of them have gone entirely to water at this point.

Moving through the proposed location, the Kachina 8 Federal Number 2, based on the structure mapping, and the structure mapping utilizes a constant rate of dip as established by a number of wells in the area. And that dip is -- rather the oil/water contact established along that rate of dip places the 8 Number 2 location well below that projected oil/water contact.

The Kachina 8 Federal Number 1 came in high to our 8 Number 2 location and does have some oil column, apparently, although it's untested to date. But based on shows and resistivity, I believe that that probably is productive. It came in high, but I believe the 8 Number 2 will be down dip.

It's clear also from looking at this that the Hanley location will in fact be in the oil pool. If they develop proper reservoir conditions, which I believe they have a reasonably good chance of doing, I believe they will have an oil column in the Sniper dolomite.

And then moving on off to the west -- or east, excuse me again -- in looking at this Oxi

Federal well. Again, the Sniper zone, while untested, is below the oil/water contact. The Young deep zone was tested, and gave up large amounts of water, 4,301 feet to be exact.

The Young deep zone you can see is wet all the way across the prospect area, will likely be low at both locations and wet -- both the Hanley and the Kachina 8 2 location. And again that water leg is not only demonstrated from resistivity but the oil/water contacts has been penetrated in several wells and the Young north field notably in the Sharpshooter State to Number 1, which I previously discussed.

Q. So, Mr. Thoma, regarding Santa Fe's proposed location for the Kachina 8 Number 2, what is your opinion regarding any requests there may be to apportion well costs at that location?

A. Because of the fact that we don't feel that there is any potential to be had in the primary objective in this area in the Bone Spring, the carbonates, the Sniper and Young deep carbonate, we feel that costs should not be apportioned in the 8 Number 2.

Q. Alternatively, what is your opinion regarding the well if it's drilled at Hanley's

proposed location?

A. The well drilled at Hanley's location, if we have no right in the Bone Spring, which we currently do not have, and drill the well at drill location, I feel costs should be apportioned because -- costs should be apportioned to the base of the Bone Spring, that is -- because they clearly are within the projected oil pool for the Sniper dolomite.

Q. And what penalty do you recommend against Hanley, if it goes nonconsent and Santa Fe's application is granted?

A. I request costs plus 200 percent.

Q. And what is that based on?

A. That is based on primarily the geologic risk associated with the Wolfcamp.

Q. And are there any examples of that risk in looking at your Wolfcamp map?

A. Yes. If you'll look at this production map located at the upper left-hand corner of the montage, I've labeled or color coded all Wolfcamp producers a dark green. It's evident from looking at this production map, closely, that the producability of the Wolfcamp varies greatly from one location to the next, for the very reason that I

cited earlier, of the erratic developments of porosity within the clean carbonate limits.

An example of this would be looking at two wells, one of them located in the northwest of the northeast of Section 18, that well was drilled by Meridian. Santa Fe has a working interest in the well, participated in the well. To date -- it was completed in June of '89 -- to date it has produced 60,000 barrels of oil and our engineers feel that it will likely come in the 150,000 barrel range.

The direct north offset to that well, the West Corbin Number 16 located in the south, southwest of the -- I'm sorry, the -- yes, the southwest of the southeast, that well is essentially a Wolfcamp dry hole. It is right now serving as a disposal well for water in the field. We penetrated fairly large thicknesses of clean carbonate in the AF zone as well as in the AG zone. However neither zone has porosity developed.

And as a result, the well during testing made a thousand barrels of oil, but was subsequently plugged back because of noncommercial production from the Wolfcamp.

And there are a number of examples around the field like this. So the risk is not only

geologic, but there is considerable reserve risk because of the geology.

Q. In your opinion is the granting of Santa Fe's application in the interests of conservation and the prevention of waste?

A. Yes.

Q. And were Exhibits 7 and 8 prepared by you or under your direction?

A. Yes, they were.

MR. BRUCE: Mr. Examiner, I move the admission of Santa Fe Exhibits 7 and 8.

EXAMINER MORROW: Exhibits 7 and 8 are admitted

(Santa Fe Exhibits 7 and 8 marked for identification.)

MR. KELLAHIN: Mr. Carr, do you have questions?

MR. CARR: I have no questions

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Thoma, let me discuss with you the Bone Springs analysis and then we'll come back to Wolfcamp, if that's all right?

A. Sure.

Q. Looking at the structure map which you

displayed on Exhibit Number 8, what is the structural difference between the Hanley location and the Kachina 8 Number 2 location in that 80 acre spacing unit?

A. The Hanley -- the contour interval on this map is 25 feet. The dark lines are -- represent 100 foot increments. The location of the Hanley well would be approximately at 4560, so I'd say a minus 4560. The Santa Fe location is projected at 4660, minus 4660.

Q. Hanley has approximately 100 foot structural advantage then in its location in the north 40 versus the Santa Fe location in the south 40?

A. That's correct.

Q. The orientation of the structure in the Bone Springs, does that follow the reef front that was deposited for the Bone Springs so that the face of that reef front is generally oriented east west? Is that how I read your structure map?

A. The structure -- I think you're stepping beyond what you can interpret from the structure map. The structure map does not necessarily have to reflect dip along the reef front. We're looking at a depositional setting at the toll of the reef front

which does not necessarily have to directly align itself with the reef front.

I'm not really quite sure, Tom, what you're -- the structural orientation is almost precisely east-west -- on this map.

Q. On this map in the structure, on the Bone Springs?

A. Yes. That's again based on the control.

Q. You're satisfied that you have adequate control in the Bone Springs to make decision about the orientation of the structure for the Bone Springs?

A. Yeah. And I've used very reasonable contouring methods to contour this structure. You can see there are no large breaks or anomalies in the rate of dip across the area. And I believe that -- you know, based on what you're saying over to the west, in Young north, there is a fairly constant rate of dip established through this interval.

So I'm not just -- you know, I'm using the control over here, but I'm also looking at this area and saying are there anomalies? Because certainly if there was a way to -- a reason to bring a high through here, I would have been optimistic and brought a high through here.

Q. And that's what I'm asking you, the degree of confidence with regards to the structural orientation as it applies to the Section 8 area?

A. Right. I have very good confidence that it's a reasonable and accurate interpretation.

Q. Am I correct in understanding that for the Bone Springs you would anticipate that the carbonate, as mapped on the isopak would be perpendicular to the structural line you've shown on the structure so that when -- so that when you map the isopak, you're going to see it perpendicular to the axis of the structure on Section 8?

A. Repeat that for me?

Q. When I look at the isopak and compare it to the structure map, it looks like on the isopak that the areas of greatest thickness on the dolomite mapped on the isopak are perpendicular to the structure?

A. That's correct. Keep in mind that the structure you're looking at is the structure at the top of the carbonate and not the structure at the base of the carbonate. The structure at the base of the carbonate may be different, because you're looking at basically sedements that are shed off the reef and they're going to deposit themselves out of

suspension in areas where they will flow to down the slope.

So typically, if you mapped the base of this carbonate, there may be, in fact, a low here -- well, I shouldn't point to that map. A low here (indicating) which would have caused the accumulation of these carbonates.

To answer your question, I'm not sure what you're asking me. You're really looking at the map and stating essentially what the map is showing. Yes, at the top the dip on these carbonates is perpendicular to the dip on -- to the deposit.

Q. When we move to the Wolfcamp -- you've mapped the top of the structure of the Wolfcamp?

A. No, the structure map is at the top of the AF.

Q. The top of the AF is the basis for the control of the structure map that you've shown?

A. That's correct.

Q. Would the structure be different if you had mapped the base of the Wolfcamp?

A. It probably would be different. It would show -- it would be somewhat different, Tom. I honestly couldn't tell you to what degree. I

mean, I've done some base of Wolfcamp mapping in the area and you see there some area lows similar to what you're seeing in the Bone Spring at the base of the carbonate. You're seeing low areas which are, I assume, focusing the deposition of the carbonate. The sediments are running towards that low and being dropped into it.

But, again, one thing I might point out between these two intervals is that in the Bone Spring you are sitting right at the toe of the reef, the slope. In the Wolfcamp I believe you are way out in front of the reef front. You're at -- basically, if you were to look at a cross-section through either the Bone Spring or the Wolfcamp reef fronts, the Bone Spring reef front would come down and right at the very base you would have the carbonate deposited debris.

The Wolfcamp debris -- and your slope is fairly steep. As you move further away from the edge of that shelf, that reef front, that slope flattens out dramatically.

Q. Are you speaking of Bone Springs?

A. I'm speaking of both. It's the same general structure of both.

So the structure you see here and the

relationship between the sediments that are deposited in these intervals, and the resulting structural configuration, may be different than what you see in the Bone Spring because you are on a flatter -- the sediments were deposited on a flatter surface.

Q. You have taken the position -- or made the geologic judgment to separate out the Wolfcamp into various zones, AF, AE, AG?

A. Right, right.

Q. Did you prepare a gross map, if you will, on all the clean carbonate in the Wolfcamp to see what that isopak would look like?

A. I did early on. If you'll look at these three maps and add them together, they would look like these three maps. Because there's not a lot of displacement of the thicks between the zones. The thicks are stacking, more or less.

Q. In order to use the isopak as a useful tool to find Wolfcamp oil, am I correct in understanding that the object is to penetrate as many of these Wolfcamp zones that have the greatest thickness?

A. That's correct. That's correct.

Q. When we look at all your isopak maps,

one of the control points is the Kachina 8 Number 1 well?

A. Correct.

Q. On the AG map you show that as having 31 feet of clean carbonate?

A. That's correct.

Q. And that was the perforated interval in that well bore?

A. I show -- yes. I mean this is the well bore here (indicating) and the perforation is actually extended a little bit below where we had carbonate.

Q. Let me show you what we've introduced as Hanley exhibits -- being, Mr. Thoma, this is that press release from your company summarizing the information on that well. It says the Bone Springs formation also appears to be oil bearing?

A. Right.

Q. Demonstrate that for us on your log for the Kachina 8 Number 1 well. It's shown in the green shadings then on Exhibit Number 8?

A. That's correct (indicating).

Q. Did you find in that well the presence of water and -- or the apparent presence of water in any of the Wolfcamp?

A. We have -- we have not tested either of the other two prospective Wolfcamp zones. I would -- based on log analysis, I would anticipate this zone to have water in it.

Q. That would be the middle zone?

A. I'm sorry, the AF zone, to have water in it -- a mixture of water and hydrocarbons. The AE zone probably will be mostly hydrocarbon bearing, very little water, based on the log analysis.

Q. When we look at the AG zone, the lower zone that was perforated, did that produce water?

A. No, it did not. Very little.

Q. When we look at your structure map in the Wolfcamp what is the difference in structure between the Hanley location and Santa Fe's proposed location for the Kachina 8 Number 1?

A. Approximately 45 feet.

Q. Is the occurrence of water a problem for operators that are producing wells in the Wolfcamp?

A. In this particular field area, based on our experience, we've participated in, I believe, now up to 9 -- well, 10 wells. And I've looked at a number of the other producers in here. Water is not -- not generally a significant problem. Almost every Wolfcamp zone will produce conate waters, some

conate water. It is a solution gas-derived reservoir in the lower Wolfcamp. And water encroachment to date has not been a problem.

Q. When you look at the structure map on the Wolfcamp displays and find the orientation of that structure, and then find the orientation, the general orientation trends for all the isopaks, it does not appear that you've oriented the isopaks so that they're perpendicular to the plane of the structure. Is that a correct observation of the display?

A. It's a correct observation. But I'm not orienting these (indicating) because of this (indicating). This map is a result of the data you see here and the control. I am not using the isopak to control what the structure should look like. And conversely, I'm not using the structure at the top of this carbonate to control what the geometry of any of these deposits should look like.

Q. Am I correct in understanding, though, that the geometry of the deposit generally should be perpendicular to the plane of the structure?

A. In the Wolfcamp that's not necessarily -- that's not necessarily true. It does not have to be.

Q. So it doesn't bother you that in mapping the contour lines for the isopak that those -- orientation of the isopaks is not perpendicular to the structure?

A. No. No.

Q. Let's look at the AG isopak. When we look immediately to the west on the zero line -- immediately to the west of either of Santa Fe or the Hanley location and find the zero contour line?

A. Right.

Q. The next well out to the west is not deep enough to provide data for control point for the isopak; is it?

A. Which well are you talking about?

Q. It says NDE. I presume that's "not deep enough"?

A. That's correct.

Q. What is the basis, then, of drawing the zero line as you have put it on that display?

A. The overall rate of thinning and thickening that you see between wells in the area to the south, and then on to the south of that in South Corbin -- and I've got strike, depositional strike, generally established here. We've got the Kachina well, the 31 feet, and if you go directly southeast

from the -- or southwest excuse me, from the Kachina Number 1 to the West Corbin Number 16 in the southwest of the southeast, and 7, you have 35 feet.

So those two wells are about on depositional strike with one another. And because you have other thicker wells east of that, the West Corbin Number 12 in the northwest of the northeast, is thicker.

So I believe the thick axis is to the east of the West Corbin 16 in section 17, and the Kachina Number 1 in Section 8.

Q. The thickest depositional axis then runs northeast to southwest on this display?

A. That's correct.

Q. When we look at the well spot here for the Santa Fe Kachina 5 Number 1 well --

A. That's correct.

Q. -- in the southwest of the southeast of Number 5?

A. That's correct.

Q. Do you have any logs on that well to help you with your interpretation at this point?

A. No, Tom.

Q. What's the status of the well?

A. It's currently drilling.

Q. There is another location in the south half of Section 8, in the northeast of the southwest; is that a drilling location?

A. Yes. That well -- yes, that well was logged last week.

Q. Have you integrated the logs into your display?

A. They have not. They have not been -- I didn't have time to redo this display.

Q. So you don't know --

A. But I can tell you that they do confirm this interpretation.

Q. Okay, so you have looked at the logs enough to satisfy yourself that the information from that well -- those well logs is consist with your interpretation on Exhibit Number 7?

A. That's correct.

Q. When we look in Section 8 over in the southeast of the northeast quarter --

A. Yes.

Q. -- it is the first well on your B, B prime cross-section?

A. It's at Point B prime.

Q. It's at Point B prime? It shows on the

AG isopak to have -- what's that number 30 feet?

A. I believe so.

Q. Thirty feet of net clean carbonate? That was a dry hole in that zone wasn't there?

A. They plugged it. Whether or not it's a dry hole is very questionable. If you look at the drill stem test that was run over this interval, they recovered -- the 651 feet of slightly oil and gas-cut mud in the sample chamber, which is very significant in recovering 1300 cubic feet of oil, 50 cubic feet of mud and 4.7 cubic feet of gas. Their shut-in pressure-- initial shut-in pressure was 5261. Their final shut-in pressure was 5236. Very, very little drawn down.

We haven't done an analysis of the draw down but I'm very encouraged by the recovery we got from that test. And I'm not sure that that zone should be -- is a dry zone.

Q. Despite your assessment though, the operator, based upon that drill stem test chose not to complete the well net zone?

A. Yes, that's correct. That's correct.

Q. How is the AG isopak useful to us to find oil if we're looking for areas of greatest net clean thickest carbonate, and I find an area that's

got 30 feet, and yet it's at a location where you drill stem test the well and don't complete it?

A. Well, that's -- that's one of the risks of the Wolfcamp. You know, I'm not a brain surgeon. What I can tell you is that if you drill outside of where the AG carbonate is present, you for sure have a dry hole. All right?

So the first prerequisites of finding production in the AG zone is to be in the carbonate.

Q. Now --

A. The second prerequisite is to have reservoir conditions. One of the dominating reservoir conditions controling reservoir conditions in the AG is fractures, not porosity. One of the controlling factors in the AG zone, in determining producability of the AG zone, is not matrix porosity but fracture porosity.

Meridian, who has drilled probably upwards of 40 wells south of here -- as I stated we've been in 25 percent of those wells with them -- has utilized many different techniques for determining whether or not there is fracturing present in the AG zone, including log analysis, and a number of other techniques.

And as yet they have not been able to find a successful technique in predicting where the fractures occur, or even determining whether or not they have them when they drill the well. And we have not, either.

However, if you don't have the carbonate, you're not going to have product. So you've got -- the first prerequisite, you've got to have this. And the second is extremely hard to determine.

Q. Both locations meet the first criteria of having carbonate; do they not?

A. They both meet the criteria of having carbonate. However, your risk of encountering reservoir conditions within the carbonate is greater at the proposed Hanley location than it is at the proposed Santa Fe location because of the difference in thickness -- in the carbonate thickness.

Q. To understand the display you have circled in green -- or shaded in green, those wells that have penetrated the AG zone of the Wolfcamp and have been tested in that zone and produce oil?

A. That's correct.

Q. Can I distinguish or note from this display which of those wells have been tested in that zone and not shown to be productive?

A. From this display you cannot.

Q. Do you know within the area above the zero contour line on the AG display how many of those are dry holes versus producers?

A. From the AG?

Q. Yes, sir.

A. No, because as I stated a moment ago, you cannot determine whether or not you have a producer from a log analysis of the AG. The only way you know if you have a producer in the AG, if you've got the carbonate is by testing it. Not necessarily by DSTing it, as we've seen up here in the Oxi well -- although if I had that DST, I would have run pipe on it. I would have recommended running pipe.

But straight from log analysis you cannot determine.

Q. When we look at the AG isopak and look at the thickest part, if you will, or portion of the pod in -- I lost track of my sections here -- Section 9. In section 9, there is a 50 foot contour line that shows the greatest thickness on the isopak. What is your control point for that thickness?

A. There is no control, other than it does

develop to that thickness in the area and the well in Section 9, in the northwest of the northeast reaching 42 feet, suggests that there is a fairly good likelihood that it may thicken a little bit thicker or thicken a little bit more.

Q. When we look at the northeast, northeast of Section 8, the zero contour line plunges southwardly into Section 8; what's the basis for doing that?

A. Okay. The basis is the thin well that we have down in Section 18 in the south, in the southeast of the northeast, which is very thin, five feet thick. That is the reason for bisecting that lobe.

Q. When we look in the southwest of the southeast of Section 8 and find the well shaded in green, that's got 21 feet in it, you see that one?

A. Correct.

Q. Did that well produce out of that zone?

A. I believe it did, Tom. I honestly can't tell you how much. That well is completed. And Meridian typically begins at the bottom of the Wolfcamp zone and perforates clean carbonate from the bottom up until they get a commercial producer.

In that well they started in the AG, I

believe they had noncommercial rates, some were in the range of 20 to 30 barrels a day. They came up and they tested AF, AE. And they added maybe small increments of oil.

They got up to the AC, and they made -- they had a bridge plug set -- I recall now. I just remembered the log. They do have a bridge plug set. I'm sorry, Tom, they do have a bridge plug set in the lower Wolfcamp shale. And they are producing -- they tested it, but they're producing from AC, predominantly from the AC zone.

Q. Let me show you what I've marked as Hanley Exhibit C, and ask you if you can identify this?

A. It's the completion report, completion reports on the Kachina 8 Number 1 well.

Q. If you'll turn it over on the back side, it talks about, in Section 37 of the summary of porous zones, find for us the Wolfcamp zones that relate to the information on the Wolfcamp entries for the C108 --

A. The--

Q. I'm sorry, the C104?

MR. STOVALL: 105.

MR. KELLAHIN: 105. Completion report?

A. Okay, 306 TO 350 would be the AG.

Q. Let me write that down. The 30 --

A. 11306 to 11350.

Q. -- is the last entry, and that will be the AG?

A. That's correct.

Q. All right, sir.

A. The next entry, next shallower entry from 11150 to 246 is the AF.

The next entry from 10972 to 11,026 would be the AE.

Q. We're looking at the structure map on the Wolfcamp Exhibit Number 7. Describe for us the structural position of the proposed Hanley location to the structural position of the Kachina 8 Number 1 well?

A. I have already discussed that, Tom.

Q. Well, answer the question. What is the footage relationship between the two?

A. We're 50 feet high. Are you -- the Hanley location is 50 feet high to the proposed -- to the proposed --

Q. That wasn't the question. Let me do it again. The Kachina 8 Number 1 is the current producer that you have to the offset?

A. I'm sorry, I'm sorry, Tom. Excuse me. The 8 Number 1 is located at the Sub C is 7179. The proposed Hanley location is approximately 7180. So they should be about flat.

Q. Okay.

A. Maybe a little bit higher. Actually it should be a little bit high. It should be more like about 7160. The Hanley location should be about 7160 from that map, which would be 19 feet high to the Kachina 8, 1.

Q. And then as we move south we're going down structure, and that was approximately how many feet, tell me again?

A. 50 feet.

Q. Okay.

A. To the 8 Number 2 location. I might point out that on this -- on this report, I listed oil and water because when we first completed the well -- I lifted oil and water from the AG zone because when we first completed the well it did produce some water.

Apparently it was low, though. I didn't know the water analysis -- I didn't have the water analysis when I did this -- It was very early on in the testing of the well. Because as you notice when

we completed the well, we completed it making 59 barrels of water. That water has since dried up. And it's basically producing all hydrocarbons now.

Q. Did you participate, Mr. Thoma, in the choice of location for the Kachina 8 Number 1 well?

A. Yes, I did.

Q. What was the basis for picking that location?

A. Two reasons. One was the Wolfcamp, because I basically had this map projected out to the northeast as you see it now. The other reason was for the Bone Springs.

Q. You had a surface problem within that 40 acre tract, if I'm not mistaken, that required you to move the well off of a standard 660 location?

A. That's correct.

Q. Why did you choose too move it to the west, as opposed to the east?

A. That was done -- basically, the direction -- the minor movements from the standard was chosen, for lack of a better word, by the operations engineer. And he's here and will testify later.

Q. It did not make a geologic difference to you then, to move from 660 to the 500 foot location?

A. With the level of control we had at the time -- and I point out that at the time this well was not here. We had a well -- the nearest well was the Oxi well in the southeast, northeast of Section 8, and that was it.

I was going to say, but this was in the Bone Spring. We had a Bone Spring control point in the southwest of the southeast of the thick which controlled the Bone Spring. But basically you were very close to a mile from your nearest control. So I felt that moving the well 100 feet, with that control, did make a difference.

With the level of control we have now, with the Kachina 8, 1, I think it does make a difference as to where you put the well.

Q. The well to the north in Section 5 is at an unorthodox location; is it not?

A. That's correct.

Q. What was the geologic basis for putting that at the unorthodox location for the Kachina 5, Number 1 well in Section 5?

A. Because we were stepping north from the Kachina 8 Number 1, and as you can see there is no well control to the north of the 8 Number 1. And, you know, I'm pushing these contours out here using

a constant rate of thickening. And so I felt that going beyond that type of geologic interpretation or projection would add risk.

And we had a choice of moving the location north from the standard, to solve our topographical problems, but because of the lack of control and the increased risk, I recommended that the well be moved south.

Q. Without any more information than it reduced the risk to place the Kachina 5 well closer to the Kachina 8 Number 1 well?

A. Repeat the question, Tom?

Q. If you're at a standard location for the well in -- Kachina 5 well?

A. Right, right.

Q. You're going to be farther away from the Kachina 8 Number 1?

A. Right.

Q. And you're in an area where you have no control?

A. Correct.

Q. And so the choice was based upon reducing the risk by moving closer to the Kachina 8 Number 1 well?

A. That's correct.

Q. Did you have any seismic information, Mr. Thoma, to help you define the structure?

A. We have had access to seismic data in this area in the Wolfcamp. And because water encroachment hasn't been a problem, determining where you are on structure hasn't been a very high priority in placing our locations.

We have looked at seismic in the area. We have not incorporated it into any of the interpretations because we feel it really doesn't represent a worthy investment, risk reducing tool for exploration and developments in the Wolfcamp.

