CASE 1634: (REHEARING - JULY 15, 1959)
Pure Oil Co. application for 80-acre
proration units in South Vacuum-Dev.

July 15.

Case No.

1634

Application, Transcript,
Small Exhibits, Etc.

Ex 3
1634

RESERVOIR DATA
SOUTH VACUUM (DEVONIAN) POOL
LEA COUNTY, NEW MEXICO

1. PHYSICAL PROPERTIES OF RESERVOIR ROCK

(Based on Core Analysis)

a. Average Porosity - 7.1%

b. Average Permeability - 226 Millidarcys

c. Average Interstitial Water Saturation - 32.5%

d. Net Thickness - 75 feet (Maximum)

2. LITHOLOGY

Grey dense to finely crystalline dolomite with pin-point to large vugs, intercrystalline porosity, and fracturing.

3. STRUCTURAL FEATURES OF RESERVOIR

Northwest-southeast trending anticline bounded on the northeast flank by steep dip or possible faulting. No original gas cap. Oil-water contact 7880' Sub-sea.

4. CHARACTERISTICS OF RESERVOIR FLUIDS

a. Gravity of Stock Tank Oil - 49° API

b. Saturation Pressure - 382 PSIG

c. Formation Volume Factor - Barrels Reservoir Oil per Barrel Stock Tank Oil

At Original Pressure - 1.051

At Saturation Pressure - 1.088

d. Viscosity of Reservoir Oil - Centipoise

At Original Pressure - .884

At Saturation Pressure - .588

e. Dissolved Gas-Oil Ratio - Cubic Feet per Barrel Stock Tank Oil

At Saturation Pressure - 96

5. RESERVOIR PRESSURES AND TEMPERATURE

a. Datum Depth - 7750' Sub-sea

4826 1/51 b. Original Reservoir Pressure - 4895 PSI

(From drill stem test South Vacuum #1-35 on 1-11-58)

4726 2-21-59 → c. Estimated Average Reservoir Pressure 4-15-59 4758 PSI

4693 5-9-58

d. Reservoir Temperature - 148° F

e. Productivity Index - Barrels per Day per PSI Pressure Drop - 4.4

pressure from pressure survey 4733 mo ft.

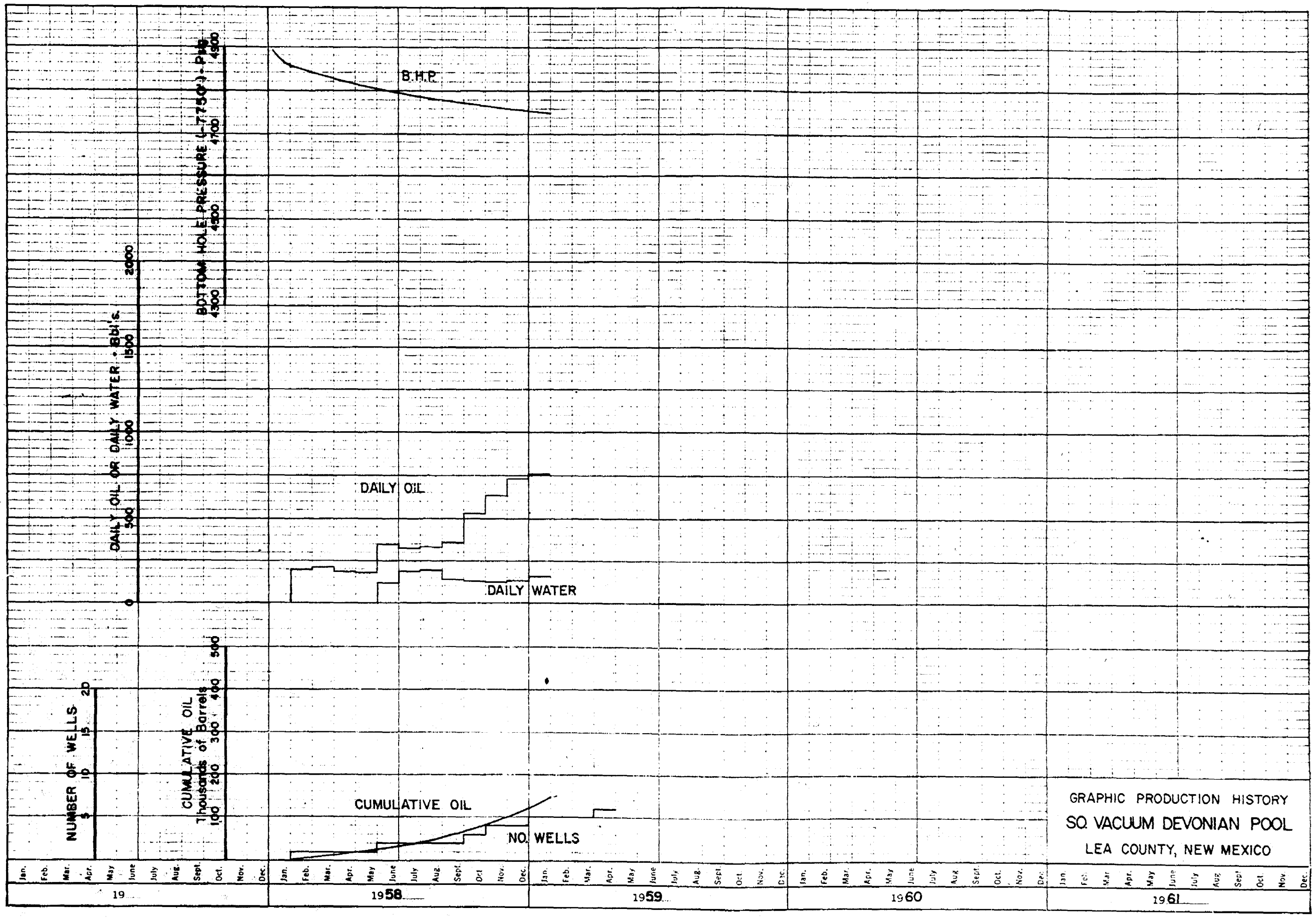
Ex 4

1634

SOUTH VACUUM-DEVONIAN POOL PRODUCTION HISTORY
LEA COUNTY, NEW MEXICO
(EXCLUDING SINCLAIR 401 #2)

Year	Month	No. Wells	MONTHLY PRODUCTION Oil-Bbls.	Water-Bbls.	Gas-MCF	GOR CF/B	BHP(-7750) Psig.
1958	January	1	862	0	69	80	4895
	February	1	5,953	0	476		4838
	March	1	6,182	0	495		
	April	1	5,748	0	460		
	May	1	5,654	0	452		4802
	June	2	10,499	3,510	840		
	July	2	9,715	5,580	777		
	August	2	9,873	5,890	790		4788
	September	2	10,621	4,200	850		
	October	3	15,863	4,092	1,269		
	November	4	19,028	3,900	1,282		4776
	December	4	22,064	4,030	1,765		
	Total		122,062	31,202	9,525		
	Cumulative		122,062	31,202	9,525		
1959	January	5	22,865	4,526	1,829		
	February	5					4766

4



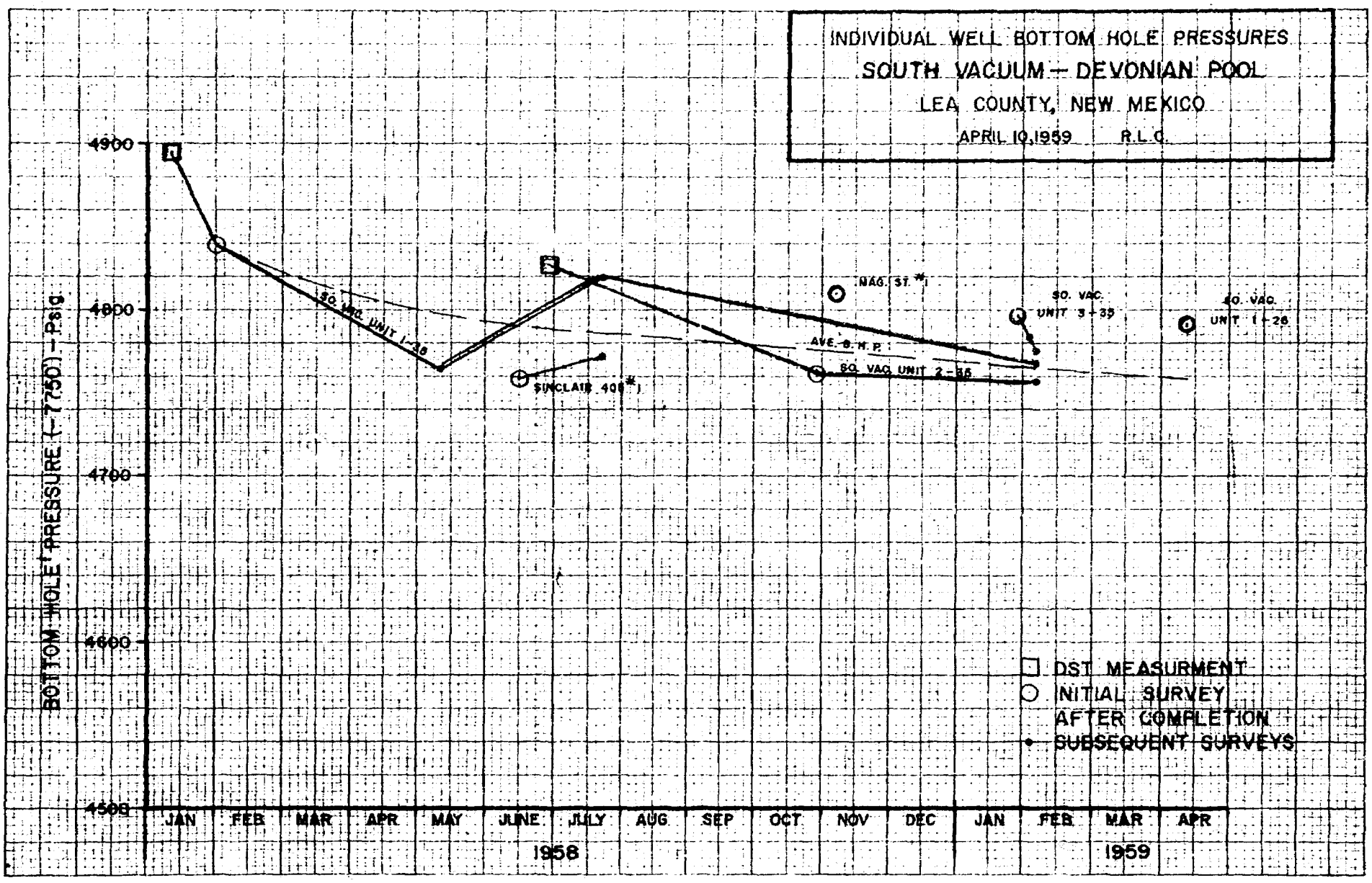
GRAPHIC PRODUCTION HISTORY

SQ. VACUUM DEVONIAN POOL

LEA COUNTY, NEW MEXICO

Ex 5
1634

INDIVIDUAL WELL BOTTOM HOLE PRESSURES
SOUTH VACUUM – DEVONIAN POOL
LEA COUNTY, NEW MEXICO
APRIL 10, 1959 R.L.C.



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INDIVIDUAL WELL BOTTOM HOLE PRESSURES @ 7750' SUB-SEA
SOUTH VACUUM-DEVONIAN POOL
LEA COUNTY, NEW MEXICO

	SO VAC UNIT 1-35		SINCLAIR 405 #1		SO VAC UNIT 2-35		MAGNOLIA STATE #1		SO VAC UNIT 3-35		SO VAC UNIT 1-26	
DATE	BHP	BBLS	BHP	BBLS	BHP	BBLS	BHP	BBLS	BHP	BBLS	BHP	BBLS
1-11-58	4895*	0										
2-1-58	4838	862										
5-9-58	4765	20,441										
6-15-58			4759	4,276								
6-27-58					4828*	0						
7-21-58	4819	33,815	4773	15,301								
10-27-58					4762	5,283						
11-7-58							4810	1,083				
1-28-59									4796	734		
2-3-59									4783	1,204		
2-6-59	4767	73,690			4757	24,788			4775	1,622		
4-13-59											4792	235

* DST Measurements

Note: BBL figures represent cumulative oil and water production from well to date of survey

Gulf Exhibit No. 5

SOUTH VACUUM-DEVONIAN POOL PRODUCTION HISTORY
LEA COUNTY, NEW MEXICO
(EXCLUDING SINCLAIR 401 #2)

		MONTHLY PRODUCTION					
Year	Month	No. Wells	Oil-Bbls.	Water-Bbls.	Gas-MCF	GOR CF/B	BHP(-7750) Psig.
1958	January	1	862	0	69	80	4895
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	September	2	10,621	4,200	850		
	October	3	15,863	4,092	1,269		
	November	4	19,028	3,900	1,282		4776
	December	4	22,064	4,030	1,765		
	Total		122,062	31,202	9,525		
	Cumulative		122,062	31,202	9,525		
1959	January	5	22,865	4,526	1,829		4766
	February	5					

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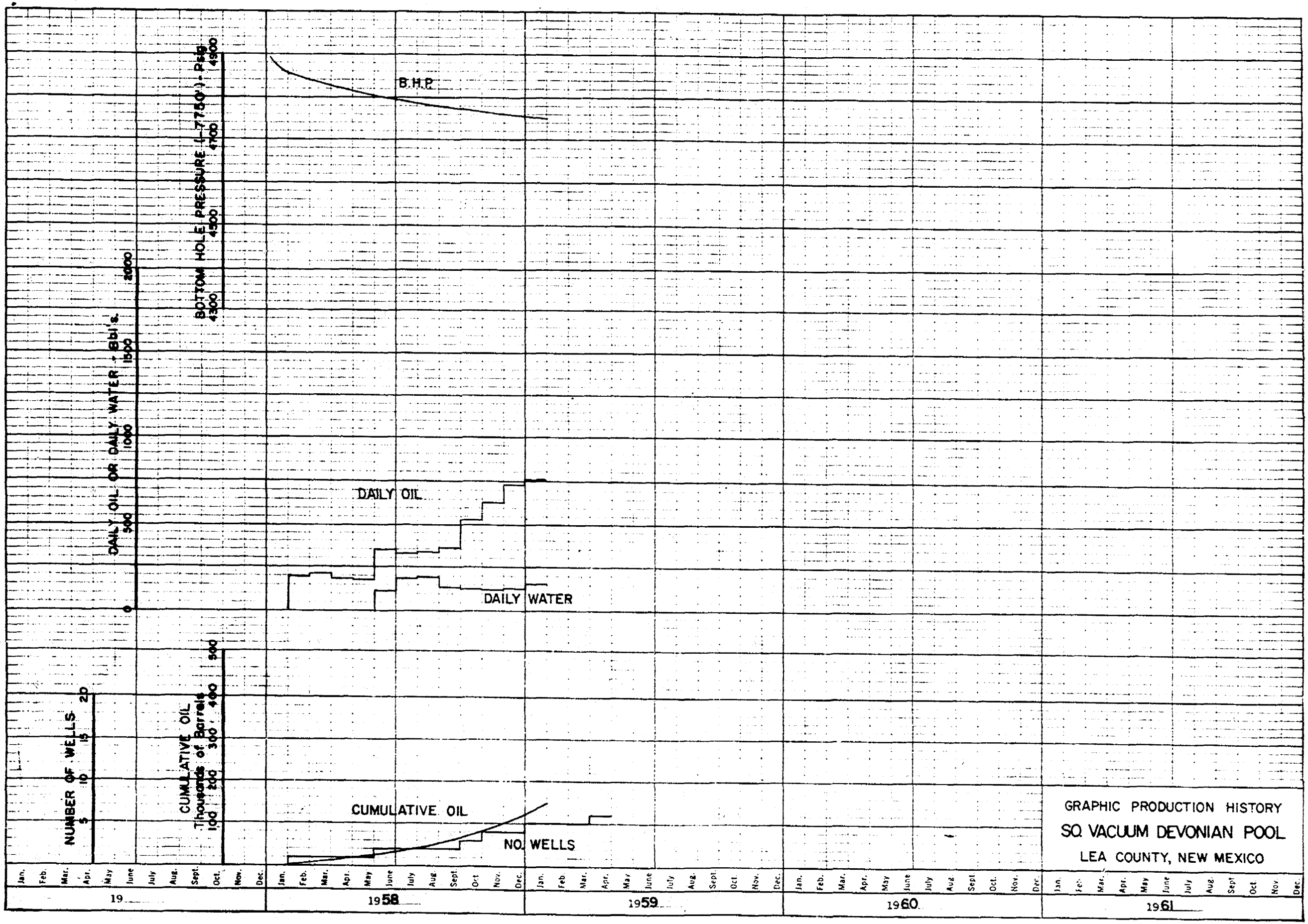
Case 16 301



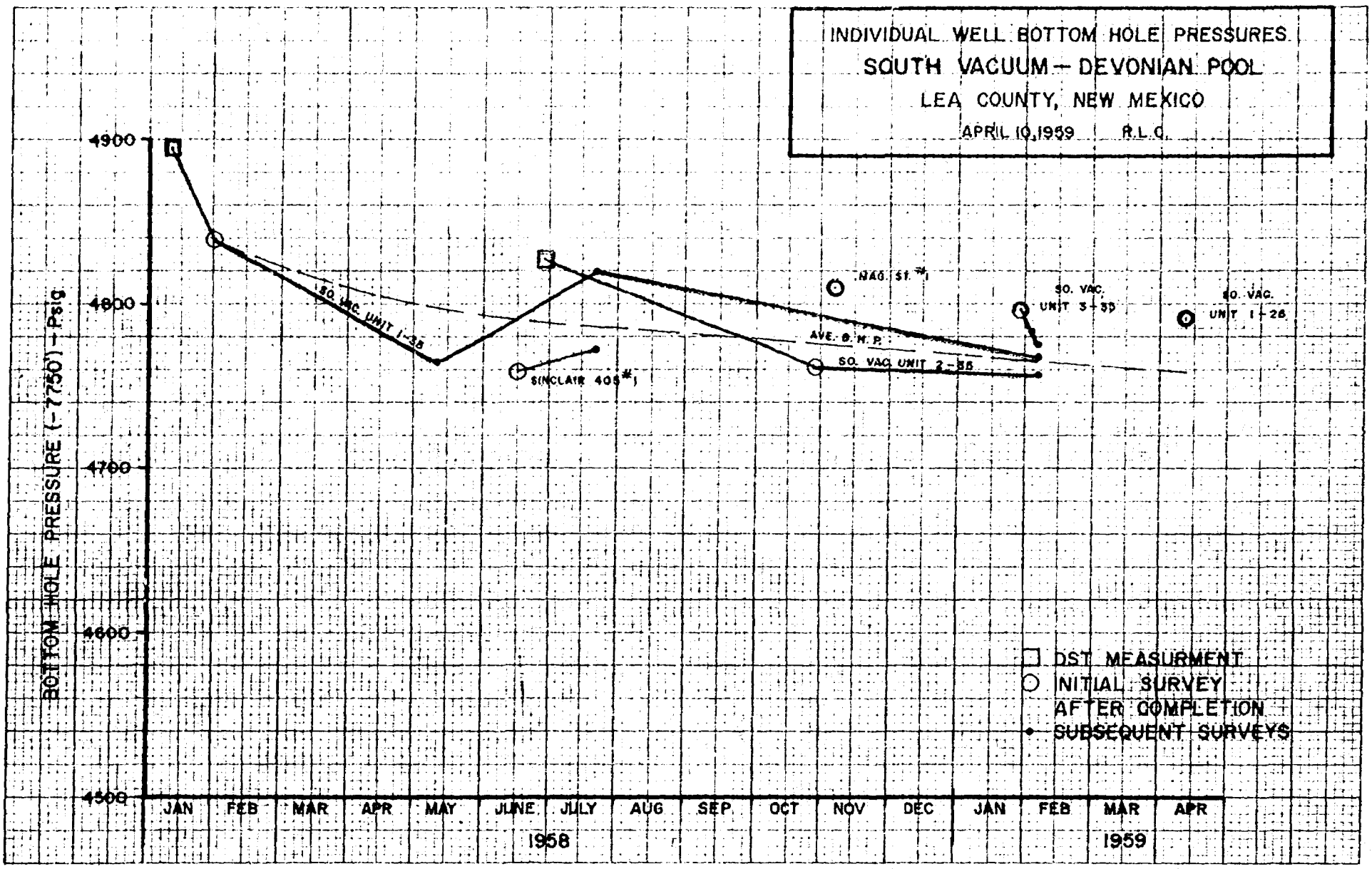
GRAPHIC PRODUCTION HISTORY

SO. VACUUM DEVONIAN POOL

LEA COUNTY, NEW MEXICO

INDIVIDUAL WELL BOTTOM HOLE PRESSURES
SOUTH VACUUM – DEVONIAN POOL
LEA COUNTY, NEW MEXICO

APRIL 10, 1959 R.L.C.



Case 16 3d 5

INDIVIDUAL WELL BOTTOM HOLE PRESSURES @ 7750' SUB-SEA
SOUTH VACUUM-DEVONIAN POOL
LEA COUNTY, NEW MEXICO

	SO VAC UNIT 1-35		SINCLAIR 405 #1		SO VAC UNIT 2-35		MAGNOLIA STATE #1		SO VAC UNIT 3-35		SO VAC UNIT 1-26	
DATE	BHP	BBLS	BHP	BBLS	BHP	BBLS	BHP	BBLS	BHP	BBLS	BHP	BBLS
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4-13-59											4792	235

* DST Measurements

Note: BBL figures represent cumulative oil and water production from well to date of survey

PROCEDURE

SOUTH VACUUM UNIT INTERFERENCE TEST

SOUTH VACUUM-DEVONIAN POOL

1. Run 48 hour shut-in bottom hole pressure survey on all wells.

2. Open all wells on normal producing rate except for following:

   a. South Vacuum Unit #2-35 - Leave shut-in.

   b. South Vacuum Unit #1-35 - Produce at twice the normal allowable.

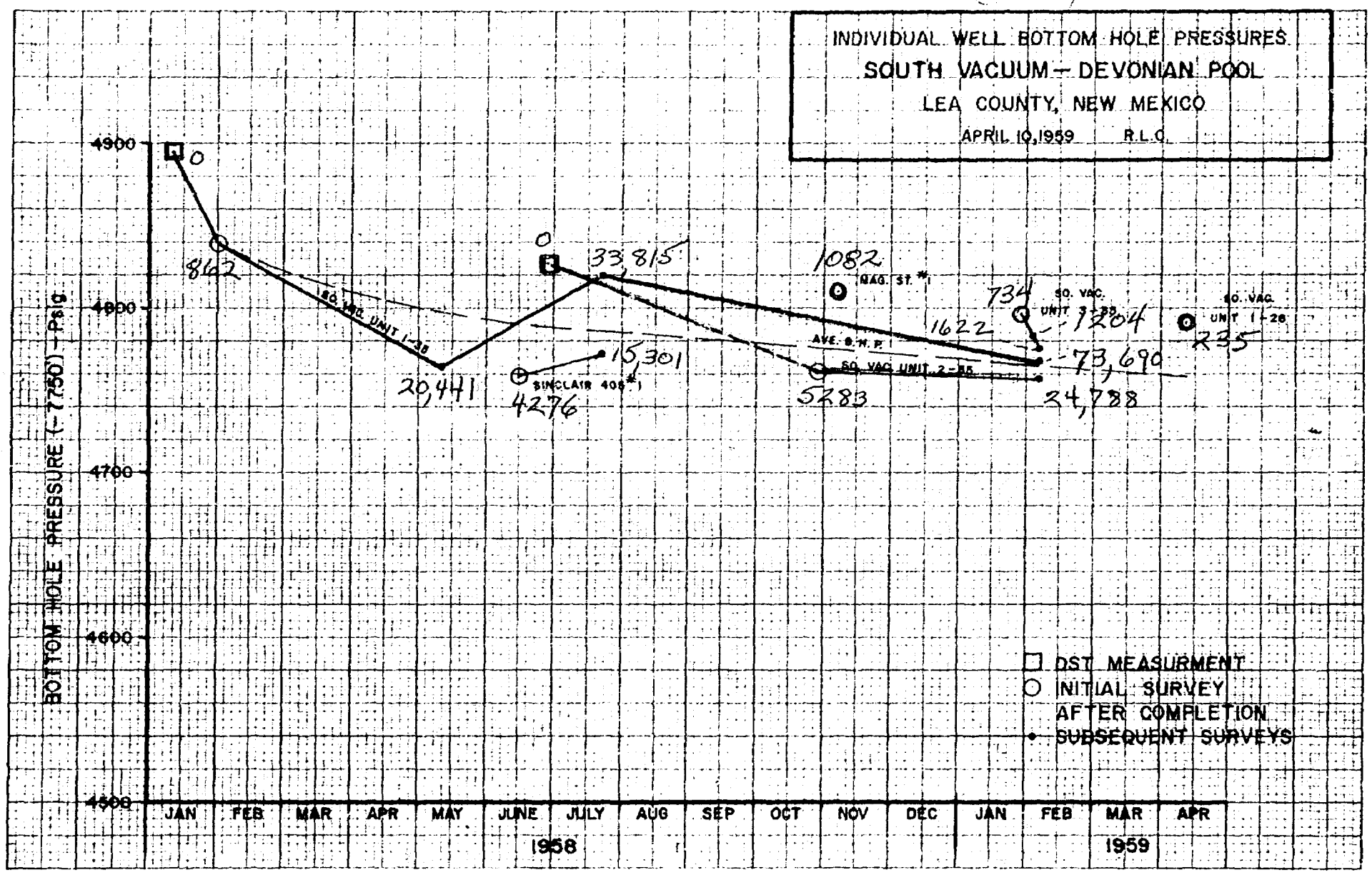
3. Record daily bottom hole pressure on #2-35 for several days.

4. Run static bottom hole pressure survey on all wells at monthly intervals for approximately three months. Run subsequent surveys at three month intervals for remainder of year.

5R

Exs
1634

INDIVIDUAL WELL BOTTOM HOLE PRESSURES
SOUTH VACUUM – DEVONIAN POOL
LEA COUNTY, NEW MEXICO
APRIL 10, 1959 R.L.C.



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INDIVIDUAL WELL BOTTOM HOLE PRESSURES @ 7750' SUB-SEA
SOUTH VACUUM-DEVONIAN POOL
LEA COUNTY, NEW MEXICO

	SO VAC UNIT 1-35		SINCLAIR 405 #1		SO VAC UNIT 2-35		MAGNOLIA STATE #1		SO VAC UNIT 3-35		SO VAC UNIT 1-26	
DATE	BHP	BBLS	BHP	BBLS	BHP	BBLS	BHP	BBLS	BHP	BBLS	BHP	BBLS
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* DST Measurements

Note: BHL figures represent cumulative oil and water production from well to date of survey

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE 1634

TRANSCRIPT OF HEARING

JULY 15, 1959

DEARNLEY - MEIER & ASSOCIATES
GENERAL LAW REPORTERS
ALBUQUERQUE, NEW MEXICO
Phone CHapel 3-6691

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
JULY 15, 1959

IN THE MATTER OF:

CASE 1634 (Rehearing) In the matter of the rehearing requested by The Pure Oil Company for reconsideration by the Commission of Case 1634 which was an application for an order promulgating temporary special rules and regulations for the South Vacuum-Devonian Pool in Lea County, New Mexico, to provide for 80-acre proration units and for permission to shut-in one South Vacuum-Devonian well and transfer its allowable to one or more South Vacuum-Devonian wells on the same basic lease. The rehearing will be limited solely to the transfer of allowable issue.

BEFORE:

Mr. A. L. Porter
Mr. Murray Morgan
Gov. John Burroughs

T R A N S C R I P T O F P R O C E E D I N G S

MR. PORTER: In order to allow a sick man to be able to go home, Mr. Bratton has requested that the Pure Case 1634, be brought on. I told him I didn't see any Pure cases on the docket, but we will hear Case 1634.

MR. PAYNE: Case 1634. (Rehearing) In the matter of the rehearing requested by The Pure Oil Company for reconsideration by the Commission of Case 1634 which was an application for an order promulgating temporary special rules and regulations for

the South Vacuum-Devonian Pool in Lea County, New Mexico, to provide for 80-acre proration units and for permission to shut-in one South Vacuum-Devonian well and transfer its allowable to one or more South Vacuum-Devonian wells on the same basic lease. The rehearing will be limited solely to the transfer of allowable issue.

MR. BRATTON: If the Commission please, it will take us about two minutes to put a couple of exhibits up on the board.

(Short recess)

MR. PORTER: The meeting will come to order, please, and we will proceed with Case 1634.

MR. BRATTON: If the Commission please, Howard Bratton, Hervey, Dow & Hinkle, appearing on behalf of the Applicant, Pure Oil Company. I would like to make a brief statement prior to presenting our case. This case comes on for rehearing, limited to the sole issue as to whether in the South Vacuum unit the Applicant, The Pure Oil Company, should be allowed to shut-in one well for a temporary period of one year and transfer its allowable to a well or wells located on the same lease for the purpose of conducting interference tests during that year to determine the drainage area of a well in the pool. That being the question before the Commission, the evidence which we will present this morning will be very brief, and it will be devoted to two points. The first is whether interference tests will prove anything throughout the pool; in other words, is there such continuity throughout the pool that the tests which we propose will prove or disprove

a fact relative to the whole pool. The second is whether the transfer of the allowable from the shut-in well to a well or wells located on the same lease would damage either the well or the reservoir. Those are the two facts as to which we will present testimony.

We have previously presented our application for rehearing, and in support thereof, have presented a brief as to the reasons why we feel an operator should be allowed the opportunity to conduct interference tests in the interest of the Commission, and the operators may have the best available information as to drainage areas within the pool. Now, we will not go further into that subject other than to refer back to our application for rehearing and brief in support thereof. We have two witnesses this morning, and I will ask that they be sworn.

(Witnesses sworn)

GEORGE FISH,

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

DIRECT EXAMINATION

BY MR. BRATTON:

MR. BRATTON: Prior to proceeding, for clarification, this is for rehearing. I understand that all of the testimony and exhibits in the previous hearing are a part of this hearing.

MR. PAYNE: That is correct, Mr. Bratton.

Q (By Mr. Bratton) Will you state your name, please, by

whom you are employed, and in what capacity?

A George Fish. I'm employed by The Pure Oil Company as Division Development Geologist for the Texas Producing Division.

Q Have you previously testified in the original hearing on this case?

A Yes, I have.

MR. BRATTON: Are the witness' qualifications still acceptable?

MR. PORTER: They are, yes, sir.

(Thereupon, Applicant's Exhibit No. 1-R was marked for identification.)

Q Referring, Mr. Fish, to what has been marked Exhibit 1-R, will you please explain what that is, what that Exhibit is, and what it shows?

A This is a structure map contoured on top of the Devonian formation. It is very similar to the map that was presented at the prior hearing. The only new information we have available since the other hearing is the drilling of the Magnolia No. 2 State, Section 27, which is located in the SE/4 of the NE/4 of Section 27 in Township 18 South, Range 35 East. That well encountered the Devonian higher than was shown by the contouring on my previous map so that a revised interpretation was necessary. The Devonian was encountered at a minus 7570 feet subsea. This well is -- hasn't been officially completed yet, at last report; they are waiting on orders. They had seven inch casing out at the

well site, and I understand they are attempting to make a decision as to whether they will project that area on down to test the McKee sand.

Q Does the information obtained from that well ratically or basically change the contour or the outline of the pool as you previously presented it to this Commission?

A It does extend the limit of the pool to the northeast. The fact that it came in high necessitated an additional contour, a minus 7600 foot contour, and by virtue of that, all the other contours had to be moved to the northeast. The water level would also be moved, the interpretation of the water level to the northeast. Therefore, the pool encompasses a slightly larger area than previously shown.

Q Does the information obtained from that well change your belief that there is such continuity throughout the pool that an interference test conducted in any portion thereof would give evidence as to drainage in all portions of the pool?

A No, sir. It only confirms my previous conviction. I don't have a log on that well. The position of that well on my previously presented cross section would be approximately half way between the Magnolia 1-27 and South Vacuum unit No. 1-26.

Q Now, you are referring to Exhibit 2-R, which is a cross section of the pool?

A Yes, sir. This cross section is also similar to the cross section presented in the previous hearing. There has been

one addition at the northeast end, which was the inclusion of the Sinclair No. 2-401. In the previous hearing, there was some discussion as to what a cross section would show if it were taken up to that well, so for clarification, I have added that well. We still feel that the Sinclair No. 2-401 is producing from an area of separate closure, but is producing from the same basic reservoir, that is the Devonian reservoir. The only -- the thing is that the Magnolia No. 2-27 would only serve to eliminate this long gap between these two wells and would strengthen our belief that the reservoir is present and continuous throughout the south closure of the South Vacuum-Devonian Pool.

Q Now, what well does Pure propose to shut-in?

A They propose to shut-in the South Vacuum unit No. 2-35.

Q Referring to Exhibit 1-R, will you show the location of that well?

A The South Vacuum unit No. 2-35 is located in the NE/4 of the SE/4 of Section 35, 18 South, 35 East.

Q All right. Now, that well is on the southeast edge of the wells which have been drilled?

A That is correct.

Q However, your cross section shows continuity throughout the reservoir so that the shutting of that well and the information obtained from interference tests thereon would, in your opinion, furnish information as to the rest of the pool?

A I think it certainly would. In fact, I think that this

is a better well to be shut-in than the well we had previously recommended being shut-in. It is on the southeast edge of the pool, and there will be no drainage from the southeast or the south. The only drainage or pressure interference that will occur will be from the wells producing in the main portion of the reservoir up to the north, the northwest.

Q Do you have anything further which you would like to testify with regard to either one of these Exhibits?

A No, sir. I believe that completes my testimony.

Q Did you prepare both of these Exhibits?

A Yes, sir, I did.

MR. BRATTON: We would like to offer Pure's Exhibits 1-R and 2-R in evidence.

MR. PORTER: Without objection, these Exhibits will be admitted into the record.

(Thereupon, Pure's Exhibits Nos. 1-R and 2-R were received in evidence.)

