NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

IN THE MATTER OF:

The Application of Santa Fe Energy Operating Partners, L.P., for Pool Contraction and Expansion, Eddy County, New Mexico.	CASE 10986
The Application of Santa Fe Energy Operating Partners, L.P., for an Unorthodox Gas Well Location and Nonstandard Gas Proration Unit, Eddy County, New Mexico.	CASE 10987
The Application of Santa Fe Energy Operating Partners, L.P., for an Unorthodox Gas Well Location and Nonstandard Gas Proration Unit, Eddy County, New Mexico.	CASE 10988
The Application of Santa Fe Energy Operating Partners, L.P., for an Unorthodox Gas Well Location and Nonstandard Gas Proration Unit, Eddy County, New Mexico.	CASE 10977
The Application of Santa Fe Energy Operating Partners, L.P., for an Unorthodox Gas Well Location and Nonstandard Gas Proration Unit, Eddy County, New Mexico.	CASE 10989

BEFORE:

JIM MORROW

Hearing Examiner

State Land Office Building

June 9, 1994

Reported by:

Carla Diane Rodriguez, CCR
State of New Mexico
NMCCR No. 4

A P P E A R A N C E S

FOR THE APPLICANT:

HINKLE, COX, EATON, COFFIELD & HENSLEY
Post Office Box 2068
Santa Fe, New Mexico 87504-2068
BY: **JAMES BRUCE, ESQ.**

FOR MARATHON OIL COMPANY and
NEARBURG PRODUCTION COMPANY:

KELLAHIN & KELLAHIN
Post Office Box 2265
Santa Fe, New Mexico 87504-2265
BY: **W. THOMAS KELLAHIN, ESQ.**

I N D E X

E X H I B I T S

EXAMINER MORROW: I'll now call Case 10986, and call for appearances.

MR. BRUCE: Mr. Examiner, Jim Bruce representing the Applicant. I have two witnesses to be sworn. And I would also ask at this time that this case be consolidated with the next four cases, Case Nos. 10987, 10988, 10989 and 10977.

EXAMINER MORROW: All right. That's fine. We will consolidate those cases for purposes of hearing. Would you, Mr. Bruce, go ahead and read the description of those cases for us.

MR. BRUCE: Sure. Mr. Examiner, 10986 is the application of Santa Fe Energy Operating Partners, L.P., for pool contraction and expansion, Eddy County, New Mexico.

The remaining four cases, 10987, 10988, 10989 and 10977 are all applications of Santa Fe Energy for unorthodox gas well locations and nonstandard gas proration units in Eddy County.

EXAMINER MORROW: I believe there's one other appearance in this case.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of the Santa Fe law firm of Kellahin & Kellahin, appearing today on behalf of

Marathon Oil Company and Nearburg Exploration Company. I have no witnesses.

EXAMINER MORROW: Will the witnesses please stand to be sworn.

[And the witnesses were duly sworn.]

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

GARY GREEN

Having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. BRUCE:

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

A. My name is Gary Green.

Q. Who do you work for and in what capacity?

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

Q. Have you previously testified before the Division as a landman?

A. Yes, I have.

Q. Were your credentials accepted as a matter of record?

A. Yes, they were.

Q. Are you familiar with the land matters involved in these five cases?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I tender Mr. Green as an expert petroleum landman.

EXAMINER MORROW: We'll accept Mr. Green.

Q. Mr. Green, first, Case 10986, what does Santa Fe seek in that case?

A. Santa Fe seeks to contract the Indian Basin-Upper Pennsylvanian Gas Pool, by deleting from the pool Sections 4 through 8, in Township 22 South, Range 24 East, and Section 1 in Township 22 South, Range 23 East, and adding that acreage to the Upper Basin of the Indian Basin-Upper Pennsylvanian Associated Pool.

The acreage was once productive in the gas pool, however, recent completions have been oil wells in the interval productive in the Associated Pool.

Q. As a result, does Santa Fe believe that additional wells in this area should be governed by the pool rules for the Associated Pool?

A. Yes. The transfer of acreage to the Associated Pool will simplify approvals for wells

planned in the area by Santa Fe and other operators.

Q. What is Exhibit 1?

A. Exhibit 1 is the land plat of the area which shows in yellow the six sections that Santa Fe seeks to add to the Associated Pool, and the four proposed well locations.

It also shows all the offset operators to the nonstandard unit location applications are identified on the plat.

Q. What interests does Santa Fe own in these six sections?

A. Santa Fe operates Sections 4 through 8, and owns all the leases except for two 40-acre tracts which are owned by Yates.

Q. What about Sections 1 and 6?

A. Santa Fe also owns a working interest in Sections 1 and 6. Those sections are operated by Yates Petroleum.

Q. How many oil wells on this subject acreage has Santa Fe completed at this time?

A. Santa Fe has completed one in the south half of Section 5, one in the south half of Section 8. Both are oil wells.

Also, we're currently reentering the

well in the north half of Section 8.