Meridian has used the data to the south in the Corbin area and they generally have reached the same conclusion. They use it, but only because they have it.

Q. And you've not used it in any of your work here?

A. We have not incorporated it in these displays.

MR. KELLAHIN: That concludes my examination, Mr. Thoma. Thank you.

MR. BRUCE: I have a couple of follow-up questions, Mr. Thoma.

EXAMINATION

BY MR. BRUCE:

Q. Referring to the isopak on the -- the AG, the one in the upper right-hand corner, some of those Wolfcamp wells are producing from that zone and some are not; is that correct?

A. That's correct.

Q. But I can't tell -- some may not be productive; is that correct?

A. That's correct.

Q. And some just were not tested; is that correct?

A. That is correct.

Q. And one final question: From what you just testified a few minutes ago, what you're stating is that the results of the 8 Number 1 well merely confirm your prior geologic mapping; is that correct?

A. That's correct. That's correct.

MR. BRUCE: I have nothing further, Mr. Examiner.

EXAMINER MORROW: Okay. Anything more Mr. Kellahin?

MR. KELLAHIN: I'm through, thank you.

EXAMINER MORROW: On the allocation of

well cost you talked about, Mr. Thoma, what is the proposal for allocation of well cost in that Hanley location, if the well were located there?

THE WITNESS: What is the existing proposed --

EXAMINER MORROW: What do you mean by allocation of well cost?

THE WITNESS: Well, that if we don't have rights in the Bone Spring, which we don't, because -- well, if we don't have rights to any pools on 40 acres, which we do not have in the northwest northwest, as a 100 percent Hanley lease, that 40 acre lease, if we drove the well there, to my understanding we would not have any rights on 40 acre pools, which the Bone Spring is.

And so if we drove a Wolfcamp back there with Hanley and paid for all costs from the surface to the Wolfcamp, we are paying for costs from the surface to the base of the Bone Spring, or to the top of the Wolfcamp, for which we will generate no revenues.

EXAMINER MORROW: Would the same thing apply if the well were in the south portion? Does Hanley have any interest down there?

THE WITNESS: They do not. We have --

there are two aspects of the the location down there. First is that we have offered Hanley -- to Hanley to form an 80 acre working interest unit and pool them in the Bone Spring rights or in the Bone Spring -- or in all 40 acre pools in the southwest and the northwest.

You can argue that that's a moot point because we believe it's going to be wet. That's also the other reason why we believe they should pay their costs through the Bone Spring. Because there probably is not going to be any reserves to be had. But we've offered to pool in case there is, in case we find a zone that we're not expecting. We're willing to give them --

EXAMINER MORROW: Do you know what the dollar amount is on the allocation, what the split would be?

THE WITNESS: I would prefer if one of the other witnesses testified to that.

EXAMINER MORROW: Are you the one to ask about the locations that Hanley operates in this area, the Wolfcamp locations? I mean that Santa Fe operates?

THE WITNESS: Am I -- I'm sorry?

EXAMINER MORROW: When I asked the

earlier witness about the Wolfcamp wells operated by Santa Fe in this area he preferred to wait for another witness. Are you the one or shall we wait for another?

THE WITNESS: I can testify to that.

We have -- on this display, if you'll look at the Bone Spring display, I believe that the map that he had -- that Larry had --

EXAMINER MORROW: Go ahead and look at the Wolfcamp on over there -- because they're marked, the Wolfcamp completions are marked --

THE WITNESS: Right, right.

EXAMINER MORROW: -- and circled and colored yellow.

THE WITNESS: On the Wolfcamp display we operate the Kachina 8 Number 1, the Kachina 5 Number 1. Meridian operates the balance of our working interests to the south.

If you go approximately three miles west into the Young north pool, we're looking at generally the same Bones -- Wolfcamp reservoirs. We operate the Wolfcamp tests in the northwest northwest of Section 15. And we operate two Wolfcamp tests just off this map in Section 8 of 1832. So we operate three wells in 1832, three

Wolfcamp wells in 1832, and two wells in 18 -- Wolfcamp wells, that is, in 1833.

EXAMINER MORROW: In the AF zone in Wolfcamp interval in the Hanley -- the Kachina 8 Number 1, tell me again what you said concerning the potential for that interval? What do you expect when you finally perforate that?

THE WITNESS; This interval, the AF?

EXAMINER MORROW: Yes, sir.

THE WITNESS: I expect oil and water. I would expect fairly high rates ever oil and water because of the porosity. That may be the actual rate, the quality of the rate may be more dependent on fracturing. I don't know that right now.

And that's one of the things we will learn when we perforate this, because there are very few reservoirs in the south Corbin pool that have this kindly of porosity developed.

And to date most of the reservoirs are thinner reservoirs such as this AE reservoir, and have shown some indications of fracturing.

If you believe that the micro SFL log spiking is an indicator of fracturing, you do see some of that here, and you do see it in some other wells. You don't see quite as much of it here in

the AG. And that's strictly a quantitative -- qualitative analysis. There's really no way of quantitatively --

EXAMINER MORROW: You do think, though, it would be commercial --

THE WITNESS: Yes, I do.

EXAMINER MORROW: You would expect an attempt at completion there?

THE WITNESS: Yes, yes.

EXAMINER MORROW: Mr. Stovall?

MR. STOVALL: Yes, I just want to clarify my understanding of what Santa Fe's position is as far as the location. Tell me why Santa Fe prefers the -- its proposed location as opposed to Hanley's. It's just from a geologic --

THE WITNESS: Just from a geologic, because we believe we will encounter thicker sections of carbonate in the Wolfcamp. Irregardless of structural position. Fifty feet, I don't believe will make a significant difference as to whether or not we have commercial hydrocarbon production in these Wolfcamp zones in the AG, AF or AD.

I think what will determine whether or not we have commercial production is, one, whether we have thick clean carbonates; and, two, whether or

not there's reservoir developed in that carbonate.

MR. STOVALL: But you don't expect any Bone Spring in your location?

THE WITNESS: That's correct.

MR. STOVALL: Now with Hanley's location then, do I understand you correctly to say that you are expecting thinner carbonate developments in the Wolfcamp?

THE WITNESS: That's correct.

MR. STOVALL: But that there is a greater potential for Bone Spring development.

THE WITNESS: Right. But we don't have any rights in that.

MR. STOVALL: Well, I understand that. I'm just asking you as a geologist, not as an interest owner.

THE WITNESS: No, if we had an interest -- if we're going to speculate here, I guess I'll go ahead and speculate. If we had an interest up here, I still wouldn't drill this as a Wolfcamp location. I would drill it as a Bone Spring location. And I would still drill this as a Wolfcamp location (indicating).

MR. STOVALL: But not --

THE WITNESS: But for other reasons that

will be testified to later. There are other reasons why I wouldn't drill there, okay? That go beyond just geology.

But geologically speaking, if you take reservoir out of it, and you just look at the geology, I would drill this (indicating) as a Wolfcamp well, and -- yes, I would drill the 8 Number 1 as a Wolfcamp -- 8 Number 2 as a Wolfcamp well, and I would step north then and drill the northwest northwest as a Bone Springs location.

MR. STOVALL: So you would drill both wells if you controlled all the acreage; is that what you're saying?

THE WITNESS: Right.

MR. STOVALL: One to the Bone Springs and the other one through the Bone Spring to the Wolfcamp?

THE WITNESS: Wolfcamp, correct.

EXAMINER MORROW: Is the AF zone a good thick one there in the middle.

THE WITNESS: Yes, indeed.

EXAMINER MORROW: If you drill the well up location north, the Hanley proposed location, what would you expect, less water production from that interval than you would have at your 8 Number 2

location?

THE WITNESS: No, because I believe that the water in this reservoir is going to be colinated water, water that is bound in the reservoir and will be produced with the oil, not as a dry, but with the oil. And it's a function of the nature of the reservoir rock.

I believe that this is -- we don't have a core through it, but from looking at samples I believe it's a very chalky limestone, so I believe it's going to have a lot of water in it. That's why I'm not too concerned about the structural position.

EXAMINER MORROW: You don't think the amount of water in there is related to structure?

THE WITNESS: No, no, I don't -- I don't see a oil/water contact in here. You look at the porosity, look in the resistivity log, you don't see oil/water contact in here. And that's why, I don't think there's going to be a significant impact in that respect.

EXAMINER MORROW: That's all I had. Anybody else?

The witness may be excused.

We'll take ten.

(A recess was taken at 10:30 a.m. until

10:45 a.m.)

EXAMINER MORROW: I believe everybody is here. Let's go ahead and start again.

MR. KELLAHIN: Mr. Examiner, to keep the paperwork straight at this time, I'd like to move the introduction of Hanley's Exhibits A and B and C where we are.

MR. BRUCE: No objection.

EXAMINER MORROW: Hanley's Exhibits A, B and C are admitted

(Hanley's Exhibits A, B and C admitted into evidence.)

RANDY OFFENBERGER

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

EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence for the record?

A. My name is Randy Offenberger and I live in Midland, Texas.

Q. And who do you work for and in what capacity?

A. I'm a senior reservoir engineer with Santa Fe Energy Resources.

Q. Have you previously testified before the Division?

A. No, I haven't.

Q. Would you please outline your educational and work experience?

A. Okay, 1978 graduate of Marietta College, Bachelor of Science, petroleum engineering. Since '78 I've had 13 years of engineering experience, 10 being in reservoir, 3 being in drilling and production with City Service, Southland Royalty Company which was bought out by Meridian and Tom Brown, and, more recently, Santa Fe.

Q. How long have you been with Santa Fe?

A. I've been with them a year and a half.

Q. And for Santa Fe are you in charge of reservoir engineering with respect to the area of interest in Santa Fe's application?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I would tender Mr. Offenberger as a expert in reservoir engineering.

EXAMINER MORROW: All right.

Q. Mr. Offenbarger, would you refer to Mr. Thoma's Deposition Exhibit 7 and describe the pattern of Wolfcamp development in this pool?

A. Okay. On Exhibit 7, on the production map here, we have highlighted a field development pattern that's been established in the south Corbin Wolfcamp field. The highlight here is in a line with the diagonal 80-acre spacing for that field which has been predominantly developed by Meridian.

And as you can see here from the highlights, we have a northeast southwest pattern of development. And our location here in the southwest of the northwest is along that same pattern of development.

We have selected that location not only for geologic reasons like John had mentioned, but also for reservoir reasons, that we have experienced through our joint interest in these wells down here with Meridian oil company.

Q. Regarding that reservoir, have you reviewed the record of case -- OCD Case 8802, in which the South Corbin Wolfcamp pool rules were established?

A. Yes, I have.

Q. And have you reviewed the exhibits and the testimony in that case?

A. Yes, I have.

Q. Could you discuss the outcome of that

case for the Examiner, please?

A. That case addressed the issue of field spacing rules in the South Corbin Wolfcamp. And in that testimony that Meridian had conducted, they had shown economically that the feasible pattern of development is 80-acre spacing. From that information they determine that the diagonal well pattern development is the pattern that they had supported in the testimony itself.

Q. And what in that case -- what was the drainage which Meridian established in that case -- or I believe it was Southland Royalty Company, was it not?

A. It was Southland Royalty Company during the time of which they were being purchased by Meridian Oil Company.

Q. Okay. And what drainage was established by Meridian -- or Southland Royalty?

A. They had established 80-acre proration units through their technical work identifying that 80 acres is the feasible drainage pattern.

Q. And what does the average well recover, the average Wolfcamp well recover, in that pool?

A. Based on their testimony, they had identified that the average well in in area can

recover approximately 100,000 barrels of oil. That testimony was presented back in '86. And since that time we've updated a lot of our production and projections and support that recovery. We feel still today that 100,000 per well is what we feel is a typical Wolfcamp recovery number.

Q. Now using that number would you compare drainage at Santa Fe's proposed location with Hanley's proposed location?

A. We have an existing producer here, the Kachina 8 Number 1, that is producing out of the AG Number 1. We're looking at that well as probably a typical Wolfcamp well, which we can recognize there will likely be an approximate 80-acre of drainage experienced by that producer.

And by our 8 Number 2 location, what we are intending to do there is capture reserves in the south half of the north half that would not be captured with the Hanley Wolfcamp well. Based on pressure data that we have experienced in other fields, particularly over here in Section 15 where Meridian has drilled 40 acre offset wells -- essentially 40 acre -- it's a state wide spacing there.

Q. Are those Wolfcamp wells?

A. Those are Wolfcamp wells. And those were developed -- the original leaseholder that Meridian had acquired the acreage from forced them to drill the 40 acre wells. And what they've seen from the first well to the second well, after six months of production -- keeping in mind that that is an equivalent 40-acre offset -- they've seen 1,000 pounds go up in interference drainage from one well to the 40 acre offset.

And that's supporting more or less why we feel that we need to stick to an 80-acre program over here at the Corbin -- South Corbin Wolfcamp.

Q. Now, the Meridian wells you just mentioned to the west, are those not in the Wolfcamp?

A. Yes, sir.

Q. And would that pressure drop that Meridian has seen in six months, would that indicate interference on a 40 acre spacing?

A. Yes, it would.

Q. And are those wells producing out of the same carbonate as the Kachina 8 Number 1?

A. Yes, they are -- the AG carbonate.

Q. What is your estimation of reserves that would not be recovered from the south half of the

northwest quarter of Section 8, if the well is drilled at Hanley's proposed location?

A. Assuming that we can encounter a typical well, or Hanley encounters a typical well and we have a typical well, we're looking at some drainage interference between those two wells. And along that line, we're looking at a portion of the northwest quarter, essentially being undrained from what we feel has been established drainage radiuses over in this area.

Q. But have you made an estimate of how many barrels would be left -- barrels of oil would be left in the south half of the northwest quarter if Hanley's well is drilled as opposed to Santa Fe's?

A. Yes, I have. If this well is drilled within the next four to five months, my estimate based on volumetric analysis assuming 100,000 barrel recovery for the Hanley location, we're estimating approximately 40, or 50 to 60 percent of a typical Wolfcamp well reserves will be left behind, one either being produced by an offset well or left in the reservoir undrained.

Q. So you're estimating 50,000 to 60,000 barrels would not be recovered by Hanley's wells?

A. That's true.

Q. And now regarding offset wells, looking to the south half of Section 8, how many wells are in that southwest quarter?

A. We have three wells here, two being producers and one pipe has been set in the northeast of the southwest.

Q. So there are two wells in the southwest quarter of Section 8 which are now completed or soon will be complete in the Wolfcamp; is that correct?

A. There are two that are completed in the Wolfcamp and there is one to be completed in the Wolfcamp.

Q. I was just looking at the southwest quarter now.

A. Oh, the southwest, right. There's one producing and one to be completed.

Q. And in your opinion would that well in the northeast quarter of the southwest quarter of Section 8, would that drain a portion of the south half of the northwest quarter, if the well -- if Santa Fe's well is not good?

A. I believe it will.

Q. And do you have an estimation of what percent of that 50,000 to 60,000 barrels would be

drained by that well in the southeast quarter -- I mean in the northeast quarter of the southwest quarter?

A. Approximately, probably, 30,000 barrels of oil.

Q. And the remainder would just be left in the ground; is that correct?

A. Right, that's correct.

Q. So, and I believe -- were you here earlier whether Mr. Murphy was testifying about land ownership?

A. Yes, I was.

Q. And Santa Fe's interest in the Kachina 8 Number 1 well is about 25 percent -- is 25 percent; is that correct?

A. Could you restate that?

Q. Santa Fe's and Heyco's interest in the Kachina 8 Number 2 well, the proposed well, whether it's drilled at Hanley's or Santa Fe's location, they're each 25 percent?

A. That's correct.

Q. And in the southwest quarter, Santa Fe's interest is only 19 percent; is that correct?

A. That's correct.

Q. And Heyco's interest is zero percent?

A. That's correct.

Q. So if the reserves in the south half of the northwest quarter are going to be recovered by the wells, the well or wells in the southwest quarter, that will impair Santa Fe's and Heyco's correlative rights?

A. Yes, it will. I might mention also at this time, if I may, is that Meridian Oil Company, they did get in contact with us and agreed to support our location as a location that they feel is a location that would efficiently and effectively drain our area. And likewise they do have ownership in Section 7, into the south half of 8. They do not have ownership in the south half of 8.

Q. Now you mention in Southland Royalty, Case 8802, you mention economics and some economic testimony there. Are the assumptions that Southland Royalty Company made in that case still valid?

A. I believe so. They used $20 oil and $1.50 gas and I think that's within reason of today's product prices that we're seeing.

Q. In referring to the northeast quarter of section 17, is there a proposed location in that area?

A. Yes, there is. On the map itself, you

can see that there is an industry location in the northwest and the northeast quarter which Meridian has proposed that well -- let me rephrase that. Santa Fe has proposed that well to Meridian, and have since, based on what we've seen in discussion with them, we have mutually agreed to move that location to the diagonal location which is in the northeast, northeast of 17.

Q. So it would conform to the field-wide wells spacing currently in effect?

A. That's correct.

Q. In your opinion will the drilling of a Wolfcamp well at Santa Fe's proposed location be in the interests of conservation and prevention of waste, and the protection of correlative rights?

A. Based on what we've seen out here in the Wolfcamp, I believe that's correct.

Q. And conversely, in your opinion, will drilling of the Wolfcamp at Hanley's location hinder Santa Fe's and Heyco's correlative rights?

A. Yes.

Q. And will it also result in waste?

A. Yes.

MR. BRUCE: Mr. Examiner, I have no further questions at this time. I would ask that

the Examiner incorporate the record of Case 8802 in the record of this case.

MR. KELLAHIN: I would object, Mr. Examiner.

EXAMINER MORROW: What's the basis of your objection?

MR. KELLAHIN: The order entered in that case establishing the pool rules is Order R-8181B; the order speaks for itself. We're not here to litigate the pool rules or the reasons behind the pool rules. I think it's inappropriate to incorporate that record into the context of this case. This is not an attack on the pool rule.

MR. BRUCE: Mr. Examiner, we're not attacking the pool rulings. But I think it serves as a basis for the reservoir testimony that Mr. Offenberger has just given, and also will assist the Examiner in determining whether or not waste will occur if Santa Fe's application is not granted.

MR. STOVALL: Mr. Examiner, if I might advise you -- or make some comments and suggestions, I think Mr. Offenberger has testified to the essential elements of what's in that case; is that correct, Mr. Bruce.

MR. BRUCE: I think the basic findings

of the case.

MR. STOVALL: I'm sorry, go ahead.

MR. BRUCE: I said I think he stated the basic findings of that case.

MR. STOVALL: And by incorporating the record, you complicate your job a little bit. You need to -- perhaps you can reserve that question or act on it. The only question would be -- is not whether the information is accurate or valid, but whether it really helps you or whether you want to have to include that information. It's a practical consideration on your part not a -- I'm trying to save you some work, that's what I'm trying to do, Mr. Examiner.

And you know, unless Mr. Bruce feels that there's some specific things in there that would be particularly relevant -- I don't disagree -- I'm not suggesting that the information is not helpful. But I think it's just -- becomes voluminous, quite frankly.

If we can identify anything that would be helpful to support the specific concerns that you've got that might be useful, that would be nice. And of course the order is -- obviously affects this case directly. The findings-- the order and

findings I think --

MR. BRUCE: Well, that's fine, if you take the order and findings into the record, I don't have any problem with that.

EXAMINER MORROW: Let's do that then, that sounds like something we can all agree on.

MR. KELLAHIN: I have no objection, Mr. Examiner.

EXAMINER MORROW: All right, fine. Excuse me. We took-- what was the order number.

MR. STOVALL: I think it would be R8181B and then the pool rules were made permanent by R8181C.

EXAMINER MORROW: Let the record show that we took notice of that, please.

MR. STOVALL: Let me ask you whether in connection with -- can you tell me what 8181 and 8181A address, are they relevant?

MR. BRUCE: 8181 denied the request. 8181A was an order nunc pro tunc, just correcting some typos in the orders.

MR. STOVALL: And B was the --

MR. BRUCE: Was the de novo --

MR. STOVALL: Okay.

EXAMINER MORROW: Mr. Carr, are you up?

MR. CARR: I have no questions.

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Hoffenberger you have described -- is it Hoffenberger?

A. No, it's Offenberger, starts with an O.

Q. How do you spell it?

A. O-F-F-E-N-B-E-R-G-E-R.

Q. Offenberger?

A. Right.

Q. Mr. Offenberger, you have relied upon the pool rules for the South Corbin Wolfcamp pool to support your argument concerning maintaining a well pattern that would put wells so that you would not have Wolfcamp wells on offsetting 40 acre tracts?

A. Essentially, that's the basis of my testimony.

Q. Are you familiar with those rules?

A. The 40-acre, or the 80-acre spacing rules?

Q. All the rules in the South Corbin Wolfcamp that are issued under Order 8181B?

A. Not the total details. I am familiar that spacing is 80 acres per ratio unit.

Q. Are you familiar with Rule 2 of that

order that does not specifically designate a quarter quarter section for a well in an 80-acre spacing unit?

A. No, I'm not.

Q. Are you aware that under Rule 2, the operator is allowed to drill that well in any of the 40 acre tracts in an 80 acre spacing unit?

A. No, I'm not.

Q. Are you aware under Rule 3 that an operator without notice and hearing can obtain a nonstardard 40-acre spacing unit for a Corbin Wolfcamp pool well?

A. No, no.

MR. KELLAHIN: Mr. Examiner here's a copy of those rules.

Q. The basis of your position is that we need to get the well in the south half so that it will not be competing with the Kachina 8 Number 1 well in the northeast of the northwest?

A. Not just so much the Kachina 8 Number 1, but also the offsets to the south, which there is currently a well that's being completed, the Wolfcamp Number 26 -- or the West Corbin Number 26.

Q. Did your concern over keeping the wells in offsetting 40-acre tracts so that they are more

equitably spaced enter into Santa Fe's decision to drill the Kachina 5 Number 1 well, which is diagonally offset on a 40 acre spacing unit from the Kachina 8 Number 1 well?

A. Could you rephrase that, I'm not --

Q. Find the Kachina 5 Number 1 well.

A. I got it, okay.

Q. You see that?

A. Uh-huh.

Q. You find the 40 acres that the Kachina 8 Number 1 well is located in?

A. Yes.

Q. They're diagonally 40 acres apart; aren't they?

A. Yes, they are.

Q. That violates the pattern that you're trying to establish in the pool; doesn't it?

A. No, it doesn't. I don't believe it does. Because what we're looking at, also, is drainage pattern set up to the north 5, in Section 5, the diagonal that we would see on a development up in the northeast of the southeast of 5.

Q. Explain to me again, how do you deny handling the opportunity for a 40 acre west offset, to the Number 8 -- 8 Number 1 well, and at the same

time give yourself a direct 40 acre diagonal offset to the northeast?

(Attorney-client conference.)

MR. BRUCE: Do you understand the question?

A. No, I really don't. I'm not really clear what the question is.

Q. (By Mr. Kellahin) Let me try again. You see the 40 acres where the Kachina Number 8 well is in?

A. Right.

Q. If you go to the 40 acres that adjoin the northeast corner of that 40 acres with the Kachina 8 well?

A. Uh-huh.

Q. You're now in the 40 acres where Santa Fe did the Number 5 well; right?

A. That's correct.

Q. Those wells are going to be competing for -- you've got two wells on 80 acres, in effect; isn't that true?

A. That's correct.

Q. Correct. How is that any different than if we have the Kachina 8 Number 1 in the northeast of the northwest and have the Hanley

Wolfcamp well drilled in the northwest of the northwest? Same thing, right?

A. I disagree.

Q. Okay, why?

A. Because of the fact of your drainage radius that you'll be experiencing. The Hanley location, itself, will see some interference with our 8 Number 1. The 5 Number 1, granted, will see some limited interference from the 8 Number 1, but you will also be draining to the northeast, as our isopak indicates.

