BEFORE THE
OIL CONSERVATION COMMISSION
December 10, 1958

IN THE MATTER OF:

APPLICATION OF GREAT WESTERN DRILLING COMPANY, CASE 1564

TRANSCRIPT OF HEARING

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I N D E X

BEFORE THE
OIL CONSERVATION COMMISSION
DECEMBER 10, 1958

IN THE MATTER OF:
Application of Great Western Drilling Company for approval of a unit agreement and a pilot water flood project. Applicant, in the above-styled cause, seeks an order approving its proposed North Central Caprock Queen Unit Agreement embracing 2,040 acres, more or less, of state and federal lands in Sections 13, 14, 15, and 24, of Township 13 South, Range 31 East, and Sections 17, 18, and 19, of Township 13 South, Range 32 East, Caprock-Queen Pool, Chaves and Lea Counties, New Mexico, anf for authority to institute a pilot water flood project in the Queen formation underlying said unit area. Case 1564

BEFORE:
Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: The next case on the docket will be Case 1564.

MR. PAYNE: Case 1564, Application of Great Western Drilling Company for approval of a unit agreement and a pilot water flood project.

MR. CHRISTY: Sim Christy of Hervey, Dow & Hinkle, for the Applicant, Great Western Drilling Company. This application is two-fold. (1) For the approval of the unit agreement noted as the North Central Caprock Queen Unit Agreement, and (2) for the institution of a pilot water flood project for the unit area.

We have not requested, nor does the application encompass

anything concerning allowables, transfer of allowables or unlimited take. We are simply starting a pilot flood. We have two witnesses. (Witnesses sworn.)

SAM SNODDY

the witness, having first been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. CHRISTY:

Q Would you please state your name, address and occupation?

A Sam Snoddy, 509 North Loraine Street, Midland, Texas, landman.

Q By whom are you employed, in what capacity, and for how long?

A Great Western Drilling Company, land manager, 5 years.

Q Are you familiar with the matters contained in the application herein, being Case Number 1564, before the New Mexico Oil Conservation Commission?

A Yes, sir.

Q Are you familiar with the area covered by the unit agreement?

A Yes, sir.

Q Would you please tell us the unit area covered by this agreement?

A All of Sections 13 and 14, and the southeast quarter northeast quarter and east half southeast quarter of Section 15 and the northwest quarter northwest quarter of Section 24, Township

13 South, Range 31 East, Chaves County, New Mexico, and the north half northwest quarter of Section 17, the west half and northeast quarter of Section 18, and the northwest quarter northwest quarter of Section 19, Township 13 South, Range 32 East, Lea County, New Mexico.

Q Are the lands covered by the unit agreement owned by the United States, the State of New Mexico, or privately owned, and if there are variations, please tell us the percent of each ownership?

A All of the lands belong to the State of New Mexico, except the southeast quarter northeast quarter and the east half of the southeast quarter of Section 15, Township 13 South, Range 31 East, which are Federal lands.

Q Now, who is designated as unit operator under the unit agreement?

A Great Western Drilling Company.

Q What is the purpose of the unit agreement?

A The unit agreement provides for secondary recovery operations and the installation of a water flood project in the Caprock-Queen Pool.

Q Are you familiar with other Unit Agreements approved by the Commissioner of Public Lands of the State of New Mexico and by the New Mexico Oil Conservation Commission?

A Yes, sir.

Q Is the Unit Agreement involved in this application in

substantially the same form as unit agreements heretofore approved by the Commissioner of Public Lands of the State of New Mexico and by the New Mexico Oil Conservation Commission?

A Yes, sir.

Q Has the unit agreement been submitted to the Commissioner of Public Lands of the State of New Mexico for approval, and, if so, has approval been obtained?

A Yes, sir, on November 21, 1958, the office of the Commissioner advised Great Western Drilling Company, "We wish to advise you that our attorney, Mr. Oscar Jordan, has approved as to form and context Great Western Development Company's proposed North Central Caprock Queen Unit Agreement."

Q What percent of the working interest, overriding royalty interest and royalty interest has been committed to the unit agreement by execution, ratification and or approval?

A Approximately 93 percent of the working interest has been committed to the unit agreement, plus informal committments from additional 2.8 percent, and this leaves only the Federal acreage uncommitted. The Unit Agreement contemplates the combining of overriding royalty and royalty interest, and nearly 98 percent approval has been obtained from these parties, that is, assuming formal approval from the Commissioner of Public Lands of the State of New Mexico.

Q I believe the unit agreement contemplates the inclusion of 120 acrea of Federal lands located in Section 15, Township 13

South, Range 31 East. Has the Federal Government and the operator of these lands approved the unit agreement or executed the unit agreement?

A No, sir. A problem has arisen with respect to the continuation of the lease on lands outside of the unit should the Federal lands be committed to the unit. This problem has not been resolved, but the basic form of the unit has informal approval of the Federal Government and unit operator.

