Case No.

965

Application, Transcript,
Small Exhibits, Etc.

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BEFORE THE

Oil Conservation Commission

SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE NO. 965

TRANSCRIPT OF PROCEEDINGS

ADA DEARNLEY AND ASSOCIATES
COURT REPORTERS
ROOMS 105, 106, 107 EL CORTEZ BUILDING
TELEPHONE [illegible]46
ALBUQUERQUE, N[illegible] MEXICO

BEFORE THE

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

Santa Fe, New Mexico

October 20, 1955

REGISTER

Name	Representing	Address
J. S. Ewing	Jake L. Hamon	Dallas, Texas
Ross L. Malone	Gulf Oil Corporation	Roswell, N. M.
J. C. Williamson	Williamson, Hayford & Rankin	Midland, Texas
Jack M. Campbell	J. C. Williamson	Roswell, N. M.
Frank S. Hayford	J. C. Williamson	Midland, Texas
Mann Rankin	J. C. Williamson	Midland Texas
U. S. Branson, Jr.	Jake L. Hamon	Dallas, Texas
Clarence Hinkle	Hamon & Warren P.C.	Roswell, N. M.
O. K. Gilbreth, Jr.	Gulf Oil Corporation	Roswell, N. M.
R. C. Sears	Warren Petroleum Corp.	Tulsa, Oklahoma
J. W. Gurley	Oil Conservation Comm.	Santa Fe, N. M.
W. W. Mankin	Oil Conservation Comm.	Santa Fe, N. M.
W. C. Harrington	Gulf Oil Corporation	Roswell, N. M.

IN THE MATTER OF:

Application of J. C. Williamson for an order redetermining the pool limits of the South Knowles Devonian Pool and approving an unorthodox location to be located 330' FNL and 2310' FEL of Section 24, Township 17 South, Range 38 East, Lea County, New Mexico, in the vicinity of the South Knowles-Devonian Oil Pool.) Case No. 965

ADA DEARNLEY & ASSOCIATES
STENOTYPE REPORTERS
ALBUQUERQUE, NEW MEXICO
TELEPHONE 3-6691

Before: Honorable John F. Simms, E. S. (Johnny) Walker, and William B. Macey.

TRANSCRIPT OF HEARING

MR. MACEY: Hearing come to order, please. The only case on the docket this afternoon is Case 965. Mr. Campbell.

MR. CAMPBELL: If the Commission please, Jack Campbell, Campbell and Russell, Roswell, New Mexico, appearing on behalf of the applicant, J. C. Williamson.

I would like to make a brief statement as to the nature of the application. The application seeks only to obtain approval of a location 330 feet south of the north line, and 2210 feet west of the east line of Section 24, Township 17 south, Range 38 east, Lea County, New Mexico; as the basis for requesting the Commission to approve such a location we have set out in the application three possibilities. The first being that we intend to offer some evidence which indicates to us that the area which has heretofore been delineated as the South Knowles Devonian Pool is not the same common source of supply as would be found were this well drilled at the location requested, and that that order does not therefore apply even though this location is within a mile of the outer boundaries of the presently defined limits of the pool.

If the Commission should so find, there are two pools, of course, the original order would remain in effect as to the northern part of the area and the part where this well is sought to be drilled would until otherwise set up by the Commission, be on a 40 acre spacing pattern, which would make this an orthodox location.

The second approach which we suggested was that if the Commission did not find that these are two separate reservoirs, that the entire area be set up on a 40 acre spacing pattern in which event, of course,

the same result would follow that this would be an orthodox location under the state-wide rules.

The third approach would be that if the Commission finds that this is a part of the original South Knowles Devonian Pool, and is therefore subject to the original order, that we be granted an exception to the spacing requirement set up in that order.

We Have two witnesses, Mr. J. C. Williamson and Mr. Hayford; if the Commission would like to swear the witnesses now.

MR. WALKER: Are there any more witnesses?

MR. HINKLE: Do you want to swear in the witnesses for both sides?

MR. WALKER: I would.

MR. MALONE: Ross Malone, appearing for Gulf Oil Corporation. Prior to the introduction of any testimony in this hearing, Gulf wishes to object to the reception of any testimony or evidence on the so-called second possibility mentioned by counsel in his statement, which is, "In the alternative determine that if said acreage is within the said South Knowles Devonian and subject to order R-638B then, because of additional information, available said order should be revised to provide for 40 acre drilling and proration units". This Commission, by its Order No. R-638B in Case No. 819, fixed the spacing units in this field and reserved judgment for a further hearing next July. Any attempt to change the terms of that order and the 80 acre spacing setup in that order, would of necessity have to be filed in that case and a direct attack upon the order. Not being filed in that case, it constitutes an attempted collateral attack and would be void in this proceeding.

For that reason we felt it might be well to state our position

in that regard at the outset of the case, and to point out secondly that the call of this hearing is limited to the application of J. C. Williamson redetermining the pool limits of the South Knowles Devonian Pool and approving an unorthodox location in the vicinity of the South Knowles Devonian Oil Pool. There is no published notice for any attack on the spacing unit and the proration units that have been set up by the Commission in Case No. 819. It was purely by chance that Gulf happened to learn that such an attack was being made in this proceeding, and appears for that reason.

We respectfully suggest to the Commission that no evidence should be received in support of alternative number two in the application of Mr. Williamson.

MR. HINKLE: Clarence Hinkle, Roswell, representing Jack Hamon and the Warren Petroleum Company. We would like to join with Mr. Malone on behalf of Gulf in the same objection, and think that the issues of this case should be narrowed and kept within the call of the notice which Mr. Malone has pointed out. I think that any evidence that would be introduced along the lines indicated by Mr. Campbell's second issue, that is to entirely do away with the 80 acre spacing and set up a 40 acre, would be a direct attack upon the order heretofore entered for this pool. I don't believe it can be done in this manner. It has to be a call broad enough to attack the order and set it aside.

I think the issues should be limited, the evidence introduced here should be limited to simply redetermining the pool limits and to a possible exception to the order which has already been entered in this case.

MR. CAMPBELL: If the Commission please, as I indicated

at the outset, the request and the application is for a 330 foot offset. That's the only application involved here. The grounds on which the Commission may choose to grant that location, I think, is a matter that can be determined by the Commission. In my judgment the call would be sufficient to consider these matters even if it had not referred to a redetermination of the proper pool limits. These factors are only matters which can be used as a basis by the Commission should it see fit to issue an order authorizing a location which is sought here.

Further, I think it is quite apparent that the parties here present at least have actual notice of the matters contained in the application, and that they cannot be heard to complain for that reason. The evidence that will be offered in connection with the redetermination of the pool boundaries, which is obviously within the call, of necessity, will touch upon the other phase of the matter. It is impossible in some instances to distinguish them. I believe the Commission should hear the evidence. If it does decide on the second alternative, of course the objection is made as a legal objection, and I presume that it could then be raised on appeal. I would like to proceed with the testimony.

MR. MACEY: Mr. Malone, and Mr. Hinkle, the record in the case will show your objection. We are going to let Mr. Campbell proceed in spite of your objection. What I am trying to say is, we recognize the fact that it is of necessity to put a certain amount of testimony that borders on the testimony of 80 acres or 40, and we are interested in getting all the testimony in the case that we can. The record will certainly show your objection in this matter. Go ahead, Mr. Campbell.

J. C. WILLIAMSON

having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. CAMPBELL:

Q State your name and place of residence.

A J. C. Williamson, Midland, Texas.

Q You are self-employed, are you not?

A Yes, sir.

Q Are you a geologist by profession?

A Yes.

Q Will you give briefly to the Commission your educational and experience background in your profession of geology?

A Well, I have a Master of Science first, a B. S., Master of Science and considerable work towards a Doctor's Degree from the University of California. The Masters from Texas Tech and I worked seven years with Phillips Petroleum Company and went out on my own as a district geologist for them, and then I went out on my own and I have been in Midland doing geological work for about eighteen years, seven of it with the Phillips and the last eleven on my own.

Q Have you done geological work in connection with Devonian fields in New Mexico and West Texas?

A Yes, sir, considerable. The Yokum County and Gains County and Edgley, in fact all of Lea, I more or less try to specialize in watching those areas.

Q Have you yourself been involved in the drilling of wells in Devonian fields in West Texas previously?

A Yes.

Q What fields, Mr. Williamson?

A Well, the Russell Devonian and the Field Pool which is a northwest Yokum and the Bronco Pool which is under the supervision of New Mexico.

Q Mr. Williamson, do you own an interest in a lease covering the north half, northeast quarter of Section 24, Township 17 south, Range 38 east, in Lea County, New Mexico?

A Yes, sir.

Q Does the basic lease cover more acreage than the north half of the northeast quarter?

A Yes, the base lease of the thing covered the whole east half of Section 24.

Q When will this lease expire? A October 7, 1955.

Q You mean November 7? A Yes, November 7.

Q Unless a well is commenced prior to that time?

A Yes, sir.

Q It is in connection with this lease ownership, is it not, that you have made the application in this case?

A Yes, sir.

Q What is it, Mr. Williamson, that you seek by your application?

A I want to drill a 330 location from the line of the north and west line of this 80 acres.

(MR. HINKLE: We would like to make demand at this time on counsel for Mr. Williamson for his lease or the assignment of the lease from the Amerada, of his farmout agreement, by reason of which he holds the title.

A Well, I don't have that letter with me, but I have it from Amerada on a letter agreement.

Q I presume you could furnish it?

A Oh, yes, I could furnish it.

MR. HINKLE: We would like to have it made a part of the record in the case.

A I could furnish it very easily.

MR. CAMPBELL: Will a photostatic copy be satisfactory, Mr. Hinkle?

MR. HINKLE: Yes.

Q In connection with your acquisition of this interest and the application here involved, have you made a study of the wells and the geological conditions in this area?

A Yes, sir.

Q What information have you had available to you upon which to base your interpretation?

A Well, I have the information from the Amerada that Hamon and Warren gave the Amerada while drilling the wells. I have the information given in previous testimony before the Conservation Commission. I have all the electric logs that were taken in the field on, I believe, all of the wells, all the electric logs were taken on all the wells.

Q I believe you previously stated that you have also had previous experience in connection with Devonian wells in areas adjacent to the New Mexico line? A Yes, sir, I sure have.

Q Mr. Williamson, I refer you to what has been marked Applicant's Exhibit No. 1 on the board there, and ask you to state what that is.

A That is a cross section across the South Knowles Pool into what I think is a new pool, entirely new pool which is down to the south, what is known as the South Knowles Pool.

Q Will you state what wells are involved in that cross section,

please?

A Yes. This is the Jake Hamon and Warren No. 1 Cone which is off to the Northeast. This is the Federal Davis Well and these are Schlumberger prints. This is in the new area that I think is the Hamon and Warren No. 2 Federal Davis. This is the No. 2 Holloway which is also in the new area.

Q Mr. Williamson, did you prepare that Exhibit?

A Yes, sir.

Q On the information that you had testified you had available to you?

A Yes, sir.

Q I now refer you to what has been marked Applicant's Exhibit No. 2 and ask you to state what that is.

A This is a map contoured on top of the Devonian or producing formation in the areas, and it also includes the Knowles Pool, the South Knowles Pool, and the new pool down here which we could call the Hamon area if these folks want to do it. The reason that it is drawn this way, of course, all maps are more or less interpreted. This Federal Davis --

Q Was that Exhibit No. 2 prepared by you also?

A Yes, sir.

Q From the information that you have testified you had available to you?

A Yes, sir.

Q Now, Mr. Williamson, will you go ahead and using the Applicant's Exhibits 1 and 2 for reference, will you state to the Commission what your geological interpretation of this area is?

A The reason it is brought into it is the fault patterns of the area which is not at all different from the fault patterns in almost all of the pools in this vicinity. Generally speaking, one may be

line of faulting. There is another branch pool. In this case you can see this pool has them, this pool has them.

Q Will you refer to the identity of the wells?

A Yes, this Hamon and Warren Federal No. 2 Davis. This well running pretty high on top of the Mississippian, the lower Mississippian, crossed a fault at the base, repeated itself in the Woodford, and went into the south area. This fault, is no reason to suppose that this fault isn't a strong trend along with these faults here. That is the way it is drawn here. This fault crossed it as demonstrated by this cross section right here. The top of the Woodford or a correlating point in the Mississippian showing how it ran and then this is a very good, the reason I use these Schlumberger is that they illustrate very well the repitition that was put in by the Woodford when it crossed the fault and started up again into another area.

I believe that this is a different area and not connected at all with this area up here.

Q Will you identify those areas that you referred to just a moment ago when you said this area and that area so that the record will disclose it?

A The area presently known as the South Knowles Pool and the area to the south which we haven't had a name for it yet.

Q The area to the south of the fault line that appears on Applicant's Exhibit No. 2, is that correct?

A Yes, that is right.

Q With regard to your interpretation and to the question of whether the two pools exist there, and with particular reference now to net pay, I believe that it has been previously testified to

before this Commission in connection with this South Knowles Pool that in the northern area lying north of your fault line there, the approximate net pay was about 25%. Do you have any information with reference to the approximate net pay in the wells which you show to be south of that fault line?

A Yes, generally speaking, and it is rather accepted I think throughout the industry, that a microlog is a pretty good evidence of pay section. I want to present here an enlarged copy of the Hamon No. 2 Federal Davis and the Hamon No. 2 Holloway.

MR. CAMPBELL: Will you mark those?

(Marked Applicant's Exhibits Nos. 3 and 4, for identification.)

Q I now hand you what has been identified as Applicant's Exhibit No. 3 and Applicant's Exhibit No. 4 and ask you to state what they are.

A No. 3 is a microlog of Federal Davis No. 2. I believe it has been stated in this part up here, and we have no reason not to believe it, that it is approximately 25% of the pay zone that could be considered of the producing section, let's put it that could be considered pay. You will notice in the Davis that there is considerably more, it is outlined in red on the exhibit, considerably more than 25%. It is approximately, if you detail it, about 36% of the section as has been indicated by the microlog that would be good pay.

There's other little inflections there, but they are not considered in this, only what we call the black part of the microlog that comes away over would indicate that not 25% in our unnamed area on this log, but at least 37%.

Now, in Exhibit 4 which is the Holloway Hamon and Warren No. 2

Holloway of the section penetrated, which is approximately 37 feet. It is about 33 feet penetrated, 16 feet is definitely shown by the electric log to be good pay. That is a little better than 50% in this area as compared with the old beat up 25% in this not so good section up here. That is one thing, one point in calling it a different area.

Q In addition to what you interpret to be the fault and to the difference in the net pay that appears in the wells to the south of the fault line, what does your study indicate with reference to the oil-water contact?

A Well, it indicates that this new area has quite a different oil-water contact. In fact, from my studies the oil-water contact in this lower area as shown here is at least minus 8600. Now it may be lower than that because in the drillstem test taken that covered this area, the well flowed and only in the reverse out was there any water made. That water came in last, the well couldn't have flowed and it was apparently because a large choke on the test jerked in. The total depth of the well is a minus 8608. So I believe I am conservative in saying a minus 86, that is giving it an eight feet of water and still the water came in only towards the last.

It has been my experience and I have paid for this experience a great deal, in those fields up there when you test close to water and flow it hard open that if you are anywhere near close, if you are in the water, you don't get any, but maybe only a little oil, sulphur water, but if you are close to it, you pull this water in. I feel like I have been very conservative in giving a minus 86 on this area here. Since I took my data in the northern part in the

true South Knowles area I took my data from, I believe this is the Cox, the Warren-Hamon Cox and the total depth on that well is about minus, the way I figure it, there might be a little difference in our figures on the elevation, but it is a minus 8543. This well even way back was making considerable water. So I took the minus 8543 as the water level in this pool. I didn't notice at the time that the Warren and Hamon group had made this water level 8530 by using the Cooper well up here.

The net result is that it not only was more than I thought, but it's 15 and 20 feet. All possibilities is you can have pretty close to nearly a hundred feet difference there, but you have at least 80 foot difference in the water level. If you want to call it tightening you can, but it isn't the case in most of the Devonian where there is a good porosity and the pressures are continuous across the pool. They have all the same water level. You can't tell what this water level is, you may say because part of it is dense. There was good porosity in this well, and there is good porosity in these, so that water level is quite a factor in determining that there is two different and separate areas to be dealt with.

Q Now, Mr. Williamson, in addition to the fault line, the net pay and the water table, are there any other factors which tend to substantiate your conclusion and interpretation that the area lying south of the fault line as shown on Applicant's Exhibit No. 2 is a different source of supply than the South Knowles Devonian Pool as now defined?

A Well, I got my information on this another little point there which I want to qualify. It came from the Amerada. There is no reason to think that the Amerada didn't get the true dope that the

wells were drilled on. My notes on here show that this, the gravity of this oil down here corrected was a little better than 43. While the gravity of this was continually listed as somewhere around 47 up and down. That came out of the notes from Amerada. My attention was called to it by these folks. In each case it has been listed corrected. I present that evidence strictly for what it is worth. I know that gravities vary, but in two pools, why it doesn't seem like they should vary 4%. It has been my experience that up in the pools that are similar to this, the gravity is constant.