Q. It's only the basis of the isopak that tells you as a reservoir engineer what the likely shape of that drainage is going to be?

A. In most cases.

Q. There is de facto 40 acre spacing in a number of instances in the South Corbin Wolfcamp pool; are there not?

A. Could you identify those on --

Q. Yes, sir. If you'll look in Section 17 and look at the southwest of the northwest quarter there's a well. Got it?

A. Yes.

Q. 40 acres to the west is another Wolfcamp well. Got it?

A. That's correct.

Q. South of that is another Wolfcamp well; right?

A. That's correct.

Q. You've got three wells on 120 acres?

A. The situation there, Tom, is that you do have different Wolfcamp intervals that are producing amongst those three wells. So when we're talking about reservoir drainage, we need to keep in mind that although it is all Wolfcamp, there are separate intervals that are being drained from those 40 acre wells.

The well in the southeast -- the northeast of Section 18 is producing from the AF zone -- the Wolfcamp AF zone.

Q. All right, sir.

A. The well located in the southwest of the northwest in section 17 which is the West Corbin Number 5 is producing out of the AF, plus the AD zone, which, reviewing internally, we feel a lot of the production is coming from the AD zone.

Q. Okay.

A. You go to the south of the West Corbin Number 1, you have the West Corbin Number 10 which is in the northeast of the southeast of Section 18.

And that well is producing out of the AF and the AG, also. What you have here is a combination of reservoirs that are contributing to the production.

Q. All right. And each of those three wells, at least one combination has the AF open in all three?

A. That's correct. But may not be the premier producing zone in any particular well.

Q. Have you verified the average recovery -- ultimate recovery from the Corbin Wolfcamp wells, the number was 100,000 rounded off?

A. Approximately.

Q. Have you verified that with the decline curve analysis?

A. Yes, I have.

Q. And do you have those with you?

A. Not readily available.

Q. What is the range of recoveries for these Wolfcamp oil wells in terms of ultimate recovery?

A. Your range can average anywhere from a few thousand barrels -- 10,000 barrels, up to 250. We've seen a couple wells that have exhibited about 250 recovery potential.

Q. Have you done any reserve calculation

specifically on the Kachina 8 Number 1 well?

A. We haven't done any projections. That's why I stated earlier that we feel that this is going to be a typical well until sufficient production history is accumulated to tell us otherwise. And we're not at that point yet, I don't believe.

Q. Have you attempted to do any specific volumetric calculation with regards to the reserves attributable to the Kachina 8 Number 1 well?

A. Yes, I have.

Q. Do you have that calculation before you?

A. No, I don't.

Q. Can you tell me what you used for your porosity, this value in your volumetric calculation?

A. Our porosity value cutoff, I believe, was four percent.

Q. Four percent?

A. Yes.

Q. And what did you use for your effective water saturation?

A. Twenty-five percent.

Q. And what did you use for your thickness factor?

A. Thirty-one feet (indicating).

Q. Thirty-one feet is the perforated

interval in the AG sand, I guess, or the AG carbonate in that well; is that right?

A. No, that's our net number.

Q. That's your net clean?

A. Net pay.

Q. Okay. Using only the net clean carbonate out of that AG carbonate for your volumetrics?

A. Correct.

Q. You did not roll in the net clean carbonate thickness value for the AF or the AE zone?

A. That's true. Because we don't know whether those are productive yet.

Q. What did you use for a recovery factor?

A. Let me see -- 25 percent.

Q. And the formation volume factor what were you using?

A. Between 1.4 and 1.5. 1.4 or .5.

Q. And you use an area as a factor in the calculation as well; don't you?

A. That's what you define.

Q. Okay.

A. You define the drainage area based on 100,000 recovery, that's what you back out. You back out on an effective drainage area.

Q. And when you did that you backed out 80 acres for that well?

A. For that particular well, we're still under the assumption it's a typical well, and we're looking at approximately 80 to 100 acres.

Q. Do you attempt to perimeter the changes of thickness within a given drainage radius in the volumetric calculation?

A. No, we haven't. And primarily from the fact of what Mr. Thoma stated earlier that the thickness is not totally an identifying criteria for reserves. It's not like a sandstone where you may have a definite correlation. There is some random distribution out here as far as thickness goes, versus recovery.

Q. So the calculation will assume a uniform thickness of 31 feet?

A. That's correct.

Q. Have you assigned a recoverable reserve value to the 40-acre tract, being the northwest of the northwest of Section 8?

A. Yes --

Q. The Hanley tracts?

A. -- I did.

Q. And what number did you get?

A. Approximately 40,000 barrels, from the Wolfcamp.

Q. Again that calculation is going to be influenced -- based upon Mr. Thoma's net clean carbonate isopak?

A. Yes. And the timeliness of drilling that well.

Q. If it's not drilled soon what happens to the oil reserves underneath that tract?

A. If there are oil reserves underneath that tract in the Wolfcamp, portions of it may be drained.

Q. By the Kachina Number 8, the 8 Number 1 well; right?

A. Or the 8 Number 2 well, if we drill on our location.

Q. If --

A. You've got to keep in mind that if there is no reservoir under that 40 acres there will be no drainage occurring under that tract.

Q. I understand that's subject --

A. Okay.

Q. When we look at the south 40 using Mr. Thoma's isopak of that AG carbonate, that's the one with the 31 feet; right?

A. Yeah, AG.

Q. What did you calculate in the south 40 for the recoverable reserves, is that -- what number is that?

A. I didn't utilize volumetrics. I utilized what we have experienced on this pattern out here on diagonal 80s and that would be 100,000 barrels. We feel that if the 8 Number 1 and 8 Number 2 are drilled, the 8 Number 2 drilled at our location, we feel that a typical well can be expected getting 80,000 barrels of oil -- or 100,000, excuse me.

Q. Have you attempted to create an extrapolation of pool decline to see how close this average hundred thousand barrels is in terms of actual production in the pool?

A. We haven't done it on a pool basis. We have on an individual well base.

Q. Can you tell me the individual wells that you've made this estimate of recoverable reserves on?

A. I don't have the curves with me to be specific on well locations, but it's the predominant -- not the predominant, but the majority of the wells within that south Corbin Wolfcamp there.

Q. Whether operated by you or Meridian?

A. That's correct.

MR. KELLAHIN: Thank you, Mr. Examiner.

MR. BRUCE: I have a couple of follow-up questions.

EXAMINATION

BY MR. BRUCE:

Q. Referring to the well pattern in the south Corbin field, the Kachina 5 Number 1 is a diagonal offset to the 8 Number 1; is it not?

A. That's correct.

Q. And the proposed Kachina 8 Number 2 will also be a diagonal offset; is that correct?

A. That's correct.

Q. Whereas, Hanley's well will be a direct 40-acre offset to the Kachina 8 Number 1; will it not?

A. That's correct.

Q. So there is -- so the Kachina 5 Number 1, if you draw a line through the 5 Number 1, to the 8 Number 1, to the 8 Number 2, it will conform to the diagonal spacing pattern; will it not?

A. That's established in the field; that's correct.

Q. The only difference is that the 5 Number 1 well is somewhat unorthodox --

A. It is.

Q. -- in its location?

A. And keeping in mind that also a development well could be proposed in the northeast of the southeast which would continue that diagonal pattern on further north.

MR. BRUCE: Thank you Mr. Examiner.

EXAMINER MORROW: You mentioned the location in the northwest of the northeast of 17, and indicated that agreement had been reached to move that to the east; is that correct?

A. That's correct, with Meridian.

Q. The location shown in the northwest of the southeast, has any discussion been had on that location as to whether or not it should be moved to the east, also?

A. I'm not -- what location was that?

EXAMINER MORROW: It's in 17, it's the -- in the northwest of the southeast quarter, directly south of the one that you discussed earlier.

A. I'm not familiar with that.

EXAMINER MORROW: Do you know who would

be the -- well I'll ask you, who is the operator of that particular location.

THE WITNESS: (No response.)

MR. STOVALL: If you don't know the answer, please say so.

THE WITNESS: I don't know definitely the answer. I suspect Meridian is the operator.

EXAMINER MORROW: Does Santa Fe have an interest in that location.

THE WITNESS: No, we don't.

EXAMINER MORROW: Did you have an interest in the one to the north, in the northwest of the northeast?

THE WITNESS: The proposed location?

EXAMINER MORROW: No, 117.

THE WITNESS: Yes, the one that we had agreed to move to the northeast northeast.

EXAMINER MORROW: All right. Where is the west Corbin Number 26, you talked about?

THE WITNESS: Excuse me, it's in the northeast of the southwest of section -- Section 8. It's got a well location several --

EXAMINER MORROW: Northeast of the southwest. That's all I have.

MR. STOVALL: I just wanted to make sure

I understand that the -- you say you have done some drainage calculations and estimates; is that correct, in response to Mr. Kellahin?

THE WITNESS: In this area, yes. Not extensive.

MR. STOVALL: Do you think the wells -- based on those calculations do you have an independent opinion beyond just the pool rules case that's been identified earlier about the drainage capacity, capability of those wells, drainage radius of those wells.

THE WITNESS: My independent assessment would be in support of what my findings have been with that case.

MR. STOVALL: And what is that?

THE WITNESS: The fact that 80 acres is the estimated drainage, approximation for a typical Wolfcamp well.

MR. STOVALL: And based upon the -- Mr. Thoma's geology and your evaluation, do you think that drilling in the Santa Fe proposed location and in the Kachina 8 Number 2 is -- will effectively drain -- that together with the Kachina 8 Number 1 will effectively drain the northwest quarter of Section 8?

THE WITNESS: I believe so.

MR. STOVALL: What is your opinion with respect to having two nonstandard former operational units in the west half of the northwest quarter of Section 8, speaking in terms of waste and correlative rights, how do you -- would you recommend that?

THE WITNESS: Two 40-acre proration units for Wolfcamp?

MR. STOVALL: Correct.

THE WITNESS: No, I wouldn't recommend it.

MR. STOVALL: Why not?

THE WITNESS: Because of our drainage that we have found in in area to prove that 80 acres is the optimum pattern for development.

MR. STOVALL: I have no further questions.

MR. KELLAHIN: I have a follow-up question to Mr. Stovall, if I might?

EXAMINATION

BY MR. KELLAHIN:

Q. Have you recommended to Santa Fe or Meridian that they file a case before the Division to change the current pool rules so that you cannot

have wells in offsetting 40-acre tracts?

A. No, we haven't.

Q. The Kachina Number 8 Number 1 well --

A. The producing well?

Q. Yes, sir. It's 500 feet from the Hanley lease; isn't it?

A. I believe that's the location.

Q. Did you participate in making the decision about the location of that well?

A. No, I did not.

Q. Who made the decision about the location?

A. It was between our Exploration and our Operations people.

Q. Is there an engineer that you can identify that participated in that decision, if you didn't?

A. No, I'm not that familiar with that specific point of the development of that well.

MR. KELLAHIN: Thank you.

EXAMINER MORROW: Let's see, I had not studied the rules as I should have. Tell me what the minimum distance from a property line is in the pool rules.

MR. STOVALL: Mr. Examiner, I think I

did read through the rules, and the distance is 150 feet -- within 150 feet of the center of the quarter corner quarter section which is consistent with recent special pool rules that the Division has issued where drilling is on 40-acre tracts essentially.

EXAMINER MORROW: So would that put 8 Number 1 at a standard location?

MR. STOVALL: I believe that would be right close to the center of that.

MR. KELLAHIN: I'm sorry, the question was the Kachina 8 Number 1?

EXAMINER MORROW: Is it a standard location, the Kachina 8 Number 1-- is it a standard location?

MR. KELLAHIN: Yes, sir. It's on the far western edge of the possible circle for standard well location.

MR. BRUCE: Mr. Examiner, Hanley Exhibit C, the completion reports, state that the footage location is 660 feet from the north line and 1830 feet from the west line. So that would put it at the outer bounds -- 510 feet from Hanley's lease line.

EXAMINER MORROW: You're telling me that

would be standard?

MR. BRUCE: That would be a standard. That would be right on the edge of the circle.

MR. STOVALL: One hundred fifty from the center is what it would be.

EXAMINER MORROW: All right. Anything else of Mr. Offenberger?

You may be excused.

Call Mr. Roberts to the stand.

DARYL ROBERTS

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

EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence for the record?

A. My name Daryl Roberts and I'm with -- live in Midland, Texas.

Q. And who do you work for and in what capacity?

A. Santa Fe Energy Resources as a drilling engineer.

Q. Have you previously testified before the OCD as a drilling engineer?

A. Yes, I have.

Q. And are you familiar with the matters involved in drilling in the Kachina 8, Number 1 well and the proposed Kachina 8 Number 2 well?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I would tender Mr. Roberts as an expert drilling engineer.

EXAMINER MORROW: Accept the qualifications.

Q. First, Mr. Roberts, referring to Santa Fe Exhibit Number 4, did you prepare that exhibit?

A. Yes, I did.

Q. And you are responsible once again for the drilling of these catch wells for Santa Fe; is that correct?

A. That's true. One of many.

Q. Would you please describe a little further your experience in drilling and estimating costs of Wolfcamp wells?

A. Okay. Well, previous to Santa Fe I worked for Meridian and also Southland Royalty. I went to work for Southland royalty in '81. And since 19 -- let's see, since '82, I've worked in that area, southeastern New Mexico.

And since 1986 I've drilled 27 wells in

these two townships, 1833 and 1832. I've drilled 27 wells, 15 of those being Wolfcamp, with both -- with either Meridian, Southland or Santa Fe.

Q. And when did you become employed by Meridian?

A. Meridian?

Q. Yes.

A. In '86.

Q. And when did you you go to work for Santa Fe?

A. A year ago.

Q. And those 27 wells you mentioned, that was all under Meridian and Santa Fe; right?

A. Right. Meridian -- Southland and Santa Fe.

Q. In this particular area how many wells -- and you're talking Townships 1832 and 1833 -- how many wells does Santa Fe operate?

A. Sixteen.

Q. And how many does it have an interest in?

A. Thirty-five.

Q. Now Hanley Petroleum sent over an AFE, proposed AFE, to Santa Fe for its well; did it not?

A. It did.

Q. And have you compared Santa Fe's AFE to Hanley's AFE?

A. Yes, I have.

Q. And is that submitted as prepared in spreadsheet form and submitted as Exhibit Number 9?

A. Yes, that's true.

Q. Would you go through Exhibit Number 9, and compare the dry hole and producing costs and itemize where Santa Fe's and Hanley's well costs vary and the reasons for that variance?

A. Okay. Well first off, I'd like to explain, to make the comparison equitable, if you'll notice the -- under the Santa Fe's producers' cumulative total cost, is $35,000 higher than the cost that was submitted to Hanley which is Exhibit 4.

Q. What is the reason for that?

A. The reason for that, when I prepared the cost estimate for the Kachina 8 Number 2, it was my assumption they would be using the same tank battery as we have on the 8 Number 1. So, but -- just to make it fair, because Santa Fe -- because Hanley's cost estimate includes the tank battery, I include the tank battery in this particular comparison.

Q. So, in short, Exhibit 9 includes the

tank battery, whereas Exhibit 4 did not?

A. That's right.

Q. For Santa Fe?

A. That's true. But it's to allow us to be comparing apples and apples. So if you'll look at this exhibit, I can go through line by line, if you like, or --

Q. Well, first compare the dry hole costs.

A. The dry hole costs in my mind, or Hanley's dry hole costs is $438,000 versus our costs of $453,000, which are essentially the same.

Q. So you view that as insignificant?

A. Right. And then as far as Hanley's producing costs, there's a $667,000.

Q. For Hanley?

A. For Hanley. And ours is $657 -- $757,000.

Q. And would you, maybe not line-by-line, but I believe there are some numbers highlighted in orange on the exhibits?

A. Okay. These are the ones in orange on the far right-hand corner -- are items that I think are essential to the drilling of the well that were not addressed in Hanley's cost estimate.

Q. And what are those?

A. The conductor casing which would be conductor casing or using a rat hole machine.

Q. And that's that $3,000?

A. $3,000. Under the lease facility costs, there's $15,000 for labor, which would include painting, welders, roustabout crews to install the paint battery or lease facilities, $15,000.

Under the intangible well costs, there's fencing, which is $4200, that we've included that they did not which includes fencing off the reserve pit after the rig is released, and then also fencing off the tank battery after the tank battery is installed.

The next item is inspection of tangibles, which would be inspection of the casing prior to -- on location prior to running in the hole which is $5,000. Drilling equipment rentals are -- which is various rentals that we use on a drilling location to drill the well.

Same thing with the completion tool rental, is $4,000. There's miscellaneous completion items that have to be rented from service companies in order to be able to complete the well.

Then the next item is $9200 for

administration overhead, which is always charged. And testing of the well is $5,000, which I think everybody agrees you have to test the well after you're through.

All that adds up to around $48,000 that I view was not included in their cost estimate, they're producing cost estimate versus ours.

Q. Okay.

A. So in their frame --

Q. Now this would still leave you a little bit higher than Hanley's proposed costs, would it not?

A. That's true.

Q. Now, in making up your estimates, does Santa Fe tend to be liberal on the cost sides?

A. Yes, our costs are usually on the high side. We use the book price, just to allow our partners and also our management staff not to have to supplement the AFE after a well because, you know, it's not an exacts science. But there again, I was bringing up the fact that whatever our costs are, that's what gets charged to us and to our partners.

Q. In other words, Santa Fe by using these higher costs would kind of form an outside limit of

the proposed well costs?

A. That's correct, it would be a high side estimate.

Q. Could you compare Santa Fe's proposed costs for the 8 Number 1 with any offsetting well costs?

A. Yes, I have -- we're partners in the west Corbin 26 well which is in Section 8, the direct offset.

Q. That's the northeast quarter of the southwest quarter of Section 8?

A. Right.

Q. What is the proposed well cost there by Meridian?

A. It's $743,000.

Q. And are there any other proposed -- current proposed wells?

A. Yes there's a well that's being -- has been drilled in Section 7 which would be directly to the east, to the west of our -- of this Section 8. And it was $742,000 for a complete well cost.

Q. And what well was that?

A. The West Corbin Number 25.

Q. Okay. So Santa Fe's proposed well cost here on Exhibit Number 9, is in line with Meridian's

costs; is it not?

A. That's true.

Q. And Meridian is the primary operator in this pool; is it not?

A. Right.

Q. Could you compare Santa Fe's proposed costs for the 8 Number 1 well, the one that's already completed, with the actual costs?

A. Our actual costs are $705,000, tank battery and everything installed.

Q. And what was Santa Fe's AFE for that well?

A. I don't have that -- for that well, but for our -- as you can see here -- the Kachina 5 Number 1 was $756,000, which is $51,000 difference or 6.8 percent.

Q. And you would hope and have every expectation of coming in with a cost, hopefully substantially less than this $757,000 cost for the 8 Number 2 well?

A. Right.

Q. A couple of final items, Mr. Roberts. Santa Fe has already drilled the 8 Number 1 well and we're here today on a second well in the northwest quarter. Does Santa Fe have any plans to drill any

additional Wolfcamp wells in the north half of Section 8 during 1991?

A. In the north half of Section 8? Yes, I guess so. North half of Section 8?

Q. On our current -- on this lease, on this particular lease?

A. Well, yes, we had -- I think there's a space for one more well.

Q. Might Mr. Thoma be a little more familiar with that?

A. Yeah, I mainly just take them and drill them.

Can I add something?

Q. Sure.

A. Back again to the cost estimates. You know, we were talking that -- see in my opinion that our drilling and completion costs are about the same, and the biggest difference that I can see is you can see on this, is the $28,000 on facilities. And I think if you will notice our Exhibit Number 10, is an award from the BLM, it's an environmental initiative award which commended Santa Fe on its surface facilities and way of doing things.

And so I think that the significance of

that is it's another governmental agency that thinks that Santa Fe has done well in operating their leases. And that I think relates to the tank batteries and our signs and the way we conform to the -- and adhere to the regulations.

Q. Thank you. Mr. Roberts, was Exhibit Number 9 prepared by you?

A. Yes, it was.

Q. And was Exhibit 10 compiled from company records?

A. Yes, it was.

Q. In your opinion will the granting of Santa Fe's application be in the interests of conservation, the prevention of waste --

A. Yes.

Q. -- and the protection of correlative rights?

A. Yes, I do.

MR. BRUCE: Mr. Examiner, I move the admission of Exhibits 9 and 10.

EXAMINER MORROW: Exhibits 9 and 10 are admitted

(Santa Fe Exhibits 9 and 10 admitted in evidence.)

MR. CARR: No questions.

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Roberts, refresh my recollection, you referred to the West Corbin 5 well?

A. Yes.

Q. Please find it for me, or tell me where it is so I can find it on one of the maps?

A. All I know is it's in Section 7.

Q. Okay. Do you know when that well was spudded?

A. I can look it up. I've got the drilling reports from Meridian.

Q. Would you mind doing that for me, please?

A. Okay. January 26, 1991.

Q. 1/26/91?

A. Yes.

Q. Spud date. What's the completion date?

A. I think it's still completing.

Q. Okay. They're on location completing now?

A. As far as I know. I have a report here on February the 28th.

Q. Okay. Do you have the actual costs, current through now on that well?

A. I have their cost. That's carried on their -- that have been reported to us.

Q. They report costs to you on a -- what type of basis? How often do they report costs?

A. On a daily basis.

Q. On a daily basis you get costs reports on how they're spending the money on the well?

A. Right.

Q. And the total costs on that well at this point is what now?

A. On that particular base, it was $600,00.

Q. How long does it typically take from spudding to completion for these Corbin Wolfcamp wells?

A. I don't have any idea. I can tell you how long they take to drill.

Q. All right. The Kachina 8 Number 1 well was spudded on September 29, 1990? Do you have that information?

A. I do. Yes, September 29th.

Q. The rig was released on October 30, 1990?

A. That's true.

Q. When was the completion date put on the location to compete the well?

A. I don't have any -- that information.

Q. Do you know when the Kachina 8 Number 1 well was completed?

A. No, I don't.

Q. The total actual cost on that well are $705,000, completed well costs?

A. $705,437 is what I have.

Q. Do you do like Meridian and report to your operators on a daily -- or your working interest owners on a daily basis the current costs of those wells as you do them?

A. Yes, sir.

Q. Are you aware that there is a royalty difference between the Hanley lease and the lease to the south in that spacing unit?

A. No, not a royalty -- You mean a working interest?

Q. A royalty difference in percentage?

A. No, I'm not.

Q. Would that necessitate putting on a tank battery for that well that's different than the Kachina 8 Number 1 well?

A. More than likely, yes.

MR. KELLAHIN: Thank you.

EXAMINER MORROW: If you allocated costs

to the Bone Springs, what percent of the cost would be allocated to the Bone Springs location?

THE WITNESS: I worked up a cost estimate for a Bone Spring well only, to 9900 feet and the cost was $616,000 completed costs.

EXAMINER MORROW: $616,000?

THE WITNESS: Yes, sir.

EXAMINER MORROW: And occasional cost would be the difference between that $616,000 and --

THE WITNESS: And $750,000.

EXAMINER MORROW: Looking at Section 8, it looks like there was room for two more wells in that northeast quarter, possibly -- or is that correct?

THE WITNESS: Well, does that include the 8 Number 2?

MR. BRUCE: Northeast corner.

EXAMINER MORROW: Let me see.

THE WITNESS: Let me see if I have a map.

MR. STOVALL: Use the one on the wall, Exhibit 3, if you need to.

THE WITNESS: The northeast corner?

EXAMINER MORROW: Northeast quarter of Section 8 would apparently have two more spots at

least.

THE WITNESS: Right, yeah, I agree.