Q What is the name of that operator?

A The Whaley Company.

Q For the benefit of the Examiner, Mr. Arnold Bunning of the Whaley Company is here. The problem seems to be this: Mr. Examiner, the wells on Federal acreage are the only wells holding a large Federal lease. The question arises, if you segregate these lands rather than including them in that unit, are the lands outside the unit included? That has not been resolved by the Federal Government under ruling. As a result, the operator is not willing to sign unless he gets a ruling.

We contemplate the inclusion of this land. It has not been included. I believe the only working interest that has not approved the unit agreement is the Whaley Company.

Q Does the unit agreement have any provisions with respect to the failure to obtain approval by the Federal Government and the operator of the Federal lands?

A Yes, sir. Article 13 of the agreement provides that if

on the effective date there is any tract which has not been effectively committed or made subject to the agreement, then such tract or tracts are not entitled to participate thereunder. Further provision is made with respect to the subsequent committment of these tracts within six months without a change in the participation schedule. After the six month period, approval of the other working interest owners must be obtained. It is anticipated that the Federal acreage will be committed within this six month period, but, failing in this, it may be necessary to contract the unit and to delete this acreage.

Q You are referring to Article 13?

A Yes, sir.

Q Now, if the unit agreement is approved by the Commission, will Great Western furnish the Commission with a fully executed copy thereof immediately after approval of the unit agreement by the Commissioner of Public Lands of the State of New Mexico?

A Yes. A revision of Exhibit B on participation may be necessary if the Federal acreage is not committed.

Q You are speaking of Exhibit B, the unit agreement?

A That's right.

Q Is the participation formula shown on Exhibit B of the --

A -- The unit agreement, which naturally would have to be revised if the Federal acreage is not committed.

Q I understand there is some urgency on this application, Mr. Snoddy. Will you explain a little to us on that?

A Yes, sir. Article 23 of the agreement provides that it is effective the first day of the month following approval by the Commission, and if such approval is not accomplished before December 30, 1958, the agreement terminates; therefore, I earnestly urge the Commission to approve the unit agreement prior to December 30, 1958.

Q In your opinion, will the approval of the unit agreement be in the interest of conservation of oil and gas, the prevention of waste, the protection of correlative rights of all interested parties, and for the best interest of the State of New Mexico?

A Yes, sir.

MR. CHRISTY: That's all from this witness.

CROSS-EXAMINATION

BY MR. NUTTER:

Q What is the effective date of the unit agreement?

A It will be under Article 23, it's the first day of the month following approval.

MR. CHRISTY: By the Commission, and the filing of a copy, Mr. Nutter, and approval of the Commissioner of Public Lands, the Secretary, as to Federal acreage and the filing of a copy of it in Lea and Chaves Counties the first day following the completion of those acts.

MR. NUTTER: Now, if this Federal acreage isn't included by the effective date of the unit agreement, it will not be entitled to participate? Is that correct?

MR. CHRISTY: Right.

MR. NUTTER: But the unit agreement would not be approved unless the Federal acreage is in this, by the Federal Government?

MR. CHRISTY: The unit will not include federal acreage. Under a joinder provision, this acreage might be included without penalty for six months.

MR. NUTTER: You propose to put this unit agreement in effect whether or not you have had a favorable ruling from the Federal Government, and the Whaley acreage can be included?

MR. CHRISTY: Yes.

MR. NUTTER: And have it come in later on a joinder?

MR. CHRISTY: Yes, sir.

MR. NUTTER: You have all of the working interest committed to the unit agreement except the Whaley Company 120 acres?

A Yes.

Q How about royalty interest?

A We have 98 to 99 percent of that assuming the state royalty.

MR. NUTTER: Any further questions of Mr. Snoddy? If not, he may be excused.

(Witness excused.)

JOHN HAMPTON

the witness, having first been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. CHRISTY:

Q Would you please state your name, address and occupation?

A John Hampton, 509 North Loraine Street, Midland, Texas, geologist and engineer.

Q By whom are you employed and in what capacity?

A Great Western Drilling Company as special projects engineer.

Q Have you ever testified before this Commission previously as a geologist and engineer?

A No, sir.

Q What are your qualifications as a geologist and engineer?

A I was graduated from Texas Technological College in 1951 with a degree in geology. In November of 1953, I was employed by Great Western Drilling Company as a geologist. I worked in that capacity until November of 1955, at which time I was transferred to Farmington, New Mexico, as district geologist. In November, 1957, I was transferred back to Midland as a special projects engineer and since have been acting in that capacity. In that capacity, I have actively participated in several water flood projects in Texas and New Mexico in which Great Western Drilling Company is interested.

Q Are you familiar with the matters contained in the application involved herein, which is Case 1564, before the New Mexico Oil Conservation Commission?

A Yes, sir.

