A. E. SNYDER

called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A A. E. Snyder.

Q By whom are you employed and in what position, Mr. Snyder?

A Assistant District Engineer in New Mexico for Amerada Petroleum Corporation.

Q Have you testified before this Commission as a petroleum engineer and had your qualifications accepted?

A Yes, sir.

MR. KELLAHIN: Are the witness's qualifications acceptable?

MR. NUTTER: Yes, please proceed.

Q Are you familiar with the Amerada Petroleum Corporation's application in Case 1989?

A Yes, sir.

Q Would you state briefly what's proposed in this application?

A In this application Amerada proposes to take a presently producing Devonian well which has reached its economic limit in the South Roberts Ranch Field in Lea County, New Mexico and convert

it into a salt water disposal well in the Devonian formation.

Q Referring to Exhibit 1, will you discuss that exhibit, please?

A Exhibit No. 1 is a plat showing the proposed salt water disposal well in the SW/4 SW/4 of Section 14, Township 9 South, Range 32 East, Lea County, New Mexico. This plat also shows other wells that have been drilled within a two mile radius of the proposed well and a total of four wells were drilled to the Devonian formation in this area.

The tops of the Devonian are shown on this plat. Two of the wells were dry holes to start with. The two wells that produced oil were the proposed disposal well and the immediate West offset.

Q What is the status of the proposed disposal well at the present time?

A This well is currently pumping about 20 barrels of oil per day and 850 barrels of water per day and the GOR on it is practically negligible, it's very small. The operating cost of the well for the past year has been in excess of what the revenue from the oil has been. The field itself is in a very remote location and there's not enough gas present in the Devonian oil to operate the pumping equipment, so for quite a while we bought butane for fuel, had to haul it 40 miles to the location and use it. It was very expensive to do that. We were finally able to get a gas supply within six miles of the area, we laid the line

and the cost we are having to pay for the gas, about thirty-nine cents per thousand cubic feet, has caused the lifting cost to be very excessive, the amount of water we handle, we have had a lot of rod breaks and the thing is just uneconomical to operate.

Q What is the status of your offset well to the West?

A The offset well to the West, it's still a top allowable well. It is making quite a bit of water, about 600 barrels per day now.

Q If the Commission approves the application to convert the State SR Well No. 1 to salt water disposal, in your opinion will there be any loss of oil which could otherwise be recovered?

A No, I believe not.

Q Now, referring to what has been marked as Exhibit No. 2, would you state what information is shown on that exhibit?

A Exhibit No. 2 is a log, electrolog of the proposed disposal well. On this log I have marked the top of the Devonian at about 11,100 feet, have shown the casing perforations presently existing 11,103 to 11,130 feet and showing that 5½" casing is set at 11,177 feet.

Q Now, referring to what has been marked as Exhibit No. 3, would you discuss the proposed completion for salt water disposal?

A Exhibit 3 is a diagrammatic sketch of the equipment presently in the well in addition to what we anticipate putting in and it shows that 13-5/8" surface casing set at 3400 feet,

cemented with the 250 sacks, the cement did not circulate but we did not run a temperature survey to find out where the top is. We had 8-5/8" set at 3533, cemented with 300 sacks and found the top of the cement at 684 feet; 5½" casing set at 11,177 feet, cemented with 900 sacks, we found the top of the cement at 7927 feet. It shows the total well depth at 11,177 and current perforations, as I mentioned, at 11,103 to 11,130.

We plan on running 2-3/8" internally plastic-coated tubing and setting at 8,000 feet. This will be almost 100 feet below the top of the cement. We plan on having an oil blanket in the tubing casing annulus from the bottom casing up to the top of the hole, so it would not necessitate running a packer.

Q In this area did you encounter any fresh water zones?

A I'm not sure about that. I think generally in the area from the San Andres formation on up is considered possibly to be fresh water zones.

Q Will the type of completion and the operation of the well as you have proposed adequately protect those zones --

A Yes, it will.

Q -- if there is fresh water there?

A Yes.

Q Will it also adequately protect any producing horizon that may exist?

A Yes, sir.

Q Will the water be injected by gravity?

A Yes, it will.

