

BEFORE THE  
**Oil Conservation Commission**  
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE NO. 861

TRANSCRIPT OF PROCEEDINGS

**ADA DEARNLEY AND ASSOCIATES**  
COURT REPORTERS  
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ALBUQUERQUE, NEW MEXICO

BEFORE THE  
OIL CONSERVATION COMMISSION  
STATE OF NEW MEXICO  
Santa Fe, New Mexico

April 20, 1955

IN THE MATTER OF: )

Application of the Commission upon its own )  
motion for an order (a) creating the Crosby- )  
Devonian Gas Pool in Lea County, New Mexico, )  
described as: )

TOWNSHIP 25 SOUTH, RANGE 37 EAST )  
All of Section 28 )

Case 861  
Contd.

(to embrace the common source of supply dis- )  
covered in the Anderson-Prichard Oil Corp., )  
No. 1 Amer. Republics-Federal Well, NE/4 SW/4 )  
28-25S-37E); and (b) establishing pool rules, )  
drilling units, well spacing, casing programs )  
and other related matters in the above-de- )  
scribed area. )

Before: E. S. (Johnny) Walker and William B. Macey.

TRANSCRIPT OF HEARING

MR. MACEY: The next case on the docket is Case 861, con-  
tinued from last month.

MR. MALONE: If it please the Commission, Ross Malone for  
Anderson - Prichard. We would like to present some testimony in  
Case 861.

MR. MACEY: Do you have some witnesses?

MR. MALONE: Yes.

D. V. P A T T Y

having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. MALONE:

Q Will you state your name to the Commission?

A Duncan V. Patty.

Q Where do you live, Mr. Patty? A In Oklahoma City.

Q You are employed by Anderson - Prichard Oil Corporation?

A That is correct, as their chief reservoir engineer.

Q Have you ever testified before the New Mexico Commission before? A I have not.

Q Will you state your education as a petroleum engineer?

A I obtained a master's degree in petroleum engineering from Stanford University in 1947.

Q Have you been engaged since that time as a petroleum engineer?

A I have. I worked for Stanolind for approximately five years and for Anderson - Prichard for approximately two and a half years.

Q Are you a registered professional engineer in any state?

A In the State of Oklahoma I am.

Q Are you a member of any professional societies?

A A.M.A.I.M.E.

Q Have you testified before any other Oil Conservation Commission?

A I have testified before the Oklahoma Conservation Commission and the Texas Railroad Commission.

MR. MALONE: Are the witness's qualifications satisfactory?

MR. MACEY: They are.

Q In your capacity as chief reservoir engineer for Anderson - Prichard Oil Corporation, Mr. Patty, were you familiar with the events in connection with the drilling of the Anderson-Prichard Oil Corporation American Republics-Federal Well No. 1?

A Yes, sir.

Q Where was that well located?

A Located in Lea County, New Mexico in Section 28, Township 25 south, Range 37 east.

Q Do you know on what geological or other formation this well was drilled originally?

A Yes, sir, it was drilled on a Yates subsurface high. Insofar as I know there was no other geological basis for the drilling of the well.

Q Do you have before you a structure map on the top of the Yates in that area?

A I do.

Q Which was the basis for the well drilled?

A That is correct.

Q That is a copy of the record from the records of your company?

A This is a reproduction from our map, yes, sir.

Q Will you state the history of the American Republics-Federal Well No. 1 and date it was spudded?

A The well was spudded on April 14, 1954, completed on January 18, 1955.

Q To what horizons was it projected?

A It was projected to the Devonian and Ellenburger. We topped the Devonian, and shortly thereafter on June 23, the well blew out. It was wild for seventeen days. We finally killed it on July 10th, the condition of the hole was such that it was necessary to whipstock it and redrilled the Devonian and carry it down to the Ellenburger.

Q Was it productive in the Ellenburger?

A It was not. The Ellenburger was dry. We plugged back and completed this well as a dry gas well through Devonian perforation from 8270 to 8290.

Q Did you core the Devonian formation in this well?

A No, sir, we did not.

Q For what reason?

A Because of the difficulty we had previously encountered, and being in a whipstock hole, we did not core.

Q What was the thickness of the Devonian formation as determined by you?

A The gross Devonian section is approximately 200 feet.

Q You perforated how many feet?

A We perforated 120 feet.

Q That was at what depth? A From 8270 to 8390.

Q Do you have an electric log of the well?

A I do. These logs were prepared as an exhibit for the use of the Commission, posted thereon on the principal geologic tops, all drillstem tests and completion data.

(Marked Anderson-Prichard Exhibits Nos. 1, 2 and 3, for identification.)

Q Go ahead with your statement, Mr. Patty.

A I might explain that this consists of two electric logs, one a Schlumberger, the second a microlog which covers just portions of the well.

Q On the basis of the information obtained from these logs, have you made an effort to estimate the porosity of the Devonian section?

A Well, we have made some preliminary calculations based jointly on the microlog and on visual inspection of the samples we

estimate the porosity to be of the order of ten percent, possibly lower.

Q I assume that you would consider a core analysis a preferable way of arriving at that if cores were available?

A That is true.

Q Do you know the total cost of this well to Anderson-Prichard, Mr. Patty?

A We don't have in hand the final cost, but it will be of the order of half a million dollars, about five hundred thirty thousand dollars.

Q Is any portion of that attributable to the continuing of the well down to the Ellenburger formation which was dry?

A Yes, we estimate that approximately \$125,000 of that can be attributed the Ellenburger.

Q The cost of completing the well in the Devonian formation would not be the normal cost of drilling a well to that formation?

A No, the cost of blowout was.

Q Based on your, the experience of your company in completing wells in Lea County, can you estimate the cost of completing a field well to this location?

A We believe that future wells will cost between \$275,000 and \$300,000.

Q I believe Anderson-Prichard filed a C-122 with the New Mexico Oil Conservation Commission on the basis of a shutin pressure test of this well on January 17, 1955, did it not?

A That is correct.

Q Was it subsequently determined that there was an error in the completion of that form?

A Yes, sir, it was. That test was taken and the form prepared before the well was actually on the line. Through an error on the part of our field engineers, it is erroneous.

Q Will you state the error which you believe occurred and the manner in which it came to your attention?

A Yes, sir. The form as filed, reflects a shutin casing of 3233 pounds absolute. This was measured with a dead weight gauge. We now believe they miscounted the weights on the dead weight tester. It is definitely too high and our subsequent pressure tests prove it is wrong.

Q Would an error in the counting of the weight on the dead weight tester be a possible manner of accounting for the discrepancy that you feel here exists?

A Yes, sir, it would, it is an unusual thing. It doesn't happen often, we can find no explanation.

Q What open <sup>flow</sup> hole potential did you arrive at there?

A Absolute open flow of sixty-seven and a half million.

Q What was it that brought to your attention first the fact that an error had apparently occurred in computing that data?

A Subsequent to last month's hearing, Sinclair, El Paso Natural and Anderson-Prichard conducted a second open flow potential test at which time we took some additional shutin casing pressures. This time we had a shutin casing pressure of 2,999 pounds absolute with a very small increment of production in the interim period.

Q That was a reduction of your figures for January 17?

A 234 pounds.

Q On what date was that test taken?

A The open flow potential gauges were taken on March 25, the

actual shutin pressure was taken a few days before that.

Q What production, if any, had intervened? Do you have those figures available?

A In the period between the shutin pressure and the open flow potential?

Q Yes.

A It would be approximately 20,000,000 cubic feet.

Q Will you state then the shutin pressure and the potential computed on the basis of the tests that were made in March?

A Yes, sir. Our calculations indicate an absolute open flow potential in light of this revised pressure data of 30,000,000 cubic feet per day.

Q Do you propose to file a revised form C-122 with the Commission to correct the error that occurred in the original one?

A We do. In fact, we would like to introduce this revised copy as an exhibit.

MR. MALONE: Will the reporter mark it as --

(Marked Anderson-Prichard Exhibit  
No. 4, for identification.)

A We --

Q (Interrupting) Mr. Patty, did you make some further tests in an effort to either corroborate or disprove your conclusion that an error had occurred in that original computation?

