

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
JULY 19, 1961

EXAMINER HEARING

IN THE MATTER OF:
Case 2338

TRANSCRIPT OF HEARING



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
July 19, 1961

EXAMINER HEARING

IN THE MATTER OF:

Application of Continental Oil Company for two non-standard oil proration units and for an exception to Rule 309 (a), Eddy, County, New Mexico. Applicant, in the above-styled cause, seeks the establishment of two non-standard oil proration units in the Empire Abo Pool, consisting of the following-described acreage in Section 30, Township 17 South, Range 29 East, Eddy County, New Mexico:

Case
2338

(1) Lots 1 and 2 comprising
55.65 acres.

(2) Lots 3 and 4 comprising
56.61 acres.

Applicant further proposes to commingle the Empire-Abo Pool production from the portions of its State S and State P leases located in said Section 30 and to allocate production on the basis of periodic well tests.

BEFORE:

Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 2338.

MR. MORRIS: Application of Continental Oil Company for two non-standard oil proration units and for an exception to Rule 309 (a), Eddy County, New Mexico.

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



MR. KELLAHIN: Jason Kellahin and Fox representing the Applicant. I understand that we have some opposition.

MR. UTZ: Are there other Appearances?

MR. CAVIN: S. H. Cavin representing Hondo Oil & Gas Company.

MR. UTZ: Your name is Cavin?

MR. CAVIN: C-a-v-i-n.

MR. UTZ: Are there other Appearances? You may proceed.

MR. KELLAHIN: We have one witness.

E. D. COLTHARP,

called as a witness herein, having been first duly sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q State your name, please?

A E. D. Coltharp.

Q By whom are you employed, and in what position?

A Continental Oil Company as District Engineer for the Artesia District.

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

A Yes, sir; I have.

MR. KELLAHIN: Are the witness' qualifications



acceptable?

MR. UTZ: Yes, sir; they are.

Q (By Mr. Kellahin) Mr. Coltharp, are you familiar with the Application of Continental Oil Company in the Case 2338?

A Yes, sir; I am.

Q Briefly, would you state what is proposed in this Application?

A This is the Application of Continental Oil Company for two non-standard oil proration units to be located in Section 30, Township 17 South, Range 29 East, Empire Abo Field, Eddy County, New Mexico. These proration units are to consist of 27.71 acres comprising Lot 1, and 27.94 acres comprising Lot 2; totaling 55.65 acres to be allotted to Continental Oil Company's State S 30 Number 1 Well, and 28.17 acres comprising Lot 3 and 28.44 acres comprising Lot 4; totaling 56.61 acres to be allocated to Continental Oil Company's State S 30 which is to be drilled on a standard location on Lot 3 of said Section 30.

Q Does the Application include also a request to commingle the production?

A Yes, sir. This Application further includes a request to commingle the Empire Abo Pool production from portions of its State S and State P leases, both located in Section 30.

Q Now, Mr. Coltharp, you have made reference to four Lots in connection with your testimony here. Is the size of these Lots and the acreage you are seeking to dedicate to the wells



involved occasioned by variations in the Governmental Survey?

A Yes, sir; they are.

Q As I understand, your State S 30 Well Number 1 is a producing well at the present time; is it not?

A Yes, sir.

Q Would you give the completion and production performance information on that well?

A State S 30 No. 1 was completed on January 31, 1961, and it's location is 2310 from the north line, and 330 feet from the west line of Section 30, Township 17 South, Range 29 East, Eddy County, New Mexico. The well potential of 4215 barrels of oil, and that was 41.7 gravity oil, and 40 barrels of water, 253 MCF of gas on a 1064 choke. This well is still capable of producing a top-allowable production which is currently based on an allowable signed for 27.84 acres which is a non-standard oil proration unit comprising Lot 2.

Q Now, will the well, in your opinion, make an allowable which would be assigned to a unit of 55.65 acres you propose here?

A Yes, sir. The well definitely is capable of making that allowable.

Q Is Continental Oil Company planning to continue development in the area on either of these two leases?

A Continental Oil Company is presently drilling its State S 30 Number 2 Well, located 2310 from the north line and 1254 from the west line of Section 30. This 1254 is still, in



essence, 330 from the west line and 330 from the south line of the Southeast Quarter of the Northwest Quarter of Section 30, but the 1254, due to the short lot in there, had to be made short. And, this well, the Number 2 Well, just finished pulling a core this morning at 6360.

MR. UTZ: I beg your pardon. Is that the Number 2, now?

THE WITNESS: Number 2 Well.

MR. UTZ: Number 2 Well is drilled where?

THE WITNESS: It's drilled 2310 from the north line and 2354 from the west line, which, in essence, is 330 --

(Whereupon Petitioner's Exhibit 1 marked for identification.)

Q (By Mr. Kellahin) Now, referring to what has been marked as Exhibit 1, Mr. Coltharp, does that show the location of the wells you have been discussing?

A Yes, sir. Well Number 1 is a solid line, solid dot located in the Southwest Quarter of the Northwest Quarter of Section 30. It's actually Lot 2.

Q Now, what are your future plans with regard to the development of this acreage?

