STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

APPLICATION OF SAMUEL GARY, JR. AND ASSOCIATES, INC. FOR A GAS REINJECTION/PRESSURE MAINTENANCE PROJECT, SANDOVAL COUNTY, NEW MEXICO

CASE NO. 10141

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

February 21, 1991
10:10 a.m.
Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on February 21, 1991, at 10:10 a.m. at Oil Conservation Division Conference Room, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Paula Wegeforth, Certified Court Reporter No. 264, for the State of New Mexico.

FOR: OIL CONSERVATION DIVISION

BY: PAULA WEGEFORTH
Certified Court Reporter
CSR No. 264

I N D E X

February 21, 1991
Examiner Hearing

CASE NO. 10141

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E X H I B I T S

A P P E A R A N C E S

FOR THE DIVISION: ROBERT G. STOVALL, ESQ.
General Counsel
Oil Conservation Commission
State Land Office Building
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

FOR THE APPLICANT: HINKLE, COX, EATON, COFFIELD & HENSLEY
Attorneys at Law
BY: JAMES BRUCE, ESQ.
218 Montezuma
Santa Fe, New Mexico 87501

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EXAMINER CATANACH: We will call Case 10141.

MR. STOVALL: Application of Samuel Gary, Jr. and Associates, Inc., for a gas reinjection/pressure maintenance project, Sandoval County, New Mexico.

EXAMINER CATANACH: Are there appearances in this case?

MR. BRUCE: Mr. Examiner, Jim Bruce from the Hinkle law firm representing the applicant. I have one witness to be sworn.

EXAMINER CATANACH: Any other appearances?

Will the witness please stand to be sworn in?

(Whereupon the witness was duly sworn.

RICHARD SHUSTER,

the Witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BRUCE:

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

A. Richard Shuster.

Q. Where do you reside?

A. Golden, Colorado.

Q. And what is your occupation?

A. I'm a self-employed petroleum engineering consultant.

Q. Who are you employed by in this case?

A. Sam Gary Jr.and Associates and their partners.

Q. Have you previously testified before the OCD and had your credentials as an expert engineer accepted as a matter of record?

A. Yes, sir, I have.

Q. Are you familiar with the engineering matters related to case 10141?

A. Yes, I am.

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

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Bruce) Briefly, Mr. Shuster, what does the applicant seek in this case?

A. Sam Gary, Jr. -- Samuel Gary Jr. and Associates request approval to reinject released gas from the Mancos -- the San Ysidro federal unit back into the Mancos formation.

Q. Where will the gas come from? In other words, what wells?

A. They are all the wells in the federal unit that produce gas as well as the two horizontal wells we discussed in previous cases.

Q. Were those Cases 10099 and 10100?

A. Yes, sir, they were.

Q. How will the applicant benefit from the

reinjection?

A. Currently there's a gas venting restriction in the field of, I believe, 30 MCF a day. This has forced some of the wells to produce -- one or possibly two days per month they produce their allowable gas and then they are shut in the remainder of the month. By reinjecting the gas into the formation, this will allow the wells to produce the maximum allowable oil.

Q. And this particular pool the Rio Puerco-Mancos, does have a low GRO limit, does it not?

A. It does.

Q. What is that limit?

A. Approximately 500 standard cubic feet per barrel of oil.

Q. Would you describe the injection application in more detail?

A. Basically what we propose is to reinject produced gas into the San Ysidro 1311 well at Section 13, Township 20 north, Range 3 west, in Sandoval County. By disposing of the produced gas, we will be able to increase oil production in the field.

Q. Now, the proposed injection well -- when was it drilled and what is its status and why was it originally drilled?

A. It was originally drilled in mid-'85. Spud date

was June, completed a couple months after. It was originally drilled as an injection well. The well came in, was able to flow one to three barrels a day, and they allowed it to produce about 2600 barrels of oil since first production.

This matter has come up before the commission before and was stopped due to some problems between the -- or between the lessors in the field. Those problems have been taken care of, it's my understanding. This is prior to my being involved in it.

Based on just the status of the industry, the extremely low oil prices in 1986, the project was tabled until recently, when we brought it back up as the prices have increased and the horizontal wells were drilled.

