

CASE 2727: Appli. of CONTINENTAL
to establish rules for the OIL
CENTER-BLINEBRY POOL.

2510.

petition, Transcript,
and Exhibits, Etc.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 3, 1963

EXAMINER HEARING

IN THE MATTER OF:

Application of Continental Oil Company to establish special rules and regulations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the establishment of special rules and regulations for the Oil Center-Blaine Pool in Township 21 South, Range 36 East, Lea County, New Mexico, including a provision for 80-acre spacing units.

CASE 2727

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF PROCEEDINGS

MR. NUTTER: Call Case 2727.

MR. DURRETT: Application of Continental Oil Company to establish special rules and regulations, Lea County, New Mexico.

MR. KELLAHIN: If the Examiner please, Jason Kellahin, Kellahin and Fox, Santa Fe, representing the Applicant. We will have two witnesses.

(Witnesses sworn.)

MR. KELLAHIN: If the Examiner please, we would like to offer Mr. Wolfe as the first witness, and upon the completion of the portion of his testimony, we would like to present the second witness and then recall Mr. Wolfe. I think it would make a more logical and orderly presentation.



MR. NUTTER: All right.

(Whereupon, Applicant's Exhibits
Nos. 1 through 6 marked for
identification.)

JOHN WOLFE

called as a witness, having been first duly sworn on oath, testi-
fied as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A John Wolfe.

Q By whom are you employed and in what position?

A I am employed by Continental Oil Company as District
Engineer, in the Eunice, New Mexico, District.

Q Have you testified before the Oil Conservation Commission
as an engineer and made your qualifications a matter of record?

A Yes, sir.

MR. KELLAHIN: Any questions as to the witness' qualifi-
cations?

MR. NUTTER: No, sir.

Q (By Mr. Kellahin) Are you familiar with the application
of Continental Oil Company in Case 2727?

A Yes, sir.

Q Would you state briefly what is proposed by Continental
in this case?

A Case 2727 involves the application of Continental Oil



Company for special temporary Pool rules including 80-acre spacing for the Oil Center-Blinebry Pool located in Section 4, Township 21 South, Range 36 East, Lea County, New Mexico.

Q Now referring to what has been marked as Exhibit No. 1, would you identify that exhibit and discuss the information shown on it?

A Exhibit No. 1 is a location ownership map showing the Oil Center-Blinebry Pool and surrounding area. The Pool is presently designated as outlined in green. Acreage operated by Continental is cross-hatched in yellow. Wells producing from the Oil Center-Blinebry Pool are circled in red. Other wells in the area are shown by conventional symbols. The ownership of the property in the area is shown on each lease in a conventional manner.

Q What was the discovery well?

A The Continental Oil Company's Meyer B-4 Well No. 19, shown in Exhibit No. 1 marked with an orange arrow. This well is located 3300 feet from the south line and 2310 feet from the east line. This well originally was drilled to a total depth of 12,010 feet and then plugged back to 6,020 feet and completed as a Blinebry oil well. The 5-1/2 inch liner was perforated from 5907 to 5917, 5922 to 5925, 5928 to 5932, and 5940 to 5946. These perforations were treated with 8,000 gallons of 15 percent acid. On initial potential test February 14, 1962, the well flowed 168 barrels of 44 gravity oil, three barrels of acid water in 17 hours on 18/64

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choke. The tubing pressure was 460 psi. The gas-oil ratio was 1042 to one.

Q What additional wells have been completed in the pool?

A As shown on Exhibit 1, Gulf Oil Corporation has completed their Bell-Ramsey No. 11 and 12. Continental Oil Company has completed on the Meyer B-4 Wells No. 20, 21, 22, 23, 24 and 26. No. 25 is shown as a location.

Q What development pattern has been followed in the drilling of these wells, Mr. Wolfe?

A The operators have followed a uniform 80-acre pattern in which wells have been drilled in the Northeast Quarter or the Southwest Quarter of the quarter sections, or on an irregular portion of the section on the odd numbered lots.

Q Are there any wells drilling at the present time?

A No, sir, not to my knowledge.

Q Will you describe the reservoir rock in this area?

A We have cored the Meyer B-4 in 20 and 21 through the Blinebry pay section. Average porosity was 9.14 percent, and permeability was 7.95 millidarcies. Water saturation from core data is calculated to be 36.3 percent. The Blinebry formation is primarily a fine to very fine crystalline dolomite with anhydrites inclusion. Vertical fractures were observed in a large portion of the cores.

Q Referring to what has been marked as Exhibit 2, identify that exhibit and discuss the information shown on it.

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A Exhibit 2 is a structure map of the Oil Center-Blinebry Pool and the surrounding area. The contours depict the structural configuration of the Blinebry marker with an interval between contours of 25 feet. The structural control is from those wells having penetrated the Blinebry formation and supplemented by structural control from the overlying shallow beds which are widely developed in the area.

The Oil Center-Blinebry structure is shown to be a northwest-southeast trending anticline. The Blinebry formation in this area exhibits a series of these anticlinal closures.

The Monument-Blinebry Pool, approximately five miles to the north-northwest, the Weir-Blinebry Pool, approximately four miles to the north-northeast, and the Blinebry Pool, approximately five and a half miles to the east-southeast, are all shown to be on separate structures.

The Blinebry has been penetrated in various locations shown by the green coloration. In each of these cases, operators either tested dry or abandoned without testing the Blinebry.

Q Is it your opinion that the Oil Center-Blinebry Pool is a separate reservoir from the Monument-Blinebry, the Weir-Blinebry, and Blinebry Pool you just mentioned?

A Yes, sir, in my opinion the four reservoirs are effectively separated by structure and by permeability barriers. It is extremely unlikely that there is any connection between any two of the four pools.



Q Referring to what has been marked as Exhibit No. 3, would you state what that is?

A Exhibit No. 3 is a cross section drawn between five of the producing wells in this field. This cross section extends from Continental Meyer B-4 No. 20 on the left, through Meyer B-4 No. 22, Gulf's Bell-Ramsey No. 11, Continental Meyer B-4 No. 19 to Continental Meyer B-4 No. 21 on the right. The exhibit shows wells related to a common sub-sea datum so that structural differences between wells are shown. The Blinbry marker is designated and the main pay zone is shown shaded in green. Completion data is printed below each well, and this section shows that the porous intervals appear in each well, indicating that porosity is continuous through the pool.

Q Will you refer to Exhibit No. 4 and explain that exhibit?

A Exhibit No. 4 is a cross section between Continental's Meyer B-4 Nos. 21 and 21. These wells are about three locations apart, three standard locations, and are the two wells in the pool which have been cored. Each well is represented in this cross section by the core graph showing the results of the analysis of the cores taken from the well. Porosity values are shaded in green, and permeability values in red. This exhibit shows that the zones of permeability are continuous between these two wells, just as is the porosity shown on Exhibit 3 and on this Exhibit to be continuous in these wells.

Q Does the line showing the cross section in the area



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appear on the exhibit, Mr. Wolfe?

A Yes, the line appears on the exhibit connecting No. 20 and 21.

Q It shows the distance between the wells?

A It's approximately three standard locations.

Q Based on information shown on Exhibits 3 and 4, what do you conclude as to the continuity of the zones?

A Based on the data that we have which is shown in Exhibits 3 and 4, the continuity of the zones is excellent throughout the pool. Porosity and permeability are continuous. The vertical fractures described in the core analyses materially contributes to both vertical and horizontal communication throughout the pool.

Q What type of drive mechanism is present in the reservoir?

A At this time we're not certain what type drive is present. We have found no evidence of a gas cap. We have a possibility of water drive. The predominant drive mechanism probably will be solution gas.

Q You stated that there is a possibility of a water drive in the pool. Upon what information do you base this?

A Primarily upon two observations. Referring to Exhibit 3, the Gulf Bell Ramsey No. 11, located approximately 50 feet lower structurally than the discovery well, was completed making 46 percent water and is still producing approximately this percentage



of water. Secondly, the Monument-Blinebry Pool to the north exhibits every indication of having a water drive.

Q Referring to what has been marked as Exhibit No. 5, does this illustrate any of the statements that you have made concerning the Monument-Blinebry Pool?

A Exhibit No. 5 is a reservoir performance curve of the Monument-Blinebry Pool. You will note that the pool has been producing since 1948, a period of approximately 14 years. In that time the bottom hole pressure has declined only about 925 pounds, the GOR has remained relatively constant and water production has increased to a point where it is more than double that of the oil. All of these factors indicate a fairly active water drive.

Q Would you anticipate, on the basis of what you know of the Oil Center-Blinebry Pool, that it would be comparable to the Monument-Blinebry Pool?

A From the data that we have at the present time, there's a definite possibility we will have a water drive.

Q Were Exhibits 1 through 5 prepared by you or under your supervision?

A Yes, sir.

MR. KELLAHIN: I would like to offer in evidence Exhibits 1 through 5.

MR. NUTTER: Continental's Exhibits 1 through 5 will be admitted in evidence.

(Whereupon, Applicant's Exhibits Nos. 1 through 5 admitted in evidence.)



MR. KELLAHIN: We would like to dismiss Mr. Wolfe at this time and call another witness. However, you may want to proceed with the cross examination of this phase of his testimony at the present.

MR. NUTTER: I think we'll wait until he comes back on for cross examination. Mr. Wolfe is excused at this time.

MR. KELLAHIN: I would like to call Mr. Jim McGuire, please.

JAMES MCGUIRE

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A James McGuire.

Q By whom are you employed and in what position?

A I am employed by Continental Oil Company as a Senior Production Engineer in our Regional Office in Fort Worth, Texas.

Q Have you ever testified before the Oil Conservation Commission of New Mexico?

A No, I have not.

Q For the benefit of the Commission, would you outline your education and experience as a Petroleum Engineer?

A I hold a Bachelor of Science Degree in Petroleum Engineering which I obtained from the University of Oklahoma in

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1953. After graduation, I was employed by Texaco, Inc. for nearly seven years. During this period I was engaged in various field and reservoir engineering assignments; and upon termination I held the position of Area Engineer. I have been employed by Continental Oil Company for the past three years and have been primarily engaged in reservoir engineering and secondary recovery assignments. My present title is Senior Production Engineer, and I am primarily engaged in reservoir engineering assignments in our Regional Office in Fort Worth.

MR. KELLAHIN: We offer the witness.

MR. NUTTER: He is qualified.

Q (By Mr. Kellahin) Are you familiar with the application of Continental Oil Company in this case?

A Yes, I am.

Q Will you explain the study that you have made of the Oil Center-Blinbry reservoir to determine the extent of drainage by a well?

A One strong indication our study showed of extensive drainage radius is the rapid build-up to stabilized bottom hole pressure we observed on pressure build-up surveys we have run here. For example, our Meyer B-4 No. 19, the discovery well in the pool, reached a stabilized bottom hole pressure within 45 hours of shut-in on a survey we ran shortly after completion of the well.

Q What is the significance of this rapid build-up?

A Let me explain it in this manner. When a well is



produced, the pressure disturbance radiates out from the well bore to a given drainage radius. Now when this well is shut back in, pressure equalization back towards the well bore begins to occur. If the drainage area of a well has reasonably good permeability, this pressure equalization will be quite rapid. If, however, the permeability is low, then considerable time will be required for the pressure stabilization to occur.

Q Does that have anything to do with the permeability of the reservoir rock?

A Yes. Since the drainage radius is strongly influenced by permeability, it follows then that rapid pressure stabilization is indicative of good permeability and thus extensive drainage radius, whereas a slow build-up indicates low permeability and shallow drainage radius. Generally, we can say that the rapid pressure build-up indicates deep drainage and long build-up time indicates shallow drainage. In the case of Meyer B-4 No. 19 Well, the fact that this well stabilized within a 45-hour period is in my opinion a strong indication of very considerable drainage radius.

Q Do you have any other indication of an extensive drainage radius?

A Yes. Another strong indication we've noted of this extensive drainage radius is the boundary effect shown by the pressure build-up surveys we have run on our Continental Meyer B-4 19 Well, our No. 20, our No. 21, our No. 22 Well. I don't know -- I would like to introduce these curves. Have they been

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introduced?

Q They have not.

A They are attached to the other exhibits.

Q I call your attention to Exhibit No. 6. Does that reflect the curves to which you just referred?

A I believe it is Exhibit No. 7 -- 6, excuse me. These are build-up curves entitled Figures 1-A, 1-B, 1-C, 1-D, and also the data sheets entitled Tables 1-A, B, C and D.

Q Will you discuss the method you used in constructing these curves?

A In constructing these curves, I used the classical pressure build-up methods of Horner and Van Everdingen, in which a plot of pressure versus log of t sub o plus Δ over Δ is made. In this case, the sub o is a figure in production and it is the time after shut-in. In this method, if flow occurs without encountering any boundary effect caused by any well interference or encountering actual reservoir limits, then a plot of this pressure versus logarithmic function will assume a straight line after the initial effects of the after-flow ceases, and will continue until the value of the logarithmic function equals zero is reached. Now if the flow is occurring where a boundary effect is present, because of well interference or from encountering the reservoir limits, then a plot of the log, t sub o plus Δ , t over Δ , the t over Δ begins to tail over because of this boundary effect.



Let me refer you to Figure No. 1-A, which is the initial survey on our Meyer B-4 No. 19 Well. If you'll examine this curve, you'll note that the end portion of the curve tails over instead of continuing as a straight line as shown by the upper dashed line. What does this show? Well, this shows that the Meyer B-4 No. 19 Well has encountered some kind of boundary effect. If no boundary had been encountered, no tail over should have occurred.

Q Do you say that because there's no possibility of interference from another well in this instance?

A Yes. The survey represented by Figure No. 1-A was made shortly after the completion of our Meyer B-4 No. 19 well, which was the discovery well. Therefore, since no other wells had been completed at that time, at the time of the survey, the boundary indicated by Figure No. 1-A had to represent the reservoir boundary. Subsequent drilling has shown that the reservoir limits lie considerably beyond 80 acres from the No. 19 Well; and therefore, the well represented by this survey was draining in excess of 80 acres.

Q On the basis of this information, what would be the minimum acreage that the well is draining, in your opinion?