A Future plans, after drilling this Number 2 and completing the Number 2 Well, will be to drill Number 3 Well on a Standard location on Lot 3 of Section 30. However, the actual drilling of this well will be, to a large degree, dependent upon



the results of this Application.

Q Are there any other wells completed in Section 30?

A Yes, sir. There is another well. Humble Oil & Refining Company has completed there on New Mexico State BK Well Number 1 in the Northeast Quarter of the Southwest Quarter of Section 30. They completed that for an initial potential of 280 barrels of oil, no water, and a GOR of 895 through a 14/64 choke. This well is still capable of producing top allowable production.

Q Now, referring to Exhibit 1, would you discuss the other information shown on that Exhibit?

A Exhibit 1 is a structure map contoured on top of the Abo reef porosity. The two proposed non-standard oil proration units are shown outlined in red. Continental Oil Company's acreage is colored in yellow. Portions of the State S Lease, located in Section 30, consists of Lot 1, 2, and 3, and the east half of the Northwest Quarter. The State S Lease is the New Mexico State Lease Number E-4201. The portion of the State P Lease located in Section 30, consists of Lot 4 and the Southeast Quarter of the Southwest Quarter of Section 30. The State P Lease is New Mexico State Lease Number B-7596.

Q As I understand it then, you have two State Leases involved here?

A Yes. There are two State Leases. However, according to our records, they show that both of these are common school royalty leases.

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



Q Now, does the Map indicate the acreage involved here is within the Abo Reef?

A This Map indicates that the acreage was composed both of those non-standard proration units as within the boundaries of the Abo Reef and should be reasonably presumed to be oil productive; and also, considering the small size of Lots 1 and 4, the wells drilled on these tracts could not be economically justified.

Q What is the cost of a well in this area?

A Approximately \$81,000.00.

Q Is any portion of the land presently allocated to a well?

A Lot Number 2 is allocated, presently allocated to the Number 1 Well.

Q Now, in the event the Commission should approve this Application, how do you propose to allocate the production under your commingling installation?

A Production will be allocated to each of these wells based on basic unit oil allowable acreage and periodic well tests.

Q What facilities will be available to complete the production which will be allocated to the State S and State P Leases?

A Based upon the individual well performance, will be checked by the use of accurate well test facilities to be located on a common tank battery, and the common tank battery is located in the Southeast corner of Lot 2. It's right in the corner, right



almost -- Well, it's within 100 feet of the Humble Oil acreage there. And, we will allocate the P and the S oil allowable based on the acreage.

Q Now, Mr. Coltharp, going back to the completion of your Well Number 1, what producing intervals are open in that well?

A Well Number 1. We have open for production in that well the interval from 6269 to 92, interval 6306 to 11 and the interval 6328 to 34.

Q Now, do you have any information on the interval open in the Humble Number 1 BK Well?

A Yes, sir. The interval open there is from 6268 to 76, and the interval 6302 to 08.

Q Now, looking at the Exhibit, it would appear that the Hondo Western Yates Well Number 34 was a dry hole; is that correct?

A According to our records, the Western Yates Number 34 was drilled to a total depth of 6404 and was plugged and abandoned in September 19, 1960.

Q Well, assuming for a moment that that well was not capable of production, does that, in any way, indicate that the acreage you propose to dedicate to the well to be drilled on Lot 3 would have dedicated to its non-productive acreage?

A No, sir, it doesn't, because of the fact that we are producing an interval of 120, approximately 129 feet of oil column; and according to our Structure Map and information that we have obtained from the last three wells that have been drilled on

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO



Section 30, it would be reasonable to assume that all of this would be productive because of the drop off in construction.

Q Now, do you have any additional information regarding this Application?

A Yes, sir. The proposed non-standard units are the most practical and economical method of allocating the described method for oil production, and approval of this Application would be in the interest of prevention of waste and the protection of correlative rights. It's considered that the facts just mentioned, it's respectively requested that this Application be approved.

Q In the event it will not be approved, Mr. Coltharp, would that leave acreage that was not dedicated to any well?

A Yes, sir; it would.

Q In your opinion, would that acreage ever be dedicated to the well if it were deleted from this Application?

A At this time, I would say it would never be dedicated.

Q Was Exhibit 1 prepared under your direction and supervision?

A Yes, sir.

MR. KELLAHIN: At this time, we would like to offer in evidence Exhibit 1.

MR. UTZ: Without objection, Exhibit 1 will be entered into the record.

(Whereupon Petitioner's Exhibit 1 received in evidence.)



MR. KELLAHIN: That is all the questions I have of the Witness.

MR. UTZ: Are there questions of the Witness?

Mr. Cavin.

MR. CAVIN: Hondo Oil & Gas Company of Roswell and Western Development Company of Delaware, and owners of the acreage offsetting this property to the west would like to oppose this Application of Continental for the non-standard proration units including Lots 1 and 2 as one unit, and Lots 3 and 4 as another unit all being in Section 30, 17 South, 29 East, Eddy County, New Mexico, so far as they relate to production from the Empire Abo Pool.

CROSS-EXAMINATION

BY MR. CAVIN:

Q We would like to ask the Witness first if -- Do you have the responsibility and authority for selecting drilling locations for Continental in the Empire Abo Area?

A I initiate the locations, sir, the whole responsibility up and down the line.