Q. What reworking is necessary to make this an injection well?

A. It would be very minor work. Basically as we're laying our lines, we'll pull the tubing, pack-grab the hole, make sure everything is in working order, run it back in.

The well bore is in good shape. We will not have to stimulate the well. It will be just making sure that everything -- while we have the down-time, making sure that everything is in working order.

Q. And referring to that Exhibit 1, the C-108, are

there any other producing wells or any wells within one-half mile of the proposed injection well?

A. There is one plugged well about three-quarters of a mile away. It's in the northeast northeast, Section 13.

Q. Are you looking at page 4 of the exhibit?

A. Yes, sir, page 4. I have reviewed all plugging records of all wells in the entire unit and found everything was plugged in accordance with the State of New Mexico requirements.

Q. And would you describe the proposed injection operations?

A. Basically, we will plan to inject at a pressure of approximately 1400 pounds average as the project gets going. Initial pressure should be in the eight to 1100 pound range at about a half a million cubic feet a day.

As the pressure in the reservoir declines, the gas-oil ratio should increase as we drop below bubble point, and therefore the gas volumes will increase to my opinion of approximately two million cubic foot a day maximum rate at a maximum pressure of 1400 psi.

Q. Now, this requested injection pressure is higher than the standard two pounds per foot, is it not?

A. Right. The two-pounds-per-foot requirement comes out to an injection pressure of about 900 pounds.

Reservoir pressure is, depending on where you are in the reservoir, somewhere between 700 and 1100 psi. We need to inject the higher pressure simply to get the gas into the formation. We are below the parity pressure of the reservoir at this 1400 pounds.

Q. Were injectivity tests conducted?

A. Yes. The injectivity tests were conducted there, and we reached maximum rate of six million cubic feet a day and the 1400 -- actually, it was almost 1500 pounds per square inch of pressure.

The test was stopped basically because the equipment we had on location reached its maximum potential.

Q. Okay.

A. Nitrogen was the fluid we used. Teftel was there on location with us.

Q. And are the results of those tests tabulated at pages 7 to 20 of the C-108?

A. Yes, sir, they are.

Q. And you foresee no problems with the higher injection pressure, do you?

A. No. No. The higher -- basically, our goal is to inject at a pressure just to get it into the reservoir. The maximum pressure, we assume, will probably be around 1400 pounds. Initially, we assume, the pressure will be around 1100 psi to start.

Q. Are there any fresh-water sources within a mile, to your knowledge?

A. Not within a mile. It's my understanding there are fresh-water wells maybe just past a mile outside, but we foresee that as no problem to our operations.

Q. Are there any faults or hydrologic connections between the injection formation and fresh-water sources?

A. No, there are not.

Q. Is Exhibit No. 2 a copy of the certified return receipts of the C-108 which was sent to the surface owner and any operators within a half mile?

A. Yes, it is.

Q. Actually, that's the surface lessee, isn't it?

A. Right.

Q. And is Exhibit 3 a copy of the letter sent out by my office regarding this hearing today?

A. Yes.

Q. In your opinion, will the granting of this application be in the interests of conservation and the prevention of waste?

A. Yes, it will be.

Q. And were Exhibits 1 and 2 prepared by you or under your direction?

A. Yes, sir, they were.

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

Exhibits 1 through 3.

EXAMINER CATANACH: Exhibits 1 through 3 will be admitted as evidence.

(Whereupon Applicant's Exhibits 1 through 3 were admitted into evidence.

MR. STOVALL: Again, Mr. Bruce, an affidavit. Thank you.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Shuster, on the proposed injection well, do you -- or have you seen the cement bond log for the produced string of casing?

A. No, I have not.

Based on the pressure information, though, contained and the pressure that they saw in the well I saw when they ran the injection, I saw no bleed-off indications that might indicate a problem with the bond so I did not take it any further.

Q. How did you come to the conclusion about the step-rate tests that you were still below fracture pressure at 1400 psi?

A. Based on just the way the pressure reacted, we saw no -- and previous work done by Samuel Gary and Gary Williams Oil Company.

Q. The gas reinjection, as I understand it, is

mainly for the purpose of allowing you to produce the oil from the oil wells?