A Well, based on the subsequent drilling, the minimum would have to be at least 320 acres.

Q Do you have any additional evidence showing drainage in excess of 80 acres?



A Let me refer you now to Figures 1-B, 1-C, and 1-D. These plots represent the pressure surveys conducted on Continental's Meyer B-4 No. 20, 21 and 22. These curves clearly show the tailing over effect which is characteristic of a boundary effect. In the case of 1-B and 1-C, Wells 20 and 22, I believe the boundary effect is probably the result of well interference rather than the reservoir limits. Since these wells are presently developed on 80-acre spacing, this is another indication that the drainage radius is at least a minimum of 80 acres.

In the case of our Meyer B-4 No. 21 Well, this tailing over represents the reservoir limits, since this well is completed in a different zone, lower zone from the rest of the wells in this pool. This zone is approximately 250 feet below this upper Blinbry zone.

I would also like to call the Commission's attention to the fact that the pressure in this zone, as represented by the survey we ran shortly after completion of the well, is 2154 psi, as compared to 2290 for our discovery well, the Meyer B-4 No. 19 Well.

Q Would you summarize your conclusions, based on the testimony you have given here, Mr. McGuire?

A Well, I believe that we definitely have at least a minimum of 80-acre drainage in this pool. First, because of the rapid pressure build-up, which is indicative of good drainage. Secondly, the indication that the reservoir limit was encountered



in the initial survey on the discovery well, our Meyer B-4 No. 19, and the establishment of these reservoir limits well beyond 80 acres from No. 19 by our subsequent drilling program. Thirdly, the indications of well interference on subsequent development wells from the boundary effects shown on their pressure build-up curves.

Q Was Exhibit No. 6 prepared by you or under your supervision?

A It was prepared by me, yes.

MR. KELLAHIN: At this time I would like to offer in evidence Exhibit No. 6.

MR. NUTTER: Continental's Exhibit No. 6 will be admitted in evidence.

(Whereupon, Applicant's Exhibit No. 6 admitted in evidence.)

Q (By Mr. Kellahin) Mr. McGuire, would you repeat the pressures on the Meyer B-4 21?

A The 21, it was 2354.

Q I believe you said 22; is the later figure the correct figure?

A 2290 on Meyer B-4 19 Well.

MR. KELLAHIN: That's all the questions I have of the witness.

MR. NUTTER: Any questions of Mr. McGuire?

CROSS EXAMINATION

BY MR. NUTTER:



Q Were any actual pressure determinations made when some of these subsequent wells were drilled to determine whether the pressure in those wells corresponded with the pressure in some of the previously drilled wells?

A Well, we don't have any evidence on the wells drilled by other operators.

Q You have drilled seven wells?

A Yes, sir. I only have information on four wells to date. There is a pressure discrepancy in our 21 which is about 64 pounds different than our 19 well. But this well is completed approximately 250 feet downhole and we're certain that it is in a separate reservoir.

Q How much production is the maximum production from any well to date?

A That would be from our -- well, to date, I don't know. In a survey run in September, the cumulative production from our B-4 19 Well was a little over 10,000 barrels. Incidentally, this survey showed a build-up within 72 hours which certainly represents a very rapid build-up for this amount of production from the well.

Q When you had the 45-hour pressure build-up, how much had the pressure been drawn down at that time?

A Well, this survey represented by the 45-hour build-up was made shortly after the completion of the well. This would represent, for all intents and purposes, stabilized bottom hole pressure, because it was the initial well in the pool. There



should have been very little pressure drawdown.

Q So the 45 hours was the time required to build up to a stabilized bottom hole pressure, but it didn't build up from a very low point; in other words, it hadn't gone down much?

A Well, it was considerable drawdown. I didn't understand your question. It was a little below 1800 at the shut-in of the well.

Q Is that the No. 19 Well?

A Yes. It is slightly below 1800 pounds, and built up to a value of 2290, stabilized at that value.

Q This Exhibit 1-A is that 45-hour pressure build-up you have?

A Yes.

MR. NUTTER: Are there any further questions of Mr. McGuire? He may be excused.

(Witness excused.)

MR. KELLAHIN: I would like to recall Mr. Wolfe, please.

MR. GIRAND: I understand we will have the right of cross examination of all witnesses?

MR. NUTTER: Yes, sir. Did you have any questions of Mr. McGuire?

MR. GIRAND: Well, I didn't know how you were running this program.

MR. NUTTER: We will recall Mr. McGuire at this time for cross examination if anyone has any questions of him.



MR. GIRAND: I am W. Girand, representing James M. Murray. We own the offsetting acreage in Section 3, being Lots, I believe 5 and 6, 11 and 12 and 13 and 14 in Section 3, Township 21 South, Range 36 East. I am a member of the firm of Girand, Cowan and Reese. Our Post Office Box is 2405, Hobbs, New Mexico.

JAMES McGUIRE

recalled as a witness, having been previously sworn on oath, testified further as follows:

CROSS EXAMINATION

BY MR. GIRAND:

Q Mr. McGuire, I will direct your attention to your Figure 1-C under Exhibit 6. That deals with your Well No. 21, does it not?

A That's right.

Q That well was completed at a total depth or in a zone of approximately 200 feet below the zones penetrated by the other wells?

A That's correct.

Q The chart there only shows the pressure curve from that one zone in the pool, is that correct?

A That's right.

Q You have no other --

A This is the only well we have completed in this zone.

Q -- pressures in that zone?

A Yes.

Q I believe your testimony was it showed a tailing off



around 2354, is that correct?

A That's correct.

Q That would indicate what?

A Well, this is using this classical build-up method of Horner and Van Everdingen. This is a classical example of some kind of boundary being encountered out at the outer drainage radius of this well.

Q But it would not necessarily depict how far that boundary may be?

A No.

Q It could be within a 40-acre area or less?

A That is correct.

MR. GIRAND: I believe that's all.

MR. WOLFE: We have the similar surveys --

MR. GIRAND: Mr. Wolfe, you can volunteer whatever your attorney asks you. I have asked my questions. I am through.

MR. NUTTER: Does anyone have any further questions of Mr. McGuire? He may be excused.

(Witness excused.)

MR. KELLAHIN: Would you recall Mr. Wolfe, please?

JOHN WOLFE

recalled as a witness, having been previously duly sworn on oath, testified further as follows:

DIRECT EXAMINATION (Continued)

BY MR. KELLAHIN:



Q Now, Mr. Wolfe, have you any recommendation to make to the Commission, based on the testimony that has been offered here today regarding well densities in this pool?

A Yes, sir. We believe that the evidence presented here today points very strongly to the conclusion that one well will drain in excess of 80 acres. In view of this, we believe it's essential that time should be given for the conduct of further tests to determine if a permanent order should be entered placing the pool on 80-acre spacing. Once a 40-acre pattern is established, we would be committed to drill wells which probably will not be necessary to efficiently drain this reservoir.

Also, there is increasing recognition in the industry and state regulatory bodies that in the face of greater competition in the industry both domestically and from foreign operations, greater efficiencies and the elimination of unnecessary expenditures are essential to the continued existence of a healthy domestic oil industry. The elimination of drilling unnecessary wells is one of the means of meeting this objective.

Considering the data presently available in the pool, I recommend that the pool be developed on a density of 80 acres per well. This is based on the fact that it appears that one well will drain this area under any type of drive that might be present.

Q Do you make this recommendation as a permanent or temporary order?



A I am confident that a well will drain 80 acres in the field as we know it today. There is still much we do not know about the reservoir. We would like to obtain considerably more information before recommending a permanent well density rule. Therefore, I recommend 80-acre spacing on a temporary basis for one year. At that time we shall present the additional data available and be in a position to recommend a permanent density rule or justify an extension of this temporary rule.

Q What additional data do you expect to obtain after a year's time?

A Of course, we'll have additional wells and a better conception of the limits of the reservoir. The 80-acre spacing will help expedite this feature. We will probably have additional core data, more pressure and production data; and when satisfactory arrangements can be made, an interference test will be conducted.

Q What recommendation do you make in regard to well locations?

A All well locations completed to date, all wells completed to date conform to a uniform pattern of alternate 40-acre locations. In the interest of greatest possible drainage efficiency, I would recommend a continuation of that pattern. I therefore recommend that each well drilled or recompleted in the pool be located in the Northeast Quarter or the Southwest Quarter of each regular quarter section or on odd numbered lots in the



irregular sections. The present wells in Township 21 South are so located. In Township 20 South, all wells completed should be in the Southeast Quarter or the Northwest Quarter of the quarter section.

Q You say the Southeast or the Northwest Quarter?

A Yes, sir. If you refer to Exhibit 1, you'll see that the Township line has an offset of approximately one location. This facilitates spacing on both sides of the township line.

Q What recommendation do you make in regard to tolerance of well locations?

A Considering the large number of wells drilled to the shallow formations which could be deepened to the Oil Center-Blinebry Pool, or which must be avoided in drilling twin wells, I recommend that no well be located nearer than 330 feet from the boundary of the appropriate quarter-quarter section or lot.

Q Have you prepared a proposed set of field rules for the Commission?

A Yes, sir. I have a set of proposed rules which embodies the recommendations, and I recommend their adoption.

(Whereupon, Applicant's Exhibit No. 7 marked for identification.)

Q Do you have any recommendation as to whether the pro-ration units should be oriented in a north-south or east-west direction?

A No, sir. It would be our recommendation that the 80-acre units could run either north-south or east-west, depending



on the configuration of the leases.

Q Was Exhibit No. 7 prepared by you, Mr. Wolfe?

A Under my direction, yes, sir.

MR. KELLAHIN: I would like to offer in evidence Exhibit 7.

MR. NUTTER: Exhibit 7 is the proposed pool rules?

A Yes, sir.

MR. NUTTER: Continental's Exhibit 7 will be admitted in evidence.

(Whereupon, Applicant's Exhibit No. 7 admitted in evidence.)

MR. KELLAHIN: That completes the direct examination of the witness.

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

MR. GIRAND: Yes.

MR. NUTTER: Mr. Girand.

CROSS EXAMINATION

BY MR. GIRAND:

Q Mr. Wolfe, in connection with your testimony as to your drilling pattern there, your Well No. 21 being completed at a lower depth doesn't necessarily control as to your well spacing or to your acreage factor for a producing unit, does it?

A As presently designated, No. 21 is within the Blinebry Oil Center-Blinebry Pool.

Q I'll ask my question over again. In connection with that well, and being completed at a lower depth and the only well



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completed at that depth, the 80-acre spacing that you recommend, as well as the diagonal well spaces or well bore hole, is not necessarily controlled by anything that you know at the present time?

A We have core data on this No. 21 Well which indicates the upper section is productive, and we fully intend to complete it.

Q We are talking about the lower section as to that well.

A I don't believe the lower section influences us a great deal in this particular case. It is the only completion we have been able to make. We have attempted completions in the lower interval in three or four other wells, and have not been able to make same because of water.

Q Would you have the rules apply to both the upper and lower section?

A As now classified by the Commission, it is one reservoir. It would take a hearing to classify it as two.

Q Do you consider it two reservoirs or one?

A For purposes of production, at the present time we are considering it one reservoir.

Q I understand, but from the information that you have from the tests that you've made, does it carry the same characteristic as one pool?

A I believe that further information would be necessary before we could fully differentiate it. There is considerable



evidence to indicate that they are segregated.

Q Now, the Continental has been the primary developer so far in the pool?

A That is correct.

Q I notice that on your Well No. 26 that your well is located 330 from the south lot line, is that correct?

A That is correct.

Q On your Well No. 20, it's located some 517 feet from the south line?

A That would probably be correct. I haven't checked the position on 20, but it's located a little closer to the center. Both of these fall within the proposed field rules.

Q I appreciate that. And the same would be true in regard to your Wells numbered 24 and 22, would it not?

A Yes, sir. They both fall within the proposed field rules.

Q Now your discovery well was your No. 19, is that correct?

A That is correct.

Q Do you have the location of that well?

A It was given in previous testimony. It's 3300 from the south and 2310 from the east.

Q What is your proposed location on your No. 25 well?

A No. 25 would be as shown on the map there. I have not the figures in front of me, but it's approximately 200 feet north of No. 4.

Q In other words, your wells have been located either



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northward or southward towards your discovery well, is that correct, in every instance?

A With the exception of possibly No. 21 over there in the southeast corner. No. 23 is a standard location at the center of a quarter-quarter section.

Q What are the characteristics of the No. 23 Well; is it as good a well as the other well, or does it make more water?

A No, sir, it is not as good a well.

MR. NUTTER: Which one was that?

MR. GIRAND: No. 23.

Q (By Mr. Girand) Now in connection with the two Gulf wells, do you know anything about those as to their location?

A They both are 330 feet off the lease line.

Q Off the lease line. You testified, I believe, that there was considerable evidence at the present time that this would be a water drive pool, is that correct?

A There is this possibility. I believe it was so stated.

Q Well, enough possibility that you are willing to testify that it's very likely to occur?

A That's right.

Q That would result then in a normal drainage by the water drive down to the bore holes, would it not?

A Would you rephrase that question?

Q Well, what would it mean, then, if it's a water drive pool?



A If the water drive is occurring from the flanks, we anticipate that it might be it would act as any normal water drive reservoir. You get considerably greater recoveries; the well density as we propose it, we think would be sufficient.

Q Then the outside wells on the well spacing might suffer by reason of your requirement for a well spacing in alternate or diagonal quarter sections, is that correct?

A On the structure map as presented, there's a lot of things we don't know about locations to the flanks at this particular time. It's hard for me to see that it would suffer at all with what we know now.

Q But from the pool delineation as you've envisioned it here in your Exhibit No. 2, such would result, would it not, for instance in the lands located in Section 3?

A The lands located in Section 3, a great deal of them according to our exhibit are in pretty good locations as far as the reservoir is concerned. We don't know exactly, as is shown there, we have control in our Wells No. 24 and 21 and there's no control to the east until you get over to the Sunray Well in Section 11. This is our best interpretation at this time of what happened out there.

Q The water drive, though, if coming from the exterior ends of the pool, would drive the oil into the high that you show there on your Exhibit 2, would it not? That would be the tendency to drive southwest?



A I don't think I could dispute that statement.

