BEFORE THE

Oil Conservation Commission

SANTA FE, NEW MEXICO

Hobbs, New Mexico

October 20, 1954

IN THE MATTER OF:

CASE NO. 781 - Regular Hearing

TRANSCRIPT OF PROCEEDINGS

ADA DEARNLEY AND ASSOCIATES

COURT REPORTERS

ROOMS 105, 106, 107 EL CORTEZ BUILDING

TELEPHONE 7-9546

ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
Hobbs, New Mexico
October 20, 1954

IN THE MATTER OF:

The application of the Atlantic Refining Company for permission to effect a dual completion and to establish a non-standard gas proration unit for the completed well.

Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Seale (Federal) Well No. 1, NW/4 SW/4 Section 34, Township 20 South, Range 36 East, NMPM, Lea County, New Mexico, in such manner as to permit production of both oil and gas from the Yates and Seven Rivers formations of the Eumont Gas Pool, the oil from an interval of 3678 - 3740 feet, and the gas from an underlying zone at 2790-3875 feet; further applicant asks establishment of a 160-acre non-standard gas proration unit for subject well, in exception to Rule 5 of the Special Rules and Regulations for the Eumont Gas Pool as set forth in Order R-520.

Case No. 781

BEFORE:

Honorable Edwin L. Mechem
Mr. E. S. (Johnny) Walker
Mr. William B. Macey

TRANSCRIPT OF HEARING

MR. MACEY: The next case on the docket is Case 781.

(Atlantic's Exhibits No. 1 through 4, inclusive, for identification.)

MR. HINKLE: If the Commission please, I would like to make a brief statement before the testimony of Mr. Tomlinson in this case. Atlantic Refining Company has made application for dual completion of a well to be drilled in approximately the center of the northwest of the southwest quarter of Section 34, Township 20

South, Range 36 East, Lea County, under Rule 112, providing for multiple zone completions. This well is located in the Eumont Gas Pool in which there have been other dual completions approved by the Commission for oil and gas. The only difference in this case is that Atlantic anticipates, because of the structural location of the well, that the gas will be found below the oil producing horizon rather than above as has been the case with the former dual completions. It is anticipated that this particular well will encounter oil in the Yates Formation at approximately 3,678 feet to 3,740 feet, and gas in the Seven Rivers Formation from 3,790 to 3,875 feet. The application requests approval of an oil proration unit of 40 acres, being the 40 acres upon which the well will be situated, namely the northwest of the southwest quarter of Section 34, Township 20 South, Range 36 East, and a non-standard gas proration unit consisting of the southwest quarter of said Section 34, and being 160 acres. The 40-acre legal subdivision upon which the well is to be drilled is offset to the west by a well producing oil, and gas wells have been completed in the contiguous 160-acre legal subdivisions to the northwest, the northeast and the east of the 160-acre legal subdivision.

W I L L I A M B. T O M L I N S O N,

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

DIRECT EXAMINATION

By MR. HINKLE:

Q State your name, please.

A William B. Tomlinson.

Q Where do you live, Mr. Tomlinson?

A I live in Midland, Texas.

Q By whom are you employed?

A I am employed by the Atlantic Refining Company.

Q What capacity?

A As an Area Reservoir Engineer.

Q Are you a graduate engineer?

A Yes, of the Alabama Polytechnic Institute.

Q What year?

A 1948.

Q Have you previously testified before this Commission?

A No, I haven't.

Q In your capacity as Reservoir Engineer, have you had an opportunity to study the conditions in the Eumont Gas area?

A I have.

Q Are you familiar with the application of the Atlantic for the dual completion of what is known, is to be known as the Atlantic Seale Federal No. 1?

A I am.

Q Where is that to be located?

A That well is to be located 660 feet from the west line and 1,980 feet from the south line of Section 34, Township 20 South, Range 36 East, in Lea County.

Q Would that be approximately the center of the northwest of the southwest quarter of Section 34?

A Yes, sir.

Q Is that a Federal lease?

A Yes, sir, I believe it is.

Q On Federal land?

A Yes.

Q Does Atlantic own the lease?

A Yes, we have a recently acquired title to it.

Q In drilling this well approximately what depths do you expect to encounter oil and gas, and in what formations?

A We expect to encounter oil at approximately 3,678 feet to 3,740 feet in the Yates Formation. We expect to encounter gas at approximately 3,790 feet to 3,875 feet.

Q Mr. Tomlinson, will you refer to the Exhibit which has been identified as Exhibit Number 1 of the Atlantic and explain to the Commission what that exhibit shows.