Q. And Yates is also active in this area, is that correct?

A. Yes. Yates has completed one well in Section 6 and also a well down in Section 17.

Q. How many additional wells does Santa Fe currently have planned for this acreage?

A. Four. In the remaining cases, Santa Fe seeks approval to drill four wells to test the intervals productive in the Associated Pool, which is spaced on 320 acres.

Yates has proposed two wells, one in Section 1 and one in Section 6; however, our four proposed wells occur within the boundaries of the gas pool and require approval for nonstandard 320-acre units.

In addition, all the locations are nonstandard under the special rules for the gas pool, and Santa Fe requests approval of the locations.

Q. Now, if the pool contraction and expansion application is granted, should Case 10977, which concerns the east half of Section 7, and 10987, which concerns the south half of Section 4 be dismissed?

A. Yes. If Sections 4 and 7 are included in the Associated Pool, these well units and locations will then be standard.

Q. What about the remaining two cases, 10988 and 10989?

A. We still need orders on these cases even if the Associated Pool is expanded. The north half of Section 5, Case No. 10988, and the west half of Section 7, Case 10989, are partly comprised of lots that are not standard 320-acre units.

Also, the locations are nonstandard by being too close to the quarter/quarter section.

Q. Are all of the proposed wells on federal land?

A. Yes.

Q. And has the BLM changed any of your originally requested well locations?

A. Yes, they have. As a matter of fact, yesterday the BLM changed two locations for us or on us. Gase No. 10987, the south half of Section 4, the new location is 660 from the south line and 2300 from the west line. This is a standard location for a 320-acre unit.

Case No. 10989, the west half of

Section 7, the new location is 1600 feet from the north line and 1400 feet from the west line, and this location is nonstandard for both 320 and 640-acre units.

MR. BRUCE: Mr. Examiner, because of that, I believe Case 10989 would have to be readvertised, because it is changed to, probably, a more unorthodox location.

EXAMINER MORROW: Was it already unorthodox?

MR. BRUCE: It was already unorthodox.

EXAMINER MORROW: For my education, why do you feel that way? Offset notice?

MR. BRUCE: Really, just for the advertisement, I think. I think we had originally requested 1650 feet from the west line.

EXAMINER MORROW: And it's going 1400?

MR. BRUCE: Yes.

EXAMINER MORROW: All right. Go ahead.

Q. (BY MR. BRUCE) Finally, Mr. Green, was notice of the pool contraction/expansion application given to all operators in both the gas pool and the Associated Pool?

A. Yes, they were.
Q. Was notice of each nonstandard unit and nonstandard location application given to the offsets of each section?
A. Yes. Exhibit 2 is my affidavit regarding notice of all applicants.
Q. And you rolled all of the notice applications into one letter?
A. Yes, I did.
Q. In your opinion, is the granting of these five applications in the interest of conservation and the prevention of waste?
A. Yes.
Q. Were Exhibits 1 and 2 prepared by you or under your direction?
A. Yes, they were.
MR. BRUCE: Mr. Examiner, I move the admission of Santa Fe Exhibits 1 and 2.
EXAMINER MORROW: 1 and 2 are admitted.

EXAMINATION

BY EXAMINER MORROW:
Q. Are wells currently completed in each of the sections, Mr. Green, in the oil section? I know you went through that, but I didn't--

A. No, sir. Santa Fe has a well completed in the south half of Section 8, the Old Ranch Knoll No. 2.

We have a well completed in the south half of Section 5, which is the Nagooltee Peak Federal No. 2. We're currently reentering a well in the north half of Section 8.

Q. Section what?

A. Section 8. In the oil pool, there are no wells in Sections 4 or 7. There's currently one in Section 6 that's operated by Yates Petroleum. So, there's no production from the oil pool in Sections 4 or 7 at this time, or 1.

Q. Now, the oil completions that are there, what pool are they assigned to at this time?

MR. BRUCE: I looked at the well files, Mr. Examiner, and there were some notations on the C-104s, I think notations by the OCD, that they were designated as oil wells in the gas pool, so I believe they were assigned to the Indian Basin-Upper Penn gas.

EXAMINER MORROW: Okay.

Q. (BY EXAMINER MORROW) Now, these wells shown on Exhibit 1, are they some of those

wells?

A. No, sir. The wells shown with the red squares, those are the wells that we propose to drill. They are shown on this plat, but they're real small and they're shown as locations on this plat. The Old Ranch Knoll No. 2 is located there in the southeast of the southwest quarter, and the Nagooltee Peak 5 No. 2 is located in the southeast quarter of Section 5.