Q Are you familiar with the lands involved in the application

which are situated in Township 13 South, Range 31 and 32 East?

A Yes, sir. Further, I am familiar with the water flood projects to the north of this area which are being conducted by Graridge and Ambassador. Great Western Drilling Company is on the advisory committee for these two water flood projects, and I have actively participated in matters concerning them.

MR. CHRISTY: Does the Commission have any questions concerning the qualifications of the witness?

MR. NUTTER: No, sir, proceed.

Q (By Mr. Christy) Do you have a plat showing the proposed unit area?

A Yes, sir.

Q I believe Exhibit Two is a contour map. Explain what it shows?

A Exhibit Two shows several things. First, if you will notice on this Exhibit we have outlined in red the Graridge unit being operated to the north and outlined in green is the Ambassador unit. Further, it shows outlined in yellow our proposed North Central Caprock-Queen Unit which embraces 2,040 acres of land, the description of which has been previously presented. Also, it shows in heavy blue lines contours on top of the unitized formation, the Queen Formation, a member of the Guadalupe Series, a part of the Permian system.

To me, or my interpretation of this contour pattern is an off shore bar type deposition in which there are local variations

in the sand body. If you'd note here at the southeast edge of the proposed unit, one of these local variations occurs. The wells drilled in this area here (indicating) encountered red shaly sand in the normally productive zone and were consequently not productive. We believe this red shaly sand --

MR. NUTTER: -- Describe the area you are discussing.

A I'm discussing the area in more or less the northeast quarter of Section 24 of 31 East, 13 South and the, approximately the northwest quarter of Section 19 in Range 32 East, 13 South.

MR. NUTTER: Thank you.

A As I was saying, we believe this red shaly sand encountered in this area constitutes a permeability barrier to the migration of oil off the unit area. About the only other relevant information to gain from these contours is the dip is about due east in the area of the proposed unit. You will notice circled in red here (indicating) we have our proposed pilot injection wells which are down dip in anticipation of a more efficient recovery.

Q Is there anything else of importance shown on this exhibit?

A Yes, sir, it does -- it shows the names of all the lessees and all the wells drilled within a considerable distance of the unit. It also shows the dry holes which have been drilled in the area and all the producing wells. One might also be able to locate an area which is popularly referred to as the "gas cap" in this area. This gas cap is probably here in this

area of the unit (indicating).

Q The western edge?

A In the western edge of the unit area.

Q Explain the two orange dots.

A Those orange dots represent our water supply wells which are drilled and would be ready to supply water to our operations with the installation of pumping equipment and supply lines to the injection plant. These wells were drilled on permits obtained from the State Engineer, Number L3778 and Number L3776. We also obtained state water leases from the Commissioner of Public Lands of the State of New Mexico. The lease numbers are W-140 and W-125. Water supplied by these wells would be fresh water from the Ogallala formation, the base of which is about 275 feet. We've supplied the State Engineer with an analysis of the Ogallala water, and simultaneously with the filing of the application herein, we also filed with the office of the State Engineer, Post Office Box 2079, Santa Fe, New Mexico, a copy of this application, also explained the geographical location of the water source and further the name and depth of the formation from which we were to obtain water.

Q Why did you choose fresh water instead of salty water of saline solution?

A Several reasons -- mainly, the difference in economics and the corrosive nature of obtainable salt water in the area. Salt water, or water from another strata, would cost many times

as much to produce as would this Ogallala formation. It would require a much more elaborate filter system and chemical treating system.

Also, due to the chemical nature of the salt water, it is very corrosive and would create many problems from that aspect. There would be a possibility of corrosion of the casing which is already cemented in the ground. We plan on re-injecting our produced water flood water, but indications are that the returned water would be compatible and non-corrosive. An operation of this sort uses a relatively small amount of water, and also the source wells are not of sufficient capacity for much of anything else.

Q Do you have any logs available to the Commission of the proposed intake wells in this pilot area?

A I was not able to locate any logs of the proposed injection wells.

Q I believe you were able to locate some of the wells, were you not?

A Yes, sir, I was able to. This group of logs was the only logs I could locate in the unit.

Q They are marked Applicant's Exhibit Three?

A Yes, sir.

Q What is significant about them?

A There is not much significance about the logs. We have indicated on top of the logs the top of the pay zone. There is

nothing much unique about them that I could point out.

Q Refer to Exhibit Four, which I believe is a data sheet. Explain that, please?

A All right. Exhibit Four is an attempt to give the Commission an idea of the production in the proposed unit. It shows each of the wells in the unit, the completion date, the initial potential, and it shows the present production which I took from the most recent New Mexico Engineering Report I had, which was September.

The importance of the Exhibit is that it shows the area is in the latter stages of depletion, or, I suppose one could call them "stripper" wells. The average production is about five barrels of oil a day. However, you might also note there are about 15 wells which produce average or better. The better wells are located on the western side of the unit here (indicating), due to being drilled at a later date.