Q Mr. Williamson, with further reference to any other factors that might tend to substantiate your interpretation, what is your observation with reference to the relationship between the South Knowles Devonian Pool and the Knowles Devonian Pool to the northwest with reference to the size of the area?

A Well, this as you will notice, I haven't marked the water level, but it comes along close because we have a bunch of dry holes. Notice that the aerial extent is very comparable to the aerial extent here. If we have a separate area here, which I think we do, the area is very comparable. Just because they happen to be a mile apart didn't mean a thing. The northern part of the Bronco Pool is less than a mile from the southern part there. They are not connected. This size pool is more or less the order of the thing rather than an enlargement. In other words, this would be the rule to have small pools rather than to have an extension of the sort that way.

Q Are there any other factors that you care to mention with reference to your conclusion that these constitute two separate sources of supply?

A Not that I recall at this minute.

Q Mr. Williamson, I understand from your previous testimony that you contemplate drilling at least one well on the north half, northeast quarter of Section 24? A Yes, sir.

Q There has been testimony presented to the Commission in a previous case involving the South Knowles Pool relative to the cost of wells in this area. It has been stated that the approximate cost of the wells in the northern area there has been $300,000. How does this compare with your estimated cost of a well which you propose to drill in the new areas?

A That is quite a bit higher.

Q What do you estimate to be the cost of the well that you contemplate drilling?

A Not over $175,000, $175,000.

Q How do you arrive at that?

A Well, in the first place I have some figures here that come along pretty close. I have a contract on the well of eight and a half per foot. That would mount up to a hundred and three thousand seven hundred if I drilled to 2200 which is a little deeper than I intend to drill. Then day work another five, and surface casing and the cementing about 3,000, the intermediate about 18,000 with the cementing, mud about five, that's pretty high for it. Oil string about $20,000 and other extras another 20,000, and that total comes to $174,700. I can't see how you could pour $300,000 unless you had very bad luck or very bad practices. We have drilled across the line and finished wells here in the Bronco Pool and in this Russell Devonian at similar depths and in the Field pools at 12,000 for 175,000 such a matter. Not only us, but other operators are getting those. J. C.

Barnes finished his he told me for $170,000, that was at 12,150 feet. That was two wells he finished, each one at that cost.

Q Assuming for the moment that this were determined to be a separate pool to the south of the fault line and were to be drilled by you upon a 40 acre spacing and proration pattern, and assuming the cost of the well as you have stated to be $175,000, have you calculated what the approximate payout period would be on a 40 acre location drilled in that south area?

A Yes, on a 7-8 lease it pays out in about ten to twelve months.

Q That is assuming a 40 acre allowable with a deep well factor?

A Yes, that is assuming the regular 40 acre pattern that has been set up for Lea County.

Q Based upon your study of the tests of the Holloway No. 2 well, do you believe that that well could be a top allowable well?

A Yes.

Q On what do you base that?

A Well performance first, it flowed naturally. It flowed naturally about, oh, I have the natural flow on it here. The pressures on the well, I went out and visited the well, they were standing at a thousand and it was flowing on a sixteen inch choke. It looks to give all indication with a good porosity and performance that it would make top allowable.

Q Will you state from the information that you have available to you what the original completion and original test information was on the Holloway No. 2 well?

A The test was taken there from the Devonian from 12,110 to 140. It was opened four hours and the gas to the surface in five

minutes, mud in 25, oil in 28, flowed 135 barrels in two and a half hours of oil, burst out 45 barrels of oil, 90 feet of oil cut mud. If you figure that down that figures two and a half, 135, better than 50 barrel an hour naturally. In that respect I would like to present and say that there was a difference in the bottomhole pressures taken on that test, a variance of approximately 600 feet lower than the South Knowles area to the north.

Q You mean 600 pounds?

A Yes, 600 pounds. That seems to me to indicate also the difference in the two pool areas. Even though this well had extremely good porosity as indicated by the logs, it didn't have the buildup pressure that the other wells had.

Q Mr. Williamson, based upon your calculations thereas to the cost of the well that you proposed to drill in the area south of the fault line and the payout period on a normal 40 acre allowable, are you willing to invest your money in drilling of wells in that area on a 40 acre basis?

A Yes, and I am not using tax money to do it.

Q Mr. Williamson, if the Commission should approve the location of this proposed well as requested in your application, what additional pay section would you hope to get by having the location moved to the north as is provided by the state-wide rules on 40 acre spacing?

A I think about 50 feet additional section. I believe that this Holloway No. 2 has approximately 200 feet of Devonian zone above the water table. Figure it on my basis here, it is 190 feet, but I think I raised the water level a little too high and it is lower than that. By moving it 330 I think I can move up dip 50 feet on my location.

MR. CAMPBELL: I would like to offer in evidence Applicant's Exhibits 1, 2, 3 and 4.

MR. MACEY: Without objection they will be received in evidence.

MR. CAMPBELL: That is all.

MR. MACEY: Any questions of the witness?

MR. HINKLE: Yes, I want to ask some.

CROSS EXAMINATION

By MR. HINKLE:

Q I believe you testified, Mr. Williamson, that you were more or less familiar with the Devonian production in New Mexico?

A In the areas close to it, especially along close to the Texas border.

Q Have you watched the development of this particular area?

A Somewhat.

Q Have you examined the logs, samples and electrical logs of every well in the South Knowles area?

A I haven't worked the samples, but I have looked very carefully at the electrical logs on the area, yes, sir.

Q Do you base your contour map Exhibit No. 2 just on the information from those that you have examined?

A Well, I have examined all the logs.

Q Examined all the logs of all the wells?

A Yes, electrical work.

Q I believe you stated that you obtained this 80 acres from the Amerada? A Yes, sir.

Q When did you obtain that from them?

A It's been, oh, I have had their letter for about ten days.

No, I signed it on the 8th.

Q Eighth of October? A Yes, sir.

Q You only have a farmout letter from them, you don't have an assignment?

A No, they don't give you the assignment until you have fulfilled your obligations.

Q Were you aware of the order which has been entered by the Commission providing for 80 acre spacing in this area at the time you made the deal with Amerada?

A I wasn't aware of the order at the time I did it. I was made aware of that two days later because actually at the time it hadn't come down to Hobbs. It took the Amerada ten days or longer, the letter was lost in the mail and finally it ended up all right, but it took the order of the Commission hasn't been received in the Hobbs office. In fact, if the man, when I came in there and talked "Had you made this application yesterday?" Well, that was Monday, yesterday, he meant the last closing day, if you had made it a day previous I would have approved. You understand I wasn't aware of the hearing that had gone on up here.

Q You didn't know of the hearing, the two hearings?

A No, I didn't know about that. I took the thing on Friday, I think.

Q Did you examine the title to this 80 acres?

A No, I haven't. I have now.

Q Are you aware of the fact that this order is of public record and is open to anyone?

A I beg your pardon.

Q Are you aware of the fact that the orders of the Commission

are public records?

A I am now. I wasn't aware that this order had been sent down and especially I wasn't aware that there was an order calling for north-south 80's.

Q Was that phase of it discussed in any way with the Amerada?

A I don't believe it was. I am pretty vague on that whether it was before or not.

Q Did your letter with Amerada provide that you shall comply with the orders of the Oil Conservation Commission in the development of this?

A No, sir. It has nothing to say about that that I remember, no. The letter says also that if it is unitized with any other property, that there is an override which they put on that, the override day is on there, I mean in effect --

Q (Interrupting) In other words, it says that if you communitize this 80 or any part of it with any other acreage?

A Yes, sir.

Q That any well that you drill will bear not only the override on the other acreage, but the override --

A (Interrupting) It would double my override. It would make a four override instead of an eight.

Q What was their explanation of that phase of it?

A They didn't give any.

Q Did they tell you it would have to be developed on an 80 acre basis?

A No, they didn't. Mr. Hinkle, we are a bit vague down there more than you folks are, I mean the Land Department wouldn't be expected to know a great deal and I don't think Amerada new very much

about what had gone on. I don't believe they even had a representative at the hearing. I am not aware of that, but I believe that the land man told me that they didn't have a representative at the hearing.

Q You didn't know then that the Amerada had participated in the previous hearings and had agreed to 80 acre spacing in this area?

A No, I didn't. I didn't know that. Especially was I ignorant of the north-south 80's in there. That I didn't know anything about until I got to Hobbs with my application and ran into that.

Q Mr. Williamson, referring to your Exhibit No. 1, I believe the well, the log of the well on the left is of the Federal Davis No. 2, is it not? A This is, yes.

Q Is that the well in which you show a fault condition?

A Yes, sir.

Q Is that the only well that you have examined in this whole area that indicates there might be a faulting condition?

A Well, I haven't examined any upper part of them as close as I have the lower, but yes, I think it is.

Q It is the only well? A Yes, that I have seen.

Q Do you think as a geologist that you can determine a fault or the extent of it, or the duration of the fault by one well?

A Well, you have to take a fault, Mr. Hinkle, and more or less fit it in to the general fault trends that go through the country. Now in this case the fault trends are as indicated up there. Usually there is cross faulting. There is zones of stress in which almost always, now they turn and run north, south and like this over in Andrews County. As you get up into this part of the county those fault trends turn and run east-west and in this more or less about the best area in here which goes around this basin area over here, these

faults trend this away and there is more evidence over in Texas that you have this thing also. If you have a fault here, why run it against the pattern, because if you do you are liable to just have to make it up anyway, just turn it around.

Q You think you come to the conclusion that this might be a fault simply because there is a thickening of the Woodford formation, is that right?

A Well, not the Woodford formation on these. This is a repetition, just almost --

Q (Interrupting) The Woodford formation is a shield formation?

A Yes.

Q Can you tell definitely from an electrical log, or examination of samples that it is a fault or that it is simply a thickening of the formation?

A Well, the Woodford formation is one of our most constant formations. It does vary in small amounts such as 20 feet, ten feet, usually regional.

Q Now, I believe you stated that you were familiar with the Bronco Field? A Yes, sir.

Q Isn't it true that in that area you have a thickening of the Woodford formation on the flanks of the field?

A That is due to drilling down dip mostly when you hit it at the angle like this.

Q Isn't the Federal Davis No. 2 down dip?

A It had a rather constant top, notice on the thing, then hit this down here --

Q In answer to my question--

MR. CAMPBELL: I believe he was trying to answer the question.

Q I say, in answering my question, did you say whether or not it was true that you do have that condition in the Bronco Field?

A Well, the Bronco Field is easily explained. Whenever you get one of those things, all things thickening which is due to dripping down the dip of the bed. Where you would normally have 700 feet from the top of the Mississippian to the top of the Devonian and you turn it this way and drill down thrcugh it, you will get a difference of one hundred feet in this area, which would come down to twenty feet here, and it does in those ways thicken. But that is not actual thickening of the formation. That is thickening of the length you drill across the formation.

Q If that is a fault, how much displacement do you figure there is?

A About 100 feet.

Q Is that what you have shown there on the plat?

A Approximately, yes. The cross section like this, it is approximately 100 feet, yes, sir, 90 or something like that.

Q What does each one of those little squares represent in number of feet?

A They represent ten feet.

Q How many of those do you have between the two?

A Let's see, that shows more than 100 feet there because this section over here it shows from the top of here to the top of here, it is approximately, the Woodford is usually about 90 feet.

Q You think there is about a 90 foot displacement?

A Yes, sir, 90 to 100.

Q What is the thickest zone, or the thickest section of the Devonian zone that was drilled in the north part of this area?

A Is that question which well drilled the thickest zone?

Q Yes, what was the thickest Devonian section drilled in the

north area, how many feet?

A This Hoyt well, I don't remember in detail, I think it was 350 feet. I will have to look at my cards and information to see how much it was. It was about that.

Q That would make considerably more Devonian pay section than your fault would indicate there, would it not?

A Yes.

Q Now, if you had a fault that was less than your complete pay section in the Devonian, could it act as a complete segregation to make two separate reservoirs out of the area?

A Mr. Hinkle, that Hoyt well was dense and it can't be used as a criteria because it had no fluid, oil or water in it for a long long ways down.

Q I don't believe you are answering my question. If you do have a condition where your known fault is less displacement than your known pay section, could there be complete severance of the reservoir so as to constitute two separate reservoirs?

A You are asking me if this fault is down far enough to seal against that?

Q Say it is only seven or eight feet and up above you may have five hundred feet of section. A Yes.

Q Is that going to be enough to completely segregate that?

A If the formation is dense, of course. In the Hoyt there is just drillstem test after drillstem test that didn't return anything. That section can't be considered anything but neither oil or water. The pay came in the Hoyt in the upper part, what they had. Then there appeared in the electric logs a slight slippage there.

Q Assume though, that there is porosity and permeability throughout the pay zone of the Devonian which was brought out in the testimony at the original hearing, this 80 acre spacing that it would drain a wide area and you only had a fault condition of say a fifth or less of the complete pay zone, would that completely segregate your field?

A Not unless the zone was dense and a dead zone on the upper part. Now, if you have --

Q (Interrupting) I am assuming there is, you answer my question that if there is porosity and permeability, would a fault that is one-fifth of the complete zone --

A (Interrupting) No, it wouldn't. The Dollarhide is a complete fault and there is not complete separation. Let me read some of the drillstem tests made on the Hoyt and which were below what would be considered the water level. There are just -- let me find them here in my list. Drillstem test from 12,232 to 12,050.

Q Which well?

A The Wilhoit. It is the Wilhoit. Drillstem from 12, let's start a little above that, 12,008 to 12,232, it was opened three hours, gas in two hours, thirty-two minutes recovered 388 feet of oil and water blanket. That would take it down to 12,232. Now, drillstem test from 12,232 to 12,257, I just wrote in my quick notes, nothing, it did have maybe a few feet of mud, it doesn't have any oil. Then from 12,268 to 12,299, nothing again. From 12,306 to 12,351 nothing again. Nothing being nothing of any value. Nothing that you would want to look at. 12,351 to 12,401 nothing again. 12,401 to 12,451 nothing, and 12,451 to 12,551 it made some water. That was way down in the section. The fault, as I see it, due to this dense

section, the seal could very easily take place because it goes down below the water level in the other pool and would be sealed up against the dense Devonian.

Q I believe you testified that the water level in the Federal Davis No. 2 was minus 8600?

A Or less, or deeper.

Q Do you know how deep that well was drilled?

A Yes, it was drilled to total depth of 12,288 or minus 8608. The elevation, 3680. Of course, as I say, I got this from the Amerada.

Q I don't believe that is a correct figure.

A This I got from the notes on the field from the Amerada Oil Company.

Q So much for that then. What did you state was the gravity of the oil in the Holloway No. 2 that you formerly testified to?

A I have it here. Holloway No. 2 was reported for the Amerada as 43.6 as I got it off my book.

Q Did somebody in an official capacity report that to you?

A No, I took this off their -- they have a book that they write all the progress and everything down. My testimony on that gravity is taken from the note in there.

Q Do you know that the Oil Conservation Commission requires that reports be filed on completion of the well to show the gravity of the oil? A Yes.

Q Do you know that the report which was filed in connection with that well shows it to be 47? A No, I didn't.

Q Did you examine the reports of the Commission to show that most of the wells in the northern part are also 47?

A Yes, I didn't examine for that, but they were reported as 47. My notes on the gravity from their files showed 43.6.

Q Did you have a representative at the well when it was completed?

A No, sir.

Q Did the Amerada have, do you know?

A I don't know.

Q I believe that you stated that in taking a drillstem test of the Holloway No. 2 that the pressures didn't build up equal to the pressure in some of the other wells and you indicated that that might be indicative or a factor to be taken into consideration that this might be producing from a separate reservoir?

A The pressure didn't build up but to 4,050 pounds.

Q Were you present at that drillstem test?

A Again, I am taking this from the files of the Amerada.

Q Do you know how long that drillstem test continued?

A It was four hours.

Q Do you know whether the pressure was continuing to rise at the time it was cut off?

A No, I asked Mr. Elliott here and one day we were talking and he says, "Well, the pressures weren't as good on that well as they were on the other". When I came across this in the Amerada files is what led to the statement in the testimony.

Q Are you familiar with the pressure tests taken subject to the completion?

A I have not had access to those.

Q As a matter of fact, the drillstem test, the pressures that occurred in drillstem tests are not necessarily indicative of pressures generally in the field, are they?

A I am aware of that, yes, sir.

Q That is not a good criteria to go by?

A Not particularly. It was mentioned in a only, by the way.

MR. HINKLE: I believe that is all.

MR. MACEY: Anyone else have a question of the witness? Mr. Mankin.

By MR. MANKIN:

Q Mr. Williamson, I am Warren Mankin, engineer with the Oil Commission. Your costs that you indicated the drilling of these wells, you did not include equipping of the well or the testing or the surveys, did you?

A Yes, I gave $20,000 to that.

Q Equipping the well?

