NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date APRIL 4, 1990 Time: 8:15 A.M.

NAME	REPRESENTING	LOCATION
Robert Hart	Texaco	Hobbs, NM
Todd W. Moehlenbrock	Texaco	Hobbs, NM
Bruce Huber	Bynum	Santa Fe
Maurice Trimmer	NMOGA	"
E. R. Manning	El Paso Natural Gas	El Paso, TX
Bruce Insalaco	Santa Fe Resources	Midland, TX
Bill Fulton	"	"
Robert Lee	Siete Oil & Gas	Roswell
Paul W. Burchell	El Paso Natural Gas	El Paso, TX
Gary Green	Santa Fe Energy	Midland, TX
Karen Aubrey	Kellahin Kellahin & Aubrey	Santa Fe
William F. Carr	Campbell and Black	Santa Fe
Conrad Coffield [illegible]	Hinkle Law Firm	Santa Fe
[illegible]	OCD	"
[illegible]	Richmond Pet.	Denver, Colo.
Jim Adams	Richmond Petr	Dallas, TX
Bob McCamey	"	

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NAME	REPRESENTING	LOCATION
James Bruce	Hinkle Law Firm	ABQ
Ernest L. Padilla	Padilla & Snyder	SF
Eddie Seay	OCD	Hobbs

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

CASE 9900

EXAMINER HEARING

IN THE MATTER OF:

Application of Santa Fe Energy Operating Partners, L.P., for an unorthodox gas well location, Eddy County, New Mexico

TRANSCRIPT OF PROCEEDINGS

BEFORE: DAVID R. CATANACH, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

April 4, 1990

ORIGINAL

A P P E A R A N C E S

FOR THE DIVISION: ROBERT G. STOVALL
Attorney at Law
Legal Counsel to the Division
State Land Office Building
Santa Fe, New Mexico

FOR THE APPLICANT: HINKLE, COX, EATON, COFFIELD & HENSLEY
Attorneys at Law
By: JAMES BRUCE
500 Marquette, N.W.
Albuquerque, New Mexico

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I N D E X

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E X H I B I T S

APPLICANT'S EXHIBITS:

* * *

WHEREUPON, the following proceedings were had at 9:00 a.m.:

EXAMINER CATANACH: At this time we'll call case 9900.

MR. STOVALL: Application of Santa Fe Energy Operating Partners, L.P., for an unorthodox gas well location, Eddy County, New Mexico.

EXAMINER CATANACH: Are there appearances in this case?

MR. BRUCE: Mr. Examiner, my name is Jim Bruce. I'm with the Hinkle law firm in Albuquerque, representing the Applicant. I have three witnesses.

EXAMINER CATANACH: Any other appearances?

Will the witnesses please stand to be sworn in?

GARY GREEN,

the witness herein, after 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, please?

A. My name is Gary Green. I live in Midland, Texas.

Q. And what is your occupation and who are you

employed by?

A. I'm employed as a land man by Santa Fe Energy Operating Partners, L.P.

Q. And have you previously testified before the Division as a petroleum land man?

A. Yes, I have.

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

A. Yes, they were.

Q. And are you familiar with the land matters involving Case 9900?

A. Yes, I am.

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

EXAMINER CATANACH: They are.

Q. (By Mr. Bruce) Mr. Green, would you state briefly what Santa Fe seeks in this application?

A. Santa Fe seeks approval for an unorthodox gas well location for the Ocotillo ACI Federal #1 well for all formations spaced on 320 acres.

The well will be located 660 feet from the north line, 660 feet from the east line in Section 10, Township 20 South, Range 24 East in Eddy County, New Mexico.

The well will be drilled to a depth

sufficient to test the Morrow formation. The east half of Section 10 will be dedicated to the well as a spacing unit.

Q. Would you please refer to Exhibit Number 1 and describe its contents briefly?

A. Exhibit Number 1 is a land plat, located Township 24 South -- or 20 South, 24 East. The stippled acreage on there represents Santa Fe's leasehold and/or farm-in acreage from Conoco.

Section 10, we've identified the location of our proposed well in the east half of Section 10 as a spacing unit.

Q. And who are the offset operators to the north, the northeast and the east of the proposed unit?

A. Yates Petroleum is the operator.

Q. And are there any other entities who own interests?

A. The other entities that Santa Fe has notified are Conoco, who are leasehold owners there. Santa Fe has this acreage under farm-out.

The other is Torch Energy Company, recently purchased Felmont who is the joint owner of some of the stippled leasehold acreage shown on the map.