You could also note on this exhibit there were two stages of development -- one in the forties and one in 1955. I think that will show better on our next exhibit.

Q Your next exhibit is Applicant's Exhibit 5. I would ask you to explain that to us.

A Exhibit 5 is a production curve of the North Central Caprock Queen Unit. I took the data from the New Mexico Engineering Report to compile. This production curve shows in graphic form several things I've mentioned before. You'll note the first

drilling, looks like in 1947 here (indicating), the decline then of those wells drilled at that time; then you'll also note the second spurt of drilling activity in the area and how that production has declined since that time.

I think it would be rather obvious from looking at this production curve that we are in the later stages of depletion here. This dotted line on here represents an extrapolation that we extrapolated on out of the production curve as it might look. You can see that this decline is not too steep, but it is far below the former productive capacity of the unit area. I might make a further observation here on this exhibit, that as one would expect in a depletion type reservoir a large part of the oil was produced in a relatively short time, and to produce the remaining oil takes longer, will take a longer time; and I believe that many of these wells are at their economic limit.

This part of the curve, which is New Mexico Engineering Report data, represents one point one million barrels of oil, and this part of the curve represents about 470,000 barrels of oil.

Q 1.1 million is the solid line?

A Yes, sir.

Q 470,000 is the extrapolation of the dotted line?

A Yes.

Q I gather from that it's about time to institute some type of secondary recovery procedure in this area?

A I very definitely do. As you can gather from where we are on the production curve here, from Exhibit Four here, that a lot of these wells are probably at what we could call their economic limit. If this flood were delayed any considerable length of time, I think these limited capacity wells would probably be plugged, and the area might possibly degenerate to a state where a unit would be impossible or impractical to form.

Q Referring to what has been marked as Applicant's Exhibit Six, explain that to the Examiner.

A Yes, sir. Exhibit Number Six is again the unit area outlined in yellow. This yellow outline in here represents the same as the yellow outline on the larger plat, which is the plat that covers a larger area, Exhibit Two. This plat also shows the tract number of each of the tracts. These have numbers that have a circle on it. This tract number corresponds to Exhibit B in our unit agreement.

Also, this shows the wells numbered as they will be after the formation of the unit. Now, the number here above each of the wells is the Section number in which the well is located. The letter corresponds to the New Mexico system of breaking down a section into lettered 40-acre units. It also shows the operator for each tract.

Q What are the wells circled in red? I believe there are nine of them.

A These wells are our proposed pilot installation. A

description of the proposed initial intake wells is as follows:

Graridge Well Number 2, in the northwest quarter of the northwest quarter of Section 17. The Great Western Well Number 1, in the northwest quarter of the northwest quarter of Section 18. The Great Western Well Number 3, in the northwest quarter of the northeast quarter of Section 18. The Great Western Well Number 4, in the southeast quarter of the northeast quarter of Section 18. The Great Western Well Number 7, in the southeast quarter of the northwest quarter of Section 18. The Graridge Well Number 1 in the northwest quarter of the southwest quarter of Section 18. The Great Western Well Number 2, in the southeast quarter of the southwest quarter of Section 18, all in Township 13 South, Range 32 East. And the Graridge Well Number 1 in the northwest quarter of the northeast quarter of Section 13. The Great Western Well Number 1 in the southwest quarter of the southeast quarter of the northeast quarter of section 13, all in 13 South, 31 East.

MR. CHRISTY: May I interrupt you a moment. I wish to call to the Examiner's attention the fact there are two typographical errors in the application. I would like to amend the application to conform with the testimony. Those errors are on page four, excuse,me, page five of the application, where it is stated the Great Western Well Number 4 in the southeast northwest of 18; it should be the southeast northeast of 18, and I failed to list one well, which is the Great Western Well Number 7,

located in the southeast northwest of Section 18. I move to amend the application to conform with the testimony in that regard.

MR. NUTTER: If there is no objection, the application will be amended.

MR. CHRISTY: Continue, please.

A I would like to point out here, if you would remember back to the contour map, Exhibit Two, that these wells are located in this position so as to start injection on the down dip side of the field. By this, we hope to increase the efficiency of the flood. We think that there is a permeability barrier here to the east, the south, and the southeast of the unit area, which is much of the same nature that was encountered in the re-entrant zone on Exhibit Two.

We think this permeability barrier would prevent the migration of water or oil down dip or away from the unit area. We think this barrier should enhance the recovery of our oil in this area, because the water pushing against it would move the fluid to areas of lessened pressure, which would naturally be our producing oil wells.

Another reason for locating the pilot where we have fits with what I have just said here. When we get the oil moving against the permeability barrier and up dip we can move to keep a good front moving with the staggered line drive we have created with these four wells. And we anticipate this would be more efficient than a simple five spot pattern. Of course, a five spot

pattern would be impossible to keep on the eastern part of the unit. An additional consideration was to commence the pilot area in the present least productive area of the unit.