A We certainly did. We were very much disturbed. On March the 31st we obtained a second shutin casing pressure of 2998 P.S.I.A. On April 15, just a few days ago, we obtained another shutin casing pressure which this time reflected a value of 2999 P.S.I.A. In other words, we have had no appreciable pressure drawdown.

Q That was during the period from March 19 to April 15?

A That is correct. During which time we produced approximately 130,000,000 cubic feet of gas.

Q In order that the record may be perfectly clear, will you again state the shutin casing pressures that you obtained on March 19, March 31, and April 15?

A Yes, sir. They were respectively in pounds per square inch absolute, 2999, 2998 and 2999.

Q Is it your opinion, based on a study and performance of this well, that the figures are correct and that the original figure filed on the basis of a January test was incorrect?

A That is true.

Q Do I correctly understand you that there has been no measurable decrease in shutin casing pressures during the period that this 130,000,000 cubic feet of gas was being produced?

A That is correct.

Q Does your company have available any pressure information for the period prior to the blowout on the well?

A No, sir. With the exception of the shutin pressure obtained on January 17 which we believe to be erroneous.

Q Mr. Patty, have you made a study of the information which is available from the performance of this well and from the electric log and microlog in an effort to form an opinion as to the aerial extent of the common source of supply with which you are dealing here?

A Yes, sir, insofar as we can do it with the limited data at hand, and I firmly believe that the area productive and being drained by this well is in excess of 640 acres.

Q Have you, in connection with the study which you have made,

formed an opinion as to the desirable size of the proration units which might be established in the Crosby-Devonian Pool?

A I have.

Q Do you have a recommendation which you wish to make to the Commission as to the size of the proration units which, in the opinion of your company, should be established in this pool?

A Yes, sir.

Q What is the size of the units you recommend?

A 320 acres.

Q On what do you base the recommendation of a 320 acre unit for the Crosby-Devonian Pool?

A I base that on several factors which must be considered jointly. First I believe that one well will adequately drain 320 acres. Second, the cost of the Devonian wells will be of the order of \$200,000. Hence the elimination of any unnecessary drilling should be a consideration in fixing the size of the unit. Third, we have to take into account the very practical matter of the mechanics and the difficulties incident to the formation of a drilling and spacing unit in accordance with whatever order the Commission may adopt. The Crosby-Devonian Pool is in an area which has been productive of oil and gas from shallower horizons for many years. As a result, the mineral and leasehold ownership is diversified. From this I believe the 320 acres to be the practical unit size.

A fourth consideration is the structure. We believe that the Crosby-Devonian structure will have rather steep dips on the flanks. Development on spacing in excess of 320 acres will necessitate step out drilling at such distances that the risk of dry holes will be

materially increased. Furthermore, spacing in excess of 320 acres per well will increase the amount of non-productive acreage which might ultimately be included in some producing unit. I consider those four factors as a whole in a group in basing my recommendation.

Q In arriving at your recommendation, did you consider the possible desirability of units of 160 or 640?

A Yes, we did.

Q It is your conclusion that the 320 acre unit is preferable for the reasons you have stated?

A That is my opinion.

Q I take it from your statement that you have arrived at that conclusion not on any one of the four bases that you mentioned, but by consideration of all of them?

A That is true.

Q I believe in answer to my question as to your opinion as to the aerial extent of the Crosby-Devonian Pool, or at least the common source of supply from which you are producing, that you expressed the view that a well would drain up to 640 acres. Do you have any opinion as to the aerial extent of the source of supply as distinguished from the amount that a single well might drain?

A Only that it is in excess of 640 acres. We have such limited cumulative production data, and the refinement of our porosity, and other figures which enter into such figures of aerial extent are very limited. We can't say at the present time what the actual productive area is.

Q I take it that you do feel from the maintenance of pressures that in no event is the common source of supply less than 640 acres in its aerial extent?

A That is true. It is inconceivable that it could be smaller than 640 acres.

Q Have you caused an ownership plat of the acreage included in this proposed pool and adjacent acreage to be prepared from the records of your company?

A I have.

(Marked Anderson-Prichard Exhibit No. 5, for identification.)

Q That is the plat which has been identified as Anderson-Prichard Exhibit No. 5?

A That is true.

Q Will you state to the Commission the present state of development in Section 28 which is the area included in the call for Case No. 861?

A At the present time there is one completed and producing Devonian well, that being Anderson-Prichard American Republics-Federal No. 1. It is our understanding that Sinclair has established a location and is getting ready to start drilling a Devonian test in the northwest quarter of Section 28. We further understand that a well which was recently drilling, a Phillips well in the southeast quarter of Section 28 has now been completed as a shallow oil well. In other words there is now one completed well and one projected well to the Devonian.

Q The completed Devonian well is in the south half, the projected well in the north half, of Section 28?

A That is correct.

Q You have recommended to the Commission a proration unit of 320, do you have any recommendation to make as to the portion of the section which shall compose those units?

A Yes, sir, in view of the present development pattern I believe that the unit should consist of the north and south halves of each Governmental section respectively.

Q Do you arrive at that recommendation on the basis of any

engineering or geological information, Mr. Patty?

A No, sir. Just strictly on the development pattern.

Q Strictly on the development pattern that has evolved?

A Yes.

Q In your opinion does the Sinclair location in the north half of Section 28 make impractical the selection of the east and west halves of the section as the proration unit?

A Yes, sir. In the event the Commission went that route we would end up with two wells on the west half of Section 28.

Q Do you have any recommendation to make to the Commission, Mr. Patty, ~~Anderson-Prichard~~ with reference to the casing of wells which produce from the Crosby, or drill to the Crosby-Devonian Pool?

A I have. It conforms essentially to the (Anderson-Prichard) recommendation of last month. We would recommend that surface pipe be set at sufficient depth to protect the fresh water sands in the Santa Rosa formation which would be approximately 500 feet. We would recommend that intermediate casing be set between the San Andros and be cemented to protect the Seven Rivers, Queens and also the salt zone present in the Saludo formation at approximately 1200 feet. We would further recommend that the production string be set not higher than the top of the Devonian. *EI Paso*

Q Do you have any recommendation as to the orthodox location of wells within the proposed 320 acre proration units?

A We believe that such wells should be drilled not less than 660 feet from any lease line, and that the minimum distance between wells should be at least 1320 feet.

Q Do you have any other statement or recommendation, Mr. Patty, that you would like to make to the Commission with reference

to the subject of the hearing?

A At the moment I don't think of it if I do.

MR. MALONE: That is all.

MR. MACEY: Any questions of the witness?

MR. HARBIN: Yes, I would like to ask a couple of questions.

MR. MACEY: Would you identify yourself to the reporter?

MR. HARBIN: Nat Harbin, H-a-r-b-i-n. Attorney for Sinclair Oil and Gas Company.

CROSS EXAMINATION

By MR. HARBIN:

Q Mr. Patty, as I understand your testimony, you base your recommendation of 320 acres unit principally upon the fact that there has been no drop in pressure in your well, is that correct?

A No, sir, you misunderstand me. I base it on a joint consideration of the four factors which I mentioned a few moments ago. The pressure, cumulative production history being one of the factors.

Q That is the principal factor which you took into consideration though, wasn't it?

A Well, I would say that indicates to us that our well is probably draining an area larger than 320 acres.

Q In arriving at your conclusion, you gave more weight to the fact that there had not been a drop in pressure than you gave to the factors which you took into consideration, did you not?

A Well, I would not say that I gave it more weight. I would say that is a very important factor which needs to be taken into consideration in the spacing of any gas reservoir.

Q Do you have any information or data to arrive at a conclusion as to whether or not this reservoir has a water drive?

A No, sir, we have not. As I stated previously, we know

relatively little about the reservoir. We have in hand simply the information which I have presented. Now, other engineers may draw other conclusions. I have stated my opinion.

Q Wouldn't that be a rather important factor in determining the proration unit, the size of the unit, as to whether or not the reservoir had a water drive?

A Well, at such time as that factor can definitely be determined, I suppose we should take it into account. At the present time it is one of the unknown factors over which we have no control.

