STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
CASE 9896

EXAMINER HEARING

IN THE MATTER OF:

Application of Siete Oil & Gas Corporation for a Waterflood Project, Eddy County, New Mexico

TRANSCRIPT OF PROCEEDINGS

BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
March 21, 1990

ORIGINAL

CUMBRE COURT REPORTING
(505) 984-2244

A P P E A R A N C E S

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

FOR THE APPLICANT:
ERNEST L. PADILLA, ESQ.
Padilla & Snyder
200 West Marcy, Suite 212
Post Office Box 2523
Santa Fe, New Mexico 87504

I N D E X

E X H I B I T S

APPLICANT'S EXHIBITS:

EXAMINER STOGNER: This hearing will come to order. Call next case, No. 9896.

MR. STOVALL: Application of Siete Oil & Gas Corporation for a waterflood project, Eddy County, New Mexico.

EXAMINER STOGNER: Call for appearances.

MR. PADILLA: Mr. Examiner, I'm Ernest L. Padilla, Santa Fe, New Mexico, for the Applicant, and I have one witness to be sworn.

EXAMINER STOGNER: Since there's no one else in the room, I'll assume there are no other appearances. Will the witness please stand and be sworn.

ROBERT LEE

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

EXAMINATION

BY MR. PADILLA:

Q. Mr. Lee, please state your full name.

A. Robert Lee.

Q. Where do you live, Mr. Lee?

A. Roswell, New Mexico.

Q. Do you work for Siete Oil & Gas?

A. Yes, I do.

Q. What do you do for them?

A. I'm a senior reservoir engineer.

Q. How long have you been a senior reservoir engineer?

A. With Siete, for one year.

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

A. No, I have not.

Q. Tell us about your educational background in petroleum engineering?

A. Okay. I got a bachelor's degree from the University of Missouri in Raleigh in 1979, and I worked for Tenneco Oil & Gas in San Antonio for the last nine years before going to work for Siete.

Q. Mr. Lee, have you prepared the C-108 and otherwise made a study of the waterflood project under consideration here today?

A. Yes, I have.

MR. PADILLA: Mr. Examiner, we tender Mr. Lee as a reservoir engineer.

EXAMINER STOGNER: Mr. Lee is so qualified.

Q. Mr. Lee, would you briefly tell us what this hearing is about?

A. This is an application to convert our Scottsdale #2 to an injection well and to recover additional oil that would otherwise not be recovered

by our Scottsdale 1 and Scottsdale 3.

Q. Mr. Lee, I would like for you to go up to what we have marked as Exhibit 1. And, in that regard I would like for you to generally describe what that exhibit is and also tell us what it intends to show in connection with this application.

A. Okay. This is a stratigraphic cross-section running from the west to the east-northeast. Two of our wells are on it, the Scottsdale #1, the second well from the left-hand side will be a producing well, and the Scottsdale #2, which is in the middle of the cross-section, is our proposed injection well.

This cross-section appears to demonstrate continuity of pay fans throughout the area, particularly between our two wells. It also shows the perforated interval of our wells. The Scottsdale 1 is perforated in the Penrose and the Grayburg. The Scottsdale 2 is perforated in the Yates, the Penrose and down in the San Andres.

Q. Mr. Lee, let me refer you to the little map that you have on the right side of that exhibit and tell us generally who are the offset operators and what wells produce from the same horizon as your proposed injection interval?

A. Chevron operates the Littlefield lease to the north in Section 22, and they produce out of the Queen horizon. Meridian has the Hinkle lease directly to the west of our lease, and they produce out of the Penrose, Grayburg and San Andres horizons. Westall Mask has the leases to the east of our lease, and they produce out of the Grayburg horizon.

Q. Mr. Lee, starting up in the Chevron acreage and going clockwise around your proposed injection well, would you tell us what the operators in those properties are doing insofar as injection or what the method of production is that they're employing in producing their oil and gas leases?

A. Right. In the Chevron lease, they are currently waterflooding the Queen horizon. Westall Mask, they do not have any waterflood or any secondary recovery procedures going on at this time. Of course, we do not, either. Meridian, they are also waterflooding their Hinkle lease.

