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BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF COLORADO

IN THE MATTER OF THE INVESTIGATION
TO TAKE MEASURES TO PREVENT WASTE
OF OIL AND GAS IN THE "D" SAND OF
THE MT. HOPE-EAST FIELD IN LOGAN
COUNTY, COLORADO.

CAUSE NO. 40

PURSUANT TO NOTICE the above-entitled matter came
duly on for hearing at 704 State Capitol Annex Building,
Denver, Colorado, at the hour of 10:00 o'clock a.m., July
22, 1954.

BEFORE:

Mr. Warwick Downing, Chairman
Mr. H. C. Bretschneider, Commissioner
Mr. F. M. Van Tuyl, Commissioner
Mr. A. J. Jersin, Deputy Director
Mr. D. V. Rogers, Petroleum Engineer
Miss Annabel Hogsett, Assistant Secretary.

APPEARANCES:

John R. Moran, Esq., Denver, Colorado, for the
British-American Oil Producing Company;

Wilbur Rocchio, Esq., Assistant Attorney General,
for the Oil & Gas Conservation Commission.



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CHAIRMAN DOWNING: Now the next on the calendar here is the hearing in the Hope-East Field, Cause No. 40. That also seems to be British-American.

MR. MORAN: Cause No. 40 is also an application on the part of the British-American Oil Producing Company for field rules to prevent waste of oil and gas from the "D" sand of the Mt. Hope-East Field, Logan County, Colorado. My name is John R. Moran and I represent the British-American Oil Producing Company in this application.

CHAIRMAN DOWNING: Do our records show proper service in this matter?

MR. ROCCHIO: Yes, sir.

CHAIRMAN DOWNING: And we declare our jurisdiction. Is anyone else present here interested in this application, either for it or against it? If so please enter your appearance. Apparently there is no one else here interested in the matter, so proceed.

MR. MORAN: I would like to hand each of the Commissioners a copy of Exhibit A which is a structural contour of the area designated as the Mt. Hope-East Field during the development that has occurred in the area. I would like to call Mr. Conaway on behalf of the British-American Oil Producing Company.

DON W. CONAWAY

called as a witness for the British-American Oil Producing Company, being first duly sworn according to law, upon his oath testified as follows:

DIRECT EXAMINATION

BY MR. MORAN:

Q. Will you please state your name.

A. Don W. Conaway.

Q. Are you employed by the British-American Oil Producing Company, Mr. Conaway?

A. I am.

Q. In what capacity?

A. District Engineer.

Q. As District Engineer are you familiar with the oil and gas development that has occurred in an area in Township 9 North, Range 53 West, 6th Principal Meridian, Logan County, Colorado?

A. I am.

Q. Generally known and referred to as the Mt. Hope-East Field?

A. Yes, sir, I am.

Q. Could you give a brief description of the area generally referred to as the Mt. Hope-East Field, and on your large map indicate it with your pointer.

A. Here's the Mt. Hope Field and this is the East

development or the Mt. Hope-East Field.

Q. Now the Mt. Hope-East Field lies directly to the east of the area known as the Mt. Hope Field, is that correct?

A. That is correct.

Q. And the Mt. Hope Field lies along the township line between Township 9 North, Ranges 53 and 54 West, is that right?

A. That is correct.

Q. Can you give a brief outline of the area now referred to as the Mt. Hope-East Field by section, township, and range?

A. It all lies in Township 9 North, Range 53 West, 6th Principal Meridian: Section 20, the west half, the west half of the southeast, the southeast of the southeast; Section 21, south half of the south half; Section 29, all; Section 28, all of it; Section 32 is all included; Section 33, we have the north half of the north half, southwest of the northwest, and the west half of the southwest.

Q. Are you familiar with the development that has occurred in the area described as the Mt. Hope-East Field?

A. I am.

Q. Can you give a brief resume of the development in the area?

A. I will summarize some of the data that is common to the wells in that area.

Q. Well, would you describe the initial well drilled in the area and then give a brief statement of the subsequent

development if you will.

A. From our chronological well histories of Brainard 1X, equipment was moved in on March 2.

Q. What year?

A. Of 1954. Casing was run on March 14, 1954, and on March 26 we completed the well and tubed it, and on March 28 we produced 221 barrels of oil and no water in 24 hours on a 18/64 inch choke.