Q Mr. Patty, don't you believe that if we had more time, if the well was produced for sometime yet several months and more data and information accumulated, that the Commission would be in a better position to establish the proration units than at the present time with the small amount of data which we have in reference to the reservoir?

A That is possible. As time goes by we will undoubtedly know a great deal more about this reservoir. Meantime you have to have some kind of a spacing development program to orderly develop the field.

Q In six months from now there probably would be available a great deal more data which would enable the Commission to better determine the size of the proration units, wouldn't it?

A There may or may not. As you know, last month we requested the continuance so we could get some actual cumulative data. We now have in hand such data covering a production increment of approximately 130,000,000 cubic feet. We now believe that is sufficient to go ahead and base our recommendation. Admittedly it is a rather small increment compared to the total gas in place in the

reservoir.

Q If another well is drilled in the northwest quarter of that section, that would furnish considerably more data in reference to the reservoir, wouldn't it?

A Yes, sir. The drilling of every additional well will help us definitely improve our understanding of it.

Q Would you be willing to recommend that the Commission postpone the establishing of the size of the proration unit for a few months until another well is drilled in the northwest quarter of that section?

A No, sir, I don't believe I would. Not at the present time.

Q You may have testified to this, I couldn't hear all the testimony back here, but did you testify as to whether or not your well is making any water or fluid of any kind?

A It is making no recoverable fluids on the lease. It is not making any water, it is not making any recoverable condensate. I found out just a couple of days ago that El Paso, I believe they can correct me on this if I am in error, is recovering some natural gasoline. A very small amount from the gas as it comes into their plant.

Q I believe you stated that the probabilities are that this will be a small pool, cover a small area?

A No, sir.

Q And that it --

A (Interrupting) I did not state that.

Q You do not?

A No, sir.

Q I beg your pardon, I could not hear all the testimony here. I believe you did testify that the probabilities are that the

formation will have steep dips on the flanks?

A We believe that to be true, yes, sir.

Q If proration units of 320 acres should be established rather than 160 acres, there would be more probability that there would be considerable non-productive acreage included in the 320 acres in some cases?

A Than in what size unit?

Q Than in the 160.

A That is a possibility. It is one of the factors governing the size of the unit that has to be taken into consideration. We have taken that into consideration in our recommendation.

Q Have you given any consideration as to whether or not there might be oil production under the gas or oil, an oil rim after some of the gas is drawn off?

A Yes, sir, we have. We sincerely hope there is. At the present time there is no means of determining whether or not there is.

Q In that event if there should be, then 160 acre unit would be more desirable than 320?

A I wouldn't say that particularly. In the event that you have an oil rim it may be desirable to shut in the gas cap entirely, in which event the fewer gas wells you have the better off everybody will be.

MR. HARBIN: I believe that is all.

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

MR. CAMPBELL: Mr. Campbell. I have already entered an appearance in the previous month.

By MR. CAMPBELL:

Q Mr. Patty, I believe you stated that you had measureable gas production from your well of 130,000,000 cubic feet between March 19 and April 15, is that correct?

A That is right. I said approximately 130, we can't tie it down exactly.

Q Is that all the gas that has been produced into the line from that well?

A No, sir. In the period between March 8 and March 19 I believe it was 57,000,000. We produced approximately 57,000,000 cubic feet in that period, but that is of not any particular significance in our valuation because we don't have any accurate pressure data covering that production increment.

Q Is there any way, or have you been able to make any estimate whatsoever on the amount of gas loss due to the blowout?

A That particular factor would be strictly an estimate. There was no means available of measuring the gas at the time.

Q I realize that. Has your company as of yet arrived at any estimate?

A We haven't been too interested in arriving at it. It is estimates that appeared on our drilling reports and around and by the people who worked on the well, which as you know are visual estimates ranged from 15 to 100,000,000 cubic feet a day. I wouldn't attempt to testify as to what it was. I wasn't there and I have no reliable data to base such an estimate on.

Q In your recommendation for 320 acre, north half, south half units, one of your reasons for 320 acres instead of 640 or 160 I assume, was that the ownership is somewhat diversified and you think 320 acre units would simplify the operating practices

in the pool. Now, from your map that you have presented, isn't it true that you would have less complications if you were pooling on 160 acres than if you were pooling on 320 acres?

A In an area such as this that is badly divided and mineral leasehold ownership, of course the smaller the units the easier the mechanics of putting together. That is only one factor we took into consideration.

Q As to that factor, you were referring only to the difference between 320 and 640 units I take it?

A I was referring to the size of unit that I thought would be practical to attempt to form following the order of the Commission.

Q The most practical one from that point of view would be the smaller unit.

A From that particular point of view it would be easier to form the unit. I wouldn't say it is entirely the most practical unit.

Q You also gave as one of your reasons that the distance which you must step out from well to well on 640 acres would involve a risk that operators would hesitate to take to develop edge acreage or acreage away from actual production. On your recommendation of north half and south half units, any operator desiring to drill a well in Section 29 or 27 would have to step out approximately one mile and a half and dig an offset well, would he not?

A No, they have to step out approximately one half mile which is the same distance that they would have to step out in the event of 160 spacing unit.

Q You don't intend to have any uniformity of 320 acre units as far as the spacing of the wells are concerned?

A I don't quite see what you are driving at. Could you rephrase the question?

Q If you drill a well at the northwest quarter of Section 28 which is now contemplated, is it your idea that the next well would be in the northeast quarter of Section 29?

A If the operator so desired, yes.

Q Then your purpose in asking for 320 acre units is not to create a uniform pattern of development of this reservoir, but to enable you to hold 320 acres with 160 acre location, is it not?

A No, sir. I wouldn't say that at all. It is an attempt to develop this reservoir in an orderly fashion and in a reasonable manner. We have taken into account in our recommendation, the four separate factors which I have previously explained.

Q You stated, I believe, that there was one well completed, your well, and one well drilling to the deeper horizon in this area. Are you acquainted with the well that Phillips is drilling in the southeast quarter of Section 28?

A I would have to rely on Phillips for testimony with regard to the details. I only know it has been completed as a shallow oil well. That is all I know.

Q As a shallow oil well? A Yes, sir.

Q Do you know whether Phillips' application for drilling that well was an application to drill a deep well?

A I do not know. I know they had a small rig on it.

Q Do you know whether or not the application of Phillips to this Commission for an emergency order for unorthodox location was based on drainage from your well in the Devonian formation?

A It was my understanding that they had an expiring lease and

had to get on it. That is the extent of my knowledge.

Q You stated that you wouldn't recommend any postponement of decision in this case until after Sinclair has completed their well in the northwest quarter of Section 28. Why would you not recommend such a postponement?

A Well, I now believe that we have sufficient data in hand to make the recommendation which we have made. Thirty days ago we did not have. We had literally nothing upon which to base it.

Q The only information you have obtained since that time is information that the well isn't as good as you thought it was?

A No, sir, the information that we have obtained leads us to believe that the well is draining a wide area. Something in excess of 320 acres.

Q I believe you testified that the only data you had, you don't have any permeability data do you?

A I have made no attempt to calculate permeabilities from the data we have at hand.

Q You have no cores so that would be rather difficult to do?

A It can be done if you have sufficient information. I don't have it.

Q You estimated that the porosity was ten percent?

A Yes, sir.

Q You consider that to be high or low?

A Oh, that is a reasonable estimate. In my personal opinion if anything it is probably a little high.

Q Do you think for purposes of producing any gas through this gas reservoir that ten percent porosity indicates a large drainage area?

A The actual porosity as such has no bearing on the drainage area.

Q What do you base your estimate?

A What do you want me to tell you, the estimate of gas in place?

Q Estimate drainage area.

A I base it on the consideration of the cumulative pressure data, my opinion of the gas in place per acre, and the total gas being affected by this present well.

MR. MACEY: Anyone else? Mr. Harbin.

By MR. HARBIN:

Q Did you testify as to your estimate of gas in place?

A No, sir, I did not.

Q Could you give us that information please?

A In a very rough fashion it is approximately 100,000,000 cubic feet per acre.

Q One hundred eighty what? A One hundred million.

Q One hundred million cubic feet per acre?

A Yes, sir.

