

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico  
May 22, 1974

EXAMINER HEARING

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IN THE MATTER OF: )

Application of Tenneco Oil )  
Company for pressure maintenance )  
expansion and dual completions, )  
McKinley County, New Mexico. )

Case No. 5246

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BEFORE: Richard L. Stamets, Examiner

For New Mexico Oil  
Conservation Commission:

William Carr, Esq.  
Legal Counsel for the  
Commission  
State Land Office Building  
Santa Fe, New Mexico

For the Applicant:

Ken Bateman, Esq.  
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I N D E X

	<u>PAGE</u>
<u>FREDERICK E. KASTNER</u>	
Direct Examination by Mr. Bateman	3
Cross Examination by Mr. Kendrick	9
Cross Examination by Mr. Stamets	9

E X H I B I T S

Applicant's Exhibits Nos. 1 through 8	9
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MR. STAMETS: Case 5246.

MR. CARR: Case 5246. Application of Tenneco Oil Company for pressure maintenance expansion and dual completions, McKinley County, New Mexico.

MR. BATEMAN: Mr. Examiner, I am Ken Bateman of White, Koch, Kelly and McCarthy, appearing for the Applicant, and I have one witness to be sworn.

MR. STAMETS: Are there any other appearances in this case?

The witness will stand and be sworn, please.

FREDERICK E. KASTNER

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

DIRECT EXAMINATION

BY MR. BATEMAN:

Q Would you please state your full name, address and place of employment?

A Frederick E. Kastner, Denver, Colorado. I work for Tenneco Oil Company as Petroleum Reservoir Engineer.

Q Have you previously testified before the Commission?

A No, I have not.

Q Would you briefly state your educational and

KASTNER-DIRECT

Page.....4.....

work experience?

A I graduated from New Mexico School of Mines in 1967 with a B.S. in Math. I worked as a geophysicist for a year and a quarter for Sinclair Oil and Gas before returning to graduate school at the Colorado School of Mines. I got a Master of Science in Petroleum Engineering. I worked for a little over two years for Conoco Oil in Hobbs, New Mexico as Petroleum Production and Reservoir Engineer. I have worked since 9/72 with Tenneco Oil Company as Petroleum Production Analytical Engineer.

Q Are you familiar with the area in question in this Application?

A Yes, I am.

MR. BATEMAN: Are the witness' qualifications acceptable?

MR. STAMETS: They are.

BY MR. BATEMAN:

Q Mr. Kastner, would you refer, then, to Exhibit No. 1 and state what Tenneco seeks by this Application?

A Exhibit No. 1 is a location plat of the South Hospah, Hospah-Lone Pine Dakota Dareas on it. The existing gas-water injection project in the Lower Hospah is being expanded from the pilot stage to a full-scale pressure

KASTNER-DIRECT

Page..... 4-A.....

maintenance gas-water injection project. Currently we have three wells located on the map, green dots with green around them, 33, 36 and 84 on the Tesoro Lease that are existing gas-water injection wells, and we have seen response due to injection into these wells in the offset producing wells. We have received permission to drill an additional 6 wells and have drilled 5 of these; 54, 57, 58, 59 and 60, located on the map with red dots.

Tesoro will be drilling a lease line well in Section 6 on the southwest corner. That is also indicated in red.

Instead of drilling the approved Well No. 61, we are proposing to dual complete No. 41 as a lease line well to the north indicated with the orange arrow to the north of Section 12.

We also wish to dual complete Well No. 56 as a dual upper and lower injection well.

Q What is the status of the two wells that are the subject of the Application?

A Well No. 41 and Well No. 56 are currently injection wells into the upper Hospah formation.

Q As I understand, the Application deals only with the lower Hospah, is that correct?

KASTNER-DIRECT

Page..... 5 .....

A That is correct.

Q Would you continue, then, with Exhibit 2 and 3 and describe how the wells are currently completed?

A Exhibits 2 and 3 indicate the current completion into the upper Hospah. Well No. 41 has a 5½-inch casing set at 1610 feet. The top of the cement is estimated to be at 1177 feet with perforation at 1566, 1597 and plugged back TD at 1607. The diagrammatic wellbore Schematic No. 66 indicates a 7-inch casing set at 1584, plugged back TD 1577, perforations 1542 to 1565, estimated top cement 952 feet. They are both currently completed with packers in the tubing.

Q Please refer to Exhibit No. 4 and describe how you propose to complete Well No. 41 in the lower Hospah.