A That exhibit shows the structural position of Atlantic's proposed location on the top of the Yates formation in the vicinity of the well. It shows that it is located a little up-dip of the Charm Coll Number 1 and that it is approximately 1,300 feet east of the Charm Coll Number 1. That well, completed as an oil producer between the intervals, 3,742 feet and 3,853 for an initial potential of 350 barrels of oil per day. It shows that the Charm State Number 1 located approximately three quarters of a mile northwest and slightly down-dip, is a gas producer, as indicated by the open circle and by the lines extending from the edge of the circle. The Charm State No. 1 was completed between the interval 3,849 feet and 3,839 feet with an initial potential of 8 million cubic feet of gas per day. The structural map shows that the proposed location of Atlantic well is down-dip from Amerada's White Number 1 well, which was completed in the interval 3,588 feet to 3,668 feet, for an initial potential of 24 million cubic feet of gas per day.

Q What do the contours show with respect to the structural

position? That is, what are they contoured on, on top of what formation?

A They are contoured on the top of the Yates Formation at contour intervals of 400 feet. The scale of the map is, two inches equals one mile.

Q Was Exhibit 1 prepared by you or under your direction?

A Yes, it was.

Q From what information was it prepared?

A It was prepared after examination of electrical logs and gamma ray logs and the testimony that I have given as to the intervals for completion and the initial potentials were obtained principally by our scouts and by some confirmation through Commission reports and the New Mexico Oil and Gas Engineering Committee Reports.

Q Is there anything else that that plat shows that you haven't testified to?

A I believe that is all.

Q If you will refer, Mr. Tomlinson, to Exhibit No. 2. Explain to the Commission what that shows.

A Exhibit No. 2 is a general northwest to southeast cross-section, designated on the key map attached to it as "A to A prime." It shows the structural location in more graphic form of the Charm State No. 1, the Charm Oil Coll No. 1, the Atlantic's proposed location for its Seale Atlantic Well, and Amerada's White No. 1. It shows that the Charm State No. 1 was completed through the intervals that I have just given you in reference to Exhibit 1. It shows these through a bar graph that corresponds to the perforation intervals and is outlined within that graph with open circles.

The Charm Oil Company's completion interval in which it obtained oil is indicated by a black barograph over those intervals which were perforated for production. The Amerada White No. 1 Well shows that it obtained gas production over the intervals to which I have testified, in the same manner that we have designated the gas completion interval of the Charm State No. 1. We have correlated the marker near the top of the Yates Formation that shows the relative structural position of these wells. It shows that the Charm State No. 1 is approximately level with the Charm Coll No. 1, and that the formation direction of the Amerada White No. 1 has an upper dip, approximately 200 feet. We have attempted to correlate or we have correlated the various markers in the Yates Formations and in the Seven Rivers Formations on this cross section, and we find that the interval in which the Charm State No. 1 can be correlated across to the Charm Coll No. 1, and on across to the Amerada White No. 1 as return to State No. 1, that it produces gas. It will be seen that the interval in which the Charm Coll No. 1 obtains oil production lies principally above that gas zone that we have correlated. We have reason to believe that the correlation which we began in the Charm State No. 1 and extended eastward through the Charm Coll No. 1 and over to the Amerada White No. 1 would hold true for Atlantic's proposed location. From this we concluded that we have a very good chance of obtaining oil production in the intervals to which I testified a minute ago in our proposed location and that the gas production will occur from a point in formation below this.

Q In that respect, Mr. Tomlinson, is that a different situation from the other wells that have been completed in that area?

A Yes, sir, it is. We do not know of any other well in that area that has obtained oil above gas within the vertical limits of the Eumont Pool.

Q Now, Mr. Tomlinson, upon drilling this well and finding, if it results in finding the situation as you have testified to, how do you expect to complete it, how would you like to complete it?

A If, in connection with our completion of this well and tests that we may make at that time, we find that the oil occurs above the gas we will set pipe to total depth through the gas zone and use enough cement to cover those formations plus any other cement that may be needed to fulfill requirements of the Commission.

Q Let me interrupt you right there. Before running the casing, would you make any drill-stem tests to see whether or not you actually had a separation between the oil and gas?

A Yes, sir, we would. I might add that if we found that there were all gas there, we wouldn't have the problems we have there.

Q You wouldn't want to use the order for dual completion until you found it was all gas.

A That is right,

Q If you found that you had two separate zones, you would want to dually complete it in the manner you are about to outline?

A That is correct.

Q Go ahead.

A After we have run casing through the oil and gas zones and cemented it, we will perforate both zones and separate them by installation of a packer on a two inch string of tubing. The stringer will extend down below the packer so that the gas below the packer can be produced through that two inch tubing.

Q Mr. Tomlinson, if you will refer to Exhibit No. 3 and direct your testimony to that, I think you can explain to the Commission the manner in which it would be completed.