Q. Do you have an extra copy of your notes you were testifying from?

A. Yes, sir, I do.

Q. I would request that you let me have a copy of that.

A. Okay.

EXAMINER MORROW: Thank you, sir. Anything more?

MR. BRUCE: Nothing from this end.

EXAMINER MORROW: Mr. Kellahin, did you have questions?

MR. KELLAHIN: No, sir.

EXAMINER MORROW: Thank you, then.

GENE H. DAVIS

Having been first duly sworn upon his oath, 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 Gene Davis. I live in Midland, Texas.

Q. Who do you work for and in what capacity?

A. I'm the division geological/geophysical manager for Santa Fe Energy Resources.

Q. Have you previously testified before the Division as an expert petroleum geologist?

A. Yes, I have.

Q. Were your credentials accepted by the Examiner as a matter of record?

A. Yes, they were.

Q. Are you familiar with the geology involved in all five of the applications?

A. Yes, sir, I am.

MR. BRUCE: Mr. Examiner, I tender Mr. Davis as an expert petroleum geologist.

EXAMINER MORROW: Fine. Mr. Davis is accepted as a petroleum geologist.

Q. Would you refer to Santa Fe's Exhibit 3, identify it for the Examiner, and discuss the

color scheme for the Examiner?

A. Certainly. Mr. Examiner, Exhibit 3 is a land map of what we call the Saginaw Prospect. It is the south portion of the Indian Basin field area.

I'll just go through the color scheme with you first. Basically, it depicts the acreage dedications for the Southeast Indian Basin pools. The yellow acreage is acreage that is currently dedicated to the Indian Basin-Upper Penn Gas Pool. The acreage that is shown in orange is acreage that is dedicated to the Indian Basin-Upper Penn Associated Oil and Gas Pool.

The acreage that is shown with a green cross-hatch over the yellow, that acreage is acreage that was originally dedicated to the Indian Basin-Upper Penn Gas Pool, and this is the acreage that Santa Fe is requesting to have transferred to the Indian Basin-Upper Penn Associated Oil and Gas Pool.

That acreage would include, of course, the south half of Section 8 and the south half of Section 5, which is shown in green on this plat. That is because that acreage is productive from the Indian Basin-Upper Penn Associated Gas Pool,

even though that is currently acreage that is classified to be in the Indian Basin Gas Pool, where you have oil wells producing in the gas pool.

The discovery well for the Indian Basin Associated Pool is located in the north half of Section 17. That is the well that has the star around it. It would be the farthest south block of the acreage that is colored green. That is the Yates Petroleum Company Hickory ALV Fed No. 1 well, which was a reentry of an old Pan American well that was plugged and abandoned in 1965 and then recompleted by Yates in December of 92 as a Morrow well, and additionally completed as a dual completion from the Canyon formation in June of 93.

Q. What are the red squares, Mr. Davis?

A. The red squares are the well locations that Santa Fe Energy is requesting to have approved in the hearing. There are two in Section 7, one in Section 4, and one in the north half of Section 5.

The additional red square that is shown in the north half of Section 8 is a well we are currently reentering. It is an old Amoco and/or

Trigg well. We call it the Old Ranch Knoll 8 No. 1. It is a well that had been productive from the Indian Basin Gas Pool. It was plugged and abandoned in 1982, and we're reentering that well, trying to make a completion in the lower pool of the Indian Basin Associated Pool.

What you'll notice, in all of the well locations shown on the acreage that we're interested in here, we have shown the name of the well, also the operators, and I've shown the dates the wells were plugged and abandoned and recompleted or completed, whatever the case may be.

Q. Why don't you move on to your Exhibit 4 and identify that for the Examiner and discuss its contents.

A. Exhibit 4 is a structural cross-section across the area. The line of that cross-section is shown on all of the maps that I'll talk about here in the hearing. You can see that cross-section is shown on Exhibit 3 rather well. It snakes across the acreage from north to south and is labeled A to A', HRG. It's a long cross-section; I apologize.

This is a structural cross-section,

basically running from south to north, south being on the left-hand side of the cross-section. It is hung on a subsea datum of minus 3700 feet.

On the left, on the south, is the discovery well, which is the Yates Hickory ALV well, the No. 1 well. Along the top of the cross-section are the well names for all the wells that are in the cross-section.

You'll see that there are five wells that have red squares with a circle on top of them. Those are the wells--four of them are wells that Santa Fe Energy is proposing to drill along the subject acreage. The fifth one, which is located on the northern end of the cross-section, is a well that Yates Petroleum plans to drill in Section 1, the Zingaro ANG Fed No. 1.

There are a number of lines on the cross-section, just to orient you. There's a datum of minus 3700 feet. The very top line is the line that delineates the top of the Cisco Canyon dolomite. The basal line, or the base of the Cisco Canyon dolomite, again is another irregular line which trends across the cross-section. And then there are two structural

lines shown that are very horizontal lines, minus 3754 and 4757.