As I mentioned before, the present more productive wells are on the western side of the unit.area.

Q Why do you propose to start with nine injection wells rather than one or four or five?

A Once again, there are several considerations. Firstly, we calculated that with this number of wells we could put the unit on its feet financially and hope to make it a pay as you go proposition after the pilot installation. Another consideration was that the five spot in a staggered line drive could be evaluated with this pattern.

You will notice if we started with only four or five eastern-most injection wells, we could not have a complete five spot pattern over here, and I don't believe we could properly evaluate the feasibility of flooding this unit.

Q I believe in the application it states Great Western wishes to inject approximately 600 barrels of water per day per injection well. Now, would you explain this to the examiner?

A Yes, sir. In the pattern we presented here, our calculations are based on about seven to nine feet of pay in the pilot area. Thus, we would be injecting about one barrel per acre foot per day, which would utilize about 5400 barrels per day in the nine wells. We think this is a satisfactory rate for a front

build up.

It is possible that this rate cannot be attained or retained on some of the injection wells. However, we would like to stay as close as possible to that rate. It is probable that the injection rate will not be near that figure as we approach fill up. We will have to see how it works out.

Q Would you explain to the Examiner what your casing program is for the injection wells?

A Yes, sir. These injection wells, as we have outlined here, are old producing wells. The casing is set. There is five and a half to seven inch casing. It is set at the or near the top of the Queen formation pay zone. Those wells whose casing is not set in the top of the pay zone will have a liner run to the top of the pay zone. The liner will be cemented with a sufficient amount of cement to form an effective seal so that the injected water will enter only the intended zone.

Q Will you tell us your proposed method for testing the casing before the use of the input wells?

A We plan to follow rule 107, which is the casing test rule in OCC Case 1369 of January 15, 1958.

Q When would you expect to get a stimulation from this injection of water?

A Based on the two floods north, I would expect it in about six months.

Q What would you estimate the amount of oil you would

ultimately recover by this water flood project?

A All of our calculations and our participation factors are based on a water flood recovery of 1.5 times the ultimate primary production. Since the ultimate primary would be something like 1.6 million barrels of oil, we have estimated our water flood recovery at 2.4 million barrels of additional oil. We do have some data from other parts of the field indicating that the recovery might be as high as two times that. In that case, the recovery from the proposed unit should be in the neighborhood of 3.2 million barrels of oil. However, we prefer to use the more conservative figure of 2.4 million barrels of oil for our calculations.

Q Returning to Exhibit Two, I believe you mentioned a gas cap over in the northwestern end of this unit. Do you think that it will have any adverse effect on this water flood project itself?

A It would have. This gas cap over here is elusive and somewhat hard to locate exactly.

Q Would you define the area by section and township range we are speaking of?

A We are speaking of the western portion of the unit. Some of them have a little higher gas-oil ratio. Over here (indicating) we did anticipate there was a primary gas cap in the western portion of the unit. However, we think that we've devised a method to minimize the effect that this gas cap should

have on our recovery.

First, we'd want to inject water into the gas cap before any well in the vicinity is stimulated. Thus, by wetting the rock and maintaining a higher pressure in the gas cap that at the more eastern producing wells migration should be held to a minimum. A further balance for this situation may need to be maintaned by producing the wells immediately east of this gas cap at a higher capacity in order to create a pressure gradient into the producing wells. However, this is a matter to be considered in more detail in some time hence, since the project won't reach this area for some time probably.

Q Mr. Hampton, do these lands to be embraced in the proposed unit area cover all or substantially all of the available lands necessary for the effective and efficient institution of a secondary recovery operation by the institution of a water flood project and do they permit the producing area to be developed and operated in the interest of conservation and the prevention of waste of the unitized substances?

A Yes, sir.

Q Do you believe that the field or area involved in the proposed unit can be developed more economically and efficiently under the terms of the agreement to the end that maximum recovery can be obtained?

A Yes, sir.

Q And do you further believe that the unit agreement is in

the interest of conservation of oil and gas and the prevention of waste and the protection of correlative rights of interested parties?

A Yes, sir.

Q In your opinion, would the approval of the unit agreement and the institution of a pilot water flood project involved in this application be in such interest of conservation of oil and gas, the prevention of waste, and the protection of correlative rights of all interested parties and for the special interest of the State of New Mexico?

A Yes, sir.

Q Referring to Exhibits Two through, I believe it is Five inclusive --

A -- Six.

Q -- six inclusive, except for Exhibit 3, which is the logs, were those prepared by you or under your direct supervision?

A Yes, sir.

MR. CHRISTY: We offer in evidence Applicant's Exhibits One through Six inclusive.

MR. NUTTER: Without objection, Great Western's Exhibits One through Six inclusive will be admitted in evidence.