Q How much gas have you produced so far from the well?

A We have produced approximately 187,000,000 cubic feet.

That is produced and sold since El Paso connected.

Q You have produced less than two acres of the gas in place?

A That is true.

MR. HARBIN: That is all. Thank you.

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

If not the witness may be excused. We will take a short recess.

Recess.

(Witness excused.)

MR. MACEY: Mr. Malone.

MR. MALONE: I would like to offer in evidence Anderson-Prichard Exhibits one through five inclusive.

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

MR. MALONE: That concludes the evidence. We would like to make a statement at the conclusion of the case.

MR. KELAHLIN: Jason Kelahin, representing Phillips. We have been prepared to offer some geological testimony. However, it was adequately covered by Anderson-Prichard. We will restrict our testimony to the economics. I would like to call Mr. Washburn as a witness.

E. N. WASHBURN

having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. KELAHLIN:

Q State your name please. A E. N. Washburn.

Q By whom employed?

A Phillips Petroleum Company.

Q What position?

A Reservoir engineer over in the West Texas-New Mexico area.

Q Have you previously testified before this Commission as an expert in reservoir engineering, and had your qualifications been accepted? A Yes, sir.

MR. KELAHLIN: Are the witness's qualifications accepted?

MR. MACEY: They are.

MR. CAMPBELL: I would like to make an objection for the record only at this time. It is my understanding that the witness

is to testify solely on the question of economics. For the record I would like to enter an objection to such testimony on the ground that this is not a hearing to determine the size of proration units, but a hearing to determine the spacing of wells. The only authority of the Commission with reference to determination of spacing of the wells must be based upon prevention of waste.

MR. MACEY: The record will show your objection, Mr. Campbell.

MR. KELAHLIN: I believe it is within the call of the hearing since it does call for the establishment of drilling units, which upon the institution of proration, would become proration units. I don't think there would be any question, there is no reason for establishing a drilling unit for any other purpose. If it is confined solely to spacing as Mr. Campbell contends, the Commission would not consider units in connection with such a consideration.

MR. MACEY: Go ahead, Mr. Kelahin.

MR. KELAHLIN: Did you note his objection?

MR. MACEY: The record will show that he objected to the introduction of any testimony pertaining to economics in connection with the establishment of drilling units.

MR. KELAHLIN: Yes, sir, yes, sir.

Q Mr. Washburn, have you made a study of the payout of wells to be located in the proposed Crosby-Devonian Pool?

A Yes, sir, I have.

Q Before we go into that, you heard Mr. Patty testify. Do you agree with the basic information which was offered by Mr. Patty?

A Essentially the data I had was the same. I have one

exception. Where he used ten percent porosity, my calculations based on electric logs was 8.2 percent.

Q Will you proceed with your testimony?

A Using electric log, and in my study I want to give the well all the benefit I could possibly give, I read it high. I gave it a net pay of 120 feet. Water saturation was 25 percent based on electric log. The porosity, 8.2 percent. Using a volumetric equation, I came out with 67,000,000 cubic feet per acre of recoverable gas. That is based on an initial pressure of 3765 pounds absolute bottom hole pressure.

Now, in assigning an allowable for a unit with 67,000,000 cubic feet per acre, I used the rule of thumb of one million per day per ten million reserves, which would give a well with 160 acres a daily allowable of 1,080,000 M.C.F. or 32.8 million per month. Allowable for 320 acres would be twice that and for 640 would be four times 160. For value of the product, I based it on some of our revenue, we are making, and from the present until the first of 1959 I used 9.7 cents per M.C.F. from 1959 to 1964, 10.8 cents; 1964 to 1969, 11.1; and after 1969 I used 12.8 cents.

For operating expenses I kept it down to \$52.00 per month, or \$624.00 a year, recognizing that is very low for income tax, I also have my well at \$152,000. I fully concur with Mr. Patty's belief that it will actually run from \$175,000 to \$200,000. But in some of the wells Phillips have drilled in this area, we have drilled a well that deep for \$152,000. No trouble was encountered. For that \$152,000 well I estimated the intangibles at \$155,000 and capital expenditure as \$47,000. I retired the capital expenditure at \$3,000 per year. The depletion allowance was 27½, but not over

fifty percent of the net revenue and the income tax rate was fifty-two percent.

Using those values, I find that 160 acre unit would have a fifty-seven month payout. A 320 acre would have a thirty-two month payout. 640 acre unit would have a seventeen month payout. From that data it is my belief that the unit in this area should not be less than 320 acres.

Q Mr. Washburn, using the figures which you have used, would you consider anything on less than 320 acres a reasonable risk?

A 160 acre unit with a fifty-seven month payout, does not appear attractive.

Q In arriving at that figure, you are using the well cost of the market figures and --

A (Interrupting) With a greatening well cost, your revenue would be somewhat less.

Q And the payout would be longer?

A It would be a tendency to extend that payout, yes, sir.

Q In connection with your study, did you make any analysis of the area that one well would possibly drain?

A Our information is too meager to be definite. But from past experience in a reservoir with a well having a rapid buildup as they have experienced with this one, I believe the well will drain at least 320 acres.

Q In that respect you concur with Mr. Patty's statement?

A Yes, I do.

Q You heard Mr. Patty's recommendation as to a casing program.

Do you concur in those recommendations?

*ppc* Yes, we concur with those with one exception. We believe

that an intermediate string set on the base of the Queens at around 3600 feet would be adequate and would protect all the possible oil and gas zones. *instead of the San Andres*

Q Have you any other recommendation on that?

A No.

Q Do you have anything further to add?

A No, sir.

MR. MACEY: Any questions of the witness?

MR. CAMPBELL: Mr. Commissioner.

MR. MACEY: Mr. Campbell.

CROSS EXAMINATION

By MR. CAMPBELL:

Q Mr. Washburn, are you acquainted with the well that Phillips is drilling, or has drilled, or intending to drill, offsetting the Anderson-Prichard well?

A I followed it on the drilling report.

Q Do you know whether that well was projected originally to the Devonian formation?

A I believe the application was to that effect.

Q Do you know whether it is correct that 8-5ths inch has been set to 3605 feet which is the total depth of that well?

A I believe that is correct.

Q When did you decide not to drill that to the Devonian, do you know?

MR. KELAHIN: There is nothing in here to show that Phillips has decided whether to drill to the Devonian-Ellenburg or what they have decided to drill to. I think it is pretty obvious that we are interested in establishing some rules under which we can drill.

MR. CAMPBELL: You are objecting to this?

MR. KELAHLIN: Yes, I am objecting to the question.

MR. CAMPBELL: Application was filed before this Commission by Phillips Petroleum Company for emergency order to drill a well 1320 feet east of the Anderson-Prichard well because of the threat of possible drainage of the lease from the Anderson-Prichard well. It is our information that drilling is shut down on this well and that Phillips takes the position that the well is a completed oil well. This case involves the rights of various types of owners in this area. I believe it is material and fair and reasonable that people who have the lessors interest under any tracts in this area that may be involved in any order in this Commission, be furnished with complete information as to the status of any wells that are being drilled, particularly when the location was obtained on the statement they would be drilled to the producing formation in the Devonian.

If this well is completed to the Devonian, it will quite obviously not fit in with the 320 acre spacing pattern that Phillips is now advocating.

MR. KELAHLIN: The application of Phillips for an emergency order does not necessarily commit them to drill a well to the Devonian. It is based on the fact that they had an expiration date on the lease. At the time this case was heard, I believe the Commission can look at its own order and determine there was nothing saying they would drill to the Devonian. The application and order speak for themselves. They are in the Commission's files. I also have a further objection that this witness has testified that his knowledge as to this well is limited to the well, is to the fact he has followed it on the drilling reports.

MR. MACEY: Your objection is overruled, Mr. Kelahin. If the witness is able to answer the question, we would appreciate it if he would do so.

A Will he please state the question again?

Q I asked you to furnish me with what information you have within your knowledge as to the present status of that well.

MR. KELAHIN: I believe the question was when did the Phillips decide not to drill to the Devonian.

MR. CAMPBELL: It has been so long I can't remember. The question is essentially the same.

A Will you please state it as you did last?