Minus 3754 is what I interpret to be the top of the Indian Basin-Upper Penn Associated Pool, the top of the interval that would be productive of oil and gas and water. Above that point, you'll notice that the reservoir is colored red. That is the Indian Basin-Upper Penn Gas Pool. Within that zone, wells completed there produce gas and water and a condensate, with a degree of gravity of 59 to 62 degrees.

The green pool, the Indian Basin-Upper Penn Associated Pool, it produces gas and oil and water as well, the oil having a 42-degree gravity.

Q. How many wells are currently completed in the Associated Pool?

A. Currently, there are five wells that are actually producing from the--maybe, actually six wells that are actually producing from the pool. In the area where we are located, there are four: The Hickory ALV, operated by Yates; the Nagooltee Peak 5 No. 1, operated by Santa Fe; the Old Ranch Knoll 8 No. 2, operated by Santa Fe; and the Yates Brannigan ANF Fed No. 1 well,

operated by Yates again. That's in Section 6.

I want to call your attention to the Brannigan well, the well located, the second well on the right-hand side of the cross-section. It's a Yates well. Yates reentered an old Amoco/Trigg well, the Federal IB 1-6 well and renamed it the Brannigan ANF Fed No. 1.

On that well, I've shown you that that well is productive from the entire interval, as indicated by the black markings down the center of the log.

EXAMINER MORROW: Which well is that?

THE WITNESS: That's the Yates Brannigan ANF Fed No. 1, on the right-hand side of your cross-section.

A. You'll notice it's producing from perfs all the way down in the upper pool, the gas pool, the red area, and also down into the green pool, the Indian Basin-Upper Penn Associated Pool. This well was originally completed as a gas well from perforations at 7430 down through 7554, and made a very good gas producer, but was plugged and abandoned because of water production in December of 86.

It was then reentered and recompleted

by Yates in October of 93, from perforations ranging from 7430 all the way down to 7896. It potentialed, producing 10 barrels of oil, 1.7 million cubic foot of gas, and 4633 barrels of water per day. The gravity of the crude was estimated at 42 and not 59, which reflects the production of oil from that Indian Basin-Upper Penn Associated Oil and Gas Pool.

Q. You mentioned six wells in this area had been completed in the Indian Basin-Upper Penn gas pool. These are reflected on this cross-section, are they not?

A. They are. They're all shown having gas symbols with a slash through them.

Q. Were they all plugged and abandoned?

A. Yes, they've all been plugged and abandoned at this point, except for the Brannigan well, which has been reentered.

Q. When were they plugged?

A. All of the wells that were producing from the Indian Basin Gas Pool were all plugged in the early to middle 80s. They were plugged because they were producing a large volume of water, which was making the wells uneconomical to operate. So all of the operators plugged those

wells.

Q. Mr. Davis, let's move on to your Exhibits 5, 6 and 7. Why don't you introduce these exhibits and go over them briefly.

A. Okay. Exhibit No. 5 is a structure map on top of the Cisco Canyon dolomite. Exhibit No. 6 is an isopach map of the Cisco Canyon dolomite interval itself. That would be the entire reservoir interval. That would include both the Indian Basin Gas Pool and the Indian Basin Associated Oil and Gas Pool.

And the last exhibit, Exhibit No. 7, is the gross dolomite isopach of just the Upper Penn Associated reservoir, the actual pool that we're attempting to transfer the acreage into.

All of these maps have the same basic legend across the bottom. The red squares, again, are the proposed locations. The stippled acreage is acreage Santa Fe has an interest in, and there are a number of symbols to indicate whether they are Cisco Canyon gas producers that were in the Indian Basin gas field. Those are shown by the six point star.

The Cisco Canyon oil producers are shown as a green triangle.

Going back to the map, Exhibit No. 5, the structure map, you can see that across the acreage we are basically trending updip, going from south to north, ranging from about minus 4050 feet up to a high of minus 3500 or 3450 feet or so.

The isopach map of the Cisco Canyon dolomite, Exhibit No. 6, shows that you have a marked thickening of the reservoir interval from south to north as well, across the acreage position, ranging from zero on the south up to greater than 700 feet in thickness.

The last map, the gross dolomite isopach of the Upper Penn Associated Reservoir, this shows rather well that the thickness of this particular oil and gas pool ranges from zero, along the south end of the acreage position, or the acreage we wish to have transferred, to greater than 300 feet up on the north end.

By using this particular map in conjunction with the cross-section, A to A', you can see that the Upper Penn Associated Pool extends all the way underneath the acreage that we intend to drill on, and this is one of the reasons we would like to have the acreage

transferred to that pool, because we do see the presence of that pool underneath that acreage.

Q. Do you believe it's easier to exploit the oil pool by using the Associated Pool rules?

A. Yes, I do. It allows for the uniform development of the field itself, and gives us the flexibility of using those rules for that process.

