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

13 April 1988

EXAMINER HEARING

IN THE MATTER OF:

Application of Santa Fe Energy Operating Partners, L. P., for the expansion of the North Hume-Wolcamp Pool, and the amendment of Division Order No. R-8476, Lea County, New Mexico.	CASE 9354

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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I N D E X

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E X H I B I T S

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MR. CATANACH: Call next Case 9354.

MR. ROYBAL: Case 9354. Application of Santa Fe Energy Operating Partners, L.P., for the expansion of the North Hume-Wolfcamp Pool and the amendment of Division Order R-8476, Lea County, New Mexico.

Are there appearances in this case?

MR. BRUCE: Mr. Examiner, my name is James Bruce from the Hinkle Law Firm in Santa Fe, representing the applicant.

I have three witnesses to be sworn.

MR. CATANACH: Any other appearances in this case?

Will the --

MR. THORNTON: I represent Moncrief Oil. I want to make a statement.

MR. CATANACH: Moncrief Oil?

MR. THORNTON: Yes.

MR. CATANACH: What is your name, sir?

MR. THORNTON: Dewey Thornton.

I have a letter to read.

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MR. CATANACH: Okay, any other appearances?

Will the witnesses please stand to be sworn in at this time.

(Witnesses sworn.)

GARY GREEN,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q Mr. Green, would you please state your full name and city of residence?

A Gary Green from Midland, Texas.

Q And what is your occupation and who are you employed by?

A I'm employed as a landman for Santa Fe Energy Company.

Q And have you previously testified before the OCD as a petroleum landman?

A Yes, I have.

Q And are you familiar with land matters regarding this case in the North Hume-Wolfcamp Pool?

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A Yes, I am.

MR. BRUCE: Mr. Examiner, is the witness acceptable?

MR. CATANACH: He is.

Q Mr. Green, briefly, what does Santa Fe seek in this application?

A Santa Fe seeks to amend Order No. R-8476 to increase spacing in the North Hume-Wolfcamp Pool to 160 acres and to expand the boundaries, the pool's boundaries.

Q Would you please refer to Exhibit Number One, discuss its contents, and give a history of the pool?

A Exhibit Number One is a land plat showing the current pool that's marked in blue; the extension to the pool marked in red; Santa Fe's acreage is indicated in yellow. Also shown within the hatched area outline are the current lease operators and/or mineral owners who have been notified by certified mail of Santa Fe's application in this case.

The pool was discovered by Santa Fe's NH-5 Fed Well No. 1, completed in January 11th, 1987. It's located in Lot 7, Section 5, Township 16 South, 34 East.

The Division created the pool in the nomenclature Case No. 9102 and it originally included Lots 1, 2, 7, and 8 of Section 5, 16 South, 34 East.

In Case No. 9175 Santa Fe requested spe-

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cial pool rules, including 80-acre spacing. This application was granted by Order No. R-8476.

The Division later expanded the pool by nomenclature to include the southwest quarter of Section 36, Township 15 South, Range 33 East, where the V-F Petroleum Chevron State Well No. 1 was completed.

Subsequently, Santa Fe NH-35 No. 1 Well was completed in the Wolfcamp formation in the southeast quarter of Section 35 in Township 15 South, 33 East, and recently Santa Fe Hunble Hume 5 State No. 1 Well in the southeast quarter of Section 5, Township 16 South, 34 East.

The well was drilled to the Morrow formation. The Wolfcamp formation was tested in this well and Santa Fe is currently attempting completion in the Morrow formation.

Our next witness will testify that all four of these wells are in the same Wolfcamp Pool and Santa Fe requests the pool be expanded so that it covers the southeast quarter of 35, southwest quarter of 36, 15 South, 33 East, and Lots 1, 2, 7, 8, 9, 10, 15 and 16, and the southeast quarter Section 5, Township 16 South, 34 East.

Q Were all offset operators and lease owners notified of this hearing by certified mail?

A Yes, all with the exception of one company , Enstar Petroleum, Magnolia, Arkansas, refused to ac-

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cept the certified letter on two different occasions, and we have documentation.

Q And is that -- is that documentation submitted as Exhibit Number Two?

A Yes, it is.

Q Does Santa Fe have plans for drilling additional wells in the North Hume-Wolfcamp Pool?

A Yes. Santa Fe proposes to drill the NH-35 Well No. 2 in the southwest quarter of Section 35, Township 15 South, Range 33 East, and the NH-5 State No. 1 Well located in Lot 11 of Section 5, 16 South, 34 East.

Cost estimates for these two wells are submitted as Exhibits Three A and B. The completed wells are estimated to cost roughly $700,000.

Q In your opinion will the granting of this application prevent waste and protect correlative rights?

A Yes.

Q Were Exhibits One, Two and Three prepared by you, under your direction, or compiled from company records?

A Yes.

MR. BRUCE: At this time, Mr. Examiner, I move the admission of Exhibits One through Three.