Q Mr. Wolfe, at the present time do you have any objection to exception to the rule as you have proposed here whereby the well bore location would be deleted and leave your application as to an 80-acre spacing program?

A Would you like to make some proposal at this time as to an exception?

Q I didn't come quite as well prepared as you and I hadn't seen your proposed rules and haven't yet.

MR. KELLAHIN: I don't believe the witness understood Mr. Girand's question. Am I correct, you are asking him if he would object to deleting the well location from the proposed rules?

MR. GIRAND: That is correct.

MR. KELLAHIN: Did you understand that?

A Yes, sir, I think I did, and I, under those conditions, would object. I was trying to -- Go ahead.

Q (By Mr. Girand) Well, in your opinion at this time, Mr. Wolfe, taking into consideration the fact that there is a great possibility of a water drive reservoir here, do you feel that your alternate quarter-quarter sections would give each owner of the lands located in what you have delineated as the pool, a right to the fair share of the oil underlying their land?

A Yes, sir, I feel that it would.

Q You believe it would. Doesn't your study show that the



oil structure to the south, that they have a thicker structure to the south than they do to the north in the wells that you have completed in the area?

A Would you repeat the question?

Q Wouldn't your study show that your structure, the thickness of your structure on your wells, say 19, which is in the upper pool, is greater than the producing structure in Well 26?

A I would say that the high appears to have a slightly thicker section, not appreciably so, than the flanks of the structure.

Q Do you know how much?

A No, sir.

Q You don't know. But in the drilling of your wells, you have located your wells in a manner so as to favor the high?

A We have used our geologic interpretation in spacing our wells, but they still are within conformance with the proposed rules.

Q Would the failure of the Commission to adopt the well location, that is the bore hole location, result in any appreciable amount of offset wells to the wells you now have? In other words, Mr. Wolfe, if the well bore is not determined by the rules of the Commission, you would have at the present time some three offset wells, would you not? One on the Sinclair to the south --

A We would have as many offsetting wells as we would have



offsetting those operators against them.

MR. GIRAND: I believe that's all.

MR. NUTTER: Are there any other questions of Mr. Wolfe?

BY MR. NUTTER:

Q You stated that the one Gulf well was making 46 percent water, I believe?

A That's No. 11, yes, sir.

Q Do you think that well has penetrated any water-oil contact that may be present here?

A It appears that that well and their No. 12, which also produces some water, have both been perforated below a possible water-oil contact.

Q Are they producing from what we might call the upper zone?

A Yes, sir.

Q Or from the lower zone?

A They are from the upper zone. Our No. 20 Well is completed some 200 feet lower.

Q That is the only well completed lower?

A That is correct. The test data shown on Exhibit 3, on two of our wells in which we completed in the lower interval and tested primarily water.

Q On your Exhibit No. 4, the cross section of the core analysis, No. 21 exhibits quite a bit of porosity and permeability in the lower zone. Was an attempt made to recomplete that?



A We have in the back of our minds recompletion in this zone in the not too distant future. We tested it and got a top allowable oil well.

Q So you tested it?

A Oh, there's no doubt in our mind we have a top allowable oil well in the upper zone.

Q Do you have any idea as to the sub-sea level of the oil-water contact in the upper zone?

A If you refer to Exhibit No. 3, it will be our opinion - my opinion, I had better qualify this a little further, that in the Ramsey Well No. 11, Bell Ramsey No. 11 Gulf, the water is coming from the two lower single perforations that they have shown there.

Q Are those arrows there perforations?

A Yes, sir, they have single perforations at those locations. We recently completed our No. 26, which is structurally equivalent to their No. 11 in just the upper section, and we did not encounter water production.

Q In your Exhibit No. 2, you have a few wells in green scattered around on that map?

A Yes.

Q Which you depict as being the control wells. Are those the only wells on the map which are not included in these several Blinebry pools which have penetrated the Blinebry marker?

A Yes, sir. There are possibly one or two others in the



northeast corner there in our Skaggs Pennsylvanian Pool that have penetrated it, but these were the closest ones to this location.

Q And all these other wells shown here are all shallower wells?

A That is correct.

Q You introduced one exhibit, Mr. Wolfe, depicting the decline in reservoir performance curves of the Monument-Blinebry Pool. What actually do you have to go on that would indicate that this Oil Center-Blinebry Pool is a similar type reservoir to the Monument-Blinebry Pool?

A We have the water production from the flank wells, and at this time that is the primary thing that would influence us in this regard. We think that generally pools in the area, as these, might be related in some way and would probably exhibit similar characteristics.

Q But at this early date in the life of the Oil Center-Blinebry Pool, there's no production evidence or reservoir performance that would actually indicate that this is a water drive pool?

A It's a possibility and was so stated.

Q What do you calculate the net pay of the upper zone only to be, average?

A Approximately 35 feet, something like this, net effective pay.

Q What is your interpretation of the size of the productive



limits of the pool, horizontally?

A Acreage-wise?

Q Using your Exhibit No. 2 there, approximately what contour line would you think would cover the limits of the pool?

A I imagine a minus 2375 will get it all. It may be slightly above that. You'll notice that Shell's Well No. 5 circled in green there has a sub-sea datum of minus 2368, in Section 32.

Q What did it find in the Blinebry?

A Water in the Blinebry with some oil. I think you'd have to consider that as a limit in that particular case.

Q Your southernmost well is No. 23, is that correct?

A That is correct.

Q Does that well make any water?

A Token water. It is not a good well.

MR. NUTTER: Are there any other questions of Mr. Wolfe? He may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: No, that's all we have.

MR. NUTTER: Does anyone have anything they wish to offer in Case 2727?

MR. KASTLER: Bill Kastler, representing Gulf. I have a statement. Gulf Oil Corporation is an operator in the Oil Center-Blinebry Pool having two producing wells and the possibility of



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several additional locations. We concur with Continental's proposed special rules with the exception of that portion pertaining to the location of wells only in the northeast and southwest quarter-quarter sections, or as otherwise brought out in them.

It is our suggestion that the well location provisions be made flexible so that, among other things, an operator can take advantage of deepening an existing well which has reached its economic limit of production, but which is not properly located. It has been our observation that rigid spacing rules invariably lead to the necessity of seeking exceptions, which simply add to the work load of both the industry and the Commission.

Thank you.

MR. NUTTER: Anyone else?

MR. CHRISTY: Sim Christy, Hervey, Dow and Hinkle, for Sun Oil Company. We are the offset operator of the wells in the South Half of Section 3 lying immediately east, and in the Exhibit A, we also own 20 acres of the 40-acre tract shown as owned by Skelly. We would like to join in the support of Conoco for the special rules and regulations for the Oil Center-Blinbry Pool as testified to at this hearing.

However, in view of the early stages of the development, coupled with the fact that the proposed rules are temporary, we feel that it will be in the best interest of all parties and promote the more economic development of the pool if the rules provide for flexible spacing. Flexible spacing in temporary rules



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in Lea County has been approved by the Commission in a great majority of cases, and indeed has been approved by the Commission in two permanent rule hearings. We concur and join with Gulf in their reasons, and also submit Sun's proposal that the rules for this pool as proposed by Conoco in its Exhibit 7 in Rule 3 be changed so that Rule 3 would read thus: "Each well projected to or completed in the Oil Center-Blinebry Pool shall be located within 330 feet of the center of either quarter-quarter section or lot in the 80-acre unit."

MR. NUTTER: Mr. Girand.

MR. GIRAND: On behalf of James M. Murray, owner of offset acreage located in Section 3, we would like to join in and adopt the remarks of Mr. Kastler for Gulf Oil Corporation and Mr. Sim Christy of the Sun Oil Corporation, particularly as to the flexible well spacing provision as proposed by the rules. We have no objection to the 80-acre spacing, but only to the rigid well bore portion of the rule.

MR. NUTTER: Thank you. Does anyone else have anything?

MR. KELLAHIN: If the Commission please, I think all the parties here seem to be in agreement at least on the 80-acre proposal on a temporary basis for one year, and we feel, of course, the evidence does support it and it would be in the interest of conservation to grant a temporary 80-acre spacing order for a period of one year until additional data can be obtained on this reservoir.

As to the question of flexible well locations, that is



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a question that has been frequently before the Commission both in these hearings and in cases seeking exceptions to the rigid spacing. The proposal has been made here by Continental Oil Company for two basic reasons. First, the reservoir up to date has been developed on a uniform spacing pattern and there are at present no wells drilling in the pool, as one of our witnesses testified. For that reason, no exceptions would be required, as is frequently the case in the cases coming before the Commission. The second reason, and the principal one on which Continental bases its recommendation, is that it will establish a more uniform drainage pattern. I think that that speaks for itself. The question every operator is confronted with is particular location on the structure, and that is one of the things that neither this Commission nor ourselves can help. We have presented the information as we see it. Our witness has testified that he doesn't see where anyone is going to be penalized, and that's the only testimony that's before the Commission.

MR. DURRETT: If the Examiner please, the Commission has in its file a letter from the Atlantic Refining Company signed by W. P. Tomlinson. This letter was received on January 2nd. It endorses the application of Continental Oil Company; and I would like to ask the Examiner to take administrative notice of its entire contents.

MR. NUTTER: I will. Does anyone have anything further in Case 2727? We'll take the case under advisement and take a



fifteen minute recess.

(Whereupon, a recess was taken.)

* * * *

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

I, ADA DEARNLEY, 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; and that the same contains a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:

June 19, 1963.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of case No. 2727 heard by me on 1/3, 1963.

[Signature], Examiner
New Mexico Oil Conservation Commission

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 22, 1964

EXAMINER HEARING

IN THE MATTER OF:

In the matter of Case No. 2727 being reopened pursuant to the provisions of Order No. R-2408 which order established temporary 80-acre proration units for the Oil Center-Blinebry Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

Case No. 2727

BEFORE: ELVIS A. UTZ, EXAMINER.

TRANSCRIPT OF HEARING

MR. UTZ: Case 2727.

MR. DURRETT: In the matter of Case No. 2727 being reopened pursuant to the provisions of Order No. R-2408 which order established temporary 80-acre proration units for the Oil Center-Blinebry Pool, Lea County, New Mexico, for a period of one year.

MR. KELLAHIN: If it please the Commission, Jason Kellahin, Kellahin and Fox, representing Continental Oil Company. We propose to offer some testimony in this case.

MR. UTZ: We're very happy that you are. Any other appearances?

MR. GUELL: For Pan American Petroleum Corporation, Guy Buell.

MR. GIRAND: For Metex Supply Company, Hobbs, New Mexico, Dub Girand, Girand, Cowan and Reese.

MR. CATRON: Mr. Fletcher Catron appearing on behalf of Fletcher Catron.

(Witness sworn.)

JACOB LEVINE

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

DIRECT EXAMINATION

BY MR. KELLAHIN:



(Whereupon, Applicant's Exhibits 1 through 4 were marked for identification.)

Q Would you state your name, please?

A Jacob Levine.

Q By whom are you employed and what position, Mr. Levine?

A Continental Oil Company, Senior Production Engineer, Hobbs, New Mexico.

Q Has the area involved in the Oil Center Blinbry Pool come under your jurisdiction as Senior Engineer?

A Yes, sir.

Q Have you previously testified before the Oil Conservation Commission as a petroleum engineer and made your qualifications a matter of record?

A Yes, sir.

MR. KELLAHIN: Are the witness's qualifications acceptable?

MR. UTZ: Yes, sir, they are.

Q Mr. Levine, are you familiar with the case before the Commission at this time?

A Yes, sir.

Q Would you state briefly what's involved in this case?

A Case No. 2727 involves a request of the Commission to review the temporary 80-acre spacing authorized by Order No.



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R-2408 in the Oil Center Blinebry Pool located in Sections 3, 4, 5, 9, and 10, Township 21 South, Range 36 East, Lea County, New Mexico.

Q I direct your attention to what has been marked as Exhibit No. 1. Would you identify that exhibit and discuss the information on it, please?

A Exhibit No. 1 is a location and ownership map showing the Oil Center Blinebry Pool and the surrounding area. The pool, as presently designated, is outlined in red and the wells producing from the pool are circled in green.

Q Is the pool presently being developed on an 80-acre spacing pattern?

A Yes, sir.

Q By Orders R-2476 and R-2476-A, the Commission granted approval to conduct and extend the time for an interference test in order to determine the degree of horizontal communication in this pool. What were the results of these interference tests?

A Exhibit No. 2 is a plot of the bottom hole pressure in the test well Meyer B-4 No. 19 versus time from shut-in date May 1st to December 16, 1963. The allowable from the Meyer B-4 No. 19 was transferred to the other wells on the lease and these wells produced at their newly assigned allowables. As can be seen from the Exhibit No. 2, no appreciable drawdown was noted in the



observation well.

Q The exhibit bears a legend that it is not a valid pressure or an extrapolated pressure. What does that mean?

A The pressures that are noted extrapolated pressures are not valid are the pressures that were taken at some point high above the datum point in the well. And the pressures had to be extrapolated to datum and these pressures were not considered valid.

Q That does not detract from the validity of the exhibit as a whole?

A No, sir.

Q Does this exhibit, in your opinion, indicate that 80-acre drainage is being effected by the wells in the pool?

A It means that the 80-acre drainage is possibly being effected. However, Exhibit No. 3 is a tabulation showing the required drainage area from each well on the Meyer B-4 lease to effect any drainage from the immediate vicinity of the Meyer B-4 No. 19 well bore. It can be seen that the minimum drainage area is 156 acres, far exceeding the 80-acre spacing.

Q What was the maximum pressure recorded in the Meyer B-4 No. 19 after being shut-in on May 1st?

A The maximum pressure recorded was 2138, it's being slightly below the bubble point pressure of 2170 psi.



Q If the maximum pressure in the No. 19 was 2138 psi after the start of the interference test and declined to 2115 as depicted on Exhibit No. 2, why do you not consider this a pressure drawdown?

A I would like to point out that the actual chart readings indicated a decline of 23 psi; however, due to a margin of error in the measuring device and the human error in reading the pressure charts, it cannot be conclusively stated that any drawdown has occurred. The pressure fluctuations may be attributed to possible errors in measurement, but other conclusions may be drawn.