Q. What are Exhibits 8A and 8B?

A. 8A and 8B, these are the completion reports on the two wells that Santa Fe operates in the subject acreage. The first, Nagooltee Peak 5 Federal No. 1, and 8B is the Old Ranch Knoll Fed Com No. 2. You can look at the production from those wells on test and see they're clearly oil wells. The Nagooltee Peak testing for 531 barrels of oil per day, while the Old Ranch Knoll tested for 401 barrels of oil per day.

Q. In your opinion, is the granting of these five applications in the interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, it is.

Q. Were Exhibits 3 through 8 prepared by

you or under your direction?

A. Yes, they were.

MR. BRUCE: I move the admission of Santa Fe Exhibits 3 through 8.

EXAMINER MORROW: 3 through 8 are admitted. Go ahead, sir.

MR. KELLAHIN: If you please, Mr. Examiner.

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Davis, let me ask you some points of clarification, if I may.

A. Certainly.

Q. Are you familiar with the Indian Basin-Upper Penn Gas Pool rule?

A. I think so.

Q. Are you also familiar with the Indian Basin Associated Pool rules for that Upper Penn pool?

A. I think so, yes.

Q. The well locations for the gas pool have a setback of 1650 from the side boundaries of the section?

A. To the best of my recollection, that's correct.

Q. The Associated Pool, you can be as close as 790 to the outer boundary of the spacing unit?

A. I would have to check.

Q. Subject to check, do you see any reason, as we have the Gas Pool contiguous with the Associated Pool, to have any special rules along the buffer or the boundary where the two pools come together?

A. I don't really see any reason to do that.

Q. You don't see a problem with having the oil wells, if you will, the Associated Pool wells, being 790 from a gas pool, where the gas wells have to be 1650 from that common boundary?

A. Speaking as a geologist, I don't think so, based on the fact that the pools are so different. The way the perforations are generally in the pools, they're so different, and one is much deeper than the other.

Q. Have you had discussion with other operators of acreage and wells in this area?

A. I've had some discussions with Yates and a couple of conversations with Marathon.

Q. Was that an issue of concern to

anybody?

A. It's never come up at all.

Q. What do you do about the current oil wells in the gas pool, in terms of their producing oil allowable? Do you know?

A. I believe there's an allowable set for--well, for the current oil wells producing in the gas pool, I don't know that there's any subject on the allowable at all.

Q. You don't know whether they're applying a depth bracket oil allowable?

A. I would imagine that's what they're doing. I'm not sure.

Q. You don't know what acreage they're applying to that calculation?

A. No, I do not.

Q. Do you know whether any of the oil wells are curtailed or limited by an allowable?

A. Not that I'm aware of. The two wells that Santa Fe operates currently, we've just put one on production, the 8-1. The 5-1 is not tied into a pipeline yet.

Q. Do you know what the allowable would be for those wells in the Associated Pool?

A. The allowable for those wells in the

Associated Pool, I believe, is 920 barrels of oil per day.

Q. And, under the associated rules, you could have two oil wells in a 320?

A. That's correct.

Q. Each well located in a different 160?

A. That's correct.

Q. So that's a little different than what we have for the South Dagger Draw?

A. It is a little different than what is in the South Dagger Draw. The South Dagger Draw, you're allowed to drill as many wells as you want as long as you stay under the allowable for that 320-acre proration unit, so the rules are slightly different, yes.

Q. You commented to Mr. Bruce that there was a flexibility, an advantage, to having these wells in the Associated Pool as opposed to the Gas Pool?

A. Being in the Associated Pool, you would obviously be able to drill more wells in that particular section, to drill for that pool. You would have the opportunity of drilling, basically, four wells. You would have two wells each on a 320-acre proration unit. You would

have more wells into the Associated Pool, that's correct.

Q. That's the basis for having you make that statement, then, that the Associated rules is better applied to these wells in this area than the Gas Pool rules?

A. These wells are oil wells, not gas wells, so I believe they should have oil pool rules applied to them.

Q. You can have oil wells in a gas pool?

A. Yes, you can. That's correct.

Q. When we look at the acreage in Section 4 of 22/23, that is one of the proposed sections?

A. Section 4, 22/24.

Q. Yes. It's the westernmost Section 1?

A. Yes.

Q. That section does not have an oil well in it yet?

A. No, it does not.

Q. What is your argument or basis to have that section deleted from the Gas Pool and put in the Associated Pool?

A. Based on the geology shown on the gross dolomite isopach for the Upper Penn Associated Reservoir.

Q. Exhibit 7?

A. Exhibit 7, yes, sir. You use that in conjunction with Exhibit No. 4, which is the cross-section that goes across there. You'll see that, based on my work, there is between 200 and 300 foot of reservoir that would be within the reservoir column for the associated pool, across that acreage. It's my opinion that a well drilled in Section 4 would encounter that pool, the Associated Pool, and you could produce oil from that pool underneath that acreage.