MR. CATANACH: Exhibits One

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through Three will be admitted into evidence.

MR. BRUCE: I have no further questions of this witness.

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Green, as I understand your Exhibit Number One, you've got the current pool outlined in blue.

A Yes, sir.

Q The proposed expansion outlined in red?

A Yes.

Q And the yellow acreage represents --

A That represesnts Santa Fe's leasehold acreage in the -- in the area.

Q Why is it we show different operators on some of that acreage? For instance, in Section 5 I show Exxon.

A Exxon and Texaco, this is -- that well was drilled based on farmouts. Santa Fe drilled the well. Texaco and Exxon farmed out to a 320-acre working interest unit in the area.

Q And as I further understand, you have recently completed a well in the southeast quarter of Section 35?

A Yes, sir. This well is waiting -- we're

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awaiting electricity to get it hooked up.

Q That is completed in the Wolfcamp?

A Yes, sir.

Q And also in the, let's see, what would it be, down in Section 5? Is that the other well you were talking about?

A Yes. That's a well that we're currently attempting to complete in the Morrow formation.

Q Oh, that's not completed in the Wolfcamp?

A No. This is -- well, we haven't even completed here; we're still attempting completion in the Morrow.

If that does not work out for us, we will come back up the hole and complete it in the Wolfcamp.

Q Well, why is Santa Fe Energy requesting that acreage to be expanded if you don't --

A We -- we expect to have somewhat of a limited Morrow reserves there and we think that in the future, shortly in our near future, we don't know how long till we've got down there, but we will definitely, that will a Wolfcamp well eventually.

Q As I further understand it, you have a well planned for the southwest quarter of Section 35?

A Yes, sir.

Q And for Lot 11 in Section 5.

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A Yes, sir.

Q Those are both proposed Wolfcamp wells?

A Yes, sir.

Q The notices of this hearing mailed out, does that represent notice to all operators within a mile of the pool?

A It covers somewhat more, more than a mile. What, basically, we tried to do is notify everything within a mile from where we had any well located in the pool.

Q Who were the operators you said refused to --

A It's -- it'll be the first one that you've got there, Enstar Petroleum, Magnolia, Arkansas.

On the back two pages, or three pages we've got our -- show the envelopes where they refused to accept the notification on two different occasions, in March 30th, March 24th the first time and then again March 30th, they just would not sign for the certified envelope.

Q Is their acreage limited to --

A Their acreage is located -- they have 40 acres in Section 27, 15 South, 33 East; it would be the southeast quarter of the northeast quarter. That would be southeast of southeast.

Q And Exhibit Number Three represents AFE's

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for the two proposed wells, is that correct?

A Yes, sir.

MR. CATANACH: I have no further questions of the witness.

He may be excused.

DENNIS L. BUTLER,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q Mr. Butler, will you please state your full name and city of residence?

A My name is Dennis L. Butler. I live in Midland, Texas.

Q And what is your occupation and who are you employed by?

A I'm a geophysicist employed by Santa Fe Energy.

Q And have you previously testified before the OCD?

A No, I have not.

Q Would you please briefly state your educational and work background?

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A I received a BS degree from West Texas State University in 1973; an MS degree from West Texas State in 1975.

From 1975 to 1979 I worked for Texaco, Inc. in both Houston and New Orleans.

From 1979 to 1983 I worked for Diamond Shamrock in Amarillo, Texas.

And from 1983 to the present I've worked for Santa Fe Energy as a District geophysicist.

Q And does your area of responsibility include southeast New Mexico?

A Yes, it does.

Q And are you familiar with geological matters related to Case Number 9354?

A Yes.

MR. BRUCE: Mr. Examiner, are the witness' credentials acceptable?

MR. CATANACH: They are.

Q Mr. Butler, would you please refer to Exhibit Number Four and describe its contents?

A Exhibit Number Four is a map of the North Hume-Wolfcamp pay with porosity cutoff of greater than or equal to 6 percent porosity.

You can see that as we map, the pool extends on the north with 17 feet of pay in the V-F

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Petroleum Well; the west in our NH-35 Federal; down through the original discovery, the NH-5 Federal; and further to the south we correlated to a zone that was tested in our Humble Hume Well, which is currently completing in the Morrow; and further to the south in two Moncrief wells in Section 8, which we'll show on a cross section later.

Q Will you please now move on to Exhibit Number Five and discuss its contents?

A Exhibit Number Five is a structure map on a Wolfcamp marker, which we call the XX marker. This pool is a stratigraphic trap. The XX marker is a good representative of the structure of the Wolfcamp beds and I have superimposed the outline of the net porosity from the previous exhibit on this map, and as you can see, we have a porosity drape across a structural nose with oil in the updip west half of the porosity development and we interpret water in the east half.

Q And are X-X' and Y-Y' the indicated courses of the two cross sections we'll discuss next?