Q I see. Can you tell me if you have a tentative location for either the Northeast Quarter of the Northwest Quarter or the Southeast Quarter of the Southwest Quarter?

A Yes, sir.

Q You have tentative locations for each of those tracts?

A Yes, sir.



Q Do you think that when those wells have been drilled, you would have a more conclusive understanding as to whether or not Lots 1 and 4 are productive?

A The more information we have is always more conclusive.

Q Well, at the moment, do you have any conclusive information as to the fact of the existence of productive Abo Reef under Lots 1 or 4?

A Just off the general trends that we see on our lots plus the wells that are drilled offsetting those in other areas.

Q That's based on the opinion of your geological staff?

A Yes, sir.

Q I see. What would your reaction be to drilling the Number 3 Well on Lot 4 instead of Lot 3 to more adequately distribute the production among these non-standard units?

A Well, it was considered the best information to always stay as close as you can to another producing well. That is always the case.

Q Well in fact, will that enhance the total recovery, assuming that you do have a productive Abo Reef under Lot 4?

A No, sir, because according to our tests and everything, we can drain more than any 40 acres on one well.

Q You say that would not enhance the probability of, or the possibility of a maximum ultimate recovery?

A No, sir. That is what I am saying. I don't think that it would change the maximum recovery from the well.



Q Well, do you think you would recover, assuming that Lot 4 does carry productive Abo Reef, you would recover substantially the same amount of oil by drilling your well in Lot 3 than by drilling in Lot 4?

A Yes, sir.

Q Well, normally in drilling in long spacing units of that nature in New Mexico, do you have that same spacing pattern, for example, where you are drilling on eighties?

A With any experience we have, two or three pools that are drilled on eighties which the wells are located in the center of a forty.

Q In the center of a forty. How are they related as between the two eighties?

A In some cases, they are in adjoining forties.

MR. CAVIN: Now I don't believe we have any more questions of this Witness.

MR. UTZ: Do you have testimony to offer?

MR. CAVIN: Yes. We have a witness.

MR. UTZ: Are there other questions of the Witness?

Mr. Nutter.

EXAMINATION

BY MR. NUTTER:

Q Mr. Coltharp, did you prepare this Contour Map of this structure?

A No, sir.



Q Who prepared it?

A D. B. Knowland.

Q Is Mr. Knowland present to testify as to the means that he used to construct the map?

A No, sir; he isn't.

Q Can you tell me why Mr. Knowland drew the lines the way he did draw them? I mean, what control he used and so forth he used in drawing the lines?

A He used his interpretation of these points which are the top of the porosity of the Empire Abo Field; and the way the lines are drawn in there are just exactly the interpretation of them.

Q Then, you don't know why, then, he would swing the 2,600-foot contour line on both the north side of the structure and the south side of the structure to the north and the south, respectively, without any actual control or any wells drilled on the north of the south section of the Continental acreage?

A Yes, sir; it's not shown, but approximately three sections over, or two sections over there are some deep wells drilled of which penetrate the Abo either low or high, and that gave him additional control on the plus size work.

MR. UTZ: The three sections over, you mean three sections on the east?

A To the east; yes, sir, two or three sections on the east.



Q (By Mr. Nutter) Now, you stated that Continental had tentative plans for drilling a well in the Northeast Quarter of the Northwest Quarter.

A Yes, sir.

Q And, the Southeast Quarter of the Southwest Quarter?

A Yes, sir.

Q Has the expenditure of funds to drill those wells been approved yet?

A No, sir; that's next year's budget.

Q Your Number 1 Well, you stated on initial potential made 215 barrels of oil --

A Yes, sir.

Q -- and 40 barrels of water?

A Yes, sir.

Q Does that indicate that this well is completed somewhere near the water-oil contact in this Pool?

A Yes, sir; it is.

Q Do you know what the water-oil contact would be?

A Well, in our well it's approximately, we estimate at 6330, about 396339. We estimate that we are producing about 5 feet above the water-oil contact.

Q And, your last perforation is 34?

A Yes.

Q Do you know whether the Hondo Well Number 34 made water on its completion?



A I do not know. Talking with them, they said they penetrated it below the water-oil contact.

Q At any rate, the well didn't produce oil; is that correct?

A That is correct.

Q Now, I'd like to have those lease numbers again, please, the S Leases, the B Number?

A The S Lease in the E-4201, and the P Lease is the State B-7586.

Q Now, you stated that both of these leases are dedicated to the common schools as far as State S is concerned. Is the other ownership in these leases identical?

A Yes, sir.

Q That is, Continental is the working interest owner?

A Yes, sir.

Q Is there any overwriting interest that varies on these leases?

A No, sir.

Q So, the ownership throughout is identical?

A Yes, sir.

Q Now, you stated that your Number 2 Well had pulled a core this morning. Was that a core in the Abo porosity?

A Yes, sir.

Q What was the depth of that core, and where is the indicated top of the porosity in that well?



A The indicated top of the porosity is that 2545, which substantiates these curves on the Structure Map.

Q Does it substantiate the 2600 foot line?

A Yes, sir. It helps to substantiate it.

MR. NUTTER: I believe that is all. Thank you.