EXAMINER MORROW: I believe you said one had already been talked about in your company; is that right.

THE WITNESS: Yes. We're really talking about the northwest, the north.

EXAMINER MORROW: Maybe I misunderstood, but --

MR. BRUCE: The northeast quarter, yes, Mr. Examiner, I was asking about the northeast quarter. I think Mr. Roberts was unclear on that.

THE WITNESS: That's evident.

EXAMINER MORROW: Okay. So that answers that.

That's all I have.

MR. STOVALL: I think we've done enough damage so far.

EXAMINER MORROW: All right, the witness may be excused.

MR. STOVALL: This would be a good time to break for lunch.

EXAMINER MORROW: About 45 minutes?

Mr. Bruce, do you have anything else at this time.

MR. BRUCE: I'll rest at this time unless I have some rebuttal for Mr. Kellahin. But that's my witnesses, Mr. Examiner.

EXAMINER MORROW: We're thinking about breaking for lunch. Does anybody have any airplane commitments or anything else?

(Laughter.)

MR. STOVALL: What time do your planes leave tomorrow, that's what we're concerned about?

Mr. Kellahin, have you got about the same amount of time this afternoon as we spent this morning? Recognizing that Mr. Bruce may have a question or two for some of your witnesses.

MR. KELLAHIN: Perhaps two and a half hours.

EXAMINER MORROW: We will break until 1:00.

(The hearing was recessed from 11:45 a.m. until 1:00 p.m.).

EXAMINER MORROW: Now, we're ready to start with Henry's presentation.

MR. KELLAHIN: Thank you, Mr. Examiner. I'd like to call at this time Mr. Brett Bracken.

BRETT BRACKEN,

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

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Bracken, for the record, would you please state your name and occupation?

A. Brett Bracken, geologist.

Q. Would you summarize for us your educational background as a geologist?

A. I graduated from the University of Texas at Arlington, 1980, with a BS Degree in Geology.

Q. Subsequent to graduation, summarize your professional employment as a petroleum geologist?

A. I, immediately upon graduating, went to work for Texaco as a geologist. I worked there for three and a half years. And then I went to work for Hanley Petroleum, and I've been there for a little over seven years. So I've been a petroleum geologist a little less than eleven years.

Q. As part of your geologic duties, do you look for and develop prospects in the Wolfcamp formation in Lea County, New Mexico?

A. Yes, I do.

Q. And as part of those duties, have you

made a study of the geology that is applicable to today's hearing?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Bracken as an expert petroleum geologist.

EXAMINER MORROW: We accept his qualifications.

Q. Summarize for us the type of geologic interpretations that you have made that will apply to this case?

A. Okay. The conclusions, or some conclusions that I've come to, is that structure plays an important integral role in Wolfcamp production in the Corbin South Field. The field is highly irregular and variable in nature. Carbonate debris is not consistent from well to well -- it's presence or absence is not consistent from well to well.

Porosity is not consistent from well to well. And, also, there's an occurrence of water production in the wells and that is not consistent from well to well. And, finally, the effective development of the field has been on 40 acres.

Q. Let's look at the aspect of your conclusion dealing with structure. And when you

apply those conclusions specifically to the west half of the northwest quarter of 8 --

A. Yes.

Q. -- and you as a geologist are trying to determine the optimum location --

A. Uh-huh.

Q. -- for a well to penetrate and test the Wolfcamp carbonate --

A. Uh-huh.

Q. -- And you have a choice between the north 40 and the south 40 --

A. Uh-huh.

Q. -- How does structure help you make that choice?

A. It's structure-- the well in the north 40 is going to be higher to the south 40, and possibly higher to the Kachina 8 Federal-- structurally higher.

Q. What is the significance of being structurally higher to the south 40, if you have a well in the north 40?

A. Reduces the risk of water production.

Q. How have you determined the deposition of the carbonates in the Wolfcamp as they are mapped in Section 8?

A. The -- to the north is the Permal Pan reef front. It has an east-west regional trend. And the dip from this-- out front of this Permal Pan trend is steep and to the south. Again, the structural strike is more or less east and west. Any debris --

Q. How confident are you that you have properly mapped the orientation of the structure in the Wolfcamp?

A. I've very confident of it.

Q. Describe in a regional way what you draw from as a geologist to satisfy yourself that the orientation-- or the axis of the structure is correct in your interpretation?

A. Well, among well control, personal identification of the correlation points on the well control, the structure is modeled after shallower horizons. For instance, the Abo reef trend to the north, it has the same strike in the beds over that and out in front of it, shallower beds. They all exhibit this down-to-the-south structural dip, as well as a more or less east-west trend.

You can see this dip and this trend all the way up to the Yates, if not at the surface on a topographic map.

Q. Having satisfied yoruself about the reliability of your mapping of the structure, then how do you apply the structural orientation to the orientation of the deposition of the Wolfcamp?

A. Well, if you've got this reef up to the north, and you've got east-west dip -- I mean east-west structural strike, and south dip, the only logical thing to do-- or logical conclusion you can come to, is that any debris that's going to come off of this reef front is going to roll down it like a cannon ball. And-- which is perpendicular to the reef front.

And that's -- thus, the orientation of my isopak up there.

Q. When you make the choice as a geologist of how to select the intervals for mapping in the Wolfcamp to prepare your isopak--

A. Uh-huh.

Q. -- what decisions did you have to make and what, in fact, did you make?

A. Well, after careful examination of numerous well logs in the area, I came to the conclusion that it was quite difficult to correlate individual zones, well to well, due to the nature of the beast. We're dealing with a carbonate debris

that had tumbled down and in pulses-- there's blocks, rubble. And it's all intermingled, convoluted.

Some of these pods, when they come down, are going to probably cut into pods that are already deposited. So it's just a jumbled up mess of rock.

Q. In order to map the ispak of this carbonate then, what do you choose for the interval that is mapped on your isopak?

A. I chose to map the net clean lower Wolfcamp line within the top of the lower Wolfcamp and the base of the lower Wolfcamp. I summarized all the-- totaled the clean line within that interval and massed it together.

Q. Having come to a structural conclusion that the north 40 and the spacing unit has a structural advantage--

A. Uh-huh.

Q. --in examining the isopak and the relationship of the north 40 to the south 40, what conclusion did you reach as a geologist?

A. Well, the north 40 is going to have just as much rock as a well in the south 40, if not more.

Q. Let me hav eyou go to what is marked as Hanley Exhibit Number 1, a copy of which we put on

the wall. And have you take us through the key components of that Exhibit Number 1 and support for us the factual evidence that causes you to reach your conclusion about the structural advantage in the north 40, and the thickness of the net clean carbonate in the Wolfcamp, and it's advantage in the north 40 versus the south 40.

A. Okay. First of all, in the -- it's a montage and pretty much the same format as Mr. Thoma's exhibit. In the north-- the upper right-hand corner, I have a structure map on the base of the lower Wolfcamp, and it shows-- the contour interval is 50 feet, scale is zero to 2,000. I have the proposed proration of working interest unit shown and the location shown.

It also shows the line of cross-section, A to A prime. The thing that stands out on this map is that, again, the steep north to south structural dip which has an east -- more or less east-west trend. And this sets up the deposition of the total line-- or total net clean line, which I have isopaked in this map here, which is in the lower right corner of the map, basically.

Again, it's the same scale, 50 feet contra interval. And the thing I want to point out

is this north-south trend, or axis, of the deposit and our acreage is placed in the -- pretty much in the center of this trend. It's in the optimum, best position within the thick.

And going back to the structure map, again, our location -- I'm showing it to be between 25 and 35 feet high to a location in the south which is working interest only.

Q. In looking at your 40 in the north part of the spacing unit --

A. Yes, sir.

Q. -- On the structural map, what is it's projected structural position in relation to the Kachina Number 1 well to the east?

A. It is also high to the Kachina well to the east. Do you want to know how high?

Q. Approximately.

A. About 20 feet.

Q. When we look at your isopak --

A. Uh-huh.

Q. -- And compare it to the orientation that Mr. Thoma has for the depositional trend of the various members of the Wolfcamp carbonate--

A. Uh-huh.

Q. -- There's a substantial difference;

isn't there?

A. Yes, sir, there is.

Q. How come you believe you're right?

A. Well, like I said, the structure is a key ingredient in the orientation. It's not logical to assume that these pods would be at an oblique angle to the force of gravity. I mean gravity is going to play an important role in how these things were deposited.

And that's my reason for making the orientation as such. It's going to be perpendicular to this dip -- structural dip.

Q. In coming to the conclusion that the deposition of the Wolfcamp is perpendicular to the axis of the structure--

A. Uh-huh.

Q. -- have you honored all available geologic data?

A. Yes, I have.

Q. Is your interpretation inconsistent with any of the data that you've demonstrated on your display?

A. No, sir.

Q. So you didn't have to ignore any log information or other geologic data in order to

make-- come up with this conclusion?

A. No, I made the simplest, most logical conclusion you could come to.

Q. All right, sir. Before we leave Exhibit Number 1, point out the structural dip for us on your Exhibit Number 1?

A. Well, I --

Q. It's on the cross-section.

A. Yeah, I never got to explain the cross-section here. This is a north-to-south structural cross-section, north being on the left. And, by the way, the Number 1 well on this cross-section is Santa Fe's Number 1 Kachina 8 Federal.

As you can see, I have colored some of my correlation marks and from the base of this lower Wolfcamp on up to the last correlation that I have, it's all horizons exhibits an obvious north-to-south structural dip.

Sub C datum on this cross-section is the marked at 6500 feet below sea level. In a scale -- a vertical scale, that's one inch to 100 feet. It has no horizontal scale.

Q. Let's go to your next montage, Mr. Bracken. All right, sir, would you identify

and describe for us Hanley Exhibit Number 2?

A. Yes, sir. It's the same format as the previous exhibit, incorporating the same structure map, same isopak map. The only difference is it incorporates a west-to-east cross-section, B to B prime, which is shown, the line of section is shown on both maps.

In these scales and datum on this cross-section are identical to that-- to that cross-section over there (indicating). Sub C datum and mines 6500 feet, and horizontal scale of-- no scale horizontal or vertical scale one inch to one hundred feet.

Q. Describe for us your conclusions about the display?

A. Again, these maps here are the same. I won't go into them.

But, what it shows is that this isopak interval here that I have summed up the total line, clean line, exhibits a-- somewhat of a little more structure. It's not really structure, but over this pile of rock -- and I think that's due to this pile of rock that has been -- this accumulation of rock that has been dumped out in this interval.

One thing to note is that the -- their

zone is producing in the Kachina 8 Federal, the bottom here, and back up, producing perforations are indicated by solid black bars on the center well column.

There is nothing to the west to indicate that that zone would not be present in this well.

Q. This well being the first numbered well on the B, B prime cross-section--

A. Yes, sir, it would be in Quadrant-- looks like Quadrant C of 7.

Q. And you have available logs on that well, but it stops -- the well bore stops just short of the lower Wolfcamp that Mr. Thoma has identified as the AG?

A. Looks like it stopped TDs about somewhere in the middle of what he would call the-- I guess the AF, whatever.

Q. What have you used on your isopak then to define the area of greatest thickness in the carbonate as you come through the western half of Section 8?

A. I have used the blue shading that I have indicated on the log. Or, in other words, I have summed up those thicknesses.

Q. In order to have an effective tool to

find oil in the Wolfcamp, what do you do as a geologist in mapping the isopak of the carbonate?

A. Well, we were trying to locate the locations where there would be the greatest amount of rock, favorable structural position.

Q. Could you, as a geologist, utilize Mr. Thoma's isopak on the AG producer which is in the upper right portion of his display, Exhibit Number 7, for example, would you as a geologist use that with confidence to help you find the best location for oil production in the Wolfcamp?

A. No, I would not.

Q. Why not?

A. Well, I don't like his orientation. Excuse me, I'm not trying to cut anybody down.

But, first of all, his orientation is-- goes against logic. There's no basis for the skewed northeast-southwest trend. As a matter of fact, I could contour these -- his numbers, in a north-south direction, easily.

He has no -- the other problem is that -- take each well on a -- each map on an individual basis, there's a majority of wells that penetrate the Wolfcamp which do not produce out of that -- whatever interval he's trying to isopak.

In fact, the majority of the wells would be nonproducers or dry holes for each one of his intervals. So it's misleading. It would lead you to believe you could package, or map all of these zones into nice correlatable packages, when it's entirely the opposite.

Q. Let me have you return to your seat if you're finished with Exhibit Number 2.

And let me have you at this point identify and describe what we will mark as Hanley Exhibit Number 3.

Identify that display for me, please?

A. It is a structure map on top of the-- what I call the second Bone Spring carbonate Payne Zone B. This is a personal nomenclature for that zone.

Q. All right. Why did you want to prepare a structure map using the second Bone Springs Carbonate pay?

A. Well, first of all, it's a good correlatable marker on the logs. And it also demonstrates the obvious structural strike -- or structural structure in the area, and that is the east-west structural strike and the steep dip to the south. This is consistent with the Permal Pen and

Abo reef fronts to the north.

Q. How is this structure map different than the one you displayed on either Exhibit 1 or 2?

A. It's not too different at all. It's showing the sme structural relationship. It just may be a little more dip. Basically the same, though.

Q. So it's clear, what's your structural control for -- what point in the reservoir are you mapping on the structures shown on Exhibits 1 and 2 and how does that differ from Exhibit -- did I say Exhibit 4? I think it's Exhibit 3. I'm sorry, Exhibit 3. How are these different? Are you mapping on the same interval?

A. I'm sorry, I didn't -- misunder--

Q. When you look at the structure maps, you've got a structure map shown on Exhibits 1 and 2?

A. Yes.

Q. What are you mapping? What portion of the structure are you mapping?

A. It's the base of the lower Wolfcamp.

Q. Okay. When we look at Exhibit 3, what are you mapping?

A. Zone -- approximately a top of a zone

approximately, oh, 3,000 feet higher on the top of the Zone B Bone Spring carbonate.

Q. When we look at the top of the Bone Spring carbonate for a structural marker, is that shown on either Exhibits 1 or 2?

A. No.

Q. All right. We're far above that interval?

A. Yes.

Q. Why is it important to you as a geologist to have mapped the structure on the Bone Springs and compared its relationship to the Wolfcamp structure?

A. It just -- it adds more emphasis to the Wolfcamp. It verifies it, in that a structural-- our structural position in our proposed location is going to be higher than their proposed location at all horizons.

Q. So in the north 40 of the spacing unit, regardless of the formation penetrated, you will have a structural advantage in the north 40 over the south 40?

A. That is correct.

Q. Will this hold true not only for the Wolfcamp, but the Bone Springs and any other

potential oil formation?

A. Yes.

Q. What are the other oil formations that are likely targets for a well to be drilled in the north 40?

A. Well, not only their AG zone, but I agree with Thoma that the-- whatever they call the AF and the AE-- or whatever they are called, they'll probably be productive. Bone Springs sands, Bone Spring carbonates, Delaware sands, Queen/Grayburg.

Q. Let me direct your attention now to what is Exhibit 4. This is your production map. You want to talk about it?

A. If you want me to.

Q. Did you also participate in the preparation of this production identification map?

A. Yes, I did.

Q. Identify and describe it for us.

A. Okay. It is a production map of the Corbin area. The scale is zero to one inch is 2,000 feet. It is a map that shows all producing wells in the area and what zones they produce out of. For instance, the-- I guess it's purple, would be the Queen/Grayburg at, say, 4,000 feet. Delaware is in the -- Delaware production is kind of hard to see,

but it's kind of a more orange color. And that produces at about 5,000 feet.

Bone Spring is a darker red color and it produces from the -- like I said, from the dolomite and sand between, say, 8400 to 9400. Wolfcamp is shown in yellow, and then there is some Wolfcamp shown in yellow and it produces at around 10,700 to 11,500. And then there is some production from the Straw and the Morrow it's deeper -- much deeper.

It also shows the proposed location of the interest unit.

Oh -- I'll wait. Maybe you want to ask me something else.

Q. From any of your displays, do you agree with Mr. Thoma that a well drilled in the south 40 for Bone Springs production is going to be too low in the structure and, therefore, wet?

A. Yeah, I agree with him.

Q. When we look at the Wolfcamp, can you specifically identify wells for us on any of your displays that have encountered the water problem with their Wolfcamp oil production?

A. You bet.

Q. Please do that for me.

A. Okay. I'll do it on the north-south

cross-section, or exhibit-- I guess it's Exhibit 1. The Number 2 well on the cross-section didn't even test the AG zone according to the Santa Fe's nomenclature.

This second zone which looks like that-- we assume that it could coorelate to the second zone on the Number 2 well trace at about 11,160 to 7250, thereabouts. Appears to correlate to their zone here, which they call the AF. They perforated this interval and recovered swab 20 barrels of oil, and 50 barrels of formation water. Eventually moved up the hole to an entire interval.

Also, in their AG zone, the third well on the cross-section, which would be this location here, they perforated that zone, which is the zone that their well -- the Santa Fe well, produced out of-- and they swabbed 8 barrels of water with a trace of oil and they eventually squeezed the perfs. So in that respect, you'd think that water is definitely a problem.

Q. Okay.

A. Anything else?

Q. No, sir.

The Examiner must make a judgment on the appropriate risk factor penalty to apply in either

case, Mr. Bracken. Mr. Thoma has recommended to the Examiner that if he approved a well in the south 40 that it justifies the maximum risk factor penalty of 200 percent.

A. Uh-huh.

Q. Do you agree or disagree with Mr. Thoma with regards to a well in the south 40-acre tract?

A. With that penalty, yes, it's riskier. It's a riskier location.

Q. If you're recommending to the Examiner a risk factor penalty for a well to be drilled in the north 40 --

A. Uh-huh.

Q. -- what is your recommendation to him based upon the geologic risk involved for a well at that location?

A. Well, in our opinion, it is less risky, and we would be willing to assign a penalty of 150 percent instead of 200 percent.

MR. KELLAHIN: That concludes my examination of Mr. Bracken. We move the introduction of Exhibits 1 through 4.

EXAMINER MORROW: Exhibits 1 through 4 are admitted.

(Hanley Exhibits 1 through 4 admitted into evidence.)

EXAMINATION

BY MR. BRUCE:

Q. Mr. Bracken, do you disagree with Mr. Thoma's breaking up the Wolfcamp into five separate pays?

A. I agree only in the sense that there are separate pays. But I don't think you can map them like he's done it. I think that would be an exercise in -- you know, you're just kidding yourself if you think you can correlate that stuff.

Q. Okay.

A. There are separate pays, yes --

Q. Would you?

A. -- I would agree with that.

Q. Would you also agree that some of those pays may be productive, while others are not?

A. Yes.

Q. Now, you mapped it, as I understand it total -- totalled all those pays to make your isopak?

A. Yes, sir.

Q. Will that reflect individual depositional environments for the separate pays?

A. I believe so. They're all going to -- well, I'll just leave it at that.

Q. Now, looking at -- I'll pick out your Exhibit 2 here.

A. Uh-huh.

Q. I believe you testified that your drawing the isopak perpendicular to the structure --

A. Perpendicular to strike.

Q. Well, isn't -- if that's the case, shouldn't your orientation be from the northwest to the southeast?

A. Well, I think you're splitting hairs, if you're going to go into that. I see -- that map is a small portion of a larger regional map that I've done and it's clearly east-west direction and on -- another thing is that there has been some tilting that has taken place, I believe during the Tertiary time, that is going to -- I'm trying to think of a word.

EXAMINER MORROW: Change?

A. Yes, change the original structure at the time of deposition.

Q. I've also made a note that you said this pool was effectively developed on 40 acres?

A. Yes, sir.

Q. Could you explain that?

A. Sure can. I'll show you on here. Who do you want me to show it to?

Q. We need to find a display that -- you need to find a display that everybody can recognize.

A. I think we've already gone into it on previous testimony, but, Mr. Examiner, if I could draw your attention to the, say, west half of Section 17, and the east half of Section 18, there's a cluster of three wells in there that all produce -- they're all direct offsets to each other.

You can go over to Section 16 to the east and in the southwest quarter of that section, again you see three wells that are more or less -- well, not more or less, they are effectively 40 acre spacing in relation to each other.

Q. Let's look at Section 17.

A. Okay.

Q. In the west half of Section 17, and then the west half of the east half of Section 17, that's about 480 acres. How many wells are in there?

A. Say that again? I didn't follow you.

Q. Excluding the east half of the east half of Section 17 --

A. Uh-huh.

Q. --how many wells are producing from the Wolfcamp?

A. Looks like there's six wells.

Q. Could you divide 480 by 6 for me?

A. Eight, I believe.

Q. I believe that's 80?

A. Eighty? Yeah, 80.

Q. So in other words, there's one well every 80 acres in Section 17; isn't there?

A. Right. Legally there's one well for 80 acres. But effectively there's -- in some intances, there's physically one well for 40 acres.

Q. In the area of interest, I do recognize that looking at Section 18 there is a 40-acre direct offset; isn't there?

A. Uh-huh.

Q. But really, if you look at Sections 8, 17, and 18 -- and 7, that's really the only instance of a 40-acre offset; isn't it? A direct 40-acre offset?

A. Well, like I said, over in the southwest quarter of Section 16, that-- I can draw your attention again down to Section 21, in the east half of the west half, you've got three wells that are stacked on top of each other, 40 acres apart.

Q. We're a little closer to Section 17, aren't we?

A. Yeah.

Q. How many other Wolfcamp wells has Hanley drilled in New Mexico?

A. What do you mean Wolfcamp wells, we've drilled? Wolfcamp wells we've produced from or wells that we've drilled to the Wolfcamp?

Q. How many Wolfcamp wells are you operating right now in New Mexico?

A. No Wolfcamp producers.

Q. Now, I believe you said structure is important?

A. Yes.

Q. Our proposed location -- And what is the difference between Santa Fe's proposed location and Hanley's location?

A. Santa Fe's proposed location and --

Q. Yes.

A. -- Right?

Q. Yes, footage difference in structure.

A. In structure is between 25 and, say, 30 feet. Again we're dealing with a 50 foot contour in there.

Q. Okay.

A. We would be at 25 to 30 feet higher than their proposed location at the base of the lower Wolfcamp.

Q. Okay. Then drop down to Section 17, and take that well in the southwest to the northwest quarter of Section 17?

A. Southwest of the northwest, E -- Quadrant E?

Q. Yes.

A. Uh-huh.

Q. How much lower structurally is that well than Hanley's proposed location?

A. Proposed location -- about 67 feet lower.

Q. Are you aware of how much that well has produced?

A. Yeah, I am.

Q. How much?

A. Oh, somewhere in the 200,000 range. It also produces from a different reservoir from the one that the Santa Fe Kachina 8 Federal produces from.

Q. Okay. Well, let's get into that. So the wells do produce from some of the different pays; right?

A. Right.

Q. And so that might affect your comments about effective 40-acre spacing, because some of those wells might be producing from different pays, even though they're direct 40-acre offsets; isn't that correct?

A. It's correct, although some of the intervals in the wells have perforated over a large -- large intervals where there's no way to determine what zone is producing. You just know you're getting oil out of a couple hundred feet of section.

MR. BRUCE: I'll pass the witness to Mr. Carr.

MR. KELLAHIN: Mr. Bracken, why don't you have a seat.

EXAMINATION

BY MR. CARR:

Q. Mr. Bracken, if I understood your testimony, you stated that you believe the Hanley location was structurally higher than that proposed by Santa Fe; is that correct?

A. Yes.

Q. And if I also understood your testimony, you stated that one of the benefits that would come

from a higher structural location is that you would have less of a potential water problem in the well; is that what you said?

A. Less risk of water production, right.

Q. Now, I know you told Mr. Bruce that you don't operate any Wolfcamp wells in New Mexico. You have studied the wells in the general area of this location, have you not?