Q. And was notice of this application sent to the offset operator Yates and to Conoco and Felmont?

A. Yes, it was.

Q. And is that submitted as Exhibit Number 2?

A. Yes, it is.

Q. And are the certified return receipts also attached to Exhibit Number 2?

A. Yes, they are.

Q. Were Exhibits 1 and 2 prepared by you or compiled from company records?

A. Yes, they were compiled from company records.

Q. And in your opinion is the granting of this application in the interests of conservation and the prevention of waste?

A. Yes, it is.

MR. BRUCE: Mr. Examiner, at this time I would move the admission of Exhibits 1 and 2.

EXAMINER CATANACH: Exhibits 1 and 2 will be admitted as evidence.

MR. BRUCE: No further questions of the witness.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Green, as I understand it Yates is the only actual offset operator who's affected by the location?

A. That's correct.

Q. The other two, Conoco and Torch?

A. Conoco and Torch. Conoco, as you can see on the land plat, you see some Conoco HBP acreage identified. This acreage is presently farmed in to Santa Fe.

And Yates, the reason we notified them, should Santa Fe and Yates not comply with the farm-out terms, this acreage could come back to them. So they were notified.

Torch jointly owns, I believe it's the southeast quarter of 3. And the acreage in Section 10, they own a portion of that jointly with Santa Fe in the leasehold.

Q. And looking at Exhibit 2, it looks like you have a waiver of objection from Yates?

A. Yes, sir, we have a waiver of objection from Yates and the Yates entities. Also one from Conoco, also one from Torch.

EXAMINER CATANACH: Okay. No further questions. The witness may be excused.

BRUCE INSALACO,

the witness herein, after having been first duly sworn upon his oath, was examined as follows:

EXAMINATION

BY MR. BRUCE:

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

A. Yes, my name is Bruce Insalaco, and I live in Midland, Texas.

Q. And who are you employed by and in what capacity?

A. I'm employed by Santa Fe Energy as a geologist.

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

A. Yes, I have.

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

A. Yes, they were.

Q. And are you familiar with the geology involved in the proposed well in this case?

A. Yes, I am.

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

EXAMINER CATANACH: Yes, sir.

Q. (By Mr. Bruce) Mr. Insalaco, would you please refer to Exhibit Number 3 and discuss its contents?

A. Yes. Exhibit Number 3 is a production plat of the immediate area. And as you can see, it has the

Santa Fe Energy acreage in stucco in the area. It has our proposed location in the northeast of the northeast of Section 10, an outline of the proposed spacing unit in the east half of Section 10, some industry-proposed locations up to the northeast of our proposed location, and production colored in relating to the different zones that produce in the immediate area.

And as you can see, adjacent to each of the wells, the -- First we have an initial completion date, and then in bolder print right below that, we have thousands of barrels of oil, million cubic feet of gas and thousands of barrels of water cumulative production through 10-1 of 1989.

And then in smaller print below that we have current daily rates as of 10-1-89.

Q. What is the primary target of this well?

A. The primary target is the Morrow. And as you can see on this Exhibit 3 production plat, there are many Morrow producers in the immediate area. And again, the Morrow is our primary objective.

Q. And of these Morrow producers, how many in Santa Fe's opinion are economic and how many are not economic wells?

A. It appears in the north portion of this plat that there are only two wells economic. The well --

Q. In the Morrow?

A. In the Morrow, excuse me. And one of them is the well in the north half of Section 11. It's called the Conoco AGK Fed #1. It came on in August of 1989, and through October 1st it had produced 60 million and was still producing at a rate of 4.3 million a day.

The other economic well in the Morrow, in the north portion of this plat is a well in the southeast quarter of Section 36. This well was initially completed in April of 1977, and it has made 3.8 BCF and is currently producing at a rate of 410 MCF per day.

Q. Now, I notice there are some Canyon wells. Is that a secondary objective in this well?

A. Yes, it is.

Q. And as to the Canyon, I notice that they produce quite a bit of water. Does that affect Santa Fe's decision regarding what its primary target is?

A. Yes, there again, the primary target being the Morrow. We think that we have a good chance of hitting Canyon, but as you can see for an example, the well in Section 1, it has made 132,000 barrels of oil, but it has also made a million barrels of water since 1987.

And the wells adjacent to our proposed location up in Section 3, the well in the northwest of

Section 3 came on in August of 1989 out of the Canyon. It had made 55 million cubic feet out of the Canyon, but also 32,000 barrels of water. And as of October 1st, it was still making 1000 barrels of water a day. So water disposal does add to the costs of the Canyon production.