(Question read.)

A No, I don't know.

Q Do you know why it is not now drilling?

A They had a show in the Queens, a part of the Queens. It was acidized and tested and potential about eleven barrels, and it is now being produced. I believe it is being produced as an oil well with an intermitter, making six or seven barrels a day. There has been no final decision that that has quit as far as I know.

Q Mr. Washburn, have you calculated the approximate payout of that well?

A No, I didn't.

Q Well, doesn't it seem as if your company has decided to take the risk of fifty-seven month payout when they obtained the location and commenced the drilling of that well, 1320 feet from the Anderson-Prichard well?

A There were other things besides the fifty-seven months involved here.

Q What was involved?

A A lease expiring.

Q Then, isn't it correct, Mr. Washburn, that your reason for seeking 320 acre units from this Commission at this time, in the light of the order of the Commission that our application which states, "there is a risk of drainage of Anderson-Prichard well in the Devonian", that your purpose here is to protect yourself against your lessors on your offset obligations?

MR. KELLAHIN: If the Commission please, obviously Phillips is trying to protect their lessors, not protect themselves against their lessors. We came here last month in order to present this information and Mr. Campbell asked that it be continued.

Mr. Campbell requested, if the Commission please, that we stay with the statewide 160 spacing pattern for gas reservoirs, with which we are fully satisfied. This is an application of Phillips for an exception.

(Question read.)

A You will have to rephrase that. I am an engineer.

Q If you can't answer the question, just say so.

A I don't gather your question.

Q Just one more question. Is it your statement that this well of Phillips is now producing and selling oil?

A I don't know if it is selling oil. It is being reported as so many barrels per day produced by intermitter.

MR. CAMPBELL: That is all.

MR. MACEY: Mr. Harbin.

By MR. HARBIN:

Q Mr. Washburn, in figuring the number of months payout for these wells, for instance, the 320 acre unit, I believe you

testified would have a payout of approximately thirty-two months?

A Yes, sir.

Q You are basing that, are you not, upon the entire 320 acres being productive?

A Yes, sir.

Q In the event that only a part of that 320 acres would not be productive of gas, why then you would have a different figure, wouldn't you?

A I believe so, that in New Mexico allowables based on acreage only, and if we have a 320 acre unit, we would have an allowable of so many regardless of what was productive and what wasn't.

Q But if the Commission sets 160 acres, there would be more likelihood that the entire 160 acres would be productive than there would be if they set 320, wouldn't there?

A It would depend upon the location of the wells, each well with respect to the structure. I can place a 320 acre on the structure that would all be productive.

Q By the way, were you here last time at this hearing?

A Yes, sir.

Q At that time were you recommending the drilling units to consist of 320 acres consisting of the east half of the west half of each section?

A I don't believe we made a statement last time.

Q You drilled your well, you found it running low, didn't you, as compared to the original shallow wells in the area?

A I am not familiar with it.

Q You didn't obtain that material before you came here to testify?

A I never came to testify on the shallow well, no, sir.

Q Then you don't know whether it was running low or not?

A No, sir.

MR. HARBIN: That is all.

MR. MACEY: Anyone else? Mr. Ridy.

By MR. RIDY:

Q Mr. Washburn, would you not think, assuming a 320 acre unit, that it would be conducive to more equitable drainage to locate such a well 660, 1980 and to alternate the locations in a standard 320 acre spacing pattern? I mean from a drainage standpoint.

A If you were just thinking only of that drainage, that is probably right.

Q It would be mere equitable? A Yes, sir.

Q Your information is entirely based on the Anderson-Prichard Federal No. 1?

A Yes, sir.

Q No other information?

A I compared what I got with the experience of the core analysis of other Devonian fields, and found it was reasonable.

Q But that is all?

A I based my answers on what I got off the electric log of the Anderson-Prichard well.

Q Off the one well? A Yes.

MR. RIDY: Thank you.

MR. MACEY: Mr. Nutter.

By MR. NUTTER:

Q Are you producing that well through a test separator at the present time, or just how are you producing it?

MR. MACEY: Which well are you referring to?

Q This oil well, making eleven barrels per day.

A I don't know. I assume there is test equipment on the lease.

Q Do you know whether Phillips has formulated plans or is formulating plans, for the construction of a tank battery on that lease?

A No, sir, I don't.

MR. MACEY: Mr. Howell.

MR. HOWELL: Ben Howell, representing El Paso Natural.

By MR. HOWELL:

Q With reference to your string of intermediate casing, if that is set at your recommended depth of 3600 feet, that would not constitute any protection against the San Andres, would it?

A No, sir.

Q There is sulphur and water and porosity in the San Andres that would be encountered below that depth?

A Yes, sir.

MR. HOWELL: That is all.

MR. CAMPBELL: If this is the only witness of Phillips, I have one question I would like to ask if he can answer it.

MR. MACEY: Proceed.

By MR. CAMPBELL:

Q Is it correct that the interest of Phillips in this area is limited to a three-fourths interest under a 60 acre lease?

A I believe that is right.

MR. CAMPBELL: That is all.

MR. MACEY: Anyone else?

By MR. MACEY:

Q Mr. Washburn, in connection with your estimated payout, you use a figure of one million eighty?

A ~~1000~~ 180 M.C.F.C.F.

Q What did you base that figure on?

A That I had 160 acre unit, I had 10.8 million cubic feet of reserves, recoverable reserves, which was calculated from these porosity figures that I gave you; 10.8. My one to ten, that would mean he could produce 1080 M.C.F. per day for 160 acre unit.

Q Have you discussed the possible takes from any wells drilled in that area with any transmission company?

A I have briefly discussed it with the El Paso man, the intermission, and he would not take any exception to that he said. It is a rule of thumb. No one knows, I don't think, what the withdrawal would be.

MR. MACEY: Anyone else? The witness may be excused.

(Witness excused.)

MR. KELAHIN: That is all at this time. We would like to make a statement at the close of the hearing.

MR. MACEY: Any further testimony or evidence to give in this case?

MR. HARBIN: Sinclair has some testimony to offer after the proponent of the application has finished.

MR. MACEY: Do you wish to make your statement?

MR. MALONE: Is the case going to be closed today?

MR. HARBIN: We will only take a few minutes in putting in the testimony if the other side is finished.

MR. MALONE: I would like to reserve my statement until all the testimony is in.

MR. MACEY: Mr. Harbin, would you go ahead and proceed?

H. A. M E R R I L L

having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. HARBIN:

Q What is your name? A H. A. Merrill.

Q Where do you live, Mr. Merrill?

A Roswell.

Q By whom are you employed?

A Sinclair Oil and Gas.

Q In what capacity? A I am district geologist.

Q Have you testified before this Commission before?

A I have not.

Q Tell us about your education, Mr. Merrill, where did you go to school?

A I graduated from the University of Oklahoma, 1948.

Q What degree did you receive?

A Bachelor of Science in geology.

Q By whom have you been employed since you graduated from the University of Oklahoma?

A Sinclair Oil and Gas Company.

Q At all times since your graduation from school?

A Full time.

Q Where have you worked, Mr. Merrill?

A Wichita Falls, Midland, and Hobbs.

Q As a geologist for Sinclair during that period of time?

A Yes.

Q How long have you been working in the New Mexico area?

A A full two years.

Q How long have you been making a study or having to do with Devonian production in New Mexico or Texas, or elsewhere?

A Essentially six years.

Q Speak louder.

A About six years.

Q Have you had occasion to make any study or become familiar with the area which is the subject of this hearing here?

A In our normal work we find that these Devonian structures closely reflect the Yates closure.

Q I believe my question was had you had an occasion to make a study of this area here which is the subject of this hearing.

A I have.

MR. HARBIN: Is the Commission satisfied with his qualification?

MR. MACEY: Yes, sir.

Q Mr. Merrill, have you formed an opinion as to the productive area of this gas reservoir which is the subject of this hearing?

A I have.

Q In what area, in your opinion, will the reservoir be productive?

A Pretty hard to say with the limited control. Generally it will be limited to the west half of Section 28 with the present vertical gas limits.

Q Section 28?

A Yes.

Q West half?

A West half.