A. In this location, as well as throughout the southeastern New Mexico and Midland Basin areas, Permian Basin.

Q. And if I look at your structure map, it's on the base of all Wolfcamp structures; is that correct? On Exhibit Number 2?

A. Base of the lower Wolfcamp structure? Right.

Q. And what you said was you're experiencing a drop off as you move toward the south; is that right?

A. There is dips -- down-dip structure to the south.

Q. And the yellow spots on this will show Wolfcamp wells; is that right?

A. Uh-huh.

Q. And they are south of your proposed

location?

A. That is right.

Q. And they're down structure?

A. That is right.

Q. And are you aware of any real water problems anyone is having down there?

A. Yes, I am. But I'm not prepared to testify to that. Somebody else will.

Q. You're going to have testimony on the water problems that are coming down structure?

A. You bet.

Q. With a -- how much difference are you talking about between the proposed location and the Santa Fe location?

A. How much difference in what?

Q. In structure. How much lower?

A. Between our location and the proposed location of Santa Fe?

Q. Yes.

A. Again, between 25 and 30 feet. Their location is going to be between 25 and 30 feet low, at the base of the lower Wolfcamp.

Q. Now, you prepared the structure map?

A. Yes.

Q. And in preparing it, did you use any

seismic?

A. No, sir, I did not.

Q. It's all well control?

A. Yes.

Q. If I look at the wells off -- I think they're -- well, I believe they're deeper wells. Are they Morrow -- they're the wells in Section 7. There's one with a letter B by it and it's a circle with a dot.

A. Yes.

Q. That's a deeper well than the Wolfcamp?

A. Well, if you look at the legend there, a dot with a circle around it means that it reached the Wolfcamp. And what I mean by reaching the Wolfcamp, that may be just the top of the upper Wolfcamp --

Q. Okay. What does NDE mean?

A. It means not deep enough.

Q. So that's not a well that you used in structuring a structure map on the base of the Wolfcamp?

A. On the base of the Wolfcamp, now, I have a up -- top of the lower Wolfcamp which I do have a structure point on that.

Q. But my point is when you say NDE on --

A. It's not deep enough at that point, correct.

Q. Now, if I look at this I don't see wells north -- or really west of the proposed location that seem to have penetrated the Wolfcamp; is that right?

A. You don't see them on that -- that display.

Q. And this display goes, oh, a mile west and at least a mile north?

A. That is correct from my --

Q. And how close did you have actual Wolfcamp control north that you're not showing on this map?

A. I'm going to say -- let me see. Okay, I believe -- let's see. It would be between 29, 30, 31, 32 -- I believe I have -- I don't believe it, I know I had a well control up here. And then I have well controls farther off this map in the same township (indicating).

Q. And you were showing that you had well control northeast and east; is that right?

A. Northeast and north and northeast.

Q. North and northeast?

A. Yes.

Q. Do you have anything to the west?

A. To the west -- I do, I do. I'm just trying to remember the -- how far north they go. I do have well control to the west, and to establish that -- you'll just have to take my word for it.

Q. Well, let me ask you this: In terms of the contours that you placed, say, in Sections 4, 5 and 6, were you using just well control in the Wolfcamp to map that?

A. Well, like I said, I've got well control to, I believe it's Section 32, it would be 17 South, 33 east. In fact, I have a value for that. And I simply try to maintain a constant contour interval from that point to where I gain well control again.

Q. And--

A. It's simple.

Q. In doing this mapping, were you only using Wolfcamp data or were you trying to draw data from formations above and below?

A. Both.

Q. Did you use some information from, say, Bone Springs information to project your general trends in this area?

A. Yeah.

Q. In your general mapping actually the

Wolfcamp shelf is off the north; isn't it?

A. The Wolfcamp shelf is off to the north, that is right.

Q. And you wouldn't be able to necessarily expect Bone Springs information to mirror what you get in the Wolfcamp; isn't that fair to say?

A. Say that again?

Q. Could you look at the slope in, say, the Bone Springs, and be able to project what the Wolfcamp is doing from that, or would you have to have other data to do that?

A. Project it with what degree of accuracy? Just that they are conformable?

Q. Did you utilize that in concluding --

A. Yes, yes. The beds from -- like I said, from the Yates down to the -- gosh, upper Penn would be more or less conformable and would exhibit this north-to-south structural dip.

Q. When we look at your contours on the base of the lower Wolfcamp and we look at your 70- to 50-foot contour, this is the section that you selected out of the regional map to show the trend in this area; isn't that correct? You were the person that decided to use this portion of it?

A. Me, solely?

Q. Well --

A. That map, yes, I did use that -- I did choose that.

Q. Okay. And when we're drawing this contour, you're utilizing the points that you have north, northeast and somewhere off to the west -- three points is that what you were telling me?

A. Yeah.

Q. And based on that and integrating your general regional study, this is your best interpretation of the lower Wolfcamp as it comes across the subject area?

A. It's my best interpretation; right.

Q. And if we look at the three sections north of it, we see your 7250 foot contour coming -- going south. If we move to the west, it drops south about a thousand feet a section, doesn't it?

A. A thousand feet a section? No, about --

Q. How many feet would you say you have come down on, say, the east side of Section 6 from the north line of that of section?

A. Well, every one of those heavy black lines is 250 feet. So that would be about 250 feet difference from the -- if you pick a point there at the northeast corner of that Section 4, is 100 and

something -- excuse me, 250 feet high to a point, say, two-thirds of the way down on the left-hand side of Section 6.

Q. And you're saying that on the surface of the ground from the corner of Section 6, to where your contour intersects it is 250 feet?

A. Not on the surface of the ground.

Q. How many feet on the surface of the ground? About 3,000 feet?

A. On the surface of the ground?

Q. Yes, sir.

A. It -- no.

Q. I'm asking you how many feet to the south your contour moves if you look straight down on it?

A. Well, you're confusing me now. Are we talking about the surface out there where you walk or are we talking about this map?

Q. I'm talking about your map, Mr. Bracken, and I am asking you, since you say these contours are north-south, I'm asking you how much -- when you look down at it -- how much to the south you are moving on the west line of Section 6? Where does this intersect with the west line of Section 6?

A. Midpoint? Two-thirds of the way down.

Q. Okay, now --

A. About 250 feet difference from the top of that section, north part of that section down to that two-thirds point on that section.

MR. STOVALL: Mr. Carr, maybe to qualify, you're talking about horizontal displacement of a single contour elevation. And I believe the witness is talking the vertical difference between that northwest corner of the section.

Do you understand this -- what he is saying?

A. I think now, after you -- say it again? I'm sorry, I'm not trying to be difficult. Say it again.

Q. I'm asking you if you know how many feet are on the side of Section 6 -- on the west side of Section 6.

A. About a mile -- 5,280 feet Sorry.

Q. And if we have 5,280 feet, you have moved the contour, the 7,250 foot contour how many feet down? Two-thirds of that 3,000 feet maybe?

A. Yes.

Q. And so that means as we go across three sections and we're moving south -- which I imagine is toward the bottom of your map; is that a fair

assumption?

A. Uh-huh.

Q. That you have gone -- you have tilted this contour approximately a thousand feet per section across those three sections; is that right?

A. One thousand feet horizontal displacement; is that what you're saying?

Q. That's what I'm talking about.

A. Yeah, okay.

Q. Now, if we go to your 75 foot contour -- there's a 7500 feet contour --

A. Uh-huh.

Q. It again slopes generally from northeast to southwest, horizontally?

A. Uh-huh.

Q. All right? And I think you stated that you would expect the Wolfcamp to lay perpendicular to the slope of your formation?

A. Yeah.

Q. Wouldn't you expect the slope -- isn't the slope of the formation basically a northwest-southeast slope based on these contours that you picked?

A. Based on both contours --

Q. That you picked.

A. To answer your question, yes.
Q. And you picked them?
A. Yes.
Q. And if it lies perpendicular to these, the formation would tilt from northeast to southwest based on this exhibit?
A. It does not tilt northest -- or --
Q. Let me just ask you this --
A. It does not tilt northeast to southwest based on that contour. It's the exact opposite.
Q. If we were drawing a line perpendicular -- the slope of this formation based on these contours is northwest-southeast?
A. Based on that? Right.
Q. And perpendicular to that would be northeast-southwest?
A. Perpendicular to that would be --
Q. Perpendicular --
A. --would be northeast-southwest, yes.
MR. KELLAHIN: I don't want to intrude, but I think the directions are wrong. To be perpendicular, the directions would be northwest to southeast. I think you misspoke.
MR. CARR: The slope is southwest to -- you would tilt northeast to southwest.

MR. KELLAHIN: It's backwards.

EXAMINER MORROW: Do you have any questions, Mr. Kellahin?

MR. KELLAHIN: No, sir.

EXAMINER MORROW: Let me ask you a question about perpendicular. On Exhibit Number 2, zero contour line --

THE WITNESS: Uh-huh.

EXAMINER MORROW: -- runs on your isopak map, runs generally east-west; is that correct?

THE WITNESS: Right.

EXAMINER MORROW: And this 7500 foot line on the contour, mines 7500 foot subsection, on the contour map, the base of the map at least, is running north and south; is that correct?

THE WITNESS: I'm sorry. My attention span lapsed there for a section.

EXAMINER MORROW: The mine's 7500 feet C line right there. At this point is it running north and south?

THE WITNESS: Oh, yes.

EXAMINER MORROW: Is that what you mean by perpendicular, the zero line is perpendicular to the -- mine's 7500 foot Sub C line; is that what you mean?

THE WITNESS: No, I mean that the total accumulation of rock, clean rock, debris, as indicated by the isopak, has a noth-south direction perpendicular to the depositional -- or structural strike which has a more or less east-west direction. And this is -- this is parallel to the Perma Pan reef front to the north as well as the Abo reef front.

There are minor variations in the-- in the strike -- structural strike, due to the fact that there was postdepositional tilt to the west.

EXAMINER MORROW: I can see that these ridges that you've contoured here on your isopak map on Exhibit Number 2 --

THE WITNESS: Uh-huh.

EXAMINER MORROW: -- are perpendicular to the Bone Springs dip, as shown on Exhibit 3. Is that what you mean by perpendicular, that the general regional dip --

THE WITNESS: Yes.

EXAMINER MORROW: --as reflected on Exhibit Number 3, is perpendicular to the ridges of acumulation of rock on your isopak?

THE WITNESS: Yes, yes.

EXAMINER MORROW: Is the Santa Fe

Number 1, was that the subject well -- the well that was the subject of the subpoena?

THE WITNESS: Yes.

EXAMINER MORROW: Do you know when Hanley's force pooling case was filed relative to Santa Fe's, in time?

THE WITNESS: I wouldn't have that. I wouldn't know that.

EXAMINER MORROW: Did you say you'd recommend 150 percent penalty for the north location and 200 percent for the south locations?

THE WITNESS: Yes.

EXAMINER MORROW: That's all I have.

MR. STOVALL: I do have a couple of questions. And I preface them with a statement that I am supposed to be an attorney, so I am, by definition, unqualified for anything.

MR. KELLAHIN: I'd like a copy of that.

MR. CARR: I'd like a copy of that.

EXAMINATION

BY MR. STOVALL:

Q. When I look at the structure map, in your -- I think it's your Exhibit 2 -- well, they're both the same structure map; aren't they -- on both of your exhibits, and your structure map is the base

of the Wolfcamp; is that what I understand you to say?

A. The base of the lower Wolfcamp.

Q. Right. Now, if I look at Mr. Thoma's, the one I can see over on the wall, which I believe is their Exhibit Number 7, looking at the structure map which is -- one end is identified as the structure map that's actually on a -- those structures are drawn on a different interval in the Wolfcamp; is that correct?

A. Can I look at the map?

Q. Please do. I want to make sure that I'm --

A. Top of the AG. Yes, yes.

Q. Now, would you -- when I looked at these, it appeared to me that -- sitting back here looking at them -- they look, the strike, essentially the same on the two of them.

A. You say my map more or less compares to his as far as structure?

Q. Generally speaking. I'm not talking exact.

A. Generally speaking, yes.

Q. Now, you might look at it and say your 7250 line, it's geographic location, roughly the same as I think Mr. Thoma's -- is it 7500 feet -- or

7,000 foot line, I believe. Kind of across the top of Section 5?

A. 7250 and what -- 7,000?

Q. Is that his 7,000?

A. Yeah.

Q. So that would indicate that the marker he's used is about 250 feet higher than the marker you've used to mark the structure, to map the structure; is that right?

A. Is 250 feet higher? I don't --

Q. His is -- the portion of the formation that he's mapping is aobut 250 feet higher than yours?

A. Yes.

Q. Am I correct?

A. Yes.

Q. But yet using different portions of the -- and we're talking aobut the Wolfcamp, how thick are we talking about, the total Wolfcamp?

A. The total Wolfcamp interval is about 650 feet, roughly.

Q. You're mapping the bottom of it and he's mapping a third of the way up from the bottom of it; is that right?

A. Yeah, a third. Yeah.

Q. We're not talking exact. Remember, I'm the Division lawyer here. So even though you're mapping different intervals, you're going about the same direction really?

A. Structurally.

Q. So the strike of a Wolfcamp, you're pretty consistent on that, it looks like?

A. Structurally.

Q. Structurally. Now, I guess what you're saying, though, is when you look at your isopak, your isopak map generally orients the thickness, more north-south, and his is more northeast-southwest?

A. Northeast-southwest, correct. Uh-huh.

Q. What's the significance -- what's the difference? What difference does it make to us from the standpoint of trying to evaluate the information?

A. It makes a big difference, because he would like you to believe that our location is going to have less rock than their location, which is -- in my opinion, there's no justification for that conclusion.

I feel we're going to have -- by the way, I've drawn it, based on other parameters, that we'll

have just as much rock in our location as the location in the south quarter section, if not more. That's always a possibility, because you have to remember that isopak map is a total of all kinds of zones and piles of debris coming down. We might get lucky and get another zone.

Q. Yours is the total Wolfcamp clean line; right?

A. Yes.

Q. Yours is one isopak showing all the clean line?

A. Yes.

Q. Within the Wolfcamp that's known as the Wolfcamp formation?

A. Lower Wolfcamp.

Q. Lower Wolfcamp, okay. Now, there's three different isopaks picking three different zones within that lower Wolfcamp area; is that correct?

A. Uh-huh.

Q. So again the numbers aren't the same. But you're saying that by piling it more north-south, you get more thickness on your location than he would give you by piling it northeast-southwest?

A. That's right.

MR. STOVALL: I don't have any more questions. I've got myself far enough into geology to get myself into trouble.

EXAMINER MORROW: Anyone else?

MR. KELLAHIN: No, sir.

EXAMINER MORROW: Thank you, Mr. Bracken.

MR. KELLAHIN: I'd like to call at this time Mr. Bill Huck.

WILLIAM R. HUCK,

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

EXAMINATION

BY MR. KELLAHIN:

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

A. My name is William R. Huck. I'm a petroleum engineer.

Q. Mr. Huck, would you summarize your educational background?

A. I graduated from Marietta College in 1977 with a BS in petroleum engineering.

Q. Subsequent to graduation, summarize your employment as a petroleum engineer?

A. I've worked as a petroleum engineer for

the past 14 years in West Texas and New Mexico for various companies, namely Marathon, Hanley, Arco Petroleum.

Q. During the course of performing your duties, are you familiar with doing reserve calculations for Wolfcamp wells in the Permian Basin?

A. Yes, sir, I am.

Q. Are you also familiar with the details of preparing and evaluating AFEs for the drilling of Bone Springs Wolfcamp wells and wells to other formations in the Permian Basin?

A. Yes, I am.

Q. Have you, as an engineer, made any estimate, studies of the potential for the Wolfcamp on a reservoir basis within the Corbin Wolfcamp pool that we're discussing today?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Huck as an expert petroleum engineer.

EXAMINER MORROW: Accept his qualifications.

Q. Mr. Huck, let me direct your attention, sir, to what is marked Exhibit Number 5. Would you identify that for us?

A. Exhibit Number 5 is a map of the south Corin Wolfcamp field. The Wolfcamp completions are shown in yellow. This map -- the numbers beside each well indicate the cumulative oil production through September of 1990 for each Wolfcamp completion in the field.

And then after the slash, it indicates the average daily oil production for September of 1990 for that particular well. For example in Section 8, on the two wells at the bottom of the section, the well in Unit M -- Number 9-M, has accumulated 51,457 barrels, and in September was producing 16 barrels a day.

Well Number 11-O has accumulated 135,434 barrels, and in September was producing 170 barrels a day.

The asterisks beside some of the cumulative production indicate that that well has ceased production from the Wolfcamp.

Q. In order to properly prepare yourself to make engineering conclusions and calculations concerning the Wolfcamp production in the Corbin Wolfcamp have you also studied the production history for the well in the pool?

A. Yes, sir, I have.

Q. And are you familiar with the production information for each of those wells?

A. Yes, sir, I am.

Q. Were you assigned the responsibility as Hanley's petroleum engineer to try to evaluate and quantify the Wolfcamp potential for the 40 acres in the north half of this spacing unit in relation to the Wolfcamp potential oil in the south half of the spacing unit?

A. Yes, sir, I was.

Q. What was the methodology applied by you to come to a basis to form opinions?

A. Basically, I used a logical sequence to -- we'll be drilling this well, searching for oil. We try to establish trends as to where oil accumulations might be in the south Corbin Wolfcamp field. The start of this was this Exhibit Number 5, seeing the cumulative production for each of the wells in the field.

Q. Once you've done that then, what is the next process in your analysis?

A. Looking at the production histories on each of the wells in the field. You try to establish -- or I tried to establish a tpyical well in the field, a good well in the field, a poor well

in the field, for purposes of economic analysis and evaluating their investment.

Q. In making that evaluation, did you prepare an isoproduction map?

A. Yes, sir, I did.

Q. And what does that mean?

A. Shall I show it now?

Q. I'll give it to you in a moment.

A. Isoproduction map would be similar to -- in geology, an isopak map where they contour the thickness of a reservoir. I would contour the cumulative production or estimate ultimate recovery from the individual wells.

Q. Why is that information useful to you as an engineer?

A. It leads me to conclusions as to where the oil may be accumulated in the south Corbin field, where the most oil may be accumulated in the south Corbin field.

Q. Let me draw your attention to what is marked as Hanley Exhibit Number 6. Is this your isoproduction map?

A. Yes, sir, it is.

Q. Describe for us how you prepared the map?

A. Exhibit Number 6, to the upper right of each Wolfcamp producer is the estimated ultimate recovery for that well based on the decline curve analysis in thousands of barrels. These estimated ultimate recoveries were then contoured on 50,000 barrels to obtain this isoproduction or iso EUR map. Shown in blue, to the lower right of each well, is that well's average 1990 water production through September expressed as a percent.

Q. When we look at the isoproduction map, can you draw any conclusions about the risk involved in encountering water when you test for production in the Wolfcamp zones?

A. Yes,sir, you can. The occurrence of water seems to coincide with the south or downdip side of each of these oil accumulations. Let me further define the oil accumulations, that they happen in isolated areas that are defined in part by the presence or absence of porosity in the Wolfcamp. And then are also limited on the south side, or downdip side, by the presence of water in a lot of cases.

Q. When you look at the value of the 40-acre tract in the north versus the value of the 40-acre tract in the south for the spacing unit,

what conclusion do you reach?

A. I've reached the conclusion that the value in the south -- or the well in the south quarter, quarter section of the proposed unit is a greater -- much greater risk to us, reservewise, than a well in the north quarter, quarter section of the proposed unit.

Q. Have you examined Mr. Bracken's geologic interpretation to see whether or not you can draw any conclusions based upon his work as compared to your isoproduction map?

A. Yes, sir, I have. The total accumulation -- or gross accumulation of oil, tends to mirror his isopakus map, in that these oil accumulations have occurred in a north-south direction. The individual accumulations or -- to break up these accumulations, they occur in isolated areas, that are more or less oriented on an east-west direction, being pinched on the north by a porosity absence and pinched on the south by either porosity absence or the presence of water. It squeezes the shapes of these accumulations.

Q. If you have to choose between Mr. Bracken's geologic interpretation and that of Mr. Thoma, and draw a comparison to your

isoproduction map, which geologic interpretation is the closer fit to your conclusions about the isoproduction map?

A. Mr. Bracken's.

Q. Why?

A. Again, his gross line interval orients in a north-south direction. And that corresponds to the occurrence of hydrocarbons, which is what we're looking for in this case.

Q. Having come to the conclusion that the Hanley 40-acre tract has greater oil potential in the Wolfcamp than the Santa Fe-Heyco tract to the south, did you attempt to specifically try to quantify the reserve potential for each of those tracts?

A. Yes, sir, I did.

Q. What was the methodology applied by you to come to a reasonable engineering certainty about the accuracy of your numbers?

A. To start with the accumulation pod around the Santa Fe Kachina well -- or to start with the Santa Fe Kachina well itself. That well potential for one of the highest rates in the field and had the highest tube and pressure of any well that we know of in the field. Therefore, we give it

the highest reserve value.

And in light of the pay that appears to be above the current producing zone, we feel confident it will produce a quarter of a million barrels easily. The shape of the producing -- the accumulation pod around that well, was drawn to match the shape of the pods to the south.

If you look at the contour lines, you'll see a well on our location that we assume will produce on the order of a quarter of a million barrels of oil, while the well in the center of the south quarter quarter section will produce on the order of 130,000 barrels of oil. I think this is a generous assessment of the well in the south's potential, due to both moving downstructure from the Kachina 8 Number 1 and the possible disappearance of porosity.

Q. Have you prepared your reserve estimates and your economic assessment in the terms of an exhibit?

A. Yeah. I've run a standard cash flow analysis.

Q. Let me share that with everybody. Hang on just a minute.

I've passed out Exhibit Number 7,

Hanley's Exhibit Number 7, Mr. Huck. Would you identify and describe that display?

A. Exhibit Number 7 is a comparison of the reserves we expect between a well in the north half of the proposed unit and a well in the south of the proposed unit, and the resulting economics for producing these reserves. The well in the northwest northwest quarter of that section, we think would produce approximately a quarter of a million barrels of oil, minimum, while the well in the south end would produce a maximum of 130,000 barrels.

Assuming the same net investment for either location to Hanley Petroleum, which would be 50 percent or $334,000, it would take roughly the same amount of oil to pay out the drilling investment for this well. Although a well on the south end, because of a lesser initial rate, would pay out in eight months instead of four months for the north well.

The main impact would be in the pretax cashflow to Hanley. A well in the north end of the unit would return to us roughly $1.6 million, net of investment, while the well in the south end would only return roughly $600,000, a difference of almost $1 million.

Our discounted net present value for a well in the north end would be $1.2 million, compared to $450,000 per well in the south end, again a difference of roughly three-quarters of a million dollars. Likewise our royalty interest under this 40-acre tract would suffer to the tune of a quarter of a million dollars.

Q. In terms of the net present value, what does that show?

A. The present value to the royalty interest?

Q. That's the bottom line on the display, the 432?

A. Yes. Royalty interests, net present value for a well in the north end would be $432,000 compared to $185,000 for a well in the south end. As I mentioned, the difference of a quarter of a million dollars.

Q. The next portion of the display the captioned risk analysis?

A. Yes, sir.

Q. What are you studying here and what are the conclusions?

A. This is a statistical summary of the EURs for all the wells in the South Corbin Wolfcamp

field, which there's 32 by our count. It doesn't include the wells that were dry holes in the Wolfcamp.

Statistically speaking, if you can lump these wells into categories, the first category being zero to 45,000 barrels, the amount to pay out -- required to pay out your drilling investment, 13 of these wells or over 40 percent will not produce the 45,000 barrels.

An additional 7 wells, for a total of 20, or 63 percent, would produce less than 90,000 barrels of oil, or the amount which would be considered minimum economics for a development location.