MR. UTZ: The contour that is immediately to the north of the 2500 foot is the 2600 foot?

A Yes.

Q So, the 2545, that would indicate the 2600 which should swing a little farther to the south, shouldn't it? It's just almost halfway between the two contours?

A Well, it's almost halfway. It's fairly close; yes, sir.

MR. UTZ: The contour that is not marked on the north edge of your Structural Map is a minus 2700 foot contour?

A Yes, sir.

Q Have there been any productive wells drilled on that Contour?

A None that I know of, sir.

MR. UTZ: Have there been any drilled on the minus 2600 foot Contour?

A Yes, sir.

MR. UTZ: Where located?

A Located. I believe it's in Section 28 or 27 back there. In fact, they are drilling one right now that will be



on approximately that same contour.

MR. UTZ: Now, to the south end of your structure on the 2600 foot contour, have there been any productive wells drilled on that in this area, the closest one over in Section 35?

A No, sir. There is one in Section 25, that is a Hondo Western Yates Number 34-2. It was drilled on the 2600 foot --

MR. UTZ: Oh, yes.

A -- and is presently productive.

MR. UTZ: Now, you say your control for the minus 2600 foot contour is a well two miles to the east?

A Yes, if you bring it down like this, it's right over in here. It's ashen and something. I can't remember the name.

MR. UTZ: Now, I believe you stated that you initiated the recommendations for drilling wells in this area.

A Yes, sir.

MR. UTZ: Have you requested the location for the Northeast of the Northwest and the Southeast of the Southwest?

A Yes, sir; I have.

Q What did you recommend for location of those wells?

A 330 from the south and 330 from the west of the Northwest of the Southwest.

MR. NUTTER: Of what width, 330 from the south and west?

MR. UTZ: 330 out of the corner out of the Southwest --

A Out of Lot 3.

MR. UTZ: And, how about the Southeast of the South-



west?

A Center.

MR. UTZ: At the present time, I believe you said the Well Number 1 is receiving something like a 27-acre allowable?

A Yes; it is.

MR. UTZ: Again, where did you say you were going to drill, or recommended that you drill on Lot 3?

A Lot 3 was in the 330 of the Southwest Corner of Lot 3, 330 which is the Standard location.

MR. UTZ: Now, Mr. Coltharp, the Lots 1 and 2 would be about 55.65 acres; would it not?

A Yes. I believe that is correct.

MR. UTZ: That is, did you say approximately 39 per cent over standard unit?

A Yes, sir; it is.

MR. UTZ: And, your bottom unit Lots 3 and 4, it would be 56.61 acres?

A Yes, sir; or approximately 41 per cent.

MR. UTZ: The two units, the four lots together would be around a one and one two point two six acres?

A Yes, sir; approximately.

MR. UTZ: So actually, you are only about 19 per cent short for enough acreage to drill three wells?

A Yes, sir.

MR. UTZ: So that, if you drilled three wells on this



acreage, then you would have three units that would be approximately slightly over 6 per cent short?

A Yes, sir.

MR. UTZ: Is that about right?

A Yes, sir.

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

MR. MORRIS: Yes, sir.

EXAMINATION

BY MR. MORRIS:

Q Mr. Coltharp, would you review again for me the method that you intend to use in allocating the production to the two leases? Are you going to do it by well tests alone?

A Yes, sir; well tests alone.

Q No metering involved?

A Well, metering on well test.

Q Yes, but you are not planning to meter the production from each lease?

A No, sir. The Number 3 Well would be the only one that would have to be allocated between the three leases, and the Number 3 Well would have to be allocated between Lot 3 and 4.

MR. MORRIS: Thank you, sir.

MR. UTZ: Then, you would allocate the allowable to the acreage on Lots 3 and 4 by oil tests, and allocate the production as estimated from well tests to your P Lease on an acreage basis?



A Yes, sir.

MR. UTZ: Mr. Nutter.

EXAMINATION

BY MR. NUTTER:

Q Mr. Coltharp, what is the surface elevation of your Number 1 Well?

A Now, the Number 2 Well -- I've got it here. It's 3658, and it's sub C came out minus 2545. So, I figured backwards for the other one because it's higher. We are down in a gully.

Q Is this uppermost perforation at 6269 the same as the top of the porosity as indicated, minus 2596?

A No. That is the top of the pay that he's got listed. The top of this minus 2596 is this upper perforation.

Q The 2596 is the uppermost perforation?

A That's what that is, there.

Q Well, I wanted to get a sub C water-oil contact if the top of the porosity corresponds to the top of the --

A Just a minute. I'll give you that. Approximately the water-oil contact, it would be, according to our porosity, 6339, makes it 3673, about minus 2666 approximately.

Q Now, do you know whether Hondo's 34-2 makes water or not?

A No, sir; I do not. It was not reported on the test.

Q I am still a little bit confused as to these locations that you have recommended, Mr. Coltharp, for the Number 3. Number



3 will be located in Lot 3, 3300 feet from the south and west corner of that lot?

A Yes, sir.

Q Now, the well down in the southeast of the Southwest Quarter, that you have recommended, will be located where?

A In the center of it. It would be 66660 location.

Q You have recommended a 66660?

A Yes, sir.