Q What other conclusions may be drawn?

A That the pressures as recorded are true and the fluctuations are the result of the actual changes in pressure. The increases and decreases in pressure could be caused by the repressuring of permeable zones by the less permeable zones open to the well bore, and the actual decline of 23 psi has occurred.

Q Would the fact that the pressure in No. 19 was below the saturation pressure prior to shut-in reduce the possibility of observing a pressure decline?

A Yes, sir. Below saturation pressure, fluid compressibility increases rapidly. Originally, the reservoir was undersaturated and produced a fluid expansion. When the reservoir



pressure is reduced to bubble point, gas begins to break out of solution and the reservoir is then under solution gas drive, should no other producing mechanism be present. This mobile gas phase will permit a greater fluid withdrawal with a smaller pressure reduction than by fluid expansion.

Q What evidence do you have to offer the Commission that the pool is being adequately drained by the present 80-acre spacing?

A Exhibit No. 4 is a bottom-hole pressure extrapolated to infinite shut-in versus cumulative production curve. You'll note that the original reservoir pressure was approximately 2300 psi and after drainage had been established, no well, upon initial completion, encountered this pressure again. This rapid decline in pressure is pronounced in an undersaturated reservoir wherein the producing mechanism is by fluid expansion down to the bubble point.

Q You show a recent bottom hole pressure for Well No. 21. Was this well recently recompleted from the lower Blinebry to the main producing zone?

A Yes, sir.

Q On that point do you consider these as two zones, have you in the past?

A Well, it's all considered the Oil Center Blinebry Pool, but it is considered two zones.



Q You have encountered different pressures in the two zones, is that correct?

A Only the hydrostatic differences in pressure.

Q Was the original pressure in the Meyer B-4 No. 21 higher than the present pressure in the Meyer No. 19?

A The original pressure in the Meyer B-4 No. 21 was higher than present in the Meyer 19. The reason for this is that the fluid withdrawals in the vicinity are lower than those in the earlier developed portion of the reservoir. However, it should be noted that the drainage from the area of No. 21 has been great enough to reduce the pressure to the saturation pressure of 2170, a decrease of 130 psi from original reservoir pressure.

Q Would this rapid decline in pressure to the bubble point not preclude the possibility of a water drive?

A No, sir. Under fluid expansion the withdrawal rates have probably exceeded any possible rate of water encroachment. Normally, a pressure reduction must occur to initiate water intrusion. It is, in fact, probable that a limited water drive does exist, based on increasing water cuts in the edge wells of the field. Sinclair Adkins No. 11, Exhibit No. 1, produces approximately 60% water; Meyer B-4 No. 23, 10% water; and No. 25, 5% water; Gulf Bell Ramsey No. 11, 45% water and Ramsey No. 12, 19% water.



Q Should this water drive be present would this not also be a possible reason for not observing a pressure decline in the observation well?

A A water drive would definitely serve to maintain a higher reservoir pressure. Once again it should be emphasized that no positive evidence has been seen that a water drive does exist. However, the performance to date indicates that a water drive cannot be ruled out and the presence of a water drive in the Monument Blinebry Pool serves to strengthen this possibility.

Q In your opinion, the lowering of pressure under an undeveloped location can only be achieved by drainage from that area?

A Yes, sir.

Q In your opinion, this reduction in pressure as noted on Exhibit No. 4 proves that 80-acre drainage is being effected, is that correct?

A Yes.

Q Based on your observations in the reservoir, and other reservoirs of a similar nature, is it your opinion that one well will drain 80 acres in the Oil Center Blinebry Pool?

A Yes.

Q And will it do this effectively and economically, in your opinion?



A Yes, sir.

Q In your opinion, would waste be created by developing this reservoir on 40-acre spacing?

A Yes, sir, the drilling of unnecessary wells would certainly constitute economic waste. All available evidence indicates that one well for 80 acres is adequate.

Q Has the development pattern with fixed locations, as provided in the order under Rules 4 and 5, proved to be satisfactory?

A Yes, sir.

Q What's your recommendation to the Commission at this time, Mr. Levine?

A It's my recommendation that the special pool rules established by Order No. R-2408 be made permanent in order to prevent waste and protect correlative rights.

Q Were Exhibits 1 through 4 prepared by you or under your supervision?

A Yes, sir.

MR. KELLAHIN: At this time I would like to offer in evidence Exhibits 1 through 4.

MR. UTZ: Without objections, Exhibits 1 through 4 will be entered into the record of this case.

(Whereupon, Applicant's Exhibits 1 through 4 were offered and admitted in evidence.)



MR. KELLAHIN: That's all I have on direct examination.

MR. UTZ: Are there any questions of Mr. Levine?

CROSS EXAMINATION

BY MR. UTZ:

Q Are you still running this interference test or do you consider it complete?

A We have concluded the interference test as of December 16, 1963.

Q Even though you admit that there's some question about interference, do you plan to run any more tests?

A No, sir, we do not.

Q Did you have much core data?

A We had core data on two wells in the pool, No. 20 and 21.

Q Is that a matter of record in Case 2408?

A Yes, sir.

Q Do you recall what kind of permeability you had?

A Oh, the average permeability for the area was ten millidarcies, approximately ten millidarcies.

Q Do you have any evidence of fracturing?

A No, sir.

Q On your interference test you produced Wells No. 20, 21, 22, 23, 24, 25, 26, is that true?



A Yes, sir.

Q And the shut-in well was No. 19, which is approximately the center of that group?

A Yes.

Q Was it your claim that the No. 26 well actually contributed to some of the drawdown in Section 19? I mean in the No. 19 well.

A No, sir. I would say no.

Q So your Exhibit No. 3, which shows possible drainage of a thousand twenty acres could not reasonably be considered to be valid, could it?

A No, sir.

Q Now, all other wells are approximately offsets to the No. 19, is that true, all other wells that were produced during the tests?

A Yes, on the Meyer B-4 lease, I would say so.

Q So we could consider that the production from those wells may have effected the pressure drawdown in No. 19?

A Yes, sir. I might state again that it's a question of, whether we have observed a drawdown is questionable, and the fact that these wells are some distance away from 19 does not disprove 80 acres. It just proves that the minimum drainage area would be 156 acres in order to be able to effect a drawdown in No.



19.

Q Yes, sir, I understand that. So, am I correct in that the best evidence you offer here today is the Exhibit No. 4 where in you show that at the time these various wells were drilled they came in with a lower bottom hole pressure?

A Yes, sir.

MR. UTZ: Are there any other questions of the witness?

MR. DURRETT: Yes, sir, I have a question.

BY MR. DURRETT:

Q I don't fully understand this Exhibit No. 3. Will you just briefly tell me once again what that purports to show now?

A Well, the distance, for instance, from Meyer B-4 20 to 19 is a distance of 2470 feet. On a radial drainage the area inside of radius of 2470 feet would be 440 acres.

Q So, concerning this one well we're talking about here now, the No. 20, this exhibit would show that in order to effect a drawdown on the No. 19 it would have to be draining 440 acres?

A Yes, sir, that is correct.

Q So you would go from there to the inference that since there is no drawdown that proves nothing?

A It proves that it's not draining 440 acres.

Q But it doesn't prove how much it is draining?

A No.



Q It proves a negative then?

A That's right.

Q Is that the similar situation with all the other wells?

A Yes, sir.

MR. DURRETT: Thank you, I believe I understand it now.

MR. UTZ: Are there any other questions? The witness may be excused.

(Witness excused.)

MR. UTZ: Are there statements in this case?

MR. KELLAHIN: In connection with the question regarding fracturing in the original hearing in Case 2727, the witness John Wolf offered testimony and an exhibit showing that there was fracturing in the cores in this reservoir, that is in the record.

MR. GRAY: The fracturing is the higher permeability in the matrix permeability. It's the degree of fracturing. I have no idea of the extent of fracturing, whether it's actual fracturing or higher permeability sections.

MR. UTZ: Mr. Buell.

MR. BUELL: May it please the Examiner, Pan American would like to concur in Continental's recommendation to the Commission that the existing rules be adopted on a permanent basis.

MR. UTZ: Are there any other statements?



MR. GIRAND: Dub Girand. The Metex Supply Company wishes to concur with the Continental Oil Company in their recommendations to the Commission for the adopting of 80-acre spacing. We originally appeared in the hearing wherein Order No. R-2408 was entered. At that time we felt that there was sufficient data. We have since drilled three wells on the pattern provided by Order No. 2408 and believe it is a proper pattern to proceed.

MR. UTZ: Mr. Catron.

MR. CATRON: May I make it a matter of record, in connection with the concurrence of Metex, that I represent the holders of royalties as well as working interests in the acreage which Metex has drilled these three wells and that we join in with Metex in their recommendation.

MR. GIRAND: I would like to correct Mr. Catron's appearance, I appeared for you on behalf of yourself.

MR. CATRON: Well, I am an owner of a working interest and royalty both, but I also represent as agent and attorney some eight or nine other royalty owners and one other working interest owner, so I'm representing all of them.

MR. UTZ: Are there any other statements?

MR. DURRETT: If the Examiner please, the Commission has received communications from Humble, Sinclair, Gulf, Shell, Atlantic, Sun and Standard of Texas stating that they concur



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with the application.

MR. UTZ: Those letters will be made a matter of record in this case. Are there any other statements to be made in the case? The case will be taken under advisement. The hearing will be adjourned until 1:30.

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

I, ADA DEARNLEY, 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 13th day of February, 1964.

Ada Dearnley
Notary Public-Court Reporter

My commission expires:

June 19, 1967.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examining hearing of Case No. 2727, held on Jan 22, 1964.
Shirley D. [Signature] Examiner
New Mexico Oil Conservation Commission



GOVERNOR
EDWIN L. MECHEM
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
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STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

P. O. BOX 871
SANTA FE

January 16, 1963

DOCUMENT FILED

Date: 1-10-64

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Box 1713
Santa Fe, New Mexico

Re: Case No. 3726 and 2727
Order No. R-2407 and R-2408
Applicant:
Continental 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.

A. L. PORTER, Jr.
Secretary-Director

ir/

Carbon copy of order also sent to:

Hobbs OCC x

Artesia OCC

Aztec OCC x

OTHER Case 2727 - Mr. W. D. Girard

Mr. Bill Kastler and

Mr. Sam Christy

Case 2727

Heard 1-22-64

Rec. 1-23-64

1. Grant a permanent order for
80 Ac spacing in Oil Center-Blinby
Oil Pool. Order R-2408 was temporary
order.

Pressure evidence shows these
wells are draining at least 80 Ac.

Thurston, Wyo.

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 (4-00)

SYMBOLS
DL=Day Letter
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

LA114 DA419

D MDA121 LONG PD=FAX MIDLAND TEX 20 356P CST=
NEW MEXICO OIL CONSERVATION COMM=
P. O. BOX 871 SANTA FE NMEX=

ATTENTION: MR A L PORTER, JR.

REFERENCE IS MADE TO CASE 2727, RE-OPENING OF THE TEMPORARY 80-ACRE SPACING RULING FOR THE OIL CENTER BLINEBRY POOL, HUMBLE OIL & REFINING COMPANY, AS AN OPERATOR IN THIS POOL, SUPPORTS CONTINENTAL'S REQUEST FOR CONTINUANCE OF 80-ACRE SPACING ON A PERMANENT BASIS. THE PRESSURE DRAW-DOWNS FROM ORIGINAL PRESSURE EXHIBITED BY SUBSEQUENT COMPLETIONS INDICATE

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

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 (4-00)

SYMBOLS
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COMMUNICATION AND ADEQUATE DRAINAGE OF AT LEAST 80-ACRES PER WELL. CONTINUATION OF THE 80-ACRE SPACING RULE ON A PERMANENT BASIS WILL ALSO ELIMINATE ECONOMIC WASTE ASSOCIATED WITH UNNECESSARY 40-ACRE DEVELOPMENT. YOURS TRULY=

HUMBLE OIL & REFINING COMPANY H E MEADOWS.=

=2727 80 80 40.=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

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

SYMBOLS
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1201 (4-60)

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LA111 DA404

1964 JAN 20 PM 3:17
1964 JAN 20 PM 3

D MDA120 PD=MIDLAND TEX 20 355P CST=
NEW MEXICO OIL CONSERVATION COMMISSION=
SANTAFE NMEX=

ATTN MR ELVIS A UTZ: REFERENCE CASE #2727 DOCKETED FOR
JANUARY 22, 1964. SINCLAIR CONCURS WITH AND SUPPORTS
CONTINENTAL OIL COMPANY IN ITS REQUEST THAT THE PRESENT
TEMPORARY RULES FOR THE OIL CENTER BLINEBRY POOL BE
MADE PERMANENT=

R F SAWYER SINCLAIR OIL & GAS

=UTZ #2727 22 1964=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE
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WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

SYMBOLS
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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.

LA029 SSG026

L RWA016 PD=ROSWELL NMEX 21 939A MST=

OIL CONSERVATION COMMISSION=

STATE LAND OFFICE BLDG SANTA FE NMEX=

ATTN A L PORTER JR, RE CASE NO 2727 EXAMINER HEARING
JANUARY 22 1964 GULF OIL CORP AS AN OPERATOR IN
THE OIL CENTER BLINEBRY POOL BELIEVES THAT THIS POOL
SHOULD BE DEVELOPED ON WIDER SPACING THAT 40 ACRES
AND URGES THE COMMISSION TO APPROVE PERMANENT RULES
PERMITTING 80 ACRE SPACING=

GULF OIL CORP M I TAYLOR=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE
This is a fast message
unless its deferred char-
acter is indicated by the
proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

(24)

SYMBOLS
DL=Day Letter
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.