A Yes, sir, Exhibit No. 3 is a schematic of the proposed method of dual completion of Atlantic's Seale No. 1 that was attached to the application for hearing and submitted to the Commission. It shows that we will run this tubing in with a Baker packer instead of through the perforation. Next there will be a second string of two inch tubing run into the well and bottom some three to five hundred feet above the oil perforations. That tubing will come out the top of the well through a conventional christmas tree and be hung with a McEvoy dual tubing hanger.

Q If you will refer to Exhibit No. 4 and explain to the Commission what that shows?

A Exhibit No. 4 shows the location of the dual tubing hanger. It shows the cut-away of one string of tubing, showing how slips are fit in to hold it and how these slips are held down so that a seal can be obtained and it shows seal rings and other devices toassure that no leakage will occur. It can be seen by -- Incidentally, both tubing strings are hung in the same manner and sealed in approximately the same manner. This diagram shows that after the oil and gas enter their respective tubing strings that there is no chance of comingling of the tube, and, of course, appropriate connections will be made to the end of the tubing, according to whatever is done with the oil and gas there, but there will be no comingling on the surface, after it leaves the tubing.

Q Mr. Tomlinson, by this method of dual completion, would it permit you to test these zones independently at any time?

A Yes, it will. In fact, that is one of the advantages of

having two strings in this well and that is bottom hole pressure tests can be made much more readily than they can with the conventional dual completion installation employing a side-door choke, and there is less chance of disturbing your packer and causing communication between the two zones, because you don't have to pull the side-door choke in connection with the bottom hole pressure tests.

Q In your opinion, is this method of dual completion just as practical and safe as the other methods which have been used in dual completing wells in the area?

A Yes.

Q Do you know whether or not any other wells have been dually completed for oil and gas in this particular area?

A Yes, sir, there have been several wells completed for oil and gas in this area. We have searched our records and found that they were authorized on Order Numbers DC-78, DC-116 and DC-138, and DC-126. Would you like to know the wells?

Q Are they in the immediate vicinity of the well you propose to complete?

A Yes.

Q Are they in the Eumont Field?

A Yes, they are in the Eumont Field and examination of some of the orders shows that they provided for dual completions within vertical limits of the Eumont as defined by the Commission.

MR. HINKLE: I believe that is all.

MR. CAMPBELL: Jack Campbell. If the Commission please.

MR. MACEY: Do you want to offer the exhibits?

MR. HINKLE: Yes, I would like to offer all four of the

exhibits.

MR. MACEY: Is there objection to the introduction of the exhibits? If not they will be received in evidence.

MR. CAMPBELL: I would like to ask a few questions on behalf of Texas Pacific Coal and Oil Company. I would like to state that we are not opposing this application. These questions are to clarify what is being sought here. That company has no production in the Eumont Gas Pool. It has production in the Jalmat Gas Pool which is covered by identical orders and for that reason they are interested in this case. It may be that the witness will not be able to answer some of these questions, that Mr. Hinkle may be able to clear them up for me.

CROSS EXAMINATION

By MR. CAMPBELL:

Q I believe you stated, Mr. Tomlinson, that there were some dual completions that have heretofore been administratively approached, where there were dual completions within the vertical limits of the single common source of supply, is that correct?

A It was recognized as such by the Commission. However, we feel that in some places, say, that we may find in our well where the oil might occur above the gas, that you might not be able to recover the oil if you didn't produce it. In other words, it might not migrate over to any other wells in the pool.

Q What I am getting at, Mr. Tomlinson, is this. I realize you have a very unique situation, or anticipate a unique situation with the oil on top of the gas in this particular area. Assume that the situation were reversed, which testimony has shown in some areas in the Jalmat Pool, that there is considerable amount of oil

within the vertical limits of the Jalmat Pool and gas higher, and in some places there is, undoubtedly, local separation between those two. Would you feel that dual completion procedures would be advisable under those circumstances, or are you seeking it simply because of your unusual condition in this area?

A I have not given a great deal of thought on that particular possibility. In other words, I haven't examined those situations.

Q Well, I am not trying to pin you down to an answer. I am trying to get before the Commission what I believe is a possibility. I think this case, I certainly don't oppose it, but I believe that any order that is wiitten should be carefully defined. Did unusual circumstances in this instance cause -- There could be a number of situations where there is local separation, where dual completions, as a precedent here, might be authorized, which would disturb, it seems to me, the basic concept and set-up that has been established by treating wells in a gas pool, either as oil wells or gas wells, but not as both.