A To equipping and extra things that they do. I am basing this on actual experience. We completed a well in the Bronco which is not quite as deep by about 500 feet for $170,000. We had about $10,000 worth of bad luck. We had estimated at $160,000. It was hitting right at it. Now, allowing another additional fifteen for this other five or six hundred feet depth which it shouldn't be, $175,000 seems to be a very good figure to me.

Q You think eight dollars and a half would be not too conservative per foot for drilling such a well?

A I have a contract with Mr. George P. Livermore to drill this one for, and I believe, I don't know this for sure, but I believe Mr. Hamon got this Holloway well drilled for eight dollars. At any rate, I had several bids, one of them below $8.50. I took Mr. Livermore on account of the fact that he is a pretty good friend of mine and he is taking the well and paying for the water which involves about $500.00 per well for $8.50.

Q Referring to your Exhibit No. 2 which is the structure map showing the faulting in the area, is it not true in Texas particularly in fields like the Excel Devonian and other Devonian fields, there is a considerable amount of faulting and they are not considered separate sources of supply?

A In the Excel there is one dominant fault running north-south of about 2,000 or 3,000 feet. Then there are little cross faults, but in all cases as in the Dollarhide which has a north-south fault too, but which I explained awhile ago, those faults, the pay zone is porous and there is continuity between them, yes. In this case there is a dense section below the first part of the well. There is a zone of pay and in the South Knowles Pool that doesn't seem to exist particularly in this one because it was still fairly porous all the way down. A small amount would be enough to produce a seal in my way of thinking.

Q Were the wells to the south of the South Knowles Devonian drilled to sufficient depth to determine if they had been completely sealed off and also sufficient depth to see if there wasn't a seal between the South Knowles Devonian and the areas to the south in question?

A This one, the Federal Davis No. 2 was drilled down to considerably below what is considered the water level here and didn't have the water. It is producing there now and not making water. I believe according to my elevation on it, it is producing at a minus 8536 which is six feet below, that is the perforation, and it is free of water as I understand. Until the water had broke in recently that has been a point that that well hasn't made any water. That six feet below where the Hamon group considered that these wells, the water level in those wells is free of water. It went on down

here. Yes, I think in that case displacement of 90 to 100 feet would seal the area. Besides the fault coming across here may have considerably more throwup on the thing than down here. Faults don't always have the exact amount of throw and they do queer things.

Q Is it your testimony then, that with faulting in this area, that this would make extinct the common source of supply, and there is no question in your mind that there could not be communication between the two?

A I don't believe there is. When you try to pin a geologist down and says there is no question in his mind, everything can happen in the field of geology and I wouldn't want to go that far. I don't believe from a professional study of the area that this is connected with the South Knowles area.

Q What I am getting around to, we have other fields in New Mexico, other Devonian fields which have faulting?

A Yes.

Q They have been considered one common source of supply across each side of the fault?

A I am not aware of any sizeable throw of fault in New Mexico that they produce on both sides, but I am not, but maybe I haven't studied enough to know that. Which pool --

Q (Interrupting) There is some faulting as you show yourself, in the Knowles Field, Dollarhide Field?

A Yes. This pool, I don't think there is anything down on the side of the fault. There isn't any production. The fault doesn't -- it seems to cut across this, hack across. Now, had this pool been porous on down enough to catch the front of this fault, there would have been no question of communication across.

Q ~~You indicated you deserved to drill this well 330 feet out~~

of the northwest corner of your lease? A Yes.

Q Are you not attempting, from that you are attempting to gain structural position in this situation?

A Yes, I am.

Q Are you willing to have less than 40 acres if such a thing was granted? Are you indicating that you don't feel that all your 40 acres is productive?

A No, I think it is all productive, but it is thin over to this area here.

Q You could make a commercial well within the center of the 40 acre, 660 from your line?

A I think you could make a commercial well or you would lack 50 foot of structure that you would lose by moving it to the center.

Q Would that create waste?

A Well, up until the time, well up until this decision, you could drill a well in Lea County on 330, it was permissible.

Q That is a minimum distance?

A Yes, sir. It had been done in Lea County, and Lea County was rather favorable to 330 locations. It will mean that Mr. Hamon over here or the Gulf will get some of my oil unless I do. It won't create waste, they will probably get it because eventually it will come out. I am just wanting all my oil, that is all.

MR. MANKIN: That is all.

MR. MACEY: Anyone else? Mr. Hinkle.

By MR. HINKLE:

Q Do you think that by permitting you to move up structure, that you would protect correlative rights of all the lease owners in the area?

A Of all the lease owners in the area.

Q Are you just looking for yourself?

A Well, if I move up structure, this well can move up structure and more drainage can be gotten from that. At least you will be allowed to recover your part of the oil on the lease. The oil won't come from over here, I don't believe any engineer would say that the oil would come from over here. It will be up from here, up from the flank. From reading the tests and from obviously studying the thing, there is a strong water drive in this pool. By moving up on your corner you don't get the oil from the other people, you get it from your lease. You get it from your party. You are really just recovering what belongs to you by drilling up on the corner of your lease.

MR. MACEY: Mr. Hinkle I really would like to have Mr. Elliott ask him a question, geologist for Hamon ask him a question that from a geological standpoint I don't understand.

MR. ELLIOTT: You have our Exhibit?

MR. MACEY: Yes. Exhibit 1.

By MR. ELLIOTT:

Q You will notice that Mr. Williamson has down in this section as including the Woodford Section on this major break on the Schlumber J.

MR. CAMPBELL: Show Mr. Williamson. Use the one on the board.

Q This is a little heavier, we might be able to see it. He is calling the top of the Woodford at the major break here, this is on the north end of the field here, here and runs on across to our Federal Davis No. 2 to this point. He cuts his fault and calls this the top of the Woodford here which if he sticks with his correlation Schlumber J., he will have to correlate this point here to this point.

MR. CAMPBELL: Are you asking Mr. Williamson a question here?

MR. ELLIOTT: I wanted that explained.

A The actual top of the Woodford is where the shale point is, right here. That is the point I believe has been repeated in this section.

Q You are not following --

A (Interrupting) I didn't label this top of Woodford here, and this probably should be labeled the top of the Woodford and this not because that is high in the section. Of course it is a very good porosity break and it is used because it is --

Q (Interrupting) If you use it over here why don't you use it here?

A This point right here, that is a good shale point to show the repetition on the thing.

MR. CAMPBELL: You are not getting this on the record.

MR. MACEY: The word "here" doesn't mean anything on record.

A You don't think there is a fault in this well?

Q No.

A You think it just thickening?

Q I think it is just thickening.

A I think there is a fault and repetition.

MR. ELLIOTT: That is all.

MR. MACEY: Anyone else? Mr. Nutter.

BY MR. NUTTER:

Q Mr. Williamson, Dan Nutter, engineer for the Oil Commission. You have established a fault trend across the Knowles, South Devonian Pool there. You more or less made it parallel with the fault trend

across the Knowles Devonian Pool. What is the basis for the direction of the fault across the Knowles?

A Well, this fault, of course, hasn't been cut in the section. But it drops off considerably right across here on these, and though you can't point it out, the trend of faulting is in this direction in this area and this fault is more or less hypothetical and can be done only by projection because unless you cut one, actually you are not aware of the fault, but they don't drill close enough to those to try and take away from them. When they get a well like this that is low and bending over, now, they did drill across it on this trend and found it very successfully.

Q They found the fault that was running southwest, northeast?

A They felt over here the difference here between these is approximately about 700 feet between the two wells. Then they found it again here, so you could project that very well. There is no such evidence for this. I will have to admit it, but the trend of fault along these flanks in this area is northwest, southeast, and if you find a fault like I have. Of course, you know geology can never be tied down definitely hardly ever, but you have to use all the information you can, if you find a fault you trend it with the normal faults of the area.

Q A fault line in that area hasn't been defined in either pool as a line between two faults where the fault was cut?

A No.

Q Your fault trend there is based on the general over whole trend for that region as a whole?

A For that region as it moves around the basin, the trend of the fault north-south generally with small faults cutting across and as you go around the spacing until up in here, they move around

east-west this way and this way.

Q In that particular area, that is the area in question, today the trend is northwest, southeast?

A Yes. Yes, I have derived that from my knowledge of the study in the basin and the uplift in relation to the main basin, the Delaware Basin over there.

MR. NUTTER: Thank you.

MR. MACEY: Anyone else? Mr. Mankin.

By MR. MANKIN:

Q Referring again and following Mr. Elliott's question in regard to this fault zone, it occurs to me, I cannot see why you call what may be called the top of the Woodford here at 12,000 rather than the similar kick that you used on all the others at 11,930. In other words, 70 feet higher in the Fanny Holloway No. 2. Why in the Fanny Holloway No. 2 on the extreme left of your Exhibit 1 did you not pick it at 11,930?

A This is not listed as the top of the Woodford.

Q Why was it not picked at 11,930, you are correlating across?

A This is representing the thickness of this shale and projecting it over here to simply show how much repetition was shown in the faulting of the area. There is other evidence that this well is still may be touching along on the fault in that these breaks of shale are coming in there, though I don't offer that as evidence. You will notice it down on the Schlumber J. there are kicks inside there very similar to the Woodford section up there. It may be playing along the edge of the fault.

Q You don't feel that your line should be moved up 70 feet to 11,930?

A The top of the Woodford could be moved up, a repetition like this. I don't really think this is the top of the Woodford first place. I think I misnumbered that, that it should be right here.

MR. CAMPBELL: Right where?

A Right here.

Q What depth?

A The top of the shale there. Actually this would come nearer being the top of the Woodford at 1200. That is the normal Woodford section in the area there.

Q You don't feel that what you have seen here might be an exaggeration in the fault then?

A I don't think it is an exaggeration. It is a little bit, the restoration is a little bit overdrawn perhaps, but that is in my way permissible in geology because you don't show anything, this being the thickness of the shale and this being the thickness of shale over here. You have this much repetition and notice the thickness difference. There is a nonconformity at the top of the Mississippian. I don't believe that anybody will deny that that at the top of this Mississippian section here there is a nonconformity. Notice that you have from here --

MR. CAMPBELL: (Interrupting) Give the depths, can you, you say here and here?

A Yes, on the Fanny Federal Davis No. 2 the top of the Mississippian, as we call it, the Mississippian lime, and I think that is the top of the Mississippian in the country is 11,238 feet. That is the conformable point generally speaking, and thickening and thickening takes place here much more than it does in the Woodford part. You will notice that I have broken unconformity there across that. If you don't have faulting you got that much thickening which would be

this top on the Holloway No. 2 is 11,238 and you have clear down to here, which would make it, oh, about 100 feet thicker, such a matter or more, which I claim has been repeated in that fault zone there.

Q Mr. Williamson, if this shale line was moved up, whether you would call it a Woodford or what you might call it, in comparing the Fanny Holloway No. 2 and Federal Davis No. 2, wouldn't you be more concerned with thickening in the Federal Davis 2 or thinning in the Holloway No. 2 rather than too much of an accent on fault?

A Well, of course, faulting and thickening has the same effect on a formation. Had we --

Q (Interrupting) You are speaking of, if you had faulting you might have severance of the beds whereas thinning and thickening may not sever the beds?

A No, but it looks the same on a stratographic map.

Q But not necessarily a stratographic trap?

A This is faulting. It seems probable that you would have this much thickening all of a sudden down there. This is where the main part of thickening takes place in the Woodford. I don't recall where normal Woodford sections thicken this way anything like that. I know when a well is being drilled that all the time it crossed a fault and lost a hundred feet of section. It seems to me like just for mere convenience that it has been called thickening because down in our part of the thinning it was general talk that this well was running high and suddenly poor boys have crossed a fault and it went out on them, or went down.

Now, to call it thickening when it looks obviously like a repetition of the shale section is a matter of convenience rather than actuality, it seems to me like.

Q I was trying to point out that possibility, some of this might be further cut off by thickening rather than so much accent on the faulting.

A Woodford is fairly consistent, sir. Of course, everything happens in geology, how faults and thickening and everything when you have been a geologist, pin him down and say it can't happen. If he is truthful he will say, yes, it can happen. When you take a normal section that has been running fairly constant, varying five, six feet or ten and thickening, it all the sudden to double it, you can suspect faulting, especially in a rather reliable section as the Woodford.

MR. MANKIN: That is all.

MR. HINKLE: Mr. Williamson, as his testimony has shown, that Applicant's Exhibit No. 1 is incorrect. We move that that exhibit be excluded from the transcript in this case unless Mr. Williamson corrects it to conform to his testimony.

MR. MACEY: I was going to ask Mr. Williamson a question, which I know would probably clear up your question. If you still wish to make your motion after I get through, is that all right with you?

MR. HINKLE: That is all right.

By MR. MACEY:

Q In your Federal Davis No. 2 will you identify what you pick as the top of the Woodford shale and the top of the Devonian?

A In the Davis No. 2?

Q Davis No. 2.

A In the Davis No. 2 I will have to say that this was a wrong labeling. The Woodford top formation is the wrong labeling because

this point on the electric log isn't the true Woodford. It is sometimes mistaken to do so, but it is actually a shale at the base of the Mississippian lime. The point of the Woodford on the Federal Davis No. 2 is 12, I would pick at 12,010. I could pick the top of the Devonian, well there is a little bit of ambiguity on the part of the electric log. I actually think that the top of the Devonian came at 12,200 because there is a little sliver of dolomite up there and then there is a break of shale below it, and though we have picked this upper one at 12,185 there is 15 feet in there which caught in this fault is probably nothing more than a little sliver, and the actual true Devonian top I would pick at 12,200. That makes the Woodford section of 190 feet and the Woodford over here in this well.

MR. CAMPBELL: Which well?

A In the Holloway No. 2 is 100 feet. The Woodford over here if you are picking.

MR. CAMPBELL: Which well?

A The Davis No. 1, picked the same correlating point was 11,985, and the top of the Devonian is 12,070, and that would be 11,950, in that case it is about 110 or 20. There is a questionable top here of whether this sliver of shale here is related to this up here or whether it is related to this down here. There is a question there of 12 feet of where you can call that sliver of shale related to the Woodford or whether you can call this the true Woodford top or not. There is a definite black shale there. There is a brownish shale up in here that filters out and is filled with dirt and lime breaks, and there is a definite brownish black shale that has spores in it that you call the Woodford. It has a little sand at the bottom,

but on the electric log you can see that this phase is constant all the way through. If you reach up any higher you get up into this section that I have mislabeled here as the top of the Woodford. Usually it is a very good correlative point. My break is completely substantiated by the low water level in this part of the thing, we went into this down side the section.

Q Then I take it that you feel that your label of your red line which indicates to me rather that the red line is the top of Woodford is actually in error?

A Why it should have been down here. Move down to compensate with this right here. That is a very good correlative point you can tell across there. What I was trying to show was there is comparative unity between this part of the section while all of a sudden we repeated the shale part down here.

MR. NUTTER: The top of the Woodford shale would be another line that would be parallel to the top you have for the Woodford shale? A Yes.

MR. HINKLE: How many feet down?

A About 80 feet.

MR. NUTTER: Which is the Woodford shale?

A This is the true one right in here. Electric logs all log shale as the same. This Woodford is more radioactive than the rest and you get the break right in here. See Woodford.

MR. HINKLE: I would like to ask some more questions.

By MR. HINKLE:

Have you examined the samples of the wells that are referred to and shown on Applicant's Exhibit No. 1?

A No, I haven't.

Q You referred a little while ago that there was a definite

black shale marker and a red marker and so forth?

A Definite black shale.

Q How do you know that you haven't examined samples?

A I worked every well wildcat that was drilled in the basin for almost, let's see, I just quit a few years ago.

Q They are not uniform in all wells all over the area?

A More or less so.

Q You can't say definitely that that particular black shale occurred in these wells, can you? A Yes.

Q You could say definitely?

A I wouldn't say that I did look at it, but I would say it is as characteristic as the characteristic of the human race.

MR. HINKLE: I would like to renew our motion that this exhibit be stricken from the record in this case because it is shown very clearly that it is not accurate by Mr. Williamson's own testimony in the case.

MR. MACEY: We will take a recess.

MR. CAMPBELL: Let me make a statement on that please. In connection with that, the matter has been fully explained, the Commission is qualified to attach what weight to the exhibit they see fit. A correction has been stated into the record by Mr. Williamson. He has stated that it does not affect his ultimate conclusion with reference to the fault at a lower point. I see no reason why, since it is fully explained in the record, it needs to be stricken from the record. It is the matter of weight to be attached to it by the Commission.

MR. MACEY: We will take a recess.

(Recess.)

MR. MACEY: Mr. Hinkle, your motion is denied that you made just before the recess. Any questions of Mr. Williamson? If no further questions of Mr. Williamson, he may be excused.

(Witness excused.)

MR. MACEY: Do you have any further witnesses?

MR. CAMPBELL: We rest.

MR. MACEY: Mr. Hinkle, do you have any witnesses?

