STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
11 March 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Sun Texas Company for salt water disposal, Lea County, New Mexico.

CASE 7186

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.
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For the Applicant: William F. Carr, Esq.
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I N D E X

SCOTT J. GLASER

E X H I B I T S

MR. STAMETS: We'll call next Case 7186.

MR. PADILLA: Application of Sun Texas Company for salt water disposal, Lea County, New Mexico.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm of Campbell, Byrd, and Black, and I'm appearing on behalf of the applicant, Sun Texas Company, and I have one witness.

(Witness sworn.)

SCOTT J. GLASER

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your name and place of residence?

A. My name is Scott J. Glaser, Midland, Texas.

Q. Mr. Glaser, by whom are you employed and in what capacity?

A. I'm employed by Sun Texas Company as an engineer.

Q. Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A. No, sir.

Q. Will you briefly summarize for the Examiner your educational background and your work experience?

A. My educational background consists of a Bachelor's of Science at Purdue University, mechanical engineering, and one year of graduate school, majoring in geology.

I'm a member of two professional societies, the Society of Automotive Engineers, and a junior member of the SPE.

Summer employment while going through college for three summers I worked as a project engineer in the textile industry, and I have had approximately one year experience in the oil field, six months working as an engineer for The Seismograph Service Corporation, geophysical survey company, and approximately six months with Sun Texas Company as a development engineer.

Q. Are you familiar with the application filed in this case?

A. Yes.

Q. Are you familiar with the subject well?

A. Yes, sir.

MR. CARR: Are the witness' qualifications acceptable?

MR. STAMETS: They are.

Q. Mr. Glaser, will you briefly state what Sun Texas Company seeks with this application?

A. Sun Texas Company seeks approval to convert the presently TA'd State C Account No. 1 Well No. 3 to salt water disposal service. It is located in Unit L of Section 2, Township 12 South, Range 33 in the Bagley-Siluro-Devonian Pool.

Q. Have you prepared certain exhibits for introduction in this case?

A. Yes, sir.

Q. Will you please refer to what has been marked for identification as Sun Exhibit Number One and explain to the Examiner what it is and what it shows?

A. Sun Exhibit Number One is the NMOCC Form C-108, Application to Dispose Salt Water by Injection, for the proposed well, to conversion salt water disposal service.

The proposed injection -- the proposed formation for injection is the Devonian. The top of the Devonian is at 10,146 feet. The bottom of the interval is

not penetrated.

We plan to inject through open hole. The proposed interval of injection will be from 11,034 feet to 11,370 feet. As such, the well consists of squeezed perfs and open perfs. The squeezed perfs are noted. The open perfs are 10,856 feet through 90 feet, and they will be squeezed prior to injection.

I would like to interject that this is a revision to what we originally applied for. We plan only to inject into the open hole.

Q. When was this well drilled?

A. This well was drilled in April of 1950 and it was TA'd in November, 1970, as uneconomical to produce.

Q. Will you now refer to Exhibit Number Two and review this for the Examiner?

A. Yes, sir. Exhibit Number Two is a plat of the area noting the wells within a two mile radius of the proposed salt water disposal conversion.

I direct your attention to the three shaded blue boxes. The central shaded blue box is the proposed salt water disposal well, located in Unit L of Section 2, the Sun Texas Company No. 3.

The upper shaded box is the present salt water disposal well for the area, and it is the Amerada BTC

Salt Water Disposal No. 4.

The lower shaded blue box consists of the P&A'd salt water disposal wells that have been used in the past. They consist of two Amerada wells, Chambers No. 1 and 2, and the Sun Texas Company State B Account No. 1 Well No. 2.

The color coding transparent dots over the wells denote the formations from which the wells have been producing. I direct your attention to the lower lefthand corner. The red overlays denote the Devonian; the Orange, the Bagley-Penn, and so on.

Q. This exhibit also shows the lease ownership in the area.

A. Yes, sir. The yellow shaded areas are the areas owned by Sun Texas Company. I'll further emphasize that all the shaded colorings you've seen on this map corresponds to the Sun Texas Company code. Amerada wells and other companys are denoted by the superscripts over these.

Q. Some of the acreage is not only shaded in yellow but has a red line around it, and I believe some of the tracts are also shaded in green. This shading does not have any bearing on this application here today.