A Yes.

Q Please move on to Exhibit Number Six, the X-X' cross section and discuss that.

A This is a stratigraphic cross section hung from the top of the Wolfcamp. You will notice the XX marker which was our structural horizon for the previous

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structure map, and also the North Hume pay is colored in orange, and starting on the north, the perforated interval in the V-F Petroleum Well has been correlated to the perforated interval in the NH-35 Well; on to the south in the original discovery well; further to the south in Section 5, the Humble Hume 5 State, which is completing in the Morrow, was drill stem tested in the same equivalent zone.

Bottom hole pressures were the -- within a few pounds of the original bottom hole pressures in the discovery well, and 3200 feet of oil was recovered on that test. We feel like this is showing the continuation of this reservoir in the area.

Then further to the south in the Moncrief No. 1 State 8 Well there are two porosity zones developed, both shown in orange. The upper zone was tested but the lower zone, which we correlate to our -- the pay in the North Hume Pool, was not tested, but we feel by log calculations that this zone also should be productive from the North Hume pay.

Q Thank you. Would you now move on to Exhibit Number Seven?

A Exhibit Seven is a similarly constructed stratigraphic cross section. In the center of this cross section is a common well to the X-X' cross section, the Moncrief No. 1 State 8 and again you'll notice the two porosity

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zones within the Wolfcamp, the lowermost, as we've indicated, we feel is correlative to the North Hume-Wolfcamp Pool.

We have constructed this cross section to show the relationship of that Wolfcamp pay to other Wolfcamp producers in the area.

Starting at the Y end of the cross section, the Yates No. 1 Hot Toddy Well is a Kemnitz-Upper Wolfcamp well. It's in the Kemnitz-Upper Wolfcamp Pool. It tested a zone which was equivalent to our pay but tested water and if you refer back to the structure map, they were 100 feet high to our original discovery well, so we know that that porosity is not connected with the North Hume Pool.

Q Is that, excue me, is that the lower pay indicated on the Yates well?

A Yes. That's the drill stem test from 10,091 to 10,128 in that well.

And the upper porosity zone, which is designated as Kemnitz-Upper Wolfcamp, we feel is a separate zone from the Hume Pool.

Q Continue. Go ahead.

A The Samedan No. 1 State 7 Well was recently drilled and is being completed in the Morrow. The logs do not indicate any porosity development of commercial

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value in these Wolfcamp zones.

Then we are back to the Moncrief Well and as we turn back to the southeast, a second well in Section 8, the Moncrief 1-Y, has a very thin zone of porosity developed which correlates to the same pay.

Then we move on to the south to the OGR No. 1 Kemnitz State 17, which is in the Kemnitz Lower Wolfcamp Pool. You'll notice the perforations at approximately 10,450 feet and the orange porosity indicated in the Lower Wolfcamp.

We feel that in both the OGR Well and the final well, the Tennessee Gas No. 1 State, in Section 21, are producing from a separate Lower Wolfcamp pay.

Q What conclusions do you draw from these exhibits?

A I conclude that we have a -- have defined an area of the pool as indicated on the our maps, and that we are in a separate reservoir from the other Wolfcamp completions in the immediate area.

Q And in your opinion should the North Hume-Wolfcamp Pool be expanded to encompass the entire east half of Section Five and the southeast quarter of Section 35?

A Yes.

Q Are there any other -- excuse me. In

BARON FORM 25C1693 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

your opinion will the granting of this application prevent waste and protect correlative rights?

A Yes.

Q Are there any other Wolfcamp Pools in this area with 160-acre spacing?

A Yes, there is. The Shoe Bar North Wolfcamp Pool, located approximately 8 miles to the east/southeast of this area.

Q Is the geology of the two pools similar?

A Yes, it is. The logs in the area indicate similar porosities and thicknesses of pay and the regional geology indicates that both are producing from stratigraphic porosity development in a carbonate shelf environment in the Wolfcamp interval.

Q Were Exhibits Four through Seven prepared by you or under your direction?

A Yes, they were.

MR. BRUCE: Mr. Examiner, I move the admission of Exhibits Four through Seven.

MR. CATANACH: Exhibits Four through Seven will be admitted in evidence.

MR. BRUCE: I have no further questions at this time of this witness.

MR. CATANACH: Why don't we take a short break so that we can look at these exhibits?

BARON FORM 25C/6P3 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

(Thereupon a short recess was taken.)

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Butler, did you state that the well in the south half of Section 5 has not been or has been tested in the Wolfcamp?

A That is it has been tested in the Wolfcamp.

Q And has it been determined that that's commercial, commercial producing in the Wolfcamp?

A Yes.

Q But it's just the company's policy that they want to test the Morrow in that well, produce the Morrow first?

A Yes, we'd like to work from the deepest objective back up the hole.

Q Explain to me, if you would, the geologic similarities between this pool and the -- and the North Shoe Bar Wolfcamp Pool you discussed earlier.