Q. Thank you. Would you please move on to Exhibit 4 and discuss it very briefly?

A. Exhibit 4 is a structure map on top of the Morrow clastic marker. I've gone ahead and color-coded red on here the Morrow producers in the immediate area.

Structurally, we're dipping off to the southeast, and it does not appear that structure is a -- is a controlling factor to the production in the area.

Q. Thank you. Would you please now discuss the porosity and move on to Exhibit Number 5?

A. Exhibit Number 5 is a net porosity isopach of what are called the first upper Morrow sand. I've gone ahead and colored the wells in, again, red that are producing out of that sand package.

The numbers beside each of the Morrow penetrations, the first number is clean sand, using a gamma ray cutoff of 60 units. And then the other number adjacent to that is a number which represents

porosity greater than seven percent or what we believe is net pay.

And you can see from this net porosity isopach our interpretation is that the Morrow is channelized, and it's generally trending from the west towards the east through the area.

Q. And is your interpretation supported by the uneconomic or dry Morrow wells in Sections 3, 2 and 11?

A. Yes, it is. In Sections 3, in the southeast quarter, you see a well, the Cholla AGE well. It had six feet of clean sand, but zero feet of pay greater than seven percent. That well was tested for less than 60 MCF a day, and the Morrow was abandoned.

A well up in the northwest of Section 3 has 14 feet of clean sand. But that well has, again, no net feet of porosity greater than seven percent. That well was not produced in the Morrow.

As you move over into Section 2, there's a well in the southeast quarter, the Cacti AGB. That well has 18 feet of clean sand and 11 feet of porosity greater than seven percent. This well came on in April -- or, excuse me, March of 1989. It has only produced 54 million. And as I have on the production study stated that it produced 570 MCF a day as of October 1st, but now it is less than 300 MCF a day. So it does

not appear that it will be economic.

The other well over in Section 1 has 11 feet of clean sand, five feet of porosity greater than seven percent. This well has only cum'd 34 million. Again, a not economic well.

And in fact the two wells that I had mentioned before that appear to be economic would be the well up in Section 36 that has made 3.8 BCF. This well has 33 clean feet of sand and 15 feet of porosity greater than seven percent.

And then the other well, the Conoco AGK well in Section 11, it has 32 feet of clean sand, 20 feet of porosity greater than seven percent.

So we believe that we need to stay in this fairway, hopefully encountering more than 15 feet of clean sand with porosity greater than seven percent.

Q. And the two wells in the south half of Section 11 are not productive in the Morrow; is that correct?

A. Correct. They're both Morrow penetrations, but again both of them had -- did not have any sand greater than seven percent of porosity, and neither of them were completed in the Morrow.

Q. In your opinion would a successful completion in the northeast quarter of Section 10 set up any

future locations in this little channel?

A. Yes, as I have it mapped here, we believe that if we are successfull with Ocotillo well in the northeast of Section 10, that this could set up a location over in the southwest quarter of Section 3 and possibly further development off to the west.

Q. And on this exhibit there's a cross-section mark. Is that --

A. Yes, sir.

Q. -- further defined in Exhibit Number 6?

A. Exhibit Number 6 is a stratigraphic cross-section of the Morrow. Running north to south through this channel, I have our Morrow clastic marker. Again, that's the structure datum that I have the map, structure map, mapped upon.

An approximately 20-foot limestone sitting on top of the Morrow, and then colored in yellow here is our first upper Morrow sand. That again, we believe to be the primary objective and the primary producing sand in the Morrow in this vicinity.

I've identified a couple other Morrow sands, but again, the two significant producers, the well in Section 36 and the well in Section 11, are producing out of this first upper Morrow sand.

And you can see again this channelized

interpretation. If you take the gross interval between that 20-foot line sitting on top of the Morrow and the thickness down to the top of the Mississippian line, it thickens through our proposed location and the Conoco AGK, and then it thins again off to the south.

Q. Were Exhibits 3 through 6 prepared by you or under your direction?

A. Yes, they were.

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

A. Yes, it will.

MR. BRUCE: Mr. Examiner, I move the admission of Exhibits 3 through 6.

EXAMINER CATANACH: Exhibits 3 through 6 will be admitted as evidence.

MR. BRUCE: Pass the witness.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Insalaco, how much clean sand do you hope to encounter in the subject well at the location?

