





MR. UTZ: Case 3459.

MR. HATCH: Application of Pennzoil Company for a waterflood project, Lea County, New Mexico.

MR. DURRETT: If the Examiner please, J. M. Durrett of the firm of Rhodes, McCallister and Durrett, representing the applicant. I have one witness, Mr. Ken Huddleston, and ask that he be sworn at this time.

(Witness sworn.)

MR. UTZ: Are there any other appearances? You may proceed.

KENNETH R. HUDDLESTON

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

DIRECT EXAMINATION

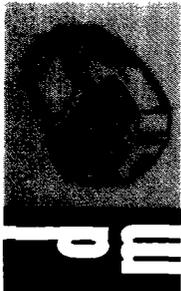
BY MR. DURRETT:

Q Will you please state your name and position for the record?

A I'm Kenneth R. Huddleston, Manager of Engineering and Drilling for Pennzoil Company, Midland, Texas.

Q Mr. Huddleston, have you testified previously before the Commission or one of its Examiners as an expert witness and had your qualifications accepted?

A Yes, I have. I have testified three times before the Examiner.



MR. UTZ: He's qualified, yes.

Q (By Mr. Durrett) Will you please state to the Examiner what it is that the applicant is seeking in this case?

A Well, we desire to waterflood our leases, our Phillips State and Phillips Federal leases in the Maljamar field, Lea County, New Mexico as shown on this plat.

MR. DURRETT: Could we have this marked Exhibit 1?

(Whereupon, Pennzoil's Exhibit No. 1 was marked for identification.)

Q Now, will you please refer to Exhibit 1 and state to the Examiner what that is?

A This is a plat of the area showing the lease ownership and the zones in which the various wells within a radius of two miles of subject leases are.

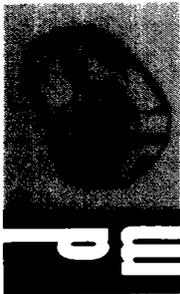
Q Does that also show the injection wells, Mr. Huddleston?

A Yes. The wells colored red are the proposed injection wells.

Q Do you have a schematic diagram of your injection wells?

A Yes.

(Whereupon, Pennzoil's Exhibit No. 2 was marked for identification.)



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A Exhibit No. 2 is a schematic diagram and gamma ray neutron log of each of the proposed injection wells.

Q Let me ask you this, Mr. Huddleston, referring to Exhibit 2, which is a schematic diagram of all of the wells marked as a package in this case, package exhibit, do you have logs attached to each of your diagrams?

A Yes. Attached to each of the schematic diagrams is a gamma ray neutron log, and on the section of log that we've used for an exhibit is the perforations in which these wells are completed.

Q Are all of these wells completed in a similar manner?

A All of the wells have casing set through the pay zone and perforated. These wells all had 8-5/8ths surface pipe set to approximately 350 to 60 feet cement circulated, and on the State wells the top of the cement on the 5-1/2 casing was approximately 36 to 3700 feet and on the two Federal wells the cement was brought back to approximately 1700 feet.

Q Are the locations shown on your diagrams?

A Yes. The well name and location.

Q Are those locations the correct locations? I believe there may have been an error in the application.

A These are the correct locations.

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Q How many injection wells do you have, Mr. Huddleston?

A On the Federal lease there are two proposed injection wells and on the State there's six proposed injection wells.

(Whereupon, Pennzoil's Exhibits No. 3-A & 3-B were marked for identification.)

Q Now, Mr. Huddleston, will you please refer to what has been marked as Exhibit 3-A and state to the Examiner what that shows?

A This is the production on the Phillips State lease by months and also yearly and cumulative production.

Q I believe that's 3-B, isn't it, Mr. Huddleston? Isn't 3-A the Federal?

A The Federal. The 3-A is the Phillips Federal lease, and it is the production by months, also by years, and shows the cumulative production.

Q Do you have a decline curve or decline curves?

A Yes.

