

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

April 25, 1962

EXAMINER HEARING

IN THE MATTER OF:)	
Application of Amerada Petroleum Corporation for)	
a pressure maintenance project, Lea County, New)	
Mexico. Applicant, in the above-styled cause,)	
seeks permission to institute a pressure maint-)	CASE NO.
enance project in that portion of the Saunders)	2533
Permo-Pennsylvanian Pool underlying the S/2)	
S/2 of Section 3 and N/2 of Section 10, Town-)	
ship 15 South, Range 33 East, Lea County, New)	
Mexico, with the injection of water into the)	
Pennsylvanian formation initially to be through)	
one well located in the NE/4 NW/4 of said)	
Section 10.)	

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 2533.

MR. MORRIS: Application of Amerada Petroleum Corporation for a pressure maintenance project, Lea County, New Mexico.

MR. BUSHNELL: H. D. Bushnell appearing for Amerada in association with Kellahin and Fox. We have one witness.

(Witness sworn.)

MR. UTZ: Are there other appearances in this case? You may proceed.

MR. BUSHNELL: Mr. Examiner, the purpose of this application is for Amerada to seek approval of a pressure main-

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tenance program for the purpose of maintaining reservoir pressure in a portion of the Saunders field.

A. E. SNYDER,

called as a witness herein, having been first duly sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BUSHNELL:

Q Would you state your name and company for which you are employed?

A A. E. Snyder. Amerada Petroleum Corporation, District Engineer in southeast New Mexico at Hobbs.

Q Have you testified in that capacity in prior Hearings before this Commission which has accepted your qualifications?

A Yes, sir.

(Whereupon, Applicant's Exhibit No. 1 Marked for Identification.)

Q I hand you what has been identified as Exhibit No. 1 and ask you to identify and explain generally what is shown on this exhibit.

A Exhibit No. 1 is an ownership plat of the Saunders Pool located in the general vicinity of Township 14 and 15 South, Range 33 East, Lea County, New Mexico. On this plat is shown the location of all of the wells, the leasehold and the proposed pilot injection area.

Q As indicated by the legend on the bottom of the exhibit,



is that correct?

A Yes.

Q Would you summarize for the Examiner, and for the record, the history of the development of the Saunders field?

A The Saunders Pool was discovered in January of 1950 when completion was made in the Permo-Pennsylvanian formation at about ninety-eight hundred feet deep. Drilling developed rather rapidly for about 4 years and then there was a leveling off of the drilling at which time, in 1957, another drilling program was commenced and currently there are one hundred five producing wells in the Pool. The maximum monthly rates of production occurred, just a little over 200,000 barrels per month, in 1953; then, after the second series of drilling in the latter part of 1959, the maximum production was 215,000 barrels per month. Since that time production has steadily declined and as of December, 1961, production was 144,000 barrels per month. The top allowable in the Pool at this time is 132 barrels per day per well. The average allowable in the Pool that is assigned to the wells is only 55 barrels, and the wells are actually only producing 43 barrels, showing that the Pool is in an advanced state of primary depletion. The cumulative production from the Pool to January 1st, 1962 was 20.3 million barrels or an average of slightly under 200,000 barrels per well. The bottom hole pressure history, initially, was 3,660 pounds and has shown a steady decline to the last measured pressure in September of 1960,

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it was 911 pounds on a ten well average. Since that time there have been a number of isolated pressures taken, but most of the wells are on artificial lifts so there have been no pool-wide pressures taken. The pressure decline should be on the order of some 700 pounds at the present time. The gas-oil ration, initially, was slightly under 1,500 to 1 and has shown very little increase. At the present time it's 2,080 on the produced gas basis. The decline in bottom hole pressure shows that the pool has produced primarily by means of an expansion of the gas entrained within the oil or solution gas drive reservoir. Cumulative recovery, as I mentioned, has been 20.3 million barrels. Extrapolation of the decline curve indicates that we might expect another 6.5 million barrels of primary recovery, making a total ultimate of 26.8 million barrels which would be about 18 percent of the initial oil in place in the reservoir.

MR. UTZ: What was that total figure?

A 26.8 million will be ultimate primary.

MR. UTZ: Your future was what?

A 6.5.

Q (By Mr. Bushnell) Is there anything you have to add to this summary of the history of your development?