A. Right.

Q. Will the gas reinjection benefit the reservoir any?

A. It certainly won't hurt the reservoir. If you look, the field has produced overall three-quarters of a million barrels of oil and approximately BCF of gas total. To inject the current produced rates into one well, certainly will not raise the entire reservoir pressure up to an enhanced recovery pressure limit.

Right now it's just to allow us to produce the oil. My calculations show we'll need approximately two BCF of gas to repressure the reservoir, and under current producing rates we can't get that, number one, out of the wells and, number two, into this well bore. So this is more gas disposal, if you will, at the present time.

Q. Do you anticipate them installing any more injection wells in the unit at a later time?

A. We're looking at that right now. Obviously the Porto Chiquito area is a nice model to look at. We've looked at that field.

We do have wells that -- in a pipedream scenario -- say, we can do it here and here and see what that would do. But for the time being, we have -- we have

lead-off makeup gas, which I don't feel will be a problem out of the San Juan Basin facilities to install and design the pipeline to get the makeup gas in whatever we decide to do.

So that is not an immediate issue in the mind of Sam Gary, Jr. It is something, though, that has been -- that has been considered and discussed.

Q. Now, the problem with not producing the gas is the lack of a pipeline in the area?

A. Right. There is a pipeline approximately six miles north, but as I'm sure everyone here is aware, there is little excess gas in the San Juan Basin now, and it's just hard to move gas out of this area. And the volume of gas we have would not justify right now six miles of line over this terrain.

Those were the other alternatives we did look at in terms of how to handle the gas situation.

EXAMINATION

BY MR. STOVALL:

Q. I have here a letter from Mr. Pearce of Montgomery & Andrews, representing the Johnson family, apparently. They are the surface lessors to whom you gave notice; is that correct?

MR. BRUCE: Surface "lessees."

MR. STOVALL: I mean, "lessees." Excuse me.

Q. (By Mr. Stovall) Have you seen the letter? Are you familiar with the letter?

A. Yes, sir. Jim -- Mr. Bruce gave me the letter this morning, and it's my opinion this is not standard but this is a concern that they have that most land owners or lessees have, that I -- in the operations of this nature will hurt their fresh-water supply.

My opinion is we are injecting formation gas back into the formation, and in terms of what possible consequences to their water wells will be no different than just producing the gas as such. The lines -- gathering system lines to get the gas from the well head to the injection system have already been permitted, right-of-ways granted. In fact, some of the right-of-ways were cleared during the previous hearing on this matter. So that should pose no problem.

But in terms of their water wells, our operations should pose no more danger to their fresh-water supply than the actual production of the wells.

Q. Is their well, the one you're talking about that's just about a mile -- a little over a mile off the injection?

A. Well, yes, sir.

Q. Is that one of their -- I mean, is that one of their wells?

A. According to this letter, it was. It just showed up as water wells on the maps I looked at and -- was outside the mile.

MR. STOVALL: I have nothing further on that.

FURTHER EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Shuster, have the two horizontal wells been drilled, did you say?

A. Yes, sir, they have.

Q. Are they currently producing?

A. Yes, sir, they are. One is -- where they are having trouble -- and I'm not sure of the exact rates -- as they start pumping, the oil foams a little bit and they are having some gas-lock problems, so we have not been able to get a real good rate to say this is what the wells are doing now.

EXAMINER CATANACH: I believe that's all I have of the witness. You may be excused.

Is there anything further in this case?

There being nothing, Case 10141 will be taken under advisement.

(The foregoing hearing was concluded at the approximate hour of 10:30 a.m.)

* * *

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

REPORTER'S CERTIFICATE

I, PAULA WEGEFORTH, a Certified Court Reporter and Notary Public, DO HEREBY CERTIFY that I stenographically reported these proceedings before the Oil Conservation Division; and that the foregoing is a true, complete and accurate transcript of the proceedings of said hearing as appears from my stenographic notes so taken and transcribed under my personal supervision.

I FURTHER CERTIFY that I am not related to nor employed by any of the parties hereto, and have no interest in the outcome hereof.

DATED at Santa Fe, New Mexico, this 20th day of March, 1991.

Paula Wegeforth

PAULA WEGEFORTH
Certified Court Reporter
CSR No. 264, Notary Public

My Commission Expires:
September 27, 1993

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10141 heard by me on February 21 1991.

David R. Catanach, Examiner
Oil Conservation Division