Q Would there be any area south of that section, or north of it, which might be productive?

A It will extend slightly north and south in the limits of the structure which trends northwest and southeast.

Q So it is your opinion that the producing area will be small?

A Very small.

Q What do you base that opinion on? On what information or data?

A By comparison to other pre-permian structures which show that the Yates very closely ties in with the Devonian closure.

Q What is the comparison between a Devonian reservoir and a Yates reservoir? That is, is the Devonian usually a large reservoir or smaller?

A Ordinarily it is smaller.

Q Have you formed an opinion as to whether or not the Devonian reservoir will have sharp dips on the flanks or not?

A Well, by comparison to known structures, it will be four to six times as steep as the Yates structure.

Q Four to six times as steep? A Yes.

Q Do you feel that there is sufficient information and material available so as to outline the productive area with any degree of definiteness at the present time?

A None whatsoever.

Q Mr. Merrill, what recommendation do you have, if any, to make in reference to the casing program of this reservoir?

A I believe surface casing would be satisfactory at five hundred feet and intermediate casing approximately 3700 feet, just into the top of the San Andres.

Q And the producing string to be set where?

A Either on top or through the pay, the Devonian pay.

Q You feel that would protect all the necessary formations?

A That is standard throughout the permian basin, I believe.

MR. HARBIN: That is all I have of this witness.

MR. MACEY: Any questions of the witness? Mr. Malone.

CROSS EXAMINATION

By MR. MALONE:

Q Mr. Merrill, did I correctly understand to ask you whether or not on the basis of information now available it would be possible to outline the productive area with any degree of definiteness, and your answer to be "none whatsoever"? A Yes.

Q That same answer would be applicable, would it not, to the extent of the common source of supply insofar as the delineation of the exterior boundaries is concerned?

A Yes.

Q You would not tell the Commission on the basis of the information now available, with any degree of certainty, that the west half of 28 is all that is going to produce from this reservoir?

A From that known feet of known pay.

Q You feel that we should limit the pool on west half, even though you cannot be certain of limiting the exterior boundaries?

A Until further drilling.

Q It is true until we get further development the extent of the reservoir is not going to be established.

A That is right.

Q It is also true that the pressure information now available does not indicate that this is going to be a particularly small reservoir, does it?

A I believe that has been testified.

Q You would not disagree with that?

A I am not qualified.

Q So that while the information is now limited, it does indicate that we are dealing with a larger rather than a smaller

reservoir?

A Possibly, yes.

Q If that be true, until such time as it is developed that we are in error, it would be reasonable to predicate a drilling pattern and proration units on that basis, wouldn't it?

A Yes.

MR. MALONE: That is all.

MR. MACEY: Anyone else? Mr. Montgomery.

By MR. MONTGOMERY:

Q Mr. Merrill, do you have any opinion as to the size of the proration unit?

A Not with the present information we have on the thickness of the pay.

Q The question I was getting, we have heard testimony that possibly the proration unit should be restricted to the north half and south half. You have testified that the Devonian is a very steep dip. Would it be possible that if the operator dedicated the north half, that possibly 160 acres of that would be below the water table and not productive of gas. Therefore the operator would not be able to dedicate any part of the south half, so therefore he would have to drill an extra well?

A Did you state that the northeast quarter wouldn't be productive?

Q Take the hypothetical situation in Section 27 was the section in mind, and only the west half was productive of gas. If you drilled a well in the northwest quarter of Section 27, if you could only dedicate the north half of that section to that well, then in order to get the gas under the southwest quarter another well would have to be drilled. Whereas if the party, company

dedicated the west half, then one less well would have to be drilled in the reservoir?                   A It is possible.

MR. MONTGOMERY: Thank you.

MR. MACEY: Anyone else? Mr. Reiden.

By MR. BELDER:

Q Mr. Merrill, basically I think you would agree that with the information available at the present time, that the extent possible to predict accurately the size that this field will take?

A That is right.

Q Or for that matter the extent that it will go to?

A That is our belief, yes.

Q Without further information, it would be extremely difficult to describe the field or the drainage therein?

A That is right.

MR. BELDER: Thank you.

MR. MACEY: Anyone else?

MR. CAMPBELL: One question.

By MR. CAMPBELL:

Q Based on the information that you have available, would you recommend to your company that they step out over a 160 acre quarter section and establish a location and drill a Devonian well on this field?                   A I would not.

MR. CAMPBELL: That is all.

MR. MACEY: Anyone else? If not --

MR. HARBIN: May I ask another question or two?

RE-DIRECT EXAMINATION

By MR. HARBIN:

Q Will you give us your opinion as to the possibility of oil

being produced from the Devonian formation in this reservoir?

A Well, there is some possibility with that one limited well to guess on, it would be pretty hard to say. There is a possibility of a gas-oil contact and an oil-water contact.

Q Sometimes known as an oil rim? A I believe so.

Q In other words, there is a possibility of the production of oil from the same formation, but with the present information you have you can't state an opinion on it?

A That is right.

Q By the way, do you know whether or not Sinclair Oil and Gas Company has established a location in the northwest quarter of Section 28?

A We have.

Q Is it the intention of Sinclair to drill that well immediately, do you know?

A Yes, it is.

MR. HARBIN: That is all.

MR. MACEY: Anyone else? Mr. ~~Reider~~.

By MR. REIDER:

Q What is the location of that well?

A I believe that is 990 feet from the south and east lines of the northwest quarter.

MR. MACEY: That would be 1650 from the north and west?

A Yes, it would.

MR. MACEY: Anyone else? The witness may be excused.

(Witness excused.)

MR. HARBIN: I would like to call Mr. C. D. Gains.

C. D. G A I N S

having first been duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. HARBIN:

Q What is your name? A C. D. Gains.

Q By whom are you employed?

A Sinclair Oil and Gas Company.

Q In what capacity?

A Assistant division engineer.

Q Have you testified before this Commission before?

A Yes, sir, I have.

Q Mr. Gains, are you acquainted with the Anderson-Prichard well which is the subject of this hearing here, and the reservoir from which it is producing? A Yes, sir, I am.

Q What information have you obtained in reference to the area or number of acres which a well drilled into the Devonian formation in that reservoir will drain, do you know? Do you have any information upon which to base an opinion yet?

A We do have the information that Mr. Patty submitted to the Commission this morning which indicates pressure performance of one well completed in the reservoir. I do not think that it is a question of how much the well will drain as to whether you could safely assign 320 acres to a well and be assured that that well would be productive when you have only one well in that reservoir. So to that extent I believe that you could not make the statement that a well would drain 320 acres at this time.

Q Have you had available all of the information which Mr. Patty testified that he based his opinions on?

A We did have the bulk of that information, yes, sir.

Q In your opinion is there sufficient information available upon which to recommend to this Commission the size of the drilling units in that reservoir?

A I think there is very little known to date about the size of this reservoir even particularly from the pressure standpoint that was mentioned this morning. Even though there has been no visible pressure drop, with the cumulative withdrawals, I believe according to the reserve estimates made which our estimates following very closely in line with those made by Phillips and Anderson-Prichard, in fact they fall between the two figures, that for 320 acre unit the volume withdrawn to date would represent something less than one-half of one percent of the gas in place. We do not know whether a water drive might exist in this reservoir. That would tend to maintain even if one did not with only less than one-half percent of the in place withdrawals made at this time, you would not expect much of a pressure drop. It might be that it would be very slight if it did exist, and with two pressure points to go on I seriously doubt that you could establish the size of the reservoir on the pressure information that is at hand at this time.

Q What recommendation do you have to make to the Commission in reference to this hearing, the establishment of a drilling unit?

A It would be my recommendation that drilling units not be established until more information is available, at which time more information would be available to the Commission to make their decision.

Q Within six months from this date will the Sinclair well have been drilled in your opinion, in the northwest quarter of Section 28?

A If we do not encounter any trouble, why it should be completed within six months.

Q Will that furnish further data and information upon which to

base the drilling units?

A I believe we would have just about twice as much data as we have now.

Q Do you recommend to the Commission that the drilling units not be established for a period of six months until further information can be obtained?

A Yes, sir, that would be my recommendation.