MR. HINKLE: Yes, before we proceed with this case I would like to refer again to the ruling of the Commission at the beginning of the case made following a statement of Mr. Malone in which we joined, that the issues be narrowed down so as to exclude any evidence which might be considered as an attack on the order that the Commission previously issued, providing for 80 acre spacing in this case. Unless the Commission does narrow the issues down to the call of the hearing, which I believe is clear, the scope of this hearing can only go to the redefinition of the area. We will be compelled to offer in evidence transcript of the testimony which was taken at the original hearing and in the rehearing of Case No. 819. I don't like to encumber the record, but if the Commission is going to consider that this case can be considered in the light of possibility of reexamining the order previously entered providing for 80 acre spacing and restricting the allowable in the South Knowles area, then I would like to offer the transcript of testimony in this case.

MR. MACEY: Mr. Hinkle, nothing will be in the order that the Commission might write in this case that would change the existing 80 acre unit in the South Knowles Devonian Pool. I am referring to the entire order within that defined common source of supply. The question as I see it, is entirely fixed in that it is up to whether

or not we grant an unorthodox location in exception of the pool rules or whether we do not redefine the South Knowles Devonian Pool. The record here that is in existence will cover that area.

MR. HINKLE: There will be no change in the general order heretofore entered as far as 80 acre spacing is concerned and the allowable and spacing units in the South Knowles area?

MR. CAMPBELL: It might indirectly to this extent, the present order as I understand it, does not delineate this particular area we are talking about now, the north half of the northeast quarter as being within the South Knowles Devonian Pool. However, the order is applicable to all wells drilled within one mile of the pool boundaries. If the Commission should find there are two areas in effect as to wells outside the perimeter of the present limits and within the mile, would be in that way affected. I think what you are referring to is the spacing pattern as now set up in the South Knowles Devonian Pool.

MR. HINKLE: What I am referring to is that anything in this case could be considered as a direct attack on the previous order of the Commission.

MR. KITTS: The last order of the Commission setting up 80 acre spacing?

MR. HINKLE: That is right, in Case 819.

MR. KITTS: Referring to the pool boundaries as previously delineated by the Commission?

MR. HINKLE: I think the Commission should limit the scope of this case to simply redefining there is any evidence on which the pool can be redefined. If so, then as Jack pointed out, I think make an unorthodox location in that area which they segregate.

MR. MALONE: If I understood the director's statement awhile ago, he sustained the proposition that I stated at the outset, which was that this hearing would be limited to the granting of an unorthodox location if one is granted, or a redelineation of the pool, but that it would not be considered as affecting or an order coming out of it which might affect an order heretofore granted in Case No. 819.

MR. MACEY: Insofar as it pertains to the 80 acre proration units.

MR. KITTS: I am speaking for myself. I don't think we feel that a possible redelineation of the pool boundary would be a collateral attack.

MR. MALONE: I would like to point out on that proposition that the nomenclature case is the case in which the pool boundaries are delineated. If an effort to redelineate is made, it should be made in application in a nomenclature case rather than in a separate application as a little brother to an unorthodox application.

MR. CAMPBELL: The effect of the Commission's order here would be simply to find, if they were so inclined, that this is not within the limits of the pool. That really doesn't involve even a redelineation.

MR. MALONE: The nomenclature case says that the pool includes the following described land. You want the Commission to say that it doesn't include the following described lands?

MR. KITTS: This well in question is not within the presently defined limits.

MR. MALONE: Under the general rules of the Commission the area within one mile of these limits has to come under the rules

applicable to that pool. It really seems, I would like to express the view for Gulf, that this application must be considered as merely an application for an unorthodox location.

MR. GURLEY: Your clients contention is, Mr. Campbell, that this does not come within the order or the area of the South Knowles Devonian Pool even though it is within one mile?

MR. CAMPBELL: That is right. It is a separate pool.

MR. HINKLE: In that connection I would like to read Rule 104."Any well drilled a distance of one mile or more from the outer boundary of any defined oil or gas pool shall be classified as a wildcat well. Any well drilled less than one mile from the outer boundary of a defined oil or gas pool shall be spaced, drilled, operated, and prorated in accordance with the regulations in effect in said oil or gas pool."

If you redelineate this, draw a line like he has suggested, it would still come within one mile and would still be governed by the spacing rules in effect.

MR. GURLEY: Let me ask Mr. Campbell another question. Is it then your contention that it is not within the area of the South Knowles Devonian Pool because of the difference in production strata so to speak, it is in another pool?

MR. CAMPBELL: Because in fact it is in another pool. If the Commission finds it is another pool, that provision of course wouldn't apply, it doesn't seem to me.

MR. GURLEY: You are not arguing at all that the one mile limit does not apply because of the distance, only because of the fact that in your opinion it is in a separate pool?

MR. HINKLE: While we are on this subject I want to make one other point in the interest of saving time, if the Commission did see fit to make an exception in this case, we would also want, and I

assume that Gulf would want the same thing, consideration of another exception. It says that whenever an exception is granted, the Commission may take such action that would offset any advantage that a person securing the exception may obtain over other producers by reason of the unorthodox location.

If this is to be considered as simply an application for an orthodox location, we would also want the Commission to permit the drilling of 330 locations in the corners in the common corner of the area there, the northwest corner of the 80 acres that Mr. Williamson secured from the Amerada. So in effect he would have exceptions that would permit the drilling of three wells on the corner of each of one ten-acre tract, or four wells within 40 acres.

MR. CAMPBELL: That is agreeable with us.

MR. MALONE: If it please the Commission, without any desire to further complicate the issue, but in order to point out the seriousness of the problem that the Commission is dealing with, I would like to point out that there are a number of operators who under the existing nomenclature definition, have acreage which is in the South Knowles Devonian Pool and subject to 80 acre drilling unit that the Commission has established. If this application is granted, those operators without any notice that a rehearing on the nomenclature definition is being held, are going to find themselves excluded from the South Knowles Devonian Pool subject to the general state-wide rules, and not subject to the rules heretofore promulgated for that pool.

Gulf, for one, which will be so excluded, does not wish to be

so excluded. Whether other operators who would be equally affected might or might not wish to be excluded remains to be heard from. I mention that as indicating the seriousness of the issue which is presented here when we start talking about a redelineation in the face of a general state-wide rule that anything within one mile has got to come under the existing field rules, when it is done in a case that is independent of the nomenclature determination.

MR. KITTS: I don't believe Mr. Secretary, that the scope of the application calls for a redelineation. It calls for a determination, or asks the Commission to make a determination that this one well is not within the presently defined limits of the pool. We are smack up against the question whether such a finding automatically puts it in another pool and makes it an exception to Rule 104A I don't think the request of the applicant goes that far.

MR. MALONE: But to grant it you have to go that far.

MR. HINKLE: Maybe it goes farther, it is asking you to do away with 80 acre proration.

MR. KITTS: That is right. In Number Two.

MR. CAMPBELL: The Commission has ruled on this point, the first point at least. Let's proceed.

A. C. E L L I O T T

having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. HINKLE:

Q Your name is A. C. Elliott? A Yes, sir.

Q Are you the District Geologist for West Texas, New Mexico for Jack Hamon? A That is right.

Q Give the Commission briefly some of your educational and professional qualifications.

A I graduated in 1933 at Texas A. & M. in a B. S. Degree in geology, worked three years for Magnolia to 1937, geophysical work, worked for Shell Oil Company in geological from '37 to '52, at which time I had various and sundry assignments and District Geologist in Houston, Lake Charles, Division Geologist West Texas, New Mexico. Since that time I have been working for Mr. Hamon.

Q You reside at Midland? A Midland, Texas.

Q You have under your jurisdiction all of West Texas and New Mexico? A Yes, sir.

Q Are all operations of Mr. Hamon in New Mexico under your direction?

A Supervision from geological standpoint.

Q Have you made a study of the South Knowles area from its inception? A Yes, sir.

Q Have you had available, analyzed and checked all the samples from every well in the area?

A I have a consulting geologist that sits on the wells, and he in turn makes me a lithologic sample log from his study of the samples that is plotted in colors to represent shales and sands.

I have observed some of the cores. I have not looked at all the samples.

Q Have you checked all the electrical logs taken in connection with this?

A I have studied all the electrical logs in the field.

Q Have you prepared contour map of this area, the South Knowles Field from the information that you have examined?

A Yes, sir.

(Marked Hamon & Warrens Exhibit No. 1, for identification.)

MR. HINKLE: If the Commission please, the plat on the board has been identified as Exhibit 1 of Jack Hamon and Warren.

Q Mr. Elliott, explain to the Commission what Exhibit 1 shows.

A It's a contour interpretation based on Schlumber J. correlations, showing the relative elevation on top of the Devonian formation. These lines represent 50 feet of difference in elevation. This being the highest lower by fifty one hundred, one hundred fifty. This interpretation is based on the points in these eight wells and these two wells on the south. The Holloway 2 and the Davis 2. This merely shows that a uniform symmetrical fold showing an east flank and a west flank and so far north, we don't know how far south.

This is merely, however, down, this might come as speculation. On the basis of the information at hand, this is the interpretation on top of the Devonian which is a very uniform small anticlinal fold which is a little different in configuration from the Knowles, but which is in the trend of the country north-south as the big Denton Field and the Gladiolia, all the fields along this trend has something of a north and south alignment. That merely shows the elevation on top of the Devonian formation.

Q The information shown by that plat was obtained through a study of the electric logs?

A Yes, supplemented by our sample logs.

Q To further substantiate your contour map, have you prepared a cross section plat or maps of the area?

A I have a cross section.

MR. HINKLE: I would like to offer Exhibit No. 1.

MR. MACEY: Without objection it will be received.

(Marked Hamon & Warren Exhibit No. 2, for identification.)

MR. HINKLE: The plat on the board has been identified as Warren and Hamon Exhibit No. 2.

Q I would like you to refer to Exhibit No. 2 and explain to the Commission what it shows.

A This is a Schlumber J. cross section across the north end of the field here, and the last well on the right is the Gone which would be off this line, so this is Section A extending across the axis of the fold as we now see it. This blue line, as you will note where we get our Schlumber J. characters, represents the top of the Mississippian lime and churt sections which we correlate from this well, this blue line represents the top of the Mississippian. This is essentially the same as you have seen here, only you are looking at it in another dimension. This line here compares favorably with the top of what we will call Woodford, the upper part of the Woodford, the same Schlumber J. marker which Mr. Williamson used partly.

We will stay with that Schlumber J. marker throughout our discussion of the cross section this afternoon. Here is our line on top of the upper Woodford, you can see it conforms very much, shows no anomalous conditions, a little steeper flank as you are going off

in this direction here. The red line is based on characters which is very common on top of the Devonian formation. It shows it paralleling with a slight or a high well here with a slight thickening of the Woodford on this flank over here. It is a very uniform dip. We see no evidence whatever on the cross section of abnormalities on any of the logs that suggest any faulting. We, assuming that this normal uplifted area were normal, flanks as we see in every oil field, nothing at all unusual about it.

MR. HINKLE: I would like to offer in evidence Exhibit No. 2.

MR. MACEY: Without objection it will be received.

(Marked Hamon & Warren's Exhibit No. 3, for identification.)

Q The plat on the board has been identified, if the Commission please, as Hamon & Warren Exhibit No. 3. Will you explain to the Commission, Mr. Elliott, what it shows?

A This is a Schlumber J. correlation based on correlation similar to our previous exhibit. We have, or are attempting to show the relationship between this set of wells on the north and their relationship to the two south wells, the Holloway 2 and the Davis No. 2. Starting at the north end at the Davis No. 1, discovery well, this section extends to the Holloway No. 2 along the axis of the structure to the east of the Davis No. 2. This being the Davis No. 2 Holloway 2, Davis 1 going from north to south. We are staying with our Schlumber J. correlations and are calling this entire section Woodford and you will note that as you proceed to the south, being lower on the Devonian than on our Holloway 2 than on our Davis No. 1, we see a gradual thickening of formation along the axis as we turn at a right angle on this section going off the structure. Then we get an increase in Woodford section which we have

per correlations at the top of the Devonian showing a normal thickening of Woodford shale as you go off the axis of the structure, which is not at all unusual.

You can explain a thickening or a thinning of formation either by non deposition or by erosion. If the structure was moving at the time of deposition of the Woodford, moving up, you get a thin section on top, a thick section on the flanks. That is just accepted fact in geological problems. We have an almost flat top extending along the axis on top of the Mississippian just almost a straight line, which indicates that our movement was effective down in here, did not reach the top of the Mississippian that it did here. So we would date our movement as Devonian or post Devonian, pre Mississippian.

MR. HINKLE: If the Commission please, we would like to offer in evidence Exhibit No. 3.

MR. MACEY: Without objection it will be received.

(Marked Hamon & Warren's Exhibit No. 4, for identification.)

MR. HINKLE: If the Commission please, the exhibit on the board has been marked Exhibit No. 4, Hamon and Warren.

Q Would you explain to the Commission, Mr. Elliott, what it shows?

A This is a Schlumber J. cross section extending from the Holloway 2 to the Holloway No. 1 on the north to the Holloway No. 2 on the south. This being the Holloway No. 1. To introduce any faulting in any interpretation, you have to have abnormal sections across the, have a different section one side of the fault from what you see on the other. This being the case, the faulting was introduced as extending across in this direction.

We would like to point out that the interval from the top of the Mississippian to the top of the Woodford is very constant between the two wells which is shown by the correlations here. We would like to point out again that we see a thickening of the Woodford section as you come to the south. This being on top of the structure. On top of our Devonian it is slightly slower which gives us a slightly thicker section of Woodford on the south end of the structure. This, in my opinion, is not unusual at all. In a study of other fields, why I have another section here that I would like to present.

Q Before you get to that I would like to ask you a few specific questions here. Does Exhibit No. 4 or the other cross section exhibits, show any abnormal conditions that would indicate in any wise that any of these wells are producing from separate reservoirs?

A We have no information from our study of the cross sections that indicates there is any separation between this group of wells and this group here. We have seen that by our constant intervals on one side of the field, the north side and the south side.

Q Were all of these plats prepared by you from a study of electrical logs? A Yes, sir.

MR. HINKLE: We would like to offer in evidence Exhibit 4.

MR. MACEY: Without objection it will be received.

(Marked Hamon & Warren's Exhibit No. 5, for identification.)

MR. HINKLE: If the Commission please, the plat on the board has been identified as Hamon and Warren No. 5.

Q Tell what this shows, Mr. Elliott.

A Mr. Williamson mentioned and has had an interest in this particular area. This is the Bronco Devonian Field, the portion

of the structure that exists in Texas. It is a cross section across the Kendrick lease, which as far as my knowledge goes, there has never been any faulting, any fault interpretation introduced in this field. We would like to point out that this red color shows the variation of the Woodford shale in an isolated area between 1320 locations. You will note that this Kendrick No. 3 penetrates 30 feet of Woodford. The Kendrick No. 2 penetrated, and again we are staying with our correlation Schlumber J., penetrated 90 feet in 13, that is a gain of 60 feet which is merely normal going off the structure, an increase in your Woodford shale.

The Kendrick No. 1 you can see an even lower well the amount of Woodford here. The point is that in 1320 as the thickening on the highest well, you see thickening of the Woodford on both sides. That shows that there is in existence fields with varying amounts of Woodford shale and no faulting or separation of reservoir has been introduced in that field.

Q Did you prepare this plat?

A I prepared this cross section.

MR. HINKLE: We would like to offer in evidence Exhibit No. 5.

MR. MACEY: Without objection it will be received.

Q Mr. Elliott, I believe that you have testified that in connection with the Exhibits 3, 4 and 5, 2, 3, 4 and 5 showing the cross sections of the field, there is nothing which indicates any abnormal condition or faulting. I believe you have heard the testimony of Mr. Williamson in this case? A Yes.

Q Which indicated that in his opinion because of the condition found in the Federal Davis No. 2 that it might possibly constitute some evidence of faulting. What, in your opinion, does the

log of that well show?

A The Davis No. 2 was the first stepout well that we drilled south of this grouping of wells here. We saw this increase in Woodford section from this point and from here, and we were low on the Devonian and that is an abnormal place where if you do get a thick section that you have the possibility of either gaining section going off the structure or geologically you can introduce faulting. However, when this well was drilled it moved the axis of the structure in this direction by being 80 feet higher than this well, it merely suggests to us that the axis exists in this direction, and even if you interpret this, we did not cut any fault. There is nothing abnormal in this well as shown by this section here, but if you introduce your faulting it seems to me that you have to put this well, thrust it from the northwest as Mr. Williamson did, swinging the axis of the fault in the northeast, southwest direction, at which time this well would be producing at a lower elevation and this well by the correlations and relationships we have seen, falls in the same reservoir as the wells to the north.

We don't believe after we drilled our Holloway 2 and established the axis, we are going off at a fast rate of dip faster than on the north, a slight dip, and we get a longer section of Woodford.

Q What are the two highest wells shown on your structural plat?

A We encountered the top of the Devonian in the discovery No. 1 at minus 8381 and Holloway No. 2 at minus 8410.

Q Would that indicate a normal condition?

A A very normal condition.