Q What volumes of water do you anticipate injecting?

A We anticipate the maximum about 1,000 barrels a day.

Q What is the source of the water?

A This water will be from the other Devonian producing well, the West offset to this well.

Q Is that the only source of water that has to be disposed of in this area?

A Yes, sir.

Q What prompted Amerada to seek to convert this well to salt water disposal?

A Some time back the Commission had asked Amerada to see if we could not dispose of the water underground in this area along with several areas in Lea County, and at that time we did not have a disposal well available and the economics of drilling a well to make a disposal well would have made it prohibitive. Now we do have this well available and we would like to go ahead and put the water in the ground.

Q Now, the producing well to the West is a top allowable well, is it not?

A Yes, sir.

Q Would you expect any effect on that well by the injection with water in your SR "A" No. 1?

A No. We don't expect any effect at all one way or the other in this particular case. The Devonian here has very good permeability and a good water drive. In the four years of operation of these two wells we produced about 820,000 barrels of oil, an estimated million and a half barrels of water, and we have only reduced the reservoir pressure about 150 pounds. So we have good permeability and good water drive and we don't expect the amount of water we're putting back in to cause any effect one way or the other.

Q Were Exhibits 1, 2 and 3 prepared by you or under your direction and supervision?

A Yes, sir.

MR. KELLAHIN: At this time we would like to offer in evidence Exhibits 1, 2 and 3.

MR. NUTTER: Amerada's Exhibits 1, 2 and 3 will be entered.

MR. KELLAHIN: That's all the questions I have, Mr. Nutter.

MR. NUTTER: Does anyone have any questions?

MR. PAYNE: Yes.

MR. NUTTER: Mr. Payne.

CROSS EXAMINATION

BY MR. PAYNE:

Q In the completion of your State SR "A" Well No. 1, did you encounter any oil or gas pay zones below 7,927 feet other than

the Devonian?

A We did test some other intervals there but on drill stem test in the Pennsylvanian Zone I believe we had a show of gas and oil and we tried to complete in it and never could make a completion in it. The formation was very tight, we tried to acidize and frack it and never could break it down.

Q So you don't feel there's production in the immediate area of this well, at least?

A No.

Q If a casing leak developed below the 8,000 foot mark, you feel the chances of contaminating any other producing zone would be relatively remote?

A Yes, sir.

Q Is this water very corrosive?

A Not real corrosive. The total solids in this water is something on the order of about 60,000 parts per million and it does have some H_2S, but we have not found it corrosive.

Q The plastic-coated tubing ought to be able to handle that problem?

A Yes, sir.

Q With the permeability in the Devonian being relatively good you feel that this well will be able to take a thousand barrels a day by gravity?

A Yes, sir, I believe it will.

Q Is the disposal interval in this well the same as the producing interval from your well to the left?

A Yes.

MR. PAYNE: Thank you.

MR. NUTTER: Any further questions?

BY MR. NUTTER:

Q Has any effort been made to alleviate the water production problem in this well prior to abandonment?

A Yes, sir.

Q What attempts have been made?

A We have tried to cut back the water by various producing methods, possibly, one time we did squeeze and reperforated a little higher in the interval and ended up in worse shape than we were to start with.

Q Was the well originally perforated lower?

A It was initially perforated ten feet depper than it is now.

Q I notice the top of the Devonian in the offsetting well to the West appears to be some 28 or 30 feet higher. Is that the case, that the structure is raising to the West there?

A Yes, sir.

Q What is the perforated interval on the SR "B" 1?

A 11,085 to 11,125. The base of the perforations are a little deeper than in SR "A" No. 1.

Q So, in effect, you will be disposing water slightly lower than the producing interval in the SR "B" 1?

A Yes, sir.

MR. NUTTER: Any further questions? Mr. Snyder may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: That's all I have, Mr. Nutter.

MR. NUTTER: Does anyone have anything further for Case No. 1989? We will take the case under advisement and take Case 1990.

STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 25th day of June, 1960.

Ada Dearnley
Notary Public-Court Reporter

My commission expires: June 19, 1963.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1985, heard by me on 6/22, 1960.

, Examiner
New Mexico Oil Conservation Commission