A. Approximately 20 feet. We feel that an orthodox location, 1980 from the north line, would -- Well, first of all we would have the risk of not

encountering much clean sand at all. But we feel that we would not encounter the porosity that we believe is required, greater than seven percent, to get an economic well.

And we feel that the well in Section 2, again, in the southeast quarter had 11 feet of porosity greater than seven percent, yet it will not be an economic well.

So again, we're hoping to encounter something close to 20 -- Fifteen to 20 feet.

Q. Fifteen to 20 feet of clean sand?

A. Yes, sir.

Q. And how much sand with a porosity greater than seven?

A. Yes, sir, that should have been porosity greater than seven percent. We feel that that is more the controlling factor, rather than just having the sand package, that we do need this porosity greater than seven percent or net pay.

Q. At a standard location -- I'm sorry, how much did you say you would possibly encounter?

A. We believe between zero and ten feet, as I have -- or closer to zero feet of net pay greater -- with porosity greater than seven percent at a standard location.

And as you can see again, you know, this plat represents the wells producing out of this one sand package in the Morrow, and out of these five producers there are only two that appear to be economic, and then there are several wells in the area that were drilled as Morrow tests but did not have any porosity greater than seven percent in clean sand, that did not make Morrow producers at all.

Q. The well in Section 2 that you've been talking about --

A. Yes, sir.

Q. -- the one with 11 feet of sand, that's -- Cumulative production is 54 million?

A. As of 10-1 of 1989, yes, sir, and at that time it was making 570 MCF a day. It is now down to less than 300 MCF a day.

It also required a frac treatment while the well in Section 11 came out natural, again indicating that there might be a permeability problem and that we would need -- or more than 11 feet of net clean sand to make an economic well for us.

Q. What would you consider to be an economic well?

A. Again, based on this, because there are only two wells, the one up in 36 and the one in 11, that

well in 36 has 15 feet, so we believe 15 to 20 feet is what would be needed.

Q. In terms of ultimate gas recovery, do you have any idea what you might consider not an economic well?

MR. BRUCE: Mr. Examiner, I will bring an engineer. He could probably better address that.

EXAMINER CATANACH: Okay, that's all the questions I -- Oh, one more question.

Q. (By Examiner Catanach) Is there any potential in the Morrow A or Morrow B sandstone?

A. They don't appear to be as continuous as what are called the first upper Morrow sand here. That again, the well in Section 2 also has that Morrow A sand open, but again that well does not appear to be an economic well.

So we feel the main objective is in the first upper Morrow sand. And we will drill through these other sands, but they do not appear very extensive.

Q. Now, most of the Morrow wells you have depicted on these exhibits are producing from the upper Morrow?

A. Yes, you can see the difference if you look at the structure map. This is all the Morrow producers in the entire area in the plat, are colored red. And

then in this isopach only the wells that are producing out of what I've called the first upper Morrow sand are colored red on that.

So as you can see, most of the wells are first upper Morrow sand producers. All with the exception, I believe, of two -- three, three wells, excuse me.

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

BILL FULTON,

the witness herein, after 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 your residence?

A. My name is Bill Fulton. I live in Midland, Texas.

Q. And who are you employed by and in what job capacity?

A. I'm employed by Santa Fe Energy Operating Partners, L.P., as a reservoir engineer.

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

A. Yes, sir, I have.

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

A. Yes, sir, they were.

Q. And are you familiar with the engineering matters involved in Case 9900?

A. Yes, sir.

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

EXAMINER CATANACH: Yes, sir.

Excuse me, I'm sorry, I didn't catch your name.

THE WITNESS: Bill Fulton.

EXAMINER CATANACH: Thank you.

Q. (By Mr. Bruce) Mr. Fulton, have you conducted some volumetric calculations on some wells in this field?

A. Yes, sir, I have.

Q. And could you point out which wells?

A. The wells that I've done some volumetric calculations on are the well in Section 2, the south half of Section 2, which is the Cacti AGB well. Also the well in Section 11, which is the Conoco AGK well in the north half of Section 11.

Those were the only two wells that I had a resistivity log to run saturation calculations on.

Q. And what is the result of your calculations?

A. Volumetrically, the Cacti well first in Section 2, its volumetric -- or the original gas in place calculates out to approximately 7 BCF.

The Conoco well in Section 11 calculates, original gas in place of 8.6 BCF.