MR. PORTER: Anyone have a question of Mr. Fish?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Fish, you stated that you would shut-in your South Vacuum Well No. 2-35. Now, would you transfer the allowable of that well to another well or wells?

A Yes, sir, that is our proposal.

Q Which wells would you transfer it to?

A We have recommended that that allowable be transferred to the South Vacuum unit No. 1-35.

Q The nearest well to the 2-35?

A Yes.

Q The entire allowable?

A Yes, sir.

Q Now, do you think that, as a geologist, do you think that there is anything structurally here that would prohibit the efficient production of the two allowables from the 1-35?

A No, sir. I believe there is adequate section -- adequate pay qualities to sustain the production -- the allowable from two wells from 1-35.

Q Now, your horizontal green line on your cross section there is the water table?

A The blue line. The green line depicts the top of the Devonian.

Q Now, how close to that blue line, then, is your No. 135 perforated?

A Approximately 70 feet, I would say. I could get more exact figures if you desire, but it is approximately -- just reading my cross section, I would say approximately --

Q We probably can find out what the perforated interval is. What is the elevation of your water-oil contact?

A Minus 7880.

MR. NUTTER: Thank you. That's all.

QUESTIONS BY MR. PAYNE:

Q How deep is the well, Mr. Fish?

A How deep?

Q Yes, sir.

A TD, the subsea TD is shown on some of the cross sections. Beginning at the south end, the 2-35 was taken to granite which was approximately 13,000 plus feet.

Q What is the allowable for these wells at present?

A I believe for the month of July it is 199 barrels a day.

MR. PAYNE: Thank you.

QUESTIONS BY MR. PORTER:

Q 139?

A 199.

Q 199, approximately 200 barrels?

A Approximately 200 barrels.

Q Have you considered transferring the allowable to other wells, more than one well?

A Yes, we have considered it. We think it would be preferable to transfer it to the one well. However, we would have no strong objection to transferring it to other wells. I think my engineer colleague is a little bit more qualified to state an opinion on that.

MR. PORTER: Does anyone else have a question of Mr. Fish? You may be excused.

(Witness excused)

HARRY C. WELLS,

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

DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, please, by whom you are employed and in what capacity?

A I am Harry C. Wells, employed by The Pure Oil Company as assistant chief production engineer of The Texas Producing Division in Fort Worth.

Q Have you previously testified before this Commission as an expert witness?

A I have.

Q Are you familiar with this case and the original hearing, the application for rehearing, and the matters involved in this rehearing?

A Yes, I am.

MR. PORTER: His qualifications are acceptable.

(Thereupon, Pure Oil Company's Exhibit No.3-R was marked for identification.)

Q Referring to Exhibit No.3-R, Mr. Wells, will you relate what that is?

A Exhibit 3-R is the same exhibit which was presented as Exhibit No. 3 at the April 15th hearing, and it is simply a graph-

ical and tabular production history for the south portion of the South Vacuum-Devonian Pool, excluding Sinclair's #01 No. 2, which we went into at the previous hearing. These two, the tabular and the graphic form merely add three months to that, which was presented at the last hearing, three months' production.

(Thereupon, Pure Oil Company's Exhibit No. 4 was marked for identification.)

Q Turning to Exhibit No. 4, Mr. Wells, will you explain what that is and what it shows?

A Exhibit No. 4 is a comparison of the core analysis data and the log data of each of the four wells completed in South Vacuum unit, Devonian reservoir to this point. Shown on Exhibit 4-R for each of these wells is the gross feet of pay, the net feet of pay from the neutron or sonic log, the weighted average porosity of the net pay above the oil water contact, as determined from the log after correlation with core analysis. The weighted average permeability of the net pay from core analysis, and the footage of cored sections having porosity greater than four percent or permeability greater than one-tenth milladarcey. I'll be happy to read those figures if you would like.

Q I don't believe that will be necessary.

A The thing we wanted to show with this exhibit is that porosity and permeability figures are very similar for all of the wells we have data on, and not only similar but are very good characteristics for an oil reservoir.

Q That confirms what is shown on Exhibit 2-R as to continuity so that interference tests conducted on one well would be information applicable to the entire pool?

A That is correct.

(Thereupon, Pure Oil Company's Exhibit No. 5-R was marked for identification.)

Q Turning to Exhibit 5-R, Mr. Wells, that is an outline of the procedure which you would propose in connection with the interference test?

A That is correct. We would propose to, first, run a forty-eight hour shut-in bottom hole pressure survey on all wells in the pool. Second, to open all wells on normal producing rate except that the South Vacuum unit 2-35 would remain shut-in, the South Vacuum unit 1-35 would be produced at twice the normal allowable. We would record daily bottom hole pressures on No. 2-35 for several days, and we would run static bottom hole pressure surveys on all wells at monthly intervals for approximately three months, and run subsequent surveys at about three months' intervals for the remainder of the one year period.

Q Now, it is my understanding that your proposal is to shut-in the South Vacuum 2-35 and transfer the full allowable to the South Vacuum 1-35?

A That is correct.

Q However, if the Commission should desire, you would have no objection to transferring that allowable to the remainder

of the wells on that same lease instead of transferring it all to the 1-35?

A That is correct.

Q Now, in your opinion, would it damage either Well No. 1-35 or the reservoir to transfer the full allowable to it?

A In my opinion, it would not damage the reservoir or the well in the least. 1-35 would continue to flow at the approximate 400 barrel allowable with about 900 pounds per square inch surface tubing pressure. The only other possible damage that you could think of to the well would be caused from premature water production or coning of the oil-water contact. The static bottom hole pressure in No. 1-35 in February 6 of this year, as shown in our previous exhibit, was 4767 PSI at minus 7550 feet. The productivity index of that well is 4.4 barrels per day per PSI drawdown. The drawdown, therefore, in bottom hole pressure at a 400 barrel a day rate will be approximately 176 PSI, or about 88 PSI over and above the drawdown which we would have with normal allowable from this well. The flowing bottom hole pressure, therefore, would still remain 4591 pounds, or thereabouts. This reduction is of a very small percentage of the total bottom hole pressure. The oil-water contact in the 1-35 of minus 7880 feet is equivalent of a depth of 11,758 feet. The lowest perforation in this well is 11,680, or a height above the oil-water contact of 78 feet. We have run calculations on the rate of production necessary to cone water 78 feet, assuming a 7 percent porosity

uniformly all the way down, and the rate necessary would be approximately 1200 barrels per day, or more than three times the maximum rate proposed in this interference test. Therefore, we feel that there will be no danger at all from any water coning or premature water production due to producing two allowables from one well.

Q If the allowable is transferred to the other wells on the lease, will that result in transferring allowables to wells offsetting another lease, a separate lease?

A It will, certainly.

Q In your opinion, are pressure interference tests such as the one proposed here, is that the best available information as to the area which can be effectively drained by a well?

A It is one of the best tools we have for judging the effective drainage area of a well, together with other information such as that which we presented at the previous hearing on the initial bottom hole pressure of new wells prior to any production. I think those two criteria are the best available means we have.

Q In your opinion, would the procedure which you have suggested afford within a year further substantial evidence as to the area which can be drained by one well in this pool?

A Yes, I think that one year should give us fairly conclusive results.

Q Now, in conclusion, you believe that the most effective way would be to transfer the full allowable to the adjoining Well,

No. 1-35, is it Pure's position that if the Commission so desires, they have no objection to transferring the allowables to the other wells on the basic lease?

A We have no objection. However, I would like to point out that if double the allowable is produced from an offsetting well, it is roughly equivalent to haveing two wells, one on each side of your shut-in well, producing at normal allowable rate. Therefore, as far as drainage areas are concerned, this, I think, would give a better picture and probably a quicker result from our interference test.

Q The results might be quicker, but they would not -- it would not effect the validity of the test, if the full allowable were transferred to the adjoining well?

A No, it certainly wouldn't.

Q Is there anything further which you have to offer in this case?

A I believe that's all.

Q Exhibits 3-R through 5-R were prepared by you or under your supervision?

A Yes, they were.

MR. BRATTON: I would like to offer those Exhibits in evidence.

MR. PORTER: Without objection, the Exhibits will be admitted.

(Thereupon, Pure Oil Company's Exhibits 3-R through 5-R were received in evidence.)

MR. PORTER: Anyone have any questions of Mr. Wells?

MR. PAYNE: Yes, sir.

MR. PORTER: I think you pretty well covered the point that I raised with the last witness.

CROSS EXAMINATION

BY MR. PAYNE:

Q Mr. Wells, how many wells does Pure have on this same basic lease producing from the South Vacuum-Devonian?

A The South Vacuum unit contains four presently producing Devonian wells.

Q Now, did I understand you to testify that all of those wells with the exception of the 1-35 are offset by producing wells on different leases?

A No. I believe the statement was that if the allowable were transferred to other wells, we would have equally -- to all other wells, we would have a condition of producing more than normal allowable from a well offsetting another lease.

Q Producing from the same pool?

A Yes. Not at this time, no.

Q I see.

A Not at this time. However, they would be offsetting the lease, --

Q Yes, sir.

A -- the boundary line.

MR. PORTER: Do you anticipate that those wells will be drilled within the duration of the test you are asking for?

A They probably will be, yes.

Q (By Mr. Payne) Now, did I also understand you to testify that the information that you obtain from this interference test will be just as valuable and just as accurate if the allowable were transferred to four wells as it is if it is transferred to this one well?

A It will be just as valid and just as accurate, but it will be slower in being determined.

Q Would you be able to get the information you want within the one year period?

A I think we could.

Q Even if it were transferred to four wells rather than one?

A Yes.

MR. PAYNE: That's all. Thank you.

MR. PORTER: Anyone else have a question? Mr. Nutter.

QUESTIONS BY MR. NUTTER:

Q Did you state what the perforated interval in this No. 1-35 is?

A I stated only the deepest perforation.

Q What is the total interval there?

A The overall interval is from 11,643 to 11,680.

Q So there are actually 37 feet of perforations?

A Right.

Q And your PI is what on this well?

A 4.4.

Q And how does the PI in this well compare with the other wells in the unit?

A We have not run PI tests on any other wells.

Q Now, if the Commission should -- first of all, let me ask you this, do any of these wells on your unit make water at this time?

A The 2-35 makes a small amount of water. The latest tests, it flowed 214 barrels of oil, I believe, and 14 barrels of water.

Q Do you take monthly tests on your wells?

A Periodic tests. I'm not sure whether they are monthly or not.

Q Now, during the course of this interference test that you request here, would you be willing to take monthly tests and file that with the Commission and --

A Including the one shut-in?

Q No, I was talking about monthly production tests, gas-oil ratio and measurement of the oil and water produced.

A We certainly would.

Q In the event the Commission should authorize the transfer of the allowable to just the one well, being the 1-35, and

then future conditions would indicate that perhaps that allowable should be distributed to other wells, would you be willing to make that distribution?

A I certainly would.

MR. NUTTER: I believe that's all. Thank you.

QUESTIONS BY MR. PORTER:

Q In other words, about what you are asking for here would be the transfer with the option to transfer any portion of it to the other wells?

A Yes, sir. Under Mr. Nutter's condition, that is correct.

Q In the event that proved to be desirable?

A Right.

MR. PORTER: Anyone else have a question of the witness? You may be excused.

(Witness excused)

MR. PORTER: Does this conclude your testimony?

MR. BRATTON: We have nothing further.

MR. PORTER: Does anyone else have any statement to make, any comment on this case?

MR. BURTON: I am H. N. Burton.

MR. PORTER: Burton?

MR. BURTON: Yes. Speaking on behalf of Sinclair Oil & Gas Company, we own an approximate 9 percent interest in the South Vacuum unit, and we join in and concur with the recommenda-

tions of The Pure Oil Company in this hearing.

MR. PORTER: Does anyone else desire to make a comment or make a statement? If not, we will take the case under advisement.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

WITNESS my Hand and Seal this, the 24th day of July, 1959, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Joseph A. Trujillo
NOTARY PUBLIC

My Commission Expires:

October 5, 1960

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

COPY

August 3, 1959

Mr. Howard Bratton
Hervey, Dow & Hinkle
P. O. Box 547
Roswell, New Mexico

Dear Mr. Bratton:

On behalf of your client, The Pure Oil Company, we enclose two copies of Order No. R-1382-B issued by the Oil Conservation Commission on August 1, 1959, in Case No. 1634.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ir/

Enclosures

Mailed

Copy Order sent to Harry Wells - Ft Worth - 8-6-59 ltr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 1634
Order No. R-1382-B

APPLICATION OF THE PURE OIL
COMPANY FOR AN ORDER PROMUL-
GATING TEMPORARY SPECIAL RULES
AND REGULATIONS FOR THE SOUTH
VACUUM-DEVONIAN POOL IN LEA
COUNTY, NEW MEXICO, TO PROVIDE
FOR 80-ACRE PRORATION UNITS

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 o'clock a.m. on April 15, 1959, at Hobbs, New Mexico, and at 9:00 o'clock a.m. on July 15, 1959, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 1st day of August, 1959, the Commission, a quorum being present, having considered the testimony presented, and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

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

(2) That by Order No. R-1382, dated April 30, 1959, the Commission denied the application of The Pure Oil Company for the promulgation of temporary rules and regulations for the South Vacuum-Devonian Pool in Lea County, New Mexico, to provide for 80-acre proration units; further, that the Commission denied the request of The Pure Oil Company for permission to shut-in its South Vacuum Unit Well No. 3-35 located in the NE/4 NW/4 of Section 35, Township 18 South, Range 35 East, NMPM, Lea County, New Mexico, and to transfer the allowable of said well to the applicant's South Vacuum Unit Well No. 1-35 located in the SW/4 NE/4 of said Section 35.

(3) That the applicant, by application dated May 19, 1959, requested the Commission to re-open Case No. 1634 for a rehearing of said case and to re-consider Order No. R-1382. That the Commission by Order No. R-1382-A authorized that the subject case be re-opened and a rehearing be held at 9:00 o'clock a.m. on July 15, 1959, with the provision that the rehearing would be limited solely to the issue of whether or not the applicant should be permitted to shut-in a well on its South Vacuum Unit and transfer said well's allowable to another well or wells on the same lease.

(4) That the evidence presented at said rehearing indicates that the applicant should be permitted to shut-in its South Vacuum Unit Well No. 2-35 located in the NE/4 SE/4 of Section 35, Township 18 South, Range 35 East, Lea County, New Mexico, and to transfer the allowable from said well to its South Vacuum Unit Well No. 1-35 located in the SW/4 NE/4 of said Section 35.

(5) That the applicant should conduct monthly tests on said Well No. 1-35, filing the results of such tests with the Commission on Commission Form No. C-116.

(6) That the Secretary-Director of the Commission should be authorized, if the monthly production test data indicates possible damage to the South Vacuum Unit Well No. 1-35, to order the allowable which is transferred from the South Vacuum Unit Well No. 2-35 to be apportioned to other wells on the same basic lease which are completed in the South Vacuum-Devonian Pool.

IT IS THEREFORE ORDERED:

(1) That the applicant, The Pure Oil Company, be and the same is hereby authorized to shut-in its South Vacuum Unit Well No. 2-35 located in the NE/4 SE/4 of Section 35, Township 18 South, Range 35 East, South Vacuum-Devonian Pool, Lea County, New Mexico, and to transfer the allowable of said well to the applicant's South Vacuum Unit Well No. 1-35 located in the SW/4 NE/4 of said Section 35 for a period not to exceed one year from the effective date of this order.

(2) That the applicant shall conduct monthly tests on said Well No. 1-35 and report the results of those tests to the Commission on Commission Form No. C-116.

(3) That the Secretary-Director of the Commission be and the same is hereby authorized to require the allowable which is transferred from the South Vacuum Unit Well No. 2-35 to be distributed among other wells on the same basic lease completed in the South Vacuum-Devonian Pool, if in his opinion the production of the transferred allowable from the said Well No. 1-35 is resulting or may result in damage to said well.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

A. L. PORTER, Jr., Member & Secretary

vcm/

No. 28-59

DOCKET: REGULAR HEARING JULY 15, 1959

Oil Conservation Commission - 9 a.m., Mabry Hall, State Capitol, Santa Fe, New Mexico

ALLOWABLE: (1) Consideration of the oil allowable for August, 1959.

(2) Consideration of the allowable production of gas for August, 1959, from six prorated pools in Lea County, New Mexico, also consideration of the allowable production of gas from seven prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico, for August, 1959.

CONTINUED CASES, REHEARINGS, AND HEARINGS DE NOVO

CASE 1600: (continued) In the matter of the application of M. A. Romero and Robert Critchfield concerning the operation of gas prorationing in the Blanco Mesaverde Gas Pool and the ratable taking of gas from said Blanco Mesaverde Gas Pool in Rio Arriba and San Juan Counties, New Mexico, as well as from the Choza Mesa-Pictured Cliffs Gas Pool in Rio Arriba County, New Mexico.

CASE 1615: (Rehearing) In the matter of the rehearing requested by Continental Oil Company and/or Continental Pipeline Company, as successor in interest to Malco Refineries, Inc., for reconsideration by the Commission of Case No. 1615, Order R-1363. Case 1615 was an application by Stanley Jones, et al, for an order requiring Malco Refineries, Inc. to purchase oil produced from wells in the Dayton-Abo Pool in Eddy County, New Mexico, under the provisions of the Common Purchaser Act. Case 1615 culminated in the entry of Order No. R-1363 which required Malco Refineries, Inc. to purchase all oil tendered to it which is produced from the Dayton Field in Eddy County, New Mexico.

CASE 1634: (Rehearing) In the matter of the rehearing requested by The Pure Oil Company for reconsideration by the Commission of Case 1634 which was an application for an order promulgating temporary special rules and regulations for the South Vacuum-Devonian Pool in Lea County, New Mexico, to provide for 80-acre proration units and for permission to shut-in one South Vacuum-Devonian well and transfer its allowable to one or more South Vacuum-Devonian wells on the same basic lease. The rehearing will be limited solely to the transfer of allowable issue.

CASE 1637: (Rehearing) In the matter of the rehearing requested by The Atlantic Refining Company for reconsideration by the Commission of Case 1637 which was an application for an order combining the Allison-Pennsylvanian and the North Allison-Pennsylvanian Pools in Lea and Roosevelt Counties, New Mexico, and for the promulgation of special rules and regulations in connection therewith to provide for 80-acre proration units.

CASE 1641: (Hearing De Novo) Application of El Paso Natural Gas Company for a hearing de novo before the Oil Conservation Commission in Case No. 1641, Order R-1410, which was an application by W. R. Weaver for the promulgation of special rules and regulations governing the drilling, spacing, and production of wells in the Angels Peak-Gallup Oil Pool, San Juan County, New Mexico.

Docket Mailed 6-29-59

CASE 1420: (Hearing De Novo) Application of Caulkins Oil Company for a hearing de novo before the Oil Conservation Commission of New Mexico in Case No. 1420. Applicant, in the above-styled cause, seeks an order authorizing it to dually complete its Well No. T-123, located 700 feet from the North line and 1800 feet from the East line of Section 7, Township 26 North, Range 6 West, Rio Arriba County, New Mexico, in such a manner as to permit the production of gas from the Dakota formation and water injection into the Tocito formation.

NEW CASES

CASE 1722: Application of Caulkins Oil Company for a triple completion. Applicant, in the above-styled cause, seeks an order authorizing it to triple complete its Breech Well No. PMD-224, located in the NE/4 NE/4 of Section 13, Township 26 North, Range 7 West, Rio Arriba County, New Mexico, in such a manner as to produce gas from the South Blanco-Pictured Cliffs Pool, gas from the Mesaverde formation, and gas from the Greenhorn formation within the vertical limits of the Dakota Producing Interval through parallel strings of tubing.

CASE 1723: Southeastern New Mexico Nomenclature case calling for an order creating and extending existing pools in Chaves, Eddy, Lea and Roosevelt Counties, New Mexico.

(a) Create a new oil pool for Mississippian production, designated as the Bronco-Mississippian Pool, and described as:

TOWNSHIP 13 SOUTH, RANGE 38 EAST, NMPM
Section 11: SE/4

(b) Extend the Bluitt-Pennsylvanian Pool to include,

TOWNSHIP 8 SOUTH, RANGE 37 EAST, NMPM
Section 20: S/2

(c) Extend the Caprock-Queen Pool to include,

TOWNSHIP 14 SOUTH, RANGE 31 EAST, NMPM
Section 29: W/2 NE/4

(d) Extend the Coyote-Queen Pool to include,

TOWNSHIP 11 SOUTH, RANGE 27 EAST, NMPM
Section 22: NW/4

(e) Extend the Dayton-Abo Pool to include,

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
Section 27: S/2 SE/4

(f) Extend the Justis-Drinkard Pool to include,

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMPM
Section 26: NE/4

(g) Extend the Ranger Lake Pennsylvanian Pool to include,

TOWNSHIP 12 SOUTH, RANGE 34 EAST, NMPM
Section 23: SW/4
Section 26: NW/4
Section 27: E/2

(h) Extend the Robinson Pool to include,

TOWNSHIP 17 SOUTH, RANGE 31 EAST, NMPM
Section 1: S/2
Section 2: SE/4

(i) Extend the Shoe Bar-Pennsylvanian Pool to include,

TOWNSHIP 16 SOUTH, RANGE 35 EAST, NMPM
Section 26: SE/4

CASE 1724: Northwestern New Mexico nomenclature case calling for an order extending existing pools in San Juan, Sandoval, and Rio Arriba Counties, New Mexico.

(a) Extend the Aztec-Pictured Cliffs Pool to include,

TOWNSHIP 28 NORTH, RANGE 10 WEST, NMPM
Section 14: S/2
Section 15: NE/4

(b) Extend Ballard-Pictured Cliffs Pool to include,

TOWNSHIP 24 NORTH, RANGE 6 WEST, NMPM
Section 23: E/2
Section 24: W/2 and SE/4
Section 25: All
Section 26: N/2 and SE/4

TOWNSHIP 25 NORTH, RANGE 7 WEST, NMPM
Section 30: S/2

(c) Extend The Fulcher Kutz-Pictured Cliffs Pool to include,

TOWNSHIP 28 NORTH, RANGE 10 WEST, NMPM
Section 24: NW/4

(d) Extend the South Blanco-Pictured Cliffs Pool to include,

TOWNSHIP 24 NORTH, RANGE 2 WEST, NMPM
Section 18: W/2
Section 25: SW/4

TOWNSHIP 25 NORTH, RANGE 3 WEST, NMPM
Section 27: NE/4

TOWNSHIP 25 NORTH, RANGE 5 WEST, NMPM
Section 29: N/2

TOWNSHIP 25 NORTH, RANGE 6 WEST, NMPM
Section 6: E/2
Section 7: E/2

Section 10: W/2 and SE/4
Section 14: W/2
Section 15: N/2 and SW/4
Section 16: S/2 and NW/4

TOWNSHIP 27 NORTH, RANGE 9 WEST NMPM
Section 5: W/2

(e) Extend the Blanco-Mesaverde Pool to include,

TOWNSHIP 26 NORTH, RANGE 7 WEST, NMPM
Section 12: All
Section 13: N/2

TOWNSHIP 27 NORTH, RANGE 6 WEST, NMPM
Section 34: All
Section 35: All
Section 35: All

TOWNSHIP 27 NORTH, RANGE 8 WEST, NMPM
Section 18: W/2
Section 19: W/2

TOWNSHIP 27 NORTH, RANGE 9 WEST, NMPM
Section 13: E/2

(f) Extend the Bisti-Lower Gallup Oil Pool to include,

TOWNSHIP 26 NORTH, RANGE 14 WEST, NMPM
SEction 13: S/2 NE/4

(g) Extend the Chimney Rock-Gallup Oil Pool to include,

TOWNSHIP 31 NORTH, RANGE 17 WEST, NMPM
Section 9: E/2 NW/4, W/2 NE/4, SE/4 NE/4, NE/4 SE/4
Section 10: S/2 NE/4, SE/4, S/2 SW/4
Section 11: SW/4
Section 15: NE/4 NE/4

TOWNSHIP 32 NORTH, RANGE 17 WEST, NMPM
Section 33: SW/4 SW/4

(h) Extend the Horseshoe-Gallup Oil Pool to include,

TOWNSHIP 30 NORTH, RANGE 16 WEST, NMPM
Section 14: S/2 NE/4 , N/2 SE/4

TOWNSHIP 31 NORTH, RANGE 17 WEST, NMPM
Section 13: SW/4 SW/4

(i) Extend the Angel Peak-Dakota Pool to include,

TOWNSHIP 27 NORTH, RANGE 10 WEST, NMPM
Section 28: All
Section 29: E/2
Section 33: E/2

(j) Extend the Otero Gallup Oil Pool, Rio Arriba County, to include,

TOWNSHIP 25 NORTH, RANGE 5 WEST, NMPM
Section 27: S/2 SW/4
Section 28: SE/4 and SE/4 NE/4
Section 32: NE/4 NE/4
Section 33: N/2
Section 34: N/2
Section 35: SW/4 NW/4 and NW/4 SW/4

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
LEWIS C. COX, JR.

PAUL W. EATON, JR.
ROBERT C. BLEDSOE

LAW OFFICES
HERVEY, DOW & HINKLE
HINKLE BUILDING
ROSWELL, NEW MEXICO

TELEPHONE MAIN 2-6510
POST OFFICE BOX 547

June 19, 1959

Mr. Oliver Payne
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Re: Pure-South Vacuum 80-Acre
Spacing Rehearing

Dear Oliver:

In connection with the above rehearing, you advised me sometime ago that you would readvertise the matter as to the proposed interference tests. At that time I requested that you readvertise it in such a manner that we could ask for the shutting in of a different well than that originally requested and set forth in the Commission's Order granting the rehearing.

We have had an operator's meeting and I would like to confirm our request that the case be advertised so that we can request that a well be shut in and its allowable transferred to another well or wells on the same lease. We will request that a different well be shut in.

Your assistance in this matter is appreciated.

Very truly yours,

HERVEY, DOW & HINKLE

By _____

HCB:db

Received 6-24-59

C. MELVIN NEAL
J. W. NEAL

NEAL & NEAL
LAWYERS
NEAL BUILDING
HOBBS, NEW MEXICO

TELEPHONE:
EXPRESS 3-5171
P. O. BOX 270

May 30, 1959

New Mexico Oil Conservation Commission,
Post Office Box 871,
Santa Fe, New Mexico.

RE: CASE NO. 1634
ORDER NO. R-1382 (PURE OIL COMPANY)
(REEVES)

Gentlemen:

We enclose for your consideration Answer of Reeves to Brief in Support of Application for Rehearing, which was filed by Pure Oil Company.

Thank you.

Very truly yours,

C. M. NEAL

N/ls
Encl.

cc: Messrs. Hervey, Dow & Hinkle,
Attorneys at Law,
Roswell, New Mexico.
Attention: Mr. Howard C. Bratton.
(w/copy of Answer Brief)

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

APPLICATION OF THE PURE OIL COMPANY FOR AN ORDER PROMULGATING TEMPORARY SPECIAL RULES AND REGULATIONS FOR THE SOUTH VACUUM-DEVONIAN POOL IN LEA COUNTY, NEW MEXICO, TO PROVIDE FOR 80-ACRE PRORATION UNITS.

CASE NO. 1634
Order No. R-1382

ANSWER OF REEVES TO BRIEF IN SUPPORT OF APPLICATION FOR REHEARING

COME NOW A. J. Reeves, et al, and for Answer to the Brief in Support of the Application for Rehearing states:

ANSWER TO POINT NO. 1

Point No. 1 is stated in the Brief of Pure Oil Company, as follows:

"THE EVIDENCE DOES NOT SUPPORT THE BASIC FINDINGS OF THE COMMISSION UPON WHICH ITS ORDER NO. R-1382 WAS BASED."

In the discussion of the evidence in respect to this point Pure does not refer in any way to the evidence which was taken in Cause No. 1442 also before the Commission.

Aside from this, we submit the evidence in both hearings was sufficient to sustain Findings 4 and 5.

In order to establish more than forty acre spacing unit it was incumbent upon Pure to establish to the satisfaction of the Commission that the area could be developed and drained sufficiently on an eighty acre spacing pattern. The evidence did not meet that degree of proof as is established by the

findings of the Commission in each of the hearings in which this issue was involved. In reality, the brief in support of application for rehearing is a brief attacking the forty acre spacing pattern established by general rule. In the discussion under this point Pure does not concern itself with economic loss to any except the lessee, and certainly the evidence is not sufficient to establish that there would be economic loss to Pure itself if the forty acre spacing is required in accordance with the general rule.

ANSWER TO POINT NO. 2

Point No. 2 is stated by Pure as follows:

"THE COMMISSION SHOULD GRANT ON A TEMPORARY BASIS RULES FOR THE WIDEST FEASIBLE SPACING IN A NEW POOL."

Point No. 2 is simply an argument by which Pure seeks to get the permission of the Commission to amend the lease contracts which were executed by the royalty owners in favor of the lessee. The argument under neither point of the brief gives any consideration whatever to the undisputed evidence that the allowance of the Order would result in substantial economic loss to the owners of the minerals and to the state.

Pure states in the brief they do not desire to submit additional evidence upon the issues. The evidence has been heard by the Commission twice and the Commission has made the same ruling each time. No apparent reason exists for changing the decision.

C O N C L U S I O N

We respectfully submit the application for rehearing should be denied.

OF NEAL & NEAL
HOBBS, NEW MEXICO.
(Attorneys for A. J. Reeves, et al.)

N/ls

1382-A

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
LEWIS C. COX, JR.
PAUL W. EATON, JR.
ROBERT C. BLEDSOE

LAW OFFICES
HERVEY, DOW & HINKLE
HINKLE BUILDING
ROSWELL, NEW MEXICO

TELEPHONE MAIN 2-6510
POST OFFICE BOX 547

May 19, 1959

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Re: Case No. 1634
Order No. R-1382

Gentlemen:

Enclosed herewith please find in triplicate the Application of The Pure Oil Company for a rehearing in the above case.

Within one week the Applicant will submit a brief in support of this Application for Rehearing.

Very truly yours,

HERVEY, DOW & HINKLE

By S. B. Christy IV

SBC:db
Enclosures

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
LEWIS C. COX, JR.
PAUL W. EATON, JR.
ROBERT C. BLEDSOE

LAW OFFICES
HERVEY, DOW & HINKLE
HINKLE BUILDING
ROSWELL, NEW MEXICO

TELEPHONE MAIN 2-6510
POST OFFICE BOX 547

May 26, 1959

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Re: Case No. 1634
Order No. R-1382

Gentlemen:

In connection with the Application for Rehearing which we have heretofore filed in the above case on behalf of The Pure Oil Company, we hand you herewith a Brief in support of said Application ior Rehearing.

Your consideration of the Application for Rehearing and of the enclosed Brief will be appreciated.

Very truly yours,

HERVEY, DOW & HINKLE

By Howard C. Bratton

HCB:db
Enclosure
cc: Mr. Melvin Neal
Attorneyat Law
Hobbs, New Mexico

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 1634
Order No. R-1382

APPLICATION OF THE PURE OIL COMPANY
FOR AN ORDER PROMULGATING TEMPORARY
SPECIAL RULES AND REGULATIONS FOR THE
SOUTH VACUUM-DEVONIAN POOL IN LEA
COUNTY, NEW MEXICO, TO PROVIDE FOR
80-ACRE PRORATION UNITS.

APPLICATION FOR REHEARING

TO THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO:

Comes now The Pure Oil Company, Applicant in the above case, and respectfully applies for a rehearing therein, and in support thereof states that the Commission erred in entering its Order No. R-1382 dated April 30, 1959, in the following respects:

1. The primary basis of the Order is contained in Finding No. 4:

> "(4) That the applicant has failed to prove that the South Vacuum-Devonian Pool can be efficiently drained and developed on an 80-acre spacing pattern."

The evidence introduced by Applicant established that the South Vacuum-Devonian Pool could be efficiently drained and developed on an 80-acre spacing pattern, and there is no evidence in the record to the contrary. Therefore, Finding No. 4 of the Commission is contrary to and without any support in the evidence.

2. The Order is further based on Finding No. 5:

> "(5) That development of the South Vacuum-Devonian Pool on 40-acre proration units will not cause the drilling of unnecessary wells."

The evidence introduced by the Applicant established that development of the South Vacuum-Devonian Pool on 40-acre proration units would cause the drilling of unnecessary wells, and there was no

evidence introduced to the contrary. Therefore, Finding No. 5 of the Commission is contrary to and without any support in the evidence.

3. Finding No. 6 of the Commission that the drilling and spacing of wells should continue to be governed by Rule No. 104 is based upon Findings Nos. 4 and 5, and as they are without support in the evidence, there is no support in the evidence for Finding No. 6.

4. The Applicant requested temporary special rules for a period of one year. The Application requested 80-acre spacing during that time with no increase in allowables above that which can now be produced from a 40-acre tract. The Application further requested permission to shut in one well, transfer its allowable to an adjoining well, and to take pressure tests during the one year to further bear out the evidence that one well will efficiently drain 80 acres.

Even though the evidence offered was sufficient under the requirements of Section 65-3-14(b) 1953 NMSA to justify the establishment of permanent 80-acre proration units, the application did not request permanent rules, but only that temporary rules for one year be established which would insure an 80-acre development pattern in the field during that year and would afford during that time an opportunity for further conclusive interference tests to substantiate the drainage area of a well. In effectively denying the operators of the opportunity to maintain an 80-acre spacing pattern for the temporary period of one year and in effectively denying the operators the opportunity to develop further evidence based on interference tests as to the effective area of drainage of a well in the pool, the Order of the Commission was without justification in equity and without support or basis in the evidence. Applicant maintains that in justice and equity the Commission should in any instance where it is possible to do so without waste afford to the operators a reasonable opportunity to prove to the satisfaction of the Commission the effective drainage area of a well. This can best be done by a

temporary wide-spacing pattern with interference tests. A pool can subsequently be developed on closer spacing, but once the closer spacing pattern has been effectively forced upon the operators, if experience proves that a wider spacing pattern was justified, unnecessary wells have been drilled and economic waste has been incurred.