Q Would it be logical then if there was a fault that it would go between those two wells that does show a normal condition?

A We would have to have more, we see no change in section from here to here, which in my opinion eliminates the possibility of faulting. We only see the gain in Woodford section as we see here between locations, we only see this relation between this well and this well.

Q Mr. Elliott, I believe it was Mr. Williamson's Exhibit No. 2 that shows the faulting condition in the Knowles Field and also what he terms to be the faulting condition in the southeast Knowles Pool. Do you recall that?

A I think any geologist, it is extremely hazardous to introduce faulting in any condition. He drew his fault, as you recall, across an established strike of the fault in a northwest, southeast direction based on no wells to the southwest as merely supposing that the fault exists, because of the dip existing on the flank of the struct re. I see no relation and no evidence --

Q Is there anything in connection with the Knowles area or the southeast Knowles area or in the whole area, to establish a trend of faulting?

A The only faulting definitely that you can put on subsurface is the northeast across the Knowles field as the one he pointed out, running northeast, southwest.

Q But not the one running northwest, southeast?

A There is no evidence as far as I know for it.

Q Is there anything after your study of this area that would indicate to you that there is a separate reservoir existing between the wells in the north part and the wells in the south part?

A We have no data at hand that would indicate to our people that there is two structures present.

Q Is it your opinion that all the wells that have been drilled so far are producing from the same reservoir?

A Yes, sir.

MR. HINKLE: I believe that is all.

MR. MACEY: Any questions of the witness?

CROSS EXAMINATION

By MR. CAMPBELL:

Q Mr. Elliott, I believe you stated in connection with your qualifications of the witness, that you have not yourself examined the samples on these wells, is that correct?

A We have a consulting geologist that sits on the well and logs the samples at the well site.

Q You haven't examined them yourself?

A I examined, as I mentioned, some of the cores. I have not, as I stated before, examined the samples.

Q So far as that part of it is concerned you have the same information of your own personal knowledge as Mr. Williamson has, do you not?

A I have a consulting geologist employed by Jake L. Hamon that represents those by lithologic sample logs which we accept as valid.

Q As correct? A As correct.

Q You have to accept his, you yourself have no knowledge of it?

A I cannot sit on the wells.

Q With reference to your Exhibit No. 1 which is your contour on the top of the Devonian formation, would you examine that please? I refer you to your 8500 foot contour line.

A 8500, right.

Q Now, I refer you to the Cox No. 1 well and the Cooper, I

think No. 1 well, the Cooper being in the southwest quarter of Section 12, and the Cox being in the northwest quarter of Section 13.

A Right.

Q What is the top of the Devonian on the Cooper well?

A Minus 8483 by Schlumber J.

Q What is the top of the Devonian on the Cox well?

A 8472.

Q Why are those wells outside the 8500 foot contour on your contour map?

A My map is in error. I have contoured on top of the Devonian formation and have jumped from the top in these two wells to the top of the porosity, which is a difference of 26 feet. It is in error.

Q In other words, your 8500 foot contour line should be outside those two wells, shouldn't it?

A It should be to the west.

Q Your 8550 foot contour line moved accordingly?

A Right.

Q But even if you jump to the porosity your 8502, as the top of the porosity in the Cox well, would not lie midway between 8500 and 8550 foot contour would it?

A Your 8500, your 8502 on top of the porosity?

Q Yes, sir.

A If we are contouring on top of the Devonian our 85 would be to the west of the minus 8472.

Q You explained your error by saying that you had jumped to the top of the porosity instead of the top of the Devonian. I am asking you if that were true, wouldn't your Cox No. 1 well be

practically adjacent to your 8500 foot contour line since it is at a minus 8502?

A The top of the Devonian, I have corrected my statement by saying that the 8500 foot contour would fall to the west of both the Cox and the Cooper.

Q In other words, on the west side of the contour your contour is in error?

A On the west side of this group of wells it is in error.

Q Mr. Elliott, referring to that same exhibit, I refer you to the Federal Davis No. 2 well. You show the top of the Devonian at minus 8489, do you not? A Right.

Q Yet it appears midway between the 8450 and 8500 contour, does it not? A Right.

Q Shouldn't that be considerably closer, shouldn't the 8500 foot contour line be closer to the top of the well?

A It is contoured on top of the Devonian, the top of the Devonian is porous up here and the top of the Devonian is not porous up here.

Q What difference does that make?

A All right, I admitted that I jumped on these two wells, that my 8500 foot contour would swing to the west, it will not change on the south end of the structure.

Q I am now asking you with reference to the Federal Davis No. 2 well, the top of the Devonian is minus 8489?

A All right.

Q Is that not simply a matter of 80 feet from the 8500 foot contour line? A It is 11 foot.

Q You show it, do you not, approximately midway between the

8450 and 8500 foot contour line. Have you not made another error there?

A Not to speak of.

MR. CAMPBELL: I would like to move that this exhibit be stricken from the record on the ground it is obviously in error. I don't think there has been a satisfactory explanation.

MR. HINKLE: We would like permission to correct the error which Mr. Elliott has referred to.

A I have two points on my map, the top of the Devonian, the top of the porosity. I am merely, as I was contouring the top of the Devonian, for no reason whatever, merely used the wrong point here on two wells.

MR. CAMPBELL: I don't wish to labor the point, but if you were using the top of the porosity on the Cooper 1 well at 8509 feet, it would not be closer to 8550 than it is to the 8500 foot contour line.

A I would like to point out that the top of the Devonian in the Gulf Cone No. 2D is a minus 8448. I am contouring on top of the Devonian and two feet from it, two feet lower than the point would be your 8450 foot contour as I have shown. The 8500 foot contour as I mentioned before, would have to swing to the west of this well as I have indicated here.

By MR. CAMPBELL:

Q Mr. Elliott, are there any additional errors that you may have made in that contour map to your knowledge?

A No, sir, that was for no reason whatever, just an error that I read the wrong point.

Q Do you think there may be any similar errors in any other exhibits?

A They are here for examination.

Q Referring again to your Exhibit No. 1, has your interpretation of this area changed since the drilling of the Holloway No. 2 well?

A The axis, we had one well in which to base the axis of the structure on, you would only bring this contour down and head it to this one well. As you get additional information on any field, every time you get a new point you have to adjust your maps. We have a high well here and a high well here, naturally on the information we have at present establishes if we should dig over here or Gulf gets a higher well here, we will still have to change it. We can't do it on the present information.

Q Did I understand you to say Gulf was digging a well?

A Made a location is all I understand.

Q Where is that?

A The northwest quarter of the southwest quarter of Section 13.

MR. MACEY: That is the northeast quarter.

A I mean the northeast quarter of the southwest quarter.

Q Did you agree with the interpretation of Dr. Branson as to the contour on top of the Devonian prior to the time that the Holloway No. 2 well was completed?

A Did I agree with it?

Q Yes, sir.

A Yes, I agreed with it.

Q Did you agree that based on that contour that the Holloway No. 2 well was supposed to be below the oil-water contact?

A No.

Q Do you know that on the basis of the contour offered by Dr. Branson in a prior case affecting this field, that it was shown to be below the oil-water contact?

A I wasn't aware of the fact.

Q Did you recommend the drilling of the Holloway No. 2 well?

A Yes, sir.

Q You must not have agreed with Dr. Branson that it was below the oil-water contact.

A I wasn't aware of his interpretation.

Q You stated, Mr. Elliott, that on the basis of your study of the Schlumber J. and the other information you had available to you, you did not consider there was any faulting in the Federal Davis No. 2 well, is that correct?

A It was anomalous only in being three-quarters of a mile stepout here, the only anomalous condition that we can see is that thicker section of Woodford which can be explained either by deposition or a faulting.

Q So that it can either be faulting or thickening, can it not?

A It can be, it depends on the geologist making the interpretation. I do not interpret it as a fault.

Q But you do not, as a geologist, exclude that possibility?

A In the light of the No. 2 well I do. No. 2 Holloway.

Q What do you base that on then?

A Because we are getting a stronger dip on top of the Devonian between here and here and where you get stronger dip you get a deep thicker section of Woodford. We have established an axis between the Davis No. 1 and the Holloway No. 2, the two highest wells in the Devonian in the field.

Q How much thickening does your Woodford show, the thickening to which you have referred?

A We have in the Davis No. 2, 250 feet of this interval from here to here, being 250 and 164, a difference of 86 feet.

Q Do you consider that to be a normal thickening of that formation?

A By analogy we have 30 feet here and 1320 and 90 feet, that is 60 feet of thickening in 1320 feet.

Q Mr. Elliott, you have made reference in answering my question, to Hamon's and Warren's Exhibit No. 5. Referring to that Exhibit, isn't it correct that the top of the Woodford, depending again I suppose on the geologist who is interpreting it, has actually been set at a point some 30 feet above where the indication of the top of the Woodford appears?

A This is based on Schlumber J. correlations, a point from here to here to here to here based on Schlumber J. correlations.

Q I am referring to the point at which you pick the top of the Woodford.

A I call the top of the Woodfordand I mentioned, and I call it here.

Q Examining that exhibit and starting from the Kendrick No. 1 well which appears on the right of Exhibit No. 5, can you not in the same manner correlate the top of the Woodford in each of those wells at a point some 30 feet below where you have shown it?

A I cannot, I am using an interval that we call an entire Woodford section and am basing it on Schlumber J. correlations.

Q Is it possible that some other geologist might have a different point at which to pick the point of the Woodford?

A I don't think there is a geologist in West Texas that would discount that correlation.

Q I am not referring to the correlation. I am referring to the point on the Schlumber J. at which you picked the top of the

Woodford in each of these cases.

A I don't think there is one that would disagree with it. The points that I have picked on there by correlation of Schlumber J. logs, I don't see how they could discount it.

Q In connection with your study of these wells in the South Knowles Pool and the two wells that have been recently drilled, the Federal Davis 2 and Holloway 2, have you made any study of the comparative porosity and permeability between the wells in the north part and the wells in the south part?

A I think that will come up with the reservoir engineer.

Q It is true, is it not, that the Holloway No. 2 well encountered its production and its permeability porosity in the very upper part of the Devonian? A Correct.

Q How far into the Devonian does that well go according to your interpretation?

A Holloway No. 2 penetrated 31 feet.

Q Will the testimony with reference to the oil-water contact also be presented by Dr. Branson? A Right.

Q Mr. Elliott, you have stated, I believe, that you account for the change in thickness of the Woodford to be due to the falling off of the structure, dipping off of the structure?

A All right.

Q I believe you have a Schlumber J. there covering the Cone No. 1 well of the Gulf and the --

MR. HINKLE: (Interrupting) What exhibit are you referring to?

MR. CAMPBELL: I am not sure. A The Cone No. 1?

Q The Cone No. 1.

A I don't have a section on that.

Q You do not have a section on that. Have you studied a Schlumber J. on this well?

A No, to any extent. I made no study other than looking at the Schlumber J. to get the top of the Devonian.

Q Let's refer to this well located in the northeast of the northeast of Section 13.

MR. MACEY: No. 1 Davis.

Q And the well situated in the Wilhoit No. 1 well. What is the change in thickness of the Woodford on those?

A All right, mark down these on the Davis No. 1, the top of the Woodford at 11,947, top of the Devonian at 12,085, the top of the Woodford in the Wilhoit is at 11,970, top of the Devonian at 12,120. Subtract those differences and you got the difference in the thickness of the Woodford shale.

Q According to hasty calculations here, that amounts to a thickening of the Woodford formation of 12 feet between those two wells which occupy essentially the same position structurally, it would appear, as do the two wells which you have referred to in the south part of the feet.

A There is no structure in West Texas or New Mexico that has a uniform dip in a mile apart. I would like to point out that the two wells I showed on the cross section is a uniform dip, is not as steep as the difference between the elevation on top of the Devonian between the Holloway 2 and the Davis 2, we have a steeper dip on top of the Devonian. Therefore, a thicker section of Woodford.

Q Mr. Elliott, in view of the fact that there is such a wide variation in the amounts of thickening of the Woodford in those two areas, does not that add some credence to the possibility that there

might be a fault rather than a thickening?

A Not in my way of thinking.

MR. CAMPBELL: That is all.

MR. MACEY: Anyone else have any questions of the witness?

By MR. MANKIN:

Q Just for clarification of the record for Oil Conservation Commission, I noticed on your Exhibit No. 1 that you did not outline the cross sections. Did you have another exhibit you wished to introduce in evidence to show those cross sections, that is, I just wonder if you put the wrong one. I have one that does show the cross section.

A That is right.

Q See if this is not what you mean just for clarification of the record. I noticed your cross sections were not outlined on your Exhibit.

MR. HINKLE: This is the one that should have been marked rather than the other. This shows the way the cross sections are on there.

(Marked Warren & Hamon's Exhibit 1A, for identification.)

MR. MACEY: Is there objection to the introduction of the Exhibit?

MR. CAMPBELL: Same as I made to the other one.

MR. HINKLE: I would like to ask Mr. Elliott a question.

By MR. HINKLE:

Q Mr. Elliott, in connection with the Davis No. 2 thickening of the Woodford formation, if that could be considered in any way as showing a faulting condition, will one well of that character be sufficient to establish a fault?

A It is extremely hazardous to introduce a fault in any

structural interpretation on the basis of one well. Subsequent drilling, if you can, down in this portion of the structure you get correlations, it might derive at a later date. We cannot see it on the strength of one well.

MR. HINKLE: That is all.

MR. MACEY: Mr. Elliott, I would like you to explain for my benefit your interpretation of the so-called thickening in the Woodford shale as you go from the crest of the structure off to the flanks of the structure, insofar as you will get maximum thickening and minimum thickening.

A We are getting into some structural geology.

MR. MACEY: Yes, sir, I know that.

A That takes into consideration the time of movement that formed the uplift. We will assume here that this structure was pushing up, the highest point, we will take a set of conditions, we assume in geology that our greatest period of movement in this part of the country, West Texas and New Mexico, was in the Pennsylvanian or before Pennsylvania time because when we get greater structure or accentuation of structure with depth, which indicates that the movement that caused this uplift was pushing up at a very slow rate, it is very normal not too much, because we don't see much dip, it is a low relief structure as shown here. If you consider that the movement to form that structure was Devonian time, you could have simultaneous pushing up at the time that the Woodford sea was over the top of it, it would be pushing up, you get less sediments on the top. You would get more on the flanks, then another is consider a time before this Mississippian sea came in, we had just a normal little hill here, this area was subjected to erosion. We can explain

a thin section this relation here by erosion, the top of anything will erode quicker than the flanks. So we always see a thin section on the crest of structures and a thick section on the flanks which can be either explained by deposition or erosion. It is awfully hard to tell the difference which of the two.

MR. MACEY: Mr. Campbell may have asked this question. Is Dr. Branson going to testify about the water-oil contact in the pool?

A Yes.

MR. MACEY: Anyone else? Mr. Nutter.

By MR. NUTTER:

Q Mr. Elliott, referring to your Exhibit 5, the second well from the left which was the one which showed the thin section of the Woodford shale.

A This one.

Q Is the Woodford shale as well delineated on this particular electric log that is the Kendrick No. 3, as on the other logs?

A By the gamma ray curve I would say yes.

Q The electric log?

A This portion, we don't have all the laterals. The number of curves on this Schlumber J. that you have on this one here. On the gamma ray which is the extreme left curve, you have got your shale kicking in here, here is the top of the Devonian, here is the shale kicking in here, here is the top of the Devonian, here is the shale kicking in here, and this is the top of the Devonian. Well, the question was asked.

MR. MACEY: Would you state your question?

Q I believe I asked with reference to the Kendricks No. 3.

A That is the thin one.

Q If the electric log was as distinctive as to the top and the bottom of the Woodford shale as the other three logs are.

A We have one curve on the Schlumber J. that is common to all four logs shown on this exhibit.

MR. HINKLE: That is Exhibit No. what?

A Five, it curves as you know, it curves you tell, you may get certain curves on one well and not on the other. The gamma ray definitely shows the same relationship from one well to the other very distinctly.

Q As far as the electric log is concerned, the distinctive little kicks that exist in the other logs are not present in that one for the Woodford shale? A Right.

Q Is there anything to indicate by those logs whether the thinness of the bed is due to erosion or less deposition originally?

A Well, there again you have to take into consideration subsequent movement after the structure was formed. Tilting to put a higher, if the structure moved and put at one time or another moved during that time that the erosion was taking place, you would get that relationship. In other words, if you had, if the high point were here, you get the thin section and at a later date before anything was deposited maybe there was tilting or subsequent movement that would cause more erosion down here again. That is very speculative.

Q You couldn't tell that from electric logs?

A You can't tell it from Schlumber J. correlation.

MR. CAMPBELL: I have one question.

By MR. CAMPBELL:

Q In answer to my question concerning the fact that the

thickness in the Woodford did not occur between, to as great an extent between the Federal Davis No. 1 and the Wilhoit No. 1 as it did before the Holloway No. 2, the Federal Davis No. 2, I believe you answered to the effect that there was more dip in the Devonian structure? A At the Davis 2 well.