Q. And what will the recoveries be from each of those two wells?

A. I've done some analysis of the Cacti well, based on decline analysis.

As the previous witness had stated that that well is currently producing about 275 MCF per day and is currently on an 86 percent exponential decline over the last five or six months, pretty established decline, its ultimate recovery will be somewhere between 160 and 200 million cubic feet of gas.

Q. And for the Conoco well, what do you anticipate the recovery will be?

A. The Conoco well has flowed at rates approaching 6 million cubic feet a day. We don't have enough production history to establish a decline trend in it, but based on analogous decline in some of the other wells, starting out at an 86 percent decline from its current rate and then leveling off in two stages, basically mimicking an exponential -- or a hyperbolic

decline -- I calculate approximately 3.2 BCF, which could be conservative.

Q. Now, to what do you attribute the difference between the Cacti well and the Conoco well?

A. A couple of things. First, as Bruce, the previous witness, has stated, the Conoco well has 20 feet of clean pay greater than seven percent. The Cacti well has 11 feet. So the Conoco well has somewhat better pay than the Cacti well.

We also feel that there's probably -- production is dominated, probably, by permeability. We have the results of the bottom hole pressure buildup on the Cacti well, again in Section 2, that determine that its permeability is approximately two millidarcies.

We have not received the results from the pressure buildup on the Conoco well as of yet, but log indications on the resistivity logs indicate extremely good separation, better than any other well in the field, which is an indication of permeability.

Q. And would this be confirmed by the isopach chart submitted as Exhibit Number 5 by Mr. Insalaco?

A. Yes, from a net clean feet of pay greater than seven percent, yes, it would. Permeability is not addressed.

We feel that because of the trend where the Cacti well did not have -- Its production does not justify the volumetric reserves that it is probably -- The two millidarcy perm is probably much tighter than the Conoco well. The Cacti well, again, had to be frac'd to obtain the initial rate of 600 MCF a day. And the Conoco well came on naturally with a continuous completion potential at 9.4 million a day.

Q. Now, assuming that the Santa Fe's proposed location in Section 10 has similar permeability to the Conoco well in Section 11, if the proposed Ocotillo well is not drilled, would the Conoco well drain Section 10?

A. In my opinion, no, it would not.

Q. Conoco?

A. The Conoco -- The Conoco well in -- Oh, in Section 10, yes, it would drain some reserves from Section 10.

Q. And in your opinion is the proposed Ocotillo well located at the optimum location?

A. Yes, it is. I think if we move further south we would encounter less feet of pay, and we're trying to stay in the center of that channel, which we feel is probably the most permeable part of that channel.

Q. Referring to Exhibit Number 7, what is the

estimated cost of the Ocotillo well?

A. We have a well cost estimate of $737,572.

Q. For a completed well?

A. For a completed well.

Q. And in your opinion, therefore, is it necessary to place this well in the best location to assure an economic well?

A. Yes, sir it is.

Q. Is Exhibit Number 7 -- Was it prepared from company records?

A. It was prepared by our drilling department, utilizing company records, yes, sir.

Q. And in your opinion, is the granting of this application in the interests of conservation and the prevention of waste and the protection of correlative rights?

A. Yes, sir, it is.

MR. BRUCE: Mr. Examiner, I move the admission of Exhibit Number 7.

EXAMINER CATANACH: Exhibit Number 7 will be admitted as evidence.

MR. BRUCE: Pass the witness.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Fulton, you consider the well in Section

2 to be uneconomic; is that correct?

A. Yes, sir, I do.

Q. Santa Fe wouldn't drill a well for those kind of reserves, would they?

A. No,sir.

Q. Mr. Fulton, do you think a penalty is appropriate in this case for your proposed location?

A. No, sir I don't. I feel that a well that is producing at maximum rate would probably still not show interference from the Conoco well.

The Conoco well has -- I've updated some cumulative productions. Through February 1st, it's produced 660 million cubic feet a day. It doesn't appear to be showing any interference from the Cacti well to the north of it, which is also approximately the same distance away.

We've also obtained waivers from all of the offset operators.

EXAMINER CATANACH: That's all the questions we have of the witness. You may be excused.

MR. BRUCE: Nothing further, Mr. Examiner.

EXAMINER CATANACH: There being nothing further in this case, Case 9900 will be taken under advisement.

(THEREUPON, these proceedings were concluded

at 9:30 a.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9906, heard by me on April 4 1991.

David R. Catanach, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, 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 transcribed my notes; 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 April 7, 1990.

STEVEN T. BRENNER
CSR No. 106

My commission expires: October 14, 1990