A It's just -- it's in a same massive carbonate section of the Wolfcamp, indicating they were both positive in a -- I can't think of the word I'm thinking of -- platform environment and the thicknesses of the porosity

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are in the same 5 to 20 feet. The range of porosities are similar, from 4 to as high as 14 percent.

So the two pools seem to have been -- have a similar geologic history in reservoir development.

Q What can you tell me about -- about the permeability of this pool and the -- and the other pool?

A We have one core which was taken in the NH-35 No. 1, which the maximum permeability was measured as 64 millidarcies.

And we have no permeability data on the other field.

Q As I understand it, the V-F Petroleum No. 1, that's the discovery well for the pool?

A The discovery well was Santa Fe,'s NH-5 Fed No. 1 in the northeast portion of Section 5.

Q What -- what's been the producing history of the V-F No. 1? Is that currently producing?

A I think it's currently shut-in. We just got access to detailed production histories last week and I know our engineer has looked at it closely but I have not.

I know that it completed for a significant amount of water and was producing quite a bit of water in its early life.

MR. CATANACH: Okay, I think that's all I have at this time. I may have something later.

BARON FORM 2SC1693 TOLL FREE IN CALIFORNIA 800-227-3434 NATIONWIDE 800-227-0120

You may be excused.

NORMAN A. GARRETT,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q Mr. Garrett, would you please state your name and city of residence?

A My name is Norman A. Garrett and I live in Midland, Texas.

Q And what is your occupation and who are you employed by?

A I'm a reservoir engineer for Santa Fe Energy Company.

Q And have you previously testified before the OCD as a reservoir engineer?

A Yes.

Q And are you familiar with the engineering matters related to the North Hume-Wolfcamp Pool and this case?

A Yes.

MR. BRUCE: Mr. Examiner, is the witness acceptable?

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MR. CATANACH: He is.

Q Mr. Carrett, would you briefly state why Santa Fe seeks to increase spacing in this pool from 80 acres to 160 acres?

A Well, based on our up-to-date production, Santa Fe has determined that each well in the pool will drain substantially more than about 80 acres; therefor, in order to prevent the drilling of unnecessary wells and to protect correlative rights, an increase in spacing to 160 acres is necessary.

Q Would you please refer to Exhibit Number Eight and describe its contents?

A Exhibit Number Eight is a posting of the daily well tests that we've maintained since the well was first put on production and it is also a continuation of the sae production curve that was submitted in the -- during the last hearing and it demonstrates on here that through the months of, say, February up through July, that the well was flowing and starting to produce a little bit more water than, you know, it initially was completed for, and upon loading up with water we put a pumping unit on it and unloaded the water; then the well started flowing again, both through the casing and also up through the tubing at the pump.

And with each successive little problem

BARON FORM 2SC16P3 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

that we had developed in the -- in the pumping unit system, (unclear) down for a number of days, or whatever, it would load up slightly and once we unloaded it would start to flow again and you can see the last period of time in October when we unloaded it, and at that point we maintained a fairly steady, I'll say, relief of water in the well.

And at approximately mid-December the well reverted to pretty much mechanical lifting capacity and from that point on until two days ago we maintained it in that order, and it's been producing, as you can see, over the last several months, something in the order of about 200 down to about 150 barrels a day.

Q And is this about the same production rate as -- as at the hearing -- as the production rate last July when we had the hearing in Case 9175?

A It is in the sense that when the well was flowing, yes, that's true, when we did not have the mechanical lifting capacity.

Q Would you please move on to Exhibit Number Nine and discuss your calculations regarding reserves?

A Okay. Exhibit Number Nine is both the volumetrics and the decline curve analysis, plus the cum, to demonstrate the gross ultimate, or estimated gross ultimate recovery.

Q Two factors, essentially three factors

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have changed.

One of them is that we have increased the porosity slightly due to correlation between the core and the logs, which I'll show in just a moment, the core and the logs in the North Hume 35 No. 1.

Also we have taken a water sample from the producing water of the North Hume Fed -- North Hume 5 Fed No. 1 and correlated that one back in and it's changed the water saturation slightly, so it is now approximately 13 percent.

Perforations obviously haven't changed and we've used the same recovery factor.

Putting this in a volumetric calculation shows for 160 acres you can recover approximately 219,000 barrels.

The cumulative production as of 3-27-88 was 67,000 barrels of oil and based on a decline which is taken from the daily production curve which we've looked at just a minute ago, to the economic limit, shows an additional 150,000 barrels could be recovered, for gross ultimate recovery of 217,000 barrels.

Q Did you testify in Case Number 9175 regarding the increase is spacing in this pool from 40 to 80 acres?

A Yes, I did.

BARON FORM 2SC/6P3 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

Q What did your testimony, based upon the data available at that time, show with respect to recoverable reserves for 80-acre spacing?