Q. Now the Brainard 1X is located in the northwest of southwest of Section 28, is that correct?

A. That is correct.

Q. Is that located in the approximate center of the 40-acre legal subdivision description as the northwest of the southwest of 28?

A. Approximately.

Q. Now has there been any additional development in the area?

A. We have drilled three producing wells of which the west offset is the Carey C-1.

Q. That is the west offset to the Brainard 1X, is that correct?

A. That is correct.

Q. What is the result of that well?

A. On July 17 production from the Carey C-1 produced 70 barrels of oil and no water, on pump.

Q. What additional development occurred then?

A. We developed the Carey B-1, which on this date of -- that was the 19th, pardon me, instead of the 17th -- on the Carey B-1 produced 68 barrels of oil and no water. This well is located southwest of the Carey C-1, described as the center of the southwest of the southeast of Section 29.

Q. Now are all of those wells completed and producing from the same sand? In other words, are those wells producing from the "D" sand formation?

A. That is right. The Carey C-1, the Carey B-1 and the Brainard X-1 are all producing. The Carey B-2 has not been perforated.

Q. Now the application disclosed that British-American also drilled the Tetsell No. 1 in the northwest northwest, Section 32, which was dry and abandoned; drilled its Copsey No. 1 in the southwest northwest, Section 28, which was completed as a dry hole; and there has been certain additional development in the area by other operators, is that correct?

A. That is correct.

Q. The application shows that Vaughey and Vaughey, McDermott and Barnhart, Claycomb and Guida, and New Drilling Company have drilled wells as follows: McDermott and Barnhart in the southeast and northeast of 29. Information indicates that that well was capable of producing 20 barrels of oil per day. Is that information substantially correct?

A. That is correct, and is presently producing 10 barrels per day.

Q. Now Vaughey and Vaughey drilled Blanche No. 1 in the northwest southeast of Section 28, and the information indicates that that was dry and abandoned, is that correct?

A. That is correct.

Q. Now your application shows that Claycomb and Guida was drilling Tetsell No. 1 in the northeast of southeast of 32 at the time your application was filed. Do you have any current information on the status of that well?

A. That well was completed and perforated, the same sand, completed about 100 barrels per day and some water. The tank room is restricted production and we haven't any late data.

Q. Your application also shows that Claycomb and Guida drilled Copsey No. 1 in the northwest northwest of 28 and completed that well as a dry hole, is that correct?

A. That is correct.

Q. Is there any additional development occurring in the area at this time? In other words, has the British-American or the other operators indicated they are drilling?

A. Right at this time I don't believe that there is any activity, that is in the last week. Previous to that we were rather active in that area.

Q. Your application also shows that British-American drilled its Green B No. 1 in the northwest northwest northwest

of Section 20 which resulted in a well capable of producing approximately 48 barrels of oil per day, is that correct?

A. That is correct.

Q. Now that Green well is at the extreme west side of the area designated as the Mt. Hope-East Field, is that correct?

A. That is correct.

Q. Now referring to your Exhibit A, and the wells which are shown on there as being completed as producing wells, are those wells located principally in the center of each 40-acre legal subdivision upon which they are located?

A. In the Mt. Hope Field east proper there around Brainard it is in the center of the 40, while the Green B-1 in Section 20 was drilled on a 10-acre center of a 10 acre of the northwest northwest northwest, Section 20, to conform with the area to the west.

Q. That is the spacing pattern that is being followed in the Mt. Hope Field proper?

A. That is correct.

Q. The Green B No. 1 is the only well in the Mt. Hope-East Field which is not drilled in the center of a 40-acre legal subdivision?

A. We have one other well, the Green E-1, but that is a "J" well.

Q. And that is not involved in this request for rules

at this time?

A. That is correct.

Q. In other words, this application is confined to spacing for the "D" sand?

A. Yes.

Q. Mr. Conaway, can you give a brief history and resume of the reservoir conditions encountered in the drilling that has been conducted in the area known as the Mt. Hope-East Field?