Q. Are they waterflooding the same horizons that you plan to waterflood?

A. Yes.

Q. Would the waterflood that you propose have a tendency to benefit the Westall Mask leases?

A. It's possible, yes.

Q. Have you received any objection from them?
A. No, we have not.
Q. Any communications from Westall Mask?
A. No. We sent them notification of what we're doing with the waivers and we've not heard anything from them.
Q. How about Chevron?
A. No complaints there.
Q. How about Meridian?
A. No, they didn't have any problem with our project.
Q. In fact, you intend to use some of Meridian's facilities in order to do your waterflood; is that correct?
A. Yes, we will.
Q. You'll get into that a little later?
A. Yes.
Q. Let's get back into the cross-section itself and tell us, your application covers what vertical limits?
A. In the application, we ask for permission to inject from the Yates down to and including the San Andres. The reason for doing this is because initially we proposed to only inject into the Penrose horizon because that's the only horizon to have common

perforations from our injection well to our producing well.

If that's successful, what we will then do is go in and open up the Grayburg in our injection well, Scottsdale 2, and we would open up the Yates in our producing well, the Scottsdale 1, and may also open up some of these other sand stringers throughout the Bowers formation. And that's why we ask for such broad, vertical limits of the flood.

Q. Have you discovered since making the application that the San Andres is not part of the Shugart pool?

A. Yes, we have.

Q. What are your plans in regard to the San Andres?

A. I would be willing to drop it off of this application; and later on, if we want to flood the San Andres, we would come back and either have another hearing or try to get it approved administratively.

Q. Is there any problem with getting approval to do the San Andres now that you see, in terms of having that as a separate pool or a separate waterflood in connection with this application?

A. No, I don't think there would be a problem with that.

Q. What are the producing capabilities of wells in that area for the San Andres formation?

A. I don't have a structure map, but it is to the southeast. Our #2 well was wet in the San Andres. Our #1 well did not penetrate the San Andres. The Southland Royalty leases on the Hinkle lease produce out of the San Andres, so we have basically discovered the down-dip limits of the San Andres right in through here, in the area of our Scottsdale #2.

Q. Mr. Lee, when you say "right in through here," what do you mean by that? What area are you talking about?

A. Probably in a line running northeast-southwest through our Scottsdale #2, would be the established down-dip productive limits of the San Andres. If there's additional drilling in the area that would prove that the San Andres would be productive in our Scottsdale #1, what we would do at that time would be to go in and deepen the #1 and still possibly use our #2 as as an injection well in that zone.

Q. Your plans now, as I understand them, are not to inject into the San Andres, is that correct?

A. That's correct.

Q. But you would simply want to have authority to inject should that become feasible at a later time?

A. That would be advantageous, yes.

Q. Does your cross-section show any type of anomaly that would separate your waterflood from any of the surrounding properties?

A. No, it does not.

Q. Do you have any opinion as to whether or not your waterflood might impair the producing capabilities of surrounding properties?

A. It would not impair the producing capabilities of surrounding properties. It should enhance them, if anything.

Q. Can you give us an estimate of what type of additional or enhanced production you will encounter as a result of your waterflooding?

A. Yes. Currently our Scottsdale lease is producing 10 to 12 barrels a day. With this one injection well, we anticipate the rates to go up to 50 to 60 barrels a day and recover an additional 40- to 50,000 barrels of oil which otherwise would not be recoverable.

Q. What is the nature, what kind of margins do you have in terms of economics for the current situation that you have in your wells out there?

A. Our lease is getting very marginal. In fact, we're pumping only every other day now. In probably another year to year and a half it would be uneconomic and we would be looking at plugging these wells.

Q. Do you have anything further concerning Exhibit No. 1, Mr. Lee?

A. No, I do not.

Q. Let's go on now, you can resume your seat and let's go on to what we've marked as Exhibit No. 2 and please identify what that is, please.

A. This is the form C-108, our application to inject into the Scottsdale #2.

Q. Let's jump right into that, Mr. Lee and let's take each page that you have in that C-108 and have you tell the Examiner what that is.

Let me refer you to the second page, which is a schematic.

A. Okay. This is our proposed wellbore schematic once the work is completed. In reviewing this schematic, we found an error here in that over on the left-hand side, where I'm telling you the packer that we're going to be using and the setting depth, I have 2,600 feet on the schematic and it should be 3,600 feet. That will be right above the Penrose

which will isolate the Yates, and I will not inject into the Yates at this time.

Q. In other words, that really should be between Zone 4 and Zone 1?

A. That's correct.

Q. Tell us, since I've mentioned zones, you have in that schematic identified certain zones that are not numerically in order. Would you explain why you have done that?