A Well No. 41. Exhibit No. 4 is a diagrammatic sketch of a proposed dual completion of Well No. 41 and it indicates that we intend to drill out and set a permanent packer and to isolate the upper Hospah from the lower Hospah, and also use a retrievable packer to inject into the upper Hospah. We intend to drill out below the casing shoe and pressure-test communications. If no communication is found, we will continue to drill out through the shale an estimated 8 feet separating the

KASTNER-DIRECT

Page..... 6

upper Hospah from the lower Hospah and drilled 10 feet into the lower Hospah. If there is communication when we pressure-test the packers and tubing below the current formation, we will squeeze and re-squeeze until we establish that there is no communication with the upper Hospah.

Attached to this diagrammatic sketch is a detailed prognosis.

Q Mr. Kastner, I understand that the prognosis is simply an estimate of what will be required?

A That is correct.

Q In your experience, it may be determined that something else will have to be done?

A Right.

Q Would you continue with Exhibit No. 5 and describe how Well No. 56 will be completed?

A Exhibit No. 5 is a diagrammatic sketch of Well No. 56, a proposed dual completion, and it has attached to it a copy of the detailed prognosis. We intend to complete this in a similar manner as No. 41. We intend to drill out below the casing tube, set a packer below the existing perforations, pressure-test for the communication with the upper Hospah. If there is communication, we intend to squeeze before drilling

KASTNER-DIRECT

Page.....7

out through the shale and into the lower Hospah. After we have established no communication and have drilled into the lower Hospah, we will set a permanent packer in both wells. The permanent packer will be between the upper Hospah and lower Hospah and we will set a retrievable packer above the upper Hospah. We will inject down through tubing into both intervals.

Q Are you currently injecting fresh water?

A Yes, we are.

Q Do you expect any problems with corrosion?

A No, we don't.

Q Would you continue, then, and discuss Exhibits 6 and 7 together?

A Exhibits 6 and 7 are induction electrical logs of Wells 41 and 56. On the left side you have the SP log. On the right side you have resistivity logs indicating saturation. The top of the upper Hospah is indicated on both these logs and the estimated top of the lower Hospah. Current perforations are also indicated for the logs.

Q Exhibit No. 8, I understand, is a log of a well drilled into the lower Hospah, is that correct?

A Yes. Exhibit No. 8 is a log of a typical well drilled into the lower Hospah. Well No. 8 is the southwest

offset to No. 56. The top of the upper Hospah is estimated at 1544. The top of the lower, at 1611. Exhibit No. 8 is the SP log and the IES log, similar to Exhibits 6 and 7.

Q What volume of water and gas do you expect to inject and at what pressure?

A We expect to inject 1000 barrels of water per day and 100 MCF gas per day at two 250 pounds into each of these lower Hospah completions.

Q If the wells are completed as you propose, do you anticipate any communication between the lower and upper Hospah?

A No, we do not.

Q If the Application is granted, in your opinion, will it protect correlative rights and prevent waste?

A Yes.

Q Were Exhibits 1 through 8 prepared by you or under your direction?

A Yes.

MR. BATEMAN: I offer Exhibits 1 through 8 into evidence.

MR. STAMETS: Without objection, they will be admitted into evidence.

KASTNER-DIRECT

Page.....9.....

(Whereupon, Applicant's Exhibits Nos. 1 through 8 were marked for identification, offered and admitted into evidence.)

MR. BATEMAN: No further direct.

MR. STAMETS: Are there any further questions of this witness? Mr. Kendrick?

CROSS EXAMINATION

BY MR. KENDRICK:

Q Mr. Kastner, what would be the source of the gas you will inject into these wells?

A Dakota A.

Q Produced from wells on these leases?

A Well No. 10 has gas on this lease.

Q Are there any gas sales lines in this area so that this gas could be sold?

A No, there are not.

Q Will all produced water from the pool be utilized or reinjected into the formations in this manner?

A Yes.

MR. KENDRICK: That's all the questions I have.

CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Kastner, you said something about substituting

KASTNER-CROSS

Page.....10.....

Well No. 41 for Well No. 61?

A Right.

MR. KENDRICK: Well No. 61 was approved on WFX-56.

MR. BATEMAN: It has not been drilled.

BY MR. STAMETS:

Q And you are not going to utilize No. 61 so that can be dismissed or superseded or whatever, and Well No. 56 is an entirely new injection well for the lower zone?

A Right.

Q You intend to utilize coated tubing in these injection wells?

A No.

Q You don't anticipate any problem?

A No.

Q Do you intend to load and gauge the annulus in the two injection wells or leave the annulus open or in some manner determine whether there is any leakage of the tubing in these injection wells?

A Yes, sir. The annulus will be filled with annular fluid water and monitored.

Q Monitored how?

A Pressure gauge.

MR. STAMETS: Are there any other questions of this witness?

You may be excused.

(Witness dismissed.)

MR. STAMETS: Is there anything further in this case?

We will take the case under advisement.