A. Well, I can generalize that with this attached sheet to Exhibit A, summarize some of the essential data.

Q. Would you review that for the Commission please, sir.

A. The "D" sand is encountered about 4850 feet and varies in thickness from 7 to 11 feet. The gravity of the oil is 39 degrees and the gas gravity is .712. Core Analysis on our discovery well, Brainard No. 1-X, top of the "D" 4855 at a minus 661. It has an average permeability of 613 millidarcies. The capacity for the pay interval of 6,749 millidarcy feet. The porosity was 22.4%, and the oil 15.5% of the pore space and the water analyzed was 34.4% of the pore space or possibly 25% actual connate water. The bottom hole pressure on April 1, 1149 pounds per square inch at 700 feet sub-sea.

Q. That was the bottom hole pressure in the Brainard 1-X?

A. That is correct.

Q. At the time of completion?

A. Yes.

Q. All right.

A. Bottom hole temperature was 166 degrees Fahrenheit.

The completed gas-oil ratio 1436 to 1; gas-oil contact 656 feet sub-sea, and on estimating the oil-water contact figured probably that 671 of the Brainard 1-X is producing 15% water.

Q. Has there been a decline in the production of the 1-X Brainard?

A. It has declined not too rapidly. It has been restricted by pipeline. Originally we were producing around 260 barrels of oil on April 4 and 10 barrels of water, natural flow on 25/64 inch choke and on the recent production report of July 19, producing 95 barrels of oil, 21 barrels of water on 22/64 inch choke. By association on a smaller choke there it probably has capacity in excess of what we are producing at this time, but we would hesitate--

Q. Increase in water?

A. Increased from 10 to 21 barrels.

Q. Would increase of water production there indicate anything to your mind?

A. I feel that the well water contact is very close to the bottom perforations in the casing of this well.

Q. In the overall development in the field is it your opinion that the area outlined on Exhibit A reasonably represents

the common reservoir of the "D" sand as it underlies that area?

A. Our geological department revised this map for the hearing this week and this is the latest data available.

Q. In your knowledge of the performance of the wells in that area is it your opinion that the wells producing from the "D" sand formation have approximately the same bottom hole pressure or has the production of the wells from that reservoir indicated that the wells are producing from the common reservoir?

A. Our information on newly completed fields is usually limited, but we have every reason to believe that the reservoir pressure should be uniform across this "D" sand reservoir.

Q. In your application you have recommended that the Commission promulgate orders affixing the density of development in the Mt. Hope-East Field upon the basis of one well to each 40 acres to produce from the "D" sand. Do you have any statement you care to make with reference to that recommendation and in support of it?

A. Just uniform development on established pattern which we have carried throughout this development in the center part of the field. At the time of the development other than the center part of the Mt. Hope-East we were not sure that we did have a new reservoir, so we have continued the center of the 40 as a uniform pattern.

Q. Is it your opinion that if the Mt. Hope-East Field is developed upon the basis of one well to each 40 acres to

produce from the "D" sand that the public interest will be benefited and that it will result in the recovery of the greatest ultimate yield from that reservoir without waste?

A. I feel that it is the public's interest that this pattern be continued as the thin sands encountered in this area would not warrant over one well to the 40 acres.

Q. Is it possible to conclude at this time that development upon a greater density would promote the earlier intrusion of water into the area and thus result in the earlier abandonment of some of the wells in the field?

A. I feel the water would come in much more rapidly.

MR. MORAN: Unless the Commission would like to develop some additional evidence from this witness, I believe that is all.

CHAIRMAN DOWNING: Any questions by members of the Commission?

COMMISSIONER BRETSCHNEIDER: I would like to ask one question. In this well in the northwest of 28 which you say was just completed as a dry hole, was there any sand there or was that due to lack of sand development?

THE WITNESS: I don't have the log on that particular well.

COMMISSIONER BRETSCHNEIDER: What was the sand condition of the well offsetting it to the west that you say is now producing down to 10 barrels, do you know that?

THE WITNESS: Yes, that was a rather thin sand and it was structurally high, but there was no water, the fact that the gas-oil contact would be encountered in that field and it has always been rather gassy and we are presently trying to establish a market for the gas from that field.

COMMISSIONER VAN TUYL: What's your gas-oil ratio on that well?

THE WITNESS: I don't know as that is McDermott and Barnhart's well.