A. The zones were identified in the order of completion or attempted completions.

Q. So Zone 1 would be the first priority?

A. Exactly. That was the first zone that we completed, and Zone 5 being the last zone that we completed in.

Q. What else do you have to tell the Examiner concerning this schematic?

A. Nothing. This is just part of the well data that was required on the C-108.

Q. How about the schematic that is shown on the next page?

A. This is the current wellbore schematic, how things sit currently. We have tubing in the hole; the well is temporarily abandoned. It's uneconomic to produce at this time. It's notable that there's a

cast-iron bridge plug at 4,100 feet, which will effectively isolate our San Andres zone also.

Q. Is that all you have concerning that?

A. Yes, it is.

Q. Let's go on now to the next page. Tell us what that is?

A. This is the tabular data for our injection well. This data lists the lease name, location, the casing program that our injection tubing will be internally plastic coated.

Once again, on our packer there's an error. The packer's depth is 2,600 feet on this page and it should be 3,600 feet.

I list the formations that I would like permission to inject into; Yates, Seven Rivers, Queen, Penrose, Grayburg and San Andres. I describe the perforated interval in the proposed injection well, state the well was originally drilled as a producing oil well, and that within the area of the Scottsdale Federal #2 there are no higher producing horizons.

Q. Is that all you have on that page?

A. Yes, it is.

Q. Let's go on now to the next page, and what is that?

A. This is a listing of wells within the

half-mile radius area of review. This is a table listing the well names, operators, location of the wells, types of wells, when it was spud and completed, where the wells were completed, what formations they're in and the casing programs.

Q. Mr. Lee, looking at the casing programs, have you looked at all the casing programs in all of the wells identified in this portion of this exhibit?

A. Yes, I have.

Q. In your opinion, is there anything here with regard to the method in which these wells were completed or plugged and abandoned that would indicate that there would be some lack of integrity as far as migration of water?

A. No, there is not. The tops of cement are above the zones that we planned to inject into.

Q. What is the kind of casing that you find out there? Is that type of casing adequate to prevent--

A. Yes, it is. It prevents any kind of fluid from escaping the wellbore or entering the wellbore and contaminating the fresh water zone.

Q. What is the map that you have attached in here now?

A. This is a--

Q. Which is the next page?
A. Right. This is a land plat of the area with the half-mile area of review circle drawn around our proposed injection well, the Scottsdale #2.
Q. You've talked about everything else concerning what surrounds this well through your map on Exhibit 1, is that correct?
A. That's correct.
Q. Now you have on the next page a schematic of the well. Tell us what that shows.
A. Yes. It's required in the form C-108 to include a schematic of any plugged and abandoned wells in the area. This is the Hinkle-F #2 originally drilled by V. S. Welch. It was originally plugged by V. S. Welch in 1965. It apparently had a bad plug or it started leaking in 1981, because it was then replugged by Southland Royalty at that time. I've also included the two plugging reports for the plugging of that well.
Q. And those are the two pages that follow, is that correct?
A. Yes, sir.
Q. Do you know why this well was replugged by Southland Royalty?
A. Not for sure, no.

Q. Do you have an opinion as to whether it might have been replugged because of Southland Royalty's, and now Meridian's, waterflood project?

A. I suspicion that that is the reason that it had to be replugged.

Q. Let's go on now to the last two pages of your C-108 and have you tell the Examiner what information is contained in that.

A. These pages contain injection type data. It states that my proposed daily rate will be 300 barrels a day, with a maximum rate of 500 barrels of water per day.

It states we will use Meridian's injection station, which is a closed system. It contains our injection pressures. My experience in the area tells me that the injection pressure will probably get up to about 500 pounds. Using a .2 psi for fluid injection pressure rate, my maximum daily injection pressure will be 520 psi. If later, on as my flood matures, it becomes necessary to increase that pressure, I will perform a step-rate test and have it dually witnessed by the proper authorities.

Q. Mr. Lee, does Siete operate other waterflood projects in Eddy County?

A. Yes, we do. We have the Blackhawk

waterflood project about a mile to the east of this well.

Q. How have you increased, from time to time, the pressures that you inject water?

A. Yes, we have.

Q. How do you do that?

A. We perform a step-rate test and demonstrate where the fracture pressure of the formation is, showing that our injection pressure was below that fracture pressure, and then come up with some safety factor below the fracture pressure, and call that our maximum injection pressure.