WHEREFORE, Petitioner prays that this Application for Rehearing be granted for the purpose of reconsidering Order No. R-1382 and that after notice and hearing as required by law, the Commission rescind its Order No. R-1382 and enter an order granting the temporary special rules and regulations as requested in the Application of the Petitioner for the original hearing.

Respectfully submitted,

THE PURE OIL COMPANY

By _____

Hervey, Dow & Hinkle
P. O. Box 547
Roswell, New Mexico

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 1634
Order No. R-1382

APPLICATION OF THE PURE OIL COMPANY
FOR AN ORDER PROMULGATING TEMPORARY
SPECIAL RULES AND REGULATIONS FOR THE
SOUTH VACUUM-DEVONIAN POOL IN LEA
COUNTY, NEW MEXICO, TO PROVIDE FOR
80-ACRE PRORATION UNITS.

BRIEF IN SUPPORT OF APPLICATION FOR REHEARING

Comes now The Pure Oil Company, Applicant for rehearing in the above case, and respectfully submits this Brief in support of its Application for Rehearing previously filed.

POINT I

THE EVIDENCE DOES NOT SUPPORT THE BASIC FINDINGS OF THE COMMISSION UPON WHICH ITS ORDER NO. R-1382 WAS BASED

In the above case, The Pure Oil Company applied for temporary rules for the South Vacuum-Devonian Pool for a period of one year. The temporary rules requested were that proration units of 80 acres be established, but that the proportional depth factor for 40-acre well spacing be continued for determining allowables. It was further requested that permission be granted to shut in one well for this period and transfer its allowable so that pressure determinations could be taken from the shut-in well for the one-year period. The Application was denied.

The primary basis upon which the Application was denied is contained in Finding No. 4, with a further basis being contained in

Finding No. 5. These Findings are:

> "(4) That the applicant has failed to prove that the South Vacuum-Devonian Pool can be efficiently drained and developed on an 80-acre spacing pattern.
>
> (5) That development of the South Vacuum-Devonian Pool on 40-acre proration units will not cause the drilling of unnecessary wells."

Based upon those Findings, the Commission denied the Application for temporary 80-acre spacing, and held that in view of its determinations there was no necessity for shutting in a well and conducting pressure tests. It is respectfully submitted that the record does not contain evidence upon which the Findings could be based. Jack Duree, a production engineer for Pure Oil Company, was the only engineering witness who testified. He introduced Exhibit No. 3 showing the physical properties of the reservoir rock, including an average permeability of 226 millidarcys.(Tr. 29). He testified that in his opinion this is excellent permeability for effective drainage.(Tr. 30). The other physical properties of the reservoir are set forth on Exhibit No. 3, and from that information, Mr. Duree testified that the viscosity of the oil is such that it could easily be displaced out of the reservoir. He further testified that the pool has a water-drive mechanism, and that the permeability and mechanism are such that one well can efficiently drain 80 acres. (Tr. 31). Exhibit No. 4 demonstrated that the pool is in an early stage of development. (Tr. 33). Exhibit No. 5 is a graphic demonstration of bottom-hole pressure determinations made on each of the wells in the field. This Exhibit proves that reservoir pressure is being lost at spots where no production has occurred. Mr. Duree testified that in his opinion the Exhibit proved that one well will efficiently drain 80 acres.(Tr. 37). He further testified that in his opinion if the field is developed on an 80-acre spacing pattern there will be ultimately recovered as much oil as there would be if it were drilled on a 40-acre pattern. (Tr. 55).

It is submitted that the Applicant introduced all available pertinent information relative to the field at this point in its history. This evidence shows excellent permeability, a water-drive mechanism, and pressure drops in the later wells in the pool. All of this information establishes that on the basis of all presently available information, it can only be concluded that one well will efficiently drain at least 80 acres. There is no evidence in the record, either in the Exhibits or in the opinion of the expert engineering witness which would indicate that one well will not efficiently drain 80 acres. All available evidence indicates that the drilling of wells on 40-acre pattern will not produce additional oil, but will result only in an economic loss in the drilling of ten or twelve unnecessary wells at a cost of approximately $275,000.00 each.(Tr. 45, 55). Upon the evidence contained in the record, there is no basis for Findings Nos. 4 and 5 of the Commission, without which there is no foundation for the Order which was entered denying the application.

POINT II

THE COMMISSION SHOULD GRANT ON A TEMPORARY BASIS RULES FOR THE WIDEST FEASIBLE SPACING IN A NEW POOL

The Application in the above case requested temporary special rules for a period of one year. Eighty-acre spacing was requested during that time with no increase in allowables above that which could now be produced from a 40-acre tract. Permission was further requested to shut in one well, transfer its allowable to an adjoining well, and to take pressure tests during that one year for the purpose of obtaining further information as to the effective drainage area of a well. The Order of the Commission reflects a policy that in considering this case, the Commission required that the Applicant should conclusively establish that one well will drain 80 acres. It wouldindicate that

the policy of the Commission is to require the same proof as it would if the request was for permanent rules. It is submitted that this approach is not in the best interest of either the State of New Mexico or the oil industry, including both operators and royalty owners.

New Mexico has a big interest in a healthy domestic petroleum industry. Its economy is to a considerable extent geared to that industry and whatever affects the well-being of the industry consequently directly affects New Mexico. A somewhat more remote interest lies in the fact that the very life of the nation may be dependent upon sufficient quantities of petroleum being available to it in time of war during the next twenty or thirty years. At the moment there are probably sufficient reserves to care for the nation during a war period, although some have expressed doubt in this connection. However, a few years from now this undoubtedly will not be the case unless the industry is kept healthy and exploration minded.

It, therefore, behooves the State and this Commission to encourage practices that will tend to strengthen the industry and enable it better to meet the competition of foreign oil. Such encouragement will not only protect New Mexico's present strong position in the industry but will also help to attract the available funds of the industry to expenditures within the bounds of the State in the hope of uncovering additional reserves therein. Any company has a limited amount of money which it can allocate to exploration for new oil and gas reserves. In determining the area in which expenditures are to be made, one factor which is important in the determination is whether, if a discovery is made, there is a probability of development on a basis which will afford good return on invested money. If it is apparent that operators will be forced to develop properties on a close-well spacing pattern regardless of the fact that ultimately the evidence may prove that the well spacing pattern was too narrow, it will discourage investment of

exploration monies in New Mexico. This will be reflected in two ways. First, the prices which can be paid for leases will be depressed. The maximum price that can be paid for a lease is a direct reflection of the attractiveness of an area. If operators are convinced that they will not be afforded a reasonable opportunity to prove that a wide-spacing pattern will efficiently drain a pool, prices which will be paid for leases, including State and fee leases, will be directly depressed. Secondly, when leases are obtained, operators will be reluctant to engage in expensive exploration for oil where they feel that if a discovery is made they will not be afforded an opportunity to make a good return on a new pool. It is imperative that operators be afforded an opportunity to recover the maximum quantity of oil with minimum capital expenditures and operating costs. While finally wells should never be spaced so far apart that they cannot efficiently drain a pool, during the early development of the pool the evidence of the effective drainage area of a well is necessarily meager. The Commission should not use this inadequacy of satisfactory evidence as a basis for insisting on early close spacing. Inasmuch as once development starts on a certain spacing pattern, offset and further development obligations make it extremely difficult, if not impossible, to shift to a wider spacing pattern, the Commission should approach requests for temporary field rules involving wide spacing with the view that in cases of doubt temporary rules should be promulgated for the widest spacing recommended by the operators in the pool. A request for temporary wider spacing should be denied only where there is strong evidence that one well will not drain more than 40 acres. The Commission can retain full control of the situation by requiring that the temporary rules be reconsidered within a reasonable time. The Commission could further retain jurisdiction in the case to enter such further orders as it may deem advisable even during the temporary period of the rules.

In the best interest of the State, the Commission should avail itself of every reasonable opportunity to obtain further information as to the drainage area of wells in a new pool. In this instance, the Application requested permission to obtain further information by shutting in one well for the period of one year, transferring its allowable to an adjoining well, and conducting pressure determination tests. No additional allowable was requested for other wells in the pool. The Commission was offered the opportunity to obtain the best possible information upon which to enter permanent rules for the pool. It would appear unreasonable to expect that an operator would voluntarily shut in a well for so long a period of time and to be deprived of the volume of current income involved. Some opportunity should be afforded to transfer that allowable or to otherwise produce that allowable through a schedule authorized by the Commission. If the Commission should be concerned that the transfer of the full allowable to one well would result in damage to the well or the pool, it could by retaining jurisdiction of the case be ready to step in as soon as indications of damage should appear.

It is elementary that a well which has been drilled cannot be undrilled. By requiring conclusive evidence of wide drainage in the early development phase of a pool, the Commission effectively denies to the operators any reasonable opportunity to prove that one well will efficiently and economically drain more than 40 acres. In the majority of instances, offset and further development obligations make it impossible as a practical matter to maintain a wide spacing pattern in a pool for any period of time. In the best long-range interest of the State of New Mexico and of all concerned with the industry, the Commission should afford to the operators in a new pool a reasonable opportunity to prove what is the optimum efficient drainage area of a well in the pool. By retaining jurisdiction in a case, the Commission can remain in full control of the development.

of the pool.

A continuance of the present policy toward temporary wider spacing in new pools as reflected in Order No. R-1382 will ultimately have a serious adverse effect on the economy of the State of New Mexico. By the promulgation of temporary rules for wider spacing in new pools and by encouraging interference tests, the Commission can render a real service to the State and its principal industry.

This Brief is submitted in support of Applicant's Petition for Rehearing in the above case. Applicant will not tender further evidence at the rehearing, if granted, as all currently available evidence in the pool has been presented to the Commission. However, it is requested that a rehearing be granted and that upon rehearing the Commission reconsider its findings and determinations in Order No. R-1382, and that it rescind said Order and enter a new order granting temporary special rules as requested in the Application for the original hearing.

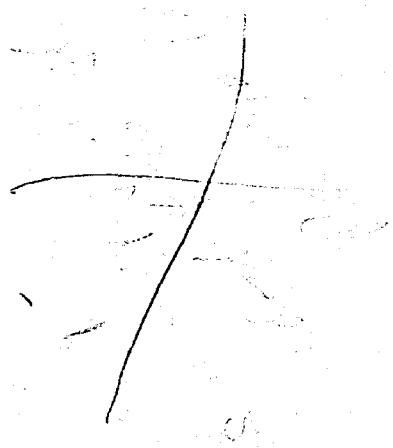
Respectfully submitted,

THE PURE OIL COMPANY

By _____

HERVEY, DOW & HINKLE
P. O. Box 547
Roswell, New Mexico

CASE 1634: Pure Oil Co. application for 80-acre proration units in South Vacuum-Devonian Pool, Lea County.



CASE 1634: Application of PURE OIL CO for special rules for the SOUTH VACUUM-DEVONIAN POOL. (Aug. 17, 1960)

Case No.

1634

Application, Transcript,
Small Exhibits, Etc.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 1634
Order No. R-1382-A

APPLICATION OF THE PURE OIL
COMPANY FOR AN ORDER PROMULGATING
TEMPORARY SPECIAL RULES AND
REGULATIONS FOR THE SOUTH VACUUM-
DEVONIAN POOL IN LEA COUNTY, NEW
MEXICO, TO PROVIDE FOR 80-ACRE
PRORATION UNITS

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for reconsideration upon the petition of The Pure Oil Company for a rehearing in Case No. 1634, Order No. R-1382, heretofore entered by the Commission on April 30, 1959.

NOW, on this 25th day of May, 1959, the Commission, a quorum being present, having considered the petition for rehearing and the brief in support thereof,

FINDS:

(1) That the two issues raised in Case No. 1634 and in the petition for rehearing deal with (a) the proper size of oil proration units in the South Vacuum-Devonian Pool, and (b) the petitioner's request for permission to shut-in one producing well and transfer its entire allowable to one other producing well.

(2) That Section 65-3-22(a), NMSA, 1953 Comp., provides that the Commission shall grant or refuse any application for rehearing in whole or in part.

(3) That the petitioner states that it will not tender any further evidence at the rehearing, if granted, inasmuch "as all currently available evidence in the pool has been presented to the Commission."

(4) That all evidence relevant and material to the issue concerning the proper size of oil proration units in the South Vacuum-Devonian Pool was fully considered by the Commission in Case No. 1634, and Order No. R-1382, dated April 30, 1959, was entered establishing 40-acre oil proration units in said pool.

(5) That in view of the fact that petitioner does not propose to present any new or additional evidence to the Commission, further consideration of the issue regarding the proper size of oil proration units in the South Vacuum-Devonian Pool would serve no useful purpose.

(6) That the petition for rehearing contains an allegation that denial of the request for permission to shut-in one producing well and transfer its entire allowable to one other producing well effectively denies the operators the opportunity to develop further evidence, based on interference tests, as to the effective area which wells in the South Vacuum-Devonian Pool will drain.

(7) That while the issue mentioned in the preceding finding was fully considered by the Commission prior to the entry of Order No. R-1382, the Commission is of the opinion that a rehearing on this issue is warranted; Commission policy is to allow operators to gain all available reservoir data insofar as that can be done without causing waste or impairing correlative rights.

(8) That the petitioner should be prepared to state whether the allowable transfer can be accomplished without causing waste or impairing correlative rights; further, that the petitioner should be prepared to state whether or not it is amenable to an order which would divide the allowable of the proposed shut-in well among all other top allowable producing wells on the same lease.

IT IS THEREFORE ORDERED:

That the above-styled cause be reopened and a rehearing be held at 9 o'clock a.m. on July 15, 1959, at Mabry Hall, State Capitol, Santa Fe, New Mexico; provided, however, that the rehearing shall be limited solely to the issue of whether or not the petitioner should be permitted to shut-in its South Vacuum Unit Well No. 3-35, NE/4 NW/4, Section 35, Township 18 South, Range 35 East, South Vacuum-Devonian Pool, Lea County, New Mexico, and transfer its allowable to another well or wells on the same lease.

IT IS FURTHER ORDERED:

That Order No. R-1382 shall remain in full force pending the issuance of any further order in this case.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

A. L. PORTER, Jr., Member & Secretary

vem/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 1634
Order No. R-1382

APPLICATION OF THE PURE OIL COMPANY
FOR AN ORDER PROMULGATING TEMPORARY
SPECIAL RULES AND REGULATIONS FOR THE
SOUTH VACUUM-DEVONIAN POOL IN LEA
COUNTY, NEW MEXICO, TO PROVIDE FOR
80-ACRE PRORATION UNITS.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on April 15, 1959, at Hobbs, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 30th day of April, 1959, the Commission, a quorum being present, having considered the application and the evidence adduced and being fully advised in the premises,

FINDS:

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

(2) That the applicant, The Pure Oil Company, seeks the promulgation of temporary special rules and regulations for the South Vacuum-Devonian Pool in Lea County, New Mexico, to provide for 80-acre proration units in said pool.

(3) That the applicant further seeks permission to shut-in its South Vacuum Unit Well No. 3-35 located in the NE/4 NW/4 of Section 35, Township 18 South, Range 35 East, NMPM, Lea County, New Mexico, and to transfer the allowable to its South Vacuum Unit Well No. 1-35 located in the SW/4 NE/4 of said Section 35.

(4) That the applicant has failed to prove that the South Vacuum-Devonian Pool can be efficiently drained and developed on an 80-acre spacing pattern.

(5) That development of the South Vacuum-Devonian Pool on 40-acre proration units will not cause the drilling of unnecessary wells.

(6) That the drilling and spacing of wells in the South Vacuum-Devonian Pool should continue to be governed by Rule 104 of the Commission Rules and Regulations.

(7) That in view of the above determinations it does not appear that there is any necessity for shutting-in the said South Vacuum Unit Well No. 3-35 and transferring its allowable to the said South Vacuum Unit Well No. 1-35; that accordingly this request should be denied.

IT IS THEREFORE ORDERED:

(1) That the application of The Pure Oil Company for the promulgation of temporary rules and regulations for the South Vacuum-Devonian Pool in Lea County, New Mexico, to provide for 80-acre proration units be and the same is hereby denied.

(2) That the drilling and spacing of wells in the South Vacuum-Devonian Pool in Lea County, New Mexico, shall continue to be governed by Rule 104 of the Commission Rules and Regulations.

(3) That the application of The Pure Oil Company for permission to shut-in its South Vacuum Unit Well No. 3-35 located in the NE/4 NW/4 of Section 35, Township 18 South, Range 35 East, NMPM, Lea County, New Mexico, and to transfer the allowable of said well to its South Vacuum Unit Well No. 1-35 located in the SW/4 NE/4 of said Section 35 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 BURROUGHS, Chairman

MURRAY E. MORGAN, Member

A. L. PORTER, Jr., Member & Secretary

ir/

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

April 30, 1959

Mr. Howard Bratton
Hervey, Dow & Hinkle
P.O. Box 547
Roswell, New Mexico

Dear Mr. Bratton:

On behalf of your client, The Pure Oil Company, we enclose two copies of Order R-1382 issued April 30, 1959, by the Oil Conservation Commission in Case 1634, which was heard on April 15th at Hobbs.

Very truly yours,

A. L. Porter, Jr.
Secretary - Director

bp
Encls.

Order sent to
Melvin Neal,
Hobbs 4-30-59
BP

THE PURE OIL COMPANY

GENERAL OFFICES: 35 EAST WACKER DRIVE, CHICAGO

TEXAS PRODUCING DIVISION
P. O. BOX 2107
FORT WORTH 1, TEXAS

February 26, 1959

State of New Mexico
Oil Conservation Commission
Santa Fe, New Mexico

Attention: Mr. A. L. Porter, Jr.

Dear Mr. Porter:

The Pure Oil Company, as operator of the South Vacuum Unit, respectfully requests that a hearing be scheduled to consider our request to shut in the South Vacuum Unit Well #3-35 located in the South Vacuum - Devonian Pool, and to transfer the allowable of this well to Well #1-35. We will further request at the hearing that temporary pool rules be adopted for a one year period.

The South Vacuum Unit Well #3-35, located 660 feet from the north line and 1980 feet from the west line of Section 35, T-18-S, R-35-E, was completed in the South Vacuum - Devonian Pool on January 27, 1959. This well was the third Devonian producer in the South Vacuum Unit and the sixth well completed in the pool. Initial bottom hole pressure surveys conducted in this well and the other Devonian completions, have indicated a consistent decline in reservoir pressure with time from the initial pressure measured in the discovery well. In order to determine whether this preliminary data can be substantiated by pressure interference tests, we propose to shut in Well #3-35 and transfer the allowable of this well to Well #1-35, located 1980 feet from the north line and 1980 feet from the east line of Section 35. We intend to use the data obtained from this test with other reservoir data, in order to determine the optimum spacing pattern for this pool.

We propose that temporary rules for the South Vacuum - Devonian Pool be adopted to govern the orderly development and operation of the pool. These rules would remain in effect for a period of one year, during which the interference tests will be conducted and the results evaluated. We will recommend:

1. That proration units of 80 acres each be established, consisting of two continuous and contiguous 40 acre tracts elongate in either direction.

2. That all wells be located in the center of either 40 acre tract within the 80 acre proration unit, with a tolerance of 150' to avoid surface obstructions.

3. That any well to which is dedicated less than 79 acres or more than 81 acres be granted an allowable in the proportion that the total number of acres assigned to the well bears to 80 acres.

4. That the proportional depth factor for 40 acre well spacing be continued for determining per-well allowables.

Attached is a list of the names and addresses of all operators offsetting the South Vacuum Unit or offsetting wells completed in the South Vacuum - Devonian Pool. A copy of this application has been forwarded to each of these parties.

We understand that the docket for the regular March hearing is rather heavy; therefore, if this hearing cannot be scheduled at that time, we would appreciate your setting it for the first examiner hearing or for the regular hearing in April.

Yours very truly,

Harry C. Wells

Harry C. Wells
Asst. Div. Prod. Engr.

HCW:n

Att.

The Atlantic Refining Company
P. O. Box 871
Midland, Texas

Champlin Refining Company
P. O. Box 1440
Midland, Texas

Cities Service Oil Company
P. O. Box 97
Hobbs, New Mexico

Jake L. Hamon
102 Western Building
Midland, Texas

J. Don Hudgens, Inc.
P. O. Box 1898
Hobbs, New Mexico

Humble Oil & Refining Company
P. O. Box 1600
Midland, Texas

Magnolia Petroleum Company
P. O. Box 633
Midland, Texas

The Ohio Oil Company
P. O. Box 552
Midland, Texas

The Pure Oil Company
P. O. Box 2107
Fort Worth 1, Texas

Richardson & Bass
Ft. Worth Nat'l. Bank Bldg.
Fort Worth, Texas

Shell Oil Company
P. O. Box 854
Roswell, New Mexico

Sinclair Oil & Gas Company
P. O. Box 1470
Midland, Texas

Skelly Oil Company
P. O. Box 993
Midland, Texas

The Superior Oil Company
Andrews Highway
Midland, Texas

Texas Gulf Producing Company
P. O. Box 1764
Midland, Texas

Union Oil Company of California
Union Oil Building
619 West Texas, Midland, Texas

Magnolia Petroleum Company

A Socony Mobil Company

Legal Department

P. O. BOX 900 • DALLAS 21, TEXAS

CHARLES B. WALLACE
GENERAL COUNSEL
R. T. WILKINSON, JR.
ASSOCIATE GENERAL COUNSEL
FRANK C. BOLTON, JR.
GENERAL ATTORNEY
WENDELL J. DOGGETT
JACK E. EARNEST
SAM H. FIELD
JAMES T. FITZPATRICK
JAMES E. HORIGAN
ROSS MADDOX
WALLACE G. MALONE
ROY L. MERRILL
FLOYD B. PITTS
WILLIAM S. RICHARDSON
W. FORREST SMITH
WILLIAM H. TABB
JACK VICKREY
ASSISTANTS

April 10, 1959

Re: Application of Pure Oil Company for the Adoption of Temporary Field Rules for the South Vacuum-Devonian Field, Lea County, New Mexico (Case No. 1634)

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

Magnolia Petroleum Company has reviewed the application of the Pure Oil Company for the adoption of temporary field rules for the South Vacuum-Devonian Pool (Case No. 1634) to be heard on April 15th, 1959, and wants to support Pure Oil Company in its proposals, which we understand will consist briefly of the following:

1. That proration units of 80 acres be established, consisting of two continuous and contiguous 40-acre tracts with units running in either direction.

2. That all wells be located in the center of either 40-acre tract within the 80-acre proration unit with a tolerance of 150' to avoid surface obstructions.

3. That any well to which is dedicated less than 79 acres or more than 81 acres be granted an allowable in the proportion that the total

number of acres assigned to the well bears to 80 acres.

4. That the proportional depth factor for 40 acre well spacing be continued for determining per well allowables.

Please enter this letter as an exhibit in Case No. 1634 as evidence of Magnolia Petroleum Company's support of the Pure Oil Company's application.

Yours very truly,

Ross Madole

Ross Madole

RM:md

DOMESTIC SERVICE

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

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DAY LETTER	
NIGHT LETTER	

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WESTERN UNION

W. P. MARSHALL, PRESIDENT

1206 10-51

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NO. WDS.-CL. OF SVC.	PD. OR COLL.	CASH NO.	CHARGE TO THE ACCOUNT OF	TIME FILED
			Oil Conservation Commission	3 P.M.

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

APRIL 30, 1959

MR. HOWARD BRATTON
HERVEY, DOW & HINKLE
HINKLE BUILDING
ROSWELL, NEW MEXICO

APPLICATION OF PURE OIL COMPANY FOR 80-ACRE SPACING IN SOUTH VACUUM-DEVONIAN POOL AND FOR PERMISSION TO TRANSFER ALLOWABLES DENIED THIS DATE BY THE COMMISSION.

A. L. PORTER, Jr.
Secretary-Director

Please send this same telegram to Mr. Melvin Neal 116 N. Turner, Hobbs, New Mexico.

DOMESTIC SERVICE

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

FULL RATE TELEGRAM	X
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
			Oil Conservation Commission	3 P.M.

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

APRIL 30, 1959

MR. HOWARD BRATTON
HERVEY, DOW & HINKLE
HINKLE BUILDING
ROSWELL, NEW MEXICO

APPLICATION OF PURE OIL COMPANY FOR 80-ACRE SPACING IN SOUTH VACUUM-DEVONIAN POOL AND FOR PERMISSION TO TRANSFER ALLOWABLES DENIED THIS DATE BY THE COMMISSION.

A. L. PORTER, Jr.
Secretary-Director

Please send this same telegram to Mr. Melvin Neal 116 N. Turner, Hobbs, New Mexico.

75

C. MELVIN NEAL
J. W. NEAL

NEAL & NEAL
LAWYERS
NEAL BUILDING
HOBBS, NEW MEXICO

TELEPHONE:
EXPRESS 3-5171
P. O. BOX 278

March 17, 1959

State Land Office,
Santa Fe, New Mexico.

Gentlemen:

I will appreciate it very much if you will forward to me a copy of the Petition for the 80 acres spacing in the South Vacuum Unit which was filed on March 16, 1959, and your bill for making the copy.

Thank you.

Very truly yours,

C. M. NEAL

N/ls

Mailed 3-19-59
BP

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

COPY

June 1, 1959

Mr. Howard Bratton
Hervey, Dow & Hinkle
P. O. Box 547
Roswell, New Mexico

Dear Mr. Bratton:

On behalf of your client, The Pure Oil Company, we enclose two copies of Order R-1382-A issued May 28, 1959, by the Oil Conservation Commission in Case 1634.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Enclosures

Copies Sent to Mahlon Read Hobbs — 6-1-59 jlt.

The Atlantic Refining Company
P. O. Box 871
Midland, Texas

Chaplin Refining Company
P. O. Box 1440
Midland, Texas

Cities Service Oil Company
P. O. Box 97
Hobbs, New Mexico

Jake L. Hamon
102 Western Building
Midland, Texas

J. Don Hudgens, Inc.
P. O. Box 1898
Hobbs, New Mexico

Humble Oil & Refining Company
P. O. Box 1600
Midland, Texas

Magnolia Petroleum Company
P. O. Box 633
Midland, Texas

The Ohio Oil Company
P. O. Box 552
Midland, Texas

The Pure Oil Company
P. O. Box 2107
Fort Worth 1, Texas

Richardson & Bass
Ft. Worth Nat'l. Bank Bldg.
Fort Worth, Texas

Shell Oil Company
P. O. Box 854
Roswell, New Mexico

Sinclair Oil & Gas Company
P. O. Box 1470
Midland, Texas

Skelly Oil Company
P. O. Box 993
Midland, Texas

The Superior Oil Company
Andrews Highway
Midland, Texas

Texas Gulf Producing Company
P. O. Box 1764
Midland, Texas

Union Oil Company of California
Union Oil Building
619 West Texas
Midland, Texas

RESERVOIR DATA
SOUTH VACUUM (DEVONIAN) POOL
LEA COUNTY, NEW MEXICO

1. PHYSICAL PROPERTIES OF RESERVOIR ROCK

(Based on Core Analysis)

a. Average Porosity - 7.1%

b. Average Permeability - 226 Millidarcys

c. Average Interstitial Water Saturation - 32.5%

d. Net Thickness - 75 feet (Maximum)

2. LITHOLOGY

Grey dense to finely crystalline dolomite with pin-point to large vugs, inter-crystalline porosity, and fracturing.

3. STRUCTURAL FEATURES OF RESERVOIR

Northwest-southeast trending anticline bounded on the northeast flank by steep dip or possible faulting. No original gas cap. Oil-water contact 7880' Sub-sea.

4. CHARACTERISTICS OF RESERVOIR FLUIDS

a. Gravity of Stock Tank Oil - 49° API

b. Saturation Pressure - 382 PSIG

c. Formation Volume Factor - Barrels Reservoir Oil per Barrel Stock Tank Oil

At Original Pressure - 1.051

At Saturation Pressure - 1.088

d. Viscosity of Reservoir Oil - Centipoise

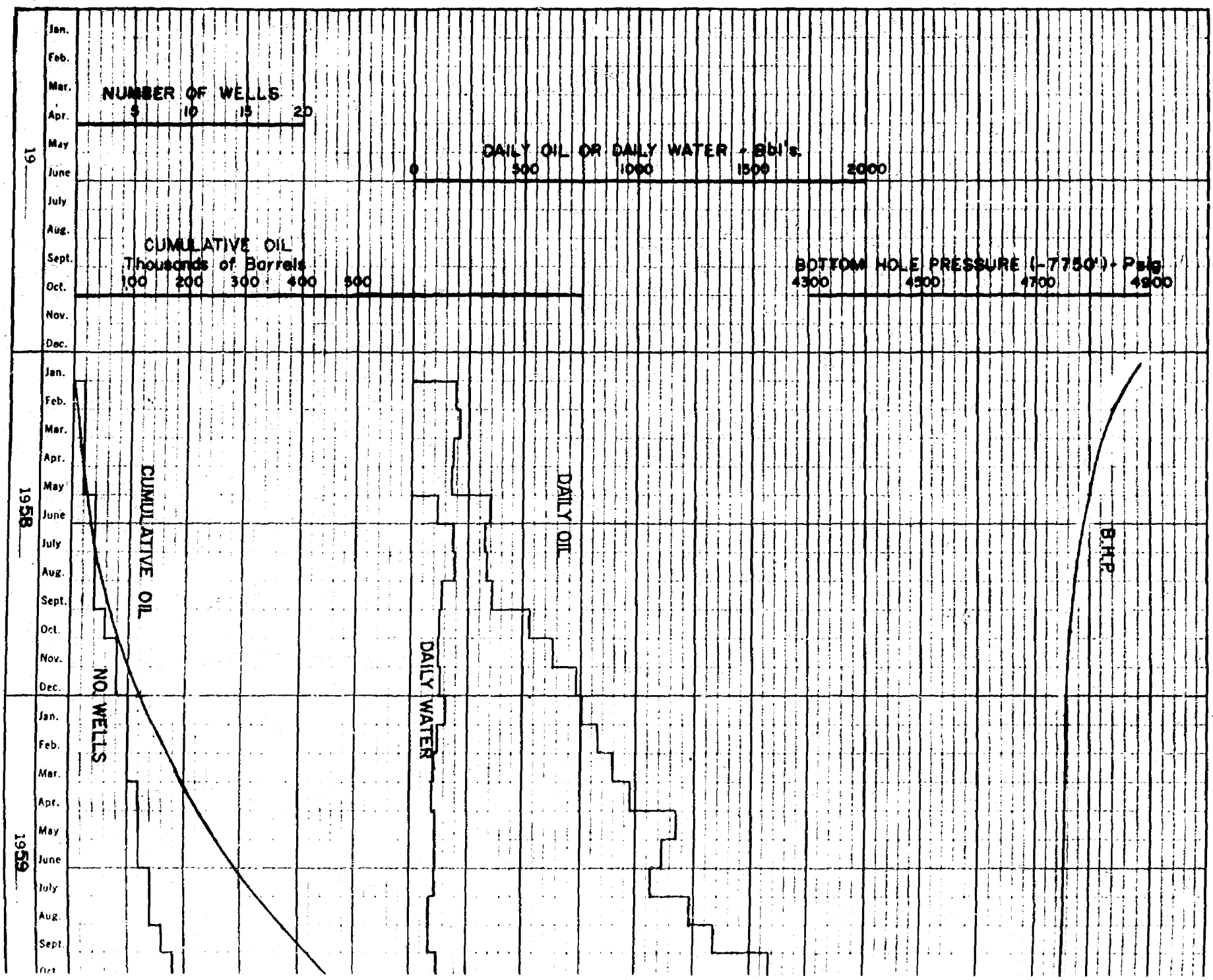
At Original Pressure - .884

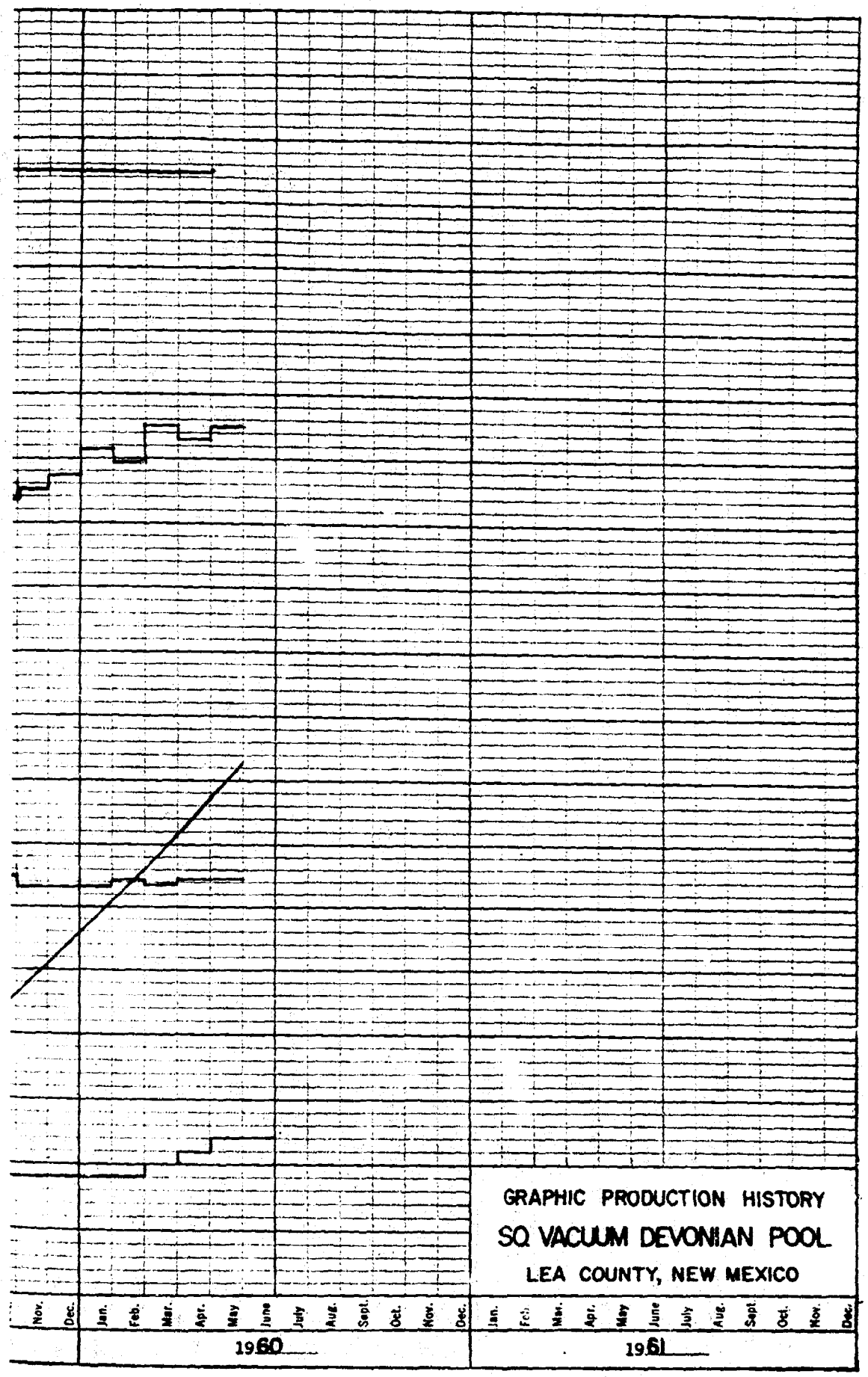
At Saturation Pressure - .588

e. Dissolved Gas-Oil Ratio - Cubic Feet per Barrel Stock Tank Oil

At Saturation Pressure - 96

No3


19
Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
NUMBER OF WELLS
5
10
15
20
DAILY OIL OR DAILY WATER - Bbl's.
0
500
1000
1500
2000
CUMULATIVE OIL
Thousands of Barrels
100
200
300
400
500
BOTTOM HOLE PRESSURE (-7750') - Psig
4300
4500
4700
4900
1958
1959
CUMULATIVE OIL
NO. WELLS
DAILY OIL
DAILY WATER
B.H.P.