A One thing I might point out, the 18 percent primary recovery, of course, will leave many millions of barrels of oil in the reservoir at the end of primary operation.

(Whereupon, Applicant's Exhibit
No. 2 Marked for Identification.)



Q Now, in connection with the proposed project area, I hand you what has been identified as Exhibit No. 2, and ask you to state what it is and what it shows.

A Exhibit No. 2 is a plat of a smaller portion of the south portion of the Saunders Pool showing structure on top of the, what we call the "A double X" zone, it's a zone that's easily identifiable over the entire area. It is somewhat above the pay interval in the Saunders Pool. The plat shows the discovery well, Gulf's Maude Saunders Number 1, located in Unit N, Section 34, Township 14 South, Range 33 East. It shows the area of the proposed injection program outlined in red, the proposed injection well being the Amerada State S.E. No. 1 located in Unit C., Section 10, Township 15 South, Range 33 East, with four offsetting wells being the producing wells for the pilot area.

Q Now, for the purposes of the record, the project area outlined on this exhibit covers the South Half of the South Half of Section 3 and the North Half of Section 10, 33 East, 15 South, is that correct?

A Yes, sir.

Q Inside this project area you have indicated thereon five producing wells. Would you name, locate and give the production data on those wells?

A The injection well, as I mentioned, would be the Amerada State S.E. No. 1, located in the Northeast, Northwest of



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Section 10. Its current rate of production is 17 barrels of oil per day. The cumulative production to March the 1st, 1962 was 89,406 barrels. The perforated interval is 9833 to 9920. The four producing wells would be Amerada State SC, located in the Northwest Northwest of Section 10, it is currently producing 58 barrels per day, its cumulative production to March the 1st, 1962, is 437,331 barrels, its perforated interval is 9800 to 9914; the second producing well would be the Amerada State SC, Number 3, located in the Southeast Northwest of Section 10, currently producing 50 barrels per day, with cumulative production to March the first, 1962 of 337,490 barrels, the perforated interval from 9790 to 9970; the third producing well would be the Amerada State SD, Number 2, located in the Southeast Southwest of Section 3, currently producing 50 barrels per day, with cumulative production to March the 1st, 1962 of 455,408 barrels, and a perforated interval of 9780 to 9908. The fourth producing well would be the Amerada State SF, Number 1, located in the Northwest Northeast of Section 10, currently producing 15 barrels per day with a cumulative production of 114,804 barrels, and a completion interval 9840 to 9990.

MR. PORTER: Was that 214 --

A Pardon?

MR. PORTER: That cumulative production?

A 114,804.

Q (By Mr. Bushnell) Does the daily producing capacity of



these four wells support your conclusion that the field is in the advanced stage of ~~depletion~~ and not in the stripper stage?

A Yes, sir.

(Whereupon, Applicant's Exhibit No. 3 Marked for Identification)

Q Now, referring further to the proposed injection well inside this proposed project area, I hand you what has been identified as Amerada's Exhibit No. 3 and ask you to state what that is and what it shows.

A Exhibit No. 3 is the Electric Log of the proposed injection well, Amerada State SE, No. 1, and on this log, the bottom portion of it, we have shown the top of the "A double X" zone, the zone that we have correlated on to make the structure map for Exhibit 2. Shows 9,627 feet in this well. The top of the Saunders Permo-Pennsylvanian pay at 9,804 feet.

Q Does this exhibit also show the Micro Log pay section?

A Yes, sir.

Q What is that casing program in the proposed injection well?

A The well has 13-3/8 inch surface casing set at 297 feet cemented with 250 sacks of cement. 8-5/8 intermediate casing set at 4,232 feet, cemented with 1500 sacks of cement, with the top of the cement at 1659. 5-1/2 inch producing string was set at 9,975, cemented with 600 sacks of cement and the top of the cement was found at 6738.

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Q Now, referring back to Exhibit No. 2, and the proposed project area, how do you propose to conduct this project?

A The project proposal considers that in the injection well we will run two and ~~three~~-eight inch tubing set on a packer above the perforation in the well and that water rates, about 3000 to 3500 barrels a day, will be injected into the well. We anticipate that, initially, it will go in on vacuum, that as fill-up occurs, pressure will increase. We're designing the system to handle 3000 pounds per square inch pressure. The water for this pilot injection program will come from the Saunders salt water ~~disposal~~ system which has produced water in the Saunders area and it ranges from 3000 to 3500 barrels per day.