Q. Okay. If you're wrong and it's a gas well, what do you do?

A. I guess, if you were to drill the first well in there and you were wrong, and you ended up completing a gas well, you would have to come back to the Commission and ask to get the rules applied for it, or file the sundry notices that are necessary to get it produced. But you would obviously not be able to go in and drill an additional set of wells, more wells in there as oil wells.

Q. In the Associated Pool, in this particular pool, are you subject to the preclusion whereby you cannot simultaneously

dedicate the same acreage to a gas well as well an oil well? Do you have that in this pool?

A. Ask your question again, please.

Q. Sure. Under the general Associated Pool rules, unless they've been specifically amended, you are precluded from having the same acreage dedicated to a gas well and an oil well in the same reservoir. So, for example, in the north half of Section 1, if you drill a gas well, you're stuck, unless you shut that gas well in and drill an oil well? You can't produce gas in an oil well in the north half of Section 1. Are you with me?

A. Based on the associated rules?

Q. Yes, sir.

A. That would be correct. You would have to put it back in the Indian Basin Gas Pool.

Q. Or do something else. You're aware of that potential issue?

A. Yes, I am.

Q. All right. Based upon your geologic interpretation for the inclusion of Section 1, how do you draw a distinction between Section 1 and Section 12 to the south?

A. It would be my opinion that, at some

point, Section 12 would probably also--wells that were completed in Section 12, from that lower interval, from the Indian Basin Associated Pool, that acreage would have to be put into that pool as well, because I believe that reservoir is underneath that acreage.

Q. What we have here is, as the gas cap is depleted and shrunk, you have the opportunity to replace the gas production with production out of the oil column? Am I visualizing this correctly?

A. The way I envision it, Mr. Kellahin, is that there is--actually, an oil reservoir has been sitting underneath the gas pool for many years, it just has never been tapped in this particular area.

There were a number of wells that showed oil and gas shows from this particular interval over the years, but the operators never attempted completion attempts from them. Only sinc Yates completed the Hickory well and the reentry of the Pan Am well, have we begun to understand that this reservoir actually exists underneath this portion of the pool, and that's why we're now going back into this area and we're able to drill the wells or reenter wells and

complete them from this lower interval.

Q. Is it your geologic conclusion that the gas pool is connected to the oil pool?

A. I don't know that.

Q. From the geology, can you show a separation?

A. No, I cannot.

Q. There were two other sections that don't yet have oil wells in them, Section 4--

A. --and Section 7.

Q. Yes, sir. Let's look at Section 4 first. Give me your summary of why you propose to put Section 4 into the oil pool.

A. As I said before, Section 4, as I look at the geology, based on my mapping of the Upper Penn Associated reservoir, that dolomite interval, in conjunction with the cross-section that I furnished, it's my opinion that there is between--ranging from 100 to 300 foot of section of dolomite interval there that is within the boundaries of what I interpret to be the Upper Penn Associated Oil and Gas Pool, and I believe that reservoir underlies that portion of that section.

Q. And that same conclusion supports your

request to add Section 7?

A. Yes, sir, it does.

Q. Does this map illustrate the limits of the Associated or the Oil Pool, as you move to the west?

A. As you move to the west?

Q. Yes, sir.

A. It maps--I think what the pool's definition is, you go to the west edge of this map. It may go farther to the west, but I don't have it shown on this.

Q. There's no reason to believe that the oil reservoir stops at the western boundary of this display?

A. Not in my opinion, no. It is certainly thinning in portions of it.

Q. Do you have an opinion as to where the water column is? Is there a location of a water/oil contact or a water/gas contact in the reservoir?

A. I've arbitrarily used a minus 4057 for the base of the Upper Penn Associated Oil and Gas Pool. That is just--I'm using that based on wells tested in the area. It seems that when you get below a subsea of minus 4057, as you test the

interval, the Cisco Canyon dolomite beneath that structural position, it tends to be productive, mostly of water, with a little bit or trace of oil.

There are a couple of wells that have been tested that way: The Hickory well, our 8 No. 2 well and a few wells to the east of us. The wells that have tried to complete from that interval, below minus 4057, produce in general almost all water.

Once you get above that, you start seeing oil. I don't know that there is a definable oil/water contact. I've not seen one in any of the tests or the production information that I've reviewed.

Q. We see the interpretation of that minus 4057 line on your Exhibit No. 5?

A. Yes, you do. It's the lower horizontal line on that cross-section.

MR. KELLAHIN: Thank you, Mr. Davis; Mr. Examiner.

EXAMINATION

BY EXAMINER MORROW:

Q. Mr. Davis, what are the pool rules for the Associated Pool that you propose to put these

sections into?