GRAPHIC PRODUCTION HISTORY
SO. VACUUM DEVONIAN POOL
LEA COUNTY, NEW MEXICO
Nov.
Dec.
Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
1960
Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
1961

SOUTH VACUUM - DEVONIAN POOL PRODUCTION HISTORY

Lea County, New Mexico

(Excluding Sinclair Lol #2)

YEAR	MONTH	NO. WELLS	MONTHLY PRODUCTION OIL-BBLS.	WATER-BBLS.	GAS-MCF	G O R	B H P (-7750) psig
1958	Jan.	1	862	0	69	80	4695
	Feb.	1	5,953	0	476		4833
	Mar.	1	6,182	0	495		
	Apr.	1	5,748	0	460		
	May	1	5,654	0	452		4802
	June	2	10,499	3,510	840		
	July	2	9,715	5,580	777		
	Aug.	2	9,873	5,890	790		4788
	Sept.	2	10,621	4,200	850		
	Oct.	3	15,863	4,092	1,269		
	Nov.	4	19,028	3,900	1,282		4776
	Dec.	4	22,064	4,930	1,765		
	Total		122,062	31,202	9,525		
	Cumulative		122,062	31,202	9,525		
1959	Jan.	5	22,865	4,526	1,829		
	Feb.	5	23,129	3,472	1,850		4766
	Mar.	5	28,037	3,443	2,243		
	Apr.	6	29,243	3,049	2,339		
	May	6	36,234	3,345	2,899	80	
	June	6	33,433	3,219	2,675		
	July-	7	33,256	3,169	2,660		
	Aug.	7	33,404	2,835	3,023		4763
	Sept.	8	40,135	2,580	3,211		4766
	Oct.	9	48,948	3,758	3,916		4768
	Nov.	9	48,029	2,580	3,906		4769
	Dec.	9	52,282	2,728	4,183		
	Total		434,835	38,704	34,786		
	Cumulative		556,897	69,906	44,311		
1960	Jan.	9	53,667	2,790	4,293		4756
	Feb.	9	50,428	3,016	4,034		
	Mar.	10	58,019	2,926	4,641		4753
	Apr.	11	54,986	3,180	4,399		4759
	May	12	57,885	3,224	4,631		
	June	12					4760

No 5

INDIVIDUAL WELL BHP & CUMULATIVE PRODUCTION

South Vacuum - Devonian Pool
Lea County, New Mexico

Date	So. Vacuum Unit #1-35 BHP psi	So. Vacuum Unit #1-35 Cum. Prod.	Sinclair 405 #1 BHP psi	Sinclair 405 #1 Cum. Prod.	So. Vacuum Unit #2-35 BHP psi	So. Vacuum Unit #2-35 Cum. Prod.	Magnolia State #1 BHP psi	Magnolia State #1 Cum. Prod.	So. Vacuum Unit #3-35 BHP psi	So. Vacuum Unit #3-35 Cum. Prod.	So. Vacuum Unit #1-26 BHP psi	So. Vacuum Unit #1-26 Cum. Prod.	So. Vacuum Unit #2-26 BHP psi	So. Vacuum Unit #2-26 Cum. Prod.
1-11-58	4895*	0												
2-1-58	4838	862												
5-9-58	4765	20444												
6-15-58			4759	4276										
6-27-58					4828*	0								
7-21-58	4819	33839	4773	25310										
10-27-58					4777	5283								
11-7-58							4810	1082						
1-28-59									4796	734				
2-3-59									4783	1204				
2-7-59	4767	72756			4768	24708			4775	1622				
4-13-59											4792	235		
8-9-59													4787	2340
8-20-59	4753	111417			4752	69036			4753	36734	4739	26960	4794	4466
8-21-59					4777	Shut In								
8-23-59					4769	"								
8-28-59					4768	"								
9-21-59					4775	"								
9-24-59	4772	12504							4755	42435	4768	33590	4771	11107
10-10-59							4740	66265						
10-15-59														
10-27-59	4752	137994			4760	"			4750	48977	4783	40132	4781	17597
11-23-59	4762	148472			4763	"					4762	45373	4781	22974
1-18-60	4750	171371			4747	"			4746	65672	4761	56830	4767	34482
2-9-60														
3-3-60	4678	189440			4751	"			4732	78300	4751	65960	4762	43540
4-18-60	4747	208119			4754	"			4749	87622	4614	75280	4757	52780
4-21-60														
6-14-60	4758	228938			4760				4765	97744	4760	85405	4763	63022

NOTES: 1. BHP Datum Depth - 7750'.

2. South Vacuum Unit #2-35 was shut in 8-18-59 at 7:00 a.m. Its allowable was transferred to South Vacuum Unit #1-35.

* DST Measurement.

DMS:lw
8-5-60

No6

INDIVIDUAL WELL BHP & CUMULATIVE PRODUCTION

South Vacuum - Devonian Pool
Lea County, New Mexico

Dat	So. Vacuum Unit #1-27		Pure State Lea "F" #2		Cooper "A" [illegible]		State Lea "J" #1-26	
Date	BHP psi	Cum. Prod.	BHP psi	Cum. Prod.	BHP psi	Cum. Prod.	BHP psi	Cum. Prod.
1-11-58								
2-1-58								
5-9-58								
6-15-58								
6-27-58								
7-21-58								
10-27-58								
11- 7-58								
1-28-59								
2-3-59								
2-7-59								
4-13-59								
8-9-59								
8-20-59								
8-21-59								
8-23-59								
8-28-59								
9-21-59								
9-24-59								
10-10-59								
10-15-59	4757	1539						
10-27-59	4781	2765						
11-23-59	4774	7619						
1-18-60	4760	19077						
2-9-60			4747	3218				
3-3-60	4757	28104	4761					
4-18-60	4731	37630	4762					
4-21-60					4748	820		
6-14-60	4757	47553			4749	8638		
7-22-60							4706	241

DRS:lw
8-5-60

PURE OIL COMPANY

BOTTOM HOLE PRESSURE SURVEYS

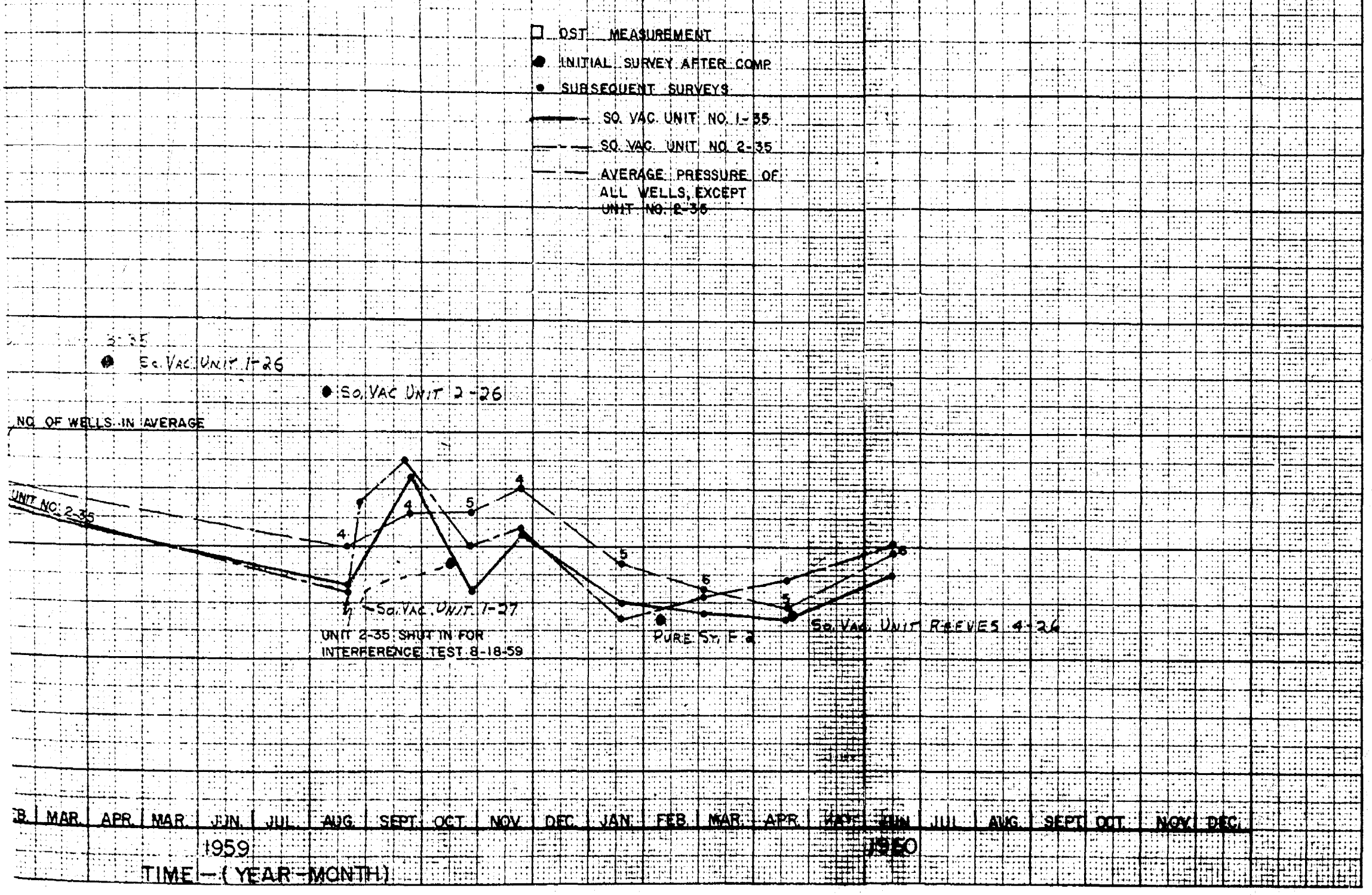
DATUM -7750

SOUTH VACUUM — DEVONIAN POOL

LEA COUNTY — NEW MEXICO

AUGUST 2, 1960

DKS



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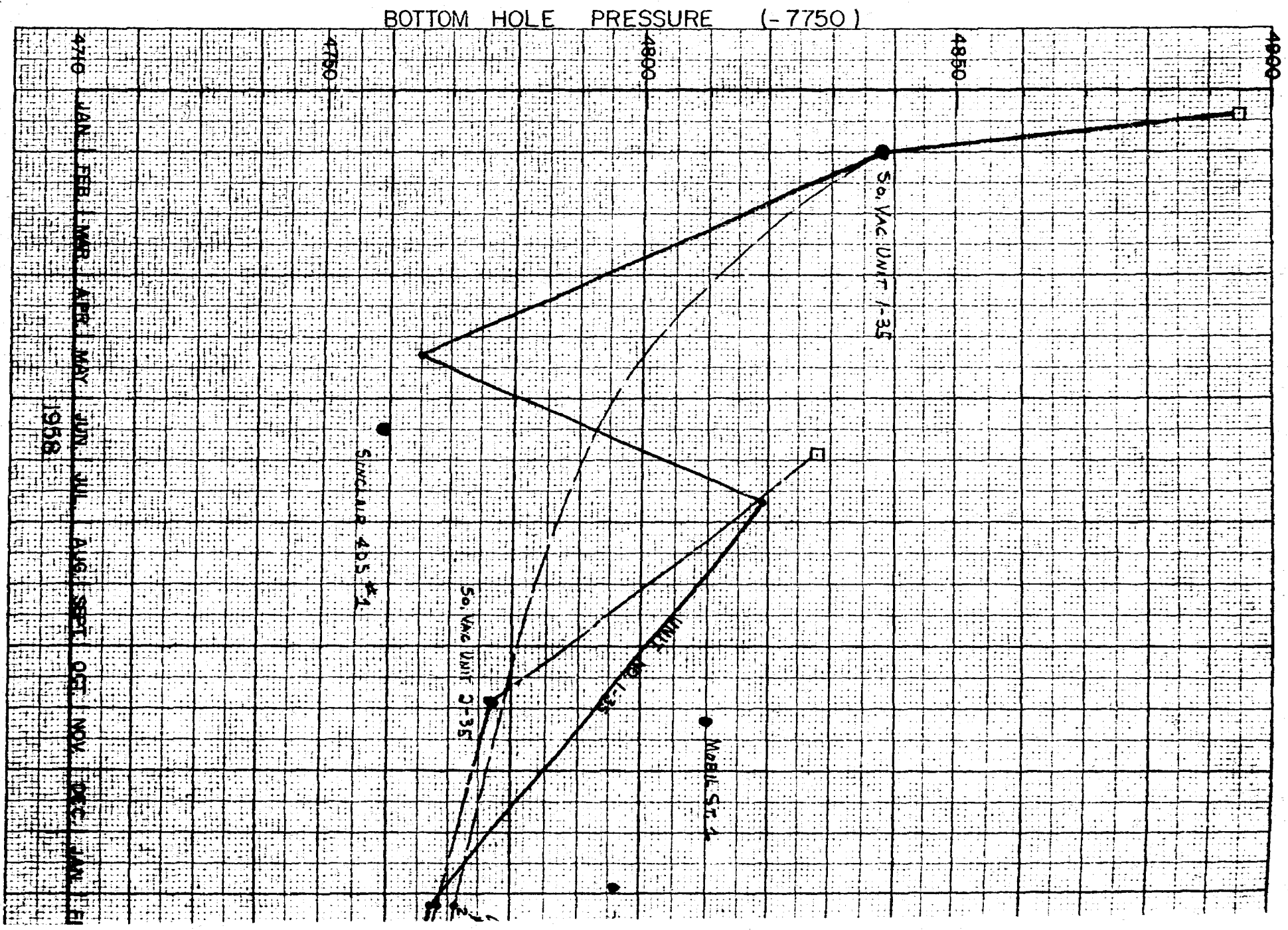

SOUTH VACUUM - DEVONIAN POOL

Bottom Hole Pressure Survey - Datum (-7750)

Lea County, New Mexico

Date	So. Vacuum Unit #1-35	So Vacuum Unit #2-35	Avg. Field Press. Excluding So. Vacuum Unit #2-35	No. of Wells in Field Average
1-11-58	4895*			
2-1-58	4838			
5-9-58	4765			
6-27-58		4828*		
7-21-58	4819			
10-27-58		4777		
2-7-59	4767	4768	4771	2
8-20-59	4753	4752	4760	4
8-28-59		4768		
9-21-59		4775		
9-24-59	4772		4766	4
10-27-59	4752	4760	4769	5
11-23-59	4762	4763	4770	4
1-18-60	4750	4747	4757	5
3-3-60	4748	4751	4752	6
4-18-60	4747	4754	4749	5
6-14-60	4758	4760	4759	6

* DST Measurement

No 8

SOUTH VACUUM - DEVONIAN POOL

PRODUCTION TEST ON SOUTH VACUUM UNIT #1-35

DATE	CHOKE	OIL	WATER	T. P.	G O R
9-16	9/64"	376	0	800	106
10-21	9/64"	498	0	800	87
11-13	9/64"	412	0	800	90.4
12- 4	9/64"	508	0	800	94
1- 9	9/64"	535	0	800	90.4
2-12	9/64"	522	0	800	60
3-16	9/64"	510	0	800	88
4- 7	8/64"	404	0	775	96
5-12	9/64"	464	0	750	110
6- 8	9/64"	460	0	750	102
7-11	9/64"	424	0	800	86

No 9

BEFORE THE
OIL CONSERVATION COMMISSION
HOBBS, NEW MEXICO

IN THE MATTER OF:

Case No. 1634

TRANSCRIPT OF HEARING

APRIL 15, 1959

DEARNLEY - MEIER & ASSOCIATES
GENERAL LAW REPORTERS
ALBUQUERQUE, NEW MEXICO
Phone Chapel 3-6691

I N D E X

BEFORE THE
OIL CONSERVATION COMMISSION
HOBBS, NEW MEXICO

IN THE MATTER OF:

Case 1634 Application of The Pure Oil Company for an order promulgating temporary special rules and regulations for the South Vacuum-Devonian Pool in Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order promulgating temporary special rules and regulations for the South Vacuum-Devonian Pool in Lea County, New Mexico, to provide for 80-acre proration units and well location requirements. Applicant further seeks permission to shut-in its South Vacuum Unit Well No. 3-35 located in the NE/4 NW/4 of Section 35, Township 18 South, Range 35 East, Lea County, New Mexico, and transfer the allowable to its South Vacuum Unit Well No. 1-35 located in the SW/4 NE/4 of said Section 35.

Hobbs Auditorium
Hobbs, New Mexico
April 15, 1959

BEFORE:

A. L. Porter
Murray Morgan
Governor John Burroughs

TRANSCRIPT OF HEARING

MR. PORTER: The hearing will come to order, please. The next case on the docket is 1634.

MR. PAYNE: Case 1634, "Application of the Pure Oil Company for an order promulgating temporary special rules and regulations for the South Vacuum-Devonian Pool in Lea County, New Mexico."

MR. BRATTON: If the Commission please, Howard Bratton,

Hervey, Dow and Hinkle, Roswell, New Mexico, appearing on behalf of the applicant, the Pure Oil Company.

MR. PORTER: I would like to call for other appearances at this time.

MR. NEAL: C. M. Neal of Neal and Neal, Hobbs, New Mexico, appearing on behalf of the protestant Reeves, A. J., D. P., Ezella and Janie P. Reeves. We protest that portion of the application which deals with 80-acre spacing.

MR. PORTER: Anyone else wish to make an appearance in this case?

MR. SELINGER: George W. Selinger representing Skelly Oil Company. We'll make a statement at the conclusion of the evidence.

MR. ANDERSON: R. M. Anderson, Sinclair Oil and Gas Company. We'll make a statement at the conclusion of the case.

MR. SCHRENKEL: Jack Schrenkel, Union Oil Company of California. We will also make a statement at the end of the case.

MR. St. LAURENT: C. P. St. Laurent, Shell Oil Company, Roswell.

MR. PORTER: Shell Oil Company?

MR. St. LAURENT: We'll also make a statement.

MR. PORTER: Mr. Bratton, you may proceed.

MR. BRATTON: If the Commission please, we have two witnesses. Before the witnesses are sworn, I would like to make a very brief statement as to the nature of the case. The case pertains to the South Vacuum-Devonian Pool in Township 18 South,

Range 35 East. The Pure Oil Company has filed an application in which it asks for substantially the four following items: One, temporary special rules and regulations for the pool, the rules and regulations to be in effect for one year. The portion of those rules that is requested is that proration units of 80 acres each be established consisting of two continuous and contiguous 40-acre tracts elongated in either direction. Three, that there would be no increase in allowables for these wells located on 80-acre proration units. Four, permission to shut in one well operated by Pure in this tract, in this pool, for a period of a year to transfer that allowable to an adjoining well, and during that year, to run periodic interference tests to determine the nature of the interference between wells. Those are the requests which we make.

We have two witnesses. Now, I'll ask that they be sworn at this time.

(Witnesses sworn in.)

GEORGE FISH

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

DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, please?

A George Fish.

Q What's your residence and by whom are you employed,

Mr. Fish?

A I am employed by the Pure Oil Company in Fort Worth, Texas as Division Development Geologist.

Q Have you previously qualified before this Commission as an expert witness?

A Yes sir, I have.

Q As a part of your territory, do you include the area in the South Vacuum-Devonian Pool?

A Yes.

Q Are you familiar with that pool?

A Yes, sir, I am.

Q Are you familiar with the application which has been filed in this case?

A Yes, I am.

MR. BRATTON: Are the witness' qualifications as an expert accepted, Mr. Porter?

MR. PORTER: They are.

(Thereupon, the document was marked as Pure's Exhibit Number One for identification.)

Q (By Mr. Bratton) Mr. Fish, referring to the board, the map which has been marked Exhibit Number One, Pure Exhibit Number One, will you go through that and explain to the Commission what it is and what it shows? And I believe the Commission has been furnished copies of these as well as the staff, of these exhibits.

A Our Exhibit Number One is a structure map with contours on top of the Devonian. It shows structural closure in the area of the South Vacuum Pool in Sections 27, 26, 35, all in Township 18 South, Range 35 East. It shows an elongated northwest-southeast trending structure bounded on the northeast flank by a fairly steep dip and possible faulting. Also at the north end of this area of closure, south closure, I'll call it, is indicated a fairly steep dip to the southwest and less steep dip at the south end of the pool. Now, on this interpretation, I have shown two areas of closure with a water level indicated by the dashed red marks. This water level has been established in a previous case, I believe it was heard in January, when the Sinclair Oil and Gas Company requested that their well, Sinclair's State 403 Number 2, located in the southwest quarter, southwest quarter of Section 22, 18 South, 35 East, be converted to a salt water disposal well. The green outlined area is the present South Vacuum Pool limits as determined by the Commission. That description was made in January of this year; since that time, there have been two more wells completed in the South Vacuum-Devonian Pool. That is the South Vacuum Unit 3-35 located in the northeast quarter of the northwest quarter of Section 35, and the South Vacuum Unit 1-26 located in the southwest quarter, southwest quarter of Section 26. The various wells are circled by colors, which indicate the formation they are now producing from. The wells encircled in brown are producing from the Bone Spring Formation, of Permian age,

and are classified as being in the South Vacuum-Bone Spring Pool. The wells encircled in red are producing from the Pennsylvanian and are classified as producing from the Reeves-Pennsylvanian Pool. The wells circled in green are producing from the Devonian Reservoir in the South Vacuum-Devonian Pool, and we have one dual completion, the South Vacuum Unit 2-35 located in the northeast quarter of the southeast quarter of Section 35. That well was taken to granite and was dually completed in the Devonian and the McKee of Simpson age.

Most of the Devonian structural control is afforded by wells on the crest of the structure. There is some control projected in one case from the Pure Number 1 State "F" located in the southeast, southeast of Section 22, 18 South, 35 East. That well was drilled to the Mississippian line and was running low at that point and we did not continue it to the Devonian. However, it had shows in the Bone Spring Formation and was completed as a Bone Spring producer.

My interpretation shows an area of closure that is separated from the larger area of closure to the south. It has one Devonian producer, the Sinclair State 401 Number 2, located in the northeast quarter, northeast quarter of Section 21, 18 South, 35 East. It is separated by structural reversal, afforded, that control is afforded by the Sinclair State 403 Number 2 in the southwest, southwest of Section 22.

Q Mr. Fish, what is the yellow outline on the --

A The yellow outline is the South Vacuum unit area.

Q When going through your Devonian wells there, there are how many completed Devonian wells in the pool?

A There are seven completed Devonian wells. One is outside the present classification of the South Vacuum Pool, but I'm sure it will be included within that limit.

Q The well to which you refer is the what well?

A Is the South Vacuum Unit 1-26.

Q And that well was completed within the last few days, was it not?

A Yes sir, it was completed over the week-end.

Q When was the Devonian Pool, South Vacuum-Devonian Pool first discovered?

A It was discovered in January, 1958. At that time, Union Oil and Gas of California was operator of the unit. They drilled the discovery well.

Q Referring to the map, would you explain where that well is located and the subsequent wells in the order in which they have been drilled, the Devonian wells?

A The South Vacuum Unit 1-35 is located in the southwest quarter, northeast quarter of Section 35. I believe the Sinclair 405 Number 1 was the next well completed in the pool. I am not certain of the order of sequence of the other operators. Pure, as the operator of the South Vacuum Unit, drilled the 2-35, located in the northeast, southeast of Section 35, and then moved northward,

or northwestward, and drilled the South Vacuum Unit 2-35 in the northeast, northwest of Section 35, and out last well completed is the South Vacuum Unit 1-26 in the southwest quarter, southwest quarter of Section 26.

Q Is there anything further you wish to say about the contours, your interpretation of this pool, Mr. Fish?

A Well, it is obvious that my control is largely up the crest of the structure except at the very north end of this south closure where I have some control points and can extrapulate dip down past any water level. And to the extreme southeast where Ralph Lowe drilled the Number 1 Ohio State on the northeast quarter, northeast quarter of Section 1, Township 19 South, Range 35 East, that well afforded some control in that direction so that I have some dip established. Other than those control points, this rate of dip off the flank of the feature is largely interpreted.

Q Is there anything further you wish to explain about the contour map?

A No sir, I believe that's all.

(Thereupon, the document was marked as Pure's Exhibit Number Two for identification.)

Q (By Mr. Bratton) You have drawn on your contour map a line marked "AA" Prime. That indicates the position of the wells on your next exhibit, Exhibit Two?

A Yes, sir.

Q Referring to Exhibit Number Two,the cross section, will you explain what it is and what it shows, Mr. Fish?

A Cross section "AA" Prime is a tracing of the electrical logs through the Mississippian and Devonian sections in the wells indicated. Would you like me to name the wells?

Q Refer back to your contour map. Your cross section goes from left to right and picks up the wells from the northwest to the southeast in order, is that correct?

A That's correct. The first well on the cross section is the Sinclair State 403 Number 2, the second well is the Magnolia State Section 27 Number 1, the third well is the South Vacuum Unit 1-26, the fourth well is the South Vacuum Unit 3-35, the fifth well is the South Vacuum Unit 1-35, the sixth well is the South Vacuum Unit 2-35, and the well to the extreme southeast and which is on the right hand side of the cross section is the Ralph Lowe Number 1 Ohio State.

Q So that the cross section runs roughly from northwest to southeast right through the center of the pool?

A Yes sir, right along the crest of the structure.

Q Now, referring to the cross section, will you explain what it shows, Mr. Fish?

A Well, it shows the electric log correlation. All of these are induction ES logs with the exception of the Magnolia log on the Magnolia State Section 27 Number 1, that was a guard log.

The best correlation is afforded by the gammaray curve, which is the solid line on the left hand portion of the log. The correlation is afforded, best afforded at the base of the woodward shale, which is a highly radio-active shale, and I believe the off-scale readings of the log is pictured here. I have drawn a heavy green line at the top of the Devonian in each of these wells. I have also drawn a heavy red horizontal line at the structural position minus 7880, which is my interpretation of the water level in this south portion of the South Vacuum Pool. It indicates that the productive wells have Devonian section above the oil-water contact, and where the Devonian is encountered below this red line or below the oil-water contact, the well resulted in a dry hole.

Q What does that cross section show, or what do those logs show with reference to the lithology of this pool?

A Well, it shows the continuity of the Devonian Reservoir from northwest to southeast.

Q Through the entire extent of the pool, excluding what is shown as the little separate pool or hicky up to the north?

A That portion of the South Vacuum Pool is not included in this cross section. I believe Sinclair presented a cross section from their State 401 Number 2 down to the State 403 Number 2, thence to the Sinclair State 405 Number 1 and thence to the Magnolia State Section 27. It indicated what is shown on this structure map, that there is structural separation between these two areas of closure.

Q If your cross section were extended to the north into the separate little pool or separate little closure shown there, what would your cross section reflect with reference to dip?

A Well, it would show this same steep dip from the Magnolia State 27 Number 1 to the Sinclair State 403 Number 2, it would show a dip of this degree. I might add that on this cross section scale, the vertical scale is one inch equals one hundred feet, the horizontal scale is one inch equals five hundred feet, so that you have a five to one exaggeration as far as dip goes, but you would see the same steep dip and then you would see a steep dip back up into the north closure.

Q Referring to your Devonian Section shown on those logs, will you explain what the logs show with reference to the section, the composition of the section?

A The logs themselves show a fairly dense interval here within the Devonian. I have to rely on samples and cores to describe the lithology of the Devonian. In our study of the Devonian here, we found that approximately the first hundred feet of Devonian is essentially limestone.

Q That's from top to bottom?

A That's from top to bottom. Within this limestone interval, there are porous dolomite stringers which vary from one foot to six feet in thickness. They are porous, permeable, and are oil saturated where they are encountered above the minus 7880 oil-water contact. Below this first hundred, hundred and ten

feet of dense lime with the dolomite stringers is an interval of dolomite varying from fifty to sixty feet in thickness. This is the main reservoir in this field, it contains the bulk of the reserves. It is porous, permeable, has large vugs, diagonal fractures and it is, in short, it is a good reservoir. You might examine the cross section and you will see that most of the wells or all of the wells that are completed from the Devonian are perforated. This little box with the circle in it is where the perforated interval is and in these wells, most of them are perforated approximately a hundred feet below the top of the Devonian in the main porous reservoir, dolomite reservoir.

Q A summary of your cross section shows that there is continuity of the Devonian section throughout the entire northwest-southeast extent of the pool without any significant variation in the composition of the Devonian structure through that entire area?

A Yes sir, that's approximately what it shows.

Q Is there anything further significant to this hearing which you would like to explain about Exhibit Number Two?

A No, sir.

Q Is there anything further which you have to offer in connection with either of these exhibits, Mr. Fish?

A No sir, I am sure there will be questions about them, and I'll attempt to answer any questions that anyone would care to bring up.

Q Did you prepare Exhibits One and Two?

A Yes sir, I did.

MR. BRATTON: I would like to offer Exhibits One and Two in evidence.

MR. PORTER: Without objection, Exhibits One and Two will be admitted.

MR. BRATTON: I have no further questions of Mr. Fish at this time.

MR. PORTER: Anyone have any questions of Mr. Fish?

CROSS EXAMINATION

BY MR. NEAL:

Q Mr. Fish, did I understand you to say that the water-oil contact had been established in the hearing in January?

A I don't know that it was established, data was presented at that time which is in agreement, I believe, with the data that we have presented here. It, to my mind, it well established the oil-water contact in this south portion of the South Vacuum Pool with the Sinclair 405 Number 1. That well was perforated from minus 7876 to minus 7881.

MR. PORTER: Will you point out the location of that well, please?

A Yes, sir.

MR. PORTER: Thank you.

MR. BRATTON: That well is located in what section?

A That well is located in the northeast of the northwest

of Section 27. It is the lowest structurally located well in the south portion of the South Vacuum Pool. It was completed flowing for 194 plus 74 barrels of water shortly after the water cut increased. The well was put to pumping and I believe one of the first pumping tests was 140 plus 142 water, and according to our record in January, the well pumped an average of 126 barrels of oil a day plus 130 water.

Q (By Mr. Neal) When was that well completed?

A I believe it was completed in July of 1958. The pumping test that I referred to, 140 oil plus 142 water, was made in September of '58.

Q You feel that it is the same structure that the wells from the South Vacuum Unit are drilled into?

A Yes sir, I do.

Q You feel that the structure up north of that, on the north, on north of that is a different structure?

A It is on the same structural trend, the same large structure, but it has separate closure, I believe it has separate closure, I believe that can also be established. The Sinclair 401 Number 2, which is located in the northeast, northeast quarter of Section 21, initially--or was perforated over an interval minus 7818 to 48. It potentialed flowing 434 barrels of oil a day and shortly after that, that well began producing various quantities of water, that was the well that Sinclair was concerned about, I am sure, when they wanted to use their State 403 Number 2

as a salt water disposal well. Our records indicate that in January, the Sinclair State 402--401 Number 2 produced an average of 41 barrels of oil, plus 625 barrels of water per day.

Q Now, your red line that you have there on the lower part of the map, the south end of the map showing the oil-water contact, is it your idea that any well drilled outside of that line will not be productive?

A It will not be productive from the Devonian Reservoir, that's correct.

Q Then there is a substantial amount of the South Vacuum Unit then that in your opinion will not be productive?

A That's correct.

Q That's a radical change from the map that you had at the previous hearing on this?

A No sir, it is not a radical change, the map is very similar to the map we presented at a prior hearing approximately one year ago. The radical change is that we have now established a water level. At that time, we had only one well completed, I believe the South Vacuum Unit 1-35, and numerous wells drilling.

Q But you pulled your eastern line in quite a bit?

A Yes, sir.

Q What control do you have that caused you to pull that eastern line in?

A Well, as I testified previously, the Pure Number 1 State "F" located in the southeast southeast of 22 was taken to the

Mississippian line.

Q What depth?

A At a subsea depth of--I don't have the total depth of it, but the Mississippian line was at minus 7315.

Q Do you consider that a safe control for the Devonian top?

A Yes sir, we did when we stopped the well. We thought that it was a poor risk, a very poor risk, and we didn't desire to take the well deeper.

Q Did you complete it at that point?

A We plugged the well back and completed it in the Bone Spring.

Q When was that drilled?

A Well, there was just one hole drilled --

Q When was it drilled?

A I don't have that date, but I can get it.

Q Was it before the hearing, the previous hearing on this matter?

A That well was drilling at the previous hearing.

Q Do you know what the depth of it was at that time?

A Yes sir, I have a map that I presented at the previous hearing and I can --

Q That's the hearing in May of '58?