A It showed that we could recover at that time, based on the data we had, 71,500 barrels of oil.

Q And to date you've almost recovered that amount from the NH-5 Fed Well No. 1.

A Yes. We've recovered approximately 69,000 barrels at this point.

Q Would you please refer to Exhibit Number Ten briefly and discuss its significance?

A Okay. Exhibit Number Ten is a log strip with the ID showing the -- both the porosity log, I should say, and the perforated interval, and it is a plot of the neutron porosity versus the core porosity.

This, obviously, is for the North Hume 35 No. 1, and it shows that we on the average are approximately 30 percent low. In fact, it's the other way around, right, we're 35 percent low in the fact that we used that for a multiple.

Q And this helps explain the change you discussed in Exhibit Number Nine?

A Yes, sir. In addition to that, there's an induction log strip also attached to the (unclear) showing the same thing.

BARON FORM 2SC1693 TOLL FREE IN CALIFORNIA 800-227-3434 NATIONWIDE 800-227-0120

Q Would you move on to Exhibit Number Ten and discuss the reservoir pressure data set forth in that exhibit -- or Eleven?

A Okay, I have a small table subdata showing pressures and the distances, wells one from another. Starting at the top, the North Hume 5 Fed No. 1 original reservoir pressure was 3816 pounds. There's a typo in the data; it should be date on production (unclear).

It was put on production February 13th, 1987 as is shown also in the production curve.

Chevron State No. 1, which is the V-F Petroleum operated well, had an original reservoir pressure June 16th, 1987, of 3714 pounds. That's 102 pounds less.

Date on production was August, 1987.

Distance from the discovery well, the North Hume 5 Fe No. 1, is 3,250 feet.

The North Hume 35 No. 1, the original reservoir pressure in January of this year is 3,289 pounds, which is substantially lower.

The date on production, we have none at this time. We're waiting on the power lines to be installed.

Distance from the discovery well is 3000 feet and from the Chevron State No. 1, the V-F operated well, it was 2,300 feet, and you can see the chronology and

BARON FORM 25C-1693 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

pressure drops across that reservoir, and the continuity, I believe, also, as shown by Mr. Butler.

Q Will you please now refer to Exhibit Number Twelve and discuss the economics?

A This is an update of the -- exactly the economics that we showed last year in the (unclear) when it was demonstrated at that time that for 80 acres we could recover 71,500 barrels for the 80 acres.

Reducing the 160-acre spacing equivalent to the 80 acres that we showed just a few minutes ago, shows that you would recover 109,000 barrels of oil. That's as of April, 1988.

The line that you see showing the 80 acres for the 71,000 shows that you would have to have reserves about 66 percent of the 71,500 barrels to -- excuse me, that's 70 -- 74 -- 72 -- to have been economic last year.

Now it's currently changed with the decreasing oil prices, slight increase in the drilling cost, to -- that one is 77 percent of the 109,000 barrels.

I'll give you a moment to examine that and see if you have any questions on it.

Q From this Exhibit Twelve, Mr. Garrett, in other words, what you're saying is that to break even on 80-acre spacing you need approximately 75 percent, 76 percent, success rate in drilling wells in this pool in order to

BARON FORM 25C1693 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

break even and recover your costs?

A Yes, sir.

Q And would that percentage of success be decreased on 160-acre spacing? In other words, would -- would -- in other words, you'd need a -- you would need a smaller chance of success in order to make your --

A Oh, yes, yes.

Q -- wells economical out there --

A Yes, sir.

Q -- on 160-acre spacing?

A Yes, sir.

Q In your opinion would drilling of the extra wells required by 80-acre spacing cause economic waste?

A Yes.

Q Now Mr. Butler discussed permeability of 64 millidarcies. Could you discuss what effect the permeability has on the area of drainage?

A Permeability basically is not a limitation. Eventually it would drain in a large area; it's just that it would reach an economic limit at an early rate, and in this particular case I believe that the production curves and our basic data demonstrates that with the permeability that we have, that we can recover 160 acres worth of reserves within a reasonable period of time.

Q And what time period have you calculated

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roughly for draining 160 acres?

A Five years. Now, that's based on straight semilog (unclear). It's possible that it could take a little bit longer if it turns out to be (unclear) but at this point I don't believe it would take much more.

Q Mr. Butler also discussed the North Shoe Bar Wolfcamp Pool. Do you have any comments regarding that pool?

A The data that I've looked at for those -- for that other area shows them to be -- shows the reservoir to be very similar porositywise and water saturation calculations.

Q And was that information you obtained in part from OCD Case Number 5081?

A Yes, it was.

Q Does Santa Fe request that the increse in spacing to 160 acres be on a temporary basis?

A Yes, sir.

Q And what time frame do you propose?

A I propose to -- I propose to limit this time or to ask for this time to be as it was in the original request. That's Order No. R-8476, increase spacing on a temporary basis until July, 1989.