A. The pool rules?

Q. Yes, sir.

A. Would you mind if I get the list and consult them? Or would you like me to summarize the best I know them?

Q. Summarize.

A. My understanding of the rules is that the Associated Pool is based on 320-acre spacing with the opportunity to drill on 160-acre spacing no more than two wells per proration unit.

You have production of 960 barrels of oil per day, I believe, maximum from the proration unit, with a GOR of 2,000.

Q. 920 a day?

A. It's 960 a day, I believe.

Q. For each proration unit?

A. That's correct. And I believe wells can be drilled within 660 feet from the outer boundary of the section's spacing unit, and cannot be closer than 330 feet to any quarter/quarter section.

Q. What was the 790 that you and Mr. Kellahin discussed?

A. That's the number Mr. Kellahin-- I

don't think it was 790. I think it is 660 from the outer boundary.

MR. KELLAHIN: You may have misunderstood. The 790 applies to the South Dagger Draw, and this Upper Penn Associated may be entitled to 660.

THE WITNESS: I believe it's 660.

Q. When the pool was initially created, was each section developed at that time, or were there some non-oil-producing sections included in the Associated Pool at the time it was created?

A. At the time it was created, my understanding was that Section 17 was put in the pool. And then, basically, on half-mile spacing, anything touching it within a mile of that particular north half 320 acres would be put in the pool.

After consultation with my lawyer, I understood that the actual acreage that had been dedicated to the Upper Penn Associated Pool was all of Section 27 of 21 South, 24 East, I believe all of Section 34 of 21/24, and portions of Section 3, 10, 9, 16 and 17 of 22/24.

That was the only acreage that had been dedicated to the Indian Basin-Upper Penn

Associated Pool. There are only three wells that have been completed from that pool within that acreage. There was one in Section 17 of 22/24, there's one in Section 27 of 21/24, and I believe there's one in Section 3 of 22/24. All of those wells are operated by Yates.

Q. So there are sections now included in this Associated Pool--

A. That do not have production.

Q. --that do not have production on them? Is that what you're saying?

A. That do not have production, that is correct, Sections 9, 10, 16 and 34.

Q. On Exhibit No. 3, I understand there's currently oil production in Sections 8 and 5, and there's not any in 1, 7 and 4, is that correct?

A. That's correct. There is oil production in Section 6.

Q. Where is that?

A. That would be the Yates Petroleum Brannigan ANF Federal No. 1 well, in the northwest of the northwest of that section. It's shown as a gas well gas well.

Q. Recompleted 10/18/93?

A. That is correct.

Q. Is that an oil well now?

A. That well is currently producing mostly gas, it does produce some oil. It produces about 10 barrels of oil per day. The oil's estimated gravity is 42, which is the gravity of the crude oil produced in the Indian Basin-Upper Penn Associated pool.

The oil that was produced with gas production in the Indian Basin Gas Pool had a gravity of between 59 and 62 degrees.

Q. Is that shown on the cross-section?

A. It's the second well in on the cross-section, from the right-hand side.

Q. It's making a million-seven a day now?

A. Yeah, right around two million a day, according to the operator, and about 10 to 15 barrels of oil. Santa Fe has a 6.25 percent interest in that well, a working interest, so we do have a lot of knowledge of the reservoir of the completion attempt in that well.

I understand when Yates went in and completed that wellbore, they tested their way, starting with the bottom perfs, and worked their way up. The original perfs were the perfs of the upper portion. They blanked off those perfs, or

set them off with a cast-iron bridge plug and tested the lower interval, and they recovered about 50 to 60 barrels of oil per day on a swabbing test, and that oil was about 42-degree gravity crude oil from the lower interval.

But, when they made their completion in the entire wellbore, they elected to include all of the perforations that were possible in that wellbore. I don't know whether they had problems shutting off the upper perfs or were reluctant to squeeze those perfs. At any rate, they elected to complete the wellbore as shown, and that resulted in having a more productive gas well than anything else; some oil, but mostly gas.

In my discussions with the operator, they have no intentions of ever completing a well like that again because they did not get the results that they wanted.

Q. Which was what?

A. They did not get the results that they intended to have, which were the type of results that they had in the Hickory well and Santa Fe has been able to effect in both of our completions in Section 5 and Section 8.

Q. I guess, since it's making nearly two

million a day, that would indicate that there's still some gas to be recovered, at least from that part of your proposal?

A. Yes, sir. It would be--in my mind, I think if you were to go in here and take a well and just complete it from the Upper Penn reservoir, the gas zone, and put it on a submersible pump, you would be able to produce gas with a large volume of water as well. So, there is gas left there, yes.