A Yes, sir.

Q It was then drilling and had not been completed?

A That's correct.

Q It had not reached the Mississippian at that time?

A I believe perhaps we had reached the Mississippian.

Q And you had these same markers at the hearing before?

A I believe we had reached the Mississippian at the time of the hearing, but possibly not at the time I had prepared my map.

Q But you had at the time of this previous hearing reached the Mississippian top, which is the reason now for you to pull in the eastern side of the water contact?

A I believe, sir, if you will check the testimony at that hearing, that we had a tentative Mississippian top, I don't believe that it was Mississippian line. There is an interval in there, upper Mississippian, which is not a good structural marker. We did have that as the tentative top and I believe at that time, I testified that that well was hung lower than I had shown on my map prepared at that time, and I gave the Commission a rough estimate of the Devonian in my testimony.

Q Mr. Fish, did you testify at the hearing on this application before?

A Yes, sir, I did.

Q On May 14, '58?

A I believe the first hearing was on the 14th. I think when our testimony was presented, it was either the 15th or 16th, it wasn't the first day of the hearing.

Q Mr. Dupre testified?

A Mr. Duree.

Q Duree, D-U-R-E-E?

A Yes, sir.

Q It's Dupre on this. It is true, is it not, Mr. Fish, that at that time you had drilled the southern well of that group of four wells that are in the Vacuum Unit?

A At what time, sir?

Q At the time of the hearing in May of 1958, you had drilled the first one only?

A We had drilled the first well only.

Q You had reached the top of the Mississippian on the north well up there that you completed in the upper formation?

A I believe we had reached the Mississippian-Chester.

Q Since then, you have drilled in succession the three wells that run north and west from one--from the first well in the unit?

A Yes sir, our first well after the completion of the 1-35 was the 2-35. That well was encountered lower structurally than we had anticipated. If you will examine the map I presented at the prior hearing, we thought at that time the closure extended farther to the southeast, so that when we determined that we were getting southeasterly dip, then our next location was the 3-35 where we thought we would be going updip again and in a better structural position.

Q Those wells as you have gone to the northwest have been progressively better, haven't they?

A The last two wells have been a little bit higher; that is, the 3-35 and the 1-26 have been just a little bit higher structurally than the 1-35.

Q And they have had better productive ability?

A They have had comparable productive ability, yes sir.

Q And you have made a location directly east of your 1-26?

A I don't believe we have a formal location; we have a number of stakes driven at various locations.

Q As a matter of fact, the unit operators made a commitment to drill on the east offset to that well?

A I understand they talked to the royalty owners in that direction, I did not know that any firm commitment had been made.

MR. NEAL: That's all.

MR. PORTER: Anyone else have a question of Mr. Fish?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Fish, what real control have you had that caused you to draw two separate structures there in the Devonian Formation?

A Mr. Nutter, the only control I have is that which I have described previously, that is the chief controlling factor here, is the Sinclair State 403 Number 2, which encountered the Devonian low and necessitated bringing the structural contour

lines in to fit that well into the picture, and there is a separate water level which is apparent in the north closure.

Q That water level that is in the north closure is obtained from the one well that is completed in that area?

A That is correct.

Q Now, what would have happened if you had made your cross section run from "A" Prime up to the Sinclair State 401 Number 2 rather than to the State 403 Number 2, what kind of cross section would you have then?

A Well, I wouldn't have the control as afforded by the 403 Number 2, I would have had to have taken the control off of the structure map.

Q Your cross section then would be higher on the left side of the cross section? I mean your Exhibit Number Two there, your cross section, you would show the formation dipping upward to the left constantly, wouldn't you, rather than dipping back down to the left?

A Yes sir, it would have dipped down to a point approximately minus, oh, 7950 and then would have changed dip and would have gone back up.

Q I thought that "A" Prime was on the left side, it's on the right side, though, isn't it?

A Yes, sir.

Q So the dip would be constantly upward on the right side of the cross section rather than dipping down to the right?

A I would have had no control in this area to bring it down. The interpretation from my structural map, if you would illicit a structural map in preparing the cross section, I would have had to reverse dip at approximately minus 7950.

Q I see. Is the water-oil contact in the southern portion of the pool from the well defined--that is, on the southern structure?

A Yes sir, I believe it is.

Q How many wells have encountered water?

A Two wells are making some water. The second well is the Pure--or I beg your pardon, the South Vacuum Unit 2-35, which on the cross section you can see the perforations extend down to minus 7870. In January, '59, that well averaged, flowing, 198 barrels of oil plus 16 water per day.

Q How many wells have actually penetrated the depth of 7880 or more?

A Five wells.

Q Did they all encounter water?

A Yes sir, I believe they did.

Q Is the Sinclair 405 Number 1 Well in Section 27 still producing, Mr. Fish?

A Yes sir, in January of 1959, it produced an average of 126 plus 130, 126 barrels of oil plus 130 barrels of salt water per day on the pump.

Q Would it be possible to dedicate 80 acres to that well

and have all 80 acres within the water-oil contact as depicted on your exhibit?

A No sir, Sinclair acreage which is contained in the northwest northwest of 27 would not have a full 80 acres productive, or 80 acres above the oil-water contact.

MR. NUTTER: I believe that's all, thank you.

MR. PORTER: Anyone else have a question of Mr. Fish?

REDIRECT EXAMINATION

BY MR. BRATTON:

Q There is a common acquafer between the two closures which you have shown?

A Yes sir, the Devonian is the common acquafer and supplies a common source of energy for those two closures.

Q Even though you have two separate closures with your oil separated by the water-oil contact line as you have it interpreted?

A Yes, sir.

Q Now, I believe what Mr. Neal was getting at, basically down in the southern part of the pool, your control is not such that your interpretation of the location of the water-oil contact line or the dip, that is not absolutely accurate, you don't have that amount of control?

A No sir, it is based on later information I have and is my interpretation. When additional wells are drilled and encounter the structure either higher or lower, there will be a

number of changes made in the maps. Geology isn't an exact science and I'm afraid we use the eraser quite often.

MR. BRATTON: I believe that's all we have.

RECROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Fish, I am finally back to the point where I believe that this cross section "AA" Prime reached from left to right, with the "A" being the Sinclair 403 Number 2. Now, if you had used the Sinclair 401 Number 2 as the left end of the cross section, this structure would be dipping or would be going upwards as you proceed to the left on your cross section, Exhibit Number Two, would it not?

A Yes, sir. It would not proceed upward, it would be approximately level through here. If I utilized only the well control that you have mentioned here and did not utilize or recognize this low point in here, if it had been strictly cross section from the Magnolia State Section 27 Number 1 to the Sinclair 401 Number 2, the line at the top of the Devonian would be approximately level. That Devonian top on the Sinclair State 401 Number 2 is minus 7716, the Devonian top on the Magnolia State Section 27 Number 1 is minus 7636, so there would be a slight amount of dip to the north, but of course nowhere the amount that is shown on the cross section "AA" Prime using the Sinclair State 403 Number 2 as my terminal well.

Q Well now, is there any evidence that there is a saddle

separating these two physically or is it merely an indentation to the southwest point of the structure?

A No sir, it is strictly my interpretation.

Q Now, was any seismic picture used in drawing the contour map?

A Yes sir, some seismic information was used down in the south portion of the pool. Our Seismic Section said they are getting, were getting fairly reliable reflections in this area; however, to the north, or the north of our, the South Vacuum Unit 1-26 and in the entire area to the north of that, their reflections were very poor and are unreliable, so I have not utilized any seismic information.

Q So this is all drawn from geologic information that you had available to you from wells that you have drilled?

A That's correct.

Q Now, this possible fault that you have drawn on this Exhibit Number One, the contour lines for the structure don't reflect any fault, do they?

A No sir, I have presented actually an alternative interpretation. I have drawn my structure without faulting. We feel that there is a strong possibility of faulting on that flank and our seismic work indicates that we would expect to cross a fault going from northeast to southwest. There are indications of faulting, that is, there is an area of no record in there which they suspect may be due to faulting. It could be

due to other causes, and therefore I indicated it as a possible fault.

Q Now, I notice a location you depicted in the northwest northwest of 26. Is that a well drilling at the present time?

A I don't believe that well is drilling. That location was announced last Friday and I put it on my map at that time.

Q What formation is that well projected to, do you know?

A To the Devonian, I believe.

Q Prospects are very poor, though, to hit this water-oil contact, wouldn't you say?

A Yes sir, if this map is accurate, then that well will result in a dry hole. I sincerely hope that they do get a well there. Pure has acreage to the northwest and to the southeast of that quarter, and it would also indicate that some of the South Vacuum Unit acreage might also be productive.

MR. NUTTER: That's all, thank you.

MR. PORTER: Anyone else have a question of the witness? You may be excused.

(Witness excused.)

MR. BRATTON: I would like to offer in evidence Exhibits One and Two.

MR. PORTER: Without objection, they will be received.

JACK DUREE

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

DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, please?

A Jack Duree.

Q Where do you live, by whom are you employed and in what capacity, Mr. Duree?

A I live in Fort Worth, employed by Pure Oil Company in the capacity of Chief Production Engineer for the Texas Production Division.

Q Have you previously testified before this Commission as an expert witness?

A Yes sir, I have.

Q In connection with the application now pending, are you familiar with the South Vacuum-Devonian Pool and with the application which has been filed in connection therewith?

A Yes, sir.

MR. BRATTON: Are the witness' qualifications acceptable?

MR. PORTER: Yes, sir.

Q (By Mr. Bratton) Mr. Duree, you have made a study of the South Vacuum-Devonian Pool and the physical properties there of the pool?

A Yes, sir.

(Thereupon, the document was marked as Pure's Exhibit Number Three for identification.)

Q (By Mr. Bratton) Referring to Pure's Exhibit Number Three, which is a sheet, small sheet of reservoir data and which is not on the board, will you briefly go through that and explain what it reflects as to the characteristics of the South Vacuum Pool?

A Exhibit Number Three, entitled Reservoir Data, gives a number of properties relative to the reservoir rock and fluids found in the South Vacuum-Devonian Pool. Physical properties of the reservoir rock, porosity of 7.1 per cent, an average permeability of 226 millidarcys, average interstitial water saturation, 32.5 per cent, net thickness, 75-foot maximum. Lithology, it's a grey dense to finely crystalline dolomite with pin-point to large vugs, intercrystalline porosity and fracturing.

Q Mr. Duree, before you get to the physical properties, from what wells were those taken?

A This information is from cores taken on the Pure, the South Vacuum Unit Well Number 1-35, Number 2-35 and Number 3-35.

Q Those are the three southernmost wells shown on the cross section, Devonian producing wells?

A Yes, sir.

Q If you will continue.

A All right. The structural features have been already covered by Mr. Fish; that is, the northeast-southwest trending anticline. The characteristics of the reservoir fluids, and

this is determined from fluid samples taken on the South Vacuum Unit Well Number 1-35. Gravity of the stock tank oil, 49 degrees API, saturation pressure, 382 pounds per square inch gauge, formation volume factor at original pressure, 1.051, at saturation pressure, 1.088. Viscosity of the reservoir oil and centipoise, original pressure, .884, saturation pressure, .588. Dissolved gas-oil ratio, 96 cubic feet per barrel of stock tank oil. Reservoir pressures and temperatures, at a datum depth of 7750 feet sub-sea, the original reservoir pressure was 4,895 pounds per square inch, the estimated average reservoir pressure on April 15, 1959, 4758 PSI, reservoir temperature, 148 degrees Farenheit. Productivity index, again from the 1-35, is 4.4.

Q Now, referring to first the physical properties of the reservoir rock, what does that show by way of permeability, is that good permeability for effective drainage?

A We think it is excellent permeability for effective drainage.

Q Your findings correlate with those of Mr. Fish as to the characteristics of the Devonian Formation; that is, the permeability in the upper section and the lower section?

A Yes, sir.

Q Referring to your characteristics of the reservoir fluids, I take it from the low saturation pressure, the fact that there is practically no gas in this oil, that you are confident there is no gas solution drive, no gas and solution?

A The gas solution is extremely low and the amount of energy that could be expected from the gas and solution for practical purposes is nil.

Q What do you think is your producing mechanism and why do you believe so?

A We believe the producing mechanism is that of water drive. Water moving into the reservoir is shoving the oil out ahead of the water. This is borne out by the fact that we have been able to determine water levels in the reservoir; we also have two wells that are producing water.

Q What does the viscosity of your oil indicate to you, Mr. Duree?

A It indicates the viscosity is very low; therefore, it is easily displaced out of the reservoir or system, comparatively speaking.

Q From the reservoir data which you have assembled, what does it indicate to you as to the area which a well will drain in this pool?

A It indicates to us that a well in this pool will drain any acreage that is structurally lower than it is, whether that be 40, 80, 160. Under a water-drive mechanism, if you take a high point, you are going to get the oil.

Q You think your permeability is good and your mechanism is such that you can efficiently drain 80 acres?

A Yes, sir.

Q Is there anything further you would like to say with regard to your reservoir data?

A No, I have nothing further on it.

(Thereupon, the document was marked as Pure's Exhibit Number Four for identification.)

Q (By Mr. Bratton) Referring to the board and what has been marked Pure's Exhibit Number Four, will you explain what that exhibit is and what it reflects?

A Exhibit Number Four is a graphic production history of the South Vacuum Field since its discovery. On it is posted the bottomhole pressure, the daily oil production, the daily water production, the cumulative oil production and the number of wells. The production data is complete through January, the number of wells has been extrapilated to reflect the well that was completed this past week-end. This data is complete for all wells that are carried in the South Vacuum-Devonian Field with the exception of the Sinclair 401 Number 2. It has been in our interpretation. That is on a separate structure and we have not included its production on this graph.

Q You have attached to it a small exhibit, a compilation which reflects the information which is reflected on the graphic form?

A Yes sir, this is the tabular data from which the graph was made.

Q What would be the effect if you included the Sinclair well, what would it affect on your graph and in your figures?

A Well, on our total cumulative production, for instance, as of January the 1st, it is shown as 122,000 barrels. With the Sinclair 401 included, it would be 151,406, approximately 29,000 additional barrels, which would increase this cumulative figure slightly. The water production, which is shown as 31,202 barrels, would be 50,037, an increase of approximately 19,000 barrels. The gas increase would be from 9,000,000 to 12,000,000.

Q What is the significance of the cumulative data in the graphic representation insofar as this hearing is concerned, Mr. Duree?

A The only significance is that it reflects a pool in the early stages of development. The indications are, from what we have to date, that where we do have a water drive, that it is in the early stages of development, and that's about all that it does show.

Q All right, sir.

(Thereupon, the document was marked as Pure's Exhibit Number Five for identification.)

Q (By Mr. Bratton) Now, referring to Exhibit Number Five, Mr. Duree, will you explain what Pure Exhibit Number Five is and what it reflects?

A Exhibit Number Five is a graphic representation of

bottomhole pressure determinations made on each of the wells in the field since it has been discovered. On the left margin are the pressures, the horizontal is time, the insert map shows the wells from which the pressures have been taken. They are color coded and that color code on the map will follow through in the color of the lines and the circles on the graphic history on the top of the graph. The initial well completed in the South Vacuum Pool is the South Vacuum Unit Number 1-35. The small graphs, exhibits which have been passed out, carry a tabulation of the actual pressures from which this graph was posted. The initial pressure indicated in the 1-35 was past 4895 pounds. That pressure was determined by bottomhole drill stem test equipment prior to any production from the reservoir. The second pressure posted here with a red circle is the pressure from the 1-35 after a cumulative production of 862 barrels, which shows we had a bottomhole pressure of 4,838 pounds per square inch. Subsequent points give the bottomhole pressure that has later been determined on this well with cumulative production of 20,400 barrels, the bottomhole pressure was 4765. The third cumulative is 4819 with 33,000 barrels cumulative production, and with 73,000 barrels, the pressure was 4767. The second well completed was the Sinclair 401 Number 5. We did not have an original pressure determined from a drill stem test on this well. As of the first pressure we have on it, the well had produced 4,276 barrels; it had a bottomhole pressure of 4759. At the end

of 15,000 barrels production, it had a pressure of 4773. The third well completed was the South Vacuum Unit 2-35, and in this instance, again we were unable to get an initial pressure on drill stem tests. At that time, we had no production from the reservoir in that particular well. The bottomhole pressure was 4828 PSI. That particular well, as pointed out earlier, went on to the Granite and subsequently completed in October. We took another pressure on the cumulative production of 5283 barrels and the bottomhole pressure at that time was 4,762. In January of this year with a cumulative production of 24,788 barrels, the bottomhole pressure had declined to 4757. The next well completed in the South Vacuum Pool was the Magnolia State Number 1. We have a pressure determination on it with a cumulative production of 1,082 barrels, it showed a bottomhole pressure of 4810. The next one is the Vacuum Unit 3-35. Our first pressure determination with it was after 734 barrels of production with a 4796-pound pressure. We took three pressures there immediately on it to check it and find out that--the last one was 1600 barrels production with a pressure of 4775. Our last well is the South Vacuum Unit 1-26, which was potentialed this past week-end. A pressure determination on it finished this Monday showed a bottomhole pressure of 4792 with a cumulative production of 235 barrels. The trend is that the subsequent wells that have been completed after the initial one have consistently shown lower pressures in keeping with the pressure that the reservoir had been lowered to

by earlier production, even though the well itself may have had no production from it.

Q Will you demonstrate in the large map, roughly, the line of the decline in pressures, say starting in July of '58?

A You mean the decline in pressure of the field as a whole?

Q Well, of the field as a whole and particularly the wells as they have been brought in, the later wells?

A The later wells, the Magnolia State Number 1, completed in November, came in some forty pounds below the initial reservoir pressure from the 1-35. The South Vacuum Unit 3-35, its initial pressure is some fifty-five to sixty pounds less. The South Vacuum Unit 1-26, some ten pounds more than that.

Q You mean ten pounds less?

A Ten pounds greater drop in it than the 3-35.

Q Excuse me. Referring to the location of these wells you have shown on the insert, the distances between these wells, and referring back to the contour map, these wells are located on what would be 80-acre spacing or 80-acre patterns, are they not?

A With the exception of the Sinclair 405 Number 1.

Q What is the significance of this map, Mr. Duree, of this chart? Is this not the proof of the pudding as far as drainage is concerned?

A In our opinion, it is proof that we have drainage

in this field. We are losing reservoir pressure, we are losing it at a spot where no production has been taken. The only way we can lose it is the fact that other wells have produced, and having produced, are connected in the reservoir to the spot where we drilled, have removed--or have caused the pressure to go down.

Q Due to the decline in those pressures and the locations of the wells from which those pressures were taken, does this exhibit, in your opinion, prove that one well will efficiently drain 80 acres?

A Yes sir, it does.

Q Is there anything further you would like to say with regard to this exhibit, Mr. Duree?

A No, I have nothing further to add.

Q All right, sir, if you would--now, Mr. Duree, we are not here claiming that a well on 40 acres based on the current information would be ineconomic?

A No sir, we are not; there is a possibility that it might be.

Q What is the, briefly, the economic situation of the pool?

A The economic sitiation of the pool is that all evidence to date indicates we have a water drive developing and that we can pay out a well on 40 acres, we can pay out a well on 80 acres. The only thing that could be questioned on that would be if the water drive did not develop. It would be entirely possible

for the field to operate a period under an apparently strong water drive and then have this drive fail. It would be a function of how large the aquafer is which is supplying the water into this reservoir to displace the oil. If the aquafer is sufficiently large, we should be able to deplete the reservoir; if it is not sufficiently large, then we will have to either supplement that energy or our total recovery will suffer.

Q Would there be any detrement either by way of waste or violation of correlative rights by the granting of one year temporary rules and regulations in accordance with the request which you have made?

A I do not think so, no.

Q Specifically, will you relate what we are asking for and why we are asking for the specific items we have requested?

A We are asking for temporary special rules for the South Vacuum Pool for a period of one year. We are asking that those rules set up 80-acre spacing with the 80 acres allocated made up of two adjacent and adjoining 40-acre tracts. We recommend that the operators be given lattitude as to which end of the 80 he locates his well in. We are asking no increase in the allowables for these wells; we think they can carry an 80-acre allowable very handily, but we would like to leave them as they are for the duration of these temporary rules. And as a correlary to this, or another part of it, grant us permission to shut in one of our Devonian wells for this period and transfer its allowable. By

doing that, we will have one well with no production coming from it, we can take pressure determinations from that well through the year and with those pressure determinations, we feel that we will bear out even further this information that we have developed, that the reservoir is all inter-connected, if this well with no production will lose reservoir pressure the same as those wells that are producing.

Q And you are asking for these rules, even though in your opinion the evidence now is conclusive to satisfy you that one well will efficiently and economically drain 80 acres?

A In my opinion, it definitely will.

Q In your opinion, will the granting of the application of Pure's prevent waste and protect correlative rights?

A Yes, sir.

Q Do you have anything further which you would like to state at this time?

A No sir, I have nothing further at this time.

Q Did you prepare Exhibits Three, Four and Five?

A I prepared them; they were prepared by me in part and under my direction for the remainder.

MR. BRATTON: I would like to offer Exhibits Three, Four and Five in evidence.

MR. PORTER: Without objection, Exhibits, Pure Exhibits One through--Three through Five will be received.

Does anyone have a question of Mr. Duree?

CROSS EXAMINATION

BY MR. NEAL:

Q Will you explain, please, sir, how the proposed 80-acre spacing will prevent waste?

A Mr. Neal, on 40-acre spacing, we are going to have to go out and drill a lot of very questionable locations. We are going--by our drilling on 80's, we can cut down on the development costs in this field tremendously.

Q How does it prevent waste?

A Well, that's economic waste.

Q You don't mean to infer that it would lessen the production of oil?

A I don't think that it will lessen the production, I think the production under the rules we have proposed would be the same under 80's or 40's.

Q Now, how would it protect correlative rights?

A I didn't say that --

Q You testified in your opinion that 80-acre spacing would advance the cause of protecting correlative rights. How?

A Well, it's giving each and everyone equal opportunity to get their production.

Q Wouldn't they have the same opportunity with 40-acre spacing?

A They would not have the same lattitude there.

Q They would have the same opportunity to drill?

A They could always drill, yes.

Q And there is no question in your mind but what they can be economically drilled from the standpoint of out and out profit on 40-acre units?

A I don't believe my testimony was that. On the basis of the information we have now, yes. But also on the basis that it is a water drive and will take time to determine whether or not we are connected with a sufficiently large aquafer to deplete the reservoir, it could be that we would produce for a year or two years and then suddenly we would lose our drive mechanism.

Q And then you would have to go to 40-acre spacing?

A No, I didn't say that, I said that we would have to supplement the energy of the reservoir.

Q Or go to 40-acre spacing?

A I don't think that 40 acres would do it.

Q Do you think that there could be a situation here where you would have to go to 40-acre spacing?

A I don't think so, no.

Q In other words, you think that there is no question but what a well on 80 or a well on 160 acres would drain the oil out of the pool?

A Provided you get high on the structure.

Q Then why didn't you apply for 160-acre locations?

A Because we are not--this structure is not sufficiently wide that we have quite that much room.

Q Is it sufficiently wide for 80-acre spacing east and west?

A We think it is.

Q East and west is a place where you could have one new well in an east-west location the way you've got it there, one or two wells?

A Two wells.

Q And at no place could you have over two, in no place could you have as many as three wells lying east and west?

A Oh, yes.

Q Down at the bottom end of it?

A Yes, sir.

Q And that's the low end of it?

A I beg your pardon?

Q That's the low end of the field where --

A The south end of the field.

Q That's the part of the field that you testified in May had 105 feet of effective production in the Number 1 Well, that it had six and a half per cent porosity and 226 millidarcys of permeability. Now you say it's seventy-five?

A I also had--that information was based on one well, this information today is based on three wells.

Q All right. Now, the information today based on three wells is shown in sections other than where the Number 1 Well was?

A And also the core analyses show the same amount of net

pay.

Q What amount of net pay does that show?

A I believe you just testified seventy-five feet.

Q Well now, some of it is as great as a hundred feet and some of it is six feet thick right up on the upper edge of it, scattered in the upper line?

A Yes.

Q And some of them are as much as six feet thick?

A I am sure they are; I have no argument with that testimony.

Q That's the bottom part of the 60-foot sediment?

A I do not believe it's a 60-foot bed--yes, but it has variations within it.

Q And you think you only have seventy-five feet of average effective production?

A That's correct, for the field.

Q That's based off cores from what wells?

A The 1-35, the 2-35 --

Q The 1-35 is the one you had before?

A Yes, sir.

Q What was your core on the 2-35?

A Well, the 2-35, the average permeability from cores was 171 millidarcys ranging from two tenths to 1200. Footage, I do not have recorded here.

Q And on the Number 3?

A On the Number 3, 223 millidarcys.

Q What was your footing?

A I don't have it here, I can get it from my file.

Q Well, in order for it to average on those three wells, Number 2, Number 3 and Number 1, for it to average out to 75 feet, it had to be about fifty feet, wouldn't it?

A Roughly that; I could get the exact figures.

Q That's not consistent with Mr. Fish's testimony about how much dolomite you had there, is it?

A Well, Mr. Fish's testimony goes as to how much dolomite was in the area; I was testifying as to what constituted pay on the basis of core analyses, of porosity and permeability.

Q Now, Mr. Duree, if 80-acre spacing is allowed to you, the only person who would be served by that is the lease holder, isn't it?

A I fail to see that.

Q Everybody else would lose money and lots of money?

A I fail to see that.

Q You do. Tell me, how many wells do you think will have to be drilled on 80-acre spacing to drill up this area?

A To drill up the area?

Q Yes.

A Around seventeen or eighteen.

Q And on 40-acre spacing, it would take twice that many?

A No, it wouldn't be twice, quite twice that many.

Q How many?

A It would be my guess from twenty-eight to thirty.

Q And so you would have some ten or twelve wells more that would be drilled on 40-acre spacing?

A Yes.

Q More than on 80-acre spacing?

A Yes.

Q A maximum of twelve wells?

A Yes.

Q How long does it take to drill one of those wells?

A Around six to seven days.

Q And how many men are engaged in that operation?

A In drilling that well?

Q Yes, sir.

A Well, in round figures, I would guess eighteen to twenty-two.

Q How many men, service men in all does it take to maintain the drilling of a Devonian well?

A This would be purely a guess, I would guess that you would average, maybe, over the term of the thing, two men.

Q Isn't it a fact that drilling concerns in drilling a well of that kind for the industry in the community, that it is the equivelent of the employment of about forty men in the drilling operation?

A Mr. Neal, on the average, that may be correct.

Q Well, we are dealing with averages. That's what you are dealing with here on your bottomhole pressure, isn't it?

A My question is, I am not arguing that point with you.

Q And it takes sixty days--we are talking about who benefits.

A I know.

Q That's part of it, that's what you say, it makes this something that prevents waste. You are talking about it being a benefit, more economical to the producer.--

A Yes, sir.

Q --to drill and thereby the producer is prevented from wasting his money, is that right?

A He is prevented from--he doesn't have to spend his money there--he can spend it again some other place.

Q If he spends his money there on that operation in a drilling program on 40-acre spacing where it is economical to do so, as you have said it is here, then each time he drills one of those wells, the economy of the community benefits to the extent of the employment of forty men for sixty days, right?

A The community has income coming into individuals in it for that period, yes.

Q All right, then if you multiply that by twelve, it has twelve times that much impact on the community, doesn't it?

A Yes, sir.

Q All right. Now then, on the State, it has the impact of payment of taxes on that additional production, doesn't it?

MR. BRATTON: If the Commission please, I hate to object to this line of questions, but I don't believe that this line of questioning is pertinent to the establishment of a proration unit under the rules and regulations of the Commission. I don't believe that, although it might be a great benefit to Hobbs if a hundred Devonian wells were dug in this area, that that falls within the Statute, 65314, which is the statute that the Commission takes into consideration in determining a proration unit.

MR. NEAL: If the Commission please, I think there has been a predicated statement that this prevents waste entirely on an economic benefit to the lessee. Now, I think we are entitled to consider the economic benefit to the royalty owner, the State and the community and I would like the Commission to let me go ahead with my line of questioning.

MR. PORTER: The Commission sustained the objection.

MR. NEAL: I'll approach it this way if I may then, if the Commission please.

Q (By Mr. Neal) The State of New Mexico is the principal royalty owner --

A Yes, sir.

Q --under this unit?

A Yes, sir.

Q The Reeves family is the owner of the only other royalty within the limits of the South Vacuum Unit, right?

A That is correct.

Q The revenue to the State of New Mexico by way of royalty becomes a part of the permanent school fund, does it not?

A It is my understanding, I am not acquainted with New Mexico to that extent.

Q In farm security?

A I do not know.

Q But if we assume that that is true, it will take the State of New Mexico twice as long to get its ultimate recovery of money from royalties in the South Vacuum Pool if you are permitted to establish 80-acre spacing than if you would drill on 40-acre spacing, is that right?

A That is entirely correct, the distribution is correct. We have stated we were asking for a continuation of the 40-acre allowable for this one-year term and no reclassification to normal 80-acre allowable even though we feel the wells are very capable of producing that and until that would double, it would be some period longer.

Q If you received your normal 80-acre spacing, it will be approximately 40 per cent longer?

A Roughly 40 per cent.

Q Forty per cent longer; then the State public school fund would lose the interest on that royalty income that they would

otherwise have, by reason of it being extended out over a longer period of time before they increased --

A They would lose the interest from it.

Q And that would be a substantial loss to the State, wouldn't it, and to the school fund?

A I haven't had occasion to figure out how much it would be.

Q Well, if it was on one of these wells out here, the royalty would run roughly $25,000.00 a year, wouldn't it?

A I haven't sat down and figured it out, so I wouldn't be right on the magnitude.

Q And if you would lose 40 per cent of that, that would be some sixteen or seventeen thousand dollars a year that would be lost to the permanent school fund?

A Right, approximately.

Q And how long do you think it would take to exhaust this field?

A I frankly don't know. If we are correct on what we have now, it will take somewhere in the neighborhood of seven to twelve or fourteen years.

Q On 40 or 80-acre spacing?

A That range covers both.

Q We have fourteen years --

A Fourteen to ten on 80, eight to ten on 40.

Q About sixteen thousand dollars, sixteen hundred dollars

a month for seventeen wells for fourteen years that the State would be losing interest on investment, wouldn't it?

A There would be some interest lost, on that I'll agree; on the magnitude of it, I haven't calculated it out, so I wouldn't know the figures.

Q On the cash value of the royalty to the private owners, the Reeves family, royalty values are ordinarily calculated, are they not, on the basis of the amount of revenue they bring per month?

A That is taken into account.

Q And values are ordinarily established conservatively at a hundred times the monthly royalty, right?

A I have heard that figure mentioned, I personally --

Q That's the rule of thumb that you use quite a bit in this Devonian production, right?

A I personally have had no occasion to use it; I wouldn't argue with it.

Q Building on 80-acre spacing as opposed to 40-acre spacing would result in the income of the private royalty owners not members of this unit being reduced by 50 per cent, wouldn't it, if you assume their acreage is productive?

A I believe it would be about 40 per cent.

Q Well now, you mean 40 per cent if you had the normal 80-acre allowable?

A That's right.

Q But on what you were asking for for the first year --

A For the first year, that would be about right.

Q It would be that much?

A Right.

Q And then it would be 40 per cent?

A Yes, sir.

Q So the granting of this order to you would reduce their value, their cash value or royalty by 40 per cent, wouldn't it, on the market?

A Assuming that that monthly income is correct, yes sir.

Q So you are the one that benefits, and the only one, the State loses --

A It --

Q The State loses?

A The State is losing to the extent of the interest. The other side of that particular coin is that the State has--if we don't spend the money there, we have it for other developments in this State.

Q You have it for other development in the State or for the stockholders, either, don't you?

A Our stockholders, we hope to give them some money. In recent years, last year they didn't do so well.

MR. NEAL: That's all.

MR. PORTER: Any further questions of Mr. Duree?

MR. NUTTER: Yes, sir.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Duree, I believe you stated that you didn't have the complete files in your Numbers 2-35, 3-35?

A I didn't have that, no. I have the averages here, which I read.

Q How about the porosity for those two wells, do you have that?

A I don't have it here written down, no. I'll say that, that we averaged out the permeability and it happened that it worked out the same as it did on the 1-35, it's approximately the same, six to seven and a half per cent.

MR. PORTER: Mr. Nutter, let's take a few minutes' recess.

(Short recess.)

MR. PORTER: Mr. Nutter, I believe you were questioning the witness at the time we had our recess.

Q (By Mr. Nutter) Mr. Duree, I have been comparing your reservoir data sheet with the reservoir data sheet you submitted at the hearing last May.

A Yes, sir.

Q And I note several things that are dissimilar about it. I wonder if this reservoir has changed or if maybe these were just corrections. For instance, I note for one thing that the gravity last year was 48.6 and now it is reported as 49. Now,

is that actually a change in gravity that you have had?

A Mr. Nutter, I presume that was a correction that was made in rounding the figure on it four tenths of a degree API. In looking at this thing and bringing it up here today, I took the opinion of yielding a little bit and going four tenths of a degree API. There is no change in the reservoir fluid.

Q I see. Now, in Item Five, Reservoir Pressures and Temperature, I note that last year you stated that the original reservoir pressure was 4826 and now you state that the original reservoir pressure is 4895. What's the difference there?

A Mr. Nutter, the datum depth, do you have that on the recording from last year? The original datum was taken at 7550; subsequent to that time, the Commission used 7750, which we should have used originally as that's nearer the center of the perforations, and that's a correction in the datum depth. It's the same pressure, or rather, from the same information.

Q So that would account for pressure readings, original pressure readings as well as current pressure readings that are here?

A Yes sir, this 7750 puts it approximately at the mid-point on the perforations on the first well.

Q I see. Mr. Duree, you haven't gone into this item of reserves on value of the oil underlying 40 acres or 80 acres from this at all?

A I have not.

Q Is the reason for that the fact that you feel that one well drilled on 40 acres would pay off?

A Yes sir, I stated in the hearing here that provided the field continues exactly as it is now and as long as you don't have any trouble with the water at any point throughout, and it would also pay out on 80.