Q And do you request that 160-acre spacing be temporary until July, 1989?

BARON FORM 25C-6P3 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

A Yes, sir.

Q In your opinion will the granting of this application be in the interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes.

Q And were Exhibits Eight through Twelve prepared by you or under your direction?

A Yes.

MR. BRUCE: Mr. Examiner, I move the admission of Exhibits Eight through Twelve.

MR. CATANACH: Exhibits Eight through Twelve will be admitted as evidence.

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Garrett, the original -- the original case for 80-acre spacing, the data used was from the NH-5 Federal No. 1?

A Yes, sir.

Q And the data that you're using now is basically from the NH-35 Federal No. 1, is that correct?

A The 35 No. 1 did you say?

Q Right.

A No, sir. We correlated the core analysis to the log for that same well and we applied that correction

BARON FORM 250-6P3 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

factor back to the North Hume 5 Fed No. 1 Well.

The water analysis that we had is from the North Hume 5 Fed No. 1 also.

Q Okay, so the core was obtained from the 35.

A Yes, sir.

Q And as a result of that core, the porosity that you used originally changed, right?

A Yes, sir.

Q Do you recall what the porosity was that you originally used?

A If you'll give me just a moment, I'll get that for you.

6.73 percent.

Q How was that 6.73 percent originally determined

A Through this cross plot from the porosity logs, the neutron and the density, taken on a foot by foot basis across the producing interval.

Q And explain to me one more time how the -- how you use the core data to increase the porosity data on the No. 5 Well.

A The logs for the North Hume 35 No. 1 were correlated as -- which is what you have in the other exhibit in here.

BARON FORM 2SC/6P3 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

Q That would be Number Ten?

A Yes, sir. It's shown in the purple and magenta color, that is the core porosity. That was compared to the same wells, logs, that is the cross plot for the -- for the two traces, and then compared for -- against the core porosity itself.

It is shown to be -- the actual logs are pessimistic.

That same correction factor was applied back to the -- to the North Hume 5 Fed No. 1.

Q Okay, and the other factor that substantially changed was the water saturation, is that correct?

A Yes, sir.

Q And was the corrected water saturation also obtained form the core data? Or how was that obtained?

A No, this was recalculated, also, the same way. We used the same data. The two factors that changed in the formula were the porosity and the water resistivity.

The calculations for the North Hume 35 No. 1 were compared to the core analysis also and were shown to be pessimistic.

Q What has the 35 Well No. 1 been tested at?

A Yes, sir, it is -- basically the initial tests on it were flow rates. We are currently waiting to

BARON FORM 25C1693 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

put the well on production, as is the -- the Humble Hume Well, or the other well, excuse me, for power, We need an electric line in there, but anyway, it flowed somewhere in the neighborhood of about 80 barrels a day on initial test, and I'd say that was with extremely limited data.

Q That's substantially lower than the 5 No. 1 Well, is that correct?

A That's correct.

Q Mr. Garrett, what was the -- what was used as the economic limit on your calculations?

A Sir, are you speaking of the --

Q For your decline curve analysis.

A Oh, the decline curve analysis? I used approximately 3 barrels a day. That's demonstrated on the decline curve analysis portion of it in the formula.

Q And that was based on -- also on Exhibit Number Eight you have a 30 percent. Is that the decline rate that you --

A Yes, sir. That's the -- begging your pardon, sir, on that one. That is annual paper that you're looking at here, the two of them have been put together, if you were trying to compare them.

Q Let's see, this may have come out but do you know the cumulative production from the V-F Petroleum No. 1 Well?

BARON FORM 25C1693 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

A I don't believe I know the exact but possibly I can volunteer the information, if you will. As you questioned Mr. Butler before, that that well is currently on production and is producing something in the neighborhood of 10 to 20 barrels a day right now. This is examination of our latest records.

Q So a lot of water.

A Yes, sir, a lot of water.

Q How long has that well been producing?

A That is also a matter of record in this -- the pressure and the distance data that we have on here, sir. That one shows that the V-F Well was put on production 8-1-87.

The V-F Well itself produces about 200 barrels a day gross fluid.

Q Substantial water cut?

A Yes, sir.

Q Mr. Bruce asked you a question, Mr. Garrett about whether or not 160-acre spacing would decrease your chances of success. Have you calculated any figure for that on this ?

A As to what it would be? It would -- it would in effect be doubling that same portion.

Q So it was 77 you'd probably have half of that, something like that.

BARON FORM 25C1693 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

A Well, that's all right, that's approximately 7 -- say, approaching, let's put it that way, approaching 80,000 barrels would obviously be economic but I believe that that's not necessary. I'm not talking about the (unclear), I'm talking about the fact -- the 80-acre spacing.

MR. CATANACH: That's all the questions I have of the witness.

Are there any other questions of this witness?