Q If you will examine your contour map, Exhibit No. 1, is it not correct that the dip between the Federal Davis No. 1 and the Wilhoit No. 1 is 89 feet? The dip between the Holloway No. 2, the Federal Davis No. 2 is 70 feet?

A We show 70 feet of dip on top of the Devonian, we have 8410 to 8479 and we have 80 feet there.

Q The dip is approximately the same on the top of the Devonian?

A Ten feet difference.

MR. CAMPBELL: That is all.

A But the dip is greater, there is ten feet of difference.

MR. CAMPBELL: That is all.

MR. MACEY: Anyone else have a question of the witness? If not the witness may be excused.

(Witness excused.)

U. S. B R A N S O N

having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. HINKLE:

Q Mr. Branson, I believe that you have previously testified in connection with Case 819? A Yes.

Q You are the consulting engineer for Hamon and Warren?

A Yes, sir.

Q And have been ever since the discovery well was brought in

in the Southeast Knowles area? A Yes, sir.

MR. HINKLE: Does the Commission accept his qualifications?

MR. MACEY: Yes.

Q Mr. Branson, has there been a bottom-hole pressure survey made of the field or area since the completion of the Holloway No. 2 well?

A There has been a limited survey made. That is four wells have had pressure measurements taken.

Q Was that made under your direction?

A Yes, sir.

Q Can you give to the Commission the result of that survey?

A We ran buildup pressure measurements on four wells, Federal Davis 1, the Wilhoit No. 1, the Federal Davis 2 and the Holloway No. 2 to determine what, if any, connection you might find between the two. We found in the case of the Federal Davis 1 and the Wilhoit No. 1, both of which have been in production for a considerable length of time, that the buildup was relatively slow and the apparent, I would like to emphasize that, the apparent stabilized pressures were in this particular case 4846 on the Federal Davis 1 and 4843 on the Wilhoit 1, or in the same area and under the same conditions they stabilized very close to each other.

In the south end of the field on the Federal Davis 2 and the Holloway 2, the stabilization was considerably more rapid and the apparent stabilization was considerably more rapid than in the north end, due perhaps to some 400,000 barrels in withdrawals. The two pressures settled down at 4921 Federal Davis No. 2 to 4924 for the Holloway No. 2. That was the apparent stabilized pressure on the charts.

In connection with the apparently stabilized pressure, however, it might be well to make a point that in low permeable formations, the limited length of time usually taken for buildup curves is not sufficient to stabilize. That, although you may run a bomb in a well on two successive days and show apparently the same pressure, the minimum deviation in bomb measures to be expected is one half of one percent, which is roughly in the case of 5,000 pounds, one percent being fifty, one-half of one half percent, would be twenty-five pounds. So, the apparent stabilization is not effective.

In other cases in reservoirs of this type where conditions permitted, the well has been shut in over an extended period of time of months rather than of days with measurements taken at intervals of weeks or a couple of weeks. It has been found that in some cases it requires as long as three months or more for a complete buildup in the bottomhole pressure. In connection with that, there has been a method devised for calculating the ultimate or correct reservoir pressure from the buildup curves. In these particular reservoirs and with the different history of the Federal Davis 1 and the Holloway 2, namely the Federal Davis 1 having produced in excess of 150,000 barrels of oil and the Holloway 2 about 5,000, you would have a great deal of difference in the correct buildup. So, comparing the pressure on a four-day shutin is not actually valid.

Calculating the terminal reservoir pressure from the buildup curves for those two wells gave values of 4953 for the Federal Davis No. 2 and 4984 for the Holloway No. 2 which is practically speaking, within the 25, it is 30 pounds variation between the two, and certainly well within a plus or minus 35 pounds which would

represent per measurement in connection with that earlier pressure surveys have shown the pressure of the Federal Davis No. 2 within 4900 to 4920.

At the same time the pressure on the Federal Davis 1 was 4900, the same as the original shutin pressure, at which time the Federal Davis 1 had produced in excess of 60,000 barrels and the Federal Davis 2 had produced less than 5,000. So as far as the pressure across the reservoir is concerned, from the top end of it to the bottom end, the pressure measurements themselves and the correct mathematical analysis of the buildup curves, or possibly we should say the arithmetical of the buildup curves, shows it is a continuous reservoir in continual pressure communication from one end to the other.

Q That also includes the Holloway No. 2?

A That includes the Holloway 2 as well as the Federal Davis 2 and there is, there exists the possibility or the explanation for the lower apparent buildup pressure that the wells around the north end of the lease of the field were producing and had continued to produce throughout the time that the measurements were made on the north wells.

Q Did you make a plat or graph showing the results of the survey? A I did.

Q Do you have it available? A I do.

(Marked Hamon & Warren's Exhibit No. 6, for identification.)

A Incidently, all of the preceding pressure surveys are a matter of record in the Commission files from preceding hearings. I can supply those values if it is desired. Perhaps, they would just as soon take them out of the other records.

Q Would you explain to the Commission just what Exhibit No. 6 shows?

A Exhibit No. 6 is a semi-log plot of the reservoir pressure against time in hours. The time being plotted on the arithmetic scale, the reservoir pressure being plotted on simple Cordesais scale. It shows how the pressure changed with time after the wells were closed in. It will be noted that at the normal flowing rate there is very little draw down. The buildup curve is essentially flat. We had only 26 pounds buildup from the time of shutin until the time completed. The Holloway No. 1, operating under a larger draw down, had a little smaller steeper buildup. The Wilhoit No. 1, the pressure was reached further back in the reservoir and a longer time is required for return to original pressure. The Federal Davis 1 with a maximum production, and incidently, of those four, the lowest capacity also takes a longer time than either of the other two.

Q I believe you testified that this shows clearly that there is communication between all wells which have been drilled in the area?

A These measurements in connection with the earlier measurements that we have made, and with the analysis of these buildup curves, shows that the entire reservoir is in substantial pressure equilibrium regardless of the fact that one section has had more than ten times the withdrawal of the other section.

Q Is there any information within your knowledge to indicate that there is anything that might constitute the wells in the north and the wells in the south producing from separate reservoirs?

A No, and specific with reference to pressure measurements,

they would indicate they are producing from a common reservoir with no basis whatsoever for separating them into two different fields.

Q Is there anything else within your knowledge that would indicate to you as an engineer that all these wells are producing from the common reservoir?

A This includes to some extent the interpretation Mr. Williamson made of his logs. He proposed a fault. The maximum probable throw of that fault as I got it, should have been the thickening in the Woodford of some 80 feet. If any well we have penetrated more than 80 feet of porous dolmite according to Mr. Williamson, quoting again, "It would not form an effective seal". There has been more than 80 feet penetrated in quite a number of these wells. Specifically in Wilhoit No. 1 we get 535 feet of Devonian. The evidence was submitted that the drillstem test on the lower section of the Devonian were not very good, and that we only left 68 feet on that. However, there is excess of 100 feet in the upper part if you would check them off where you say no recovery.

That, and possibly a few feet of mud. That is no recovery from a commercial point of view. That is with that low a capacity you cannot make a well that will produce commerical volumes of fluid, but in terms of the million years, that have existed since that way layed down, one thousand of a milidarcy times that many millions of years is a lot of capacity. It would certainly be sufficient. Moreover in the files of the Commission, there are core analysis of the Wilhoit well showing points of permeability and porosity not only in the top few feet, but all the way down through. Not large sections, but some sections of it, just as in the small parts at the top you get a few feet of porosity and possibly a foot of apparently barren land. That is, it has not

flow capacity that is commercially useable. The same condition exists in the Wilhoit throughout the 500 feet.

So, assuming even granting the maximum bit of flow that Mr. Williamson mentioned, 100 feet, you have enormously in excess of that in moveable sections in sections of the reservoir that are capable of moving fluid, certainly within geologic times. The faults postulated even if it existed, even assuming that it does exist, it cannot be an effective seal. I am not saying it did or did not. It connects with the wells at the top that we have listed and this data is on file with the Oil Conservation Commission. In the Federal Davis 1, there is 101 feet of section cut, Holloway 100 feet of section cut, Gulf Cone No. 2 had 111 feet of section cut, and the Wilhoit, the 500 feet.

Further, to the north in the Knowles Pool this was submitted and I did not bring this information with me at this particular time, there was evidence submitted to the effect that several hundred feet had been cut in several of those wells with porosity found scattered up and down throughout, the porosity and permeability found scattered up and down throughout the Devonian section, so I don't see how engineering wise there can possibly be any question but what there is some transmission through that section. For considerably more than the 100 feet that has been suggested as the possible maximum there of the fault.

Q Mr. Branson, you previously testified in Case 819 with regard to the water level, water-oil contact. Would you like to bring the Commission up-to-date with respect to that?

A The determination of water-oil contact in the field is a pretty variable sort of operation. Even in a definitely porous

and permeable sand zone with high permeability, if you go to the drillstem test from one side of the field to the other, or even along the field, there is nothing at all unusual in finding 25 to 30 feet of variation between the reported depths at which water was encountered on drillstem test. In particular, in some cases that may be, or that is due to either of two things. In some cases the reports of the depths on the drillstem test are in error and you can find that and throw them out. In other cases, usually in the sand sections, by throwing out the erroneous measurement, you can arrive at a fairly good water level within a plus or minus ten feet or even closer in a highly permeable sand. When you get down to the subject of a relatively impermeable line, the variation may be in excess of that. It depends to some extent on the permeability and porosity at the point at which you are making the test.

In addition to that, the actual determination of the correct water level is confused by the fact that you do encounter tilted or varying water levels. I have not made a tabulation or statistical study of the water level in New Mexico or West Texas. In one case in particular that I am familiar with where there were no faults presented or marked in the reservoir by any of the geologists that I knew, and certainly we didn't put in any, our structure in the Seminole Field in the San Andres section, porosity and permeability is continuous, but the water level varies more than 100 feet from one side of the field to the other. So with that possible variation in mind, we recognize the fact that we may have either a different water level in one part of this field than the other, or possibly an error in measuring from the point of using that water level to calculate reserves. Any person that intends to

calculate reserves on a reasonably careful figure, unless he can throw out the highest water level that has been measured, will use that as the overall field water level. You can't assume in normal operation or in general, that you are going to obtain more oil from below where you have encountered water in one well the level that we are using in this field at this time. Understand when we drilled the Wilhoit No. 1 we tested practically no water until we got down to a minus pretty close to 8900. I don't recall the exact figure at the moment. When we cut the Cone No. 1 we found water in drillstem at 8530, found water in the bottom of it.

Subsequently we had a well log and got the Schlumberger measurement confirmed our drill pipe measurement. So we have assumed that that is the correct depth of that well and that the well is producing water from approximately 8530 subsea in addition to which every well, this was also given at the last hearing, every well that is currently completed below 8530 subsea in that field is producing water. The statement was made earlier that the Federal Davis 2 was completed below that and is not making water. That is in error. The Federal Davis 2 completion is minus 9484 to minus 9518. The production has been deliberately restricted because it is close to the water level and we don't want to put the water in, we don't want to cone the well.

Q Mr. Branson, the order which was entered limits the allowable, has that had any effect good or bad on this area since it was inaugurated?

A The inauguration of the order actually did not cause the effect because we had at an earlier date cut back the wells that were producing water in connection with that, the Holloway No. 1 in the

north end of the field started producing water quite early in its productive life, got up to 15 and 20 percent water cut, so we reduced the take from it to half the allowable. The water cut promptly dropped back from 40 percent to approximately 30 and subsequently has dropped back to 25 as of the early part of October to one-quarter percent as of the early part of October. The rapid climb that had started, or seemed to have started in the Wilhoit, we didn't wait long enough for it to get to 20 percent, we got our first shakeout at 3 or 4, we cut it back. It has been slowed up and it currently produces two percent water.

The Federal Davis has been produced throughout its life at a slow rate and has never shown any water cut at all. The edge wells you might call them, the Hamon and Warren's Cone No. 1, Gulf Cone No. 1, Hamon and Warren Cooper No. 1, the Cox No. 1, have shown at least in particular the ones on the west, a generally normal increase in water with production to be expected from wells bottom at the edge of the water, or in the water. All of those wells are bottomed below minus 8530.

Q Does that indicate the water drive exists in the area?

A The mere production of water is not sufficient within itself to indicate a water drive at all. The strongest indication of the water drive that we have here is the calculated through reservoir pressure as being practically constant from discovery of the field through the present production, which is somewhat over 450,000 barrels.

Q In the case of Mr. Williamson, reference was made to the cost of the wells that have been drilled. Would you like to make any comments with respect to the cost referred to by Mr. Williamson?

A At the first hearing we submitted the statement that we expected the average cost to run around $300,000. We did not at any time say that any one particular well was going to cost $300,000. It is perfectly possible that if you had ideal luck that you might drill one of them for $175,000. It is not only possible, but an established fact that when we lost circulation it cost us $475,000. If you assume that the average cost of development is going to be minimum throughout that you can obtain with ideal circumstances the estimated development costs are going to come out way under what you expect to spend in it. That is the basis under which we ran that.

We have drilled wells in the $225,000 to $475,000 class as reported to me.

Q The 80 acres on which Mr. Williamson seeks to drill an unorthodox location well is the north half of the northeast quarter of Section 24. Do you know whether or not the northwest corner of that 80 is a common corner to four separate leases?

A Yes, sir, it is. As shown on the maps that I have.

Q Assuming that the Commission made an exception in this case and allowed Mr. Williamson to drill a 330 location out of the northwest corner of that 80 acres, what, in your opinion, would be the result?

A There are several possible results. Let's take first the case that Mr. Williamson drills only the one well that all the other operators altruisticly stay back 660 feet from the lease line, and that Mr. Williamson gets in accordance with that a half an allowable, so that the actual withdrawal from that corner is no higher than it would be if drilled on a normal pattern. The net

result would be practically speaking, nothing. If however, the opposite of that comes in, the four wells, three are drilled 330 on out of the corners all producing at a normal allowable, you would have three times the draw down that you would normally have. That increase in the draw down would have two direct effects, increasing the pressure gradient will pull water into that end of the field faster than it will be pulled in if the field is drilled and produced properly from the sides.

It will also create a local pressure thinning and result in aggravation of the coning that already exists in some of the wells in the field. The two movements together, a combination of unnecessarily aggravated coning and, two, rapid increase of water from being pulled in by an excessive pressure gradient would then pinch much of the oil outside that and reduce the ultimate production from those leases.

Now, as to what effect it would have on the production from the entire field is something else, but as to production from the W. V. Lawrence lease, that Hamon and Warren to the left, the Gulf Black lease, and Mr. Williamson farm out, it would reduce the actual recovery from them and reduce the return to the royalty owners of these properties.

Q Do you think such an exception as requested here would be in the interest of conservation? A It would not.

Q Would it probably cause waste and violation of correlative rights?

A It would certainly cause violation of correlative rights, and probably cause waste and ultimate loss of some amount of oil which cannot be directly calculated.

Q Did the completion of the Holloway No. 2 warrant any change in the Commission's order providing for 80 acre spacing or changing the allowable or allocation of production in this area?

A No, sir.

Q Did it warrant in any way the granting of an exception that has been requested?

A That, of course, is something the Commission has to decide. I can certainly see no engineering reason for it.

MR. HINKLE: I believe that is all.

MR. MACEY: Any questions of the witness?

By MR. CAMPBELL:

Q Did the completion of the Holloway No. 2 well come as any surprise to you?

A I am afraid you will have to explain what you mean by, "as a surprise" to me.

Q I believe you testified at the hearing that has been referred to based upon your study of the field up to that time that this well that was being drilled, which is the Holloway No. 2, was going to be below the oil-water contact and be a dry hole.

A That is what I expected it to be, yes.

Q As a matter of fact, isn't the Holloway No. 2 well, doesn't it appear to be one of the best wells that has been drilled in the pool?

A It is a very good well.

Q How do you account for that?

A That is one reason we always keep an erasure in the same drawer we keep our structure map. You are never sure perfectly of any structure at any particular point until you get there.

Q You are not sure now?

A I am sure where the top of the Holloway 2 is, yes.

Q But you are not sure what future development may bring?

A No, that structure may stretch out, the next location may be lower, normally we would expect it to be lower. That does not necessarily follow that what we expect normally is always encountered.

Q Based upon the Holloway No. 2 completion, have you revised your estimate of the possible value of this field?

A The Holloway No. 2 encountered the top of the Devonian below the top of the Devonian encountered in the Federal Davis No. 1. It does not put any additional section in the reservoir. It does in that corner of that lease, yes. It puts additional 80 feet in the reservoir as a whole. In the terms of per acre production, it doesn't change it at all, the size of the reservoir further south.

Q Isn't it true that the well is only 31 feet into the top of the Devonian? A Yes.

Q That it is capable of producing at the rate of 50 barrels an hour open flow without any treatment?

A It isn't the only well that is capable of that.

Q From the top of the structure.

A No, from the top of the structure or from the top, let's see, oh, 30 or 40 or 50 feet of the structure.