Q You also mentioned in your direct testimony, Mr. Duree, that whether the well would pay out on 40 acres would probably depend on your aquafer being large enough to cause your production rate to be sustained, is that correct?

A I said that that could very easily differ and we didn't--it would be a matter of time. That same line of reasoning can make the 80-acre location uneconomic.

Q Do you know of any Devonian Pool in Lea County of similar nature to this pool in which the aquafer hasn't been large enough to sustain production?

A Mr. Nutter, I know of some Devonian reservoirs to the south part of the Lea County area that operate under a completely solution gas drive; to the north of the area we have here, they are apparently, from our information, primarily water-drive reservoirs. On the basis of that, we have hopes that it will be a water drive, but we are in between the two general areas.

Q Is there more indication that this is a solution gas or a water drive at the present time?

A At the present, the information indicates a water

drive; it is more indicated than it was at the last hearing.

MR. NUTTER: I believe that's all, thank you.

MR. PORTER: Anyone else have a question of Mr. Duree?

REDIRECT EXAMINATION

BY MR. BRATTON:

Q Mr. Duree, at the time of the previous hearing, you had no estimate of the oil-water contact line, is that correct?

A We did not know where the oil-water contact was.

Q Now, is it your testimony, Mr. Duree, that if this field is developed on an 80-acre spacing pattern, there will be ultimately recovered as much oil as there would be if it were drilled on a 40-acre pattern?

A Under the rules we have proposed, yes.

Q What is the cost of a Devonian well in this pool?

A Approximately $275,000.00.

Q And therefore, if you drill unnecessary wells in this pool, they will cost $275,000.00 initial investment plus the further cost of operating those wells?

A That is correct.

MR. BRATTON: I believe that's all.

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

RECROSS EXAMINATION

BY MR. FISCHER:

Q Mr. Duree, that South Vacuum Unit Number 3-35, is that a top allowable?

A Yes, sir.

Q Flowing?

A Yes, sir.

Q This Number 1-35, is it a top allowable also?

A Yes, sir.

Q Essentially, you would be transferring, if you got permission to transfer the allowable of the 3-35 to the 1-35, you would --

A We would be taking a double allowable from one well.

MR. FISCHER: Thank you.

RECROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Duree, what would be your recommendation on how the Commission should handle the wells which due to the steeply dipping structure that we have here, in the existence of a water-oil contact, may not have 80 productive acres which could be dedicated to it, how should the Commission handle that?

A Well, there's only--the Commission, of course, would have to handle it, it would have to be from the approach, from the standpoint if it doesn't have 80 acres, it shouldn't be entitled to 80, it should be entitled to some fraction thereof.

Q Would that be the case of the well, the Sinclair State 405 Number 1 in the northeast of the northwest of Section 27 there?

A Presumably that would be the way it could be handled, yes.

MR. NUTTER: Thank you.

MR. BRATTON: Mr. Porter, I would like to ask one question.

MR. PORTER: You might ask the Sinclair representative if his thought coincides with that thought.

MR. BRATTON: I wouldn't think it would.

REDIRECT EXAMINATION

BY MR. BRATTON:

Q What would you propose by way of interference tests and how would you propose that that be handled in connection with the shutting in of the one well, Mr. Duree?

A We would propose that the well be shut in and the other wells continue to produce and we would take pressures--I beg your pardon, I started off wrong. We would initially shut in all wells in the unit, we would prefer if we could get the other operators to do it also, shut in their wells in the unit, and determine a 40-hour bottomhole pressure. Then we would start all but our one well to produce, we would probably, for the first week, take pressures on that shut in well each day, then at the end of a month, we would take pressures on that well plus the producing wells on 24-hour shutin and we would repeat that each month and then after three or four months if we are not getting enough draw, we might have to drop back to every month and we would have this one well with no production that we would be taking pressures and taking pressures on the other wells to make a

comparison with.

RECROSS EXAMINATION

BY MR. NEAL:

Q With respect to the question asked about the allocation of acreage to wells that didn't have an 80-acre producing unit, I direct your attention to the property of the Reeves family. According to your oil-water contact, there's only 40 acres of that productive?

A That is correct.

Q And you would say that they would be entitled on that well to only half the allowable?

A That is correct, if the interpretation there is borne out by the well.

Q It is a fact that the owner of that lease has committed that acreage to the unit, isn't it?

A The working interest owner.

Q The working interest owner, and isn't it a fact that the royalty interest owner has not?

A Yes.

Q It is a fact that in addition to paying royalty to the royalty interest owner, the owner of that lease will also be required to pay royalty to the State of New Mexico on the production?

A Yes.

Q That would permit you to reduce your royalty payments

to the State on that Reeves acreage that you would otherwise have to make by 50 per cent?

A Well, it would reduce the royalty paid because of the lease oil produced from the tract.

MR. NEAL: That's all.

MR. PORTER: Anyone else have a question of Mr. Duree?

You may be excused.

(Witness excused.)

MR. PORTER: Anyone else have testimony to present in the case?

MR. NEAL: If the Commission please, I would like at this time to have the Protestants to submit two exhibits.

(Thereupon, the documents were marked as Protestant's Exhibits Numbers One and Two for identification.)

MR. NEAL: The instruments have been identified as Protestant's Exhibits Number One and Two, Number One being the order which was entered by the Commission in the former hearing of this case, which was Case Number 1443, Order Number R-1188, and the transcript of the testimony of Mr. Duree and Mr. Fish at that hearing which was held in May of 1958.

MR. PORTER: Is there objection to Counsel's motion?

MR. BRATTON: We have no objection.

MR. PORTER: They will be admitted.

MR. NEAL: I would like permission to withdraw the exhibits

so that others can be substituted.

MR. BRATTON: We have no objection.

MR. PORTER: That will be permissible, Mr. Neal.

Anyone else have testimony to present in the case? Any statements?

MR. BRATTON: I would like to make a brief closing statement, Mr. Porter, but rather than opening and closing after the statements, if the Commission is agreeable, I'll just close at the end of all the statements.

MR. ANDERSON: R. N. Anderson, Sinclair Oil and Gas Company, I have a closing statement. Sinclair does not necessarily concur in all aspects with the Pure Exhibits, but we have made a study of our own pertaining to this field and we concur with Pure in their recommendations with one exception: We concur that flexible 80-acre proration units should be adopted and we concur with their request to shut in one well, transfer its allowable to another well. We do not concur that the 40-acre allowable should be retained with temporary 80-acre units. We ask the Commission to use the State-wide 80-acre allowable for wells of this depth. We do not feel it is too high and we feel that it is applicable to wells in this field.

Thank you.

MR. PORTER: Mr. Anderson, I want to ask you how much acreage you think ought to be attributed to the Sinclair well--I won't ask you that.

MR. ANDERSON: I would say that I have not studied their exhibits with that in mind, but I would be very much surprised if our structure map were exactly the same as theirs.

MR. PORTER: Do we have a statement from Skelly?

MR. SELINGER: If the Commission please, my name is George W. Selinger and I represent Skelly Oil Company. Generally, we concur in the conclusions of the applicant with respect to a temporary 80-acre unit. There are several interesting angles to this that I would like to take upon myself to answer, if I may. Mr. Nutter has raised the question of allowables, which I feel under the Applicant's proposals has no place at this hearing, which leads to the conclusion that every 80-acre proration unit must be productive. Under the Commission's authority, Definitions, you have the right to fix the spacing of wells. The Applicant here proposes a temporary spacing of 80-acre units. That doesn't necessarily mean, in view of the fact that they recommend a 40-acre allowable, that they are asking for an 80-acre proration unit. They are asking for the temporary spacing on the basis of 80 acres which you have the authority, you have the right to fix, and they are asking for that on the basis of a, on a temporary basis, depending upon the development of the additional wells in the field.

As the Commission well knows, the evolved purpose from a reservoir standpoint of development is to determine the perimeter or the outline of a field as quickly as possible. It is also

well known throughout the industry by all those familiar that you can determine your perimeter and the limits of your field with the same number of wells more quickly on 80 acres than you can with 40 acres.

Another question that was raised is with respect to correlative rights of royalty owners. As I understand, the Protestant in this case here represents a few royalty owners. There are other royalty owners, and the question of protection of correlative rights is raised. Well, we all know that as to spacing under your statutory authority that you've got to establish a uniform spacing plan, that the heart or the center of the field is generally the area that is more quickly developed. Now, if you have 40-acre development in this field now and don't permit a period of at least a year to secure this additional information, you'll find that the center or the heart of the field as it is developed on a density of one well on 40 acres, and you will likewise find as a necessary correlary, that the edge, the farther edge of the field is developed on a wider spacing due to the nature of the reservoir. So that you will find that instead of protecting correlative rights by going to a 40-acre development program right now, in my opinion you will protect the correlative rights of all the royalty owners, not necessarily just a few, along the edge. And incidentally, our acreage is on the edge, but you will find that you will protect the correlative rights of all the royalty owners, including the State, on the basis of the

wider spacing until such time as you can secure this additional information and data.

Now, I have always maintained that this flexible program of temporary spacing, which is in great use in other States, particularly in North Dakota where they issue every field on temporary spacing for an 18-month period from the completion of the wells, but I have always felt that when this Commission issues a temporary spacing order for the purpose of securing information on the reservoir, you are playing it safe. That is, if it is a wider spacing and you find you have made an error, you can always correct it, but if you don't allow the industry to have that additional time to secure that information and you deny them that right to do that, you are setting the spacing indefinitely, that is, forever on the basis of 40 acres and that can never be undone, so therefore, we urge this Commission to grant the application of the Pure Company for a temporary period of one year for the development on an 80-acre spacing program.

MR. PORTER: Anyone else have a statement?

MR. SCHRENKEL: Jack Schrenkel representing Union Oil Company of California. Union is one of the owners of the South Vacuum Unit and concurs with the request of Pure Oil Company for temporary 80-acre spacing. Prior to this hearing, we have examined the pressure and production history of the field, and in our opinion, the bottomhole pressure indicates pressure communication over areas of at least 80 acres. Considering the bottomhole

pressure performance of this field and the performance of similarly developed fields in Lea County, we believe 80-acre spacing will efficiently drain the field.

MR. St. LAURENT: C. P. St. Laurent for Shell Oil Company. Shell Oil Company, as operator in the South Vacuum-Devonian Field, concurs in the temporary field rules proposed here by Pure Oil for the efficient and prudent development of the South Vacuum-Devonian Field.

MR. PORTER: Will you spell your name for the reporter?

MR. St. LAURENT: The last name is S-t. L-A-U-R-E-N-T.

MR. PORTER: Anyone else have anything to offer in this case? Mr. Neal?

We will take the case under advisement.

MR. BRATTON: If the Commission please, I would like to make a brief closing statement.

MR. PORTER: I believe Mr. Payne has a letter to read into the record.

MR. PAYNE: Magnolia Petroleum Company also supports the Pure Oil Company in their application and wishes their letter concurring to be introduced in the record as an exhibit. However, I believe that that is up to Mr. Bratton, whether he wishes to introduce it as an exhibit or not.

MR. BRATTON: I don't believe we care to have it as an exhibit in the record, just so it goes into the record as a normal procedure.

MR. PAYNE: All right, sir, the letter will become a part of the record.

MR. BRATTON: If the Commission please, on behalf of the applicant, I would like to say a few words in closing. I believe what we have proposed here today is unique in 80-acre spacing in New Mexico. We have proposed a one-year period during which we would conduct interference tests, I believe that that is unique in oil production in New Mexico, but we have proposed a one-year period during which we would conduct interference tests which would give further information to the Commission and to us as to the pool. We believe, however, that we have proved as of today, by the bottomhole pressure decline curve which we have shown, that there is effective reservoir communication in this pool over areas greater than 80 acres. I am no engineer, but I understand from the engineers that in determining the area that will be drained, your pressure decline is the actual proof of the pudding whether you are getting communication and draining the area. What we have shown in our Exhibit Five, we believe clearly demonstrates that one well will efficiently and economically drain 80 acres in this pool. We believe further that our interference tests will corroborate this information which we have presented today. We believe further that we have gone a step further than certainly any hearing that I have known by requesting that--or by suggesting that the allowables remain the same. In other words, that we not receive increased allowables during the one-year period. We believe

that with the combination of these requests, that we have presented a completely satisfactory solution to the problems in this pool.

Now, referring to the direction of the objection of the Protestant, I believe I need only point out the fact that we are talking in terms of wells that cost $275,000.00. I don't believe it is the intention of this Commission to increase the cost per barrel of oil in this State by requiring the drilling of unnecessary wells to recover the oil.

Mr. Duree testified that the same amount of ultimate oil will be recovered. I would like to point out to the Commission the provision of the statute with which I am sure the Commission is aware. In speaking of proration units, the statute refers in addition to the protection of the correlative rights of the royalty owners. It states that the Commission shall consider the economic loss caused by the drilling of unnecessary wells, the avoidance of the augmentation of risks arising from the drilling of an excessive number of wells. I believe that this Commission cannot and will not adopt a philosophy that oil should be instantaneously mined from the ground so that everybody may immediately receive his share of the oil. Of course, you can carry the argument to either extreme, to that or to the extreme of one well draining the entire pool.

We believe that what we have presented here today is a sound basis for the Commission to grant the application which

Pure has made in this case.

MR. NEAL: I would like to make a statement in conclusion as to what was said, if the Commission please. It is true the statute authorizes the Commission to space this so as to not require the drilling of unnecessary wells based upon economic loss. The only economic loss that has been talked about here is the additional cost that would be required of the operators to drill the additional wells, which he admits would be profitable to him. There's no consideration being given in any of the testimony of the applicant to the economic loss that would be caused to the royalty owner or to the State by 80-acre spacing, and in the consideration of whether or not it prevents waste on an economic basis, certainly it should be approached both from the light of the leaseholder and from the light of the State and the light of the royalty owners in this case, both the State of New Mexico and the Reeves family.

MR. PORTER: Anyone have anything further to offer in this case?

We will take the case under advisement.

STATE OF NEW MEXICO)
: ss
COUNTY OF BERNALILLO)

I, JERRY MARTINEZ, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing were reported by me in Stenotype, and that the same was reduced to typewritten transcript by me and contains a true and correct record of said proceedings, to the best of my knowledge, skill and ability.

DATED this 8th day of May, 1959, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Notary Public

My Commission Expires:

January 24, 1962

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

APPLICATION OF THE PURE OIL COMPANY FOR AN ORDER PROMULGATING SPECIAL RULES AND REGULATIONS FOR THE SOUTH VACUUM-DEVONIAN POOL IN LEA COUNTY, NEW MEXICO, TO PROVIDE FOR 80-ACRE SPACING AND PRORATION UNITS.	CASE NO._____

APPLICATION

COMES The Pure Oil Company and hereby makes application to the New Mexico Oil Conservation Commission for an Order adopting Special Rules and Regulations for the South Vacuum-Devonian Pool in Lea County, New Mexico. Applicant proposes that the Special Rules and Regulations provide for spacing and proration unit of 80-acres, consisting of two continuous and contiguous 40-acre tracts elongate in either direction. That said Rules provide that all wells be located in the center of either 40-acre tract within the 80-acre spacing or proration unit, with a tolerance of 150 feet to avoid surface obstructions.

IT IS FURTHER REQUESTED that any well to which is dedicated less than 79 acres or more than 81 acres be granted an allowable in the proportion that the total number of acres assigned to the wells bears to 80 acres.

WHEREFORE, applicant requests that this Application be set down for hearing before the full Commission at its meeting scheduled for August 17, 1960.

Respectfully submitted,

THE PURE OIL COMPANY

BY: H. E. Gilbert

Case 1634

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
LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD

LAW OFFICES
HERVEY, DOW & HINKLE
HINKLE BUILDING
ROSWELL, NEW MEXICO

TELEPHONE MAIN 2-6510
POST OFFICE BOX 547

July 21, 1960

Mr. A. L. Porter, Jr.
New Mexico Oil Conservation Commission
State Capitol Building
Santa Fe, New Mexico

Dear Sir:

Enclosed please find the Application of The Pure Oil Company for Special Pool Rules for the South Vacuum-Devonian Pool in Lea County to provide for 80-acre spacing and proration units.

I have requested that this matter be heard before the full Commission in view of the fact that the Application for Temporary Rules was heard by the full Commission. You will recall that Order No. R-1382-B, was entered authorizing certain interference tests in this pool to determine whether 80-acre units would efficiently drain the pool. That Order expires August 1, 1960. We believe that we now are in a position to put on the results of those tests to the satisfaction of the Commission.

We will appreciate your setting the matter for hearing before the full Commission at its August hearing.

Very truly yours,

HERVEY, DOW & HINKLE

BY: Howard C. Bratton

HCB:mm
encs...

No. 23-60

DOCKET: REGULAR HEARING AUGUST 17, 1960

Oil Conservation Commission - 9 a.m., Mabry Hall, State Capitol, Santa Fe, N. M.

ALLOWABLE: (1) Consideration of the oil allowable for September, 1960.

(2) Consideration of the allowable production of gas for September, 1960, from six prorated pools in Lea County, New Mexico, also consideration of the allowable production of gas from seven prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico, for September, 1960.

CASE 1668: Application of Phillips Petroleum Company for an order promulgating special rules and regulations governing the drilling, spacing, and production of wells in the Ranger Lake-Pennsylvanian Pool, Lea County, New Mexico, including the establishment of 80-acre proration units for wells in said pool.

CASE 1947: (De Novo)

Application of the applicant, Phillips Petroleum Company, and the protestant, Tennessee Gas and Oil Company, for a hearing de novo in Case No. 1947, Order No. R-1683, relating to the application of Phillips Petroleum Company for two 80-acre non-standard oil proration units and one unorthodox oil well location in the Kemnitz-Wolfcamp Pool, Lea County, New Mexico.

CASE 1979: Application of El Paso Natural Gas Products Company for a hearing de novo before the Oil Conservation Commission in Case No. 1979, Order No. R-1699, which was an application by The Atlantic Refining Company for a pressure maintenance project in the Horseshoe-Gallup Oil Pool, San Juan County, New Mexico.

CASE 2049: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit any interested party to appear and present testimony relative to the drilling, spacing, and production of wells in the Devils Fork-Gallup Pool, Rio Arriba County, New Mexico.

CASE 2050: In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider amending Rule 505 (b) of the Commission Rules and Regulations to establish proportional (depth) factors for oil wells in excess of 14,000 feet.

CASE 2051: Application of Amanda E. Sims and George W. Sims for an order vacating the standard 160-acre Tubb gas unit created by Order No. R-1310 consisting of the NW/4 of Section 25, Township 22 South, Range 37 East, Lea County, New Mexico. Applicant further seeks the establishment of a 160-acre non-standard gas proration unit in the Tubb Gas Pool consisting of the SE/4 NW/4, E/2 SW/4 and SW/4 SW/4 of said Section 25.

CASE 1634: Application of The Pure Oil Company for an order promulgating special rules and regulations governing the drilling, spacing and production of wells in the South Vacuum-Devonian Pool, Lea County, New Mexico, including the establishment of 80-acre proration units for wells in said pool.

CASE 2052: Southeastern New Mexico nomenclature case calling for an order creating new pools and extending existing pools in Eddy, Lea, and Roosevelt Counties, New Mexico:

(a) Create a new oil pool, designated as the East Benson-Yates Pool, and described as:

TOWNSHIP 19 SOUTH, RANGE 30 EAST, NMPM
Section 14: NE/4

(b) Create a new oil pool, designated as the Cass Draw-Delaware Pool, and described as:

TOWNSHIP 23 SOUTH, RANGE 27 EAST, NMPM
Section 12: SW/4

(c) Create a new oil pool, designated as the Grayburg Jackson-Abo Pool, and described as:

TOWNSHIP 17 SOUTH, RANGE 31 EAST, NMPM
Section 20: SW/4

(d) Create a new oil pool, designated as the Penasco-Wolfcamp Pool, and described as:

TOWNSHIP 19 SOUTH, RANGE 25 EAST, NMPM
Section 3: SE/4

(e) Extend the Bluitt-Pennsylvanian Pool, to include therein:

TOWNSHIP 8 SOUTH, RANGE 36 EAST, NMPM
Section 13: SE/4

(f) Extend the Corbin-Abo Pool, to include therein:

TOWNSHIP 17 SOUTH, RANGE 33 EAST, NMPM
Section 31: NE/4
Section 32: N/2
Section 33: N/2 and SE/4

(g) Extend the Corral Canyon-Delaware Pool, to include therein:

TOWNSHIP 25 SOUTH, RANGE 30 EAST, NMPM
Section 8: S/2 SW/4
Section 17: NW/4

(h) Extend the Empire-Abo Pool, to include therein:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 26: S/2
Section 31: NW/4
Section 33: NE/4
Section 35: NE/4 and SW/4

(i) Extend the Middle Lynch-Yates Pool, to include therein:

TOWNSHIP 20 SOUTH, RANGE 34 EAST, NMPM
Section 22: E/2 SW/4 and W/2 SE/4

(j) Extend the Paddock Pool, to include therein:

TOWNSHIP 22 SOUTH, RANGE 38 EAST, NMPM
Section 18: SE/4

(k) Extend the North Square Lake-Grayburg Pool, to include therein:

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM
Section 2: SW/4
Section 3: SE/4
Section 10: NE/4

SINCLAIR OIL & GAS COMPANY

1960 AUG 31 AM 8:21

POST OFFICE BOX 1470

MIDLAND, TEXAS

August 29, 1960

R. L. ELSTON
VICE PRES. & DIVISION MANAGER

O. G. SIMPSON
ASSISTANT DIVISION MANAGER

C. S. TINKLER
DIVISION EXPLORATION SUPT.

J. MEFFORD
DIVISION PRODUCTION SUPT.

F. C. ROGERS
DIVISION GAS & GAS PRODUCTS SUPT.

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

Please refer to the hearing of Case No. 1634 on August 17, 1960, concerning Pure Oil Co.'s application for special rules for the South Vacuum-Devonian Pool, Lea County, New Mexico. At the conclusion of this hearing, Sinclair Oil & Gas Company made a statement of position supporting the Pure application in all aspects and further supporting Pure's recommendations that the Reeves Well No. 2-26 located on a 40 acre lease and the Reeves Well No. 4-26 with only 40 productive acres be granted a regular 40 acre depth factor allowable instead of 1/2 of an 80 acre allowable.

Sinclair Oil & Gas Company wishes to reaffirm our position as stated at the hearing. We believe that the two Reeves wells are entitled to the above described consideration in that they were developed under Statewide 40 acre rules and are the only wells in the field that cannot be assigned 80 acre proration units.

Yours very truly,

N. F. Gulledge

N. F. Gulledge
Assistant Division
Production Superintendent

NFG:RMA:rl
cc: Pure Oil Company
Gulf Coast Producing Division
P. O. Box 239
Houston, Texas

Mobil

Mobil Oil Company
A Division of Socony Mobil Oil Company, Inc.
P. O. BOX 2406, HOBBS, NEW MEXICO

August 26, 1960

Mr. A. L. Porter, Jr., Secretary
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

SOUTH VACUUM DEVONIAN FIELD RULES
CASE No. 1634

Dear Mr. Porter:

At the hearing of the subject case on August 19, 80 acre unit spacing was requested. Exception to this was also requested for the two wells presently completed on 40 acre spacing.

Socony Mobil Oil Company, Inc. concurs with the request to grant the two 40 acre units an exception to the 80 acre unit spacing rule, also requested.

The granting of this exception is understood to be for the sole purpose of meeting existing conditions in this case.

Yours very truly,

C. H. Samples

C. H. Samples
Producing Superintendent

JCGordon/nrh

cc: Mr. J. T. Duree
Pure Oil Company
Box 239
Houston, Texas

Union Oil Company of California

MAIN OFFICE 000

1960 AUG 30 AM 9 20

M I D L A N D T E X A S

August 30, 1960

Oil Conservation Commission of New Mexico
P. O. Box 871
Santa Fe, New Mexico

Attention of Mr. A. L. Porter

Regarding: South Vacuum Pool
Lea County, New Mexico

Gentlemen:

Union Oil Company of California, the owner of interests in the South Vacuum Pool, Lea County, New Mexico, concurs in the application of The Pure Oil Company requesting 80 acre spacing in said pool and further concurs in the application of The Pure Oil Company to grant 40 acre allowables to the Reeves 2-26 and Reeves 4-26.

Very truly yours

UNION OIL COMPANY OF CALIFORNIA

J. S. McNulty

J. S. McNulty
Division Supt.

JSM:HN

CC: The Pure Oil Company
Attention of Mr. J. T. Duree
P. O. Box 239
Houston, Texas

Sinclair Oil and Gas Company
Attention of Mr. F. F. Wright
P. O. Box 1470
Midland, Texas

Shell Oil Company
Attention of Mr. R. L. Rankin
P. O. Box 845
Roswell, New Mexico

FORM 401

SHELL OIL COMPANY

P. O. Box 845
Roswell, New Mexico

August 31, 1960

Subject: Case 1634, Application
of The Pure Oil Company
for Special Rules,
South Vacuum-Devonian Pool
Lea County, New Mexico

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

As owners of producing properties in the South Vacuum-Devonian Pool, Lea County, New Mexico, Shell Oil Company has no objection to the granting of 40-acre allowables to each of the following two wells:

Pure Oil Company Reeves #2-26
Pure Oil Company Reeves A #4

This request was made by the Pure Oil Company in a hearing held before the New Mexico Oil Conservation Commission on August 18, 1960.

Yours very truly,

R. L. Rankin

R. L. Rankin
Division Production Manager

GOVERNOR
JOHN BURROUGHS
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
MURRAY E. MORGAN
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY DIRECTOR

P. O. BOX 871
SANTA FE

September 16, 1960

Mr. Howard Bratton
Hervey, Dow & Hinkle
Box 547
Roswell, New Mexico

Re: Case No. 1634
Order No. R-1382-C
Applicant:
The Pure Oil Company

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.,
Secretary-Director

ir/

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

Other

Melvin Neal — Sent 9-16
Oliver Seth — Sent 9-16
R. M. Anderson
Union Oil Co. of California
Mobil Oil Company

CLASS OF SERVICE

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

WESTERN UNION

TELEGRAM

W. P. MARSHALL, PRESIDENT

1201 (4-60)

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

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

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A L PORTER JR, SECRETARY-DIRECTOR OIL CONSERVATION COMM
107 MABRY HAWL CAPITOL BLDG SANTA FE NMEX=

UNION OIL COMPANY OF CALIFORNIA, THE OWNER OF A WORKING INTEREST IN THE SOUTH VACUUM UNIT, SOUTH VACUUM-DEVONIAN POOL, LEA COUNTY, NEW MEXICO, CONCURS WITH THE APPLICATION OF THE PURE OIL COMPANY IN CASE NUMBER ONE SIX THREE FOUR=

UNION OIL COMPANY OF CALIFORNIA BY J S MCNULTY
DIVISION SUPERINTENDENT.

MAIN OFFICE OCC

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Mobil Oil Company

A Division of Socony Mobil Oil Company, Inc.

P. O. BOX 2406, HOBBS, NEW MEXICO

August 16, 1960

Mr. A. L. Porter, Jr.
Secretary and Director
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Case Files

CASE NO. 1634
AUGUST 17, 1960 HEARING

Dear Mr. Porter:

Socony Mobil Oil Company, Inc. desires by this letter to enter their support in Case #1634 to Pure Oil Company's application for establishment of 80-acre proration units for the South Vacuum-Devonian Pool, Lea County, Texas. Socony Mobil is the operator of two wells of the twelve wells in the pool, and from our study of this pool we feel that one well can effectively drain 80-acres or more and that no reservoir damage will occur at the resulting higher proration rate.

Therefore, Socony Mobil Oil Company, Inc. respectfully requests that the Commission adopt 80-acre proration units for this pool.

Yours very truly,

C H Samples

C. H. Samples
Producing Superintendent

HWGamble/nrh

MAIN OFFICE OCC
1960 AUG 17 PM 1:09

BEFORE THE
OIL CONSERVATION COMMISSION
August 19, 1960
Santa Fe, New Mexico

IN THE MATTER OF:

Application of The Pure Oil Company for an order promulgating special rules and regulations governing the drilling, spacing and production of wells in the South Vacuum-Devonian Pool, Lea County, New Mexico, including the establishment of 80-acre proration units for wells in said pool. } Case No. 1634

BEFORE:

Honorable John Burroughs
Mr. A. L. Porter
Mr. Murray Morgan

TRANSCRIPT OF HEARING

MR. PORTER: Hearing come to order. Case to be considered this morning is Case 1634.

MR. PAYNE: 1634, application of Pure Oil for an order promulgating special rules and regulations governing the South Vacuum-Devonian Pool in Lea County, New Mexico.

MR. BRATTON: Howard Bratton, Roswell, New Mexico, appearing on behalf of Pure Oil.

MR. NEAL: Melvin Neal, Hobson, appearing on behalf of A. J. Reeves, Z. B. Reeves, and co-owners.

MR. ANDERSON: R. M. Anderson, Sinclair Oil and Gas.

MR. SETH: Oliver Seth, Shell Oil.

MR. BRATTON: I would like to state, first of all,

briefly, the history of this matter and what we are requesting today. I believe this is actually the fourth hearing in connection with this pool. I think there have been, actually, two previous spacing hearings, one immediately after the pool was discovered, as best my memory serves me (I did not participate in that one), one 80-acre spacing application made approximately a year ago, a little over a year. That hearing was held in April, 1959, I believe. At that time Pure Oil asked for temporary 80-acre spacing and proration units in the pool and the right to shut in one well and take its allowable to an adjacent well in order to conduct interference tests. Commission denied that; a re-application for hearing was granted limited to the request as to whether a well should be shut in and allowable transferred for a year in order to conduct an interference test. The Commission granted that privilege, and that has been done during the past year. We now have made application for permanent 80-acre spacing and proration units in this pool on the basis of the developments to date, and the basis of the evidence obtained.

Our proposal is specifically -- it will be detailed more by our engineering witness -- however, generally, I think I can advise the Commission that our basic proposal is for 80-acre spacing and prorationing units. We would prefer, and we would request flexible 80-acre spacing units in the pool.

Secondly, if the Commission would feel better satisfied with

a fixed pattern we would suggest a pattern which might be adopted. The pool is, as shown, partly embraced in the South Vacuum unit and partly outside. Insofar as is material, all of the royalty in the entire pool is owned by the State of New Mexico, and all of the royalty in the South Vacuum unit is owned by the State of New Mexico except for two 40-acre tracts in the east half of the southeast quarter of Section 26. Those are the tracts owned by the Reeves Brothers and other royalty owners. We would propose as to those two tracts that they be excepted from the 80-acre spacing and proration units and that they be granted 40-acre allowables. In other words, the pool rules as to the rest of the pool would not apply to them.

This makes no difference to the State of New Mexico because it gets the same royalty off those tracts as it does off the others. This is just extra royalty coming out of the pocket of the working interest owners, but as will be developed, due to the development pattern that has been pursued, and in fairness to the Reeves Brothers, we would propose those exceptions. We think they would also ask their adjoining acreage immediately to the east be excepted, but we cannot, because it is not in the pool. We have no objection; just no interest.

Now, as I say, this matter has been before the Commission in full one time. I would say, actually, that hearing a year ago was, to my way of thinking, a rather major hearing. I would just detail

very, very briefly our theory of this case, because I feel it is truly a significant case. I know that to the Commission these spacing cases become old hat, and in each one it is impressed that it is a serious and important case. I am not exaggerating when I say I think this is a significant case, being watched by the entire oil industry.

We have here, and I believe we will prove, a case of excellent reservoir that all the engineering testimony that can be developed from any source will indicate can efficiently be drained on an 80-acre spacing pattern. This is not an economic distress application. We will show the Commission that on 40-acres some profit can be made. Of course, we will also show that a larger profit can be made on 80 acres, so we do not claim this is an economic distress application, but it certainly is, we feel, a very significant case as to whether this Commission is going to lay aside the economic distress necessity in a case where it is proven that one well will drain 80 acres.

We have two witnesses, and I ask that they be sworn.

(Witnesses sworn.)

GEORGE FISH

called as a witness, having been previously duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, occupation, and address?

A I am George Fish; I live in Houston, Texas. I am employed by the Pure Oil Company as division development geologist for the Southern Producing Division which has jurisdiction over the Permian Basin of West Texas and southeastern New Mexico.

Q You have been familiar with the development of the South Vacuum Pool?

A Yes, I have.

Q You have testified previously before this Commission as an expert witness in connection with this pool?

A Yes.

MR. BRATTON: Are the witness's qualifications acceptable?

MR. PORTER: They are.

Q (By Mr. Bratton) Will you refer to your Exhibit No. 1, which is a structure map of the pool, and explain what it shows with relation to the pool?

A Our Exhibit No. 1 is a structure map contoured on the top of the Devonian formation. The various color symbols I will explain. The green outline is the present South Vacuum Pool limit as defined by the Commission; the yellow outline is the South Vacuum unit. The various wells are color coded as explained in the legend down in the lower right hand portion of the map.

Briefly, this structure map shows a northwest-southeast trending anticline which is limited on the northeast flank by a major fault. We feel that the structure is very similar to the interpre-

tation presented in earlier hearings, and I will just briefly go over the changes that have occurred since the last hearing.

Since the last hearing there have been nine wells drilled in the South Vacuum Pool, seven of these producers; two were dry holes. There are now a total of 13 producers in the South Vacuum Pool. One former Devonian well, which was designated as being in the South Vacuum Pool, the Sinclair 401 No. 2, located in Section 21, Township 18 South, Range 35 East, has been plugged back and is now a Wolfcamp producer. My map indicates an abandoned Devonian producer, and I learned of the recompletion in the Wolfcamp only yesterday, so my map is not quite up-to-date in that respect.

The producing wells that were drilled in the South Vacuum Pool essentially confirmed our previous interpretation. The two dry holes caused some changes in the productive limit of the field. We have indicated by a dashed red line the oil-water contact, which is at minus 7880. The previous map, or interpretation, showed steep dip or possible faulting on the northeast flank of the structure. With the drilling of the Reeves Brothers No. 326, located in the southwest quarter of Section 26, we definitely know that there is a fault present there. That well encountered a reverse fault in the upper Mississippian line. The well was taken on down to the Devonian; the Devonian was encountered below the known oil-water contact, and we attempted there to make a completion in the Wolfcamp zone. However, that was unsuccessful, and at present I believe the

well is carried as being temporarily abandoned.