MR. CHRISTY: We have no further questions from this witness.

MR. NUTTER: Does anyone have any questions of Mr. Hampton?

MR. FISCHER: Yes.

MR. NUTTER: Mr. Fischer.

CROSS-EXAMINATION

BY MR. FISCHER:

Q Mr. Hampton, could you describe the area where the red sand is encountered again?

A Yes, sir. It is generally the northeast quarter of Section 24, Township 13 South, Range 31 East, and the northwest quarter of Section 19 of 13 South, 32 East.

Q Does it follow that or would you say it follows that plus 1,350 foot contour you have there?

A No, sir, it happens to in that area.

Q Do you think it falls in any of your prescribed unit area or could be encountered in there?

A I don't believe so, sir, not this red shaly sand.

Q It could be encountered in your proposed unit area?

A I don't think it could.

Q Thank you. Could you describe this permeability barrier along any particular contour line on that map, please?

A I don't say it couldn't -- it doesn't follow a contour line. This shaly condition of the sand seems to exist in the data we do have on the wells drilled outside of the unit area; that red shaly condition exists there. It seems to be an effective permeability barrier.

Q I thought it might conform to some contour line?

A This one doesn't. It crosses the contour line.

Q This Collier-Osmund Well, does Mr. Collier own that, or do you know?

A Well, to my knowledge, he owns part of it.

Q That well is under some ownership at this present time, is that right?

A To the best of my knowledge, yes, sir.

Q In extending your line from out of your pilot program, I take it you are going to continue to expand in a westerly direction; in other words, it will be kind of a line extension?

A We believe that would be an efficient way to do it, yes, sir.

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

MR. NUTTER: Any further questions of Mr. Hampton?

EXAMINATION BY MR. NUTTER:

Q You state you were familiar with these units and water floods operating to the north of your proposed unit. Would you tell me which wells are presently being used as water injection wells in the area immediately north of your unit?

A I believe I can do that, Mr. Nutter.

Q I think only the closest row of water injection.

A The closest row, all right, sir. In the Ambassador unit -- would you like them by numbers, the location on that?

Q That would be fine.

A In Section 12, the northeast quarter of the southeast

quarter and the northeast quarter of the southwest quarter. Those are the only wells to my knowledge, those are the closest wells to our unit.

Q All the water injection wells in the Graridge unit are further north?

A Yes, sir, I believe they are a location or two further north than that. I have a plat of that location with me. Mr. Nutter, they recently had some new expansion in there. I don't seem to have it on there. The closest injection well in our unit is in Section 6 in the southeast quarter of the northeast quarter.

Q Which would be more than a mile from the boundaries of your unit?

A Correct.

Q Have any wells in your unit felt the impact of water injection in the water floods to the north?

A No, sir.

Q Aside from putting this unit on its feet financially, as you stated, in the relatively near future, what is the necessity or even the desireability for conversion to water injection of more than the five wells in Section 17 and the north half of Section 18?

A Mr. Nutter, if we converted only these five wells, we wouldn't have an inside producer offset by injection wells, and I'm not sure the conversion of these five wells would tell us

much about whether we can water flood that area or not. We might possibly say we started with three and got poor results because of the conditions out here, then our working interest might decide to give up. I believe the unit can be successfully water flooded.

Q A nine well pilot is a rather large pilot, is it not?

A It's larger than the two units to the north started with somewhat, but since these wells are not located in the middle of the units like they were, I doubt they will stimulate any more wells than they did.

Q Is the Number 8 Well in the southwest of the northeast of 18 going to be drilled? I see it marked as a location.

A Yes, sir, we anticipate that will be drilled.

Q What is the deal there on Great Western's "O" Number One well in the southeast of the northeast of 13 where you have two wells on the same forty?

A This well was plugged and abandoned some years ago, and the other well was drilled.

Q One of them is plugged and abandoned?

A Yes, sir. We have the same situation existing here with the Sears Well up on Tract 15. There have been two wells drilled on that 40-acre tract, one is plugged.

Q Well, now, you stated if you had only 5 wells in the pilot, you wouldn't have any inside wells in the pilot. Now by adding the additional four wells, how many inside wells are you

going to have?

A Well, we've still, essentially right now, offhand, it looks like we have one. Of course, we hope that we get a good reaction against this permeability barrier for these wells are obviously close to it. I may be wrong, but one is all I see.

EXAMINATION BY MR. FISCHER:

Q You are not going to open up that Number One Well in the southeast northeast of 13 that is plugged and abandoned?

A No, sir, we are not planning on it at the present time.

MR. NUTTER: I believe that's all. Any further questions?

REDIRECT EXAMINATION

BY MR. CHRISTY:

Q Mr. Hampton, we may carry this nine well question to commence with, on the questions Mr. Nutter asked you, although this is termed a pilot water flood project, I assume because of the history of Graridge and Ambassador in the same field, we don't need to start as cautiously as we might have in the initial water flood project in this field? In other words, we can see where we are going?