Q And, up to the Northeast, the Northwest, your proposed location is where?

A 66660.

MR. NUTTER: I believe that is all. Thank you.

MR. UTZ: Are there other questions of the Witness?
Mr. Kellahin.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Coltharp, in connection with the drilling of three wells on Lots 1, 2, 3, and 4, will one well drain in excess of 40 acres, in your opinion?

A According to the tests that we have run on the well, it would definitely drain more than 40 acres.

Q Will the drilling on the west, then, in your opinion, constitute waste? Would it be an unnecessary well?

A Well, hindsight is always better than foresight. If we'd changed the location of the Number 1 Well when we drilled it



initially, which would have been a benefit to drill three wells instead of just the two. We drilled the one well, and then --

Q In your opinion, would the drilling of the additional well on Lot 3, as you have proposed at Quarter Lea, develop the acreage you propose to dedicate to the two wells?

A Yes, sir.

MR. KELLAHIN: That is all I have.

MR. UTZ: Are there other questions?

MR. NUTTER: One more question.

In effect, Mr. Coltharp, what you are proposing to do is, I guess, on this Lot 3 and Lot 4, is to communitize those two leases; is that correct, with the approval of the Land Office, to communitize a 50-some odd acre unit?

A Yes, sir.

MR. NUTTER: I see. Thank you.

MR. UTZ: Are there any other questions?

MR. CAVIN: I have one more question, yes.

RECROSS EXAMINATION

BY MR. CAVIN:

Q In view of the fact that it was -- You say hindsight is better than foresight. Would it not be more appropriate to wait until you know what the results of the wells are in the Southwest Quarter, Southwest Quarter, or Northwest Quarter are before you allocate this additional acreage to wells that are not in the same contour?



A If we do not allocate this acreage in this form, I imagine we would change the location of those other proposed wells.

Q To what?

A Right now, I'd have to think about it a little bit more. I would have to study and see which way it would go.

Q You mean, the fact that you didn't allocate this acreage at the moment to wells you are proposing would change the location of these prospective wells?

A Yes, sir.

Q I'm not much of a geologist or an engineer, but I just wonder why?

A Well, several things on that: It's the amount of oil that you are draining from the individual well is primarily what you are getting into. If we are only allowed to drain so much oil from this well --

Q You are only allowed to drain so much oil from that well at this time. Assuming that you do establish the fact that this additional acreage is conclusively productive by drilling a well and offsetting tracts, it wouldn't seem that there would be much of a problem in getting the additional acreage allocated to the wells that you are proposing.

A I'd still have to study it over.

MR. UTZ: How would you change your location provided you didn't get your request here? Can you move to the north?

A I don't know right now. I mean, I'd have to consider



the thing and make up my mind. I believe, just offhand, I'd say I'd move it toward the present producing wells.

MR. UTZ: You can't get much closer to the present producing wells and still drill on the northeast, or the northwest, can you, without another location?

A Well, you can pull into 330.

MR. UTZ: The Northeast of the Northwest Quarter?

A Oh, that's a 660 location, excuse me.

MR. UTZ: I wrote down 330 when you gave me the notation.

A In the two 40 acres. We are indicating the full 40 acres from the center location.

MR. UTZ: Both of them are centered?

A Yes, sir.

MR. UTZ: Are there any other questions?

RECROSS EXAMINATION CONTINUED

BY MR. CAVIN:

Q What is your original recommendation on the Number 2 as far as location was concerned?

A My original was a 660, 660.

Q If the proposed wells in the northwest and southeast southwest are actually drilled, do you think that they will be drilled on a 660?

A Yes, sir. I believe they will in time.

Q Based on what?

A You were getting down a little bit into company policies



or something. This acreage is still open to the east. I mean, we didn't want to get over too close to it at the time.

Q You had the acreage to the north there. I was just wondering if it would have helped your evaluation to some extent if you had drilled it at 330 feet north of where it is actually located.

MR. KELLAHIN: Is that a question?

MR. CAVIN: That is what I was wondering.

THE WITNESS: Well, as I say, the more information, the more you spread the wells out, the more information and the more sure you are.

MR. UTZ: Are you through?

MR. CAVIN: I have no more questions, excuse me.

MR. UTZ: Are there any other questions? The Witness may be excused. Do you have anything further, Mr. Kellahin?

MR. KELLAHIN: That is all I have at this time.

MR. UTZ: Mr. Cavin, do you care to give some testimony?

MR. CAVIN: At the risk of being out of order, I would first, rather than take up a great deal of time with testimony. Since Continental is apparently inconclusive as to whether Lots 1 and 4 actually are productive, I would like to move that this case be continued until they do drill sufficiently, acquire sufficient control to justify this Application.

MR. UTZ: Mr. Cavin, I will deny your motion. If you have testimony to put on, why, proceed at this time.



MR. CAVIN: Fine. I would like to support its position. Hondo would like to present testimony from Mr. Wilbur D. Wilson.

WILBUR D. WILSON,

called as a witness herein, having been first duly sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CAVIN:

Q Would you please state your name, position, employer and your place of residence.

A My name is Wilbur D. Wilson. I am employed by Hondo Oil & Gas Company as District Geologist for the Roswell office and I reside at Roswell --

Q Have you previously appeared before the New Mexico Oil Conservation Commission and qualified and testified as an expert witness?