Q. Mr. Offenberger was using the assumption that the well in the west half of the northwest corridor would have 100,000 barrels of oil recoverable, if I remember that correctly?

A. Yes, sir.

Q. If that is the assumption, would that be economically profitable to the working interest owners, if that's all the reserves there were to share in the 80-acre spacing units?

A. That would be borderline economics. What we would consider the minimum reserves

necessary to require -- to justify the investment in a development Wolfcamp location.

I might point out, if you want to go back to Exhibit Number 5, the cumulative production from these wells, you'll see -- and also Exhibit 6, the EURs -- there's a range of zero to 250,000 barrels. There's -- nowhere does the average hover around 100,000 barrels per 80-acre unit. You can move diagonally away from a good well and get a poor well if you look at -- on Exhibit 7 -- well, we'll just stay with Exhibit 5.

You move southwest from the southeast quarter of Section 8, Well Number 11-O has produced 135,000 barrels of oil. You move southwest, you find a well that watered out after producing only 30,000 barrels of oil. Then you come to a well that's produced over 200,000 barrels and we expect it to produce around a quarter of a million.

EXAMINER MORROW: What's the location again? You lost me.

THE WITNESS: You would be starting with the well in the southeast quarter of Section 8 and Unit O, and move southwest diagonally, you come to the well in the northwest quarter of 17. It watered out and no longer produces from the Wolfcamp.

You move further southwest to the well along the west line of 17, it's produced 213,000 barrels and we expect it to produce a quarter of a million.

You move further southwest to the next well. It's produced 39,000 barrels. We expect it to accumulate around 75,000 barrels. It's producing at an 85 percent water cut right now.

EXAMINER MORROW: Okay.

Q. When you look at the ultimate recovery number that you've put on Exhibit Number 7, did you derive that number based upon a volumetric calculation?

A. No, sir, it was derived on decline curve analysis.

Q. Let me have you describe for us your decline curve analysis that gave you those results and ultimate recoveries.

A. If I might offer --

Q. Yes, sir, we need to find where the curves are.

A. Mr. Examiner, this is a graphic representation of the --

MR. KELLAHIN: Excuse me, Bill.

A. Sorry.

Q. All right, please continue, Mr. Huck.

A. Okay. This is a graphic representation of the historical oil production from every well in the field. I apologize, it's a lot of data on a lot of wells.

But, basically, each well has been separated by color. The estimated declines in the future that these EURs are based on show a stash line out to the right of the solid lines, which is the actual data to date.

Q. Let me stop you --

EXAMINER MORROW: -- To the right --

A. The dash lines out to the right signify the estimated future oil stream that I used in evaluating the EURs for each well in the field.

Q. Let me stop you and ask you whether or not for the Wolfcamp you can take the typical volumetric calculation and come up with a reliable estimate of recoverable oil for a given spacing unit?

A. No, sir, you can't.

Q. Why not?

A. To use volumetrics, you've got to assume a uniform thickness or uniform porosity over an entire drainage area. The depositional nature of

these limestone pods would give you variations in porisity and permiability, well to well, over short distances. You just have to make too many assumptions to have a valid reserve estimation for each well.

Q. How would the multiplicity of fractures in the varying size and shape and length of those fractures affect a volumetric calculation?

A. It could affect it dramatically if they're shorter than appear to be by well log, or longer than would appear to be by your well log.

Q. Volumetrically, is there any reliable way to calculate the -- in a realistic basis, the poor volume that would contain the oil in the reservoir?

A. No, sir.

Q. The best choice then is the decline curve analysis?

A. Yes, sir, that's what you get back from the well.

Q. Let's talk then about Exhibits 8, 9 and 10, and have you take us through the main points of that information to show us how you support the reliability of your ultimate recovery numbers utilized in Exhibit Number 7.

A. Okay. Again, each well's production history is plotted on a similog paper in a historical fashion. To the left you see oil rate and barrels per month. And on the bottom scale you just see time in years. And you see different starting points for each well, because this is an actual historical representation.

In all cases, you see a fairly steep decline indicative of primarily solution gas drive for the first year to two years -- the average is about 60 percent. Then it levels off to 23 to 30 percent over the rest of the 12-year life.

You can fit or match a good well to this, start a well out at top allowable, decline it at 60 percent for almost two years, then flatten it out. You'll match up with some of the better wells in this field. You can start out a well at a half allowable, around 200 barrels a day, let it decline likewise for two years, and flatten it out. And you will match up with some of the mediocre wells in this field.

Q. Based upon your engineering study, Mr. Huck, do you have a recommendation for the Examiner for a risk factor penalty to be applied if he allows Hanley the opportunity to have the well

located in the north 40-acre tract of the spacing unit --

A. Yes --

Q. -- versus locating it in the south 40?

A. Yes, sir, I do.

Q. What is that opinion?

A. Based on the expected reserves recoverable in these locations, we feel much less risk to be applied to a well in the north end of the proposed unit.

Q. Do you have a percentage level in accordance with the risk factor penalty formula that you can recommend to the Examiner?

A. I feel a risk factor of 150 percent would be equitable to the risk -- relative risk involved with the north location.

Q. Have you also examined the rules that apply to the Corbin Wolfcamp pool, Mr. Huck?

A. Yes, sir, I have.

Q. Let me show you what is marked as Exhibit Number 11, and ask you if this is a true and accurate copy of the rules as you know them to exist?

A. Yes, sir, it is.

Q. Santa Fe has urged that there should be

maintained some kind of sequence so that the opposite 40-acre tracts, in fact, have the well. Do you find in your examination of the rules that apply currently to the pool, that there's that type of limitation or restriction?

A. No, sir, there's no limitation other than that a well has to be within 150 feet of a governmental quarter -- within 150 feet of the center of a governmental quarter, quarter section. In fact, Rule 2 specifically provides for the drilling of wells on adjacent quarter, quarter sections.

Q. With regards to the possibility of having Rule 3 of the special rules used as a solution to this problem, whereby each operator is allowed the opportunity to drill a Wolfcamp well and then have a nonstandard operation unit dedicated consisting of 40 acres, is that a viable solution in your opinion?

A. In my opinion it's a more viable solution for Hanley, rather than participating in a well in the south end to drill 100 percent well in the north end and accept the penalty.

Q. If the well is awarded in the north 40 acres, and it's on a 40-acre spacing unit, what

would its producing allowable be in relation to the offsetting Kachina 8 Number 1 well?

A. It would be half.

Q. Would that be equitable and fair?

A. As far as rules of capture, no, it wouldn't. Interference between the wells -- there would, I think, still be drainage happening to the Kachina 8's advantage.

Q. If the well is located as Santa Fe proposes in the south 40, what will happen to the oil reserves underlying the north 40-acre tract in terms of capture by the competing wells in the immediate area?

A. I feel that they'll be more likely captured by the closest well to that unit, and also the more structurally favorable well to that unit, which is the Kachina 8 Number 1.

Q. Let me direct your attention now, Mr. Huck, to the topic of the estimated cost for the drilling of the well. Let me show you, sir, what is marked as Exhibit Number 12.

A. I think you're --

MR. KELLAHIN: Take a moment, Mr. Examiner, and see if I haven't mixed these all up.

EXAMINER MORROW: We'll take about five or ten minutes here. Let's say, be back at ten till 3:00.

(A recess was taken at 2:35 p.m. until 2:53 p.m.)

EXAMINER MORROW: All right, let's continue.

Q. Mr. Huck, let me turn your attention now to the estimated well costs that you have prepared on behalf of your company and analysis you have made of Santa Fe Energy's AFE that they have applied to your company. In doing so, let me direct your attention not only to Hanley Exhibit Number 12, but to have you get a copy of the Santa Fe Energy Exhibit Number 9. You have both of those before you?

A. Yes, I do.

Q. Summarize and describe for us those important elements to you as an engineer?

A. First off, Exhibit Number 12 is essentially, line-by-line comparison of the AFEs on Hanley's format. I'll work from Hanley's Exhibit Number 9, since everybody is already seen it and is familiar.

Santa Fe objected to Hanley's omitting

omitting conductor pipe from the AFE. As our drilling contracts are structured, conductor is set at the expense of the contractor and a lot of contractors, if left to their own devices, leave it out. In any event, the rat hole machine is also at the contractor's expense and that's all included in the drill and footage rate.

They objected to labor for tank battery installation. This was an omission on the Hanley AFE. We expect it to cost between $8,000 and $10,000.

Battery to the south with a heated treater, a thousand barrels of storage and 500 barrels of water storage recently cost us $6500 to install.

They objected to fencing. We include that in our AFE costs -- or in our location costs of $16,000. And that's within the line of what we've experienced in our wells in the area.

They objected to drilling equipment rental. Inspectin of intangibles and further down testing. All those -- we lump and include in our contingencies. And they are inevitably covered by our contingencies.

They object on the bottom to us not

including drilling overhead As Hanley proposed -- or the joint operating agreement as proposed by Hanley, includes the provision that drilling overhead in addition to being placed at $5,000, compared to Santa Fe's $6260, and producing rate was requested to be made $500 a month, compared to Santa Fe's $620.

In addition to proposing those rates, we also proposed that the provision that makes them include first-line supervision and technical support and employee salaries be included in the overhead rates.

Hanley has included some $10,000 for supervision in the drilling of this well. This will be absorbed -- this is more than what we figure the overhead will be for drilling the well. The cost will be absorbed by Hanley. So no overhead is shown on the AFE because Hanley proposes that -- again, that any overhead charges in the JOA be made to observe first-line supervision, engineering and technical salaries and charges.

We had a couple of objections to their AFE. From the technical standpoint, they were going to run eight and five-eights 24-pound pipe to 3,000 feet. Using standard practices for casing design,

we think the collapse rating of this pipe will be exceeded at a depth below 2200 feet. So we have recommended an RAFE -- or propose an RAFE with 32-pound pipe be used in your intermediate string below 2200 feet, and we can furnith it at a cost some $6,000 less than their intermediate strength.

Likewise, on the production strength, they've proposed five and a half, 1515 K55 casing as a portion of their design. You can -- conventional API design will allow you to use some 3500 feet of that pipe in your string, but due to the probability of uphole completions later and stimulation down the casing, we'd prefer and are willing to furnish -- again, at a lesser cost -- at least 17-pound K pipe, if not 17-pound M80, in the drilling -- if we get to operate the well.

Thus, the basic differences in the AFE.

Q. When you get down to the bottom line totals on a dry hole versus AFE and a completed well versus each AFE, where are we?

A. For a dry hole? As Mr. Roberts stated, when you adjust for this omission of drilling overhead and abandonment costs-- which we don't include in a development well -- for dry hole costs they're essentially the same. But for a completed

well, Hanley is some $80,000 to $90,000 cheaper.

Q. In your opinion, Mr. Huck, does Hanley Petroleum Company have the qualified personnel and the expertise and experience to be designated by the Division as the operator of this well?

A. Yes, sir, they do. Hanley operates over 300 wells in the Permian Basin and has interests in hundreds more. We've produced some 1 million barrels of oil last year, and right at 3 bcf of gas. We've been around since the turn of the century. We're qualified to operate in the Permian Basin. We've operated some -- if we might go to a -- I'm probably getting ahead of myself.

We've operated some five wells in this immediate area -- three wells in this immediate area. There's a Bone Spring well to the south, a PD to 8700 feet. There's another Bone Spring well to the township to the west, PD'd at 8800 feet. We drilled a well to the Morrow to the west in Township 29 east -- Range 29 east. We drilled through the Wolfcamp in that well.

We're -- we have drilled in this area and we're qualified to drill in this area.

Q. Does the fact that Santa Fe Energy -- does the fact that they have drilled more wells in

the immediate vicinity than Hanley cause you, as an engineer, to conclude that they're more qualified to be operator than you are?

A. Not more qualified, sir, no.

Q. Do you have some actual costs to compare your AFE cost, too, so that the Examiner can have confidence that your AFE, which is lower than Santa Fe's is a reliable, realistic number?

A. Yes, sir, I do.

Q. How do you make that comparison?

A. I have a summary of AFE versus actual costs on a well drilled, if we might go ahead and offer it.

Q. Yes, sir. It will be Exhibit -- Exhibit 13, is it? Is that what you have?

A. Yes, 13.

Q. Thirteen.

A. Everybody has copies?

Q. Yes.

EXAMINER MORROW: Is that the one marked 12?

MR. KELLAHIN: It's this one. Let me give it to you, if it didn't get marked.

EXAMINER MORROW: Thank you very much.

A. Exhibit Number 13, Gentlemen, is a

comparison of AFE versus actual costs for an 8700 foot Bone Spring test drilled three miles to the south of this subject acreage.

To summarize the comparison, the well is completed. These costs are 99 percent complete, are actual costs for $542,000 compared to an AFE cost of $536,000. We overspent the AFE by one percent. And we had some extra rig time that -- due to holes in the drill pipe kind of caused most of that.

The well was spudded on December 29th. It was completed on February 6th. This being March 8, I think it's fair to note that 30 days after the completion of the well, our first line accounting procedures on the well is complete. We have a summary of our charges in, checks have been written, bills have been paid, where this joint interest well would be invoicing the partners at this point.

I might also had this $542,000 was a completed Bone Springs producer through the tanks. Earlier, Mr. Roberts, I believe, referred to allocating some $660,000 of completed well costs to the Bone Springs in the subject acreage. We believe that's a little excessive.

Q. What does it cost you for a Bone Springs

completion?

A. In this case it waas $542,000.

Q. Turn now to Exhibit Number 14, and identify and describe that display?

A. Exhibit Number 14 is a list of wells operated by Hanley in New Mexico to date. And then below that a list of outside operated wells in which Hanley has a working interest in New Mexico to date. Keep in mind we have really started focusing and working over here in 1983.

Q. Have you analyzed the question of cost allocation so that if the Examiner feels it's appropriate to allocate costs between the Bone Springs and the Wolfcamp portion of this well, that he may do so in some fair and reasonable way?

A. Yes, sir, I have.

Q. What is the basic information that you utilized upon which to draw conclusions about appropriate cost allocations?

A. I've read the record of some prior cases in which cost allocation was adopted for shallower zones. I've studied the completed well costs of shallower wells in the area, compared to deeper wells in the area. And, basically, that's it.

Formulated what I believe is a fair and

equitable method of cross-identification.

Q. Specifically, Mr. Huck, did you make yourself familiar and aware of the Division Order R-9093C entered in the Yates Energy Corporation case on November 29, 1990?

A. Yes, sir.

MR. KELLAHIN: Mr. Examiner, I show you a copy of that order for your information.

Q. In addition, have you proposed cost allocation and is that formula shown on Exhibit 15?

A. Yes, sir, it is.

Q. And then, finaly, on Exhibit 16 is that the Copus Bulletin Number 2 that shows a method of determining cost allocations for joint operations?

A. I have -- as part of Exhibit 15, or should be Exhibit 16, I think there's an example allocation.

Q. We are missing that from the package. If you'll give me some more copies, we'll add that to Exhibit 15.

A. Here you go. Somehow it got folded up over here.

Q. I'm going to mark your example cost allocation as Exhibit Number 17, Mr. Huck. This one is not in the package.

A. Okay.

Q. Let's go back then to Exhibit 15 and have you compare it -- well, first of all, go to 15 and describe for us the methodology you propose to utilize for the allocation of costs between the shallow formations and the Wolfcamp test?

A. Yes, sir. First off, we propose and ask that shallow costs be allocated on the basis of -- on this basis for a well drilled in either the north end or the south end of the proposed unit. This exhibit outlines Hanley's proposed method of allocating costs between the Wolfcamp and any shallower zones of different ownership, should the well bore no longer produce from the Wolfcamp. This method of allocation is outlined in the Copus Bulletin Number 2 that we've offered as Exhibit Number 16, entitled determination of values for well cost adjustment of joint operation and has been adopted by the Commission in prior cases, most notably Order Number R9093C, as mentioned by Mr. Kellahin.

To summarize the parameters we propose under Section A, the determination of intangible costs, we would like to see the actual historical costs used. And if the Wolfcamp produces and

adjustments are made down the road, these historical costs coulde be amortized using the straight-line method in Section 3, where the number of years produced are divided by the total number of years expected to be in the life of the well.

Under Section B, the allocation of these intangible costs, we refer to Subsections 1A and 2 of the Bulletin --

(A five-minute recess was taken from 3:10 p.m. until 3:15 p.m., to replace a broken stenograph machine.).

MR. KELLAHIN: Go ahead.

A. To continue, again, the determination of intangible costs, we ask that the actual historical costs be used. To allocate intangible costs we refer to Subsections 1A and 2, which allocate such costs on a drill and day ratio. We ask that this day ratio equal the number of days to drill to 100 feet below any shallow zone of interest, be divided by the total number of days from spud to rig release and any activities known to be zone specific such as DSTs or coring be withheld from the total cost and the corresponding days deducted from the total days before making this division.

We propose the tangible costs be

determined as in Subsection 1A, which is basically the actual costs at the time of installation and depreciated according to Subsection 2B, which is a time straight line depreciation over seven years. The -- I believe that's the normal life of tangible goods for tax purposes.

We ask that these tangible costs be allocated according to Subsections 1, 2 and 3, to summarize casing that any -- if both zones produce then any casing that serves both zones be equally -- the costs be equally divided between those zones.

If only one zone produces or only a shallower zone produced, then the casing that serves that zone will be 100 percent attributable to that zone.

Well head and production tankage are referred to in Sections 2 and 3 and basically the same allocation formula is proposed.

As Part 2 of this proposal that -- for the purpose of these calculations, Hanley proposals that the operators of the subject well be required to provide all working interest owners an accounting of the actual well costs within 60 days of the completion of drilling and completion operations.

Exhibit 17 is simply an example allocation using these proposed parameters. I've assumed that the shallow zone is the Wolfcamp at 9,000 feet. The costs are from Hanley's AFE furnished on 1/7/91, totaling $667,000.

And the drilling day ratio is taken from Santa Fe's Kachina 8 Federal Number 1 where it took 15 days to drill to 9,000 feet. We allowed two extra days there making a total of 17 for logging and running casing.

They spent a total of 33 days on the well. We took out for the -- the attempted DST and the TC problem for a total of 30 under total days.

Q. Let me interrupt you for a second.

A. Yes, sir.

Q. I think you misspoke when you said Wolfcamp at 9,000 feet?

A. I'm sorry, I meant Bone Springs at 9,000 feet.

Going back to the drill day ratios, the resulting ratio would be 17 divided by 30, or .566. My main point of this exhibit without going into every line, if you look at the total dry hole costs attributable to the Bone Springs, it amounts to $278,000.

This compares to total dry hole cost on Hanley's Federal 24 well, with Bone Spring producer to the south, of $287,000, and compares to a -- an equivalent dry hole cost on a Kachina 8 Federal Number 1 at this depth of $261,000.

So the method, the result of the method is in line with what would actually be expected to drill a Bone Springs well in the area, and we feel it's fair and equitable.

MR. KELLAHIN: That concludes my presentation, Mr. Huck.

We move for introduction of his Exhibits 5 through 17.

EXAMINER MORROW: Exhibits 5 through 17, were there that many?

MR. KELLAHIN: Yes, sir.

MR. STOVALL: It didn't seem like it.

EXAMINER MORROW: Exhibits 5 through 17 are admitted.

(Hanley Exhibits 5 through 17 admitted into evidence.)

MR. CARR: I just have a couple of short ones.

EXAMINATION

BY MR. CARR:

Q. According to Mr. Kellahin, I have proven I don't know what perpendicular means. Now, I'm going to show you I don't know what an isoproduction map is. My question is what are you mapping here? This is your Exhibit Number 6.

A. If we can refer to it as an isoproduction map or iso-EUR, that is the estimated ultimate recovery values for each Wolfcamp producer.

Q. So what you take is the ultimate recovery and then are you -- what are you mapping, a drainage area or --

A. You're contouring it, from 50,000 barrel intervals.

Q. Okay. Does this in any way relate -- do you integrate geology or the isopak maps that are prepared by the geologists into this or is this an independent tool that you use?

A. Initially, it's independent. You contour it and you see has shape you come up with. In this case we found out that these pods, particularly the areas that would give you 150,000 to 250,000 barrels per well are extremely small and isolated. The overall pods, going down to the

smaller reserves seem to be squashed into an east-west elongation due to, we think, water production on the south end.

After you get the shapes, that's determined independently. They also happen to correspond to this area. The overall oil accumulation corresponds to the area of greatest overall clean carbonate thickness in the Wolfcamp.

Q. So if we look at the pod you've drawn around your proposed location and the Kachina 8 Number 1, you've elongated that east-west; is that right?

A. I've elongated it somewhat east-west.

Q. If we look at other ones, like the one down in 16, that seems to be a elongated north-south, why is that?

A. You have to --

Q. It would move around --

A. Yes. I know where you're talking about, down but -- down in the southeast corner of 16?

Q. Yes, in the southeast. It's got a 50 with a question mark after it on the isoproduction map I have. Why would you go north-south there?

A. That's been -- the zero line has been pulled to the north a little bit there honoring this

100 barrels that was produced off to the northwest, and which ought to really be considered a dry hole. But it produced 100 barrels, so we put it on there.

The well to the southeast, which just completed, we've given it 125,000 barrels of reserves. Its potential was for 400 barrels a day, but it the tubing pressure was down around 300 pounds, I believe. It's going to be a good well, but how good we don't know.

Q. And so what you're doing, for the record, is you're taking these points that show, I guess, ultimate recovery in 500 -- or 50,000 barrels increments, and you're honoring these and building a map just like you built a structure map with geologic points. Is that similar?

A. Yes, a similar process.

Q. Now if I go to the pods that you've drawn around your proposed location and the immediate east offset, how is it that you've structured -- placed that so that it extends over the 40-acre tract that you own and control in that area?

A. Again, I've shaped it to match the orientation and the shape of the pods to the south which have -- a lot of those wells have produced

for, some of them five, six, some of them as much as twelve years.

Q. If I look at this map, you've shaded some of these spots blue, and that is the percent water cut; is that what that is?

A. The blue number to the lower right of each well is the percent water cut. The blue coloring is a relative coloring of the dot. Ninety percent is nearly entirely blue; 50 percent is half blue.

Q. And can you tell me what in your opinion these blue dots show you about this reservoir?

A. The blue dots show me that as you sit on the south or downdip side of these oil accumulations, these pods, they seem to be limited or trapped on the north by the absence of porosity. And as you sit on the southwest side you produced water sooner. You produced greater quantities of it, and your ultimate recovery is affected by it.

Q. Does that mean that if you're downstructure, you've got a water problem?

A. Yes, sir, in most cases.

Q. If you look at the Kachina 2 Number 8, I think that's it, it's the well in the southeast -- I'm sorry, southwest, southwest of Section 8?

A. Southwest -- that would be well Number 9M.

Q. Well, it's the Kachina -- I think 8 Number 2. It's in Section 8 in the southwest southwest. It has -- what?

EXAMINER MORROW: I think Number 2 is a proposed well, I believe.

Q. All right. Well then let's look at the well down here in the southwest southwest.

A. Yes, sir.

Q. If we look at that well -- and I go back to your structure map -- it appears that it has a -- it's at a depth of 7459; might be?

A. Okay, yes, sir.

Q. And if you compare that well and you go down in Section 17 to the south, slightly east, there's a well down there in the northeast of the southwest that's got a 10 percent water cut?

A. Northeast of the southwest? Yes, sir.

Q. And that well, if I relate it back to your structure map, is at a minus 7474. That would be deeper -- a deeper depth than this well in the southwest southwest?

A. Yes, sir.

Q. How do you explain the fact that it's

got a 10 percent water rate being deeper in the reservoir than that well -- than the well in the southwest, southwest?