The other dry hole was the Pure State "I" No. 136, located in the southwest quarter, southwest quarter Section 36, 18 South, 35 East. That well, although it encountered the Devonian above the known oil-water contact, resulted in a dry hole. This can be explained by the occurrence of a relatively dense interval in the upper Devonian. This interval varies from 90 feet to about 146 feet. In this well we had 68 feet of Devonian above the water. However, there was insufficient porosity and permeability there to make a commercial completion.

MR. PORTER: Will you identify that well by number, please?

A Yes, sir. That is the Pure State "I", 136, and is located in the extreme southwest corner of Section 36.

Perhaps we can illustrate this problem of the dense zone a little bit better on our Exhibit No. 2.

Q (By Mr. Bratton) Before you leave Exhibit No. 1, what are the depths of these Devonian wells now?

A The straight depths, sir?

Q Yes, the total depth.

A Most of the wells were drilled to approximately 11,750 feet. Some wells were taken deeper, such as the Reeves Brothers 326, where it was necessary to go deeper to encounter the Devonian.

Q Your structure is pretty well defined except to the southwest flank; you have good control in most every direction,

don't you?

A Yes, that is true. On the southwest flank we do not have a well-established dip here. This dip was more or less projected from the formation dip which occurred in the northern and middle part of the South Devonian.

Q But your pool is relatively well defined in other areas?

A I feel that it is.

Q Therefore, it is not going to be a large pool, or it is not a large pool?

A I am afraid not. It is much smaller than we had hoped for.

Q Now, your exhibit shows all of the royalty in the pool to be owned by the State of New Mexico except for the two Reeves' wells in the southwest quarter of Section 26; is that correct?

A I would say all of the productive royalty. There are some others.

Q There is one 80-acre tract on the west end of the pool?

A It is a well below the oil-water contact, and it won't be productive.

Q All right, sir. Go to your Exhibit No. 2.

A Exhibit 2 is a northwest to southeast cross section which begins in the Sinclair 401 No. 2 well located in Section 21, and traverses the entire length of the pool, terminating in the Ralph Lowe No. 1 Ohio State in Section 1, Township 19 South, Range 35

East. This cross section was constructed using the neutron and sonic portion of the logs run on these various wells with the exception of the Ralph Lowe well where a neutron or sonic curve was not available. The neutron or sonic curve is commonly used in the industry to log the porosity in the well bore, and I have attempted to show by these curves the occurrence of the dense zone in the upper Devonian and the occurrence of a more porous zone immediately underlying that. The curve which pertains to the various wells is located on the right of the symbol of the straight line which indicates the position of the well. If you will direct your attention to the sonic curve to the right of the well symbol for the Pure 136 State I, you will notice that there is very little porosity occurring in that well until we get down to the extreme bottom of the well. Now, that fact is confirmed also by cores and drillstem testing. We cored the entire Devonian interval in this well. We have approximately 107 feet of dense interval in the upper Devonian here, with scattered dolomite porous streaks occuring haphazardly over that section. This ranged in thickness from a half a foot to three feet.

We tested this section with two drillstem tests, the first one recovering one-half gallon of oil and 25 foot of highly oil-cut mud. The second drillstem test recovered 92 feet of mud. The third drillstem test was taken after we topped the main dolomite porous zone and we recovered 4650 foot of salt water. This main

porous zone where we recovered the water in the 136 State 1 is the interval that is productive in the other wells, with the exception of the Sinclair 405 No. 1 which is located in the northeast quarter of the northwest quarter of section 27, 18 South, 35 East. This well is completed from one of the dolomite stringers which occurs in the upper, normally dense, interval.

The other wells in the field, and you can follow this main zone across the entire length of the field on either the neutron or the sonic curve, on the neutron curve you get a low neutron response, and on the sonic curve you get a low interval transit time. In both cases it causes the curve to deflect toward the well symbol, so that, beginning on the southeastern portion of the field you can see that the main porous zone occurs over the entire length of the pool, and we believe that establishes continuity of the reservoir.

I might add that this main porous zone is dolomite; it is vuggy, fractured; it has, in most places, very good porosity and permeability.

Q Mr. Fish, as a result of your examination of this pool, are you satisfied as to the continuity of the Devonian structure throughout the pool? Are you satisfied there is continuity?

A Yes, sir; there is continuity in the reservoir.

Q Are you satisfied that from a geological standpoint, from a standpoint of continuity, that wells drilled on 80 acres can

efficiently drain this reservoir?

A Yes, sir. With the permeability that has been exhibited by these wells, geologically speaking I think that one well will efficiently drain 80 acres.

Q It will drain at least 80 acres?

A At least 80 acres.

Q Is there anything further which you wish to add with reference to your exhibits, Mr. Fish?

A I might add that there is, of the 13 producers in the field, all of them are top allowable with the exception of two wells. Those two wells are the Sinclair well I pointed out previously, producing from one of the thin porous zones in the upper portion of the Devonian; the other well is the Reeves Brothers No. 426, which is located in the northeast quarter of the southwest quarter of Section 26. This well encountered the main porous dolomite section of the Devonian. However, it was not as well developed as in the previous wells, or the other wells in the field. We were able to make a completion there with acid stimulation. Normally these wells are productive after a 500-gallon mud-acid washing. That well we had to use 1500 gallons of regular acid in addition to the gallons of mud-acid. From the productivity of of that well is also indicated that the main porous zone is not as well developed as in the other portions of the field.

Q Does this change your conclusion that one well will drain

in excess of 80 acres in this pool?

A No, sir, it does not. We will develop in other testimony in relation to the pressures that this well had suffered a pressure drop in this area at the time of completion. The main porous zone here can be correlated very well with the same zone in other wells. There is no question about the correlation there. It is just the fact that it is not quite as well developed as the average well.

Q Did you prepare Exhibits Nos. 1 and 2?

A Yes, I did.

Q Is there anything further which you care to state?

A I believe that concludes this portion of the testimony.

MR. BRATTON: I believe that is all from this witness. We will offer the Exhibits 1 and 2.

MR. PORTER: Any objection to the admission of these exhibits? They will be admitted to the record.

Anyone have any questions of Mr. Fish?

CROSS EXAMINATION

BY MR. PAYNE:

Q Mr. Fish, I don't believe you gave the depth of the discovery well in the pool.

A No, sir; I didn't. I have the intervals that it is perforated. I will have to check a log.

Q Do you know whether it is in the 11,000 to 12,000 range?

A Yes, sir; it is in that range.

Q Do you have the top of the perforations?

A I have the subsea top. I don't have the straight depth top. I can get them off the log. It is between 11,700 and 11,800 in depth.

Q So the per well allowable in this pool would be 220 barrels a day on 80 acres?

A I assume that is correct, if you are multiplying with the 33 unit allowable.

Q What is the drive mechanism on this pool?

A Water-drive.

Q Do you feel that production of 220 barrels per day per well, that there would be any reasonable probability that would damage the reservoir?

A No, sir. I think it would not, and further, I feel that the pool as a whole will be depleted more evenly on 80-acre spacing rather than 40-acre spacing where the total field withdrawals would be greater.

Q Now, what portion of this pool is in the South Vacuum Unit?

A This portion outlined by the yellow outline.

Q And I take it the Pure Oil is the operator of the unit?

A Pure is the operator of the South Vacuum Unit.

Q And the two wells in which the Reeves Brothers have the royalty unit are in the South Vacuum Unit?

A Yes, sir; the working interest is in the South Vacuum Unit.

BY MR. NEAL:

Q The Reeves' royalty is not dedicated to the unit; is that correct?

A I believe that is correct.

Q Obviously it has been developed on the 40-acre basis?

A Yes, sir. Since we were operating under statewide rules and were obligated to protect our royalty owners from drainage in this area the Reeves Brothers' tract was developed on 40-acres.

Q As I understand it you are willing the Reeves Brothers' tract be left on a 40-acre basis?

A That is part of our proposal.

Q With the allowable it now has?

A Yes, sir.

Q In other words, there would be no reduction in the allowable because of the fact that each well was on 40 acres in the field?

A That is true.

MR. PAYNE: Mr. Bratton, do you feel the unit operator is able to waive the protection of correlative rights, so to speak, of the other operators in a unit?

MR. BRATTON: Mr. Payne, I rather doubt the unit operator could do that without their consent. I believe this matter has been proposed to all the unit operators and they are in agreement

with the proposal that the two Reeves' tracts be left on 40 acres with a 40-acre proportional factor.

MR. PAYNE: The thing that is bothering me, Mr. Bratton, if the Commission saw fit to enter an 80-acre order for the pool as a whole, with the exception of these two 40-acre tracts, whether such order might be subject to attack at a later date by someone who said he hadn't waived protection of his correlative rights and he felt 40-acre ought to get only half of an 80-acre allowable?

MR. BRATTON: Certainly that is a question, Mr. Payne. The Commission has to protect correlative rights. As I pointed out to the royalty owner, there is no problem. The State is getting the same royalty off the Reeves tract or any tract in this pool. Any extra allowable that goes to those wells comes out of the pocket of the working interest owners directly, the South Vacuum Unit owners. This has been presented to all of the unit owners and, I believe if the Commission would feel better we could certainly get letters from each one of the unit operators that they are agreeable to this, each one of the unit owners. I think almost all of them are here today, and possibly we could get it verbally.

MR. MORGAN: While we are considering, consider the northwest southwest of Section 26, which is State acreage, which is immediately offset by Reeves 326; this acreage is offset by this, this well offsets that. Is it under your 80-acre spacing pattern there would be no well here; this would be on State acreage and this

well would presumably withdraw that from this 40 here, and this well here would draw from it. How do you account for that?

MR. BRATTON: Because the State of New Mexico is going to get the same royalty whether all of the oil produced from this well or any well, whether it is the Reeves well or any other well, the State of New Mexico is going to get the same royalty.

MR. MORGAN: What portion of the royalty is the State going to get from 326?

MR. BRATTON: It will get the same proportion it would from a well drilled on the 40 acres as to which the Commissioner is concerned.

MR. NEAL: By reason of the unit agreement they have to pay royalty on production from the Reeves acreage just like it was on the State.

MR. MORGAN: This 80-acre pattern, how would you take care of this acreage up here? It is northeast of the fault, I understand that. It might be productive acreage. Do you count that as non-productive acreage?

MR. BRATTON: I believe it is east of the fault, and it would not be in the pool, but under any circumstances it is State acreage so the State would get its 1/8 royalty.

MR. PAYNE: As I understand it, Pure Oil is actually paying double royalty on these two 40-acre tracts?

MR. BRATTON: That is correct. This costs the State not

one cent. It costs the working owners in the unit some extra cost. Have I satisfied the Commissioner?

MR. MORGAN: I understand the answer.

MR. NEAL: It is not ascertained, of course, as I understand Mr. Bratton's statement, that it would be uneconomical from the standpoint of making a profit to drill on a 40-acre basis.

MR. PORTER: Does anyone have any further questions of Mr. Fish?

BY MR. PAYNE

Q Your application is based on the premise to develop this pool on the 40-acre pattern would cause the drilling of unnecessary wells?

A That is true.

MR. PORTER: If there are no further questions the witness may be excused.

JACK DUREE

called as a witness, having been previously duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, by whom you are employed and in what capacity?

A Jack Duree, employed by Pure Oil Company in Houston, Texas, and the division petroleum engineer for the Southern Division

of Pure Oil Company, which encompasses our operations in New Mexico.

Q Have you been familiar with the development of the South Vacuum Pool?

A I have.

Q And have you testified previously before this Commission as an expert witness in connection with this pool?

A I have.

MR. PORTER: His qualifications are acceptable.

Q (By Mr. Bratton) Mr. Duree, you testified in a previous hearing in connection with this matter, and at that time presented certain engineering data?

A I did.

Q You testified with respect to the application of Pure Oil to conduct an interference test and gain additional data?

A I did.

Q Have you conducted that interference test?

A We have.

Q Refer to your Exhibit No. 3, please.

A Yes, sir.

Q Refer to your Exhibit No. 3, please, and explain what it is.

A It is entitled "Reservoir Data, South Vacuum-Devonian Pool." This is the same information that was presented previously.

It lists physical properties of the reservoir rock, the lithology, the structural features of the reservoir and characteristics of the reservoir fluids. There is no change in this data. At the time it was presented previously it was based on core analyses from three wells in the unit, these wells being the 135, 235 and 335. We do have one additional core since that time on the 127. It does not change these figures. It was an area of relatively thin pay, but the weighted average is the same. The lithology, of course, is not changed. Structural features, as Mr. Fish has pointed out, have not changed appreciably. The characteristics of the reservoir fluid are the same.

Q Your permeability average is shown as 226 millidarcies?

A That is correct.

Q In your opinion is that more than excellent permeability?

A That is excellent permeability, particularly for limestone type of reservoir.

Q Your producing mechanism?

A Our producing mechanism is a water drive. I think that will be borne out better when we get into bottomhole pressure determinations that have been made.

Q Your oil has a low viscosity?

A Low viscosity and extremely low solution gas-oil ratio.

Q So that the physical properties of the rock here are excellent to support wide drainage?

A That's correct.

Q Is there anything further in connection with the physical properties which you care to bring out?

A No, I don't believe I have anything further. In the earlier presentation of this particular exhibit we listed some bottomhole pressures which we have on the other exhibits, and we did have reservoir temperture which is 164°.

Q Referring to your Exhibits Nos. 4 and 5; I believe 4 is a graphic production history and 5 is a tabular production history, showing the same information as is shown on Exhibit No. 4?

A That is correct.

Q Refer to Exhibit 4, then.

A Exhibit 4 is a graphic production history of the South Vacuum-Devonian Pool on which is plotted the number of wells, cumulative oil production, daily water production, daily oil production and bottomhole pressures through May of 1960.

There is nothing here other than the reflection of a very good pool in the comparatively early stages of depletion. The only thing I would point to that is of particular significance is the fact that we have, in the early days of the pool, a drawdown in bottomhole pressure. At the time it was discovered it was expected it would be a water-drive. To establish the influx of water into the reservoir a low pressure point had to be established. This was established by removing oil. After we had established sufficient

difference between that and the water to sustain the necessary pressure drop that the flow of water causes, we established the flow of water and, if you will note, since the early part of 1959 there has been very little drop in the overall pressure, which indicates that the water is moving into the reservoir replacing the major part of the withdrawals represented by production.

Q Your Exhibit No. 5 is just a tabular compilation of the same information reflected on Exhibit 4?

A That is correct.

Q Turn then to Exhibit No. 6.

A Exhibit No. 6 is a tabulation of the bottomhole pressures that have been made in the field for each well. Also tabulated is a cumulative production from each well at the time the bottomhole pressure determination was made. This information, of course, was the source information from which the bottomhole pressure curve on the previous exhibit was prepared.

Q Is there anything further which you care to state with regard to those pressures?

A Nothing further. I think perhaps later we will refer to it from the standpoint, if anyone is curious as to production, as to the date of the pressure determination, it is reflected on this exhibit.

Q Refer to your Exhibit No. 7 and explain that Exhibit, Mr. Duree?

A Exhibit No. 7 depicts several pieces of information. It reflects the bottomhole pressures of each well upon its initial completion in the field. It also reflects the average bottomhole pressure for each pressure determination made on the field basis. In addition, it also reflects the bottomhole pressure of the one well that was shut in for interference test purposes, and its immediate offset, which took double allowable during the period of the interference test.

Q Mr. Duree, will you show the Commission on the map those two wells before you proceed further?

A The well that was shut in was the South Vacuum Unit well No. 235, located in the northeast, southwest Section 35. Its allowable was transferred to South Vacuum well 135, a diagonal offset. During this period well 135 produced double normal allowable.

Q And that was for a period from August, 1959 until August of 1960?

A That is correct, for a one-year period.

MR. MORGAN: Did that change the oil-water contact in that vicinity in that time?

A There has been a general rise of the contact in the entire field. We had no evidence of this well being adversely affected, and I have another exhibit which reflects tests on that particular well.

Q (By Mr. Bratton) Now, if you will refer back to your

bottomhole pressure survey and continue.

A On Exhibit No. 7, which is a graphic plot of bottomhole pressures, the yellow line follows the average bottomhole pressure. Of necessity this curved portion on the extreme left end of the curve is an extrapolation because we only had one well in there at the start. At a later date when we had more wells, more pressures considered in the average, you will notice the points on the yellow line, there is a small number at each point which states the number of wells on which pressures were taken for this purpose. If you will also notice the individual pressure points that are plotted, colored blue, that gives you the first pressure taken on each well subsequently drilled in the field. If you will note, the South Vacuum 135, upon completion, had an initial reservoir pressure by bomb determination of 4838. The next well, Sinclair 405 No. 1, came in pressure 4759; South Vacuum Unit 235, the well shut in, had an initial pressure 4777. The Mobil State No. 1 had a pressure of 4810. I would like to point this one out on the map, if I might. This 4810 is some 28 pounds lower than the pressure that was initially recorded on the 135. The 135 is located in the unit; it is in the southwest of the northeast of Section 35. The Magnolia well, completed approximately 7 months later, showed a 28 pound lower pressure, and it is located in the northwest of the northeast of Section 27, a distance of something in excess of two miles from the 135.

Continuing, we have successive pressures on new wells, which are labelled on the graph, pressures of 4796, 4792, 4787, 4757, 4747, 4748; these new wells, upon completion, have consistently exhibited lower pressures than were present in the reservoir initially. These pressures are determinations taken immediately upon the completion in most cases (I can't say for Mobil); for instance, immediately after the well had been potentialled and it had very minor fluid withdrawals.

Now, the second feature that is reflected on this exhibit is the interference test, the pressure performance of the well that was shut in, and the well that took the double allowable.

The Unit 235, the well shut in, at the time of shut-in, had approximately the same pressure the 135 had. It did show some increase initially, for there was a pressure differential from the well bore back into the formation. In a period of approximately three days it peaked. From then on it has shown, over-all, for the one-year period, an eight-pound loss. It has not been a constant drop. Neither has there been a constant drop in the field. Having taken pressures on these extremely short intervals we have reflected to a degree the variation in withdrawal rates as allowables have been going up and down, which we consider extremely significant in that we had, on our shut-in well, followed the same pattern of fluctuation which the field as a whole showed, and also showed a net drop for the year's period.

Q You would not expect a major drop at this point in the development of the pool; is that correct, Mr. Duree?

A That is correct. As pointed out, I believe it was on Exhibit 3, we have established enough pressure gradient to cause water to flow in the reservoir. Could we have conducted this test, started it a year sooner, during the period when we got the initial drawdown to establish water flow, it would have shown more drop.

Q While the entire reservoir has flattened out for pressure purposes, the shut-in well and the well carrying a double allowable, they have varied with the field in their pressure during this year?

A That is correct.

Q Those variations are small?

A Very small.

Q Within the accuracy of the bomb?

A That is correct; within the accuracy of the bomb, and on an individual measurement you could question them, but having repeated it, and if you will note, there have been eight pressure surveys in a period of one year, and by the very number of the pressure determinations we have had an averaging of any effect that the bomb accuracy would have caused.

Q In your opinion, does this Exhibit clearly demonstrate pressure interference between the two wells tested?

A Yes, sir. It shows very good interference between the two wells tested; shows very good correlation for the field as a whole and that, coupled with the successively lower pressures

determined for new wells indicate to me we have an excellently, very well connected reservoir and, of course, we must have connection if fluid is able to be shoved through the reservoir and out the well bore by the water encroaching.

Q In your opinion does the evidence reflected here conclusively show that one well in this pool will efficiently drain at least 80 acres?

A At least 80 acres.

Q Anything further you care to say with relation to this exhibit?

A I have nothing further. Exhibit 8, which follows it, is a tabulation of the pressure determination on the two wells and the average that was plotted on Exhibit 7. It is the same information.

Q Same information in a tabular form?

A That's correct.

Q Referring to Commissioner Morgan's inquiry as to possible damage by heavy production from one well, please refer to your Exhibit No. 9.

A Yes, sir. Exhibit 9 is a tabulation of monthly well tests taken on the well that was taking a double allowable, No. 135. The Commission, in their order, granting us authority to transfer allowable and shut the well in requested a monthly test. These have been filed with the Commission. Actually, the only thing I

can say, it shows the well stayed in there and produced with no troubles whatsoever, no water production; tubing pressure, with the exception of three months, absolutely constant, got suspicious and checked out a gauge, and, as you can see, the last month it was right back with the others. The only thing that is curious on it is the fact there is some variation in the oil production with a given choke. This particular well with an extremely low solution gas-oil ratio exhibits--will not stay constant on a given choke. We cannot use an adjustable choke on it. We have had to go to positive chokes, and there is some variation; it will vary from day to day. With it the well has performed beautifully.

Q No change in gas-oil ratio?

A No, sir. We are measuring gas volumes so small that they reflect some variation, but in my opinion, no variation at all considering the extremely small volume of gas.

Q Refer to your large exhibit, now, which is on the board; your bottomhole pressure map.

A Exhibit No. 10 is a contour map, isopach contour map prepared on pressure determinations taken during June of 1960. The outline of the field is indicated as the heavy red line which is the oil-water contact. This map, to get any character at all, had to be contoured on two-pound increments, which is extremely small. We have traced in red the two ten-pound increments which do appear, and, if you will notice, using a ten-pound increment you only have

two contour lines for the field. The lowest pressure recorded was 4749, the highest 4765, a total pressure variation across the field of 16 pounds. In the area of our interference test the well that had been shut in showed a pressure of 4765; the well taking double allowable 4758; the highest pressure in the field, 4765. Again, this merely illustrates that we have exceptionally good communication across this reservoir.

Q It is, just for all practical purposes, a flat pressure map; is that correct?

A For practical purposes it is flat.

Q Do you have anything else you care to state with reference to your Exhibit No. 10?

A No, I do not believe I do.

Q Mr. Duree, with respect to the development in this pool, will you express your opinion as to whether, the rate of encroachment of water would be greater on 40-acre spacing or on 80-acre?

A The rate of water encroachment will be greater on 40-acre spacing. The additional allowable granted an 80-acre well is one equivalent or basic allowable. If you will drill on 40's you will not have double the number of wells, of course, but you will have more wells and your total withdrawals from the field will be greater. Now, with a greater withdrawal rate the rate of encroachment of the water up the structure will be greater. Now, this is admittedly a dolomite limestone reservoir, and our experience with natural water

drives there is not as extensive as it is with sand, but I think it is pretty well accepted that in a natural water drive your efficiency of recovery is enhanced if you do not bring the water in too fast to permit the water, by virtue of its surface tension and viscosity, to penetrate into the tight sections and shove the oil out. There has been a lot of published data on this, and various criteria have been established. It is pretty widely accepted there is a practical limit beyond which you should not bring water into the structure. In this particular structure, these of necessity must be rough estimates because we can't forecast exactly how the withdrawal rates will vary with market demand and the like, but on a 40-acre allowable we would have, roughly half again faster encroachment of water than we would on 80.

Q Your 40-acre allowable factor is 5.67 and your 80-acre, 6.67?

A That's my understanding.

Q Actually you would have a slower rate of withdrawal on the 80's?

A That is correct.

Q This would not reduce ultimate recovery; it would increase it?

A It is in the direction that should improve the recovery.

Q Will you state, briefly, your economic analysis of this pool, Mr. Duree?

A The economic analysis of this pool, as was pointed out in the summary, we feel the reserve is such that we can pay out the wells on 40 or 80. The profit ratio, or ratio of profit to investment on 40-acre spacing is approximately 3.2 to 1; on 80-acre spacing it would be around $4\frac{1}{2}$. As I pointed out earlier, the 80-acre rule does not result in half the wells of a 40; it will be something more than half, so it is not a direct ratio.

Q In other words, you are not stating that 40 acres would recover more oil than 80 acres?

A I am not.

Q Your rate of return is diminished because, actually, you have some wells in effect drilled on the 40-acre pattern?

A In drilling under the existing land conditions and the rules we were working under we have some wells in effect that have been drilled on 40.

Q In your analysis you have not taken into account the dry holes?

A No, sir. This is strictly on the basis of the average recovery that a well in this field, that was a well, could expect.

Q This is not a discounted factor?

A This does not take any discount back to present day worth.

Q Anything further you care to state with regard to the economics of this pool?

A No, I have nothing further to state. That is simply it.

Q If there was 40-acre permanent spacing in this pool, and if competitive situations were to set off a 40-acre drilling program, approximately how many wells would you envision could be drilled in that pool, additional wells?

A I would envision that we would drill between seven and nine wells. I have to make a spread there because, as pointed out earlier, for the southwest flank there is no control on the dip yet.

Q What are the approximate costs of those wells?

A We are averaging out about $240,000 a well; our initial wells, of course, were considerably higher. Others are coming a little under, but it looks like we will average that for the wells that will have to be drilled.

Q And, in your opinion, would the drilling of those wells result in any additional increase in production of oil, ultimately?

A I don't think it would result in any additional recovery of oil from this reservoir. We are dealing with water drive. The wells we have there have gotten into the top of the structure. Having gotten there you have got a straw at the point where the last oil will come out.

Q Mr. Duree, in your opinion would the drilling of these wells on 40-acres be the drilling of unnecessary wells within the meaning of our statutes?

A Yes, definitely.

Q Will you detail to the Commission what we are requesting

in this hearing?

A We are requesting the promulgation of an 80-acre spacing rule for the South Vacuum Pool. We would recommend that these be flexible rules as to well location and as to the formation of the 80-acre tract. On that point I would like to emphasize we are dealing with water drive reservoir, an edge water drive reservoir, and the oil produced from the field comes from the bottom of the field. In other words, a well on top of the field, under the natural functioning of a water drive, produces a barrel of oil, but due to migration up structure from the water coming in, that barrel is replaced. Consequently the flexible rule permits a man with an edge tract to get in and get oil from a high structural position. Even then he is going to suffer some migration, but that is the nature of the drive. The flexible -- as we have pointed out, if the Commission feels we should stay with fixed locations, in that event we would recommend that the locations be tied to the NE/4 and the SW/4 of the quarter section. As the field is now developed the South Vacuum Reeves 236 would require an exception to this. Following up the field, Mobil's Section 27, Wells 1 and 2, would both require exceptions; Sinclair 403 No. 3 would be an exception. With those four exceptions the wells that have been drilled would fit the pattern. In the event of that we would still suggest that some latitude as to how the 80's are formed be given. By doing that we could stick within the governmental sections as they have been

laid out. We would recommend that the 80's allocated be within the pool limits. With respect to the Reeves' wells, the 226 is drilled on a 40-acre lease. We would recommend that this well be granted a 40-acre allowable, and an exception to the rule is needed to grant that. The Reeves 426 is drilled on a 120-acre tract. However, only 40 acres lie within the pool limit, and we would recommend it, too, be granted a 40-acre allowable.

Q Those are the suggestions?

A Those are our suggestions; yes, sir.

Q Mr. Duree, on the basis of your study of this pool, in your opinion would an 80-acre proration unit be an area that can be efficiently and economically drained and developed by one well?

A Yes, sir.

Q In your opinion would an 80-acre spacing and proration unit prevent the drilling of unnecessary wells?

A It definitely would.

Q Would the rules which you have proposed here today protect the correlative rights including those of royalty owners?

A Yes, sir.

Q Would they result in the prevention of waste and the avoidance of the augmentation of risk arising from the drilling of an excessive number of wells?

A Yes, sir.

Q Would they prevent the reduced recovery which might result from too few wells?

A We don't think there would be any reduced recovery from the standpoint of draining. We feel the 80 acres will take care of it very well.

Q Would the application to this pool of the statewide 40-acre proration and spacing unit rule, in your opinion, result in the drilling of unnecessary wells?

A It definitely would.

Q Is there anything further which you care to add?

A I question if it has a place here, because it is not specifically connected with this field. I think it is significant that we have seen some similar work in other states. I refer specifically to the Aneth case which has been going on for so long. We have not followed it ourselves, in that our operations there are covered from another office. We are struck with the similarity as to the reservoir rocks in the Aneth and in the Vacuum. We have a little lower porosity than they do. We have quite a bit higher permeability. The major difference is the fact we are dealing with a water drive mechanism where they have been dealing with solution gas drive. We think that a lot of the information there, particularly as to variations vertically in the reservoir, have borne out a lot of the things we have had in the industry as to the producing mechanism within these reservoirs, and the similarity there, we think that the main thing -- the comparison is good; we have just got a more efficient recovery mechanism in this instance

than they have.

Q Are you referring to an article which appeared in the Oil and Gas Journal of August 8, 1960, on page 75?

A That appeared there, and I have seen a number of other places. This is a pretty good summary of the testimony there, particularly the pertinent parts.

Q Did you prepare Pure's Exhibits Nos. 3 through 10, or were they prepared under your direction?

A I prepared them in part; the remainder were prepared under my direction.

Q Do you have anything further you care to offer?

A I have nothing further.

MR. BRATTON: We would offer in evidence Pure's Exhibits Nos. 3 through 10, and I would like to offer in evidence, Oil and Gas Journal, August 8, 1960, article appearing on Page 75, as Pure's Exhibit No. 11 as an article of a trade journal in the industry and a recognized scientific publication.

MR. PORTER: Any objection to the introduction of these exhibits? Exhibits will be admitted to the record. Any questions?

CROSS EXAMINATION

BY MR. PAYNE:

Q Mr. Duree, do you believe the ultimate recovery of oil from this pool will be as great on a flexible pattern as it will be on a rigid pattern?

A Yes, sir. I think the only difference it would make would be a little difference in the time it would take to do it.

Q And the fact that, perhaps, the additional oil that presumably you would get if the pool was completely drilled up on a rigid pattern would be offset by the fact you might have some undrilled locations on the rigid pattern?

A I think you are going to get the same amount of oil on a rigid or flexible pattern. There are some edge leases which might produce a little longer if they had flexibility on the end of it to put the well; that would shorten the time, not increase the recovery.

Q Might you also have undrilled locations if you require an operator to drill to a particular 40?

A That is correct.

Q It is actually desirable in a water drive pool to have the water encroachment uniform, is it not?

A That is correct.

Q On a flexible pattern, where you bunched your wells, so to speak, do you still get a uniform water encroachment?

A Yes, you should get it unless you are fighting an extremely tight permeability which we don't have here.

Q Any present plan, or has there been any discussion relative to unitizing this entire pool?

A No, sir, there have not. I would say that would await

further observation of the pressure performance of this field. As I pointed out, we have a water drive. We have drawn the pressure down sufficiently to establish the flow of water into the reservoir. That is good. Now, the remaining question is one that only performance will answer for us: How big a body of water do we have to supply this water that is coming in? Most of your water drives operate from the expansionof water. If we have enough water connected into this reservoir we will deplete it under competitive operations under natural water drive. If this body of water is not sufficiently large we will have a period of level or extremely slow rate of pressure decline, and then when we have reached the end of it insofar as the expansion of water is concerned, the pressure curve will go back down at a steeper rate. When that date comes we would have to supplement the energy by injection. In that case I think unitization would be in order.

Q Does the South Vacuum unit agreement require that the unit be developed on whatever spacing pattern the Commission has in the pool?

A To the best of my knowledge I think it is silent on that. I have read it, but it has been a long time, and I can't say for sure.

Q I presume then at least one of the Reeves Brothers' wells was drilled prior to the formation of the unit?

A No, sir. It was drilled after the formation of the unit.

Q You understood it was drilled on a 40-acre pattern because of offset objections?

A That is correct. This is the unit area outlined in yellow. All of the working interest owners have joined the unit; all of the royalty interests have joined the unit, with the exception of -- it is 180 acres, made up of one 40-acre tract and one 120, owned in fee by the Reeves. They did not sign the unit agreement. As a consequence they look to the unit, as far as that tract is concerned, they look to the unit as if it were the only tract the unit had.

Q Inasmuch as you have developed the unit, with this exception on an 80-acre pattern, and you could continue to do so, I take it that what you really want here is an additional allowable an 80-acre unit gets?

A Yes, sir; we want the additional allowable an 80-acre unit will get. We think drilling on 40's is unnecessary. If we do not have an 80-acre allowable our rate of return changes, and we'd have to re-examine our picture, but we don't feel that, from the standpoint of getting the reserve this field represents, that those wells are needed.

Q An area outside might be developed on 40's in order to protect the unit; you would have to develop the edge wells of the unit on 40's?

A Yes, sir.

Q Inasmuch as the volume of casing head gas produced by

these wells is relatively small, is that being flared?

A No, sir; that is going to market. Phillips Petroleum has a low pressure gathering system and it is being marketed.

Q Do you feel interference tests are a good way to determine drainage?

A I feel that they are one very good tool. By themselves, I think no one tool is the answer, and I don't believe any of our engineering personnel would say that, but that, coupled with the repeated occurrence of lower pressure on the new wells as we discover them; that plus the over-all performance of the field, makes a very clear picture. Now, an interference test in a solution gas drive, where you do show quicker pressure declines, I think would be a more startling picture, perhaps, but would still be the same picture.

Q Have you compared this reservoir with any other Devonian pools in southeastern New Mexico?

A We have no operations. We have compared them only from the standpoint of published data available to us.

Q You haven't made a specific study comparing with any other Devonian pool on 80-acre proration units?

A I haven't from the standpoint of having the information to go through and saying, "Our porosity is 7% and theirs is 8¼." I have from the standpoint of looking at the way the pressure has performed and the way the information is reflected, have compared

them to those, but haven't had an occasion to make a detailed study.

Q As a matter of administration, by the Commission, if you have an 80-acre spacing pattern in a pool you drill a well on either 40 and get a dry hole, how much acreage do you think should be considered dry?

A That is a question that occurs repeatedly, and from the Commission's standpoint I can see it is a complicated thing. It is obvious that only a portion of that 80-acre tract is underlain by oil. Now, in the case of this pool, I have recommended flexible because the man with that edge tract, if he went in the other end he still won't produce the oil that is under his tract of land. It is going up structure. In that case I feel, although actually only say 40, 50, 60 acres is underlain by oil, even if you give him the 80 he still isn't going to get the oil under his line. With the solution gas drive reservoir I think it is another problem.