A Yes, I have.

Q Are you familiar with the Abo Reef formation as it occurs in the Empire Abo Pool, Eddy County, New Mexico?

A Yes, I am. I was employed by Pan American Petroleum Corporation at the time the Empire Abo Field was discovered and was acquainted with the Abo Reef play at that time. After leaving Pan American and joining Malco Refineries, Inc. (presently Hondo Oil & Gas Company) I witnessed all cores, logging and drillstem tests of all wells in which we held a 50% interest with Pan American, as well as most of the Empire Abo wells in the Chalk



Bluff Draw Unit. As operator for the Hondo-Western-Yates Group, Hondo Oil & Gas Company was in charge of all wells drilled for this partnership. Most of these wells I have sat on and observed samples, drillstem tests and cores. I also contoured the maps and cross-sections on the Empire Abo Field for the Roswell Geological Society's recent symposium on the Oil and Gas Fields of Southeastern New Mexico.

Q In connection with Continental's application in this case, have you made a study of the Abo Reef as it occurs on the East Flank of the Empire Abo Pool?

A Yes.

MR. CAVIN: Are these qualifications acceptable?

MR. UTZ: Yes, sir; they are.

Q (By Mr. Cavin) Have you prepared or at your direction had prepared three plats and a cross-section, all on the East Flank of the Empire Abo pool and particularly showing:

1. Structure contour map on Top of the Abo Reef.
2. Isopach Map of Gross Abo Reef Pay.
3. Isopach Map of Abo Green Shale Facies.

A Yes.

Q The plat designated "Structure Contour Map on Top of the Abo Reef" is offered as Hondo's Exhibit No. 1. Mr. Wilson, would you please state what is shown on this plat?

MR. UTZ: Off the record.

(Discussion off the record.)



(Whereupon Petitioner's Exhibits 1 through 4 marked for identification.)

MR. UTZ: You may proceed.

Q (By Mr. Cavin) Mr. Wilson, would you explain what is shown on the Structure Contour Map of the top of the Empire Abo Reef formation?

A Exhibit No. 1 represents a structure contour map of the East Flank of the Empire Abo Field contoured on the top of the Abo Massive Reef Dolomite. Subject map is contoured on a 50' contour interval. This map shows the structural configuration of the main reef axis as it plunges regionally downdip to the East and the width normal to this axis becomes narrower. All structural points were picked on top of the massive reef dolomite with the exception of the Hondo-Western-Yates No. 36 State "A", located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ of Sec. 26, T-17S, R-28E. This well failed to penetrate the massive Abo Reef dolomite after reaching a total depth of 6390'. The structure datum used on this well represents a porous dolomite stringer which is assumed structurally and stratigraphically equivalent to the reef mass immediately south.

Q The plat designated "Isopach Map of Gross Abo Reef Pay" is offered as Hondo's Exhibit No. 2. Mr. Wilson, would you please state what is shown on this plat?

A Exhibit No. 2 represents an Isopach Map of the East Flank of the Empire Abo Field contoured on the Gross Abo Reef pay thickness. Also shown, where available, are oil-water inter-



face datum determined from Laterlog measurements or Drillstem test results. Reference is made to the map legend which shows the relationship of the gross figures for each well. This map, like the structure countour map, shows the producing Abo Reef plunging and becoming extremely narrow to the east.

Of particular interest are the "Back-reef" producing wells located north of the main Abo Reef producing trend. The Hondo-Western Yates No. 36 State "A" located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$ of Sec. 26, T-17S, R-28E, was drilled to a total depth of 6390' (-2716') without penetrating massive reef dolomite. Any porous reef dolomite below this total depth would have been water bearing since the oil-water interface datum would be approximately (-2650'). This well was completed for an initial potential swabbing of 72 BOPD from what we consider to be a "back-reef" porous dolomite stringer equivalent to and connecting to the massive reef dolomite to the south.

The Hondo-Western-Yates No. 27 State "A" which is located in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Sec. 25, T-17S, R-28E, also represents a back-reef well. This well was drilled to a total depth of 7950' in the upper Wolfcamp after finding the Abo Massive Reef Dolomite porous. This well was also completed from a back-reef porous dolomite stringer equivalent to and connecting to the Massive Reef Dolomite to the south. Initial potential swabbing was 76 barrels of oil plus 135 barrels of formation water in 24 hours.



MR. UTZ: That was from what formation?

A That was from the back reef dolomite stringer Abo and A.

Q (Mr. Mr. Cavin) Mr. Wilson, the cross-section which is next in this series west, would you explain what this shows?

A Exhibit 3 represents a north-south cross-section through the east flank of the Empire Abo Field. Both Exhibit 1 and Exhibit 2 show the trace of this cross-section. This section shows very well the back reef Abo, Green Shale Reef, and four Abo Reef string facies, which is characteristic of all Abo Reef fields. Reference is made to the Abo section cut by the Hondo-Western-Yates No. 27 State "A", the well on the extreme left of the cross-section. This well penetrated the Abo Massive Reef Dolomite from 6,330 to 6,530 feet, but found the reef non-porous. The reef section averages 2 per cent or less neutron porosity and gave us no fluid upon drilling through the section with air. Had the reef been porous, due to its structural position, it would undoubtedly been water back. As previously stated, this well was completed above the massive Abo Reef section.