LA028 SSC035

1964 JAN 20 AM 10 25

L RWA027 PD=ROSWELL NMEX 20 911A MST=
NMEX OIL CONSERVATION COMM=
SANTA FE NMEX=

IN RE CASE NO 2727 DOCKET OF JANUARY 22 1964 SHELL OIL
CO SUPPORTS THE REQUEST OF CONTINENTAL OIL CO THAT THE
PRESENT RULES OF ORDER NO R-2408 OIL CENTER BLINEBRY
POOL BE MADE PERMANENT=

SHELL OIL CO T H DWYER DIVISION PRODUCTION
MANAGER=

Case file

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

DRAFT

JMD/esr

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. 2727

Order No. R-2408-A

APPLICATION OF CONTINENTAL OIL COMPANY
FOR ESTABLISHMENT OF SPECIAL RULES AND
REGULATIONS FOR THE OIL CENTER-BLINEBRY
POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on
January 22, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.
~~Examiner duly appointed by the Oil Conservation Commission of New~~
~~Mexico, hereinafter referred to as the "Commission," in accordance~~
~~with Rule 1214 of the Commission Rules and Regulations.~~

NOW, on this _____ day of January, 1964, the Commission,
a quorum being present, having considered the ~~application, the testimony,~~
the record, ~~and the testimony,~~ and the recommendations of the Examiner,
_____, 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-2408 dated January 16, 1963, tempo-
rary Special Rules and Regulations were promulgated for the Oil
Center-Blinebry Pool.

(3) That pursuant to the provisions of Order No. R-2408,
this case was reopened to allow the operators in the subject pool
to appear and show cause why the Oil Center-Blinebry Pool
should not be developed on 40-acre proration units.

(4) That the evidence establishes that one well in the
Oil Center-Blinebry Pool can efficiently and economically
drain and develop 80 acres.

(5) That to prevent the economic loss caused by the drilling
of unnecessary wells, to avoid the augmentation of risk arising

from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-2408 should be continued in full force and effect until further order of the Commission.

(6) That the Special Rules and Regulations promulgated by Order No. R-2408 have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil in the pool.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Oil Center-Blinebry Pool promulgated by Order No. R-2408 are hereby continued in full force and effect until further order of the Commission.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

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. 2727
Order No. R-2408-A

APPLICATION OF CONTINENTAL OIL COMPANY
FOR ESTABLISHMENT OF SPECIAL RULES AND
REGULATIONS FOR THE OIL CENTER-BLINEBRY
POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on
January 22, 1964, at Santa Fe, New Mexico, before Examiner Elvis
A. Utz.

NOW, on this 29th day of January, 1964, the Commission,
a quorum being present, having considered the testimony, the
record, and the recommendations of the Examiner, 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-2408 dated January 16, 1963,
temporary Special Rules and Regulations were promulgated for
the Oil Center-Blinebry Pool.

(3) That pursuant to the provisions of Order No. R-2408,
this case was reopened to allow the operators in the subject pool
to appear and show cause why the Oil Center-Blinebry Pool should
not be developed on 40-acre proration units.

(4) That the evidence establishes that one well in the
Oil Center-Blinebry Pool can efficiently and economically drain
and develop 80 acres.

(5) That to prevent the economic loss caused by the drill-
ing of unnecessary wells, to avoid the augmentation of risk
arising from the drilling of an excessive number of wells, to
prevent reduced recovery which might result from the drilling of

-2-
CASE No. 2727
Order No. R-2408-A

too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-2408 should be continued in full force and effect until further order of the Commission.

(6) That the Special Rules and Regulations promulgated by Order No. R-2408 have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil in the pool.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Oil Center-Blinebry Pool promulgated by Order No. R-2408 are hereby continued in full force and effect until further order of the Commission.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


JACK M. CAMPBELL, Chairman


E. S. WALKER, Member


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



esr/

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
E. B. JOHNNY WALKER
MEMBER

P. O. BOX 871
SANTA FE

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

January 29, 1964

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1713
Santa Fe, New Mexico

Re: Case No. 2727
Order No. R-2408-A
Applicant:
Continental 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

lx/

Carbon copy of order also sent to:

Hobbs OCC x

Artesia OCC

Astec OCC

OTHER Mr. Guy Buell, Mr. W. D. Girand, Mr. Fletcher Catron.

Docket No. 3-64

DOCKET: EXAMINER HEARING - WEDNESDAY - JANUARY 22, 1964

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 2682: (Reopened and continued from January 8, 1964 Examiner Hearing.)

In the matter of Case 2682 being reopened pursuant to the provisions of Order No. R-2375, which order established temporary 80-acre oil proration units for the Simpson-Gallup Oil Pool, San Juan County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

CASE 2967: (Continued from the January 8th Examiner Hearing)

Application of Standard Oil Company of Texas for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Jurnegan Point Unit Area comprising 7680 acres, more or less, of State and Fee land in Township 24 South, Ranges 24 and 25 East, Eddy County, New Mexico.

CASE 2969: Application of H. N. Sweeney for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Good Hope Unit Area comprising 1919.72 acres, more or less, of State and fee land in Township 19 South, Range 23 East, Eddy County, New Mexico.

CASE 2970: Application of Cima Capitan Incorporated for an amendment of Order No. R-2395, Eddy County, New Mexico. Applicant, in the above styled cause, seeks amendment of Order No. R-2395 to delete the seven water injection wells authorized therein for its Artesia Pool Waterflood Project, Eddy County, New Mexico, and to substitute therefor the following four injection wells in Section 17, Township 18 South, Range 28 East:

Welch State No. 1-W, 1330 feet from the South and West lines;

Welch State No. 4-W, 2630 feet from the South line and 2230 feet from the West line;

Case 2970 continued from page 1

Adkins Williams State No. 1-W, 10 feet from the South line and 2630 feet from the East line;

Adkins Williams State No. 6-W, 1180 feet from the South line and 1595 feet from the East line.

CASE 2971: Application of Caulkins Oil Company for unorthodox locations, dual completions, and expansion of a waterflood project, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its Breech C No. D-189 and Breech C No. D-248 wells to produce oil from the Tocito formation through 2½ inch tubing and gas from the Dakota formation through the casing-tubing annulus at unorthodox locations 1850 feet from the South line and 790 feet from the West line of Section 12 and 1140 feet from the North line and 900 feet from the East line of Section 13, Township 26 North, Range 6 West, Rio Arriba County, New Mexico. Applicant also seeks expansion of the South Blanco-Tocito Pressure Maintenance Project Area to include said wells.

CASE 2727: (Reopened)

In the matter of Case No. 2727 being reopened pursuant to the provisions of Order No. R-2408 which order established temporary 80-acre proration units for the Oil Center-Blinebry Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre proration units.

CASE 2972: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin Dakota Pool underlying the W/2 of Section 22, Township 29 North, Range 13 West, City of Farmington, San Juan County, New Mexico.

CASE 2973: Application of Pan American Petroleum Corporation for force-pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Basin-Dakota Pool underlying the W/2 of Section 13, Township 30 North, Range 12 West, San Juan County, New Mexico.

-3-

Docket No. 3-64

CASE 2974: Application of Pan American Petroleum Corporation for a triple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the triple completion (conventional) of its South Mattix Unit Well No. 16, located in Unit O of Section 15, Township 24 South, Range 37 East, Lea County, New Mexico, to produce gas from the Fowler Paddock and Fowler Tubb Gas Pools and from an undesignated Lower Paddock through parallel strings of tubing.

CASE 2975: Application of Amerada Petroleum Corporation for an un-orthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of an un-orthodox location for a proposed triple completion in the Vacuum-Devonian, Vacuum-Wolfcamp, and North Vacuum-Abo Pools, Lea County, New Mexico, said well to be drilled at a point within 200 feet of the center of the NE/4 SW/4 of Section 36, Township 17 South, Range 34 East.

No. 1-63

DOCKET: EXAMINER HEARING -- THURSDAY - JANUARY 3, 1963

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Elvis A. Utz, as alternate examiner:

- CASE 2724: Application of Skelly Oil Company for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authorization for the dual completion (conventional) of its Dow "B" Well No. 21, located in Unit I of Section 21, Township 17 South, Range 31 East, Eddy County, New Mexico, to produce oil from the Fren and Grayburg-Jackson Pools through parallel strings of tubing.
- CASE 2725 Application of Standard Oil Company of Texas for allowable transfer, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to conduct pressure interference tests on its Jicarilla 4-26 lease, Section 26, Township 28 North, Range 1 West, Boulder-Mancos Pool, Rio Arriba County, New Mexico. Applicant proposes to shut-in Well No. 4 and produce its allowable equally from Wells Nos. 2 and 3.
- CASE 2726: Application of Continental Oil Company for a dual completion, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authorization for the dual completion (conventional) of its Rattlesnake Well No. 144, located in Unit N, Section 2, Township 29 North, Range 19 West, as a dual completion (conventional) to produce gas from the Upper Pennsylvanian formation and oil from the Lower Pennsylvanian formation, Rattlesnake Pennsylvanian Field, San Juan County, New Mexico.
- CASE 2727: Application of Continental Oil Company to establish special rules and regulations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the establishment of special rules and regulations for the Oil Center-Blinebry Pool in Township 21 South, Range 36 East, Lea County, New Mexico, ~~including a provision~~ *to provide* for 80-acre spacing units.
- CASE 2728: Application of Continental Oil Company for commingling authority, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle the production from the Drinkard, Tubbs and Wantz Abo Oil Pools on its J. H. Nolan lease with Blinebry Gas Pool liquids pro-

-2-

Docket No. 1-63

duced on its J. H. Nolan Unit, Section 11, Township 21 South, Range 37 East, Lea County, New Mexico.

CASE 2729:

Application of Scanlon-Shepard for a waterflood project, Chaco Wash Oil Pool, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to inject water into the Mesaverde formation through certain wells in Sections 21, 22, 27 and 28, Township 20 North, Range 9 West, McKinley County, New Mexico.

CASE 2716:

(Continued)

Application of Markham, Cone & Redfern for a multiple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order authorizing the multiple completion of its Eubanks Well No. 3, located in Unit K, Section 14, Township 21 South, Range 37 East, Lea County, New Mexico, in such a manner as to produce a limited amount of gas from the Blinebry Gas Pool, oil from the Blinebry Oil Pool and oil from each of two pays in the Drinkard Pool. Separation of the four zones would be achieved by means of three packers.

iqg/

SUN OIL COMPANY

SOUTHWEST DIVISION

P. O. BOX 2880

DALLAS 21, TEXAS

A. S. RHEA
SUPT. OPERATING DEPT

CECIL A. COLVILLE
ASSISTANT MANAGER

January 13, 1964

RE: Case No. 2727
Oil Center Blinebry Pool
Lea County, New Mexico:
Hearing January 22, 1964

Mr. A. L. Porter, Jr.
State of New Mexico
Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Dear Sir:

Sun Oil Company has received notice from the Commission that Case No. 2727 will be reopened on January 22, 1964, to consider evidence concerning making the present temporary rules for the Oil Center Blinebry Pool permanent.

Sun Oil Company operates four of the 15 wells in this field. Our four wells produce with an average gas-oil ratio of 1250/1. Engineering information accumulated during the production of our wells from this reservoir indicates to Sun that one well can adequately and efficiently drain in excess of 80 acres and we respectfully request that the present temporary field rules governing production from this pool be made permanent.

We shall appreciate your making this letter a portion of the record of hearing on January 22.

Yours very truly,

SUN OIL COMPANY



A. R. Ballou

ARB:mo
cc Mr. R. G. Parker
Continental Oil Co.
1710 Fair Building
Fort Worth 2, Texas



THE ATLANTIC REFINING COMPANY
INCORPORATED - 1910
PETROLEUM PRODUCTS

DOMESTIC PRODUCING DEPARTMENT
NEW MEXICO DISTRICT

BOONE MACAULAY, DISTRICT MANAGER
R. F. CHAMPION, DISTRICT LANDMAN
W. T. EASTES, DISTRICT GEOPHYSICIST
E. R. DOUGLAS, DISTRICT GEOLOGIST
A. D. KLOXIN, DISTRICT DRG. & PROD. SUP'T.
W. P. TOMLINSON, DISTRICT ENGINEER
B. R. WARE, ADMINISTRATIVE SUPERVISOR

MAILING ADDRESS
P. O. BOX 1978
ROSWELL, NEW MEXICO

January 17, 1964

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

Attention: Mr. Elvis A. Utz

Re: Case No. 2727 (Reopened)

Gentlemen:

The Atlantic Refining Company urges the Commission to make permanent the temporary 80-acre proration units for the Oil Center Blinbry Pool, Lea County, New Mexico. We believe that 80-acre proration units are in the best interest of conservation and will prevent waste. The Atlantic Refining Company has a working interest in Continental Oil Company's wells in this pool.

Yours very truly,

W. P. Tomlinson

WPT:ly

cc: Mr. J. W. Wolfe, Jr.
Continental Oil Company
P.O. Box 460
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. 2727
Order No. R-2408

APPLICATION OF CONTINENTAL OIL COMPANY
FOR ESTABLISHMENT OF SPECIAL RULES AND
REGULATIONS FOR THE OIL CENTER-BLINEBRY
POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on January 3, 1963, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 16th day of January, 1963, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, 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, Continental Oil Company, seeks the promulgation of special Rules and Regulations for the Oil Center-Blinebry Pool in Township 21 South, Range 36 East, NMPM, Lea County, New Mexico, to provide for 80-acre spacing units and uniform well spacing in said pool.

(3) That the information presently available concerning the reservoir characteristics of the Oil Center-Blinebry Pool indicates that the pool can be efficiently and economically drained on 80-acre proration units.

(4) That the evidence concerning reservoir characteristics justifies the establishment of 80-acre proration units for a temporary one-year period.

(5) That all wells previously drilled in the Oil Center-Blinebry Pool will conform to a uniform spacing pattern and that

-2-
CASE No. 2727
Order No. R-2408

continued development of the pool with uniform spacing of wells will result in a more efficient depletion of the reservoir, thereby preventing waste and protecting correlative rights.

(6) That during the one-year period in which this order will be in effect, all operators in the subject pool should gather all available information relative to drainage and recoverable reserves.

(7) That this case should be reopened at an examiner hearing in January, 1964, at which time the operators in the subject pool should be prepared to appear and show cause why the pool should not be developed on 40-acre proration units.

IT IS THEREFORE ORDERED:

(1) That Special Rules and Regulations for the Oil Center-Blinebry Pool are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
OIL CENTER-BLINEBRY POOL

RULE 1. Each well completed or recompleted in the Oil Center-Blinebry Pool or in the Blinebry formation within one mile of the Oil Center-Blinebry pool and not nearer to or within the limits of another designated Blinebry pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 80 acres, more or less, consisting of two governmental quarter-quarter sections, or lots, joined by a common bordering side and lying within a single governmental quarter-section; or, in irregular sections, lying within a single governmental quarter-section or within the northeast 160 acres or the northwest 160 acres of the irregular section.