A. No, sir. The outline red denotes area that has been farmed out by Sun Texas and I believe the

lightly shaded green is area under consideration for farmout.

Q. Will you now refer to what has been marked for identification as Sun Exhibit Number Two-A and explain to the Examiner what this shows?

A. Exhibit Two-A is a tabular form of the producing formations of the wells -- for the wells within the two-mile radius of the proposed conversion. It denotes the well name and number, the operator, its unit and section, township range, and the formation, and its current status.

Q. Will you now refer to Sun Exhibit Number Three?

A. Sun Exhibit Number Three is a diagrammatic sketch of the proposed salt water disposal well conversion. It denotes the casing strings, number of sacks cemented for each string, the tubing size, depth, and packer set depth. It should be noted that all the cement -- all strings are fully cemented to the surface. There are perforations which have been squeezed at 10,907 feet through 10,994 feet, which will be below the packer.

The perforations from 10,856 to 10,890 feet are perforations that are currently open but will be squeezed prior to injection.

The well presently is TD'd at 10,034 feet and will have be drilled out to -- excuse me, 11,034

feet, and will have to be drilled out to 11,370 feet.

Q. If the application is approved, in your opinion will the proposed injection pose a threat of contamination either gas, oil, or water, in the area?

A. No, the proposed completion will not -- will pose no threat to these zones.

MR. STAMETS: While we're right there, could I ask a question?

A. Yes, sir.

MR. STAMETS: Do you have some perforations at 9950?

A. Yes, sir. Those are perforations which allowed us to cement the upper portion of the 5-1/2 casing string. I should have explained that. When we --

MR. STAMETS: So those are effectively sealed.

A. Yes, sir.

Q. What is the source of the water you propose to inject in the subject well?

A. Referring to Exhibit Two, the plat of the area, the source of the water, the wells which will be, water will be disposed of, is located in Section 2, Unit A, which is the Sun Texas State D Account 1 Well No. 1; in Section -- excuse me, in Unit B, Sun Texas State C Account 1

Well No. 1; and in Section F, the Sun Texas State C Account No. 1 Well No. 2. These three wells will be -- will have their produced water disposed of.

Q. What have you been doing with the water that has been produced by these wells?

A. Previously we have disposed of them in the Amerada No. 4 Salt Water Disposal Well, located in Section 5, Unit N.

Q. What are you presently doing with the water?

A. Presently there is no water to be dealt with, as the -- these three wells are shut in while Amerada undergoes repairs on their presently -- on their Amerada Disposal Well No. 4. This is causing us to forego 205 barrels a day of oil production.

Q. How quickly could you be prepared to inject water in the subject well?

A. Pending the Commission's approval, we could in a realistic timeframe of four weeks.

Q. What volumes do you anticipate injecting?

A. We anticipate injecting 6580 barrels per day.

Q. Do you plan to inject under pressure or by gravity?

A. By gravity, sir.

Q. If an order was entered by this Commission which imposed a pressure limitation of 0.2 of a pound per foot of depth to the top of the injection interval, would that pose any problem whatsoever for Sun in its plans for this well?

A. It would not impose any problem. It would be adequate.

Q. Will you now refer to what has been marked for identification as Sun Exhibit Number Four?

A. Could I interject at this point here, before we go to Exhibit Four? I left out something which was important, talking about the Amerada No. 4 Well.

I'd like to elaborate. The reason that it is shutin at this time is that they have extensive casing repairs due to the corrosive waters of the salt water that they've been disposing of previously, and the repairs require running a liner in the bottom portion of the well.

Amerada has informed us that this will restrict their injection capacibilities. Previously it was approximately 11,000 barrels of water per day, and they're estimating that the -- it will be capable of only, maybe, 7000 to 8000 barrels of water per day.

It is the opinion of Sun Texas Company

that this will not be adequate to dispose of Sun Texas' water as well as whatever water Amerada may have to dispose of.

Q. Will you now proceed to Exhibit Number Four?

A. Yes, sir. Exhibit Number Four is a water analysis of the wells which we seek to inject -- disposed water we seek to dispose of.

Q. Are there wells within a 1/2 mile radius of the proposed injection well which penetrate the injection zone?

A. Yes.

Q. Will you now refer to Sun Exhibit Number Five and explain to Mr. Stamets what this shows?

A. Yes, sir. Exhibit Number Five is a tabular listing of the wells within 1/2 mile of the proposed injection well that penetrate the zone of interest.

The table consists of the well name and legal location, the casing and set depths, the sacks of cement used to set each casing string, the cement tops, the TD of each well, the subsea depth of each TD, the producing interval, the lowermost subsea producing interval, and the plugback TD, and the subsea plugback TD.

Q. And this table is submitted to comply with the requirements of the Commission's Memorandum 3-77, is

that correct?

A. That is correct, yes, sir.

It is worth noting that the two wells which we're concerned of within the 1/2 mile radius of this area are the Amerada BTI No. 1 and the Amerada State BTA No. 1. They are currently Devonian producers. I have calculated the lowermost subsea producing interval at -6537 and -6520 for the wells, respectively.

I would like to note in the underlying lower righthand corner, that Sun Texas plans to inject at -6780 to -7116 in order to avoid flooding out their wells. This is the main reason we revised our C-108 and decided to inject into the open hole.

Q. Will you now refer to what has been marked for identification as Sun Texas --

MR. STAMETS: Could I ask a couple questions while we're right here?

There are other wells within a half a mile --

A. Yes, sir.

Q. -- of the proposed well, but I would assume, since they are not on this list, that they were not drilled deep enough to penetrate the injection horizon.

A. Correct, sir. I used a cutoff of -6610

as an approximate top of the Devonian to use -- get these wells that fall in that area.

MR. STAMETS: And then you've calculated some of these cement tops, I see, where they've got a little asterisk beside them.

A. Yes, sir, and the asterisk denotes an assumption of 30 to 40 percent cement loss to the formation or some other effects for the area. I did not really have access to any logs that might give me a more definite area, for the Amerada wells particularly.

MR. STAMETS: Is this 30 to 40 percent loss an appropriate factor in this area?

A. For this area from prior Sun Texas wells, yes, sir.

MR. STAMETS: And then a number of the wells, like the second well on the list, show a definite figure. Is that from temperature survey or where did that figure come from?

A. That was reported, I believe, by one of the Commission forms. I don't recall right offhand, sir.

MR. STAMETS: Okay. Thank you.

Q. Will you now refer to Exhibit Number Six and explain to the Examiner what this is and what it shows?

A. Exhibit Number Six represents the

schematics of all the plugged and abandoned wells within 1/2 mile radius of this -- of our proposed injection well. I'd like to say, in terms of brevity, unless the Examiner would like me to go into more detail, that all these wells were plugged and abandoned in accordance with the NMOCC rules and were approved as such.

I would also like to point out there seems to be an inconsistency with the number of P&A'd wells I show on Exhibit Five with that on Exhibit Six. I show four P&A'd wells on Exhibit Six and only three in Exhibit Five. The reason being, is one of the wells in Exhibit Six, specifically the Amerada Bagley Disposal No. 2, the last schematic of Exhibit Six, lies just outside of the 1/2 mile radius, and so I do not include it in Exhibit Five.

Q. Have you checked the Oil Conservation Division files on each of the plugged and abandoned wells?

A. Yes, sir.

Q. Does Exhibit Six conform with the data reported to the Commission?

A. Yes.

Q. Will you now refer to Exhibit Number Seven and explain to the Examiner what this is and your purpose in offering it in this case?

A. Exhibit Seven -- Exhibit Number Seven

is a spontaneous potential and resistivity log of the proposed injection well. Its purpose is merely to show the interval in question, its top, which is located at 10,846 feet.

Q. Now will you refer to Sun Exhibit Number Eight and review this for Mr. Stamets?

A. Exhibit Number Eight is the Sun Texas Company's interpretation of the top of the Devonian in the Bagley Pool area. I would like you to note the structural position of the existing salt water disposal well, Amerada's No. 4. It is located high on the structure at approximately -6400 feet on the Isopach.

I'd like to note that the proposed salt water disposal well is located 200 feet lower, approximately, at roughly -6600 feet, as far as structure.

The previously approved salt water disposal wells, which are now P&A'd further south, are located in a comparable position.

Q. Mr. Glaser, are you aware of similar applications having been granted for salt water disposal in the same general area and in this pool?

A. Yes, sir, specifically the Amerada Salt Water Disposal No. 4, which we've been referring to throughout this case; the Amerada Hess Corporation Chambers No. 1 and No. 2, which are noted on Exhibit Two and the

structure map as currently P&A'd salt water disposal wells; as well as Sun Texas Company's State B Account No. 1 Well No. 2, which is also a P&A'd salt water disposal well.

MR. CARR: Mr. Examiner, the order numbers on each of those, if you'd like them, Sun Texas Order No. is R-4718, which was approved February 13, 1974; the two Amerada injection wells, the Chambers was approved by Order R-3377, February 12th, 1968; and the Bagley Salt Water Disposal Well was Order No. R-3339, approved November the 9th, 1967.

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

A. Yes, sir.

Q. Were Exhibits One through Eight prepared by you or under your direction and supervision?

A. Yes.

MR. CARR: At this time, Mr. Examiner, we would offer into evidence Sun Texas Company EXhibits One through Eight.

MR. STAMETS: These exhibits will be admitted.

MR. CARR: I have nothing further of

this witness on direct.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Glaser.

A. Yes, sir.

Q. Exhibit Number Six --

A. Yes, sir.

Q. -- the page that represents the Amerada Mathers "WE" No. 1 Well.

A. Yes, sir.

Q. That well shows a bottom plug in the casing. Do you know the size of that or is that the bottom plug that was in there from the original cementing operation?

A. At the casing shoe, sir?

Q. Yes.

A. I am relatively confident it is the original plug that was placed.

Q. Do you have any idea how much cement that represents?

A. No, sir.

Q. Perhaps it's ascertainable from the Division records with any luck.

Is the injection interval in your well

below the casing point in this well?

A. The Mathers, sir?

Q. Yes.

A. I would have to calculate it, sir. It is definitely lower than the Amerada salt water disposal No. 4, which is currently producing.

I could sumit that data at a later time.

Q. Okay, that would be -- I would appreciate that. I'm trying to make certain that this well is not going to be conduit for the movement of fluids and it seems like it shouldn't be --

A. Yes, sir.

Q. -- with that bottom plug in there and then the cement retainers.

Do you know if there was any cement put on top of those retainers?

A. No, sir. Well, excuse me.

Q. There's so much information on there it is hard to discern.

A. I can give that to you, sir.

Q. All right, that's the only well on there that I'm concerned about. If you could add a little bit of information to the record subsequent to the hearing, I will appreciate it.

A. Uh-huh.

Q. Will the tubing that you use in this well be a lined tubing?

A. Yes, sir, very definitely.

Q. And you will be loading the annulus?

A. Yes, sir.

Q. Okay. One of the requirements which we will probably have to adopt as a result of the Federal Underground Injection Control program, is the test of the annular space in a well such as this upon setting the tubing and packer. If that is required, --

A. Excuse me, tests, I don't follow you.

Q. Okay, pressure test.

A. Oh, okay.

Q. To insure that before injection starts that everything is -- has integrity, that there are no leaks in the casing tubing or packer, and what they propose was some sort of a pressure test that could be run once everything is installed. Could that be done on this well?

A. Oh, yeah, we're very agreeable. Are you referring to, perhaps, loading the back side with a lighter hydrostatic fluid, for ex[illegible]il, and setting a pressure gauge at the surface o[illegible]nulus, so that if a packer failure ever did occur we [illegible] sensible pressure

rise at the surface?

Q. Something like that.

A. Similar to that.

Q. Of course if you're on a vacuum it might be the opposite thing.

A. True.

Q. Or we might be in a situation where periodically we would want to come out there and run a pressure test on the backside.

A. Uh-huh.

Q. And the idea is that you would have essentially an original guideline that says, yes, at least at one time this thing was solid.

A. Okay.

Q. What type of -- how much pressure would you think would be appropriate on the backside of this system to assure that we did have integrity?

A. Oh --

Q. Without unseating the packer?

A. Well, the packer we are planning on using is a Gyverson (sic) UniPac Five, and it has an unloading valve in it, such that when the tubing rate is relieved, the annulus and the tubing pressures are equalized so you don't overload the packer or the tubing string. As a design number,

I don't have one right now at this time. It was designed with a salt water solution --

Q. Let's throw that in with the additional information --

A. Okay.

Q. -- on this other well, as to what pressure you believe would be appropriate for that test.

A. Okay.

MR. STAMETS: Any other questions for this witness? He may be excused.

Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

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

Sally W. Boyd C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7186 heard by me on 3-11, 1981.

Richard L. Stamets, Examiner
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