Q The last Exhibit designated, the Isopach Map of the Abo Green Shale Facies, what does that show, Mr. Wilson?

A Exhibit 4 represents an Isopach Map drawn on the Abo Green Shale Facies. This interval is from the top of the Abo Green Shale to the top of the Abo Reef. Contour interval was 50 feet. This map shows the Isopach thing on the south as the thick Abo Reef mass is approached. Eastward, this thing becomes much more abrupt,



indicating a greater degree of steepness on the back reef or north side of the reef.

Q Based on the facts that have been demonstrated by these Exhibits, would you please state what conclusion you reached.

A After the examination of the previously submitted Exhibits of the east flank of the Inter Abo Field, it is our conclusion that all of Lots 1 and 4, and Section 30, Township 17 South, Range 29 East, are beyond the productive limits of the Abo Reef mass and are not underlying by any reserves which would contribute to Abo Reef production.

Q In your opinion, would the granting of Continental's Application to allocate more than a legal subdivision to their existing proposed wells endanger correlative rights of lease owners?

A Yes, it would, because it would grant an additional increment of allowable to the presently completed Continental 1, State S 30, Lot 2, and to any Abo well which in the future is drilled and completed in Lot 3. This increment would be based on the addition of acreage making up Lots 1 and 4 which are not underlying by oil reserves which could contribute to Abo Reef production.

MR. CAVIN: I have no more questions at this time. I would like to move that the Exhibits 1, 2, 3, 4 be admitted into evidence in this case.

MR. UTZ: Without objection, the Exhibits 1, 2, 3, 4 will



be entered into the record in this case. Are there other questions of the Witness?

MR. KELLAHIN: I would like to ask some.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q Mr. Wilson, according to your contours and your Isopach, a well located on a 330-foot location out of the southwest corner of Lot 3 would not be productive; is that correct?

A What was that again? Would you repeat that.

Q 330-foot location out of the south and west of Lot 3.

A No. We do not feel it would be productive.

Q It would be outside the production interval?

A Yes, sir.

Q Now, as I understood your testimony, the wells designated as your 36A and your 27A are not completed in the Abo Reef?

A We do not feel they are actually in the Abo Reef mass, no.

Q What are they in?

A Well, we feel they are in a dolomite stringer which is probably equivalent to and connected to the reef mass to the south.

Q Is it the same type of formation?

A It's clean which, of course, the reef is. However, it's of a much lower porosity; and we did not core either one of these wells, but it probably has considerably less fracturing than the reef mass, itself.



Q Is the graphite of the oil the same as you have encountered in wells which you consider to be in the main reef?

A I can't answer that for sure, but I think it is.

Q Now, your Well 34A was completed for water; is that correct?

A Yes. We drillstem tested that well. It shows fairly well on the cross-section there. We were too low on the reef. We were down -2680, and we drillstem tested and recovered 5,400 feet of sulphur water, either salt or sulphur water.

Q Now, your 342A was completed in what formation?

A The 342A is completed out of the top of the Abo Reef.

Q How much interval do you open in that well?

A We have 15 feet open right on the top of the reef.

Q Now, on your No. 34A, the well that tested for water, according to your cross-section you drillstem tested both above and below the water-oil contact; is that correct?

A Yes, sir.

Q Did you make any attempt to drillstem test above the water-oil contact?

A No, we did not, because we felt we had conclusive evidence that the section above the oil-water contact had no porosity which, I think, is fairly well borne out by the neutron as laterally logged, and also borne out by drilling time and the fact that we recovered no fluid. See, this well was drilled there and we recovered no fluid until we got to the reef.



Q What acreage do you have dedicated to be No. 342A?

MR. CAVIN: I would like to object to that question as immaterial in this Hearing.

MR. KELLAHIN: If the Examiner please, I don't think it is immaterial in that they are contending that we should not dedicate Lot 4 for the reason it is non-productive, and yet they have evidence which they say shows a substantial portion of the tract on which their No. 342A is non-productive.

MR. CAVIN: In this case, you are requesting a non-standard proration a unit allocating more than one subdivision to a well -- No such thing involved in the 342A.

MR. UTZ: The Examiner will overrule the objection. I am of the opinion that the dedication of the derrick would be subject to any well which we are speaking of in this case.

Q (By Mr. Kellahin) What acreage do you have dedicated to the No. 342A Well?

A We have the whole 40 acres.

Q What acreage do you have dedicated to the No. 27?

A 40 acres.

Q What acreage to the No. 36A Well?

A 40 acres.

MR. KELLAHIN: That is all the questions I have.

MR. UTZ: Are there other questions.

Q (By Mr. Nutter) Mr. Wilson, have you given consideration to the drilling of a well in the Southeast Quarter of the Southeast



Quarter of Section 25?

A Yes, we have, and needless to say, based on our interpretation, we do not intend to drill.

Q Have you given consideration to the drilling of a well in the Southeast Quarter of the Northeast Quarter of 25?