RULE 3. The Secretary-Director may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified 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 the unit. No non-standard unit containing less than 80 acres shall be enlarged to form a standard size unit except after notice and hearing.

-3-

CASE No. 2727
Order No. R-2408

RULE 4. (a) In Township 21 South, all wells on an 80-acre proration unit shall be located in either the NE/4 or SW/4 of a governmental quarter-section; or, in irregular governmental sections, on an odd-numbered lot.

RULE 4. (b) In Township 20 South, all wells on an 80-acre proration unit shall be located in either the NW/4 or SE/4 of a governmental quarter-section.

RULE 5. No well shall be located nearer than 330 feet to the boundary line of the quarter-quarter section or lot on which it is situated.

RULE 6. An 80-acre proration unit (79 through 81 acres) shall be assigned an 80-acre proportional factor of 2.33 for allowable purposes, effective February 1, 1963. The allowable assigned to any unit containing less than 79 or more than 81 acres shall bear the same ratio to a standard 80-acre allowable as the acreage in such unit bears to 80 acres. If a proration unit contains more than one well, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

(2) That this case shall be reopened at an examiner hearing in January, 1964, at which time the operators in the subject pool may appear and show cause why the Oil Center-Blinsbry Pool should not be developed on 40-acre proration units.

(3) That any operator desiring to dedicate 80 acres to a well in the Oil Center-Blinsbry Pool shall file a new Form C-128 showing thereon the acreage to be dedicated to the well and a Form C-116 for a re-test of said well at a daily rate not to exceed 105 barrels of oil per day with the Commission on or before January 31, 1963.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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



STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell
JACK M. CAMPBELL, Chairman

E. S. Walker
E. S. WALKER, Member

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



STANDARD OIL COMPANY OF TEXAS

A DIVISION OF CALIFORNIA OIL COMPANY
P. O. BOX 1249 • HOUSTON 1, TEXAS

January 20, 1964

Case file

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

Gentlemen:

Case No. 2727, a review of Order R-2408 which established temporary 80-acre spacing for the Oil Center-Blinbry Pool, is scheduled for January 22, 1964.

Standard Oil Company of Texas, a Division of California Oil Company, a working interest owner in the subject field, recommends that the present rules of Order R-2408 should be made permanent.

Yours very truly,

C. N. Segnar
C. N. Segnar
Chief Engineer

RLMc:ja

cc: Continental Oil Company
P. O. Box 460
Hobbs, New Mexico

RECEIVED
JAN 22 1964
NEW MEXICO
OIL CONSERVATION COMMISSION

BEFORE THE OIL CONSERVATION COMMISSION

OF THE

STATE OF NEW MEXICO

NOVEMBER 19, 1962

IN THE MATTER OF THE APPLICATION OF
CONTINENTAL OIL COMPANY FOR APPROVAL
OF TEMPORARY FIELD RULES ESTABLISHING
80-ACRE SPACING IN THE OIL CENTER -
BLINEBRY POOL IN SECTION 4, TOWNSHIP
21 SOUTH, RANGE 36 EAST, LEA COUNTY,
NEW MEXICO

Case 2727

A P P L I C A T I O N

COMES NOW APPLICANT, CONTINENTAL OIL COMPANY, AND RESPECTFULLY
REQUESTS APPROVAL OF TEMPORARY FIELD RULES ESTABLISHING 80-ACRE SPACING
IN THE OIL CENTER - BLINEBRY POOL AND IN SUPPORT THEREOF WOULD SHOW:

1. THAT APPLICANT COMPLETED ITS MEYER B-4 WELL NO. 19 LOCATED
3,300 FEET FROM THE SOUTH LINE AND 2,310 FEET FROM THE EAST LINE OF SECTION
4, TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM, LEA COUNTY, NEW MEXICO, AS THE
DISCOVERY WELL IN THE OIL CENTER - BLINEBRY POOL. INITIAL POTENTIAL ON
FEBRUARY 14, 1962 WAS 168 BARRELS OIL IN 17 HOURS WITH GAS-OIL RATIO OF
1042 CUBIC FEET PER BARREL.

2. THAT INFORMATION AVAILABLE TO DATE INDICATES THE RESERVOIR
CAN BE DRAINED ADEQUATELY ON 80-ACRE SPACING.

3. THAT OPTIMUM DRAINAGE EFFICIENCY ON SUCH SPACING WILL BE
ACHIEVED IF DISTANCE BETWEEN WELLS IS REASONABLY UNIFORM.

4. THAT A WELL SPACING PATTERN ESTABLISHING LOCATIONS IN THE
NE/4 AND SW/4 OF EACH REGULAR QUARTER SECTION AND IN ODD-NUMBERED LOTS OF
THE IRREGULAR SECTIONS WOULD PROVIDE A REASONABLY UNIFORM WELL SPACING PRO-
GRAM.

5. THAT THE ESTABLISHMENT OF SUCH RULES ON A TEMPORARY BASIS
WOULD RESULT IN THE PREVENTION OF WASTE AND THE PROTECTION OF CORRELATIVE
RIGHTS OF ALL PARTIES CONCERNED.

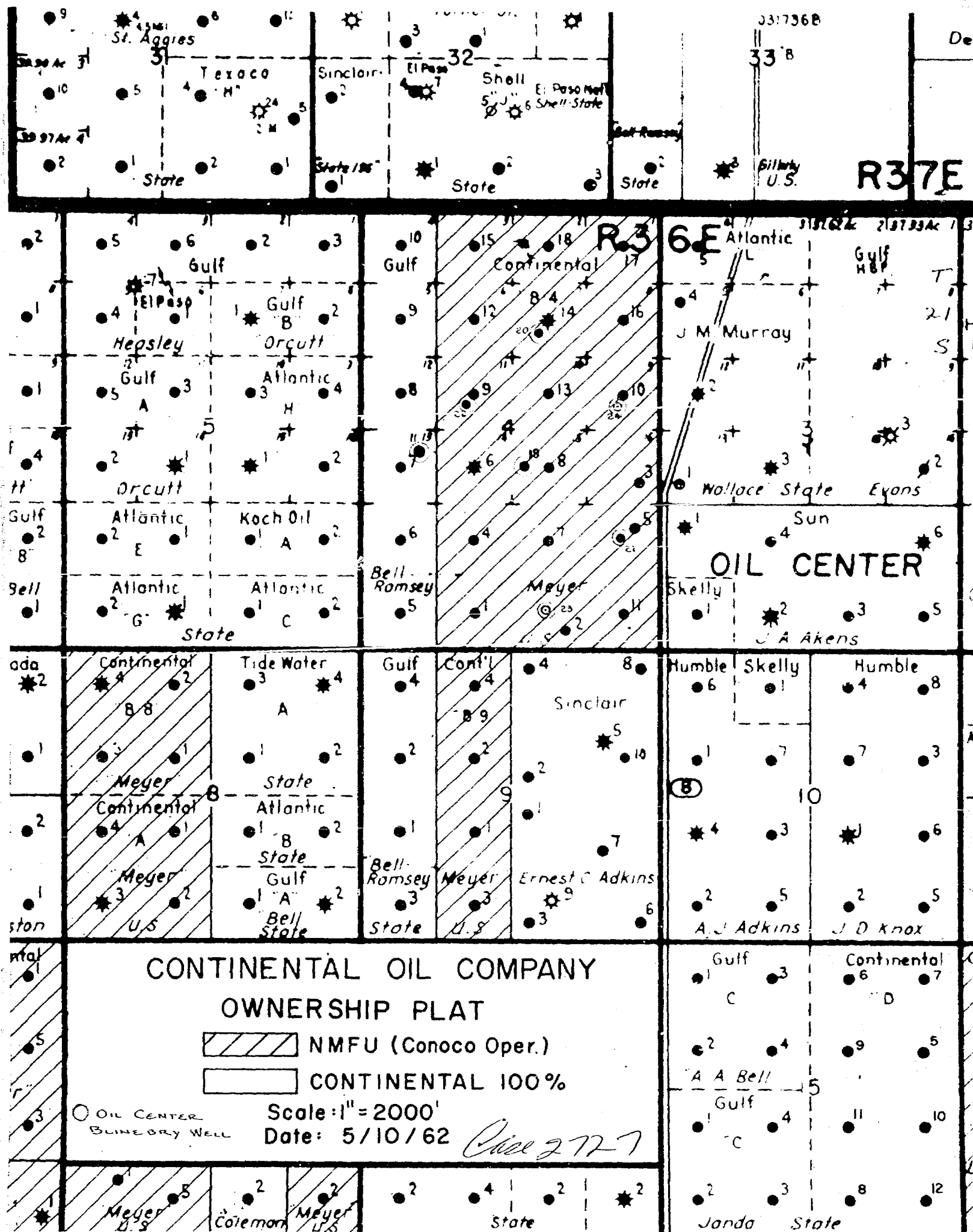
WHEREFORE, APPLICANT RESPECTFULLY PRAYS THAT THIS APPLICATION
BE SET FOR HEARING BEFORE THE COMMISSION'S DULY QUALIFIED EXAMINER AND,
THAT UPON NOTICE AND HEARING, AN ORDER BE ENTERED ESTABLISHING FIELD RULES
FOR 80-ACRE SPACING FOR THE OIL CENTER - BLINEDRY POOL AS DESCRIBED ABOVE.

RESPECTFULLY SUBMITTED,

W. A. Mead

WM. A. MEAD
DIVISION SUPERINTENDENT
OF PRODUCTION
NEW MEXICO DIVISION

VTL-ZW





THE ATLANTIC REFINING COMPANY
INCORPORATED - 1910
PETROLEUM PRODUCTS

DOMESTIC PRODUCING DEPARTMENT
NEW MEXICO DISTRICT

BOONE MACAULAY, DISTRICT MANAGER
R. F. CHAMPION, DISTRICT LANDMAN
W. T. EAGLES, DISTRICT GEOPHYSICIST
E. R. DOUGLAS, DISTRICT GEOLOGIST
A. D. KLOXIN, DISTRICT DRUG. & PROD. SUP'T.
W. P. TOMLINSON, DISTRICT ENGINEER
B. R. WARE, ADMINISTRATIVE SUPERVISOR

MAILING ADDRESS
P. O. BOX 1976
ROSWELL, NEW MEXICO

December 31, 1962

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

Re: January 3, 1963, Examiner
Hearing, Case No. 2727

Gentlemen:

The Continental Oil Company has applied for the establishment of special rules concerning 80-acre spacings and allowables for the Oil Center Blinbry Pool in Lea County, New Mexico. Case No. 2727 will be heard before the Examiner on Thursday, January 3, 1963.

The Atlantic Refining Company is in agreement with the rules proposed by Continental and recommends that they be established. Atlantic owns a working interest in the Continental-operated Meyer B-4 Lease which presently has seven producing wells in the Oil Center Blinbry Pool. We have reviewed the reservoir characteristics of the pool and the provisions of the rules to be presented. It is our opinion that the rules will be appropriate.

Yours very truly,

W. P. Tomlinson

PJF:pam

DRAFT

JMD/esr
January 4, 1963

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. 2727

Order No. R- 2408

APPLICATION OF CONTINENTAL OIL COMPANY
FOR ESTABLISHMENT OF SPECIAL RULES AND
REGULATIONS FOR THE OIL CENTER-BLINEBRY
POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on January 3, 1963, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this _____ day of January, 1963, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, 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, Continental Oil Company, seeks the promulgation of Special Rules and Regulations for the Oil Center-Blinebry Pool in Township 21 South, Range 36 East, NMPM, Lea County, New Mexico, *to provide for 80-acre spacing units and uniform well spacing in said pool.*

(3) That the information presently available concerning the reservoir characteristics of the Oil Center-Blinebry Pool indicates that the pool can be efficiently and economically drained on 80-acre proration units.

(4) That the evidence concerning reservoir characteristics justifies the establishment of 80-acre proration units for a temporary ^{one} ~~1~~-year period.

(5) That all wells previously drilled in the Oil Center-Blinebry Pool will conform to a uniform spacing pattern and that

continued development of the pool with uniform spacing of wells will result in a more efficient depletion of the reservoir, thereby preventing waste and protecting correlative rights.

(6) That during the one-year period in which this order will be in effect, all operators in the subject pool should gather all available information relative to drainage and recoverable reserves.

(7) That this case should be reopened at an examiner hearing in January, 1964, at which time the operators in the subject pool should be prepared to appear and show cause why the pool should not be developed on 40-acre proration units.

IT IS THEREFORE ORDERED:

(1) That Special Rules and Regulations for the Oil Center-Blinebry Pool are hereby promulgated as follows: ~~effective~~
immediately 1963.

SPECIAL RULES AND REGULATIONS
FOR THE
OIL CENTER-BLINEBRY POOL

RULE 1. Each well completed or recompleted in the Oil Center-Blinebry Pool or in the Blinebry formation within one mile of the Oil Center-Blinebry Pool and not nearer to or within the limits of another designated Blinebry pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 80 acres, more or less, consisting of two governmental quarter-quarter sections, or lots, joined by a common bordering

side and lying within a single governmental quarter-section; or, in irregular sections, lying within a single governmental quarter-section or within the northeast 160 acres or the northwest 160 acres of the irregular section.

RULE 3. The Secretary-Director may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified 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 the unit. *No non-standard unit containing less than 80 acres shall be enlarged to form a standard size unit except after notice and hearing.*

RULE 4. (a) In Township 21 South, ~~all wells~~ ^{OK} on an 80-acre proration unit shall be located in either the NE/4 or SW/4 of a governmental quarter section; or, in irregular governmental sections, on an odd-numbered lot.

RULE 4. (b) In Township 20 South, ~~all wells~~ ^{OK} on an 80-acre proration unit shall be located in either the NW/4 or SE/4 of a governmental quarter section.

RULE 5. No well shall be located nearer than 330 feet to the boundary line of the quarter-quarter section or lot on which it is situated.