Q. Do you do that testing in coordination with the Artesia office of the Oil Conservation Division?

A. Yes, we do.

Q. Does the order that allows increase in pressures allow you to administratively increase pressures?

A. Yes, it does.

Q. In that other waterflood?

A. Yes, it does.

Q. Do you desire to have the same type of authority in this case?

A. Yes, I would.

Q. Would you continue now with your testimony

regarding these pages.

A. Okay. I'm stating here also that my injection water will be coming from Meridian's waterflood facility on their Hinkle lease. They are injecting produced water in their waterflood, which is from the same formations that I will inject into, so compatibility will not be a problem. And the water injection is currently into a zone that was productive of oil and gas.

Q. Okay.

A. We also move down into the geologic data, where I state what intervals I'm going to inject into in the Scottsdale #2, give approximate depths and tops of the various formations and thicknesses.

Q. Let's go on now to the last page in your exhibit, and tell us what this contains.

A. Okay. It states that I've performed a search of the area within one mile around our proposed injection well and there are no fresh water wells. We went over to the State Water Board there in Roswell and looked through their records. We plan no additional stimulation to do this initial injection here into the Penrose.

Q. Why aren't you doing any additional stimulation?

A. The zones were already frac'd upon primary completion.

Q. It's your opinion you'll need further stimulation?

A. That's correct.

Q. Simply inject water into it?

A. Exactly right.

Q. How about the logs? Have you submitted a log with the application?

A. No, sir. The logs were submitted when the wells were drilled.

Q. Okay. What kind of water are you going to inject?

A. We're going to be injecting produced water from Meridian's lease, which will come out of the Penrose-Grayburg horizons.

Q. How are you going to work with Meridian in this project?

A. The economics on this are a little bit slim, so we had to keep our costs down as much as possible. So what we've proposed to Meridian is to tie into their water station and get pressurized water from them and, in turn, give them our produced water.

Currently they don't have enough injection water on their lease to properly flood their

reservoir, so they're in need of water, so we're going to give them water and take pressurized water from them.

Q. Have you determined whether or not the water that you're going to give them would be injected from their water station is compatible with the water that exists in the reservoir?

A. Yes, it will be compatible.

Q. Are you proposing a closed system?

A. Yes, the system is closed.

Q. What does that do?

A. It keeps any oxygen out of the system, prevents growth of bacteria, helps keep your formation from getting a sour, corrosive environment.

Q. You said you found no potable water within a mile, is that correct?

A. That's correct. At the State Water Board they had one shallow well listed in Section 27. It was originally drilled by Southland Royalty, but it had chlorides of nearly 39,000 parts per million. Once again I suspect this was a source well they drilled either for a flood or drilling fluid when they drilled their wells.

Q. Assuming there's a fresh water aquifer that has not been discovered or may exist in the area, do

you feel that the casing programs and the wells surrounding the project that you have identified as part of your C-108 are adequate to protect those fresh water sources?

A. Yes, I do.

Q. How about migrating up to the surface itself?

A. No. The current casing programs will prevent that.

Q. Mr. Lee, have you sent notice of the C-108 or have you sent your C-108 to all offsetting operators in accordance with the rules of the Oil Conservation Division?

A. Yes, we have.

Q. And to whom have you sent those notices?

A. I've sent them to Meridian Oil, Chevron, Amoco, Westall Mask, and the Bureau of Land Management. I sent it to the Bureau of Land Management because they are the surface owners.

MR. PADILLA: Mr. Examiner, I've noticed that Mr. Lee's attachment was not part of the copies of the return receipts were not attached to that exhibit, so I'll hand you copies of those C-108s.

In addition to that, Mr. Examiner, I have what we have identified as Exhibit No. 3, showing that

our office has sent notices to those same individuals, as well as the notice of this hearing, and we've simply identified that as Exhibit No. 3.

Q. Mr. Lee, have you, in your opinion, complied with all of the itemized requirements of the Section C-108 in connection with your C-108?

A. Yes, I have.

Q. And in connection with the application for waterflood?

A. Yes, I have.

Q. Mr. Lee, would approval of this application be in the best interests of conservation of oil and gas?

A. Yes, it would be.

Q. Do you have an opinion as to whether or not you're going to impair or enhance the correlative rights?

A. We'll probably enhance correlative rights.

Q. How would you do that?

A. With the injection of water into this zone, some of the offset operators may get a slight production buzz.

Q. Mr. Lee, do you have anything further to testify about concerning this application?

A. No, I do not.

MR. PADILLA: Mr. Examiner, we'll pass Mr. Lee for questioning; and I'll move the admission of Exhibits 1 through 3.

EXAMINER STOGNER: Exhibits 1 through 3 will be admitted into evidence at this time.

EXAMINATION

BY MR. STOGNER:

Q. Mr. Lee, let's first talk about your injection water here. You said it's coming off of the Meridian waterflood facility and it's going to be pressurized?

A. Yes, we do.

Q. What pressure is that water?

A. Their injection pressure, as I recall, is around 6- to 800 psi, but we will be able to choke that down to less than 520 psi at our wellhead.

Q. So you propose to do this at the wellhead?

A. Oh, yes.

Q. Let's look at the Scottsdale Federal lease, which I'm assuming takes in the northeast quarter of Section 27, is that correct?

A. That's correct.

Q. How many wells are presently, with the exception of your #2 well, presently completed in that particular zone?

A. Two wells; the Scottsdale #1 and the Scottsdale #3.

Q. What is their present production rate?

A. Both wells combined, 10 to 12 barrels a day.

Q. And those are on beam pump, I assume?

A. Yes, sir.

Q. How old are those wells?

A. The Scottsdale #1 was drilled in 1984, the Scottsdale #2 was drilled in 1986, and the Scottsdale #3 was drilled in 1985.

Q. Do you know offhand what their initial production rate was from this zone?

A. The #1's initial production rate was in excess of 100 barrels of oil a day. The #2 was 40 barrels of oil a day, and I cannot recall what the #3 initial production rate was.

Q. You have the #1 well on your cross-section, is that correct?

A. Yes, I do.

Q. And the perforated interval is shown on that particular exhibit?

A. Yes, it is.

Q. And there seems to be just two sets, one in the Penrose and one in the Grayburg as you show it, is

that correct?

A. Yes, sir.

Q. Are these the original perforations?

A. Yes, they are.

Q. And have you been able to isolate which zone has more production attributed to it?

A. No, I have not.

Q. Now, I noticed on your injection well, do you plan to later on come back in and perforate in the Grayburg portion of that well that would attribute production enhancement to the #1?

A. Yes, sir. If the Penrose horizon works out, if our flood is successful there, we have plans to go in and add perfs in our #2 and also add perfs in our #1 in the Yates formation to establish horizontal conformance between the two wells.

Q. What is the name of that Meridian waterflood that has taken place over to the west?

A. They list it as the Hinkle-F waterflood, or Hinkle-F lease.

Q. Have you had a chance to study it for this particular project that you're doing?

A. To a degree. They're seeing some benefit from their waterflood. Like I said, they really don't have as much injection water as they really need to

really do an efficient flood. They also have plans to come in and convert some more wells and try to get their flood in better shape.

Q. Other than notifications, have you contacted Chevron or have you talked to Chevron?

A. Yes, I have. Initially I was talking to Chevron trying to get pressurized water from them, also, and they were agreeable to providing pressurized water, also. I decided to go with Meridian because of other business contacts that we have with them.

Q. Is Chevron presently injecting in their wells in Section 22?

A. Yes, they are. Once again, they have a water supply problem in that they don't have enough water, and they also plan to come in and do some additional drilling and additional conversions of wells.

Q. And those injection wells in Section 22, in particular the south half of 22, can they be spotted easily on your map supplied with your C-108?

A. No, they cannot.

Q. Do you know which ones they are by chance? I'm looking in the southeast quarter, Wells Nos. 12, 13 and 14, in particular. Are any of those injection wells?

A. I'm not sure, Mr. Examiner. I would need to go check. I think the 14 is, but I'm not positive. I would need to check that.

Q. That won't be necessary. Our records will reflect that.

But Chevron had no problem when you talked with them on this particular conversion that you're proposing at this time?

A. No, they did not.

EXAMINER STOGNER: Are there any other questions of this witness?

MR. STOVALL: No.

EXAMINER STOGNER: If there are none, you may be excused. Mr. Padilla, do you have anything further?

MR. PADILLA: Nothing further.

EXAMINER STOGNER: In that case, Case No. 9896 will be taken under advisement, and the hearing adjourned.

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 March 22, 1990.

Carla Diane Rodriguez

CARLA DIANE RODRIGUEZ
CSR No. 91

My commission expires: May 25, 1991

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9896 heard by me on 21 March 1990.

Examiner
Oil Conservation Division