MR. BUTLER: I wanted to clarify one thing that I thought might have not been fully stated, on the completion in the Santa Fe 35 No. 1 to the north. I think that Norm said theere were 80 barrels a day.

Again, that is significant water cut. That well will not flow because of the water cut. It's just been swab tested to date and we wanted to get on a pump to get an established rate and remove all that fluid, so we don't feel like the maximum capacity of that well is 80 barrels of fluid a day. In fact we're putting a pump that will handle over --

MR. GARRETT: Approximately 400 barrels a day.

MR. CATANACH: Immersible-type pump?

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MR. BUTLER: No, sir, this will be a 540 pump.

MR. CATANACH: So you don't think that represents the --

MR. BUTLER: That would be, you know, the oil fraction. We feel like the reservoir will deliver the more -- closer to 400 barrel (unclear). Unfortunately, about 75 percent of that is going to be water.

NR. CATANACH: Okay, Mr. Thornton, did you have a statement --

MR. THORNTON: Yes.

MR. CATANACH: -- that you wanted to read into the record?

Okay, you may do so at this time, sir.

MR. THORNTON: I'm a geologist by education and Exploration Manager for Moncrief Oil and we own the lease on Section 8 of 16 South, 34 East, where the Moncrief No. 1 State 8 is located that these gentlemen have referred to, and as offset operators we agree with a lot of things they've said but we oppose 160-acre spacing for this reservoir.

They've got one commercial well up there that according to the Oil Conservation Commission records had produced 56,611 barrels of oil in ten months.

BARON FORM 25G 6P3 TOLL FREE IN CALIFORNIA 800 227-2434 NATIONWIDE 800-227-0120

That was through February. It made 141 barrels of oil per day plus 59 barrels of water per day in February. That's a total of 200 barrels of fluid per day.

The V-F Well they referred to has made 3535 barrels of oil in 7 months. That's through February; made 7 barrels of oil per day in February.

I don't feel like you can compare this reservoir to the North Shoe Bar reservoir because the North Shoe Bar does produce from the Wolfcamp but it has two pay zones that are farther into the Wolfcamp than this reservoir, North Hume.

If you just tie it to your XX marker, it's -- it's further into that XX marker than your pay zone at North Hume, and that field is 10-1/2 miles southeast, as the crow flies.

At Hume you've got 12 to 18 feet of porosity. At north Shoe Bar you have three good wells and a bunch of sorry wells, and the -- one of the good wells has 75 feet of pay, and it's not even the same geological part of the Wolfcamp.

So I feel like if you're going to compare it, you ought to compare apples to apples instead apples to oranges.

And they've got 80 acre spacing and the one well they've got won't make a 40-acare allow-

BARON FORM 25C 6P3 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0120

able. It made 141 barrels a day in February plus 59 barrels of water for a total of 200 barrels of fluid per day, and we just feel like that the operators and State will realize more income if it's developed on 80-acre spacing.

And I did deliver a letter from Coastal, which is a joint working interest owner with Moncrief in the north half of Section 8 and the southwest quarter of Section 8.

And I guess the one thing we really disagree on is whether we should have 160-acre spacing or 80-acre spacing, and we would just like to state that we oppose 160-acre spacing for this reservoir.

MR. CATANACH: Okay, sir. Thank you.

At this time we'll read into the record the letter presented by Mr. Thornton from Coastal Oil and Gas Corporation.

MR. ROYBAL: Mr. Hearing Examiner, this is a letter from Coastal Oil & Gas Corporation dated April 12, 1988, addressed to Mr. William J. Lemay regarding prorating, Proration Hearing, Hume North Wolfcamp Field, Lea County, New Mexico.

Dear Mr. Lemay: This letter is being written to state Coastal Oil and Gas Corporation's position as a part owners of a lease in the above listed

BARON FORM 25C16PJ TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-227-0130

field.

It is our understanding that a hearing has been requested to have certain rule changes for the field, namely, from 80 to 60-acre proration units. We have requested that Mr. Dewey Thornton with Moncrief Oil convey this letter to you.

Coastal's position is that the proration units remain unchanged at 80 acres.

After a geological and engineering review of the Wolfcamp formation it is our belief that one well would not drain 160 acres. Our position is that not only would the requested spacing require further stepouts for field development, thereby increasing risk to the operators, it would also release -- decrease the ultimate recovery of the field and leave behind reserves that would never be recovered.

Furthermore, since the offset operator's well is not currently producing at the allowable from 80 acres, we can see no reason to change the spacing rules at this time.

Sincerely, Arthur F. Oestmann, Assistant Vice President and Exploration Manager.

MR. CATANACH: Also at this time Mr. Paul Kautz for Hobbs District Office, and geologist down there, would like to make a statement in this case.