RULE 6. An 80-acre proration unit (79 through 81 acres) shall be assigned an 80-acre proportional factor of 2.33 for allowable purposes. *effective February 1, 1963.* The allowable assigned to any unit containing less than 79 or more than 81 acres shall bear the same ratio to a standard 80-acre allowable as the acreage in such unit bears to 80 acres. If a proration unit contains more than one well, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

(2) That this case shall be reopened at an examiner hearing in January, 1964, at which time the operators in the subject pool may appear and show cause why the Oil Center-Blinebry Pool should not be developed on 40-acre proration units.

(3) That any operator desiring to dedicate 80 acres to a well in the Oil Center-Blinebry Pool shall file a new Form C-128 *showing thereon the acreage to be dedicated to the well* and ~~new~~ Form C-116 for a re-test *of the daily rate not to exceed 105 barrels of oil per day* with the Commission on or before *January 30, 1963.*

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

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

That any well which was completed in or drilling to the Oil Center-Blinebry Pool prior to January 3, 1963, which does not conform to the well location requirements of Rules 4(a) and 4(b) or Rule 5 above is granted an exception to said Rules

*That -
See me if
necessary -
JMC*

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF
CONTINENTAL OIL COMPANY FOR APPROVAL
OF TEMPORARY FIELD RULES ESTABLISHING
80-ACRE SPACING IN THE OIL CENTER-
BLINEBRY POOL IN SECTION 4, TOWNSHIP
21 SOUTH, RANGE 36 EAST, LEA COUNTY,
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Case 2727

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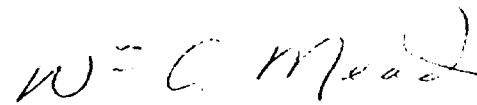
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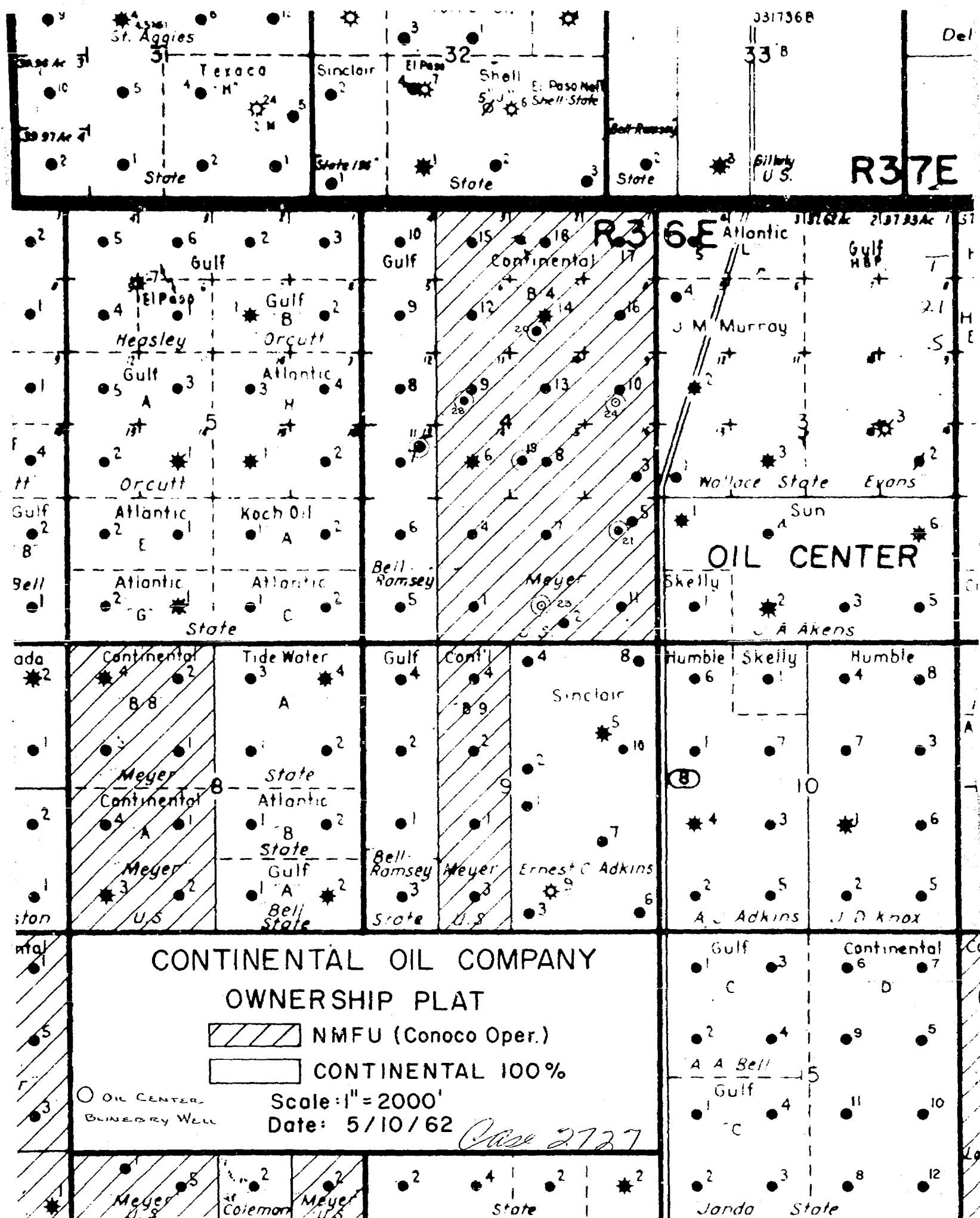
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RESPECTFULLY SUBMITTED,

A handwritten signature in dark ink, appearing to read "W. A. Mead", is written above the typed name.

WM. A. MEAD
DIVISION SUPERINTENDENT
OF PRODUCTION
NEW MEXICO DIVISION

VTL-ZW



JASON W. KELLAHIN
ROBERT E. FOX

KELLAHIN AND FOX
ATTORNEYS AT LAW
54½ EAST SAN FRANCISCO STREET
POST OFFICE BOX 1713
SANTA FE, NEW MEXICO

YUCCA 3-9396
YUCCA 2-2991

Nov. 21, 1962

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

Gentlemen:

Enclosed is the application of Continental Oil Company for approval of temporary field rules for the Oil Center-Blinbry Pool, Lea County, New Mexico, including 80-acre spacing for the pool.

It will be appreciated if this application can be set for hearing before the Commission's examiner at the earliest possible date. As soon as a hearing date has been set, would you please advise me.

Yours very truly,

Jason W. Kellahin

Jason W. Kellahin

JWKss
Encl. (3)

DOCKET MAILED

Date 12/21/62 *jk*

FIGURE 1-A
MEYER B-4 NO.19
OIL CENTER BLINEBRY POOL
LEA COUNTY, NEW MEXICO

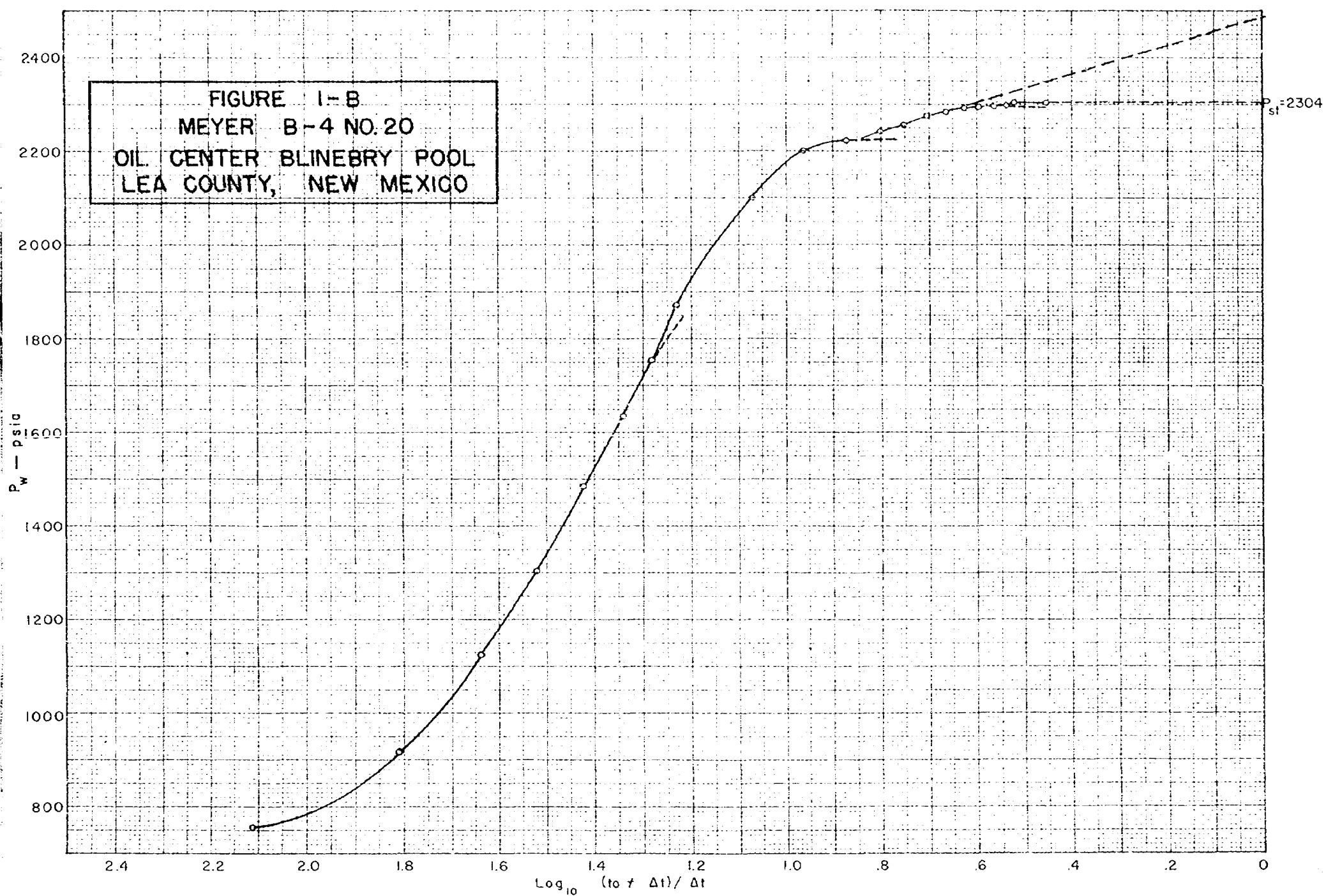
Ex. No. 6

$P_{st} = 2290$

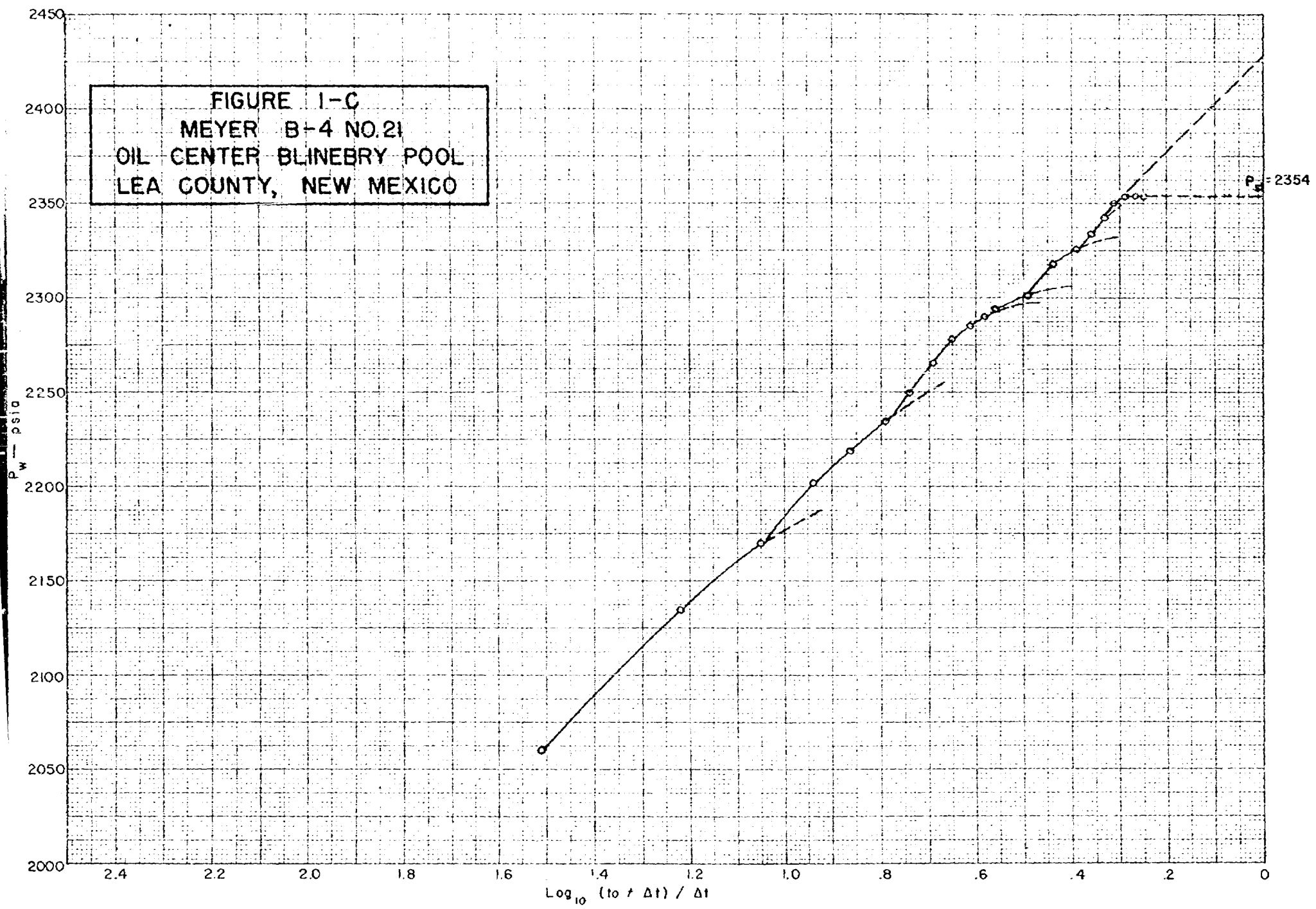
Y-axis: P (Pressure)