(Whereupon, Pennzoil's Exhibits No. 4-A & 4-B were marked for identification.)

Q Will you please refer to what has been marked as Exhibits 4-A and 4-B and briefly state what that represents?

A Exhibits 4-A and B are production decline curves



plotted monthly versus, or barrels of oil versus time on semi log paper.

Q Well, that exhibit won't show it, but do you have average production figures?

A Yes. I would like to present this as an exhibit.

(Whereupon, Pennzoil's Exhibits 5-A & 5-B were marked for identification.)

Q Will you please refer to Exhibits 5-A and 5-B and state to the Examiner what they show?

A Exhibits 5-A and B are the most recent production tests for the wells on the respective leases. They show the well number, date, duration of the test and barrels of oil and water and gas-oil ratio for the respective wells.

Q Have you averaged the production, Mr. Huddleston, so you can give the Examiner an average figure on daily production and monthly production?

A The Phillips State lease has an average daily production of 3.43 barrels of oil. The Phillips 3 has an average of 3.98 barrels of oil per day. You'll note that on the Phillips Federal lease well test the No. 3 well is presently completed in the Corrigan-Queen zone, but this well has pipe set through the zone that we propose to waterflood. The Queen section in this well will be squeezed off. This well is presently producing approximately a barrel and a half

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of oil and 25 to 30 barrels of water a day.

Q Will you please refer to Exhibit 6.

( Whereupon, Pennzoil's Exhibit No. 6 was marked for identification.)

A Exhibit 6 is approval from the U.S.G.S. District Engineer, Arthur R. Brown, granting approval to waterflood the Phillips Federal lease.

Q You have not requested specific approval from the Commissioner of Public Lands prior to this hearing to flood their lease, have you?

A I did not.

Q You just have advised them of the application in this case?

A That's right.

Q What's the date on that letter?

A This was August 3rd, 1966.

(Whereupon, Pennzoil's Exhibit No. 7 was marked for identification.)

Q Have you determined a source of water?

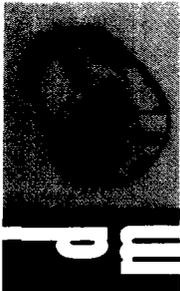
A Yes. This will be indicated by our proposed Exhibit 7.

Q I hand you what has been marked as Exhibit 7 which appears to be a letter. Will you please state to the Examiner what that letter is?

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A This is a letter from Double Eagle Corporation of New Mexico, which is a water company operating in the area, dated September 5th, stating that they have available adequate water to flood these leases.

Q Is the Double Eagle Company your proposed source of water?

A Yes, it is. To my knowledge they're the only source of water in the area.

Q What volumes of water do you propose to inject in your flood?

A From past experience in the area we expect to inject between 350 and 400 barrels of water a day, between 2500 and 3000 pounds.

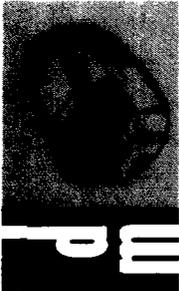
Q Do you have an exhibit showing remaining primary and waterflood reserves?

A Yes.

(Whereupon, Pennzoil's Exhibits No. 8-A & 8-B were marked for identification.)

Q Will you please refer to Exhibits 8-A and 8-B and state to the Examiner what they portray?

A The Exhibits 8-A and 8-B show the cumulative production to 7-1-66, the estimated remaining primary, the ultimate primary reserves, and in this case we expect the waterflood reserves to be equal to 100% of the ultimate primary.



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Q Is it your opinion as a petroleum engineer that approval of this proposed flood will prevent waste and protect correlative rights?

A Yes, it will.

Q Is Pennzoil proposing that this flood be governed by Rule 701-E of the Commission rules and regulations?

A That's correct.

Q Do you have anything further to present to the Examiner?

A No, I do not.

MR. DURRETT: If the Examiner please, that will conclude our direct examination.