Q Is Amerada the sole owner of the interest inside the proposed project area?

A Yes, sir.

Q What is the estimated cost of this project?

A We have estimated that the initial expense in the pilot area will be fifty-six thousand dollars.

Q Is it your intention that if this proposed project is successful that you would extend the operations to other portions of the Saunders Field?

A Yes. It is assumed that it would be extended if the project is successful.

Q If you were required to do so, would it be required that you obtain additional water source?



A Yes, additional water on the order of about 45,000 barrels a day would be required. Amerada has currently made application with the State Engineer's Office for fresh water rights in that amount in the Saunders area.

Q Those rights have not been granted, but the Hearing is pending?

A Yes, sir.

Q If this project is not successful, does it necessarily mean that you would abandon such a project in the Saunders Field?

A No, not necessarily. With the amount of oil that is present that could be recoverable effectively that it would not necessarily condemn if this particular project is not successful.

Q Is the purpose of this project to increase the ultimate recovery of oil?

A Yes, sir.

Q Why did you propose the project area at this particular location?

A This particular location is the only area in the entire pool where Amerada could start the pilot project on their own leases where the working ownership would be the same, the royalty is all State leases, we have four wells to produce that would surround the injection well in this area; we propose to consolidate our testing facilities and batteries so we could keep very close track of the results of the injection program so if there are any adverse effects we would be the first one to realize it before it

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gets on someone else's lease and creates some damage.

Q You say the ownership, both working interest and royalty, is common throughout the proposed area?

A Yes, sir.

Q Were these exhibits prepared by you or by someone under your supervision?

A Yes, sir.

MR. BUSHNELL: I offer Exhibits 1 through 3.

(Whereupon, Applicant's Exhibits No. 1 through 3, offered in Evidence.)

MR. UTZ: Without objection the Exhibits 1 through 3 will be entered into the record of this case.

Q (By Mr. Bushnell) Do you have any further testimony that you want to give, Mr. Snyder?

A No, I believe not.

MR. BUSHNELL: That's all we have.

MR. UTZ: Are there questions of the witness?

MR. MORRIS: Yes, sir.

MR. UTZ: Mr. Morris.

CROSS EXAMINATION

BY MR. MORRIS:

Q Mr. Snyder, you have not proposed any special rules or regulations to govern your small pressure maintenance project here in the pilot stages. How would you recommend to the Commission that they handle the problems of the allowables or



credits for gas-oil ratio? Are you asking for any special treatment?

A No, sir, we are asking for no special treatment whatsoever in this pilot project.

Q If the pilot should be expanded, then I presume at that time you might come in with some special rules?

A Yes, sir. The thing that we might ask at that time would be dependent upon the depletion stage of the entire reservoir at the time, and other factors.

Q Assuming that your project is successful, would efforts be made to unitize?

A Yes, sir. Amerada is currently studying the reservoir. We have been for some time, there has been no cooperative effort towards unitization at this point, but those efforts would be made.

MR. MORRIS: I believe that's all.

MR. UTZ: Mr. Porter.

BY MR. PORTER:

Q I believe you testified that there are currently 105 wells in the pool. I believe those wells were drilled in two stages of development of the pool?

A Yes.

Q One in the early '50's and one beginning about '57?

A Yes.

Q These -- the wells in this particular area, were they in the original part of the pool?



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A Yes.

Q Do you know approximately how many wells of the total that the Amerada owns?

A Amerada operates 43, I believe, of the total 105 wells.

MR. PORTER: Thank you.

MR. UTZ: Are there other questions? Mr. Irby.

BY MR. IRBY:

Q Frank Irby, State Engineer's Office. Is the injection going directly through the casing or through tubing and packer?

A No, we would set a tubing on a packer.

MR. IRBY: Thank you, that's all.

MR. UTZ: I don't recall whether this is open hole?

A No, it's perforated.

MR. UTZ: Are there other questions? The witness may be excused.

(Witness excused)

MR. UTZ: Are there any statements in this case?

The case will be taken under advisement.