Q No matter what you allow him to dedicate, it wouldn't impair correlative rights, then?

A In this particular instance; I am taking that on the fact we are dealing with water drive.

MR. PAYNE: Thank you.

MR. PORTER: Anyone else?

BY MR. RAMEY:

Q Mr. Duree, 40-acre spacing you said you would have to drill about seven or eight wells; is that correct?

A That's correct -- I believe I said seven to nine.

Q That would give you around 20 wells in the pool?

A That is correct.

Q On 80, how many would you have to drill?

A On 80's, I don't know. I do know we have the southwest flank wide open. I think definitely that question is still before us. You can't get any answer until you get one well out there. Once that is answered, then it is a new question once you have that information.

Q Assuming your water-oil contact is correct; would you say you had about two or three wells?

A That would be about right.

Q And with the rigid spacing, how many wells do you think you would have to drill?

A I think the problem is as I outlined it. We would have to see what the southwest flank looked like. With the rigid there would be less drilling than there would be with the flexible, probably, but until you know that one piece of information you are just speculating.

MR. PORTER: Any further questions? Witness may be excused.

MR. BRATTON: That is all the testimony. I would like to make a statement.

MR. PORTER: Does anyone have any further testimony?

MR. NEAL: I would like to move the inclusion in the record of the former hearings, reference to the former hearings relating to this 80-acre, so the whole information will be in the record.

MR. PORTER: Any objection to the counsel's motion?

MR. NEAL: And then I would like to make a statement of arbitration when the time comes.

MR. PORTER: Let the record show that the records from the previous hearings will be included in this case.

MR. NEAL: Perhaps I'd better state our position. Based on all of the evidence that has been taken, we would object to the 80-acre spacing in this field unless the Commission were to allow the exception of the Reeves acreage from that 80-acre spacing. We feel like if we leave the Reeves acreage on the 40-acre spacing, that is the acreage controlled by the field rules, we actually have no basis upon which to object to the spacing in the remainder of the field. We do, however, definitely feel that we have a valid objection to the creation of 80-acre spacing in the field unless the exception is made. The two wells that have been drilled on the Reeves' tract have been drilled under the orders of the Commission providing for 40-acre spacing. The allowables are established. We have no other acreage in the field which can be dedicated to those wells, and we feel like, to establish 80-acre spacing in the field without making an exception as to our acreage would be

a denial of our property rights without due process of law, and in addition to that it would seriously affect the revenues to be obtained by the State of New Mexico by reason of the fact that if we were put in a situation where we had 80-acre spacing without an exception we would only have 40 acres, for example, in each of those wells to dedicate, and if that gave us only us only 40 acres of an 80-acre allowable, our royalties would be cut in half.

You have a rather peculiar situation, that the State also gets royalty on those wells, because under the unit agreement they are actually having to pay double royalty under the contract agreements on those two wells, so at the same time the Reeves boys were losing half of their royalty, the State would be losing almost an equivalent amount, 90 percent of it, and we think unless the exceptions are made that definitely we would be treated unfairly and probably our constitutional rights would be involved in it. We would be deprived of our property without due process in light of the fact they were drilled under rules and regulations which provided for 40-acre spacing.

MR. ANDERSON: R. M. Anderson, Sinclair; we are an operator in the field. We are also a working interest owner in the unit. We wish to concur with the conclusions drawn by Pure from its evidence. We wish to concur with the recommendations of Pure, and with regard to the two 40-acre wells on the Reeves property, we wish to concur that an exception be granted for those wells, and

we feel this is justified because the wells existed prior to the adoption of the proposed rules.

MR. SETH: Oliver Seth, Shell Oil. Shell Oil concurs in the application of Pure. We believe the testimony and the evidence supports the application. Shell has no objection to the allowance of 40-acre allowables to the two Reeves wells, the existing ones. We don't believe that should be precedent for any future action, and we don't necessarily concur in Mr. Neal's analysis of the royalty situation on that. We think it is just a practical problem, and we have no objection to that solution of it.

MR. BRATTON: If the Commission please, first of all, I would like to concur in Mr. Seth's statement. I believe it is a practical solution to a problem that presents itself, and certainly we do not concur in the analysis as to State royalty, which we think is unaffected. The State gets the same royalty out of this pool regardless.

Gentlemen, I don't propose to belabor this thing at length because I know you have been sitting here for two and a half days and your courtesy and attention is certainly appreciated. I do wish to say that this case is a very significant one and for that purpose you will pardon me if I refer to my notes, because I don't want to miss anything in connection with it.

Turning first to the physical properties of this reservoir, I will state briefly that I think it has been conclusively established

that there is continuity, permeability, viscosity, pressures and a drive mechanism which are excellent and which will substantiate 80-acre spacing, and more. I know that in some quarters there is a theory that in some pools more wells, more ultimate recovery. That is just not the situation in this pool with this drive mechanism. I think it has been conclusively established that one well will efficiently and economically drain this pool.

Now, that is the first requirement of our statute, that a well efficiently drain the pool. Certainly if there was any question about a well in this pool efficiently draining 80 acres, or the development of this pool on 80 acres not efficiently draining the pool, we would be reluctant; we would not be here before the Commission.

However, there is no doubt at all but what a well will do it. Now, referring to the other features of our statutes pertaining to proration unit for a pool. The Commission has been through this so many times I hesitate to read it, but I think, in view of the fact that I do consider this to be a significant and a landmark case before this Commission, we should go ahead and analyze it with respect to this statute.

The proration unit, of course, is an area that can be efficiently and economically drained and developed by one well. That is what it is. Now, the statute goes on to say, "The factors that the Commission shall consider. . ." But first of all, the pro-

ration is such that can be efficiently and economically drained and developed by one well. Efficiently, we have proved; economically, we have stated that this pool can be economically developed on 40 acres if you consider solely the fact that it can be drilled and that a profit can be made on 40 acres. That does not dismiss for one moment the fact that the drilling of this pool on 40 acres results in the drilling of unnecessary wells. It is just sticking that much money down a hole in the ground over there; no purpose served by it.

We referred in our presentation to the article in the Oil and Gas Journal, which is headed, "Utah's Aneth May Halt Close Spacing Arguments." "Overwhelming volume of testimony convinced Utah Commissioners that 80-acre spacing was close enough"; "Attitude of many close spacers may be changed as a result." They are some of the articles presented on the Aneth hearing.

I know this Commission is tired, and I am tired. I sympathize with the sign on the desk of somebody of the staff, "I don't care how they do it in Texas." I sympathize; I don't care how they do it in Utah. We have a Commission, and they have kept abreast and ahead of the times. Nevertheless, in the Aneth case, over $20 million went into that case. As a result of that they were convinced, in a hotly contested case, that 80-acre spacing was close enough in a reservoir without near the performance of this reservoir.

Now, this Commission, as I say, has done an excellent job.

You have kept abreast and ahead of the times. I think I state the situation correctly when I state that this Commission has realized and has accepted the principle of economic distress in spacing; that is, when the operators can convince the Commission that it is an economic necessity to have wide spacing, that they cannot afford to drill on a nearer spacing. The Commission has realized that necessity and has gone to the wider spacing. Certainly we realize that in that type of situation the Commission will give the operator the benefit of the doubt, and, on the other hand, we realize full well that were you to come to the Commission with a case such as this one, where you do have a profitable reservoir, the burden of proof on the operator is heavier. We must convince the Commission beyond a shadow of doubt that drilling on 40 acres is unnecessary and will result in just sheer waste. We think we have done just exactly that. I don't think there is a member of the engineering staff of this Commission that will advise the Commission that the drilling of wells on 40 acres in this pool is necessary to prevent waste. Certainly there can be no question but what the additional $2 million or so that would be spent would be wasted.

We have come before this Commission today; we have brought the results of an interference test, all the data that has been accumulated from this pool. We think that it is clearly and definitely established that a well will efficiently drain 80 acres; at least 80 acres in this pool. I don't think it is the policy of the

Commission that, regardless of the overwhelming evidence, that the Commission is going to deny an application such as this simply because the pool is economic. I am just sure that is not the policy of this Commission. I certainly do believe that the Commission is aware that this case is being observed closely as to the policy of this Commission. Certainly it is to be reflected in the attitude of the oil operators of the country as to the risk involved in New Mexico, and the possibilities of return therefrom. Certainly land prices in this state have become decreased. We realize that; the results of the sale show that. The necessity of rejecting bids in Lea County, New Mexico, shows that we are in a competitive situation with these other states. We are in a competitive situation in the world market. If the operators are convinced that, regardless of the type of testimony, regardless of the volume and the fact that they can establish absolutely that a well will drain 80 acres at this depth, that they are going to be required to drill it on 40 acres, that cannot help but be reflected in their attitude and thinking towards New Mexico.

As I say, I appreciate the courtesy of this Commission in sitting here after two and a half days. I believe this is an important case, and appreciate your close attention. Our Commission has in the past, in this hearing, recognized the necessity of changing times. You have just heard testimony pertaining to changing the depth allowable. That was necessitated by the change of times

in the development of the industry. I think that the change in times and the development of the industry will be recognized by the Commission in this case by the granting of the application of Pure Oil Company. Thank you.

MR. PORTER: Any further statements to be offered in this case?

MR. PAYNE: We received two communications; one from Union Oil Company of California and one from Socony Mobil Oil, both supporting the application of Pure in this case.

Union Oil Company's communication was in the form of a telegram, dated August 15, 1960, sent from Midland, Texas, addressed to Mr. Porter, Director, Oil Conservation Commission:

"Union Oil Company of California, the owner of a working interest in the South Vaccum Unit, South Vacuum-Devonian Pool, Lea County, New Mexico, concurs with the application of the Pure Oil Company in Case Number One Six Three Four." Signed, "Union Oil Company of California, by J. S. McNulty, Division Superintendent."

A letter was received from Mobil Oil Company, A Division of Socony Mobil Oil Company, Inc., P.O. Box 2406, Hobbs, New Mexico, addressed to Mr. A. L. Porter, Jr., Secretary and Director, New Mexico Oil Conservation Commission, and dated August 16, 1960:

"Socony Mobil Oil Company, Inc., desires by this letter to enter their support in Case #1634 to Pure Oil Company's application for establishment of 80-acre proration units for the South Vacuum-

Devonian Pool, Lea County, Texas. Socony Mobil is the operator of two wells of the twelve wells in the pool, and from our study of this pool we feel that one well can effectively drain 80-acres or more and that no reservoir damage will occur at the resulting higher proration rate.

"Therefore, Socony Mobil Oil Company, Inc. respectfully requests that the Commission adopt 80-acre proration units for this pool." Signed, "C. H. Samples, Producing Superintendent."

MR. PORTER: If there are no further statements to be offered in this case, we will take the case under advisement.

Hearing is adjourned.

(Whereupon, the hearing adjourned at 10:30 A.M., August 19, 1960.)

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, JUNE PAIGE, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 15th day of September, 1960.

June Paige
Notary Public - Court Reporter

My Commission expires:

May 11, 1964.

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE 1634

TRANSCRIPT OF HEARING

JULY 15, 1959

DEARNLEY - MEIER & ASSOCIATES
GENERAL LAW REPORTERS
ALBUQUERQUE NEW MEXICO
Phone CHapel 3-6691

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
JULY 15, 1959

IN THE MATTER OF:

CASE 1634 (Rehearing) In the matter of the rehearing requested by The Pure Oil Company for reconsideration by the Commission of Case 1634 which was an application for an order promulgating temporary special rules and regulations for the South Vacuum-Devonian Pool in Lea County, New Mexico, to provide for 80-acre proration units and for permission to shut-in one South Vacuum-Devonian well and transfer its allowable to one or more South Vacuum-Devonian wells on the same basic lease. The rehearing will be limited solely to the transfer of allowable issue.

BEFORE:

Mr. A. L. Porter
Mr. Murray Morgan
Gov. John Burroughs

TRANSCRIPT OF PROCEEDINGS

MR. PORTER: In order to allow a sick man to be able to go home, Mr. Bratton has requested that the Pure Case 1634, be brought on. I told him I didn't see any Pure cases on the docket, but we will hear Case 1634.

MR. PAYNE: Case 1634. (Rehearing) In the matter of the rehearing requested by The Pure Oil Company for reconsideration by the Commission of Case 1634 which was an application for an order promulgating temporary special rules and regulations for

the South Vacuum-Devonian Pool in Lea County, New Mexico, to provide for 80-acre proration units and for permission to shut-in one South Vacuum-Devonian well and transfer its allowable to one or more South Vacuum-Devonian wells on the same basic lease. The rehearing will be limited solely to the transfer of allowable issue.

MR. BRATTON: If the Commission please, it will take us about two minutes to put a couple of exhibits up on the board.

(Short recess)

MR. PORTER: The meeting will come to order, please, and we will proceed with Case 1634.

MR. BRATTON: If the Commission please, Howard Bratton, Hervey, Dow & Hinkle, appearing on behalf of the Applicant, Pure Oil Company. I would like to make a brief statement prior to presenting our case. This case comes on for rehearing, limited to the sole issue as to whether in the South Vacuum unit the Applicant, The Pure Oil Company, should be allowed to shut-in one well for a temporary period of one year and transfer its allowable to a well or wells located on the same lease for the purpose of conducting interference tests during that year to determine the drainage area of a well in the pool. That being the question before the Commission, the evidence which we will present this morning will be very brief, and it will be devoted to two points. The first is whether interference tests will prove anything throughout the pool; in other words, is there such continuity throughout the pool that the tests which we propose will prove or disprove

a fact relative to the whole pool. The second is whether the transfer of the allowable from the shut-in well to a well or wells located on the same lease would damage either the well or the reservoir. Those are the two facts as to which we will present testimony.

We have previously presented our application for rehearing, and in support thereof, have presented a brief as to the reasons why we feel an operator should be allowed the opportunity to conduct interference tests in the interest of the Commission, and the operators may have the best available information as to drainage areas within the pool. Now, we will not go further into that subject other than to refer back to our application for rehearing and brief in support thereof. We have two witnesses this morning, and I will ask that they be sworn.

(Witnesses sworn)

GEORGE FISH,

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

DIRECT EXAMINATION

BY MR. BRATTON:

MR. BRATTON: Prior to proceeding, for clarification, this is for rehearing. I understand that all of the testimony and exhibits in the previous hearing are a part of this hearing.

MR. PAYNE: That is correct, Mr. Bratton.

Q (By Mr. Bratton) Will you state your name, please, by

whom you are employed, and in what capacity?

A George Fish. I'm employed by The Pure Oil Company as Division Development Geologist for the Texas Producing Division.

Q Have you previously testified in the original hearing on this case?

A Yes, I have.

MR. BRATTON: Are the witness' qualifications still acceptable?

MR. PORTER: They are, yes, sir.

(Thereupon, Applicant's Exhibit No. 1-R was marked for identification.)

Q Referring, Mr. Fish, to what has been marked Exhibit 1-R, will you please explain what that is, what that Exhibit is, and what it shows?

A This is a structure map contoured on top of the Devonian formation. It is very similar to the map that was presented at the prior hearing. The only new information we have available since the other hearing is the drilling of the Magnolia No. 2 State, Section 27, which is located in the SE/4 of the NE/4 of Section 27 in Township 18 South, Range 35 East. That well encountered the Devonian higher than was shown by the contouring on my previous map so that a revised interpretation was necessary. The Devonian was encountered at a minus 7570 feet subsea. This well is -- hasn't been officially completed yet, at last report; they are waiting on orders. They had seven inch casing out at the

well site, and I understand they are attempting to make a decision as to whether they will project that area on down to test the McKee sand.

Q Does the information obtained from that well ratically or basically change the contour or the outline of the pool as you previously presented it to this Commission?

A It does extend the limit of the pool to the northeast. The fact that it came in high necessitated an additional contour, a minus 7600 foot contour, and by virtue of that, all the other contours had to be moved to the northeast. The water level would also be moved, the interpretation of the water level to the northeast. Therefore, the pool encompasses a slightly larger area than previously shown.

Q Does the information obtained from that well change your belief that there is such continuity throughout the pool that an interference test conducted in any portion thereof would give evidence as to drainage in all portions of the pool?

A No, sir. It only confirms my previous conviction. I don't have a log on that well. The position of that well on my previously presented cross section would be approximately half way between the Magnolia 1-27 and South Vacuum unit No. 1-26.

Q Now, you are referring to Exhibit 2-R, which is a cross section of the pool?

A Yes, sir. This cross section is also similar to the cross section presented in the previous hearing. There has been

one addition at the northeast end, which was the inclusion of the Sinclair No. 2-401. In the previous hearing, there was some discussion as to what a cross section would show if it were taken up to that well, so for clarification, I have added that well. We still feel that the Sinclair No. 2-401 is producing from an area of separate closure, but is producing from the same basic reservoir, that is the Devonian reservoir. The only -- the thing is that the Magnolia No. 2-27 would only serve to eliminate this long gap between these two wells and would strengthen our belief that the reservoir is present and continuous throughout the south closure of the South Vacuum-Devonian Pool.

Q Now, what well does Pure propose to shut-in?

A They propose to shut-in the South Vacuum unit No. 2-35.

Q Referring to Exhibit 1-R, will you show the location of that well?

A The South Vacuum unit No. 2-35 is located in the NE/4 of the SE/4 of Section 35, 18 South, 35 East.

Q All right. Now, that well is on the southeast edge of the wells which have been drilled?

A That is correct.

Q However, your cross section shows continuity throughout the reservoir so that the shutting of that well and the information obtained from interference tests thereon would, in your opinion, furnish information as to the rest of the pool?

A I think it certainly would. In fact, I think that this

is a better well to be shut-in than the well we had previously recommended being shut-in. It is on the southeast edge of the pool, and there will be no drainage from the southeast or the south. The only drainage or pressure interference that will occur will be from the wells producing in the main portion of the reservoir up to the north, the northwest.

Q Do you have anything further which you would like to testify with regard to either one of these Exhibits?

A No, sir. I believe that completes my testimony.

Q Did you prepare both of these Exhibits?

A Yes, sir, I did.

MR. BRATTON: We would like to offer Pure's Exhibits 1-R and 2-R in evidence.

MR. PORTER: Without objection, these Exhibits will be admitted into the record.

(Thereupon, Pure's Exhibits Nos. 1-R and 2-R were received in evidence.)

MR. PORTER: Anyone have a question of Mr. Fish?

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Fish, you stated that you would shut-in your South Vacuum Well No. 2-35. Now, would you transfer the allowable of that well to another well or wells?

A Yes, sir, that is our proposal.

Q Which wells would you transfer it to?

A We have recommended that that allowable be transferred to the South Vacuum unit No. 1-35.

Q The nearest well to the 2-35?

A Yes.

Q The entire allowable?

A Yes, sir.

Q Now, do you think that, as a geologist, do you think that there is anything structurally here that would prohibit the efficient production of the two allowables from the 1-35?

A No, sir. I believe there is adequate section -- adequate pay qualities to sustain the production -- the allowable from two wells from 1-35.

Q Now, your horizontal green line on your cross section there is the water table?

A The blue line. The green line depicts the top of the Devonian.

Q Now, how close to that blue line, then, is your No. 135 perforated?

A Approximately 70 feet, I would say. I could get more exact figures if you desire, but it is approximately -- just reading my cross section, I would say approximately --

Q We probably can find out what the perforated interval is. What is the elevation of your water-oil contact?

A Minus 7880.

MR. NUTTER: Thank you. That's all.

QUESTIONS BY MR. PAYNE:

Q How deep is the well, Mr. Fish?

A How deep?

Q Yes, sir.

A TD, the subsea TD is shown on some of the cross sections. Beginning at the south end, the 2-35 was taken to granite, which was approximately 13,000 plus feet.

Q What is the allowable for these wells at present?

A I believe for the month of July it is 199 barrels a day.

MR. PAYNE: Thank you.

QUESTIONS BY MR. PORTER:

Q 139?

A 199.

Q 199, approximately 200 barrels?

A Approximately 200 barrels.

Q Have you considered transferring the allowable to other wells, more than one well?

A Yes, we have considered it. We think it would be preferable to transfer it to the one well. However, we would have no strong objection to transferring it to other wells. I think my engineer colleague is a little bit more qualified to state an opinion on that.

MR. PORTER: Does anyone else have a question of Mr. Fish? You may be excused.

(Witness excused)

HARRY C. WELLS,

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

DIRECT EXAMINATION

BY MR. BRATTON:

Q Will you state your name, please, by whom you are employed and in what capacity?

A I am Harry C. Wells, employed by The Pure Oil Company as assistant chief production engineer of The Texas Producing Division in Fort Worth.

Q Have you previously testified before this Commission as an expert witness?

A I have.

Q Are you familiar with this case and the original hearing, the application for rehearing, and the matters involved in this rehearing?

A Yes, I am.

MR. PORTER: His qualifications are acceptable.

(Thereupon, Pure Oil Company's Exhibit No.3-R was marked for identification.)

Q Referring to Exhibit No.3-R, Mr. Wells, will you relate what that is?

A Exhibit 3-R is the same exhibit which was presented as Exhibit No. 3 at the April 15th hearing, and it is simply a graph-

ical and tabular production history for the south portion of the South Vacuum-Devonian Pool, excluding Sinclair's 401 No. 2, which we went into at the previous hearing. These two, the tabular and the graphic form merely add three months to that, which was presented at the last hearing, three months' production.

(Thereupon, Pure Oil Company's Exhibit No. 4 was marked for identification.)

Q Turning to Exhibit No. 4, Mr. Wells, will you explain what that is and what it shows?

A Exhibit No. 4 is a comparison of the core analysis data and the log data of each of the four wells completed in South Vacuum unit, Devonian reservoir to this point. Shown on Exhibit 4-R for each of these wells is the gross feet of pay, the net feet of pay from the neutron or sonic log, the weighted average porosity of the net pay above the oil water contact, as determined from the log after correlation with core analysis. The weighted average permeability of the net pay from core analysis, and the footage of cored sections having porosity greater than four percent or permeability greater than one-tenth milladarcey. I'll be happy to read those figures if you would like.

Q I don't believe that will be necessary.

A The thing we wanted to show with this exhibit is that porosity and permeability figures are very similar for all of the wells we have data on, and not only similar but are very good characteristics for an oil reservoir.

Q This confirms what is shown on Exhibit 2-R as to continuity so that interference tests conducted on one well would be information applicable to the entire pool?

A That is correct.

(Thereupon, Pure Oil Company's Exhibit No. 5-R was marked for identification.)

Q Turning to Exhibit 5-R, Mr. Wells, that is an outline of the procedure which you would propose in connection with the interference test?

A That is correct. We would propose to, first, run a forty-eight hour shut-in bottom hole pressure survey on all wells in the pool. Second, to open all wells on normal producing rate except that the South Vacuum unit 2-35 would remain shut-in, the South Vacuum unit 1-35 would be produced at twice the normal allowable. We would record daily bottom hole pressures on No. 2-35 for several days, and we would run static bottom hole pressure surveys on all wells at monthly intervals for approximately three months, and run subsequent surveys at about three months' intervals for the remainder of the one year period.

Q Now, it is my understanding that your proposal is to shut-in the South Vacuum 2-35 and transfer the full allowable to the South Vacuum 1-35?

A That is correct.

Q However, if the Commission should desire, you would have no objection to transferring that allowable to the remainder

of the wells on that same lease instead of transferring it all to the 1-35?

A That is correct.

Q Now, in your opinion, would it damage either Well No. 1-35 or the reservoir to transfer the full allowable to it?

A In my opinion, it would not damage the reservoir or the well in the least. 1-35 would continue to flow at the approximate 400 barrel allowable with about 900 pounds per square inch surface tubing pressure. The only other possible damage that you could think of to the well would be caused from premature water production or coning of the oil-water contact. The static bottom hole pressure in No. 1-35 in February 6 of this year, as shown in our previous exhibit, was 4767 PSI at minus 7550 feet. The productivity index of that well is 4.4 barrels per day per PSI drawdown. The drawdown, therefore, in bottom hole pressure at a 400 barrel a day rate will be approximately 176 PSI, or about 88 PSI over and above the drawdown which we would have with normal allowable from this well. The flowing bottom hole pressure, therefore, would still remain 4591 pounds, or thereabouts. This reduction is of a very small percentage of the total bottom hole pressure. The oil-water contact in the 1-35 of minus 7880 feet is equivalent of a depth of 11,758 feet. The lowest perforation in this well is 11,680, or a height above the oil-water contact of 78 feet. We have run calculations on the rate of production necessary to cone water 78 feet, assuming a 7 percent porosity

uniformly all the way down, and the rate necessary would be approximately 1200 barrels per day, or more than three times the maximum rate proposed in this interference test. Therefore, we feel that there will be no danger at all from any water coning or premature water production due to producing two allowables from one well.

Q If the allowable is transferred to the other wells on the lease, will that result in transferring allowables to wells offsetting another lease, a separate lease?

A It will, certainly.

Q In your opinion, are pressure interference tests such as the one proposed here, is that the best available information as to the area which can be effectively drained by a well?

A It is one of the best tools we have for judging the effective drainage area of a well, together with other information such as that which we presented at the previous hearing on the initial bottom hole pressure of new wells prior to any production. I think those two criteria are the best available means we have.

Q In your opinion, would the procedure which you have suggested afford within a year further substantial evidence as to the area which can be drained by one well in this pool?

A Yes, I think that one year should give us fairly conclusive results.

Q Now, in conclusion, you believe that the most effective way would be to transfer the full allowable to the adjoining well,

No. 1-35, is it Mr. [illegible]'s position that if the Commission so desires, they have no objection to transferring the allowables to the other wells on the basic lease?

A We have no objection. However, I would like to point out that if double the allowable is produced from an offsetting well, it is roughly equivalent to having two wells, one on each side of your shut-in well, producing at normal allowable rate. Therefore, as far as drainage areas are concerned, this, I think, would give a better picture and probably a quicker result from our interference test.

Q The results might be quicker, but they would not -- it would not effect the validity of the test, if the full allowable were transferred to the adjoining well?

A No, it certainly wouldn't.

Q Is there anything further which you have to offer in this case?

A I believe that's all.

Q Exhibits 3-R through 5-R were prepared by you or under your supervision?

A Yes, they were.

MR. BRATTON: I would like to offer these Exhibits in evidence.

MR. PORTER: Without objection, the Exhibits will be admitted.

(Thereupon, Pure Oil Company's Exhibits 3-R through 5-R were received in evidence.)

MR. PORTER: Anyone have any questions of Mr. Wells?

MR. PAYNE: Yes, sir.

MR. PORTER: I think you pretty well covered the point that I raised with the last witness.

CROSS EXAMINATION

BY MR. PAYNE:

Q Mr. Wells, how many wells does Pure have on this same basic lease producing from the South Vacuum-Devonian?

A The South Vacuum unit contains four presently producing Devonian wells.

Q Now, did I understand you to testify that all of those wells with the exception of the 1-35 are offset by producing wells on different leases?

A No. I believe the statement was that if the allowable were transferred to other wells, we would have equally -- to all other wells, we would have a condition of producing more than normal allowable from a well offsetting another lease.

Q Producing from the same pool?

A Yes. Not at this time, no.

Q I see.

A Not at this time. However, they would be offsetting the lease, --

Q Yes, sir.

A -- the boundary line.

MR. PORTER: Do you anticipate that those wells will be drilled within the duration of the test you are asking for?

A They probably will be, yes.

Q (By Mr. Payne) Now, did I also understand you to testify that the information that you obtain from this interference test will be just as valuable and just as accurate if the allowable were transferred to four wells as it is if it is transferred to this one well?

A It will be just as valid and just as accurate, but it will be slower in being determined.

Q Would you be able to get the information you want within the one year period?

A I think we could.

Q Even if it were transferred to four wells rather than one?

A Yes.

MR. PAYNE: That's all. Thank you.

MR. PORTER: Anyone else have a question? Mr. Nutter.

QUESTIONS BY MR. NUTTER:

Q Did you state what the perforated interval in this No. 1-35 is?

A I stated only the deepest perforation.

Q What is the total interval there?

A The overall interval is from 11,643 to 11,680.

Q So there are actually 37 feet of perforations?

A Right.

Q And your PI is what on this well?

A 4.4.

Q And how does the PI in this well compare with the other wells in the unit?

A We have not run PI tests on any other wells.

Q Now, if the Commission should -- first of all, let me ask you this, do any of these wells on your unit make water at this time?

A The 2-35 makes a small amount of water. The latest tests, it flowed 214 barrels of oil, I believe, and 14 barrels of water.

Q Do you take monthly tests on your wells?

A Periodic tests. I'm not sure whether they are monthly or not.

Q Now, during the course of this interference test that you request here, would you be willing to take monthly tests and file that with the Commission and --

A Including the one shut-in?

Q No, I was talking about monthly production tests, gas-oil ratio and measurement of the oil and water produced.

A We certainly would.

Q In the event the Commission should authorize the transfer of the allowable to just the one well, being the 1-35, and

then future conditions would indicate that perhaps that allowable should be distributed to other wells, would you be willing to make that distribution?

A I certainly would.

MR. NUTTER: I believe that's all. Thank you.

QUESTIONS BY MR. PORTER:

Q In other words, about what you are asking for here would be the transfer with the option to transfer any portion of it to the other wells?

A Yes, sir. Under Mr. Nutter's condition, that is correct.

Q In the event that proved to be desirable?

A Right.

MR. PORTER: Anyone else have a question of the witness? You may be excused.

(Witness excused)

MR. PORTER: Does this conclude your testimony?

MR. BRATTON: We have nothing further.

MR. PORTER: Does anyone else have any statement to make, any comment on this case?

MR. BURTON: I am H. N. Burton.

MR. PORTER: Burton?

MR. BURTON: Yes. Speaking on behalf of Sinclair Oil & Gas Company, we own an approximate 9 percent interest in the South Vacuum unit, and we join in and concur with the recommenda-

tions of The Pure Oil Company in this hearing.

MR. PORTER: Does anyone else desire to make a comment or make a statement? If not, we will take the case under advisement.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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

WITNESS my Hand and Seal this, the 24th day of July, 1959, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Notary Public

My Commission Expires:

October 5, 1960

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 1634
ORDER No. R-1382-C

APPLICATION OF THE PURE OIL COMPANY
FOR THE PROMULGATION OF SPECIAL RULES
AND REGULATIONS GOVERNING THE SOUTH
VACUUM-DEVONIAN POOL, LEA COUNTY,
NEW MEXICO, INCLUDING A PROVISION
FOR 80-ACRE PRORATION UNITS.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on August 17, 1960, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 16th day of September, 1960, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, The Pure Oil Company, seeks the promulgation of special rules and regulations for the South Vacuum-Devonian Pool, Lea County, New Mexico, to provide for 80-acre oil proration units.

(3) That the applicant has proved by a preponderance of the evidence that the South Vacuum-Devonian Pool can be efficiently and economically drained and developed on 80-acre proration units.

(4) That to require development of the South Vacuum-Devonian Pool on 40-acre proration units would probably cause the drilling of unnecessary wells.

(5) That all parties present waived objection to the continued assignment of a 40-acre allowable to any well presently producing from the South Vacuum-Devonian Pool to which cannot be dedicated an 80-acre tract which can reasonably be presumed to be productive of oil from said pool. Only two such wells exist.

namely, The Pure Oil Company Reeves Well No. 2-26, SE/4 SW/4 of Section 26 and The Pure Oil Company Reeves Well No. 4-26, NE/4 SW/4 of said Section 26, Township 18 South, Range 35 East, NMPM, Lea County, New Mexico.

IT IS THEREFORE ORDERED:

That special rules and regulations for the South Vacuum-Devonian Pool, Lea County, New Mexico, be and the same are hereby promulgated as follows, effective October 1, 1960; provided, however, that the increased allowable provisions contained herein shall not become effective until November 1, 1960.

SPECIAL RULES AND REGULATIONS FOR THE SOUTH VACUUM-DEVONIAN POOL

RULE 1. Each well completed or recompleted in the South Vacuum-Devonian Pool or in the Devonian formation within one mile of the South Vacuum-Devonian Pool, and not nearer to nor within the limits of another designated Devonian pool, shall be spaced, drilled, operated, and prorated in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well completed or recompleted in the South Vacuum-Devonian Pool shall be located on a unit containing approximately 80 acres which consists of the N/2, S/2, E/2 or W/2 of a single governmental quarter section.

RULE 3. All wells projected to or completed in the South Vacuum-Devonian Pool shall be located within 150 feet of the center of either quarter-quarter section in the 80-acre unit; provided, however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the 80-acre unit.

RULE 4. For good cause shown, the Secretary-Director may grant an exception to Rule 2 without notice and hearing when the application is for a non-standard unit comprising a single quarter-quarter section or lot. All operators offsetting the proposed non-standard unit shall be notified of the application by registered mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application if, after a period of 30 days, no offset operator has entered an objection to the formation of such non-standard unit.

The allowable assigned to any such non-standard unit shall bear the same ratio to a standard allowable in the South Vacuum-Devonian Pool as the acreage in such non-standard unit bears to 80 acres.

RULE 5. An 80-acre proration unit (79 through 81 acres) in the South Vacuum-Devonian Pool shall be assigned an 80-acre

proportional factor of 6.67 for allowable purposes, and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from said wells in any proportion.

IT IS FURTHER ORDERED: That operators who propose to dedicate 80-acres to a well in the South Vacuum-Devonian Pool must file an amended Commission Form C-128 with the Hobbs District Office of the Commission by October 15, 1960, in order that the well may be assigned an 80-acre allowable on the November proration schedule.

IT IS FURTHER ORDERED: That any well which was drilled to and producing from the South Vacuum-Devonian Pool prior to August 17, 1960, which presently has 40 acres dedicated to it, and to which cannot be dedicated an 80-acre unit which can reasonably be presumed to be productive of oil from the South Vacuum-Devonian Pool shall continue to be assigned an allowable equal to normal 40-acre unit allowable for Southeast New Mexico times the 40-acre proportional factor for said pool of 5.67. This exception shall apply only to the wells described in Finding No. 5.

IT IS FURTHER ORDERED: That jurisdiction of this cause is hereby retained by the Commission for such further order or orders as may be deemed necessary in the future.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

A. L. PORTER, Jr., Member & Secretary

esr/