Q What other wells could do that?

A Gulf Cone 2, Federal Davis 2, Cox No. 1 could when completed.

Q Are they making water, some of them?

A Some of them.

Q Were they drilled down to or near the oil-water contact?

A Yes, some were, some were not. It depends on position on structure.

Q Isn't it partly a completion matter rather than a reservoir matter?

A Well, completing a well normally you complete it where you have sufficient permeability to make a well, certainly.

Q Then the permeability in the upper part of the structure in the north wells is less than it is in the south wells?

A Some wells, it is, some wells it is not. There are in some of the wells in the north end, an impermeable streak in the top of the section. It varies from one or two feet up to considerably more than that.

Q Where do you now place the oil-water contact?

A I haven't moved it. We found it at 8530 in the Cone, that is where we left it.

Q Where did you find water in the Federal Davis 2?

A The top of the drill was 8567 I believe at the top of the drillstem. That is 36 feet of difference.

Q Did it flow at that depth? A In drillstem?

Q Yes. A Yes.

Q Are you satisfied that the oil-water contact may not have been below that point?

A The exact location of that oil-water contact down there could quite easily be 35 feet or more plus or minus difference from the contact of the Cone 1. The fact exists that we did find water in the Cone 1 at minus 8530. Subsequent to finding that, we have not completed any wells close to 8530 or any closer than we had to.

Q You attributed that possibly to tilting of the water table?

A I said the tilted water tables do occur in this same general area.

Q You aren't able to point out any that have occurred to that extent in the Devonian, have you?

A I have not made a particular study of the Devonian with regard to that particular respect. I rather imagine if I started out to do that, however, it is pure speculation, it doesn't belong in here.

Q With reference to the pressures --

A (Interrupting) I will wager this, that I can go through the drillstem test in any field of any size in the Devonian in Lea County or West Texas and find more than 30 feet of difference between where they reported the first water on drillstem test.

Q Are you as sure of that as you were that the Holloway was going to be a dry hole?

A I am a lot surer of that.

Q With reference to the pressures, the fact that there is a similarity of pressure, the wells in the north and the wells in the south, does not necessarily establish that there is communication does it?

A Simply the same original pressure would not necessarily establish communication, although it would be considering the close aerial spacing, it would be reasonable to think that if you had the same bottomhole pressure, you might be connected or you might not. However, when they continue to show the same bottomhole pressure after discrepancy in production of from 420,000 to 25,000 barrels from one section to the other, I think you are really reasonably well justified in saying that they are in communication or in communication with the common source of pressure.

Q Isn't it true that the only test to determine communication

is an interference test?

A No. Interference tests are very difficult to run and hard to interpret. The absence or existence of an apparent interference test between wells, the absence certainly does not negate the direct connection between the two of them.

Q Are you acquainted with the Echols and the North Echols field?

A No, I am not acquainted with it.

Q Isn't it true that there are areas where the pressures are essentially the same originally and at the same rate of production remain approximately the same at the separate reservoir?

A At the same rate of production. If the reservoir is the same size within the limit of the production, it is possible for the two to be the same.

Q The fact that they are the same does not preclude the possibility that there may be two reservoirs?

A The fact they have remained the same with rank different in production certainly is strong inclination they are the same, and when connected with the fact that the only discrepancy in the structure is less than the porous permeable thickness of the structure, it proves beyond any shadow of a doubt that they are a common reservoir.

Q That is another positive statement?

A Yes, that is a positive statement. You can shale out the top of the sand in the Woodbine and you can measure a difference in the top of 40 or 50 feet across the section that you know is in continuous communication.

Q Dr. Branson, with reference to the mention of the cost of

wells, you stated that you had not testified that wells cost three hundred thousand, any individual well?

A That is right.

Q Is that correct? A Yes.

Q You did say throughout the prior hearing that you estimated the cost per well to be $300,000?

A An average around $300,000.

Q You calculated, for instance, if you had to drill six or more wells, it would cost you a million eight hundred dollars?

A That would be the normal expectation when we drill six wells and they averaged that.

Q How much did the Holloway cost?

A I don't remember exactly.

Q Was it $300,000?

A I don't know. I have not been given the cost sheet on that. I was given the cost sheet on the earlier wells.

Q Do you think that you are estimating the cost of these wells at the maximum?

A When one has cost us $475,000, I don't think that the $300,000 is a maximum estimate, no.

Q Dr. Branson, with reference to the location of wells in the corner of 40 acre tracts, you are acquainted with the fact, are you not, that for many years that has been permitted and done frequently in the State of New Mexico under existing statewide rules?

A I understand that in some cases they have been permitted to drill 330 out of the corner.

Q Are you aware of the fact it is not an unorthodox location?

A I have not made a direct and complete study of the New Mexico law. I depend on Mr. Hamon for that recommendation.

Q Have you recommended to Mr. Hamon that he drill a 330 location in New Mexico?

A No, sir, I can even carry that farther. I have never recommended that they drill 330 foot locations in a 12,000 foot reservoir with that kind of porosity.

MR. MACEY: Anyone else have a question of the witness?

By MR. MANKIN:

Q Dr. Branson, Mr. Williamson made the recommendation, or at least indicated that he would be agreeable, thought it would be all right to drill on ten acre spacing to 12,000 by having four wells 330 around a common corner. Do you agree with that, that that would be good for reservoir?

A No, sir. That is a question, however, that I should add applies to this reservoir. There are 12,000 foot reservoirs where you can drill ten acre locations where you get a thousand or ten feet of sand occasionally. In referring to this type of reservoir carbonaceous, with low permeability and porosity with high drawdowns under restricted production in the majority of the wells, that would tend to create a strong localized pressure stand as the existence of the strong pressurizing results in more rapid advance of edge water than desireable and in coning, where it is connected with an active bottom water section.

MR. MANKIN: That is all I have.

MR. MACEY: Anyone else have a question of the witness?

By MR. MACEY:

Q I would like to ask you whether or not you think that the

location shown on Exhibit No. 1 as Hamon and Warren No. 1C Lawrence, which according to structural interpretation will encounter the Devonian around 8515, will be commercially profitable being drilled 15 feet above what you say is the water-oil contact?

A If that structural interpretation is correct, and if that is where the top of the Devonian is encountered, I do not believe it is possible for the well to pay out, no. However, it's also true that wells are not all drilled purely on engineering considerations. Sometimes offset obligations come in, sometimes operators will drill a well that they expect to be a dry hole merely to prove or disprove a large lease block. Then as to the total reason for deciding on this location, or actually on the location of the Holloway No. 2 as I stated at the last hearing, I did not establish either location and do not know what all the reasons are.

Q Do you know whether Hamon and Warren have made any effort to form an 80 acre unit in conformance with the order with Mr. Williamson?

A I do not or did not of my own knowledge make any such offer. I have seen copies of a telegram offering that, but I think Mr. Hinkle is going to answer that.

MR. MACEY: Anyone else have a question of the witness? If not the witness may be excused.

(Witness excused.)

J. S. E W I N G

having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. HINKLE:

Q Your name is J. S. Ewing? A That is correct.

Q You are superintendent for Jake Hamon?

A Yes, sir.

Q The southeast Knowles area is being operated under your supervision? A Yes, sir.

Q You are familiar with the lease ownership in that area?

A Yes.

Q Is the east half of Section 24 referred to in Exhibit No. 1 of Hamon and Warren under one lease? A Yes, sir.

Q Is the north half of the northeast quarter of that which was the Amerada's portion which has been farmed out to Mr. Williamson in the same lease? A Yes, sir.

Q Is the west half of Section 24 in a separate lease?

A Yes, sir.

Q What expiration dates do those two leases have?

A November 7, 1955.

Q Each one has the same expiration date?

A Yes, sir.

Q Do you know whether or not Mr. Hamon or Hamon and Warren offered to communitize the southwest quarter of the northeast quarter of Section 24 with the northwest quarter of the northeast quarter of Section 24, Mr. Ewing? A You mean this?

Q Yes. A Yes.

Q For the purpose of forming an 80 acre unit in conformity with the order of the Commission? A Yes, sir.

Q Was that offer communicated to Mr. Williamson in any way?

A Yes, sir, by telegram on September 27, 1955. It was confirmed by a request advising if it was delivered.

(Marked Hamon & Warren's Exhibits No.s 7 and 8, for identification.)

Q Please refer to Hamon and Warren's Exhibit No. 7 and tell the Commission what that is. Read it to the Commission.

A "It is my understanding that you and associates propose to drill a devonian test located in the NW NE Section 24-17S-38E, South Knowles-Devonian Field, Lea County, New Mexico. This is to notify you that Warren Petroleum Company and I will unitize with you proportionate to our lease interests on eighty acre spacing consisting of the west half NE Section 24 in the drilling of this test. You can operate or I will operate the unit if you so desire on standard operating agreement. Location of the test to be 660' NL and 660' WL of eighty acre unit. Drilling to commence whenever you are ready. Would appreciate wire reply collect."

We haven't heard to date.

Q Did you have a check made to see whether the telegram had been delivered?

A Yes, sir, the Western Union was requested to notify us of the hour of delivery. This is the telegram.

Q That is Exhibit No. 8?

A Dated Midland, Texas, September 7, "Your telegram J. C. Williamson delivered 11:38 AM Date".

Q Mr. Ewing, you heard the testimony here of Mr. Williamson in regard to the gravity of the oil produced from the Knowles area, several wells in the Knowles area. Have you made any reports in connection with that showing the gravity of the oil?

A I haven't made any reports personally, Mr. Hinkle. But I understood him to say that he got the report from Amerada. On completion of all joint wells, we furnish them a complete record of everything. This is the copy run on the mimeograph of the one that

they got.

Q Will you tell the Commission what the reports that the Amerada showed?

A This is the Holloway No. 2, potential from 350 barrels a day on 10-64 choke with 875 pounds tubing pressure oil and gas ratio 617 to 1. Gravity 47 corrected. That is Holloway No. 2. The Cone, the potential is taken December 14, 1954, flowed 193.60 barrels of oil on one inch choke, gravity 47 corrected. That is the north end of the field. This is the Cox well, north end of the field, potential taken November 23, 1954, flowed 339.48 barrels on a 14-64 oil and gas ratio 471 to 1, gravity 47 corrected. That gravity could vary as you know, depending on how long tank is set and the pressure was flashed out of the separator. But it runs, all of them run about the same.

Q The gravity tests that were taken in connection with these wells? A Sir?

Q Are the gravity tests taken in connection with these wells indicative of anything in your opinion?

A Well, that they are all coming out of the same oil patch.

MR. HINKLE: That is all.

MR. MACEY: Any questions of Mr. Ewing? Mr. Campbell.

CROSS EXAMINATION

By MR. CAMPBELL:

Q You have stated that you have offered to unitize the southwest quarter of the northeast quarter of Section 24 with Mr. Williamson to form an 80 acre unit, have you not?

A Mr. Hamon did, I did not.

Q Someone did for Mr. Hamon?

A That is right, Mr. Hamon wrote the telegram. I got a copy of it.

Q If you will observe the Exhibit No. 1 behind you, if you will recall that Dr. Branson testified that the oil-water contact was 8530 feet, you are asking Mr. Williamson to voluntarily pool with produceable acreage, acreage that our own interpretation is dry. You wouldn't expect anybody to do that, would you, voluntarily?

A Now look, you are talking to the wrong guy about that. These geologists here and your own geologist shows where he thinks it is good. That is a matter of opinion, mine doesn't carry much weight because I never would have drilled the Holloway No. 2.

Q Well, you might, in other words, you might get a number of oil wells in the south if you drilled them?

A I hope we do. I hope all that southwest is productive. I can't tell you whether it is or not until it is drilled.

Q You won't know until you drill them?

A No, but they would be paying half of the freight if they unitize.

Q Also in connection with pooling on the 80 acre basis in New Mexico, that if the acreage to the south of that 40 acres is pooled with the north 40, it will contribute only a 40 barrel allowable?

A I don't know what it would be under the New Mexico rules. That would have to be worked out, I wouldn't know.

Q I believe you testified, did you not, that if somebody doesn't get into that area somewhere before November 7 the lease expires?

A That is right. For your information, we are going whether it produces or not.

Q Were you going?

A It depends on where you all go.

Q I might say we are ready to go.

A So are we.

MR. CAMPBELL: That is all.

MR. MACEY: Anyone else have a question of Mr. Ewing? Mr. Hinkle.

MR. HINKLE: I would like to recall Mr. Branson for one question.

MR. MACEY: Did you introduce the telegram?

MR. HINKLE: I will offer them, 7 and 8.

MR. MACEY: They will be received.

U. S. B R A N S O N

having previously been sworn, testified further as follows:

DIRECT EXAMINATION

By MR. HINKLE:

Q Is there something else you would like to bring to the attention of the Commission?

A Yes, there was one piece of evidence presented as more or less tending to show that the two were different reservoirs, namely the difference in percentage of net to gross sections on the two wells supposedly drilled in the south end of the field. Those two both referred in one case to 100 feet of section and in the other case specifically to 30 feet of section. We have one core analysis on the Federal Davis 4 where we poured four feet and something like 70% of it was permanent. The 25% that I presented earlier was taken from the only two wells that have penetrated a considerable portion of the Devonian section. One in the Knowles proper to the north

of us and the other being the Wilhoit No. 1 which did penetrate over 500 feet. It is always possible to take a limited porous section and get any fraction almost of net to gross that you wish. To try to extend that kind of a correlation over the entire reservoir would be completely in error as being much more reasonable to it to be the percentage as shown when the major portion of the section was cut. When you are speaking of producing oil, you are not speaking of producing oil from the section open to production. You are speaking of producing it from there to water level. If there is only 15 feet of section, then you have got 100% there over the entire reservoir with a possible section of 150 feet or over, you had better consider only where you cut that much section and throw out the limited spacing on the smaller section.

MR. HINKLE: That is all.

RE-CROSS EXAMINATION

By MR. CAMPBELL:

Q You must concede, however, that since the drilling of the Holloway No. 2 well at least as to aerial extent, this area has turned out to be better than your pessimistic views first indicated?

A The drilling of the Holloway 2 and finding that ridge instead of extending down the field to Federal Davis 2 instead of northwest extended the aerial extent of the field and in terms of ultimate total barrels from the field, it is larger than it was. The same is true when they step out locations in any field and make a producer. That does not change the per acre productivity of the formation.

MR. MACEY: Anyone else? If not the witness may be excused.

MR. HINKLE: That is all.

(Witness excused.)

MR. MACEY: Does anyone have anything further in this case? Any further statements in this case?

MR. MALONE: May it please the Commission, Ross Malone on behalf of Gulf Oil Corporation, I would like to make a brief statement as a bystander interested or disinterested. The issues of this case seem to revolve themselves down to a pretty simple proposition an operator on the flank of the structure is afraid he may be pretty close to the oil-water contact, wants to crowd the boundary and insure as much as he can the success of his well. I can't say we blame him for wanting to do that. I am sure that every operator has wanted to do it, and I am sure will again. The evidence would rather clearly indicate, as we have heard it, that no basis for such a crowding has been established. The statement was made very frankly at the outset of the hearing that the applicant wasn't particular about what basis he got his 330 foot location on. He would accept a two reservoir determination or he would accept an unorthodox location, or if necessary to change the whole setup of the South Knowles Pool, he would accept that. Just so he could get that 330 foot location.

As we have heard here, the evidence, it certainly indicates the existence of a common reservoir rather than two reservoirs. If the Commission should proceed on the assumption that we have two reservoirs here and that assumption should be proved by future drilling to be incorrect, the damage that would result could be very great both from the point of view of correlative rights and from the point of view of waste. If, however, the Commission proceeds on the

assumption that no fault exists until a fault is definitely established as we view it, there can be little or no damage done from the point of view of conservation, so that on the basis of the evidence presented, it is Gulf's view and it respectfully recommends to the Commission that the South Knowles Pool be continued to be treated as a single common source of supply, and that there is no evidence which has been presented in this case which would justify the granting of an uncrthodox location which would crowd a boundary line and upset the correlative rights which would otherwise exist between the two wells that are now located 660 feet from that boundary, and would be offset by two wells 330 feet from the boundary.

MR. MACEY: Anyone else?

MR. HINKLE: I don't want to take up any more of your time. You have listened to this case patiently. I think you know the position of Hamon and Warren in this case. The order of the Commission which was issued providing for 80 acre spacing provides that an exception may be made in this way. Section 3 of Order, "That no well shall be drilled and produced except in conformity to the well spacing pattern except for an order after due notice and hearing". I think this case has to be limited to that and nothing else, the scope of this hearing. I don't think that the applicant has made out a case to show, which he must do by preponderance of the evidence beyond a shadow of a doubt that there is a separate reservoir involved. The evidence shows that it is all one reservoir, that all the wells are producing from a reservoir and the only thing that he could get or you could grant an exception would be on a physical obstruction on the surface. No evidence to show that he can't make a location in the center of the 40. I understand this is all level

land, it is farm land and the location can be made accurately in the center.