BARON FORM 25C16P3 TOLL FREE IN CALIFORNIA 800-227-2434 NATIONWIDE 800-237-0120

MR. KAUTZ: First I'd like to state that it is against our policy to extend a pool for a well that has not been completed in that particular formation and so therefor we're requesting that the extension for Units 9, 10, 15, 16, and the southeast quarter of Section 5 be denied and that at what time that they do complete the well in the Wolfcamp, that be handled under a normal -- normal nomenclature hearing.

Also, comparing the production from the wells here in the North Hume Wolfcamp, they are not typical production of a well that will drain 160 acres as can be found in numerous examples from our production data that we have on file, plus some pools that we do have on 160 acres now, not all wells will drain 160 acres.

However, even comparing the production data from these wells to these -- these pools are being compared to the North Shoe Bar Wolfcamp production is not equivalent, will not, I don't believe will drain 160 acres.

Production from the V-F Petroleum Chevron State No. 1 also strongly suggests it will drain 160 acres and we recommend that the pool remain on 80 acres.

MR. CATANACH: Is there anything further in this case?

BARON FORM 25C/6P3 TOLL FREE IN CALIFORNIA 800 227 2434 NATIONWIDE 800-227-0120

MR. BRUCE: Mr. Examiner, may I just --

MR. CATANACH: Mr. Bruce.

MR. BRUCE: I'm afraid I'll sound like Mr. Kellahin here, he's not here to defend himself, but as I've heard Tom say many times, the Division has always followed a practice of taking a cautious approach on spacing and where there's a doubt the Division has tended to increase spacing, at least on a temporary basis, until sufficient data could be obtained to either make that spacing permanent or decrease the spacing.

We ask on behalf of Santa Fe that the Division increase the spacing to 160 acres for the North Hume Wolfcamp Pool on a temporary basis to July, 1989.

Now, there's been statements made but no evidence was presented in opposition to 160-acre spacing, and we believe that the production data from the North -- from the NH-5 Fed Well No. 1 and the pressure data, which shows some effect from more than half a mile away on the wells supports Santa Fe's request.

We would also note that the wells were stated not to be making their allowables. I don't think there's anything that shows that the allowable directly relates to the area of drainage.

And with respect to the V-F

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Petroleum Well, it has been stated that that, because it's right on the edge of the water cutoff (unclear) that that will not probably be a very good well.

We think the OCD should take this action to increase the spacing in order to prevent the drilling of unnecessary wells, at least on a temporary basis and then reopen the matter in July, 1989.

At that time there will probably be substantially more production data and as Santa Fe has indicated, there will be at least two more wells drilled in the pool.

Thank you.

MR. GREEN: I'd like for Norm to address the mechanical -- mechanics that we have on the NH-5 as far as talking about production and capacity. Will --

MR. GARRETT: Yes, sir. At this point we have a fluid level that's been maintained for the last several months, something less than or close to 3000 feet from the surface in this well, and we're limited, as I stated before, by our mechanical lifing capacity, and we're going to putting also on this well, as well as the other ones, a larger pumping unit and at that point our production should increase substantially.

So the mechanical limitations

BARON FORM 25C1693 TOLL FREE IN CALIFORNIA 800 227 2434 NATIONWIDE 800 22/0120

showing, say, about 150 barrels a day should at least be double and possible more, depending upon what kind of efficiencies we can get out of the pumps.

And I think that by extending the rules until the original date and holding at, say, 160 acres, would allow us enough time to demonstrate that as Gary has stated both for the new wells and the wells that we currently have drilled.

We would have liked to have had the data for that to show what the capacity could be but unfortunately the timing on this is that we don't have (unclear).

MR. CATANACH: Okay. Thank you.

Is there anything further in Case 9354?

If not, it will be taken under advisement.

(Hearing concluded.)

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C E R T I F I C A T E

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

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9354 heard by me on April 13 1988.

David R. Catanach, Examiner
Oil Conservation Division

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

27 April 1988

EXAMINER HEARING

IN THE MATTER OF:

Application of Santa Fe Energy Operating Partners, L. P., for the expansion of the North Hume-Wolcamp Pool, and the amendment of Division Order No. R-8476, Lea County, New Mexico. CASE 9354

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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BARON FORM 25C1693 TOLL FREE IN CALIFORNIA 800 227 3434 NATIONWIDE 800 227 0180

MR. STOGNER: Call next Case Number 9354.

MR. ROYBAL: Case 9354. Application of Santa Fe Energy Operating Partners, L.P., for the expansion of the North Hume Wolfcamp Pool and the amendment of Division Order No. R-8476, Lea County, New Mexico.

MR. STOGNER: Call for appearances in this matter.

This matter was heard on the April 13th Examiner's Hearing.

There being no further testimony, comments, this case will be taken under advisement.

(Hearing concluded.)

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C E R T I F I C A T E

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

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9354, heard by me on 27 April 1988.

Oil Conservation Division, Examiner

BANKIN KORN 25C/6P3 TOLL FREE IN CALIFORNIA 800-227-6434 NATIONWIDE 800-227-0120