X-axis: $\text{Log}_{10} (t_o / \Delta t) / \Delta t$

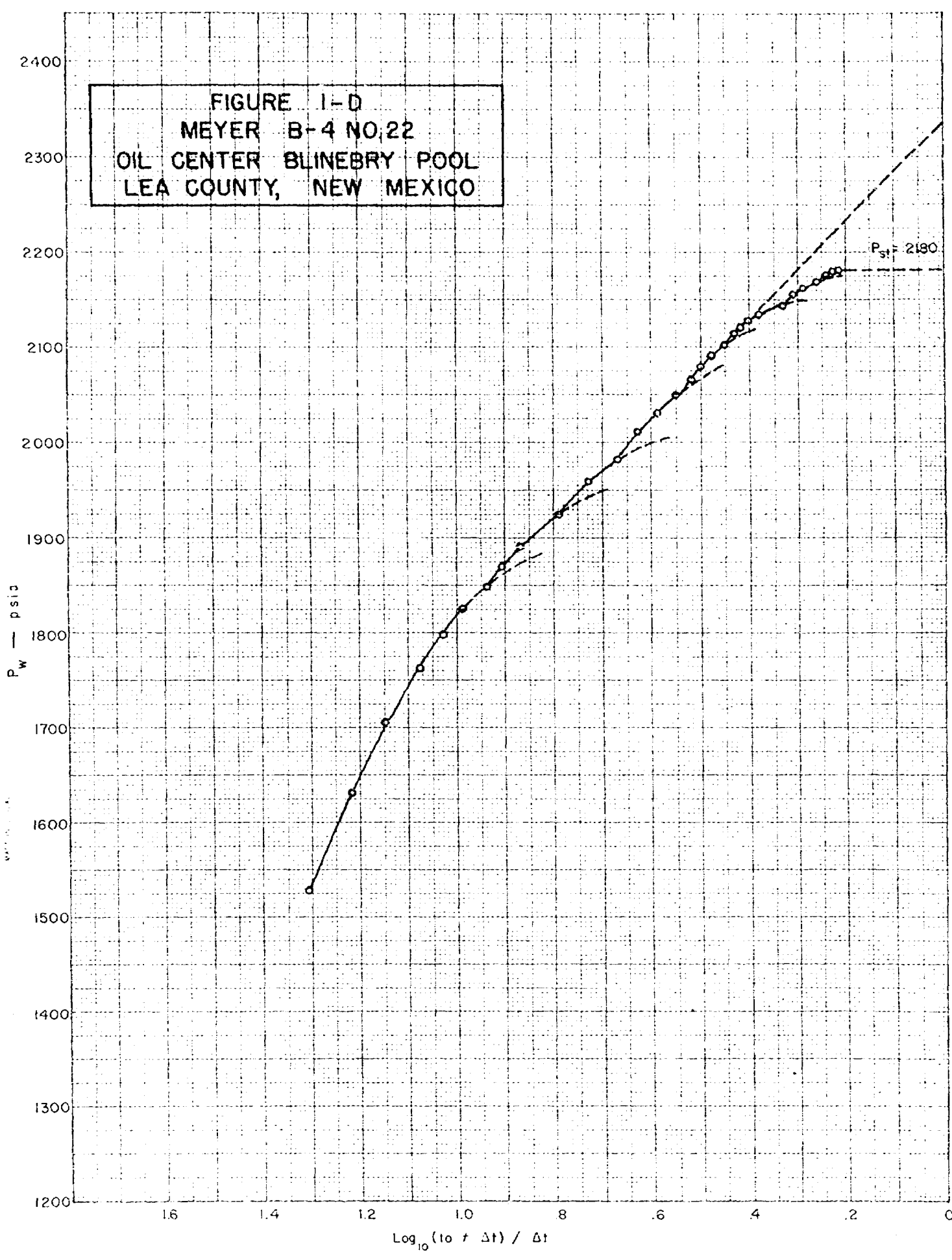
ASST. PROF. KENNETH A. FOSTER, JR.
M.D. 1960, B.S. 1956, M.S. 1958, Ph.D. 1961, Stanford Univ.
M.D. 1960, B.S. 1956, M.S. 1958, Ph.D. 1961, Stanford Univ.



U.S. GEOLOGICAL SURVEY
 WATER RESOURCES DIVISION
 NATIONAL CENTER FOR GROUND-WATER INFORMATION



SP-146 KLIPPEL & PETERSON
Model 4, 25, 5 mm. Presses mounted, etc. See Serials
100-1000.



Pressure build-up analysis, log-log plot
 of pressure build-up data, log-log plot
 of pressure build-up data, log-log plot

p_w (psia)	Δt min.	p_o psia	$p_o / \Delta t$ psia/min.	$\frac{p_o / \Delta t}{\Delta t}$ ($\frac{1}{\text{min}^2}$)	$\log_{10} \frac{p_o / \Delta t}{\Delta t}$ min. ⁻²
1697	0	3209	3209		
1707	15	3209	3204	211.23	2.34
1711	30	3209	3209	102.97	2.01
1821	45	3209	3314	72.64	1.87
1935	60	3209	3322	57.48	1.74
1985	90	3209	3309	37.22	1.57
2023	120	3209	3309	26.74	1.43
2071	150	3209	3419	22.79	1.36
2075	160	3209	3449	19.16	1.28
2091	210	3209	3479	16.77	1.22
2107	240	3209	3599	14.22	1.16
2119	270	3209	3739	13.11	1.12
2127	300	3209	3609	11.90	1.08
2135	330	3209	3609	10.91	1.03
2143	360	3209	3629	10.03	1.00
2155	420	3209	3749	7.61	0.89
2170	600	3209	3809	6.43	0.81
2195	720	3209	3983	5.14	0.74
2214	840	3209	4103	4.19	0.69
2222	960	3209	4229	4.41	0.64
2230	1080	3209	4349	4.63	0.60
2235	1200	3209	4409	3.72	0.57
2240	1320	3209	4309	3.46	0.54
2254	1440	3209	4769	3.27	0.51
2262	1560	3209	4809	3.02	0.48
2267	1680	3209	4609	2.63	0.45
2270	1760	3209	4249	2.63	0.42
2274	2160	3209	4429	2.43	0.39
2276	2340	3209	5109	2.40	0.38
2282	2520	3209	5709	2.30	0.362
2290	2700	3209	5909	2.21	0.344
2290	4500	3209	7709	1.72	0.240

TABLE 1 - Pressure Build-up Analysis, Layer B-4 No. 20
 El Centro Glinery Pool, Lea County, New Mexico
 Pressure Build-up Survey, August, 1942

t_p	Δt (min.)	t_o (min.)	$t_p / \Delta t$ (min.)	$\frac{t_o / \Delta t}{\Delta t}$	$\log_{10} \frac{t_o / \Delta t}{\Delta t}$
142	0	1920	1920		
714	15	1920	1935	129	2.11
916	30	1920	1950	157	1.81
1137	45	1920	1975	43.7	1.64
1307	60	1920	1980	33.0	1.52
1487	75	1920	1995	25.6	1.42
1636	90	1920	2010	21.3	1.34
1757	105	1920	2025	18.29	1.26
1875	120	1920	2040	16.0	1.23
2104	160	1920	2100	11.7	1.07
2204	240	1920	2160	9.60	0.98
2224	300	1920	2220	7.40	0.87
2242	360	1920	2280	6.33	0.80
2271	420	1920	2340	5.57	0.75
2274	480	1920	2400	5.00	0.70
2284	540	1920	2460	4.57	0.66
2290	600	1920	2520	4.20	0.62
2294	660	1920	2580	3.91	0.59
2298	720	1920	2640	3.67	0.56
2298	780	1920	2700	3.44	0.54
2304	840	1920	2760	3.29	0.52
2304	1080	1920	2970	2.63	0.42

TABLE 1 - Pressure Build-up Analysis, Layer 4-4 in 21
 Oil Center Mine No. 1, Lea County, New Mexico
 Pressure Build-up Test, August, 1962

p_w (psia)	Δt (min.)	t_0 (min.)	$t_0 + \Delta t$ (min.)	$\frac{t_0 + \Delta t}{\Delta t}$	$0.410 \frac{t_0 + \Delta t}{\Delta t}$
1957	0	1800	1800		
2079	60	1860	1920	32.0	1.11
2137	120	1920	2040	34.0	1.22
2170	180	1980	2160	36.0	1.05
2202	240	2040	2280	38.0	0.94
2218	300	2100	2400	40.0	0.87
2234	360	2160	2520	42.0	0.79
2250	420	2220	2640	44.0	0.74
2267	480	2280	2760	46.0	0.69
2277	540	2340	2880	48.0	0.65
2287	600	2400	3000	50.0	0.61
2290	660	2460	3120	52.0	0.58
2294	720	2520	3240	54.0	0.55
2302	780	2580	3360	56.0	0.49
2315	840	2640	3480	58.0	0.44
2327	900	2700	3600	60.0	0.39
2334	960	2760	3720	62.0	0.36
2342	1020	2820	3840	64.0	0.33
2350	1080	2880	3960	66.0	0.31
2354	1140	2940	4080	68.0	0.29
2354	1200	3000	4200	70.0	0.27
2354	1260	3060	4320	72.0	0.25

TABLE I. - Pressure Build-up Analysis, Well 3-4 No. 22
 Oil Center Glinebry Pool, Lea County, New Mexico
 Pressure Build-up Test, October 4-9, 1962

P_w	Δt (min.)	t_0 (min.)	$t_0 / \Delta t$ (min.)	$\frac{t_0 / \Delta t}{\Delta t}$	$\log_{10} \frac{t_0 / \Delta t}{\Delta t}$
746	0	4600	4600		
965	60	4600	4740	79.0	4.38
1203	120	4600	4800	40.0	1.60
1380	180	4600	4860	27.0	1.43
1527	240	4600	4920	20.8	1.31
1631	300	4600	4980	16.6	1.22
1704	360	4600	5040	14.0	1.15
1761	420	4600	5100	12.1	1.08
1796	480	4600	5160	10.8	1.03
1825	540	4600	5220	9.7	0.99
1847	600	4600	5280	8.6	0.94
1869	660	4600	5340	8.1	0.91
1888	720	4600	5400	7.5	0.87
1923	900	4600	5500	6.2	0.79
1958	1080	4600	5700	5.33	0.73
1982	1260	4600	5940	4.71	0.67
2009	1440	4600	6120	4.27	0.63
2031	1620	4600	6300	3.89	0.59
2050	1800	4600	6480	3.60	0.55
2066	1980	4600	6660	3.36	0.52
2079	2160	4600	6840	3.17	0.50
2092	2340	4600	7020	3.00	0.48
2101	2520	4600	7200	2.86	0.45
2114	2700	4600	7380	2.73	0.43
2120	2880	4600	7560	2.63	0.42
2127	3060	4600	7740	2.53	0.40
2130	3240	4600	7920	2.44	0.39
2133	3420	4600	8100	2.37	0.38
2142	3960	4600	8640	2.16	0.33
2146	4140	4600	8820	2.13	0.32
2155	4500	4600	9180	2.04	0.31
2158	4680	4600	9360	2.00	0.30
2161	4860	4600	9540	1.97	0.292
2165	5040	4600	9720	1.95	0.282

t_0	Δt (min.)	t_0 (min.)	$t_0 / \Delta t$ (min.)	$\frac{t_0 / \Delta t}{\Delta t}$	$10.410 \frac{t_0 / \Delta t}{\Delta t}$
2167	5220	4680	9900	1.90	0.280
2168	5400	4680	10,080	1.87	0.287
2169	5580	4680	10,260	1.84	0.285
2170	5760	4680	10,440	1.81	0.283
2171	5940	4680	10,620	1.79	0.273
2173	6120	4680	10,800	1.77	0.248
2174	6300	4680	10,980	1.74	0.240
2175	6480	4680	11,160	1.72	0.236
2177	6660	4680	11,340	1.70	0.230
2179	6760	4680	11,460	1.69	0.228
2180	6960	4680	11,640	1.67	0.223
2180	7140	4680	11,820	1.65	0.219
2180	7320	4680	12,000	1.64	0.217
2180	7500	4680	12,180	1.62	0.210

need for further tests

in request temp 80-100 miles 1/2 yr

(continue NE coast of lake for old to 6/10)

staggered locs no. of trap line,

330' to 1/4 or less.

with ideal

green wells only, area to BL mountain

Intermittent BL water level

what reason for similar

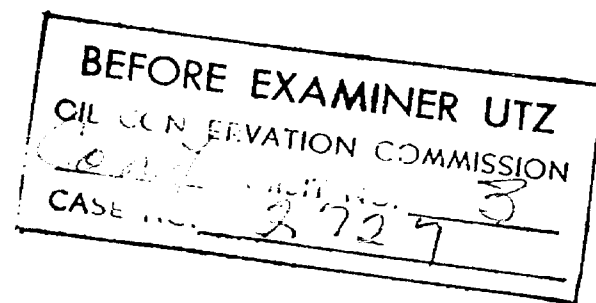
not pay upper zone only 35'

interpolation size of pool.

EXHIBIT NO. 3

DRAINAGE AREAS

<u>Well</u>	<u>Distance From</u> <u>Meyer B-4 No. 19</u>	<u>Drainage Area Required</u> <u>To Effect Pressure Drawdown</u> <u>in Meyer B-4 No. 19</u>
Meyer D-4 #20	2470'	440 acres
#21	2120'	324 "
#22	1500'	162 "
#23	2680'	518 "
#24	2030'	297 "
#25	1470'	156 "
#26	3760'	1020 "



BOTTOM HOLE PRESSURE @ -2300'

2150
2100
2050
2000
1950

Extrapolated Pressure
(Not Valid)

BEFORE EXAMINER UTZ
CONSERVATION COMMISSION
EXHIBIT NO. 2
SE NO. 2787

CONTINENTAL MEYER B-4 NO. 19
STATIC PRESSURE DURING INTERFERENCE TEST

EXHIBIT NO. 2