CROSS EXAMINATION

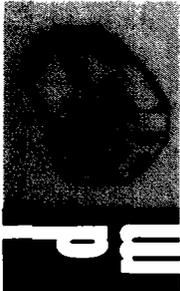
BY MR. UTZ:

Q As I understand, all these wells will have lined tubing and water injection under a packer?

A That's correct, Mr. Examiner. We will plastic-coat the tubing and packer and set the packer approximately a hundred feet above the top perforations and the packer also will be plastic-coated.

Q What do you intend to do about the annulus? Do you intend to put any inert fluid or pressure gauge or any such thing?

A In the past we have had the best results by filling



the annulus with fresh treated water, and we put a pressure gauge on and periodically observe them.

Q Do you intend to do this with these wells?

A Yes, we do.

Q On your Exhibits No. 5-A and 5-B, were these wells tested at full capacity during any twenty-four-hour period?

A Yes, sir, they were. Actually, Mr. Examiner, these well tests add up to more than we're able to produce from the lease on a daily basis. On the Phillips State lease the daily production by test added up to 44.66 barrels and the lease will actually only produce about 38 barrels a day.

Q And, as I recall, all the surface casing is set below the fresh water zones with your cement circulated to the surface?

A Yes, sir, that's correct.

MR. UTZ: Any other questions?

MR. DURRETT: I have one additional question.

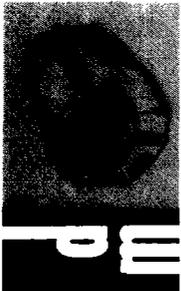
REDIRECT EXAMINATION

BY MR. DURRETT:

Q Mr. Huddleston, have you received verbal approval of your proposed flood from the State Engineer's office?

A Yes, I have. Mr. Irby called yesterday and gave approval.

MR. DURRETT: That's all.



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MR. KELLAHIN: If the Examiner please, Jason Kellahin appearing for Cities Service Oil Company. Cities Service is the operator of acreage offsetting the waterflood project proposed by Pennzoil and a line agreement has been submitted to Cities Service management which we expect will be signed very shortly, and Cities Service endorses the proposal as made by Pennzoil.

MR. UTZ: We have a letter in the file dated September 27th from the State Engineer, stating that he does approve the matter in which you are injecting water here. This error that he called our attention to was just an error in the application, was it not?

A Yes, sir, that's right, Mr. Examiner. I believe that was an error in location on the Phillips Federal No. 3.

MR. UTZ: 660 from the west instead of the east?

A Yes, sir, it was to be the east instead of the west.

MR. UTZ: Otherwise, as far as you know, the locations in your application are correct?

A Yes, sir, and the locations shown on the schematic diagrams are correct and the plat has correct locations.

MR. DURRETT: Was Mr. Irby talking about the Phillips Federal No. 2 "Y" in Section 33?

MR. UTZ: No, he was talking about Federal No. 3.

MR. DURRETT: There's probably a typographical

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error in the application. The locations on the diagrams are correct.

MR. UTZ: The location on the diagrams is different than in the application.

MR. DURRETT: Well, then, it's a typo.

A Both the plat and the diagrams are correct.

MR. UTZ: Thank you. Did you offer your exhibits?

MR. DURRETT: I don't believe we did, and we would certainly like to do so. We move the introduction of Exhibits 1 through 8.

MR. UTZ: Without objection, they will be accepted into the record.

(Whereupon, Pennzoil's Exhibits 1 through 8 were offered and admitted in evidence.)

MR. UTZ: The witness will be excused.

(Witness excused.)

MR. UTZ: The case will be taken under advisement.



I N D E XWITNESSPAGE

KENNETH R. HUDDLESTON

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EXHIBITMARKEDOFFERED AND  
ADMITTED

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Pennzoil's 2	3	12
Pennzoil's 3-A & B	5	12
Pennzoil's 4-A & B	5	12
Pennzoil's 5-A & B	6	12
Pennzoil's 6	7	12
Pennzoil's 7	7	12
Pennzoil's 8-A & B	8	12

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