MR. MACEY: Mr. Campbell, in connection with what you said, the Commission, as you know, prior to the provisions of Order R-520, we had the vertical limits of Eumont Gas Pool and the vertical limits of the Eunice-Monument Oil Pool, they lapped. During the time that the order was being worked out, this area on the west side of Monument, in the neighborhood of 20 and 21 South, as I believe a lot of people refer to it as the WEA area because the Amerada well was WEA or WED. We gave them permission to dually complete wells where the gas was coming from the Yates Formation which was within the defined limits of the Eunice-Monument Pool. There was some question as to where the oil was. I am not too sure that every-

body knows where it is right now. In any event, this problem that you have brought up where we have permitted or have a proposed order here to allow the completion of a well within the vertical limits of a defined pool, and theoretically get two allowables, the gas allowable and the oil allowable, that problem is, I am very aware of it. There are a number of companies that are conducting a lot of tests over there on the west side right now to find out just exactly where the separation is, as to whether or not we have got a common pool there or not.

In the absence of any further information and in order to prevent any inequities, why we have gone ahead and issued dual completion orders allowing them to go ahead and produce a well. We have got a loop-hole in those orders that lets us out. We put in there a provision that the order is subject to any further Commission orders. Of course, I think that is true of anything. It is one of the problems that we have not been able to resolve at all. It is probably Mr. Stanley's next project, I will put it that way, but nevertheless it is going to be a very important item and I think you recognize the seriousness of it, like I have. I hope maybe my explanation may straighten a few things out as far as you are concerned.

MR. CAMPBELL: I don't mean, I repeat, to prejudice this case, because I think you have a situation here where, in effect, you could re-define a portion of the Eumont Pool, since you have such an unusual geological situation. I was thinking of it down the road.

MR. MACEY: Does anyone have a question of the witness? Mr. Tomlinson, I would like to know if there is any other well in

the area completed somewhat like this? Do you know of any well in the area?

A No, sir, I don't. I have observed several of them, I have looked around for them in this immediate vicinity and found none.

MR. MACEY: What if you get a normal gas-oil separation? In other words, suppose you get the oil in the bottom and the gas in the top, it doesn't work out like you think it is going to. That country over there in the west side can change in 15 seconds.

A Yes.

MR. MACEY: What I am thinking about is, you are asking for an order which, theoretically, you may never need. If you don't need that order you are going to need something else in order to produce a well, possibly, as a dual completion.

A I think under those circumstances we would have to examine our tests and get an idea, in other words, we would have to interpret our test and decide along the lines of our interpretation as to what we might like to do. We would certainly like to see some separation in there before we ask for a dual completion, under the circumstances.

MR. HINKLE: I think he made it clear. If the Commission please, this order would only be used in the event they found a separation exists. If they found an entirely different condition they wouldn't use this order. You might have to come back with an entirely new application. The object of doing it this way is to save any delay. They can drill those wells pretty quick and if they had to shut it down and wait a month for an order here to dually complete in this manner, it would be quite expensive.

MR. MACEY: Any further questions of the witness? If not

the witness may be excused.

(Witness excused.)

MR. MACEY: Does anyone have anything further in this case? Mr. Walker?

MR. WALKER: Don Walker with Gulf. We kind of feel like Texas Pacific does on this thing. We are concerned about it and we don't propose to oppose Atlantic's application, but they do have a unique situation. Maybe we have another Falby deal up there with the oil over the gas, but glad to hear you say that Mr. Stanley is goingto make a study of the problem.

MR. MACEY: You would recommend it, wouldn't you, Mr. Walker?

MR. WALKER: Yes, sir.

MR. HENSLEY: H. L. Hensley, speaking for Humble. Humble raises no question or objection to the established practices and procedures of the Commission in granting a dual well completion between oil and gas pools, but this is the first case that I believe has come to our attention, at least in the State, where the dual oil and gas completion is contemplated within the same pool. It is Humble's recommendation that in the event this proposed dual completion is approved by the Commission, that the oil well be granted and the allowable not to exceed the top unit allowable for an oil well in the Eumont Pool, which is produced with a gas-oil ratio less than 10,000 cubic feet per barrel. Further that the combined gas production of the gas produced incident to the production of oil and the dry gas from the gas well be granted an allowable equal to the top gas allowable for gas wells in the Eumont Pool, producing from one-fourth of 640 acres or standard

gas proration unit.

MR. MACEY: Anyone else? Mr. Lyons?

MR. LYON: V. T. Lyon, with Continental Oil Company. Continental does not favor dual completion within a single common source of supply and the granting of full allowables to both zones. We feel that it is advisable and we recommend to the Commission that it establish a policy on matters of this type and that the overall problem be studied prior to the granting of individual cases of this type.

MR. MACEY: Thank you. Anyone else? If not the witness may be excused and we will take the case under advisement.

STATE OF NEW MEXICO)
: SS.
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Hobbs, 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 9th day of November, 1954.

Ada Dearnley
Notary Public, Court Reporter

My Commission Expires:
June 19, 1955