MR. HARBIN: That is all.

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

MR. MALONE: If it please the Commission.

CROSS EXAMINATION

By MR. MALONE:

Q Mr. Gains, did I correctly understand your testimony to be that it is your opinion that at this time no competent engineer can make a statement that one well would drain 320 acres in this reservoir?

A No, sir, I don't believe I said that no competent engineer could make that recommendation. I would say that I do not feel that I can make the statement at this time.

Q Would you categorically state that in your opinion one well would not drain 320 acres in this reservoir?

A No, sir, I would not make that statement.

Q The fact is that the great likelihood is that it would drain 320 acres, would it not?

A I think the great likelihood is that it would, yes, sir.

Q So when you qualify your answer to that question by the information now available, it isn't that the present information doesn't indicate that to be correct, but merely that you would like to have some more information before you go on the line?

A No, sir, I believe my statement there concerning that, said there would be a greater question as to whether you could assign 320 acres that would be productive rather than the fact that a well would not drill 320 acres.

Q I misunderstood your question. Your testimony now is the question in your mind is whether a particular 320 acres would all be productive and not whether or not a single well would drain 320 acres?

A Yes, sir, that would be a much greater question in my mind.

Q You would agree ~~then~~ with Mr. Patty's statement that one well in this reservoir would drain 320 acres?

A Yes, sir, if all the acreage in the 320 was productive, based upon the information from one well, I would say that.

Q My question is without reference to a particular 320, but an area of 320 acres could be drained by a single well, having in mind the thickness of the producing horizon, the porosity indicated by the ~~microlog and core~~ ~~of~~ ~~the~~ ~~well~~?

A Yes, sir.

Q With reference to your recommendation that no drilling units be established for six months, it is true that at the time that the Commission met last month there was available to the Commission should it decide on 320 acre units, either the west half and east half or south half or north half as possible drilling units should they be established at 320 acres?

A I do not believe that was the application for the hearing. I believe that the application involved, the east and the west halves of the sections.

Q I believe you will find that there was no application, that the hearing was called by the Commission for a recommendation, and

that no recommendation was made with reference to either east and west or north and south.

A However, there was a well drilling in the east half at that time. It was recognized that that would be, the most likely units would be the east half of the west half.

Q It is true, however, is it not, that by the establishing of the well in the northwest quarter by Sinclair since the last meeting of the Commission, the Commission is in effect deprived of the opportunity to create 320 consisting of east half and west half, because the unit would have two wells already drilled on it, or drilling?

A That would not affect the Commission's decision as to desirable unit, I wouldn't think.

Q It is also true that if a drilling, as to the drilling units, is postponed for six months, the possibility of what has happened in the last thirty days being multiplied by six, does exist, doesn't it?

A Yes, sir.

MR. MALONE: That is all.

MR. MACEY: Anyone else? Mr. Nutter.

By MR. NUTTER:

Q With reference to your recommendation that the proration unit determination be postponed for a period of six months, how much of that time do you think would be actually required to drill and complete the well?

A Three and four months from this date.

Q Two or three months for testing and obtaining production data?

A Yes.

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

MR. HARBIN: No, sir. That is all the testimony that Sinclair has to offer. We would like to make a statement at the conclusion of the hearing.

MR. MACEY: Is there any further testimony?

MR. CAMPBELL: I don't know whether testimony will be required on this. I will state what I had to offer. I have talked this over with Mr. Malone. I haven't mentioned it to Mr. Kelahin. We have only another map showing what the take-off from the county records in Lea County reflect as to lease ownership on deep rights. We have been advised by Mr. Malone that the map that they put in contains some information on the shallow rights which is not accurate as to this particular reservoir. We do not offer this as a title opinion statement of mineral ownership, but offer it as a take-off the best we could obtain from the county records, and would like to offer it in evidence. We have the man here who made the take-off and we will put him on the stand if it is required, but with the qualification that I have made that we are offering it on that basis and for what it may be worth in conjunction with the other map, I thought we could limit the necessity of the exhibit. The other exhibit was obtained in the same manner and is a statement of the mineral ownership in the area involved here.

The purpose of that exhibit is, of course, in connection with the complications that have been referred to here that might arise in event of the necessity of pooling into larger proration units. This was obtained in the same manner by the same man and he would simply identify it and offer it for what it may be worth in that respect. Counsel does not want to stipulate, I will be glad to put him on as a witness.

MR. MALONE: May we inquire whether there are copies available?

MR. CAMPBELL: I have only one copy of each. We would be glad to prepare copies and furnish them. The mineral ownership is quite extensive, but we would certainly do that after the hearing.

MR. MALONE: Anderson-Prichard would have no objection to the introduction if we would be furnished with copies. I would like to clarify the record in regard to the plat offered by Anderson-Prichard. It was complete information as given to Anderson-Prichard concerning the ownership of deep rights. We did learn that it was in error in at least one case, and showed the ownership of shallow rather than deep rights. We have no objection.

MR. MACEY: You are referring to Anderson-Prichard Exhibit 5?

MR. MALONE: That is correct.

MR. KELAHIN: We would have no objection to the exhibit being offered without any testimony. We would also like to have a copy of it.

MR. MACEY: Have you identified the exhibits?

MR. CAMPBELL: I have numbered them Leonard Exhibit No. 1 and Leonard Exhibit No. 2.

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

Anyone have anything further in this case?

MR. WEIR: W. W. Weir, Woodley Petroleum Company. We concur with the recommendations of Mr. Patty.

MR. MACEY: Anyone else?

MR. HINKLE: Clarence Hinkle, Hervey, Dow and Hinkle, representing Humble Oil and Refining Company. The Humble is interested

in this case to the extent that it owns the lease covering forty acres, being the northeast quarter of the northeast quarter of Section 28. It also owns leases covering 200 acres in the adjoining section to the north. The evidence indicates in this case that this well, this discovery is indicative of probably a major Devonian discovery which could be of larger than the normal Devonian discovery, which has heretofore taken place in Lea County. Under the call, as we see it, the Commission should establish, particularly in the new area of this kind, the largest unit possible that is supported by the evidence.

Under the law the Commission should establish that unit which one well will effectively and efficiently and economically drain. We believe that the evidence in this case would support a finding by the Commission that this one well will drain 640 acres and that at least for the time being, until the outlines of the field are pretty definitely established by further drilling, that 640 acres should be the standard unit.

In that connection Humble is willing to pool or communitize the acreage which it has in Section 28 to form such a unit, and would later, if the further drilling indicates that the acreage to the north is productive, would be willing to pool its acreage there to form likewise a 640 acre unit.

Now, if the Commission should see fit to establish a unit less than 640 acres, and we feel in any event it should not be less than 320, then the Humble would be willing to go ahead and pool and communitize its acreage in Section 28. And if further drilling justified it in the adjoining section to the 29, to form 320 acre units. We believe, however, that in the adoption of any rules in

connection with this particular field, that it should not prohibit the formation of 640 acre proration units where the further drilling shows that the establishment of such units are justified.

MR. MACEY: Mr. Woodruff.

MR. WOODRUFF: Norman Woodruff, representing El Paso Natural Gas Company. At the last hearing, El Paso offered casing rules. It has been my understanding that I either misstated or the record shows erroneously, the depth at which we recommended our intermediate string to be set. We indicate 4800 feet, which we consider to be adequate to protect against the highly porous sulphur bearing zones which we have found to occur in this general area in the San Andres formation. It is our understanding that it has been testified to here today, that the pressures taken on this Anderson-Prichard well being discussed, built up to a maximum in fifteen minutes. That being the case, then it would be our opinion that it indicates there is communication in the area being drained and indicative of a wide draining area.

El Paso concurs with the recommendation of Mr. Patty for Anderson-Prichard. We think it very important that the Commission take under consideration and act immediately upon a spacing, upon an acreage allocation for spacing purposes. Whether it be for proration or for spacing short of proration, a pipeline company takes into consideration acreage in the volume of gas which it takes from a well. Under proration, a similar condition will exist. I think the operator and the royalty owner and Commission alike should take cognizance of the fact that a well on 160 acres will get less production than a well on 320. In an area where one well will drain 320 or more, that the drilling of the extra well on 160 is unnecessary.