COMMISSIONER BRETSCHNEIDER: What's the gas-oil ratio on the well south?

MR. MORAN: That is the Carey well you are referring to?

THE WITNESS: Yes, the Carey C-1, flowed 160 barrels of oil and it doesn't give the gas-oil ratio. That is the normal procedure of the report to run chronologically and I don't believe I have that. I believe that has been reported to the Commission in the regular semi-annual tests but apparently it didn't get into the chronological well history.

MR. MORAN: Can you furnish that to the Commission at a later time?

THE WITNESS: I certainly can. I have several here but I don't have that particular well. We found that in the lower wells the gas-oil ratios are not excessive.

COMMISSIONER BRETSCHNEIDER: Part of this area was

in the Mt. Hope order was it not, or was there a spacing program set for Mount Hope before?

MR. JERSIN: There has been one order in the Mt. Hope Field and that was concerning commingling of one of the wells. At that same hearing no definite area was established defining the Mt. Hope area. There is going to be a hearing next week which will attempt to define the Mt. Hope area.

COMMISSIONER BRETSCHNEIDER: It extends over into this area, is that right?

MR. ROCCHIO: We have added of our own volition that area in Section 29 and a part of 20. The application I believe did not have those in but we published including that area from 20 and 29.

COMMISSIONER BRETSCHNEIDER: Will that then conflict with this cause here?

MR. JERSIN: It can be discussed when the definition of the Mt. Hope Field will be presented next week. That is the area outlined in the dotted green line has all been presented in the notice of that hearing for next week.

MR. ROCCHIO: As it now stands it does conflict, yes.

MR. MORAN: As to part of Sections 20 and 29?

MR. ROCCHIO: That is right.

COMMISSIONER BRETSCHNEIDER: Southwest of southwest of 20 and 480\ acres out of the northwest of 29?

MR. ROCCHIO: Right.

COMMISSIONER BRETSCHNEIDER: Well, in view of that will that interfere with the decision concerning this case now?

MR. ROCCHIO: At this time it would, I believe. We have the hearing on Mt. Hope next week.

COMMISSIONER BRETSCHNEIDER: But Mt. Hope Field already has an established well location in the northwest corner.

MR. ROCCHIO: You will notice that well in 29?

COMMISSIONER BRETSCHNEIDER: Yes, I notice that.

MR. MORAN: We have asked that that well be treated as an exception to the field rules for this particular area simply because it was drilled off pattern before this other pattern was developed for the Mt. Hope-East Field property.

MR. JERSIN: Your application is for the "D" sand in Mt. Hope-East?

MR. MORAN: That is all.

MR. JERSIN: And that well you are speaking of is a "J" sand producer.

MR. MORAN: That is a "J" sand producer so the order entered here will not affect that well.

MR. JERSIN: That is correct.

THE WITNESS: We have evidence here that that "D" sand that lies in the Mt. Hope-East is a common reservoir with the Mt. Hope-East and not Mt. Hope proper. That would exclude this 29 on this order. It wouldn't bother the Mt. Hope ruling.

MR. ROCCHIO: What is the Mt. Hope production,
"D" or "J"?

MR. JERSIN: Both.

THE WITNESS: Primarily "D".

CHAIRMAN DOWNING: Any further questions by the
Commission? Any questions by attorney or staff?

MR. ROCCHIO: No, sir.

CHAIRMAN DOWNING: Is there anyone else here who
would like to examine or cross examine this witness? Is there
any other evidence that anyone here wishes to present?

MR. MORAN: We would like to offer Exhibit A in the
record, if the Commission please.

CHAIRMAN DOWNING: Any objection? If not, it will
be received. Anything further? If not, the hearing is
closed and we will reserve decision on this hearing.

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C E R T I F I C A T E

I, Donald E. Weimer, certified shorthand reporter, hereby certify that I personally recorded in shorthand the proceedings in the foregoing matter in the first instance and that I later transcribed the same and that the foregoing record is true and correct to the best of my knowledge and belief.

Done at Denver, Colorado, this 28th day of

July, 1954.

Phone
FR 0358

Donald E. Weimer

Certified Shorthand Reporter
2027 Newport Street
Denver 7, Colorado