A. The well in Section 17, Number 2 K, I believe is what it's called, is completed and would be either the AC or AD carbonates as referred to in the uppermost part of the zone. The well in the southwest southwest of Section 8, well Number 9 M, I think it's West Corbin Number 9 M, is completed and I would call it the E zone -- or it would probably correspond to the E zone.

Additionally, it seems to be on the south side of another pod, another trap mechanism.

Q. So, correct me I'm not trying to misstate has you're saying. That's because it's -- perhaps because it is in a different part of the Wolfcamp.

A. Probably a different part of the Wolfcamp and/or a different porosity pod.

Q. If we move from the well in the southwest southwest of 18 and move to the east, we get a well that, I guess, has a five percent water cut. Do you see that well? It's in Section 8. It's in the southwest of the southeast and it's got a 5 by it, a 5 percent water cut?

A. Yes, sir.

Q. Now, compare that to the structure map that's at a depth of minus 7500 feet, or 41 feet lower than the well in the southwest southwest?

A. Yes, sir.

Q. Again, if I asked you to explain that would your answer be the same?

A. Again, that well is completed in what would be considered -- Santa Fe calls their AG. We'll call it the basal line of the lower Wolfcamp package. It's a very good well, by the way. You see that here -- you'll see a good well like in the southeast of Section 8, like in the northwest of Section 17.

And like in the southeast of Section 16, you'll see one good well that will produce these kind of reserves. But then as they've moved away from it, there's locations move away from it, you see a greater increase in water, particularly on the downdip side.

Q. Okay. And could that be again because it's in a different part of the Wolfcamp?

A. A different part or different porosity.

Q. Pods?

A. Pod.

Q. Or could it be a different stringer or different strand in the reservoir?

A. A different porosity pod; we'll call it pay zone. Again there's a trapping mechanism on the north side -- oh, or on the updip sides of the stuff that has to be an absence of porosity. But this map is an evaluation of the local Wolfcamp interval, that's why you have these variations.

Q. And that's consistent with the way your geology has been done on this portion?

A. It happens to match it, yes, sir.

Q. If you get these differences because they're in different zones, wouldn't it be better to evaluate it on the different stringers, as Mr. Thoma has, of the different zones instead of grouping it all together?

A. Not for picking our one location in our one chance at oil in this reservoir. We need to evaluate them on a cumulative basis.

Q. If I go to your Exhibit Number 7?

A. Yes, sir.

Q. And you have an ultimate recovery estimated for a well at your location of 260,000 barrels?

A. Yes, sir.

Q. Now, how did you come up with that number?

A. I think due to structural position and proximity -- proximity with a capital P, that we'll have reserves comparable to the Kachina 8 Number 1.

Q. And then how did you get that number. I mean is it --

A. We gave the Kachina 8 Number 1 a quarter of a million barrels, again because it had the highest potential of any well recorded in the field, had the highest tube pressure along with that potentiality. So we give it an ultimate recovery equal to the highest in the field.

Q. And then, because you're a little bit higher than that, you increase the number; is that fair? I'm not trying to testify.

A. If you call it increasing from 250 to 260. I think the total on my economic analysis came out to 260; that's just the way the decline totaled. That extra barrel 12 years in the future is insignificant.

Q. So you're expecting a well that would be comparable to the offsetting well?

A. Yes, sir.

Q. Did you take into account you would have

two wells in this one pod competing for those reserves, and how that might affect the number?

A. Yes, it may reduce their well.

Q. But it would not reduce yours?

A. It's possible that it might. Yes, it's possible.

Q. But you didn't factor that in in reaching this?

A. There's such an open end on the up sides of these reserves for these two wells on the north end. You can give the Santa Fe well a quarter of a million barrels just out of the 30 feet they got perforated, and they've got 40 to 60 feet above that in a middle zone, and they've got another zone above that.

I don't think either well will produce less than a quarter of a million barrels.

Q. And you're basing that on the one point in this circle of the isoproduction map?

A. Yes, sir, I am.

Q. And from that point you're going to extrapolate into the northwest northwest of the section?

A. Yes, sir, I am.

Q. And you can put two wells in a pod

that's about the same size as some of these that have 250 foot total pods?

A. Yes, sir.

Q. And you can say each of them will get a quarter of a million?

A. You say 250 for the total pod.

Q. No, that's probably a misstatement. You've got 250 on the existing well in the pods?

A. Uh-huh.

Q. And you're -- it's your estimate that you've got two wells in there that each would produce that?

A. Yes, sir.

MR. CARR: That's all thank you.

EXAMINATION

BY MR. BRUCE:

Q. Mr. Huck, were you here when Mr. Offenberger testified?

A. Yes, sir.

Q. And did you hear him comment about pressure drop in the Wolfcamp?

A. Yes, sir.

Q. And if I remember, I believe he said that pressure drop on offsetting 40 acre Wolfcamp -- in the north well Wolfcamp was about a thousand

pounds in six months; is that correct?

A. I recall a thousand pound pressure drop in his testimony. If you say it was six months --

Q. Let's assume for now it's six months.

A. Yes.

Q. Would that have any effect on your calculations of reserves for Hanley's proposed location?

A. Again, it's the up side is so great on the Kachina 8 Number 1, you can put a quarter of a million barrels comfortably in the only zone they've got perforated. I think there's interference, or will be interference, between their well and the well in the north end of our tracts. But that interference is a two-way street. It shouldn't all go to the Kachina 8 Number 1.

Q. Well wouldn't 25 percent pressure depletion within six months kind of alarm you?

A. Yes, it would.

Q. Now, referring to Exhibit 6, again, you draw these pods, and you have one rather large one in the south covering parts of Sections 17 and 16, 18?

A. Yes, sir.

Q. Couldn't -- looking at Section 18,

isn't it possible, if you're correct on these pods, that perhaps the well in the northwest quarter of Section 18 and the one in the northwest and northeast of the of Section 18 would form a separate pod from those to the east?

A. Yes, sir, I think it's possible that it could. There's not enough control to close off the circles.

Q. And by the same token, the other four wells, the two in the east half -- east half of Section 18, and the two wells in the northwest quarter of Section 17 could form a separate porosity pod?

A. Two wells in the northwest -- I don't think so. You have a production limitation on the north side here that allows all the wells basically in Section 17 on the south end of 17, to be in the same pod.

Q. Okay. Well let's take that then. All the wells in the south end of Section 17 could be on one pod. And then you just admitted that over to the west those two wells on Section 18 could be in pods. If that was the case those pods would be oriented in a northeast southeast direction, wouldn't they?

A. Are you talking about their shape?

Q. Yes, their shape. Kind of an oval shape, or with the --

A. I agree with the oval shape. I don't agree with the northeast southwest axis.

Q. No, why not?

A. You have your data points on the west half of 17 and the east half of 18; that precludes you from shifting or twisting that elongation around to the southwest.

Q. Well, you do have a porosity pod over in Section 16 that's oriented in a north-south direction or after that fashion, isn't it?

A. Again, we had to honor those points -- that 100 barrel point up in -- or I have honored the hundred barrel up in the northwest corner of 16. That stretches that pod. If you eliminate that, that pod itself squishes more into a circular.

Q. But it's possible, for instance, you know, in the area of the Kachina 8 Number 1 well, that pod could be oriented either north-south or northeast-southwest?

A. It's possible, although even if you orient it that way, if you'll look at the well in the southwest corner of Section 16, Well Number 2 N,

I believe it is, it's Federal 16 Number 2 N. It has a 75 percent water cut. That well come in every bit as good as Number 1 J up in the bullseye of the pods produced for seven months and the water hit and production dropped off to near zero.

Q. Which one is higher structure, really?

A. It really shows the Number 2 to be higher on the base of the Wolfcamp structure, really.

Q. The one that has the 75 percent water cut is higher structurally than the one that has a 50 percent water cut; is that has you're saying?

A. Yes, sir. But I might add to it, they are in different zones. The one that has the dashed 50 percent, again, that's according to gas engineering committee records and that water cut coming up suspiciously at the same time that Well Number 2's water cut came up. But well number two is the only one that developed in production.

But going back to my original point, Well Number 1 J is in what would be the basal carbonate zone. Well Number 2 is in has would be the middle carbonate zone to us.

Q. Now in your estimation which well, looking at Section 8 -- which of these wells is

going to drain, the north -- or I should say the north half of the northwest quarter?

A. Which wells would better drain?

MR. KELLAHIN: You're talking between Santa Fe's proposed well and Hanley's proposed well?

Q. Well, I'm saying which of these wells? Look at them. Say, take the Kachina 8 Number 1. There's a well that will -- still to be completed in the northeast of the southwest and then there will be Hanley's well, assuming Hanley's well gets its location.

A. So which of those three would better drain the south half of the proposed unit? It would depend on which location would have a porosity zone connecting into the south half of that proration unit. And I would assume that to be any units -- that the closest would have the best location.

Q. So it could be Hanley's location?

A. More likely Hanley's location.

Q. It could be the well in the northeast or the southwest, couldn't it?

A. Less likely, it's further away.

Q. But that well in the northeast of the

southwest doesn't have a 40-acre offset, does it?

A. No, sir, it doesn't still.

Q. Mr. Huck, how did you arrive at ultimate recovery for the 8 Number 1 well?

A. Again, it was its potential for the highest oil rate of any well in the field and its flow in pressure was higher than any well in the field, so we gave it an EUR highest of any of the wells in the field.

Q. And for that you used those declining curves -- I forget the exhibit number?

A. No, there's no curves, just potential some 60 days ago. It's still producing to my knowledge at top level.

Q. Now, your basis for the recovery of the other wells you have on this Exhibit 6, that is based on declining curve analysis; isn't it?

A. Yes, sir, it is.

Q. And these wells, say, looking at Section 17 that's based on 80-acre spacing, isn't it?

A. The ones that are currently drilled yes, sir. Except for the 5E, that's offset 40 acres to the west.

Q. That's the only one that is offset by a

40-acre well; is it not?

A. Yes, sir, it is.

Q. One final question, Mr. Huck. Do you know if Santa Fe's application is granted, will Hanley join in that one?

A. I would recommend that they not. I would recommend that they apply for their own location to the north.

MR. BRUCE: Thank you, Mr. Examiner.

EXAMINER MORROW: You have anything Mr. Kellahin?

MR. KELLAHIN: No, sir.

EXAMINER MORROW: On Exhibit 5, Mr. Huck, you showed a cumulative and current prediction. I believe you said through September, or the current one as of during the month of September.

THE WITNESS: September 1990.

EXAMINER MORROW: That was what they produced, averaged in September. On Exhibit 7, tell me again why the payout was different for the two cases.

THE WITNESS: The lower indication or the 130 barrel case at the Santa Fe location, it requires roughly --

EXAMINER MORROW: The payout time is what I'm getting at, the four months and eight months.

THE WITNESS: The declining curve to match those reserves would start at a lesser rate, it would take that well eight months to produce that 85,000 barrels of oil.

EXAMINER MORROW: So you don't think it would produce at top allowable?

THE WITNESS: No, sir, I don't.

EXAMINER MORROW: Okay. What is top allowable?

THE WITNESS: Top allowable is 445 barrels a day for an 80-acre well.

EXAMINER MORROW: And you recommended 150 percent risk penalty for a Hanley well. What would you recommend for the Santa Fe well, you said higher?

THE WITNESS: It's a higher risk well. I assume that a higher risk would apply. They've been quoting 200 percent.

EXAMINER MORROW: Let's see on Exhibit 6, again, that everybody talks about in Section 8, the two wells with a Santa Fe Kachina 8 Number 1 has a 250 beside it.

THE WITNESS: Yes, sir.

EXAMINER MORROW: And the well down in the southwest of the southeast has a 257 beside it.

THE WITNESS: Yes, sir.

EXAMINER MORROW: Did you have any control points between those two --

THE WITNESS: No, sir.

EXAMINER MORROW: -- wells?

THE WITNESS: There are none.

EXAMINER MORROW: Do you think there's any secondary recovery potential in this reservoir -- secondary or tertiary after primary is recovered?

THE WITNESS: I think we -- I think you would find it a grossly inefficient flood. I don't think you'd see water I put in one well showing up anywhere else.

EXAMINER MORROW: You don't think it would be?

THE WITNESS: I think it would be unsuccessful.

THE EXAMINER: Unsuccessful. If Santa Fe drilled a well, or if Hanley drilled a well, would the building be on the actual cost or estimated cost?

THE WITNESS: You're talking about for allocation?

EXAMINER MORROW: Billing of partners, would you billion the partner on your estimated AFE costs or actual AFE costs.

THE WITNESS: I believe it's on the actual field costs as the tickets come in off the well. I don't know -- I don't think Hanley prebills.

EXAMINER MORROW: On the allocation of costs, what is the bottom line on that Exhibit 17, what -- say, if Hanley did drill a well and the costs were allocated, and assume you made at least three types of wells, what would you allocate to the --

THE WITNESS: For a complete -- what would I allocate to the Wolfcamp?

EXAMINER MORROW: Yes, sir.

THE WITNESS: As this stuff works the partners would be billed for actual costs at the time the Wolfcamp was completed. Then at the time the well was completed to the Bone Spring, the allocation would be made and the Bone Spring owners would reimburse --

EXAMINER MORROW: They will reimburse?

THE WITNESS: The Wolfcamp owners based on the relative positions.

EXAMINER MORROW: You indicated you had recommend that the Hanley drill a well in that north 40 acres if faced with the choice of joining Santa Fe or not. Would the rules, current rules, permit you to do that?

THE WITNESS: Yes, sir, they would.

EXAMINER MORROW: That's all I have.

MR. STOVALL: Before I start, I want to find out if Mr. Kellahin has any other witnesses.

MR. KELLAHIN: Yes, I do. I have one last witness, Mr. Stovall.

MR. STOVALL: What are his areas of expertise and scope of testimony?

MR. KELLAHIN: He is the president of Hanley Petroleum Company.

MR. STOVALL: He's the one I want.

MR. KELLAHIN: He's a geologist.

MR. STOVALL: The main man is here. I'll wait.

EXAMINER MORROW: Mr. Huck, you may be excused.

L.D. ROBBINS,

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

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Robbins, for the record would you please state your name and occupation?

A. My name is L.D. Robbins, and I am the president of Hanley Petroleum.

Q. Do you hold a professional degree in either petroleum geology or engineering?

A. I have a Bachelor's in petroleum geology, and a Master's from Tulsa University.

Q. In has years did you obtain each of those degrees?

A. 1955 and 1967.

Q. Have you testified before the Oil Conservation Division of New Mexico on prior occasions in either your capacity as president of Hanley Petroleum, Inc., or in your capacity as a petroleum geologist?

A. Yes, sir.

Q. Have the employees of your company that have testified previously in this case been under your control and management with regards to their

analysis of the data available to your company and available to you?

A. Yes, they have.

Q. Based upon your own professional judgment as a geologist, as well as your perspective as the president of Hanley Petroleum, Inc., do you have certain conclusions and recommendations to the Examiner with regards to these applications?

A. Yes, I do.

MR. KELLAHIN: We tender Mr. Robbins as an expert petroleum geologist.

EXAMINER MORROW: Mr. Robbins was that '57 or '67?

THE WITNESS: '67.

EXAMINER MORROW: You certainly qualify. And we'll accept his qualifications.

Q. Mr. Robbins, earlier this morning Mr. Murphy testified that he had an oral conversation with someone at Hanley Petroleum -- I think in the spring of 1990, in which he first asked your company to contribute in some fashion, participation of your 40-acre tract with the well that has actually been drilled. It's the Kachina 8 Number 1 well?

A. (Witness nods).

Q. Did he have contact with you, sir?

A. No, sir.

Q. To the best of your knowledge, did he have contact with any of your employees or personnel?

A. Not to my knowledge. And along those lines we have about 28 employees, and all but about 7 of these are in the field pumping wells and doing work like that. So within our office, those that are there, four are accountants. And so the rest of the group are just right next door to each other.

Along those lines, you know, we were told this morning that Hanley Petroleum had been sitting on their lease forever and that this was Santa Fe's prospect. Just to set the record straight, we bought our lease in 1986 at a competitive federal sale, a 40-acre lease. The adjoining acreage owned by the federal government was unleased.

Q. There is adjoining acreage that later -- is in Section 8?

A. The north half of Section 8.

Q. The north half, okay?

A. And that acreage was then put up for sale in 1990, I believe, and we were outbid by a combine composed of Santa Fe and Yates. So it was

very prudent for us to wait for the rest of the acreage to come up where we could complete the leaseholds on our prospects that we had long before Santa Fe had a leasehold in the area.

Q. Before the federal acreage came available to 40 and 80 acres spacing units?

A. (Witness nods).

Q. What then happened?

A. Well, the next thing that happened was that we had -- Santa Fe had got that acreage and we noticed they staked the location. And we thought, well, they would surely contact us. Usually when you're drilling a well next to an offset operator, you'll contact them for support.

I went to all my employees about anything coming from Santa Fe asking us that they would join or support our well and they said, no, nobody called anybody. We polled everyone that worked there in the office. We never received anything in writing, a proposal to drill a well, ask for dry hole support, or join in the well.

So we were still sitting there where we thought their well was a location, and the next thing, we start getting things in the mail, registered mail, certified, return receipt, you will

do this in 10 days, and all this stuff.

And, you know, if you've been down these roads before, you say, what's going on with this well up there. And then when the thing started to unravel and we finally got the data smoked out, we saw they had completed a major well just 510 feet from our leasehold.

Q. As a petroleum geologist have you been involved with your technical people in analyzing and evaluating the geology with regards to the choice of location between the Hanley acreage and the Santa Fe - Heyco acreage south of the spacing unit?

A. Yes, sir, I have. I might add to that starting back in 1968, out in the basin here in New Mexico, there were these different types of wells that would start to show up where the people would be drilling to deeper horizons and it was hard to explain what kind of rock it was.

And, anyway, it developed and later when I was with Marathon Dr. John Larms, Lloyd Pray, and others, studied these carbonate debris flows in the Wolfcamp and in the Bone Springs. And their analysis based on cores and outcrop studies and other things, were that these deposits were, indeed, deposited out in the deep basin off of the high

standing reef fronts that in this particular area were to the north and trended generally from the west towards the east.

And this goes clear up through Abo. And because of the nature of the deposits being density flows and this rubble comes rolling down, for whatever reason, they tend to take the path of least resistance, which is down slope.

Q. Prior to today, had you had an opportunity to actually see the Santa Fe geologic interpretation as to the well locations?

A. No, sir. Except I might add from one previous hearing they had, on one particular so-called zone. I might add, too, about these deposits, they're -- you can correlate a deposit like the lower Wolfcamp that may be 600 feet thick and it may be a mile or so, or two miles wide, and it may be some miles long.

But when you get within this, all of this rubble and stuff, and you look at a well, that's a penetration of the whole thing, and you get another location from it, or maybe two locations. You may sometimes be able to trace a block or a pile of blocks or something.

But when get much beyond this, and you

start correlating it, then you're fooling yourself, because it is not continuous. And so when you layer cake something that isn't layer cake, you're just manufacturing a map that will show, you know, thicks where maybe 11 out of 15 or 20 wells, or whatever it is, are dry holes.

Q. You're the man that writes the check. You're the guy that's going to decide for your company where you're going to spend your dollars?

A. When you look at Mr. Bracken's geologic interpretation and you have that to contrast against Mr. Thoma's geologic interpretation, you have two geologists and you must make the business judgments about which to believe and where to put your money, what are you going to do?

A. Well, I prefer the northwest northwest of Section 8 because this location will recover the most oil. It will recover the most oil in the Queen. It will recover the most oil in the Bone Springs. It will recover the most oil in the Wolfcamp.

I think Mr. Huck's analysis of contouring the ultimate recovery of these wells, from all of the various zones in this interval of lower Wolfcamp shows that the high productive areas are what we

fondly refer to as sweet spots, are isolated, and your best chance of recovering the most oil is in the closest proximity you can get to that. And it's also referred to as closeology.

Q. Mr. Thoma has got an analysis that pods lie in the carbonated reservoir in the northwest to northwest of 8 to what Mr. Bracken has. Now, how are you going to resolve that?

A. There again, when you contour all of the clean carbonates in the lower Wolfcamp, it contours in a north-south direction, more or less parallel to what the structural strike was at that time. This was keeping its orientation because this was the depositional position of it. When you get up in the structure, there's a tertiary tilt involved and you cut a window in a map, it may look like it has a little skew.

Nonetheless, this is the way we expect the most rock, and therefore the most potential and the most zones to be.

Q. Mr. Thoma dismisses the importance of water in the Wolfcamp formation as a question for people in your position in terms of deciding well locations.

A. Well, it is astonishing testimony when

you see Mr. Huck's exhibits and here are, like where there's some productive history on the wells down there, 18 and 17 -- wells making 85 percent water, 85 percent water, 85 percent water, to say that water is not important in this trend.

Q. When you take water into consideration, where then would you place this well in this spacing unit?

A. I would get as high as I could. Now I'm not any reservoir engineer, but believe me, I understand oil and water and structure.

Q. In the absence of a well in the northwest of the northwest of 8, what is your assessment about your abilities to protect your protective rights from competition by the Santa Fe Kachina 8 Number 1 well immediately to the east of your 40-acre tracts?

A. Well, first off, they're 510 feet from our lease line right now, and they're producing oil and they've been producing oil, for well over a month. So we're in jeopardy right now. And, also, our royalty owner, the federal government, where they have a quarter royalty under us at these rates and an eighth for the offsetting acreage. So we're concerned about royalty.

Q. What is your recommendation to the Examiner regarding a risk factor penalty to be applied in this pooling case?

A. Well, Santa Fe is proposing, I believe, a 200 percent penalty, which I think is the maximum, above recovery of the costs on their proposed location for the 8-2. We feel ours has substantially less risk, so we're willing to cut this to 150 percent.

Q. And your assessment, Mr. Robbins, is Hanley Petroleum, Inc., ready, willing and able to act as an operator? Can you do so in a prudent and effective manner if the Division allows you the opportunity to be the operator?

A. Yes, sir. We will. We've been in the business a long time. We operate over 340 wells in the Permian Basin and have interests in hundreds of others. And Mr. Huck summarized what oil we produced last year. And I know we're a demonstrated, qualified operator and that we can do an efficient job and that we can do it cheaper.

MR. KELLAHIN: That concludes my examination of Mr. Robbins.

EXAMINATION

BY MR. CARR:

Q. Mr. Robbins, if I understood your testimony, you obtained the property in 1987?

A. '86, I believe, is right. Isn't that correct, Mr. Rogers?

MR. ROGERS: We acquired it in a sale in the fall of '86, the lease was effective January 1.

MR. STOVALL: We have a sworn witness who's trying to say something. I'm going to ask the Examiner to strike that.

A. '86 approximately, sometime ago.

Q. You've been holding the property since that time. Why did you decide to go forward with the pooling case now?

A. Our lease has been in effect since that time. It was a 10-year lease.

Q. And why now did you go forward with the pooling? Was it the drilling of an offsetting well?

A. Yes.

Q. And when you decided to go forward with this well, did you contact the other interest owners about putting together a tract for the -- for the drilling of this well?

A. We have no other interest owners in our 40 acres. We own it 100 percent.

Q. Did you consider putting together an 80-acre tract form of a well?

A. We have proposed to force pool the west half of the northwest quarter into an 80 acre Wolfcamp proration unit with the stipulation that the location be in the northwest northwest.

Q. With this proposal, did you ask Santa Fe to join with you in that effort?

A. Yes, I think we did ask them.

Q. Did you ever contacts Yates and ask them to voluntarily participate?

A. No, we've never contacted Yates. We understood they were not the operator.

Q. And you knew --

A. We did contact Yates though, pardon me, to support us as operator of a well. And we were informed they would support us as operators of a well. They later reversed their position that they would support us as operators of the well.