As Mr. Malone has pointed out, I think it would be a mistake at this time for the Commission to make any exceptions which would prevent the field from being developed on an 80 acre pattern as started out. If it should later prove by further development that we are wrong about this and it is two reservoirs, it can be corrected because under the terms of the order we are required after one year, in July 1956, to come in and make a showing to the Commission as to why this whole area should not be developed on a 40 acre basis.

MR. CAMPBELL: If the Commission, please, I would like to point out at the outset that if this field had been continued to be developed on the basis of what the consultants and experts for Hamon and Warren suggested, that we wouldn't be here at this time. The Holloway No. 2 would never have been drilled and likely there would never have been any inclination to drill anything to the south. We are requesting, as we have frankly admitted, due to the fact that we are in a position close to the edge of a water drive structure, in order to recover the oil underlying the lease, we want to drill a 330 foot location. There is nothing unique or startling or astounding about that in New Mexico. I don't know, but I dare say if I could conduct a survey I could find some 330 foot locations drilled by Gulf and Hamon. It depends on whose baby has the measles. I don't see anything about our coming in and asking the Commission to grant us an exception in view of the location of the acreage to get the well drilled and recover our share of the oil on the edge, or a finding by the Commission based on the evidence that has been offered here, that in all probability this is a separate sourec of

supply.

I think there is evidence that would sustain such a finding, and such a ruling. We would like to request the Commission to give us authority before the lease expires to drill a 330 foot location as requested in the application.

MR. HINKLE: If I may add one thing, as has been pointed out, there are two leases that are short term expiration, for that reason, for Mr. Williamson's benefit and our benefit, it is going to be imperative that a decision be made promptly in this case. So we would appreciate an early consideration of this matter to the end that both parties will be protected in that respect.

MR. MACEY: We will take the case under advisement.

C E R T I F I C A T E

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings in the matter of Case No. 965 were taken by me on October 20, 1955, that the same is a true and correct record to the best of my knowledge, skill and ability.

Ada Dearnley
Reporter

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF J. C. WILLIAMSON FOR DETERMINATION OF THE PROPER LIMITS OF THE SOUTH KNOWLES-DEVONIAN POOL, AND FOR APPROVAL OF A WELL LOCATION 330' SOUTH OF THE NORTH LINE AND 2310' WEST OF THE EAST LINE OF SECTION 24 TOWNSHIP 17 SOUTH, RANGE 38 EAST, LEA COUNTY, NEW MEXICO IN THE VICINITY OF THE SOUTH KNOWLES-DEVONIAN POOL.

Case No. 765

APPLICATION

Comes now J. C. Williamson by his attorneys, Campbell & Russell, and applies to the Oil Conservation Commission for authority to drill a well located 330' south of the north line and 2310' west of the east line of Section 24, Township 17 South, Range 38 East, Lea County, New Mexico, and as his grounds therefor states:

1. Applicant is the owner of the leasehold interest in the N½NE¼ of Section 24, Township 17 South, Range 38 East, Lea County, New Mexico, which is not now within the defined pool limits of the South Knowles-Devonian Pool.

2. By its Order No. R-638-B the Commission did, on September 15, 1955, issue its temporary order establishing 80-acre drilling and proration units and a maximum per well allowable of 150 barrels for each proration unit within said pool.

3. Since the issuance of said order a well has been completed in the SW¼SE¼ of Section 18 in said township and range, which well indicates the possibility that there is a separate and distinct oil pool lying south of the original discovery well for the South Knowles-Devonian Pool.

4. Applicant desires to commence immediately the drilling of a well situated 330' south of the north line and 2310' west of the east line of Section 24 in said township and range.

NOW, THEREFORE, Applicant requests the Commission to take the following action:

1. Determine that the N½NE¼ of Section 24, Township 17 South, Range 38 East, Lea County, New Mexico is not within the South Knowles-Devonian Pool and is not therefore affected by Commission Order No. R-638-B, in which event the location requested by Applicant is an orthodox location under existing statewide rules.

2. In the alternative, determine that if the said acreage is within the South Knowles-Devonian Pool and subject to Order No. R-638-B then because of additional development and information available said Order should be revised to provide for 40-acre drilling and proration units.

3. In the alternative, if the Commission finds that the said N½NE¼ of Section 24 is covered by its Order No. R-638-B, and that the drilling and proration units defined in said Order are proper, then to grant Applicant an exception to Paragraph 2 of said Order.

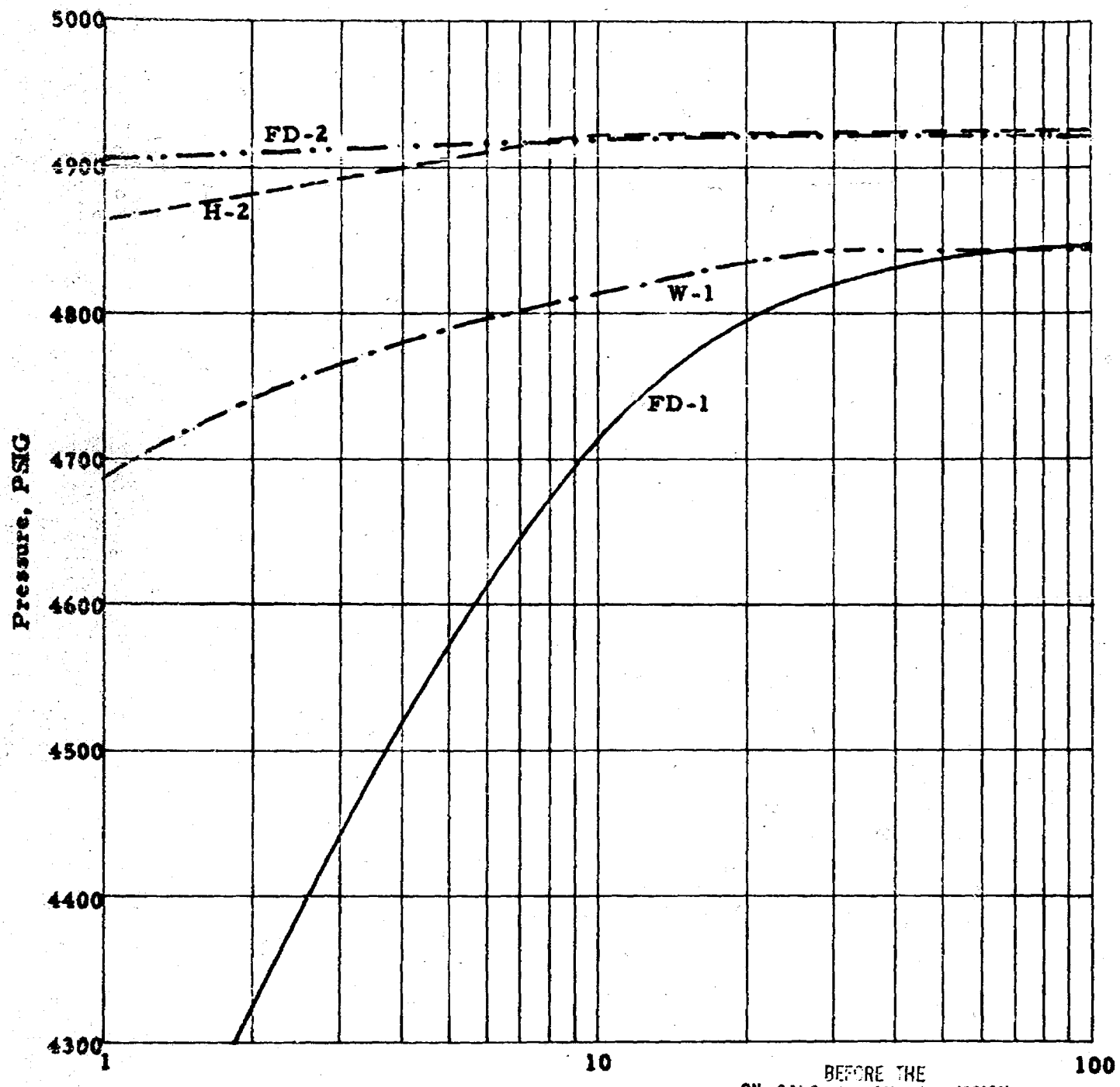
Respectfully submitted,

J. C. WILLIAMSON

By Jack M. Campbell
Jack M. Campbell
For CAMPBELL & RUSSELL

SOUTH KNOWLES FIELD

LEA COUNTY, NEW MEXICO



BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
H&W EXHIBIT NO. 6
CASE #961

UZZELL S BRANSON, JR.
Petroleum Engineering and Research
DALLAS, TEXAS

DOMESTIC SERVICE
Check the class of service desired; otherwise this message will be sent as a full rate telegram

FULL RATE TELEGRAM	
DAY LETTER	
NIGHT LETTER	

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WESTERN UNION

W. P. MARSHALL, PRESIDENT

1206 10-51

INTERNATIONAL SERVICE
Check the class of service desired; otherwise the message will be sent at the full rate

FULL RATE	
LETTER TELEGRAM	
SHIP RADIOGRAM	

NO. WDS.	CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
				PR-8028 - JAKE L. HAMON	

Send the following message, subject to the terms on back hereof, which are hereby agreed to

9-27-55

J. C. Williamson
V & J Tower
Midland, Texas

It is my understanding that you and associates propose to drill a devonian test located in the NW NE Section 24-17S-38E, South Knowles-Devonian Field, Lea County, New Mexico. This is to notify you that Warren Petroleum Company and I will unitize with you proportionate to our lease interests on eighty acre spacing consisting of the west half NE Section 24 in the drilling of this test. You can operate or I will operate the unit if you so desire on standard operating agreement. Location of the test to be 660' NL and 660' WL of eighty acre unit. Drilling to commence whenever you are ready. Would appreciate wire reply collect.

Regards,

JAKE L. HAMON

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. 7
CASE 965

DOMESTIC SERVICE
Check the class of service desired; otherwise this message will be sent as a full rate telegram

FULL RATE TELEGRAM	
DAY LETTER	
NIGHT LETTER	

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WESTERN UNION

W. P. MARSHALL, PRESIDENT

1206 10-51

INTERNATIONAL SERVICE
Check the class of service desired; otherwise the message will be sent at the full rate

FULL RATE	
LETTER TELEGRAM	
SHIP RADIOGRAM	

NO. WDS.	CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
				COPY	

Send the following message, subject to the terms on back hereof, which are hereby agreed to

DA057

D MDA112 10 COLLECT MIDLAND TEX 27 1146AMC

JAKE L HAMON

ASKG RD 1100AMC D RFA040 RDF DAL

YOUR TELEGRAM J C WILLIAMSON DELIVERED 11:38 AM DATE

WESTERN UNION

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
EXHIBIT No. 8
CASE 965

Case 915

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

October 3, 1955

COPY

Mr. Clarence Hinkle
Hervey, Dow & Hinkle
First Natl. Bank Bldg.
Roswell, New Mexico

Dear Sir:

Reference is made to your letter of September 29th pertaining to an application of J. C. Williamson.

I am enclosing a copy of Mr. Williamson's application. The case has been set for 1:30 p.m. October 20th at Mabry Hall, Santa Fe, and will be heard by the Commission.

Very truly yours,

W. B. Macey
Secretary - Director

WBM:brp
Enclosure

J. M. HERVEY 1874-1953
HIRAM M. DOW
CLARENCE E. HINKLE
W. E. BONDURANT, JR.
GEORGE H. HUNKER, JR.
HOWARD C. BRATTON
S. B. CHRISTY IV
J. PENROD TOLES

LAW OFFICES
HERVEY, DOW & HINKLE
FIRST NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO

September 29, 1955

Mr. W. B. Macey
Executive Secretary
New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Dear Bill:

You will recall that I talked with you in regard to a farmout made by the Amerada to J. C. Williamson of Midland, Texas, covering the NW¼NE¼ Section 24, 17-38, in the South Knowles-Devonian field. In case Mr. Williamson should file an application for an unorthodox location, I would like to secure a copy of the application as quickly as possible and be advised of the date set for hearing.

I enclose for your information copy of Mr. Hamon's telegram to Mr. Williamson under date of September 27th, offering to join with Mr. Williamson in the formation of an 80-acre spacing unit in conformity with the Commission's order heretofore entered.

Yours sincerely,

HERVEY, DOW & HINKLE

By _____

CEH:mp
Encl.

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

November 15, 1955

COPY

Mr. Jack M. Campbell
Campbell & Russell
J. P. White Bldg.
Roswell, New Mexico

Dear Sir:

In behalf of your client, J. C. Williamson, we enclose two copies of Order R-719 issued November 10, 1955, by the Oil Conservation Commission in Case 965, which was heard at a special hearing October 20th.

Very truly yours,

W. B. Macey
Secretary - Director

WBM:brp
Encls.

DOMESTIC SERVICE

Check the class of service desired; otherwise this message will be sent as a full rate telegram

FULL RATE TELEGRAM	
DAY LETTER	
NIGHT LETTER	

$ S E

WESTERN UNION

W. P. MARSHALL, PRESIDENT

1206 10-51

INTERNATIONAL SERVICE

Check the class of service desired; otherwise the message will be sent at the full rate

FULL RATE	
LETTER TELEGRAM	
SHIP RADIOGRAM	

NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
			PR-8028 - JAKE L. HAMON	

Send the following message, subject to the terms on back hereof, which are hereby agreed to

9-27-55

J. C. WILLIAMSON
V & J TOWER
MIDLAND, TEXAS

REPORT OF DELIVERY REQUESTED

IT IS MY UNDERSTANDING THAT YOU AND ASSOCIATES PROPOSE TO DRILL A DEVONIAN TEST LOCATED IN THE NW NE SECTION 24-17S-38E, SOUTH KNOWLES-DEVONIAN FIELD, LEA COUNTY, NEW MEXICO. THIS IS TO NOTIFY YOU THAT WARREN PETROLEUM COMPANY AND I WILL UNITIZE WITH YOU PROPORTIONATE TO OUR LEASE INTERESTS ON EIGHTY ACRES SPACING CONSISTING OF THE WEST HALF NE SECTION 24 IN THE DRILLING OF THIS TEST. YOU CAN OPERATE OR IF WILL OPERATE THE UNIT IF YOU SO DESIRE ON STANDARD OPERATING AGREEMENT. LOCATION OF THE TEST TO BE 660' NL AND 660' WL OF EIGHTY ACRE UNIT. DRILLING TO COMMENCE WHENEVER YOU ARE READY. WOULD APPRECIATE WIRE REPLY COLLECT. REGARDS

JAKE L. HAMON

C-O-P-Y

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO FOR THE PURPOSE OF CONSIDERING:

CASE NO. 965
Order No. R-719

IN THE MATTER OF THE APPLICATION OF J. C. WILLIAMSON FOR AN ORDER REDETERMINING THE POOL LIMITS OF THE SOUTH KNOWLES-DEVONIAN POOL AND FOR THE APPROVAL OF AN UNORTHODOX LOCATION TO BE LOCATED 330' FROM THE NORTH LINE AND 2310' FROM THE EAST LINE OF SECTION 24, TOWNSHIP 17 SOUTH, RANGE 38 EAST, LEA COUNTY, NEW MEXICO, NMPM, IN THE VICINITY OF THE SOUTH KNOWLES-DEVONIAN OIL POOL.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 1:30 p.m. on October 20, 1955, at Santa Fe, New Mexico, before the Oil Conservation Commission, hereinafter referred to as the "Commission".

NOW, on this 10th day of November, 1955, the Commission, a quorum being present, having considered the records and testimony adduced, and being fully advised in the premises,

FINDS:

(1) That due notice of time and place of hearing and the purpose thereof having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That applicant, J. C. Williamson, is the owner of the leasehold interest in the N/2 NE/4 of Section 24, Township 17 South, Range 38 East, Lea County, New Mexico.

(3) That the proposed unorthodox well location is outside of the presently defined horizontal limits of the South Knowles-Devonian Pool but is within one mile of the presently defined horizontal limits of the said pool.

(4) That applicant has failed to show by preponderance of the evidence that the N/2 NE/4 of Section 24, Township 17 South, Range 38 East, Lea County, New Mexico, is outside of the common source of supply known as the South Knowles-Devonian Pool.

(5) That the applicant has failed to show by the preponderance of the evidence that should said application be granted waste would be prevented and correlative rights would be protected.

(6) That the proposed unorthodox location is governed by Rule 104 (a) of the Statewide Rules and Regulations of the Commission, and, therefore, the rules of the South Knowles-Devonian Pool, as set forth in Commission Order R-638-B, are applicable.

IT IS THEREFORE ORDERED:

(1) That the application of J. C. Williamson for an order redetermining the pool limits of the South Knowles-Devonian Pool and for the approval of an unorthodox location to be located 330' from the North line and 2310' from the East line of Section 24, Township 17 South, Range 38 East, NMPM, Lea County, New Mexico, be and the same is hereby denied.

DONE at Santa Fe, New Mexico on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN F. SIMMS, Chairman

E. S. WALKER, Member

W. B. MACEY, Member and Secretary

tr/