A We hope we can.

MR. CHRISTY: That's all. I'd like to call the Examiner's attention to the fact we have in our application likewise asked for the conversion of other wells in the unit area to water injection by administrive approval with notice and hearing, and would ask the Examiner to take that into consideration in his recommenda-

tions to the Commission. That commences with page five and takes into account I believe prior orders of the Commission in connection with administrative approval providing for notice to offset operators or consents of all persons providing for notice or consents by the State Engineer.

MR. NUTTER: Applicant today is seeking approval of 9 wells and an administrative approval for 9 wells?

MR. CHRISTY: Yes, sir, that was in the application. I didn't offer any testimony on that. That's all for the applicant.

MR. NUTTER: Does anyone have anything further in Case 1564?

MR. DUNCAN: J. D. Duncan representing Delfern Oil Company, 1706 14th Street, Lubbock, Texas. As an operator of leases in the Caprock-Queen field which are both within and without the unit area involved, Delfern wishes to go on record in support of the application in this case, and we urge the Commission to grant Great Western's application for institution of a pilot water flood in the North Central Caprock Queen Unit.

MR. NUTTER: Give me your initials again.

MR. DUNCAN: J. D., 1706 14th Street.

MR. NUTTER: That's in Midland?

MR. DUNCAN: Lubbock.

MR. NUTTER: Any further statements?

MR. PAYNE: Mr. Examiner, the following companies urge approval of Great Western's application in this case: Phillips

Petroleum Company, Ambassador Oil Corporation, E. D. Whitis Ada Oil Company, Wolverine Oil Company, Graridge Corporation, Gulf Oil Corporation, Salsich, McGrath and Smith, George H. Williams, R. D. Collier, D. M. Bassett and Ross Sears. They have sent telegrams and letters, which we will place in the record. We will at this time dispense with reading them.

MR. NUTTER: Anything further in Case 1564? We will take the case under advisement.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, JOHN CALVIN BEVELL, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me in Stenotype and reduced to typewritten transcript by me; that the same is a true and correct record, to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this 15th day of December, 1958, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

John Calvin Bevell
NOTARY PUBLIC

My Commission Expires:

January 24, 1962

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1564, heard by me on 12-10, 1958.

, Examiner
New Mexico Oil Conservation Commission

Class of Service

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION
TELEGRAM

W. P. MARSHALL, PRESIDENT

(07)

SYMBOLS
DL=Day Letter
NL=Night Letter
LT=International Letter Telegram

The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

LA046 DA215 DEC 10 AM 10 26

D FWA336 PD=FAX FORT WORTH TEX 10 1046 AMC=

NEW MEXICO OIL AND GAS COMMISSION=

SANTA FE NMEX=

AS CO-OWNER IN THE PROPOSED NORTH CAPROCK QUEEN UNIT WE STRONGLY URGE APPROVAL. SUGGEST THAT ALL STATE COMMISSION DECISIONS ON THIS UNIT FOLLOW THE OUTLINE PRESCRIBED IN THE TWO PRIOR CAPROCK UNITS=

AMBASSADOR OIL CORP=

Case 1564

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE

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WESTERN UNION

TELEGRAM

W. P. MARSHALL, PRESIDENT

(03). 1201

SYMBOLS

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MAIN OFFICE OCC

1958 DEC 1 AM 11 39

LA068 DA172

D HSB243 PD=FAX HOUSTON TEX 1 1132AMC= 1958 DEC 1 AM 11 18

OIL CONSERVATION COMMISSION=

SANTA FE NMEX=1

INRE HEARING SET FOR DECEMBER 10, 1958, ADA OIL COMPANY, AS A WORKING INTEREST OWNER, CONCURS WITH AND SUPPORTS THE APPLICATION OF GREAT WESTERN DRILLING COMPANY TO UNITIZE AND WATERFLOOD THE PROPOSED NORTH CENTRAL CAPROCK QUEEN UNIT, CHAVES AND LEA COUNTIES, NEW MEXICO=

E D WHITIS ADA OIL CO=

Case file

CLASS OF SERVICE
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WESTERN UNION
TELEGRAM

W. P. MARSHALL, PRESIDENT

1201

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CASE 1165

LA165 DEA547

DE GPB523 NL PD=GRAND RAPIDS MICH 4=

1958 DEC 4 PM 4 59

OIL CONSERVATION COMMISSION=

SANTAFE NMEX=

WE RECOMMEND GREAT WESTERN BE GIVEN PERMISSION TO INSTITUTE A FLOOD PROJECT AT THE NORTH CENTRAL CAPROCK QUEENS UNIT CHAVES AND LEA COUNTIES=

S J JANSMA WOLVERINE OIL CO GRAND RAPIDS MICH.