Q. You did know they had an interest in the tract that was going to be pooled?

A. Yes, they have a -- it is our understanding in the Santa Fe lease they own

25 percent, they own 50 percent.

Q. Did you ever ask them to join and pay their share in the well?

A. We were asking Yates to do that through our pooling.

Q. Did you ever ask them for farmout or any other way voluntarily join?

A. No, we have not asked Yates or Santa Fe of a farmout of interest. We figured, you know, with the type of well that they had, that would be a waste of our time.

Q. Did you see the answer that was filed in this case?

MR. KELLAHIN: In which case Mr. Carr?

MR. CARR: I'm sorry, the pooling case for Hanley?

A. Hanley's application or Santa Fe's?

Q. Hanley's.

MR. KELLAHIN: Let me find a copy in here. Just a second.

I'm sorry for the interruption.

Q. Now my question was, sir, have you seen the answer filed in this case by Hanley Petroleum, Inc.?

A. I have. I think I have general

knowledge of it. I did not write it and I did not prepare it.

Q. Let me just --

MR. CARR: Tom, if you want to look at this, that's the transmittal letter and the application.

EXAMINER MORROW: What is that, Mr. Carr?

MR. CARR: That is a copy.

MR. STOVALL: We have it in the file, too.

MR. CARR: That's a copy of application that was filed by Hanley.

MR. STOVALL: I'll find it for you.

MR. CARR: May I show that to the witness?

EXAMINER MORROW: Why don't you hold up just a minute, until we find it. We don't have it.

MR. STOVALL: Here's a copy.

EXAMINER MORROW: Continue.

Q. (By Mr. Carr) I'd like to show you what we understand to be and have received as the application filed in this case on behalf of Hanley. Would you look at that for a minute, please, sir?

A. I just got through reading it.

Q. I'd like to direct your attention to Paragraph 4 on Page 2 where it states that Hanley has sought voluntary agreement from the interest owners in the well and has been unable to obtain their voluntary agreement; isn't that correct?

A. That's what this says.

Q. And then if you go to the back of that on the very last page, find the signature pages, is an Exhibit A that shows Harvey Yates is one of the interest owners that needs to be pooled?

A. That's correct.

Q. And I understand your testimony to be that you didn't ask Yates to voluntarily --

A. I think we sent Yates an AFE, a copy of our AFE.

Q. Do you know when that might have been sent?

A. Let me see. I think I have it right here. January 7.

Q. And this application was transmitted to the Oil Conservation five days before, isn't that true?

A. That's what the dates show.

Q. And this morning Mr. Kellahin asked Mr. Murphy if he didn't think it was strange to

commence pooling before he --

MR. KELLAHIN: I'm going to object. I think Mr. Robbins is not the right witness. I'm the witness Mr. Carr wants to address. I did the application on behalf of my client and I'll be happy to testify if he likes.

MR. CARR: I'm asking questions of Mr. Robbins, and that's an appropriate question.

MR. KELLAHIN: If he knows the answer, he can respond.

MR. CARR: Did you --

A. Let's back up now and begin at the beginning.

Q. I'm asking --

A. If you begin at the beginning, all of this business of drilling a well, and keeping it tight, and no potential on it for 60 days, and forced pooling started with Santa Fe, who is Harvey Yates' partner.

Q. Did you hear the question I was asking Mr. Murphy this morning?

A. Yes.

Q. My question is, why did you file a pooling answer before you had attempted to negotiate with Heyco?

A. Because Heyco was Santa Fe's partner.

Q. But you haven't negotiated directly with Heyco?

A. No.

MR. CARR: Okay. May it please --

A. And Heyco was not the operator was the reason. It was nothing to do with Heyco, per se.

MR. CARR: I have no further questions of this witness.

EXAMINER MORROW: Mr. Bruce?

EXAMINATION

BY MR. BRUCE:

Q. Mr. Robbins, I believe you answered that Hanley has had their lease for about four years or so -- owned this lease, the northwest northwest of Section 8?

A. Yes, something over four years.

Q. And how long have you been aware that there was a good Bone Springs potential or good Wolfcamp potential in the northwest quarter?

A. Our study in the area began, oh, somewhere in '83 or in when we started putting more of the emphasis on this particular trend in New Mexico. And so we had been studying the area for a long time and preparing maps, and analyzing data and

trying to get a leasehold. We were successful in getting a few tracts along the trends.

We mentioned a couple that we just finished developing, and this was a tract, and this was one of our prospects we developed here.

Q. You bought the lease because you thought it was a good area?

A. Well, as I recall, we paid about, almost $400 an acre for this acreage, for the royalty on it. With a quarter royalty on it.

Q. Well, how come sometime sooner than this, you didn't drill a 40-acre Bone Spring well or maybe also drill it down to the Wolfcamp with a 40-acre nonstandard unit? I believe Mr. Huck said 40 acre units would be preferable to Hanley?

A. I know you're not an oil man, obviously. You don't drill a 40-acre, 12,000 foot wildcat well. You try to build yourself a block where if you're lucky enough to find something, you don't have all your risk riding on one well and you're able to make a real economic success, like Santa Fe and Yates, when they formed their combine on the rest of the acreage she sets theirs up a block to drill their wildcat well.

Q. And their testimony was they have

interests, or Santa Fe any way has interests, in about 3,000 acres in this immediate area?

A. Well, I'll just have to rely on your knowledge for that.

MR. BRUCE: I have nothing further.

EXAMINER MORROW: Mr. Robbins, did Santa Fe contact you concerning your participation in the their Kachina 8 Number 2 prior to their filing the compulsory pooling application?

THE WITNESS: I think we got a letter, some days -- I'm just relying on my memory here, and my landman handled all this. But my recollection is we handled a certified return request letter which was a sort of a -- you know, reply within 10 days to join or farmout on a, you know, unacceptable type of a proposal.

And then shortly after that and I think it was in a matter of days rather than weeks, they filed their forced pooling.

EXAMINER MORROW: Do you know on their forced pooling application whether or not it was filed prior to your forced pooling application?

THE WITNESS: Yes, sir, it was, I know that.

EXAMINER MORROW: It was filed earlier?

THE WITNESS: Yes.

EXAMINER MORROW: Bob, do you have any questions?

MR. STOVALL: Yes, I do have a few, Mr. Examiner.

EXAMINATION

BY MR. STOVALL:

Q. I guess I'll back up and do this chronologically, now. You say Hanley bought the lease in 1986, is that correct, the 40 acres?

A. I believe that's correct.

Q. And perhaps if somebody could find Santa Fe Exhibit 2 for you, we can use that as kind of a reference so that I know whether we're talking on the same thing.

And did I hear you say then that the balance of the acreage in Section 8 was unleased at the time you purchased it?

A. That's my -- yes, sir, it was either unleased or it was leased and expired and then became available. But it was not -- it was not in the lease sale when we bought the 40 acres that was all that was included in our prospect. And my recollection is that it was unleased.

Q. Are you familiar with the BLM nominating

process for leases at that time?

A. For the BLM?

Q. This is federal acreage; is that correct?

A. Yes, sir.

Q. Do you know a process they used --

A. Our lease was bought, as I recall, on a KGS sale.

Q. Which would -- that was back in the time when they still -- did they have the competitive and noncompetitive processes; is that correct?

A. That's correct. And if I recall right, we bought ours at a oral sale. I may be wrong on that, but I'm thinking it was an oral sale.

Q. Based upon your belief, you know, if it was KGF, if it went to competitive sale, it was KGF. Would that mean that the rest of the north half would also have been KGF?

A. For some reason I don't know the details on it, I'd have to ask my landman. But when this other part came up, it was in a different type of sale. It was not a KGF sale because it had this one-eighth royalty on it.

Q. It came up in 1990, approximately?

A. I think that's right.

Q. I will state for the record I am aware that the BLM changed its bidding processes between 1986 and 1990 and then eliminated.

A. Yes, and I was dismayed when I found out this other had a eighth royalty and our 40 had a sliding scale.

Q. Do you know about the acreage in Section 7 -- do you know what the status of that was at the time you purchased the --

A. As I remember -- again, I'm not qualified as a land expert, but just as my general knowledge of the area, I think it was held by production.

Q. Were you president of Hanley at the time?

A. Yes, sir, since 1982.

Q. And in Section 5 what was --

A. I think this was held for production.

Q. What about the south half of Section 8?

A. Well, I think -- I'm not sure, but as I recall it was held by production. I do remember this, that the lease situation in here, that the only acreage in terms of trying to build a block to evaluate a prospect, our strategy was to get this

first tract that came open and then buy this other when it came up at the sale.

And then we proposed to drill a well. We would approach offset operators for support.

Q. Do you know when in 1990 the balance of Section 8 became available -- when it was purchased? Let me say that -- let me rephrase that question.

A. I'm not sure. I'm looking at this map that Santa Fe provided, and it says H.E. Yates, et al., 6-1-90.

Q. So that would indicate that it was probably purchased, actually became under lease, in about May?

A. First of June 1990, I'd guess.

Q. Now would it be safe to say at that point you realized that the 40 acres was all you were going to have in that area?

A. That's sure the way it looked.

Q. Did you -- what did you do? What did your company do then at that point?

A. Well, we kept our powder dry and waited to see what the other lease holders were going to do, those that had enough acreage to drill a wildcat well on.

Q. So you didn't initiate any efforts --

A. No, it would be the tail trying to wag the dog, so to speak, at this point. At this point what we're talking about is development drilling.

Q. Okay. When did you fist propose drilling a well? When did you internally -- when did you, as president of Hanley, authorize drafting an AFE and proposing a well for your acreage?

A. After we got this forced pooling from Santa Fe, and we were able to subpoena their data and find out what the well data indicated and to evaluate the prospects.

Q. I'm going to go through the sequences and make sure I understand it. Now the first thing you say, Hanley testified that they thought they'd contacted you about the Number 1 well?

A. Yes.

Q. It's your belief that nobody in your organization --

A. Yes that's -- to my recollection, I never talked to anybody. And I specifically asked all my employees if they ever talked to anybody, and they say they never talked to Santa Fe about it. And it's my knowledge -- it's something like over 40 years in the oil business -- when you want to set the drill, the prudent thing is to write a letter

and ask for support. And we did not receive this.

Q. Were all the same employees with you now that were with you back at the time?

A. Yes, sir.

Q. Okay. Then we've got the packets -- excuse me, Santa Fe Exhibit Number 3 which goes through the history of correspondence, and we'll just let that stand in the record. We don't need to go back and read all that.

But Santa Fe approached Hanley in November; Hanley did not agree to participate at that time?

A. I don't know that that's a correct summarization of our position. We received -- and if you'll read the letter that we received from Santa Fe, it was not, "come over and talk about drilling a well with us. " It was a very cut and dried, give or take, 10 days.

And when we got there letter we said, "what is going on up there"? And they said, well they've got a lease up there. I said, well, somebody better go up there and see that location, also.

And when we got there, the well is down and here we're getting this letter.

Q. You're talking about the Number 1 well?
A. The 8 - 1.
Q. I'm talking Number 2 and the stuff that's in Exhibit Number 3. They sent a letter offering to either have you join the well or farmout?
EXAMINER MORROW: Let me be sure I understand. When you got the correspondence on the 8 Number 2, you sent someone up there to see about the 8 Number 2; is that correct.
THE WITNESS: Yes, sir. We wanted to see what was going on. We were caught flat-footed.
EXAMINER MORROW: You never did -- .
THE WITNESS: I never did get any correspondence on 8-2.
MR. STOVALL: Mr. Examiner, can I take one minute? I have got to answer a phone call.
(A brief recess was taken.)
MR. STOVALL: Now I'm just going to summarize what I understand the record to be. There's no point to having you retestify to the whole thing. And we're talking only about the Number 2 well at this point.
The record indicates that Santa Fe first approached Hanley on November 12, 1990. Hanley

responded asking for more information and suggesting that they would like to operate the well, that Hanley would like to operate the well. Conversation was had in -- more communication took place in December and sometime in early to mid-December, Santa Fe filed their application for forced pooling.

A. Our --

Q. Is that it so far?

A. Is this our exhibit you're reading from?

Q. This is Santa Fe Exhibit Number 3.

A. Did we present our exhibit?

MR. KELLAHIN: We have not yet presented our documents -- set of correspondence. It may be slightly different than Santa Fe's, because we have a few more bits and pieces than --

A. We had prepared an exhibit that was a chronological order of all the documents we know of that pertain to this case. Our landman was going to present it, but in the interest of time he's not going to testify. And so we haven't submitted that, but we can submit it.

But whatever chronological order that that shows is what we believe happened. Now what

you're saying, seems to me to be the right chronology of events.

But if there's a very important point hinging on this, I really can't testify to that, because I'm not looking at it.

Q. Okay. I'm just trying to get a general summary.

A. I think what you're saying is generally right.

Q. Is it that what you would offer would supplement this?

MR. KELLAHIN: I propose to offer our package of documents.

MR. BRUCE: And I have no objection.

MR. KELLAHIN: Without calling Mr. Rogers to authenticate it, so that again, with both sets of correspondence you hopefully have all the pieces.

Q. Let me just follow this line of thinking then, because I don't think it hinges on specific details. Sometime in early to mid-December the Santa Fe application for forced pooling was filed; is that correct?

A. I think that's right.

Q. Okay. Now as far as -- and this is what

I'm really concerned with -- the Hanley application for forced pooling was filed on -- I believe it was January 2nd, I believe the record shows, the date of the application. I've got it right here. It's got the OCD received stamp on January 2nd.

Did you authorize and direct that that application be filed?

A. Yes.

Q. If I'm not mistaken the original application, the Santa Fe application, was scheduled for hearing on January --

MR. KELLAHIN: 10th.

And then there was the subpoena issue that came up.

A. (Witness nods).

MR. STOVALL: Mr. Kellahin, perhaps you can help me again. What was the Commission's order on the subpoena issue?

MR. BRUCE: February 15th, Mr. Stovall.

MR. STOVALL: February 15th.

MR. KELLAHIN: There were several hearings on the subpoena.

MR. STOVALL: The Commission order is the one that I'm concerned with. The one that you finally --

EXAMINER MORROW: I don't know if they agreed, before it was issued.

MR. STOVALL: I think the Commission issued an order; is that not correct?

MR. KELLAHIN: Yes, sir. It's dated February 15, 1991.

Q. (By Mr. Stovall) Okay. Hanley filed an amended application prior to that time to move their proposed well to the northwest quarter; is that not correct?

A. Yes, sir. I know that's right.

Q. And did you authorize that?

A. Yes.

Q. Upon what information did you make that decision?

A. On the data that we had at that time. And previously we didn't have this data because we didn't have this subpoena to obtain the additional data. We had also attained additional data about their well from the field. So it was -- as our knowledge and our understandings and everything of the area progressed, we amended our filing.

MR. KELLAHIN: Mr. Examiner, I'm sorry. Mr. Stovall, Mr. Examiner, the amended application specifically changing in writing the location was

filed on February 12th, which was after the time that Mr. Bruce and his client furnished us some of the information.

MR. STOVALL: Okay.

EXAMINER MORROW: The original Hanley filing had it in the south half of that 80; is that correct?

MR. STOVALL: It was the same location, I believe, as the original Santa Fe location; is that not correct?

MR. KELLAHIN: Yes.

MR. STOVALL: So they were both competing to operate the same well at this same location as originally filed?

MR. KELLAHIN: Then based on a preliminary analysis of the information that Mr. Bruce had provided to us after the January 24th hearing in which Mr. Catanach made some preliminary rulings. I'm not sure if it was -- I believe it was the 24th.

MR. STOVALL: It was the 18th.

MR. BRUCE: I think we originally had the argument before Mr. Catanach about -- a week later being on the 18th. We did it before the Commission, Santa Fe -- before the written order was issued,

turned over logs and certain other data approximately the 30th or 31st of January. And the written order issued on February 15th, and Santa Fe hand-delivered the remaining data to Mr. Kellahin, I believe. On the 25th of February.

MR. KELLAHIN: So that's right. So after the delivery of the first package of January 31st, I filed the amended application, that is my recollection of the sequence.

MR. STOVALL: Okay. I think one more question will take me through there then.

Q. Did you authorize or direct your landman, after you decided to change the location to contact any other working interest owner in the west half of the northwest quarter of Section 8 to attempt to seek joinder of a well at your new proposed location?

A. No, I don't think we did.

MR. STOVALL: I have no further questions.

EXAMINER MORROW: Mr. Kellahin?

MR. KELLAHIN: No, sir.

MR. CARR: Mr. Bruce, do you have questions?

MR. BRUCE: No, I have not.

EXAMINER MORROW: Anything further of this witness? Would you wish to introduce another exhibit?

MR. KELLAHIN: Yes, sir, if now is an appropriate time.

EXAMINER MORROW: I hope we're getting close to finished.

MR. KELLAHIN: Exhibit 18, Mr. Examiner, is my Certificate of Mailing for the original pooling case to complete that aspect of presentation.

And then if you'll permit me, I have simply collectively marked as Hanley Exhibit 19, Mr. Rogers' copies in chronological order of the documentation that -- from his perspective that dealt with the efforts of Santa Fe and Hanley and Heyco to come to agreement on various aspects of the case. And we would liked that introduced as Exhibit 19. Copies for Mr. Carr and Mr. Bruce.

MR. BRUCE: Thank you, I think.

MR. KELLAHIN: Okay. That completes our presentation, Mr. Examiner.

EXAMINER MORROW: Are all the exhibits in?

MR. KELLAHIN: Yes, I think so.

MR. STOVALL: Let's get one thing on the record. Mr. Bruce and Mr. Carr, do you stipulate to the Commission of Exhibit 19 or -- actually it has not been truly sponsored by a witness.

MR. BRUCE: I have no problems with it, Mr. Examiner.

EXAMINER MORROW: Are you through?

MR. STOVALL: I'm through with the witness.

MR. KELLAHIN: Have you admitted all your witnesses? It will be Exhibits 18 and 19, we move that they be admitted at this time.

EXAMINER MORROW: Okay we admit 18 and 19 at this time.

And Mr. Bruce now wants to recall one of his witnesses.

(Exhibits 18 and 19 were admitted into evidence.)

MR. BRUCE: I would like to recall Mr. Thoma.

JOHN L. THOMA,

was recalled as a witness and, having been previously duly sworn, was examined and testified as follows:

EXAMINATION

BY MR. BRUCE:

Q. And Mr. Thoma, I'll ask you one question. Could you address the importance of structure and its effects on water production in the Wolfcamp?

A. Yes. I'll make this very brief. I think it's worth taking a moment to look at this.

MR. KELLAHIN: Speak up John, so she can hear you.

A. I'm sorry. I believe that you can segregate the producing reservoirs in this field. You can say that you can't, but the fact of the matter is, I've done it.

If you look at the structure map which is on top of the AF carbonate, the same structural inclination dips and has no features that Fred has shown on his structure map. And you look at -- you take the Exhibit 6, of Hanley Petroleum, and you post the water producing, or water cuts, on the wells and then look to each one of these isopaks and look at where the water is structurally occurring on -- in each one of these zones in the AG zone, which is the zone productive in the 8 Number 1. We're at a zero water cut.

Look at the West Corbin Number 12, and the West Corbin Number 18. The 18 has a two percent water cut; the 12 has a 15 percent water cut. Look where we are structurally. The 8 Number 1 is 71, minus 7179. The 12 is minus 7257. The 18 is minus 7246.

We are roughly 61 feet down dip at the 18 and we're producing essentially water free. The location that we've proposed is 21 feet down dip from the 8 Number 1. Look at the AF zone. Zero water cut in the AF, and our well untested obviously.

Go down dip and again we're looking now at structures immediately on top of this carbonate. Go down dip into the 12 and you've got a 15 percent oil cut. And on the AF you are 61 feet down dip.

If you look at the AE, you've got two wells producing, the West Corbin 12, and the West Corbin 11. The West Corbin 11 is also open in the AC which I do not have an isopak of. But on the structure map the West Corbin 11 is at 7299, 200 feet down dip from the 8-1. And it's producing a 5 percent water cut.

If you look at the structure map, Mr. Examiner, the high water cuts are coming in down

here at 7270, 7309, 7343, and over here in 16 they're fairly high, where you're down below the 7000 contour.

So I would contend, based on this mapping, that your water encroachment is not a problem anywhere in basically the north half of 17, the north half of 18, the entire Section 8 and Section 7. And from in the north. That's all I wanted to point out.

EXAMINER MORROW: Mr. Kellahin, do you have any questions of Mr. Thoma concerning his testimony?

MR. KELLAHIN: No.

EXAMINER MORROW: Mr. Bruce, anything further?

MR. BRUCE: Just one final thing, Mr. Thoma. Santa Fe is drilling a well in Section 5, is it on that acreage officially.

THE WITNESS: No, we don't. I believe that if Hanley Petroleum honestly wanted to build a block out here, they could have built a block. Section 5, which -- this acreage here was acquired from Oxi Petroleum within the last six months. The acreage was available, if you were doing your home work.

MR. BRUCE: Thank you, Mr. Thoma.

THE WITNESS: Thank you

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Thoma, do you know what Hanley bid for the balance of the acreage in the north half of the 8, when it came up for public sale against your company?

A. No, I don't, Mr. Kellahin.

Q. When you look at your Well Number 12, isn't that well producing out of all the zones in the Wolfcamp and wouldn't that mask the presence or contribution of water to any of those zones?

A. No, it wouldn't. Because it's producing from the AG, the AF, and the AE. If there was water production from any one of those zones, you would see it. The other wells on the map that Hanley has presented, they've lumped all the zones together and where they're wet, you see the water.

Q. I'm confused your position Mr. Thoma. This morning you told me that water was not a problem insofar locating Wolfcamp wells in Section 8?

A. I don't believe that water is a problem in this reservoir, period. I still belief that the

water we're seeing down dip is not water encroachment from a water log but it's a matter of the reservoir depleting, the oil depleting from the reservoir and increased friction and developments of conate water being produced.

EXAMINER MORROW: Excuse me. We can continue this if you'd like to. I believe you've made your point to us, you don't believe this structure or that water production has anything to do with structure. And the other side has made their point that they think it does.

And if you want to dwell on it some more, we'll stay so long as you want to. But I think we understand each side's position.

Q. (By Mr. Kellahin) And that was my last question to you, Mr. Thoma. You and Mr. Huck have a total disagreement about water in the Wolfcamp?

A. Yeah, we do. But I think that this data, the data I've provided on this montage, demonstrates that there is not going to be a water problem in Section 8 and structure will not be a factor.

MR. KELLAHIN: I understand your position. Thank you.

EXAMINER MORROW: Anything more in this

case?

MR. KELLAHIN: No, sir.

MR. BRUCE: I have nothing further, Mr. Examiner.

EXAMINER MORROW: The cases 10211 and 10219 will be taken under advisement.

And we did have one more thing we needed to say on the record concerning Case 10241. It needs to be --

MR. STOVALL: Yes, in the hearing yesterday we left that case open because we weren't sure, we thought it maybe had to be continued for one more hearing, and that is correct. That case for an advertising purpose needs to be continued to the next -- the first of March.

EXAMINER MORROW: Adjourned.

(The hearing was adjourned at 4:42 p.m.)

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

REPORTER'S CERTIFICATE

I, GAIL D. VINSON, CCR, a Certified Court Reporter and Notary Public, DO HEREBY CERTIFY that I stenographically reported these proceedings before the Oil Conservation Division; that the foregoing is a true, complete and accurate transcript of the proceedings of said hearing 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 hereof.

DATED at Santa Fe this 24th day of April, 1991.

GAIL D. VINSON, CCR
Certified Court Reporter
CCR 297, Notary Public

My commission expires:
5/14/94

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

_____, Examiner
Oil Conservation Division