Q. Are they pumping this one?

A. Yes, they are. They have a submersible pump on there in order to produce it.

Q. It's making how much water?

A. It's making close to 4,000 barrels of water per day.

Q. 4,000 a day?

A. Yes, sir.

Q. I guess that would indicate some connection with the gas cap, at least in those upper perforations, that part of it?

A. Yes. There is still gas reservoir present across this acreage position. But there is also the presence of this lower pool as well.

Q. Yes, sir. So, when you answered his

question, you were talking about the connection between the lower intervals that primarily produce oil and gas now?

A. There's certainly a spatial relationship, the fact that they're producing from the same section of dolomite, the Cisco Canyon. Whether or not there's any engineering connection between the two, whether there's actually a physical connection between the reservoir, I'm not an engineer and I can't speak to that.

EXAMINER MORROW: Do you all plan to put on anything concerning the justification for the nonstandard location?

MR. BRUCE: I meant to follow-up with the topographic. I had forgotten that, Mr. Examiner.

EXAMINER MORROW: Were you going to do that?

MR. BRUCE: Yes.

FURTHER EXAMINATION

BY MR. BRUCE:

Q. Mr. Davis, looking at your Exhibit 7, a few questions we had omitted to discuss. We had discussed or mentioned in the applications the

topographic reasons for the nonstandard locations. Could you first address that?

A. Mr. Examiner, the topography across this acreage position is rather rugged, with relief ranging in the order of 300 to 400 feet in places across this acreage position. In a number of locations here, the particular location may have, across the 600 foot drill site pad, it can have relief of easily 100 feet.

The BLM is very cognizant of this, and they are very critical as to how much acreage we cut and fill in a particular location that we design out here. So, a number of our locations or all of our locations take into account the extreme topography in the area. We try to find the flatest area to work in, because it costs less for us as an operator and also because the BLM wants us to refrain from cutting and filling very much in this area.

So, there is a large amount of topography we have to deal with her.

Q. So the BLM, in its environmental assessments, has required or limited the well locations that Santa Fe can have?

A. Every location we have out here, the

BLM representative, Barry Hunt, in their Carlsbad office, goes out and inspects and is very critical of where we put our locations.

EXAMINER MORROW: So all your reason for the nonstandard location is strictly surface?

THE WITNESS: It would be strictly surface at this point, yes, sir.

EXAMINER MORROW: Go ahead, Mr. Bruce.

Q. (BY MR. BRUCE) Mr. Davis, as far as locations, you would like to keep the well spaced far enough apart so you can have, geologically, four wells per section, is that correct?

A. We feel we can do that, yes, sir. The topography will allow that.

Q. If I could follow up on a couple of questions Mr. Kellahin asked about Sections 4 and 7, Mr. Davis, as Mr. Kellahin said, there are no oil wells on that acreage?

A. That is correct.

Q. But they did have gas wells on that acreage which were plugged and abandoned, is that correct?

A. Yes. Both sections had one gas well per section.

Q. Which watered out?

A. They were plugged in 1982 and 93; 4 in 82, 7 in 83, both because of water production.

Q. One final question. Discussing the flexibility of the Associated Pool rules, obviously, if this acreage is transferred to the Associated Pool, it will lessen the need to come back for hearings for nonstandard locations and nonstandard units, is that correct?

A. That's correct, it would.

MR. BRUCE: Thank you, Mr. Examiner.

EXAMINER MORROW: The proration unit size, what was the nonstandardness of those applications? I guess each one of the applications also contained nonstandard gas proration unit. Was that strictly because of the size?

MR. BRUCE: Mr. Examiner, there are two reasons. If we're seeking 320-acre units, obviously that conflicts with the gas pool rules which have 640-acre spacing. In addition, all the sections on the north tier are comprised partly of lots, and some of these sections are 660, 670 acres. So, even if it was Associated Pool rules, you're having 360 or 370-acre units which are, obviously, nonstandard.

EXAMINER MORROW: One of them, I think, was even short, wasn't it?

MR. BRUCE: Yes, the west half of Section 7 is a short section, yes.

EXAMINER MORROW: West half? Is that what you said?

MR. BRUCE: Yes, sir.

EXAMINER MORROW: In 7, you would divide that east and west proration unit?

MR. BRUCE: Yes, sir.

EXAMINER MORROW: Mr. Bruce, will you take care of the readvertising on 10989?

MR. BRUCE: Yes, sir.

EXAMINER MORROW: Thank you, sir.

MR. BRUCE: I have nothing further in this matter, Mr. Examiner.

EXAMINER MORROW: All right. We'll take Cases 10986, 10987, 10988 and 10977 under advisement, and we'll continue Case 10989 for two weeks.

(And the proceedings concluded.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10986, 87, 88, 77, + 10989 heard by me on 6-9-94 1994.

Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

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

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

WITNESS MY HAND AND SEAL July 8, 1994.

CARLA DIANE RODRIGUEZ, RPR
CCR No. 4