MAIN OFFICE DEC 5 AM 8:10

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

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WESTERN UNION
TELEGRAM

W. P. MARSHALL, PRESIDENT

1201

SYMBOLS
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1958 DEC 5 PM 4 32

LA192 DB338

D BXA033 PD NL=BRECKENRIDGE TEX 5=

OIL CONSERVATION COMM=

STATE CAPITOL SANTAFE NMEX=

OUR WHOLE HEARTED SUPPORT OFFERED FOR APPROVAL OF GREAT WESTERN DRLG CO UNIT AGREEMENT AND PILOT WATER FLOOD PROJECT REQUESTED BY ITS APPLICATION UNDER CASE 1564. THIS STATEMENT MAY BE ENTERED IN THE MINUTES OF YOUR HEARING DEC 10 1958=

GRARIDGE CORP BY R L ELLIOTT VICE PRES==

1564 10 1958=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE
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WESTERN UNION
TELEGRAM

W. P. MARSHALL, PRESIDENT

521. --01

MAIL OFFICE OCC

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LA168 SSK277

1955 DEC 8 PM 1 46 DEC 8 PM 4 04

L RWA110 PD=ROSWELL NMEX 8 348PMM=

NEW MEXICO OIL CONSERVATION COMMISSION=

STATE CAPITOL BLDG SANTA FE NMEX=.

ATTENTION: MR A L PORTER JR

GULF OIL CORPORATION, BEING A WORKING INTEREST OWNER IN THE NORTH CENTRAL CAPROCK-QUEEN UNIT, CONCURS WITH GREAT WESTERN DRILLING COMPANY IN THEIR APPLICATION IN CASE NO. 1564 AND URGES APPROVAL BY THE COMMISSION=

W A SHELLSHEAR=.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE
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WESTERN UNION
TELEGRAM

W. P. MARSHALL, PRESIDENT

1201

SYMBOLS
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LA113 DC190 (06).=:

D MDA173 NL PD=MDLAND TEX 8 =
1958 DEC 8 PM 1 34

OIL CONSERVATION COMMISSION=

ATTN MR A L PORTER SANTA FE NMEX=

WE CONCUR WITH GREAT WESTERN DRILLING COMPANYVS APPLICATION FOR THE NORTH CENTRAL CAPROCK QUEEN UNIT WATER FLOOD AND WE URGE THAT THE NEW MEXICO COMMISSION APPROVE THIS FLOOD=

SALSICH , MCGRATH AND SMITH=

8:14 AM DEC 8

MAIN OFFICE OCC

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE

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WESTERN UNION

TELEGRAM

W. P. MARSHALL, PRESIDENT

(26)

SYMBOLS

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LA039 SSE032

L ARA013 PD=ARTESIA NMEX 10 923AMM= 1958 DEC 10 AM 9 40

OIL CONSERVATION COMM=

CAPITOL BLDG SANTA FE NMEX=

WE RECOMMEND APPROVAL OF THE NORTH CENTRAL CAPROCK QUEEN UNIT AND THE PILOT WATER FLOOD=

GEO H WILLIAMS R D COLLIER D M BASSETT ROSS SEARS=

MAIN OFFICE OCC

1958 DEC 10 AM 9 40

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

PHILLIPS PETROLEUM COMPANY

BARTLESVILLE, OKLAHOMA

December 4, 1958

PRODUCTION DEPARTMENT
L. E. FITZJARRALD
MANAGER

EARL GRIFFIN
GENERAL SUPERINTENDENT
JACK TARNER
TECHNICAL ADVISER TO MGR.
H. S. KELLY
CHIEF ENGINEER

In re: Application of Great Western Drilling Company for Approval of its North Central Caprock Queen Unit Agreement and Pilot Water Flood Project, Caprock Queen Field, Chaves and Lea Counties, New Mexico

New Mexico Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Attention Mr. A. L. Porter, Jr.,
Secretary-Director

Gentlemen:

On December 10, 1958, Case No. 1564 is scheduled to be presented at an examiner hearing by the New ~~Mexico Oil~~ Conservation Commission of New Mexico.

This hearing involves the application of Great Western Drilling Company for approval of a unit agreement and a pilot water flood project for its proposed North Central Caprock Queen Unit embracing 2040 acres, more or less, in Sections 13, 14, 15 and 24, Township 13 South, Range 31 East, and Sections 17, 18 and 19 of Township 13 South, Range 32 East, Caprock-Queen Pool, Chaves and Lea Counties, New Mexico.

As a party to this unit agreement, Phillips Petroleum Company wishes to express its concurrence in the testimony to be presented by the applicant in this case, and urges approval by the Commission of the unit agreement and water flood project involved therein.

Yours very truly,

L. E. Fitzjarrald

LEF:JRB:HD

cc: Great Western Drilling Company
Box 1659
Midland, Texas