It would be a wasteful practice. We think that income to the royalty owner would not be greater. Of course it would be less to the operator with the additional well.

Our experience ~~and~~ the only other Devonian gas pool in which we were connected to has been that the rule was too late. That in an area of 1100 acres, six wells were drilled. Three of the wells were on 40 acre spacing. Somewhat similar characteristics are indicated in this Crosby-Devonian Pool, rapid buildup and wide drainage area. We think that the Commission should rapidly institute rules to prevent the drilling of unnecessary wells.

MR. MACEY: Anyone else?

MR. WALKER: Don Walker with Gulf. As stated last month, Gulf does not know definitely whether this reservoir is large enough to be under our property in the area which consists of all of Section 32 and the northeast quarter of Section 33. However, we are still hopeful this might be the case. It goes without saying that smaller units could be made from larger ones than the other way around down the road. We would recommend the adoption that the Commission adopt proration units that would prevent unnecessary drilling of further wells and 640 units.

MR. KEBDANIN, ~~for~~, Phillips Petroleum. We realize this is a new pool and that the information that is available is somewhat scanty at the present time. However, we do feel that enough information has been presented to show that one well will adequately, economically drain and develop 320 acres. If experience should later show that closer spacing is necessary, that is a matter which can easily be remedied. In the interest of orderly development of the pool we feel that the Commission should immediately adopt rules

setting drilling and proration units as soon as possible and not wait until a closer spacing pattern has been established. A further reason for immediate action is the nature of the mineral ownership in the formations involved, which makes it difficult to obtain pooling agreements and obtain the drilling unit or proration unit without the Commissions having adopted any rules.

Until that is done, the operator is at a loss to know which way to turn.

We further feel that the economic picture we have presented shows that there can be an adequate payout in a reasonable time on a well on a 320 acre unit, whereas it would be extremely doubtful on a well located on a 160 acre unit. For that reason we urge the Commission to take some immediate action to adopt a unit. We would prefer a 320 acre unit.

MR. CAMPBELL: If the Commission please, I would like to make a statement. First I would like to point out under the state-wide rules of the Commission, there is a spacing plan in this field. 160 acres is the drilling unit in defined gas pools in New Mexico in Lea County, southeastern New Mexico in the absence of the granting of an exception as provided by rule 104 of the Commission. The sole question here is whether the circumstances justify an exception to the existing spacing pattern and drilling units in this particular reservoir.

It is our position that the lessee under oil and gas leases when he purchases those leases, assumes some of the risk involved in the length of payout and in his obligations to drill wells under the terms of the leases. It has been testified here that there is no intention to set up a uniform 320 acre spacing pattern. If a

uniform 320 acre spacing pattern were planned, then obviously Section 28 with the drilling of the Sinclair well, is off the pattern whichever way you term the units, because they should be drilled on diagonal 160 acre tracts in order to have a uniform spacing pattern.

The obvious purpose here, it seems to me, is to not drill on a uniform plan but to attribute 320 acres to each lease. I don't think it behooves the Commission to establish any rules short of prevention of waste, which will have any effect upon the obligation of the lessee under his contracts. I don't believe it makes any actual difference whether the Commission sets 160 acres, 320 or 640 insofar as the obligations of the lessee under his contract are concerned, because if 160 acres remains, the standard proration unit in this pool and the drilling of an offset well on 160 acres is not economic, and a prudent operator would not undertake it, then the royalty owner has no recourse under his contract. The only thing that 320 acre spacing will do, it will work the other way around. If the royalty owner thinks he is entitled to 160 acre offset, then with the established drilling unit that the Commission sets up he will obviously be unable to obtain his offset to which he may be entitled. At least he is entitled to his day in court.

There is the further point I would like to make that was brought out by the Sinclair witnesses, that the limited information available, it is entirely possible that the drilling of wells on 320 acre drilling units will result in non-productive acreage being attributed to particular wells. The fact that we may go on proration in this pool since we do not have statewide proration. If we do go on proration, the equities depend on whether the well will

make its full allowable and for how long a period of time, not entirely upon the proposition that all the acreage gets the allowable. It may not all be productive acreage, it may not all make the allowable. We feel there is not sufficient information available to justify 320 acre units if 640 acre units were established now or 320.

We believe that would be the end of the drilling in this field. Because the testimony indicates, and some people think it is a small reservoir. Quite obviously if people have to step out a mile and a half, or mile, to maintain a uniform drilling pattern, no prudent operator is going to do it under these circumstances. That is the end of the development, that is why the royalty owners are concerned with the establishment of 320 acre spacing program in this field at this time.

MR. MACEY: Mr. Malone.

MR. MALONE: May it please the Commission, by way of concluding Anderson-Prichard's case, we would like first to commend the Commission if it is within our power to do so, for having shown a realization of the importance of an orderly development of this first Devonian gas pool in New Mexico. I don't know that it was in the mind of the Commission, but I can imagine that it was, that it has heard evidence several different times recently on the question of proration units and drilling patterns which was based on the fact that a pool was already developed, so it was too late to establish a larger proration unit even though it might have been desirable to do so, if it had been done at the outset. But the Commission had withheld action too long and now its hands were tied in putting into effect a plan which it was generally agreed might

be of value.

I think the Commission, in acting promptly with reference to this reservoir, has prevented that argument being made and is now in a position to consider the development of this reservoir and the establishment of drilling units and proration units in the light of the public policy of the state as it has been declared by the legislature of New Mexico. It seems to me we are getting a little bit out of perspective when the argument is made which the Commission has just heard, with reference to action or non-action by the Commission as it relates to the obligation or lack of obligation to the lessee or leasor, the legislature didn't create the Commission for the purpose of determining or effecting as a prime consideration, the rights which might exist between a leasor and lessees admittedly in the execution of the public policy of the state to avoid waste, to protect correlative rights. It is necessary for this Commission to make orders which are going to affect the rights between leasor and lessee. It certainly is not a primary consideration and should not be a primary consideration insofar as action taken by this Commission is concerned. Any action taken on that basis would certainly be fatal on attack.

It has been demonstrated that this is the first Devonian gas pool in New Mexico. That because it is early in the day as far as the development is concerned, we are going to have additional information in the future, it would appear to Anderson-Prichard to be good judgment for the Commission to put itself in a position to take advantage of the new information as it comes in. It is perfectly apparent that if 160 acre units are established, we are committed for time immemorial and the Commission can take no advantage

of the information that may be developed by future drilling. Whereas, if 320 acres are established and it should, as some of the witnesses feel may be the case, develop that we are dealing with a small reservoir, then the Commission will be in a position to act in accordance with that information when it is presented.

We, therefore, recommend to the Commission the establishment of 320 acre unit consisting of the south half and the north half of the respective sections as recommended by Mr. Patty.

MR. MACEY: Anyone have anything further? Mr. Harbin.

MR. HARBIN: May it please the Commission, Sinclair Oil and Gas Company takes the position that there is not enough information and data available upon which to base the 320 or 160 acre units at the present time. We have a new well and a new reservoir which has been drilled. A very small amount of gas produced as compared to the reserve. We think that that is not of sufficient information to justify the Commission in setting the unit based upon 320 acres at this time. Sinclair is in the position that its royalty owners will not voluntarily unitize with more than 160 acres. It must drill its well in order to protect its leasehold rights on the northwest quarter of Section 28, and which it proposes to do, and is proceeding to do at the present time.

We feel that when that well has been drilled, that there will be available a great deal more information. We know not now which way this formation is going to dip. We do not know whether it will be a very small reservoir covering one or two sections, or a big reservoir. Therefore we think that the Commission should postpone its determination for a period of four or six months until further information is obtained. But we also recommend that in the event

the Commission feels that it must at this time establish the drilling units, that they establish 160 acres instead of 320 or 640. We recommend the decision be postponed.

MR. MACEY: Anyone else? If not we will take the case under advisement. We will recess until 1:15.

C E R T I F I C A T E

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings in the matter of Case No. 861, were taken by me on April 20, 1955, that the same is a true and correct record to the best of my knowledge, skill and ability.

*Ada Dearnley*  
Reporter