A The Southeast of the Northeast. Yes, we have given some consideration to that location. We're still -- 27A was -- we spent a total of 43 days trying to complete that well, and we're a little afraid of that north edge.

Q Have you given consideration to the drilling of a well in the Northeast Quarter of the Northeast Quarter of 25?

A No, sir.

Q Why haven't you considered that location?

A We don't feel it will produce.

Q You have given it some consideration, then?

A Well, let's say I just considered it now. We don't feel that any of that north tier, there on Section 25, has any chance of being productive.

Q In your experience working with this Empire Abo Pool, what has been the indications of the back reef stringers? Do they tend to flatten out and remain productive for some distance to the north of the reef, itself, or are they rather limited in their productivity, or just what?

A I don't believe they extend too far. Of course, when you start talking about porous dolomite stringer versus actual



massive reef, unless you have got cores all along there you are talking about something which is -- there is considerable variance. And, as you get in Section 26, here, and you go farther west as the reef flattens out on the back reef side, you could assume that the reef, any of the porous stringers if they are present, would probably extend farther north and as you approach a steeper back reef side, as we feel we have over here in Section 25 and east of there in Section 30.

Q In other words, in drilling this pool, if you go too far north and get out of the massive dolomite, you may encounter friction in a dolomite stringer?

A There is a chance, but I'd hate to drill any wells just looking on that basis.

Q Now, if you come too far south and miss the massive dolomite, or the porosity in the dolomite, what happens?

A If you come too far south, you just drop off the steep front of the reef and you are in the water. We have had no trouble in the basin side, here, actually finding the reef in our wells that are close to the Empire Abo Field. It is just the fact that they are too low. 34A is an excellent example of that.

Q It is quite possible to the south side of the reef, though, to get a little bit too far south and then just, so to speak, fall off the table; isn't that correct?

A That is correct. The steep side is, as far as we are concerned -- the south side, the basin side is purely a structural



problem. It's just a matter of whether you will top the reef high enough above the water table to be productive. The north side of the reef is definitely erratic. You might luck into a stringer. You might luck into something that you might take one of these wells and offset it east and west and find nothing.

Q Has there ever been any case of stringers on the south side of the reef which were productive if you don't encounter porosity of the reef and no water?

A No, sir; not to my knowledge. There are none.

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

CROSS EXAMINATION CONTINUED

BY MR. KELLAHIN:

Q Mr. Wilson, is there any possibility, in your opinion, of this formation in the Empire Abo Field spreading out to the north and south again as you go on east?

A With the present control which is presented by this map, I think there is overwhelming evidence that the reef is narrowing down to this point, certainly to as far as the middle of Section 30. Now, you pointed out a well which was about 3 miles east. I can't recall the name of that well, but I do know that it has a down reef green shale facies, and it was right on the oil construct, and they eventually plugged it because it made so much water. Now, Gulf stepped out to the diagonal southeast 40 and drilled a well which was on the basin side and was structurally low and in the water. So, the two wells give evidence, at least 3 sections east,



that the reef is probably no wider than a 48 --

Q Do you know what else those are?

A No, I don't. I can't remember the names of them. I think one of them is National Hillian.

Q Now, it's been the experience in the Abo Reef formation that the formation does spread out and then contracts as you move along the structure; isn't that correct?

A Well, it has west of the Empire Abo, yes.

Q It did. And, in the Loco Hills Area?

A Yes.

Q And, in the Corbin Abo Pool?

A No. I don't think Corbin Abo -- I think you will find the east end of the Empire Abo is going to be very similar to Corbin Abo in that it's going to be extremely narrow.

MR. UTZ: Are there any other questions?

REDIRECT EXAMINATION

BY MR. CAVIN:

Q Mr. Kellahin was asking you about the 40 acres dedicated to Wells 342, 27, and 36. Do you recall from the previous testimony how much acreage they, Continental, proposed to dedicate to the wells located in Lots 2 and 3 of Section 30?

A I don't understand the question.

Q How much acreage do they propose to dedicate to Well 1 on Lot --

A Well, that is 50, almost 55 acres, I believe.



Q And, how many acres would you, as a Geologist, estimate are actually productive in that unit?

A Based on my interpretation, I'd say half of 27.84.

Q About 14 acres?

A Yes, sir.

Q On the other unit it would be a little bit larger?

A Yes, sir.

Q About 20 acres?

A Yes, sir.

MR. CAVIN: I don't believe we have any further questions.

Q (By Mr. Utz) Mr. Wilson, do you know how much acreage is dedicated to the Humble States No. 1, States BK No. 1?

A I assume 40 acres.

Q It would be your opinion that some of that 40 might be dry?

A Yes, sir.

MR. UTZ: Are there other questions of the Witness?

The Witness may be excused. Is there other testimony in this case? Are there other statements in this case? The case will be taken under advisement.

We will take a 10-minute recess.



STATE OF NEW MEXICO)
) ss
 COUNTY OF BERNALILLO)

I, MICHAEL P. HALL, 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 19th day of July, 1961.

Michael P. Hall
 Notary Public-Court Reporter

My Commission expires:

June 20, 1965

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 233 F., heard by me on July 19, 1961.
John A. [Signature] Examiner
 New Mexico Oil Conservation Commission

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO

