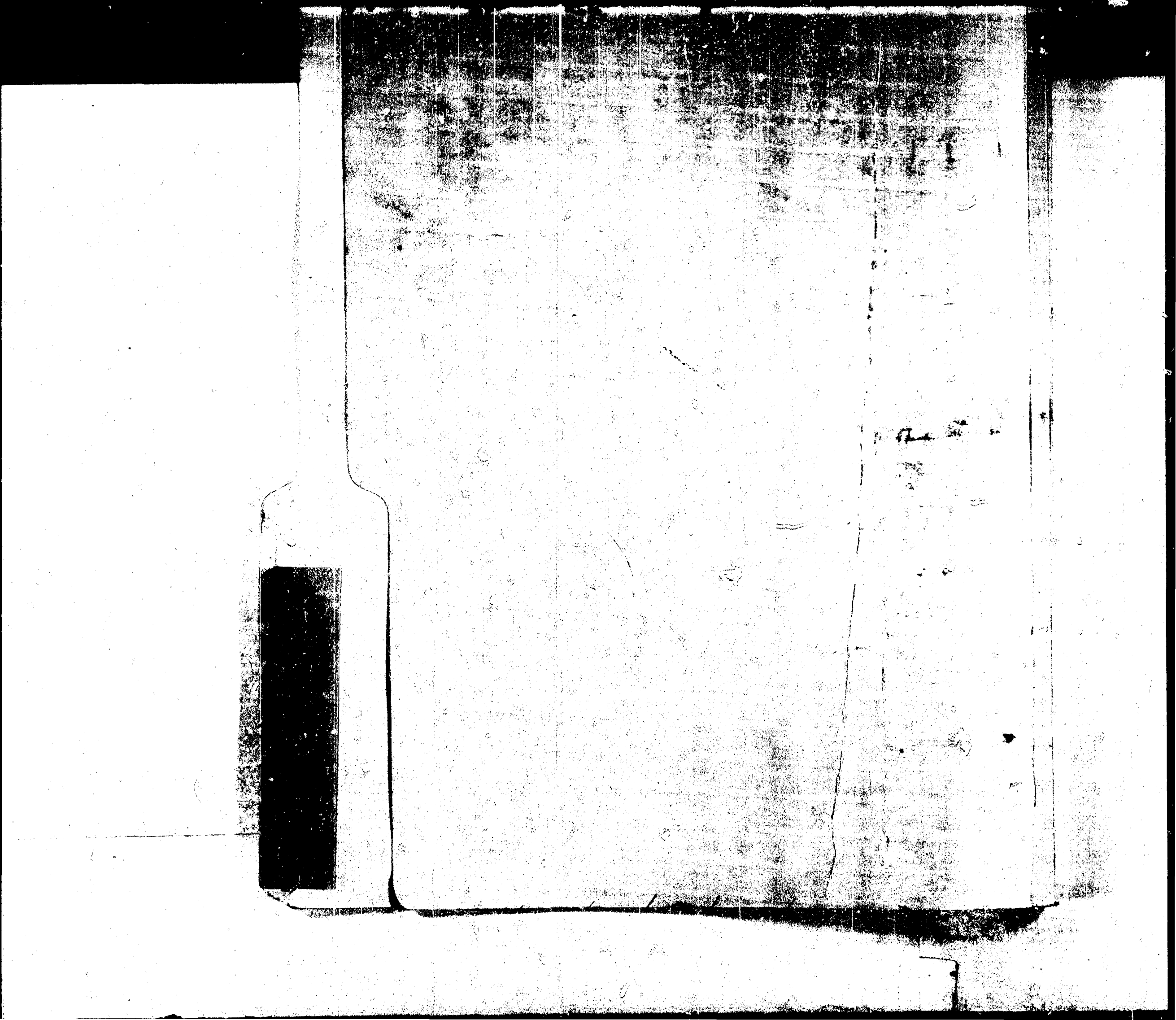

Case No.

1325

Application, Transcript,
Small Exhibits, Etc.

No. 20-58

DOCKET: REGULAR HEARING JULY 16, 1958

Oil Conservation Commission 9 a.m. Mabry Hall, State Capitol, Santa Fe, NM

ALLOWABLE: (1) Consideration of the oil allowable for August, 1958.

(2) Consideration of the allowable production of gas for August, 1958, from six prorated pools in Lea County, New Mexico; also consideration of the allowable production of gas from seven prorated pools in San Juan and Rio Arriba Counties, New Mexico, for August, 1958.

NEW CASES

CASE 1276: In the matter of the hearing ordered to be called by Order No. R-1031 to permit Amerada Petroleum Corporation and other interested operators to appear and show cause why 320-acre spacing and the Special Rules and Regulations for the Bagley-Lower Pennsylvanian Gas Pool in Lea County, New Mexico, as set forth in Order R-1031 should be continued in effect beyond August 31, 1958.

CASE 1325: In the matter of the hearing ordered to be called by Order No. R-1091 to permit Amerada Petroleum Corporation and other interested operators to appear and show cause why 320-acre spacing and the Special Rules and Regulations for the Bagley-Upper Pennsylvanian Gas Pool in Lea County, New Mexico, as set forth in Order R-1091 should be continued in effect beyond August 31, 1958.

CASE 1384: In the matter of the hearing ordered to be called by Order No. R-1136 to permit Amerada Petroleum Corporation to appear and present additional evidence as to the proper designation of the oil producing intervals in its State BTO No. 1 Well located 990 feet from the South line and 2310 feet from the East line of Section 34, Township 11 South, Range 33 East, in the Bagley-Pennsylvanian area of Lea County, New Mexico, and to show cause why the above-described well should be permitted to continue to produce as a dual completion.

CASE 1480: Southeastern New Mexico nomenclature case calling for an order for the creation of new pools and the extension and reclassification of existing pools in Lea, Eddy and Roosevelt Counties, New Mexico.

(a) Create a new oil pool for Devonian production, designated as the Dickinson-Devonian Pool, and described as:

TOWNSHIP 10 SOUTH, RANGE 36 EAST, NMPM
Section 34: SW/4

(b) Create a new oil pool for Queen production, designated as the East Millman-Queen Pool, and described as:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 14: SE/4

(c) Create a new oil pool for Bone Springs production, designated as the South Vacuum-Bone Springs Pool, and described as:

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM
Section 22: NW/4

(d) Change the pool limits of the Artesia Pool to Queen, Grayburg, and San Andres.

(e) Extend the Jalmat Pool to include:

TOWNSHIP 22 SOUTH, RANGE 35 EAST, NMPM
Section 10: NE/4
Section 11: NW/4 & W/2 NE/4

(f) Extend the Justis Pool to include:

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMPM
Section 13: NE/4

(g) Extend the Justis-Fusselman Pool to include:

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMPM
Section 24: SW/4

(h) Extend the Milnesand-Pennsylvanian Pool, to include:

TOWNSHIP 8 SOUTH, RANGE 34 EAST, NMPM
Section 14: SE/4

(i) Extend the Vandagriff-Keyes Gas Pool to include:

TOWNSHIP 16 SOUTH, RANGE 28 EAST, NMPM
Section 33: SE/4
Section 34: SW/4

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 4: NE/4

(j) To consider the reclassification of the Four Lakes-Devonian Pool, from an oil pool to a gas pool upon the application of Humble Oil & Refining Company. The present horizontal limits of said pool are as follows:

TOWNSHIP 11 SOUTH, RANGE 34 EAST, NMPM
Section 35: SE/4

TOWNSHIP 12 SOUTH, RANGE 34 EAST, NMPM
Section 1: NW/4
Section 2: NE/4

CASE 1481: Northwestern New Mexico nomenclature case calling for an order for the extension of existing pools in Rio Arriba and San Juan Counties, New Mexico.

(a) Extend the Aztec-Pictured Cliffs Pool to include:

TOWNSHIP 28 NORTH, RANGE 8 WEST, NMPM
Section 15: SW/4
Section 16: S/2
Section 17: S/2

TOWNSHIP 29 NORTH, RANGE 10 WEST, NMPM
Section 1: All

TOWNSHIP 30 NORTH, RANGE 10 WEST, NMPM
Section 21: SW/4
Section 28: NW/4

TOWNSHIP 30 NORTH, RANGE 12 WEST, NMPM
Section 1: NW/4

(b) Extend the South Blanco-Pictured Cliffs Pool to include:

TOWNSHIP 24 NORTH, RANGE 4 WEST, NMPM
Section 8: SE/4

(c) Extend the Blanco-Mesaverde Pool to include:

TOWNSHIP 27 NORTH, RANGE 8 WEST, NMPM
Section 5: All
Section 17: All
Section 18: E/2
Section 29: All
Section 31: E/2
Section 32: N/2

TOWNSHIP 32 NORTH, RANGE 13 WEST, NMPM
Section 35: N/2

(d) Extend the Bisti-Lower Gallup Oil Pool to include:

TOWNSHIP 26 NORTH, RANGE 13 WEST, NMPM
Section 18: S/2
Section 19: NE/4

TOWNSHIP 26 NORTH, RANGE 14 WEST, NMPM
Section 13: SE/4

(e) Extend the Horseshoe-Gallup Oil Pool to include:

TOWNSHIP 31 NORTH, RANGE 16 WEST, NMPM
Section 33: SE/4 SW/4, S/2 SE/4
Section 34: SW/4 SW/4

(f) Extend the Otero-Gallup Oil Pool to include:

TOWNSHIP 25 NORTH, RANGE 5 WEST, NMPM
Section 32: SE/4

(g) Extend the Verde-Gallup Oil Pool to include:

TOWNSHIP 30 NORTH, RANGE 15 WEST, NMPM
Section 6: SE/4

TOWNSHIP 31 NORTH, RANGE 15 WEST, NMPM
Section 33: SW/4
Section 34: NW/4

CONTINUED CASES

CASE 1451: Application of Amerada Petroleum Corporation for a non-standard gas proration unit. Applicant, in the abpve-styled cause, seeks an order establishing a 280-acre non-standard gas proration unit in the Justis Gas Pool consisting of the W/2 SW/4 Section 24, NW/4 and SW/4 NE/4 of Section 25, all in Township 25 South, Range 37 East, Lea County, New Mexico, said unit to be dedicated to the applicant's proposed well to be drilled in the NE/4 NW/4 of said Section 25.

CASE 1473: Southeastern New Mexico Nomenclature case.

(1) To reconsider the designation and limits of the South Sawyer-San Andres Pool.

ir/

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

November 29, 1957

COPY

Mr. Jack Campbell
Campbell & Russell
P.O. Box 721
Roswell, New Mexico

Dear Sir:

On behalf of your client, Texas Pacific Coal & Oil Company, we enclose two copies of Order R-1071 issued November 27, 1957, by the Oil Conservation Commission in Case 1325, which was heard on October 17th and November 14th.

Very truly yours,

A. L. Porter, Jr.
Secretary - Director

bp
Encls.

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 11-22-57

CASE 1325 Hearing Date 10-17 & 11-14-57

My recommendations for an order in the above numbered cases are as follows:

That the following ~~described~~ ~~delineated~~ defined:

11S - 33E
Sec. 34 S/2

12S - 33E
~~Sec. 3 E/2 & NW/4~~
Sec. 4 NE/4
(Sec. 10 NE/4) not adv.

This will denie the following:

11S - 33E
Sec. 33 - S/2 & SE NW/2,
" 34 - S/2 N/2,

12S - 33E,
Sec. 2 - W/2 SW/4,
" 3 - N/2 SE/4,
" 4 - NW/4 & N/2 SE/4.

Because they have not proven this acreage to be Productive of Gas from the Jefferson-Bagley Penn Gas Pool.

Staff Member

GENERAL OFFICES
120 BROADWAY NEW YORK

AMERADA PETROLEUM CORPORATION
BEACON BUILDING
P. O. BOX 2040
TULSA 2, OKLA.

ROBERT J. STANTON
GENERAL COUNSEL
JOHN S. MILLER
ASSISTANT GENERAL COUNSEL

LEGAL DEPARTMENT

H. D. BUSHNELL
HAROLD J. FISHER
ROBERT T. JAMES
ROBERT E. LEE
JAMES C. McWILLIAMS
VIRGIL C. MORELLE
ARDEN E. ROSS
ATTORNEYS

November 21, 1957

Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Re: Cause No. 1325
Amerada's application for amending Order No. R-991, covering Bagley Upper Pennsylvanian Gas Pool, Lea County, New Mexico.

Gentlemen:

Enclosed is copy of Amerada's Exhibit No. 6, which was withdrawn by approval of the Commission for the purpose of duplication.

By way of explanation and in order to clarify the record, the figures in green represent the number of feet of porosity development in the common source based on the interpretation of micrologs; figures for the wells identified on the exhibit by "(A)" entered in green are based on interpretations of the the 32-inch limestone lateral curve, namely:

Shell State A, No. 1	-	SE SE Sec. 33-11S-33E;
Caudle No. 5	-	NE NE Sec. 3-12S-33E;
Caudle No. 1	-	SE NE Sec. 10-12S-33E.

The porosity development of the three wells based on the limestone lateral curve indicate comparable quality to the porosity development of other wells on which we made a comparison of findings of the porosity as interpreted from both the micrologs and the 32-inch limestone lateral curve.

The interpretations of the three wells, named herein, are confirmed by a Schlumberger log analyst.

A copy of this letter and of the enclosed Exhibit is being mailed this date to Texas Pacific Coal & Oil Company, who made an appearance in this cause.

Very truly yours,

H. D. Bushnell

HDB:FC
cc: Texas Pacific Coal & OIL Co.
Fort Worth, Texas

Mr. Jack Campbell
Attorney at Law
Box 721, Roswell, New Mexico

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
November 14, 1957

TRANSCRIPT OF HEARING
CASE NO. 1325

DEARNLEY - MEIER & ASSOCIATES
INCORPORATED
GENERAL LAW REPORTERS
ALBUQUERQUE, NEW MEXICO
[illegible]

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
November 14, 1957

IN THE MATTER OF:

Application of Amerada Petroleum Corporation for an order amending Order R-991 insofar as said order pertains to the Bagley-Upper Pennsylvanian Gas Pool in Lea County, New Mexico, to extend the horizontal limits of said pool, and to provide for standard drilling units of 320 acres.

CASE NO. 1325

BEFORE:

Honorable Edwin L. Mechem
Mr. Murray Morgan
Mr. A. L. Porter

TRANSCRIPT OF HEARING

MR. PORTER: The next case on the docket will be Case 1325.

MR. COOLEY: Case 1325. Application of Amerada Petroleum Corporation for an order amending Order R-991 insofar as said pool pertains to the Bagley-Upper Pennsylvanian Gas Pool in Lea County, New Mexico, to extend the horizontal limits of said pool, and to provide for standard drilling units of 320 acres.

MR. BUSHNELL: H. D. Bushnell, if the Commission please, attorney with Amerada, also appearing J. C. Kellahin in Santa Fe.

This is a continued case and I would like to call back to the stand the Amerada witness who has been previously sworn in, Mr. McBryde.

O. C. McBRYDE

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

DIRECT EXAMINATION
(Continued)

BY MR. BUSHNELL:

Q You will recall that during the course of this hearing last month Mr. Utz had asked that we present testimony of the proposed acreage or the acreage that we propose to allocate to the wells now completed or that are being drilled in this pool. I have a plat here I would like to ask that it be marked as Amerada's Exhibit No. 5.

(Marked Amerada's Exhibit No. 5 for identification.)

Q And ask Mr. McBryde to state what this exhibit purports to show and also what the red lines on this exhibit represent?

A Exhibit No. 5 is a map of the Bagley field. The red lines on there outline the acreage that we would propose to dedicate to the three gas wells that we now have in the pool or drilling to this gas zone.

Q Would you describe that acreage with reference to each well for the benefit of the record?

A The acreage in Section 34 which we propose to dedicate to our State B.T.O. No. 1, that well incidentally is now drilling, we would propose to dedicate the entire south half of Section 34 to that well. The acreage in Section 3, Township 12 South, Range 33 East, that we propose to dedicate to Caudle No. 7 would be the entire north half of Section 3. The acreage that we would propose to dedicate to our Mathers No. 2 would be the southeast quarter of Section 3, Township 12 South, and the northeast quarter of Section 10, Township 12 South.

Q Now, the acreage in the 160 acres in the northeast quarter of Section 10 is not now within the defined limits of the pool as supported by exhibits in this cause, is that correct?

A That is right.

Q What recommendations do you make with reference to the Mathers B1 well located in the northwest quarter of Section 33?

A We would prefer to select the acreage on the Mathers B1 at such time as it becomes a gas well.

Q That well is now currently producing as a oil well, is that correct?

A That is right.

MR. BUSHNELL: That's all the questions I have of this witness at this time. I would like to offer this as Amerada's Exhibit No. 5.

MR. PORTER: Without objection it will be admitted.

MR. COOLEY: May we go off the record a moment?

MR. PORTER: Off the record.

MR. COOLEY: Back on the record.

MR. COOLEY: I have a question.

BY MR. COOLEY:

Q Mr. McBryde, why is it that the Mathers 2 well in the south half of Section 3, Township 12 South, Range 33 East has a unit dedicated to it crossing the section line rather than comprising the south half of Section 2?

A We have more information on the 160 acres there in Section 10 indicating that it would be productive of gas than we do on the southwest quarter of Section 3.

Q You feel there might be a possibility of dedicating unproductive acreage if the southwest quarter of Section 3 were dedicated to the well?

A At the present time we don't have any information indicating that, all of that is productive in Section 3.

MR. COOLEY: That's all the questions I have.

MR. PORTER: Anyone else have a question of Mr. McBryde? Mr. Nutter?

BY MR. NUTTER:

Q Mr. McBryde, what evidence do you have the northeast quarter of Section 10 is productive of gas from the Upper Pennsylvanian formation?

A We have a drill stem test on the Caudle No. 3 which showed that the acreage under that well was very definitely productive. We had a real successful drill stem test there. And Caudle No. 1 has some fifteen feet of pay as indicated by a log so we are assuming that it would also be productive.

Q Was the drill stem test taken in the No. 1?

A No, sir.

MR. NUTTER: That's all.

MR. PORTER: Any further questions of the witness?

MR. BUSHNELL: I would like to redirect one question if I may?

BY MR. BUSHNELL:

Q The 160 acres in the southwest quarter of Section 3, Mr. McBryde, is under lain by the structure, is that correct?

A That is right.

MR. BUSHNELL: That's all I have.

MR. PORTER: If no further questions, the witness may be excused.

(Witness excused.)

MR. BUSHNELL: I have one other witness who must be sworn in.

MR. COOLEY: Will there be any more witnesses in this case?

MR. CAMPBELL: Mr. Yuronka.

(Witnesses sworn)

R. S. CHRISTIE

having been first duly sworn, testifies as follows:

DIRECT EXAMINATION

BY MR. BUSHNELL:

Q Would you state your name and the company for which you are employed?

A R. S. Christie, Amerada Petroleum Corporation.

Q In what capacity?

A Petroleum engineer.

Q You have testified before this Commission in prior hearings, is that correct?

A Yes, I have.

Q Mr. Christie, at the prior hearing the Commission asked that this cause be continued for the purpose of Amerada presenting testimony as the basis for classifying wells in the Bagley-Upper Pennsylvanian Gas Pool. Have you made a study of that problem?

A Yes, we have.

Q What recommendation do you make?

A After considerable thought on the matter we have come to the conclusion that it would be better to decide what oil well should be classified as a gas well, at that time when it does actually becomes one. Any value that we would place on gravities or gas-oil ratios would be certainly at this time arbitrary. We,

(Witnesses sworn)

R. S. CHRISTIE

having been first duly sworn, testifies as follows:

DIRECT EXAMINATION

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A Yes, we have.

Q What recommendation do you make?

A After considerable thought on the matter we have come to the conclusion that it would be better to decide what oil well should be classified as a gas well, at that time when it does actually becomes one. Any value that we would place on gravities or gas-oil ratios would be certainly at this time arbitrary. We.

as an operator, wouldn't expect to come before the Commission and ask that an oil well be classified as a gas well, and I'm sure that the Commission wouldn't want to reclassify it without proper evidence. We think that the time for the proper evidence is when that condition actually occurs. We would prefer to not try to define a gas well or oil well in this reservoir until such time as we have better evidence.

Q Mr. Christie, in the event any recommendation had to be made what figure would you use?

A Well, if the Commission feels it's necessary to have some kind of a definition and this, of course, would be arbitrary, we would recommend that any well completed in the Upper Pennsylvanian Gas Pool and this would be limited strictly of course to this reservoir or this field which produces liquid hydro-carbons having a gravity of less than 55 degrees API corrected to 60 degrees should be classified as an oil well. While this is somewhat arbitrary we have some, actually some basis for it. As we have testified previously the gravity on our Mathers No. 2 when first completed was approximately 46 degrees and it is now as we have testified to become approximately 67 degrees and is for all practical purposes a water white liquid. So this is more or less an arbitrary figure in between where we thought that the transition might take place somewhere between 46 and 67. That doesn't mean that our Mathers B1 is going to react like our Mathers 2 but if

the Commission feels they have to have something why that is what we would offer.

MR. BUSHNELL: I have no further question of the witness at this time.

MR. PORTER: Is this Mathers B2, Mr. Christie, completed in the Upper Bagley Pennsylvanian Oil zone as presently defined?

A Mathers B1.

MR. PORTER: I mean the Mathers B2, I am sorry.

A The Mathers B2, yes, it is.

BY MR. NUTTER:

Q Your sole criteria to classify a well, Mr. Christie, would be the gravity of the liquid product?

A In this case, yes, sir.

Q There would be no thought given to the gas-oil ratio?

A No, sir. The gas-oil ratio on our Mathers 2 apparently never did get much above 22,000 but that's no indication that the gas-oil ratio having been one might not go considerably higher or might change to a distillate well at a lower figure.

Q The gas-oil ratio went to 22,000 but the gravity went to 67?

A Yes.

Q So you feel it is a gas well?

A Yes, sir.

MR. NUTTER: Thank you.

MR. PORTER: Anyone else have a question? The witness may be excused.

(Witness excused.)

MR. BUSHNELL: That completes the presentation of our testimony in this case.

MR. PORTER: Thank you, Mr. Bushnell. Mr. Campbell?

MR. CAMPBELL: I would like to call Mr. Yuronka as a witness for Texas Pacific Coal & Oil.

JOHN YURONKA

having been first duly sworn, testifies as follows:

DIRECT EXAMINATION

BY MR. CAMPBELL:

Q Would you state your name, please?

A John Yuronka.

Q Where do you live, Mr. Yuronka?

A Midland, Texas.

Q By whom are you employed?

A Texas Pacific Coal and Oil Company.

Q What capacity?

A Petroleum engineer.

Q Have you testified previously before this Commission in your professional capacity?

A I have.

Q Mr. Yuronka, you testified, did you not, in case, I

believe it's 1220, the original hearing and application before this Commission relative to this particular pool?

A Yes, I did.

MR. CAMPBELL: I would like to ask, if the Commission please, that Mr. Yuronka's testimony and the exhibits offered by him in Case 1220 be made a part of the record in this case in view of the fact he is going to bring them down to date with some additional data for the Commission in this hearing. If there is no objection I would like to ask that that be done?

MR. PORTER: Is there objection to the introduction of this information as a part of this record?

MR. BUSHNELL: We have no objection.

MR. PORTER: It will be so ordered.

Q Mr. Yuronka, since you testified in the previous case have you had occasion to again examine the situation in the pool under consideration here?

A Yes, I have.

MR. CAMPBELL: Would you mark this as Exhibit 1?

(Marked Texas-Pacific Exhibit 1 for identification.)

Q I have handed you what has been identified as Texas Pacific Coal & Oil Company Exhibit 1, will you state what that is, please?

A Exhibit 1 is a structure map on top of the top of 9600 foot zone.

Q What additional information did you have available for the preparation of this that you did not have at the time that you prepared the previous contour?

A Well, since that time Mathers B 1 has been completed, in addition in Section 32, Township 11 South, Range 33 East, Moss State well was drilled a few years ago and it was a dry hole and the zone, this 8600 foot zone, in the Bagley-Pennsylvanian was penetrated by this well and an attempt was made to include this in the contour map. I would like to point out that there was some dashed lines on these contours and it is more or less an extension and it is a rough estimate, merely a rough estimate as to what the structure is for the 8600 pool including that Moss State Well No. 1.

Q Is the reason for that that you did not have enough data available to make a more comlete and accurate contour?

A That is correct.

Q Is this contour that you have prepared different in any substantial respect by that offered by the applicant, Amerada, in this case?

A There is a slight difference in interpretation, but it isn't in a major way whatsoever.

MR. CAMPBELL: Will you mark that as Exhibit 2, please?

(Marked as Texas-Pacific's Exhibit 2 for identification.)

Q Mr. Yuronka, I have handed you what has been identified as Exhibit 2, will you state what that is, please?

A Exhibit 2 is an isopach of the net porosity in the 8600 foot zone. It includes, as will be noted in this isopach there are also dashed lines in it to include a small State Well and it also includes the Mathers B 1 that was completed earlier this year.

Q What do those dash lines indicate, that you were speculating on that or you didn't have sufficient information to do it, to do it with more certainty?

A Well, the Moss State well, all they ran on the well was an electric log. From what we gather from the electric log there was approximately three foot of porosity. In addition a drill stem test was run in that zone with the following result: The drill stem test from 8640 to 8758 was open one and one half hours, it recovered 748 feet of slight salty mud with a slight show of gas.

Q Mr. Yuronka, based upon the information that you had available at the prior hearing and upon the additional information that you have available now, do you feel there is sufficient information available from this reservoir to justify a departure from the statewide spacing at this time?

A No, I do not.

Q Do you have any opinion with regard to whether or not an attempt should be made at this time to define a gas well?

A The information from this reservoir is very meager.

We have had Mathers No, 2 producing for six years and Caudle No. 7 was dually completed in the latter part of last year, and we have just in the last month had a dual completion on our well plus the Mathers B 1 that was completed by Amerada early this year. Those four wells, I don't believe, have enough data in them to indicate what type of a reservoir you have. In order to determine the type of reservoir I believe it is absolutely essential to obtain some sort of a sample of the fluid, a bottom hole sample previously from a well recently completed whereby you have a fairly stabilized condition in the reservoir. If bottom hole sample is taken and analyzed and various tests made of it I think you can determine the type of reservoir you have with the data that is available. It would seem to me that any statement in regard to gas-oil ratio or gravity or what type of reservoir is purely theory and nothing else but.

Q Do you have anything further you wish to state to the Commission in connection with this application?

A No, I do not.

MR. CAMPBELL: I believe that's all.

MR. PORTER: Anyone have a question of Mr. Yuronka?

MR. CHRISTIE: I would like to ask one or two questions, R. S. Christie with Amerada.

BY MR. CHRISTIE:

Q What was your zero net porosity based on in your Shell

State A No. 1 well?

A Well, we, of course, had the electric log and we were able to pick out the zone that has been designated as the gas interval, however, in going to microlog and any additional logs that were run on the well, we could in no way find any porosity on Shell State No. 1, in addition during the drilling of the well there was no drill stem test taken on the zone which would indicate that whoever was sitting on the well didn't think it had enough porosity or anything to take a D.S.D.

Q Wasn't there actually a drill stem test taken just below this interval?

A I believe there was further on down, yes, sir.

Q Just how far down?

A Well, I don't have, wait a moment. There was a D.S.D. taken from 8971 to 9126 and the test is as follows: Open three hours, gas in twenty minutes 288MCF per day and recovered 2365 feet of gas cut mud.

Q That would be below the 8600 foot zone?

A Yes, it would.

Q I would like to ask you if different experts on micrologs might interpret them slightly different in a lot of occasions?

A This interpretation was done for me by a Schlumberger man.

Q I might point out that our experts picked out about

fourteen feet in that Shell well and I might ask you do you think it might be more logical to have fourteen feet offsetting eighteen feet than to have zero?

A Well, Mr. Christie, from my isopach you have a very erratic net porosity situation in the pool. Actually what it amounts to every well is more or less a wildcat in regard to picking up the zone because it's determined primarily by porostiy. For instance, your Mathers No. 3 which is the northwest offset for No. 2 ran a drill stem test in that zone and I think the information that you submitted last month showed that there was no shows on at a four hour test.

Q That's correct. On Exhibit No. 2 what was your net porosity on Amerada's Mathers B. No. 1?

A Ten feet.

Q Where is that located with reference to the Shell State A No. 1 Well?

A Well, the Mathers B1 is in the gas zone or in this 8600 foot zone that has been designated as the Upper Pennsylvanian Pool and the Shell well did not have any porosity in that zone. The porosity picked in all these wells, Mr. Christie, are in the zone that has been designated the gas zone by the Commission.

Q What is the porosity referring to the same exhibit on the Amerada State B. T. A. No. 1 located in the southeast quarter of the southwest quarter of Section 34, Township 11 South, Range

33 East?

A Section 34?

Q Yes, sir.

A My map has it in Section 34, has the B. T. D. in the southeast of the southwest.

Q That is my error, it is D. I had a contour running through there. What is the net porosity?

A Fourteen feet.

Q What is the porosity on Amerada State B. T. M. No. 1?

A Eleven feet.

Q Eleven feet. State B. T. M. No. 1 is quite a little north and somewhat east, of course, of Shell State Well is it not?

A Yes, it is.

Q As is the W. E. Mathers B. No. 1 well, it is also north?

A Yes, sir.

Q In other words, it is possible that this particular Shell well might have a local condition right around that particular well bore that could extend a few feet or several hundred feet perhaps?

A Well, I just don't quite understand that statement, Mr. Christie.

Q Would you eliminate the 160 acres in the southeast quarter, southeast quarter of Section 33 from all productivity based on that one well?

A Sir, I don't believe any acreage should be included in the pool unless it is proven productive some way or another, and I don't believe from the information we have available from D. S. D. and logs that well is not productive in the State Shell Well. It could be that you could go in and get something but I wouldn't do it if I were you.

Q You don't know if it is productive or not?

A No, sir. There is no porosity on the microlog or anything.

Q There is a difference of opinion, we found fourteen feet.

A Well --

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

MR. PORTER: Anyone else have a question of Mr. Yuronka? The witness may be excused.

(Witness excused)

MR. CAMPBELL: That is all. I would like to offer Texas Pacific Exhibits No. 1 and 2 in evidence.

MR. PORTER: Without objection they will be admitted. Anyone else have anything further in this case.

MR. BUSHNELL: If the Commission please, may we have a moment?

MR. COOLEY: Yes, sir.

MR. BUSHNELL: If the Commission please, I would like

to recall Mr. Christie.

R. S. CHRISTIE

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

RE-DIRECT EXAMINATION

BY MR. BUSHNELL:

MR. BUSHNELL: Would you mark that as Exhibit No. 6?

(Marked as Amerada's Exhibit No, 6 for identification.)

Q Mr. Christie, I hand you what is marked Exhibit No. 6, would you identify this exhibit, please, and state what it purports to show?

A Well, Exhibit 6 wasn't meant to be an Exhibit 6. It happened to be a reference map that I had in my files in which we have listed the porosity, net porosity on the different wells and the open flow potentials or drill stem tests and so forth. It is a reference map used for determining the extent of the Bagley-Upper Pennsylvanian Gas Field.

Q What does this exhibit purport to show with reference to the red lettering and numbers under the well designations?

A Generally show the tests on the wells and the potentials and the, well the red that is what the red is the potentials and the drill stem tests.

Q What do the figures in green represent?

A The figures in green represent what we have determined

to be the net effective porosity.

Q What do you find that this exhibit shows with reference to the green or the net porosity in the Amerada Caudle No. 5 Well located in the northeast 40 acres of the northeast quarter of Section 32 South?

A This exhibit indicates that we had four feet of net porosity in Caudle No. 5.

Q Is this based on selections from micro-log or interpretation of micro-log?

A It is an interpretation of micro-log where we had them. If we didn't have the micro-log it was based on some other type of electric log.

Q What does it show the net porosity is for the Mathers B1 Well located in the northwest quarter of Section 33?

A Ten feet.

Q What does it show with reference to the Shell 1-A Well located in the southeast quarter of the southeast quarter of Section 33?

A Fourteen feet.

MR. BUSHNELL: I have no further questions.

MR. PORTER: Anyone else have a question of Mr. Christie?

MR. CAMPBELL: Did you make those picks?

A No, I did not. They were made in our department by our log experts.

MR. CAMPBELL: That's all.

MR. PORTER: I don't believe you offered your exhibit.

MR. BUSHNELL: No, I didn't and I would like to do so subject to the reservation that I will be entitled to take it back for duplication and that I will send another copy to the Commission and also to Mr. Campbell.

MR. PORTER: Any objections to the admission of the exhibit under those conditions? It will be admitted. The witness may be excused. Anyone have anything further in this case? We'll take the case under advisement.

* * * * * * * * * * * * *

C E R T I F I C A T E

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

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 in stenotype and reduced to typewritten transcript under my personal supervision and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this 26th day of November, 1957, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

NOTARY PUBLIC

My Commission Expires:

June 19, 1959.

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO
Santa Fe, New Mexico
July 16, 1958

TRANSCRIPT OF HEARING

Consolidated Cases

1276
1325
1384

DEARNLEY - MEIER & ASSOCIATES
INCORPORATED
GENERAL LAW REPORTERS
ALBUQUERQUE, NEW MEXICO
3-6691 5-9546

NEW MEXICO OIL CONSERVATION COMMISSION

Mabry Hall

Santa Fe, NEW MEXICO

REGISTER

HEARING DATE July 16, 1958 TIME: 9:00 a.m.

NAME:	REPRESENTING:	LOCATION:
J.F. Deavenport	Shell Oil Co.	Shell Bldg, Houston 1st
E.J. FISCHER	OCC	SANTA FE,
M.T. Smith	Shell Oil Co	Midland Tex
R.E. Powers	Sinclair O. & G. Co	M. Land, Tex
DAVID W. STEPHENS	GULF OIL CORP'N	FORT WORTH
Bill Kastler	"	Roswell
K.T. Kenney	" " "	MIDLAND
J.E. Damewood	Indiana Oil Purch Co	Midland Tex.
A.L. Jago	Shell Oil Co	Houston Tex
K.T. Tanner	" " "	" "
H.W. Bryan	Gulf Oil	Ft. Worth,
J.M. McClure	Shell P.L.	Farmington
R.E. Broschat	Amerada	Hobbs
O.C. McBryde Jr	Amerada	Midland
E.L. Shoemaker	Indiana Oil Purch. Co.	✓
John Mills	The Texas Co	✓
Bill McCombs	The Texas Co	Roswell
Nancy Royal	Oil Conservation Comm.	Santa Fe

NEW MEXICO OIL CONSERVATION COMMISSION

Mabry Hall

Santa Fe, NEW MEXICO

REGISTER

HEARING DATE July 16, 1958 TIME: 9:00 a.m.

NAME:	REPRESENTING:	LOCATION:
J L Hackney	Humble Oil & Ref. Co	Midland, Texas
Wm A Davis	"	Midland
Howard Boulton	"	"
Bill Sullivan	E.P.N. Gas Products Co	Farmington
Sid Bilnoad	McWood Corp	Abilene
B L McMahon	McWood Corp.	Midland
Joe M. McWood	E.P Nat. Gas Prod. Co.	El Paso
John W. Runyan	O. C. C.	Hobbs
A. L. Kendrick	OCC	Aztec
N. C. Field	Amerada	Tulsa
O. E. Phelps	Amerada	Monument, N.M.
Walter Lawrence	Texas Oil	Hobbs
F. Norman Woodruff	El Paso Natural Gas Co	El Paso
D.C. Capps	Amerada Pet. Corp.	Monument N.M.
B L Denton	Magnolia	Midland Tex
J. A. Moore	Continental	Roswell, N.M.
E.O. Colthorp	Continental	Artesia, N.M.
C.T. Lucas Jr.	Cactus Pet., Inc.	Midland 2400

NEW MEXICO OIL CONSERVATION COMMISSION

Mabry Hall

Santa Fe, NEW MEXICO

REGISTER

HEARING DATE July 16, 1958 TIME: 9:00 a.m.

NAME:	REPRESENTING:	LOCATION:
Jim Knauf	U.S.G.S.	Roswell
E.M. Thomason	USGS	"
Tom McCain	Sinclair Oil & Gas	"
Boyd Kellough	Gulf Oil Corp.	Denver
Robert McVicar	Sunray Oil Corp	Denver
John L. Hobbs	Shell Oil	Los Angeles.
R.R. Robison	" "	Farmington
F.C. Hunt	" "	Los Angeles
Dick Booker	CSO	Midland
J.R. Luttrell	Shell	Midland
J.W. Brown	Pan Amer. Pet. Corp.	Roswell
E.C. Arnold	NMOCC	Aztec
W.D. Mitchell	Gulf Oil Corp	Burango Colo.
R.S. Christie	Amerada	Tulsa Okla
J.W. Baulch, Jr.	El Paso Natural Gas	Jal, N.M.
Jason W. Kellahin	Kellahin & Fox	Santa Fe
[illegible]		Hobbs
W.B. Wilson	Great Western Drilling Co.	Midland.
R.L. Montgomery	OCC	1646

NEW MEXICO OIL CONSERVATION COMMISSION

Mabry1Hall

Santa Fe, NEW MEXICO

REGISTER

HEARING DATE July 16, 1958 TIME: 9:00 a.m.

NAME:	REPRESENTING:	LOCATION:
R Schuster	Harvey Dow Gunkle	Roswell
Roger Hervey	Cooley & Holcomb	Midland
J R Graham	Standard Oil of Texas	Houston
P H McGrannon	"	"
Luther Goad	Continental Oil Co	Ponca City, Okla
M Armstrong	OCC	Artesia

I N D E X

OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO
Santa Fe, New Mexico
July 16, 1958

IN THE MATTER OF:

The hearing ordered to be called by Order No. R-1031 to permit Amerada Petroleum Corporation and other interested operators to appear and show cause why 320-acre spacing and the Special Rules and Regulations for the Bagley-Lower Pennsylvanian Gas Pool in Lea County, New Mexico, as set forth in Order R-1031 should be continued in effect beyond August 31, 1958.	Case 1276
In the matter of the hearing ordered to be called by Order No. R-1091 to permit Amerada Petroleum Corporation and other interested operators to appear and show cause why 320-acre spacing and the Special Rules and Regulations for the Bagley-Upper Pennsylvanian Gas Pool in Lea County, New Mexico, as set forth in Order R-1091 should be continued in effect beyond August 31, 1958.	Case 1325
In the matter of the hearing ordered to be called by Order No. R-1136 to permit Amerada Petroleum Corporation to appear and present additional evidence as to the proper designation of the oil producing intervals in its State BTO No. 1 Well located 990 feet from the South line and 2310 feet from the East line of Section 34, Township 11 South, Range 33 East, in the Bagley-Pennsylvanian area of Lea County, New Mexico, and to show cause why the above-described well should be permitted to continue to produce as a dual completion.	Case 1384

BEFORE:

Mr. A. L. Porter
Mr. Murray Morgan

TRANSCRIPT OF HEARING

MR. PAYNE: In the matter of the hearing ordered to be called by Order No. R-1031 to permit Amerada Petroleum Corporation and other interested operators to appear and show cause why 320-acre spacing and the Special Rules and Regulations for the Bagley-Lower Pennsylvanian Gas Pool in Lea County, New Mexico, as set forth in Order R-1031 should be continued in effect beyond August 31, 1958.

In the matter of the hearing ordered to be called by Order No. R-1091 to permit Amerada Petroleum Corporation and other interested operators to appear and show cause why 320-acre spacing and the Special Rules and Regulations for the Bagley-Upper Pennsylvanian Gas Pool in Lea County, New Mexico, as set forth in Order R-1091 should be continued in effect beyond August 31, 1958.

In the matter of the hearing ordered to be called by Order No. R-1136 to permit Amerada Petroleum Corporation to appear and present additional evidence as to the proper designation of the oil producing intervals in its State BTO No. 1 Well located 990 feet from the South Line and 2310 feet from the East line of Section 34, Township 11 South, Range 33 East, in the Bagley-Pennsylvanian area of Lea County, New Mexico, and to show cause why the above-described well should be permitted to continue to produce as a dual completion.

MR. KELLAHIN: Jason Kellahin, Kellahin and Fox representing Amerada Petroleum Corporation. At this time I would like to move for the consolidation of the hearing 1276, 1325 and 1384, all of which

appear on the docket for today. The reason for the consolidation being that the technical information involved in these three cases is similar and the exhibits to be used have been prepared in order that the Commission might have a full and complete picture of all of the producing intervals involved in the area. I believe it would be clearer and would certainly save a considerable amount of time if the three cases were consolidated for purposes of the hearing.

MR. PORTER: Is there objection to the consolidation of Cases 1276, 1325 and 1384? The cases 1276, 1325 and 1384 will be consolidated for the purpose of testimony.

MR. KELLAHIN: We will have three witnesses, Mr. Phelps, , Mr. Kidd and Mr. Winger.

MR. PORTER: Let's stand and be sworn at this time.

(Witnesses sworn.)

MR. KELLAHIN: I would like to call as the first witness, Mr. Phelps.

ORVILLE E. PHELPS

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

DIRECT EXAMINATION

By MR. KELLAHIN:

Q Would you state your name, please?

A Orville E. Phelps.

Q By whom are you employed and in what capacity, Mr. Phelps?

A I am employed by the Amerada Petroleum Corporation as

geologist.

Q Where are you employed?

A I'm employed at the Monument Office, Monument, New Mexico.

Q Have you ever testified before this Commission in the past and had your qualifications accepted?

A No, sir, I haven't.

Q Mr. Phelps, would you state briefly for the benefit of the Commission your educational qualifications and experience as a geologist?

A I have a B. S. Degree from the University of Kentucky, Class of 1950, I have been employed under the supervision of Amerada Petroleum since June of '51 to the present time.

Q Where have you worked during that period, Mr. Phelps?

A During that period I have worked two and a half years at the Tatum Office, Tatum, New Mexico and Midland Office, Midland, Texas, and the Monument Office in Monument, New Mexico.

Q Have you had any particular experience in the area involved in the three cases now being heard, Mr. Phelps?

A Yes, sir, I have. At the time that I was at Tatum, New Mexico, the Bagley Field was being defined and I was sitting on the wells that were drilled at that time there.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. PORTER: Yes, sir, they are.

Q Now, Mr. Phelps, have you made a study of the questions

involved in the Bagley-Upper Pennsylvanian and Bagley-Lower Pennsylvanian Pools? A Yes, I have.

Q As well as the area involved in the Amerada State BTO Well No. 1?

A That is correct, sir, I have.

Q Now, referring to what has been marked as Exhibit No. 1, You have the Exhibits before you, do you not?

A Yes, sir, I have.

Q Will you state what that is?

A The Exhibit No. 1 is a plat of the Bagley-Upper Pennsylvanian Gas Pool. It shows with the dotted bands the horizontal limits of the Bagley-Upper Pennsylvanian Gas Pool. The red lines show the individual gas units, the gas wells circled in red are unit gas wells. There's a dashed line running approximately north in a north-south direction to indicate the line that the cross section was made that will be used later on as an exhibit in this hearing.

Q You said that the gas wells are circled in red. By that, does that refer to wells completed in the Upper-Pennsylvanian Gas Pools?

A That's right. The wells that have been completed in the Upper Pennsylvania Gas Pool.

Q Now, referring to what has been marked as Exhibit No. 2, would you state what that shows?

Exhibit No. 2 is a plat of the Bagley Field showing the Bagley-Lower Pennsylvanian Gas Pool. Again we have a dotted band outlining the horizontal limits of the pool, the red lines indicate the individual gas units, the wells circled in red indicate unit gas wells.

Q Now, referring to what has been marked as Exhibit No. 3, Mr. Phelps, would you state what that is?

A Exhibit No. 3 is a structure map on the top of the Pennsylvanian which is also the top of the Bagley-Upper Pennsylvanian Gas Pool.

Q Is this structure map substantially the same as the structure map which was previously offered in the case involving the Upper Pennsylvanian Gas Pool? A Yes, sir, it is.

Q There have been, however, some changes, is that correct?

A Yes, sir, there has been some minor changes made on it.

Q For what reason?

A Well, different, in two different people contouring and probably a slight difference in the electric log points that could have been picked for it.

Q Did you have some more recent development on which you made some changes too?

A Yes, sir, we have had, a recent well has been drilled since the other maps were made that gave us additional information to make this map on.

Q What are these contours based on, Mr. Phelps?

A Contours are based on correlative points from electric logs or gamma ray neutron logs that are correlated over the entire field.

Q Have you also been able to pick this marker from sample cuttings?

A Yes, sir, this is a point that can be picked from sample cuttings.

Q Now, Mr. Phelps, do these contours indicate the horizontal limits of the pool?

A No, sir, they do not indicate the horizontal limits of the Bagley-Upper Pennsylvanian Gas Pool.

Q They are based then on the structure alone?

A That's correct.

Q Is it productive on the east side of the pool or do you know?

A To my knowledge there's not any production on the east side of the pool in the Bagley-Upper Pennsylvanian Gas Zone.

Q Now, referring to the Exhibit 2, it appears that you show at least partially a separate structure in the northwest portion of the exhibit, what do you base that on?

A I did show a separate structure in the northwest portion of this map, and that's based on two wells, that's not shown on this map, one well being the Amerada No. 1 Kelsy which is located in Section 28, Township 11 South, Range 33 East.

Now the point in question here, the top of the Pennsylvanian, or the top of the Bagley-Upper Pennsylvanian Gas Zone, is approximately flat with Mathers No. 1-B Well in the northwest portion of the map. The second well that I used to point was Moss No. 1 State that's located in the section due west of 33 which is Section 32 in the southwest of the southwest quarter, that well was approximately 25 feet low on top of the Pennsylvanian to the Mathers B No. 1 Well.

Q Now, is there another well drilling in the vicinity of this Mathers B No. 1 Well?

A That is correct. The Amerada No. 2 State BTM is at the present time drilling.

Q What is the location of that well?

A That well is located in the southeast of the northeast Section 33, Township 11 South, Range 33 East.

Q It is not shown on this exhibit?

A Yes, sir, it is shown as a drilling well on this exhibit.

Q Now, have any tests been made of the Upper Bagley Pennsylvanian Zone in this well?

A Yes, sir, a test was made on the Bagley-Upper Pennsylvanian Zone and that test gave up 877,000 cubic feet of gas per day on a four hour test. I might also state that the top of the Pennsylvanian was flat to the Mathers B No. 1 Well to the west of the BTM No. 2.

Q You mean then that the structural position of your BTM No. 2

Well is substantially the same as the Mathers B No. 1, is that right?

A That is correct.

Q The Mathers B No. 1 is an oil well, is it not?

A That is correct, the Mathers B No. 1 is an oil well out of the same zone.

Q Now, referring you to what has been marked as Exhibit No. 4, will you state what that is, Mr. Phelps?

A Exhibit No. 4 is a structure map on top of the BTO Oil Zone.

Q Is the BTO Well No. 1 marked in red?

A No, sir, the BTO Well is not marked in red, but it is located in the southwest of the southeast of Section 34, Township 11 South, Range 33 East.

Q That shows as a dual completion, does it not?

A That is correct.

MR. KELLAHIN: I believe it's marked on the other exhibits.

MR. PORTER: Circled in red?

MR. KELLAHIN: Circled in red.

A I'm sorry.

Q What is the basis of your contours in this exhibit, Mr. Phelps?

A The basis of the contours on this structure map are picked from electric logs on a correlative point that can be carried over the entire field.

Q This Exhibit would indicate that the structure of the BTO

Oil Zone is present over the entire area, is that correct?

A That is correct.

Q Have you any comment to make as to its characteristics throughout the zone?

A Well, the zone is present but porosity is not developed throughout the zone. From the information we have, the only well that porosity has been developed in within that zone is the BTO No. 1.

Q Have you examined cuttings of sample logs in connection with that question? A That is correct.

Q Then you did not find porosity development anywhere except in that one well?

A That's the only well we found it developed in. Now, on our BTM 2, the well that is now drilling, we tested the same zone in that well, we recovered 20 feet of drilling mud with no shows of oil or gas or water.

Q Where would you say then the productive area in the BTO Zone is located in reference to the area shown on the exhibit?

A Just immediately around the BTO No. 1 Well.

Q In your opinion it's not present on any of the offsetting acreage to any extent?

A No, sir, it's not.

Q Now, referring to what has been marked as Exhibit No. 5, Mr. Phelps, could you state what that is?

Oil Zone is present over the entire area, is that correct?

A That is correct.

Q Have you any comment to make as to its characteristics throughout the zone?

A Well, the zone is present but porosity is not developed throughout the zone. From the information we have, the only well that porosity has been developed in within that zone is the BTO No. 1.

Q Have you examined cuttings of sample logs in connection with that question? A That is correct.

Q Then you did not find porosity development anywhere except in that one well?

A That's the only well we found it developed in. Now, on our BTM 2, the well that is now drilling, we tested the same zone in that well, we recovered 20 feet of drilling mud with no shows of oil or gas or water.

Q Where would you say then the productive area in the BTO Zone is located in reference to the area shown on the exhibit?

A Just immediately around the BTO No. 1 Well.

Q In your opinion it's not present on any of the offsetting acreage to any extent?

A No, sir, it's not.

Q Now, referring to what has been marked as Exhibit No. 5, Mr. Phelps, could you state what that is?

A Exhibit No. 5 is a structure map on top of the Bagley-Lower Pennsylvanian Gas Zone.

Q Is this exhibit substantially the same as the contour map presented in the previous hearing on the Bagley-Lower Pennsylvanian Oil Pool case?

A Yes, sir, it is.

Q There are, however, some changes in it?

A There are some minor changes due to the difference in the contouring and probably some minor changes, one being the recent well that has been completed since the other maps were made that have additional information to use on this one.

Q What well would that be?

A That would be the BTO No. 1 Well.

Q What is the basis of your contours on this map?

A Contours are based on correlative electric log points that can be carried over the entire field.

Q Do you find a definite marker on which you can base that?

A By electric logs you can, yes, sir.

Q Now, does this indicate that the entire area is productive, Mr. Phelps?

A No, sir, this map will indicate on the north, west and south partial limits of the production where to the east production is based partially on structure and porosity pinchout.

Q But primarily the productive area of the Bagley-Lower Pennsylvanian, with the exception of the east side, is a structural

area, is it not?

A That is correct, on the western side of it.

Q Now, Mr. Phelps, referring to Exhibit No. 6 which is the cross section, would you state what that shows? If you like you can refer to the one that has been placed on the board.

A All right. Exhibit No. 6 is a north-south cross section across the Bagley Field as indicated on Exhibit 1 by the dashed line.

Q Does that indicate to you that there is separation of the various zones involved in these hearings?

A Yes, sir. If you would like we will take these zones as they come. The top zone shown in green is the Bagley-Upper Pennsylvanian Gas Zone; as you can see, that's a correlative point that is carried all the way across the field from north to south. The second zone is the BTO Oil Zone, and as we have colored in around the BTO Well it shows that that is the only place that that is productive across there. The separation between the top of the Pennsylvanian, Upper Pennsylvanian Gas Zone and the BTO Oil Zone remains fairly constant and it has a minimum of 78 feet separation with a maximum of 135.

Now the third band colored in brown is the main pay in the Bagley Pennsylvanian Field. The fourth band colored in green is the Bagley Lower Pennsylvanian Gas Zone.

Q Now, in your opinion is there a complete separation

between the upper gas zone and the zones shown on the BTO Well?

A Yes, sir, there is. There's, as I stated before, there's a minimum of 78 feet separation and a maximum of 135, that interval being a dense line with shale stringers in it.

Q You show on that exhibit again that the BTO Oil Zone is a continuous structural formation. Have you examined the micrologs to see if there is any microlog porosity in the other wells?

A Yes, sir, I have. From micrologs the porosity is not defined within that zone in the other wells in the field.

Q Now, in your opinion is there a separation of the BTO Oil Zone and the Pennsylvanian Oil Zone shown on the exhibit?

A Yes, sir, there's separation between those two zones. However, that separation is not quite as great as it is between the Bagley-Upper Gas Zone and the BTO Oil Zone.

Q Do your sample logs verify your pics on the wells?

A What?

Q Do your sample wells verify your picks as shown on your electric logs?

A It does on top of the Pennsylvanian and on your regular Bagley Oil Zone your sample logs will verify those points.

Q Were they also verified by drill stem tests in some instances?

A Yes, sir, those zones have been drill stem tested, show where you do have porosity deposited and also where it gives up

fluid.

Q In your opinion are the upper and lower gas zones continuous throughout the section? A Yes, sir, they are.

Q Would they, as a geologist, is it your opinion that development on a basis of 320 acres would result in a full development of the area? That is, based on the continuity of the formation and your information available to you.

A Which zone are you speaking of?

Q Well, let's take first, in your opinion would 320 acre development of the Bagley-Upper Pennsylvanian Gas Zone be efficient and economical?

A Yes, sir, it would. You do have continuity all across there.

Q Would your answer be the same as to the Bagley-Lower Pennsylvanian Gas Zone? A That is correct.

Q Does that exhibit likewise show the microlog pay, Mr. Phelps?

A Yes, sir, our microlog pay is shown in black on each well opposite the porous zone.

Q And that has been shown also on the BTO Oil Zone, is that correct?

A Yes, sir, it shows it on the BTO Oil Zone, on the BTO No. 1 only. It is not present on other wells shown in that cross section.

Q Mr. Phelps, in preparing for this hearing did you examine the cross sections which were presented in the previous hearings in these cases? A Yes, sir, I did.

Q Have you also examined the transcript presented in those cases? A Yes, sir.

Q Are you in agreement with the testimony which was offered in that connection in those hearings? A Yes, sir.

Q With the exception, of course, with the changes that you state that you have made? A That is correct.

Q Were Exhibits 3, 4, 5 and 6 prepared by you?

A Yes, sir, they were.

MR. KELLAHIN: At this time we would like to offer in evidence Exhibits 3, 4, 5 and 6. There will be further testimony offered as to Exhibits 1 and 2 and we will offer them later.

MR. PORTER: Is there objection to the admission of these exhibits? It will be received.

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

MR. PORTER: Any questions of Mr. Phelps?

MR. CAMPBELL: I assume there will be a witness who will testify as to the producing history of the BTO No. 1 Well. I have no questions.

CROSS EXAMINATION

By MR. UTZ:

Q Mr. Phelps, are you recommending any change in the vertical limits of the upper and lower and the middle oil zone from the present limits as stated by the Commission?

A I think the engineers have the information or data on that.

Q They will testify as to that?

A It will be taken up later, yes.

MR. UTZ: That's all I have.

MR. PORTER: Anyone else have a question? Mr. Phelps, may be excused.

(Witness excused.)

MR. KELLAHIN: I call as the next witness Mr. Harold Kidd.

HAROLD C. KIDD

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

DIRECT EXAMINATION

By MR. KELLAHIN:

Q Would you state your name, please?

A Harold C. Kidd.

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

A Employed as a petroleum engineer by Amerada Petroleum Corporation in Tulsa, Oklahoma.

Q Have you testified before this Commission in the past?

A Only at Examiner Hearings. I have never testified at a Commission Hearing.

Q For the benefit of the Commission, Mr. Kidd, would you state briefly your education and experience as a petroleum engineer?

A Yes, sir. I'm a graduate petroleum engineer with a degree, a B. S. Degree in petroleum engineering from the University of

Tulsa, I graduated in 1948 and have been employed since as a petroleum engineer, oh, approximately six years I have been employed by Amerada.

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

MR. PORTER: Yes, sir.

Q Mr. Kidd, would you refer to Exhibit 1, which has already been discussed, and describe the location of the producing wells and the units shown on that exhibit?

A Yes, sir. Exhibit 1 is a plat of the Bagley-Upper Pennsylvanian Gas Pool, and as mentioned before, the gas units are outlined in red while the producing well on the unit is circled in red. The first unit or BTK Unit which includes the south half of Section 34 and our BTK No. 1 is the unit well. There's another unit in the field, a 320 acre unit of Texas and Pacific State C, Ac/2 Well No. 1. Their unit now covers the north half of Section 4 and it's 320 acre unit. Our Mathers 2 unit is a 320 acre unit, covers the southeast quarter of Section 3 and the northeast quarter of Section 10. We have one other unit in the field. It's our Caudle No. 7 unit. We show it here in a dotted red line as a 320 acre unit.

The royalty interest under that unit have signed, it's a part Federal lease and has been proved locally by the Federal Government and been sent to Washington for final approval. We expect that back at any time, and at that time it will be a 320 acre unit.

Q Referring to Exhibit No. 2, would you give the same information?

A Exhibit No. 2 is a plat of the Bagley-Lower Pennsylvanian Gas Pool. It shows our State BTO Unit covering the south half of Section 34 with the State BTO No. 1 as the unit well. It shows the Shell Amerada State A Unit which covers the southeast quarter of Section 33, a 160 acre unit, and the well shown is the unit well. It shows Texas and Pacific's State Ac/2 C No. 1 Well, it's 160 acre unit. It covers the northeast quarter of Section 4 and it shows our Caudle 7 Unit again as a dotted outline in a dashed red line. It is shown here as a 320 acre unit.

Now, we have been producing this unit on 80 acres, but the royalty interests have signed and this unit too has been sent to Washington for final approval, and we would produce it in a short while as a 320 acre unit.

Q Now, referring to what has been marked as Exhibit No. 7, will you state what that is, Mr. Kidd?

A Yes, sir, Exhibit No. 7 is an isopachous map showing the net gas pay in the Bagley-Lower Pennsylvanian Gas Pool. The microlog pay picks of each well are shown by the well and the map has been contoured on ten foot interval.

Q Is that based on microlog pay? A Yes, sir, it is.

Q Does that, in your opinion, outline the productive limits of the Lower Pennsylvanian Gas Zone in the Bagley Pool?

A Yes, sir, it does. The zero isopack line to the southwest, and to the north is located and controlled by structure while the zero line on the east side represents a porosity pinchout. An examination of logs in the area show the wells to the east of the zero line have no microlog pay, and while the wells to the west do have microlog pay.

Q Now, have you calculated the number of productive acres as shown by this exhibit?

A Yes, sir, I have. The productive area covers approximately 2,000 acres and represents 40,000 acre feet of net gas pay. This is in very close agreement to pressure volume calculations which will be presented later for this zone.

Q Now, have you prepared a similar exhibit showing the net pay in the Bagley-Upper Pennsylvanian Gas Zone?

A No, sir, I have not. I have attempted to prepare one, but the microlog pay in the Bagley-Upper Pennsylvanian Zone is so erratic that it's almost impossible to make an isopachous map of it. It's not based on structure, it appears to be solely a porosity development and you have wells with six feet of pay surrounded with wells with 14 to 20 feet of pay. It was so erratic that I didn't attempt to prepare it, or I attempted to, but I didn't prepare it.

Q Now, have you prepared the productive data on the Bagley-Upper Pennsylvanian Gas Zone? A Yes, sir, I have.

Q Referring to Exhibit No. 8, would you state what that shows?

A Yes, sir. Exhibit No. 8 is a tabulation of gas and distillate production by months and by years for each of the producing wells from the Upper Pennsylvanian Gas Zone.

Q The Exhibit includes several sheets which are numbered 8 through 11. Are those different exhibits?

A Yes, sir, there are a series of exhibits that have been stapled together, but they have been marked by their exhibit number. Exhibit 8 is two pages, the first page showing gas production in MCF and the second page showing distillate production in barrels.

Q And then the Exhibits 8, 9, 10, and 11 are put together?

A Yes.

Q Will you give us a summary of the information on Exhibit No. 8?

A It can be summarized by saying that gas production to July 1, 1958 totaled 2,161,759 MCF while distillate production to that date totals 72,943 barrels. The pool has been produced continuously since April, 1951. There are three wells now on production and an additional well will be added as soon as the 320 acre is approved for the Caudle No. 7.

Q The Caudle No. 7 has not been produced from this zone?

A No.

Q Now, referring to Exhibit No. 9 which is attached to the exhibit, will you state what that is?

A Exhibit 9 is a bottom hole pressure history of the Amerada wells completed in the Bagley-Upper Pennsylvanian Gas Pool. Pressures shown here are taken at a subsea datum of minus 4445 feet.

Q What is the reason for the subsea datum of 4445?

A That sets up the mid portion of the producing interval in the Upper Pennsylvanian Gas Zone.

Q Do you have any comment in regard to the pressures?

A Yes, sir, I would like to just describe the pressures. The last pressure run on each well, Mathers No. 2, 6-27-58 was 2513 pounds. Caudle No. 7 at the same date was 2404 pounds. State BTK No. 1 on June 20, 1958 was 2377 pounds, and Mathers "B" 1 on the same date had a bottom hole pressure of 1959 pounds.

Q Is that, in your opinion, a fairly uniform pressure in the gas zone?

A Yes, sir, I believe that the pressures are reasonably uniform in the gas zone and would indicate that the drainage is occurring throughout the reservoir.

Q Can you account for the differences that do appear to exist on those wells?

A Well, the higher pressure for the Mathers No. 2 can be attributed to the fact that the well has been off production for the last eight months. We haven't produced it for that period and has been shut in continuously since.

Q In your opinion as an engineer, would that indicate that drainage is occurring throughout the reservoir?

A Yes, sir, it does.

Q What is the significance of the pressure shown on the

Mathers "B" No. 1 Well?

A Well, the Mathers "B" No. 1 Well is the oil well completed in what has been called the Bagley-Upper Pennsylvanian Zone. The pressure on that well was 1959 pounds after 69 hours of shutin, which is approximately 500 pounds lower than the average pressure of the gas reservoir.

Q That is completed at approximately the same structural position as the gas well, is it not? A Yes, it is.

Q It would seem to indicate a higher pressure than the initial pressure, is that correct?

A Yes, it does. We just ran a buildup test on the well and we found that it required almost 69 hours for the well to build up to true reservoir pressure. You can note that the earlier pressure on Mathers "B" 1 had only been shutin 48 hours at the time that we ran it and didn't give us a true reservoir pressure at that date. I think too that the difference in pressure here between the Mathers "B" 1 and the other gas wells in the pool is, on further confirmation of the fact, that the well is structurally separated from the main gas pool.

Q Now, referring to what has been marked as Exhibit No. 10, will you state what that is?

A Exhibit No. 10 is a tabulation showing reservoir pressure minus 4445 datum, cumulative gas production in MCF, cumulative distillate production, total withdrawals in equivalent to MCF of

gas, and the calculated drainage area in acres.

Q That is for the Bagley-Upper Pennsylvanian?

A Yes, sir, it is.

Q How did you arrive at these pressures?

A Well, inasmuch as the early pressure points represented only a small portion of the actual reservoir, I prepared a pressure versus time decline curve for each of the other Pennsylvanian wells that we had any pressure history at all on. From these curves I went back to our pressure points where we had a pressure and calculated what the pressure would have been at the other wells in the pool at that date. These pressures were then averaged together to give what I would consider a more representative reservoir pressure.

Q Now, the final column on the exhibit shows the calculated drainage area in acres. How do you arrive at that figure?

A The last column represents a material balance calculation to determine the volumetric area of the reservoir being drained, and it is based on the pressure-production history of the reservoir. The calculations have been converted to area in acres by assuming an average reservoir porosity of 6%, a water saturation of 20%, and average pay thickness of 15 feet.

Q That then totals a calculated drainage area of 2257 acres?

A Yes, sir, it does.

Q That is the figure that you referred to in connection

with your testimony on the preceding exhibit?

A Yes, sir, it is. I believe maybe I misunderstood you then.

Q I stand corrected, you do not have an isopack on the upper zone?

A No, I don't.

Q What is the significance of the uniformity in pressures shown on the last eight points on this exhibit, Mr. Kidd?

A I would say that the uniformity of the last eight points would indicate that the data and calculations used here are reliable and that the productive area of the field is approximately 2257 acres.

Q Based on that calculation, does this indicate to you that one well completed in the Bagley-Upper Pennsylvanian Gas Pool will drain not less than 320 acres?

A Yes, sir, it does, inasmuch as three wells are all that's producing from the reservoir at the present time, and during this period where we have drainage area calculations, that would give an average drainage area per well of, oh, in excess of 700 acres.

Q Now, referring to what has been marked as Exhibit No. 11, would you state what that shows?

A Exhibit No. 11 is a graph on which bottomhole pressure has been plotted versus reservoir withdrawals. The data presented here is, was taken from part of the data in Exhibit 10. Here again the graphs show the uniformity of our last eight pressure points and is indicative of the behavior that might be expected from a

normal gas reservoir.

Q Is the behavior you have found there consistent with what you would expect from a normal gas reservoir?

A Yes, it is.

Q Does this give an indication of the future performance of the reservoir?

A Yes, it does. You could use this as a basis for determining your future reserves.

Q As I understood you, in effect you have stated that in your opinion one well would efficiently and economically drain 320 acres. Do you have any additional evidence to support that opinion?

A Yes, sir, we have. We have good interference data using shut in pressure in Caudle #7 while only Mathers #2 was producing from the reservoir. Caudle #7 declined 17 pounds from February, 1957 to October, 1957, while Mathers #2 was the only well producing from the reservoir.

Q What is the distance between those two wells?

A The Mathers #2 is located approximately 4500 feet from Caudle #7.

Q If that indicates drainage, what area will one well drain?

A I haven't calculated, but it would be approaching 2,000 acres on the 40 foot radius. We have additional information on Caudle 7, an additional drop of 271 pounds has occurred in the last eight months with Mathers #2 shut in and Texas Pacific's well being

the only well producing from the reservoir for seven of the eight months. Texas and Pacific's well is 2500 feet away, indicating it is draining an area of at least 450 acres.

Q Now, what was the initial pressure on this State M #2 Well in this zone?

A Well, we have additional information taken from the drill stem test on our State BTM #2. It was drill stem tested in the Upper Pennsylvanian and flowed at a rate of 877 cubic feet per day. The initial shutin pressure was 2400 pounds, which is identical to the reservoir pressure in the remainder of the field. State BTM No. 2 is 3600 feet from the nearest producing well in the gas reservoir.

Q That would, in your opinion, indicate that drainage had occurred in the vicinity of the location of State "M" No. 2 Well?

A Yes, sir, it would.

Q Now, referring to what has been marked as Exhibit No. 12, will you state what that shows?

A Exhibit No. 12 is a tabulation of gas production in MCF and distillate production in barrels by months and by years for each of the wells producing from the Bagley-Lower Pennsylvanian Gas Zone.

Q Likewise attached to that exhibit are Exhibits 13, 14 and 15, is that correct?

A Yes, sir, they are all stapled to it, but have been marked with their proper exhibit numbers.

Q Would you give us a summary of the information contained on Exhibit 12?

A Yes, sir. Gas production to July 1, 1958 totaled 3,650,814 cubic feet of gas while distillate production totaled 229,876 barrels. The pool has been producing continuously since June, 1954, and there are now four producing wells in the pool.

Q Now, referring to Exhibit No. 13, would you state what that is?

A Yes, sir. Exhibit 13 is a bottom-hole pressure history of the Amerada wells in the Bagley-Lower Pennsylvanian Gas Pool. Pressures here are shown at minus 5500 foot datum, which again represents the approximation of the mid point in the producing interval.

Q Could you give us the latest pressures on that as shown by that exhibit?

A Yes, Amerada Shell State "A" No. 1, pressure shown as 6-30-58 was 2813 psig. Caudle No. 7 on 6-20-58 had a pressure of 2551 pounds. The State BTO No. 1 on 6-20-58 had a pressure of 2865 pounds.

Q In your opinion is that a fairly uniform pressure?

A Yes, sir, I believe these pressures are reasonably uniform, and here again do indicate that drainage is occurring throughout the reservoir.

Q How do you account for the difference on the Caudle No. 7

Well?

A There are two factors that could account for the factors. I don't know which one is correct. Caudle No. 7 has a dual completion tool in the hole that prevents us from running to all run depths, so we have to calculate our pressure to actual run depth. It is possible that the Caudle 7 is completed in a tighter area of the reservoir and has a lower permeability than the rest and would require a longer time to build up and actually reach true reservoir pressure.

Q On the basis of the information obtained on the pressure history, does that indicate to you that drainage is occurring throughout the reservoir?

A Yes, sir, it does. I would like to point out the pressure performance of our State BTO No. 1 Well. At completion a pressure was run on Jan. 27, 1958 and we had obtained a bottom-hole pressure of 3,030 pounds. The well was left shut in and was not produced from January until April 22nd when we went in and obtained another pressure. We got a pressure of 2917 pounds. This represents a decrease in pressure for the well of 113 pounds while it had been shut in.

The nearest producing well to our BTO was the Caudle No. 7 located approximately 1900 feet away. If you would assume a drainage area, or take a drainage area from that, it would give you a minimum drainage area for Caudle No. 7 of 260 acres.

Q Now, referring to Exhibit 14, would you state what that shows?

A Exhibit No. 14 is a pressure production summary for the Bagley-Lower Pennsylvanian Gas Pool, shows pressure at a minus 5500 feet. Shows cumulative gas production in MCF, cumulative distillate in barrels, and total withdrawals equivalent or expressed as MCF gas, and it shows the calculated drainage area in acres.

Q What are your pressure figures based on on this exhibit?

A Here again, pressure versus time curves were prepared for each well in the field that we had any pressure history on at all, and at the dates where we had pressures on say one well, why we would calculate from the graphs what the pressure would have been at the other wells in the pool and then average those pressures together to obtain what we considered a more representative or true reservoir pressure.

Q What is the significance of the drainage area calculation?

A Here again the drainage area calculation is a material balance calculation to determine the volumetric area of the reservoir that is being drained and is based on pressure production history of the reservoir. The calculations again have been converted to area in acres by using a reservoir porosity of 6%, water saturation of 20%, and an average pay thickness of 20 feet.

Q That results in a total calculated drainage area of some

1900 acres?

A Yes, it does. You might point out here that the 1900 acres compares to 2,000 acres obtained from the isopack map. We had 14,000 acre feet of the isopack map using this while we would have slightly in excess of 38,000 acre feet of gas pay.

Q Does this indicate that the wells are draining not lower than 320 acres?

A Yes. Inasmuch as four wells are now producing from the reservoir that we have defined as being productive over the 1900 acres. It gives an average of 475 acres to the current well in the field.

Q Referring to Exhibit 15, would you state what that shows?

A Exhibit No. 15 is a graph of bottom-hole pressure versus reservoir withdrawals for the Bagley-Lower Pennsylvanian Gas Pool. Here again the data used on the plot was taken from Exhibit No. 14 and shows the uniformity of pressures that have been obtained over the production or producing life of the field. The behavior again is typical of what would be expected of a normal gas reservoir.

Q Does it give an indication of the future performance of this reservoir? A Yes, it does.

Q Now, referring to what has been marked as Exhibit No. 16, state, before we get to that, Mr. Kidd, I would like to ask you this question. You have indicated that in your opinion, and based on your examination, one well is draining in excess of 320 acres. Do you have any additional information to support your conclusion

on that?

A Yes, I do. We have an interference test which was reported at the previous hearing on the Bagley-Lower Pennsylvanian Gas Reservoir, and the interference test was run between our Caudle No. 7 and Shell State "A" No. 1 run in July, 1957. The Shell State "A" No. 1, after being shut in and reaching a stabilized reservoir pressure, declined a total of 26 pounds in 90 hours as a result of gas production at a rate of four million cubic feet per day from Caudle No. 7. The two wells are 2750 feet apart, indicating Caudle No. 7 was draining a minimum area of 545 acres.

I think, too, that the pressure data presented earlier pertaining to decline of State BTO while being shut in only showing a minimum drainage area of 260 is indicative that drainage can and does occur in excess of over 320 acres.

Q In connection with the previous hearings in these three cases, and the members of the Commission Staff asked for additional information, do you have any production test data available?

A Yes, sir, I do. It has been submitted as Exhibit No. 16. Exhibit No. 16 is production test of the Bagley-Pennsylvanian wells, and it has been separated to Bagley-Upper Pennsylvanian Gas Zone, Bagley State BTO Oil Zone, and the Bagley-Lower Pennsylvanian Gas Zone. Then for each well we show the date of test, oil production during test, water production in barrels, gas production in MCF producing GOr, tubing pressures where available, and gravity in

degrees API where available. The first column is oil or distillate production. We haven't made any distinction.

Q There would be in effect two oil wells shown on that exhibit?

A Yes, Mathers "B" No. 1 and State BTO No. 1. I would like to point out the performance of the wells, Mathers "B" No. 1 we have shown three tests here. I have an additional test which may be of interest, a test taken July 12, 1958, which shows the well producing 36 a trace water, 389.2 MCF gas. A GOR of 10,054, tubing pressure of 160 pounds. The way that well is performing by the test you can see it is declining in both oil and gas. However, the gravity of the oil produced by the well is 44.8 as shown, which is a typical oil gravity in the field.

Q Has the gas-oil ratio been performing as was anticipated on this well?

A Yes, sir, it is going up, but actually the performance indicates that the well will never be probably a large gas producer. Now the State BTO Well, BTO No. 1, we have three tests shown here. These tests also show that production has declined from 66 barrels per day in January of '58 to 31 barrels per day in June, 1958. Gas volume, produced gas volume from the wells is also declining, GOR therefore is declining. And here again the gravity is a typical oil gravity of 46.7.

Q Would the gas-oil ratio and the produced gas figures

indicate to you that that well is in any way connected with the Bagley-Upper Pennsylvanian Gas Zone?

A No, sir, it would not. It indicates to me that the well is producing from just a localized zone of porosity and that we are rapidly depleting the reservoir and will not recover much additional oil from the well. The only other thing I might point out here, Caudle No. 7 has a distillate gravity of 57.8 which is the lowest and considerably below the other gravities of the distillate wells in the area. We attribute the lower distillate in Caudle No. 7 to be caused by obtaining most of the gas production from the perforated interval in the well from a lower section than we're getting production in the other wells in the field. Actually the well is just as high as any other well.

Q Now, the Commission Staff likewise requested information be furnished on the Mathers "B" No. 1 Well. Do you have an exhibit showing that?

A Yes, sir, I do. Exhibit No. 17 shows production data for Mathers "B" No. 1. It's the well that is now classified as producing from the Bagley-Upper Pennsylvanian Zone. This exhibit shows monthly oil production in barrels, monthly gas production in MCF, and the producing GOR of the well by months during its producing life.

Q Has that well been produced at capacity?

A Yes, sir, it is. Production performance is poor and the

decline in oil production and the increase in GOR, well, the decline in oil production and the slight increase in GOR indicates that the well is not in communication with the gas reservoir in my opinion.

Q That would be with the Upper Bagley-Pennsylvanian gas?

A Yes.

Q It's not in your opinion --

A (Interrupting) Not in communication with the regular Bagley-Upper Pennsylvanian Gas Pool, but we are producing.

Q What do you think the situation is in regard to that well then?

A I believe the production performance substantiates the geological testimony presented earlier showing that the well is located structurally separated from the Bagley-Upper Pennsylvanian Gas Pool.

Q Now, on the last figures shown on your production data for May, 1958, you show an increase in the producing gas-oil ratio. What do you attribute that to? Could that be to gas coming out of solution?

A Well, yes, it is, although I can't really say why that we obtain such a sharp increase for that one month. It should have been increasing gradually over the period. The produced gas from this well is all metered gas and sold to Warren, so our gas figure should be reasonably correct, and we are producing at capacity, so the produced GOR should be correct.

Q Now, referring to Exhibit No. 18, would you state what that shows?

A Exhibit No. 18 shows production data of our State BTO No. 1 Well. Here again it shows monthly oil production in barrels, monthly gas production in MCF, and the producing GOR and as listed by months for the producing life of this well.

Q Does that support your conclusion previously stated that this is a small, separate reservoir?

A Yes, sir, it does. Here again we are producing at capacity and have always produced at capacity for this well. It shows a decline in produced oil. It also shows a decline in produced gas which is all sold to Warren. It shows, therefore, a decline in the producing GOR. You can actually plot the decline in oil production on graph paper and it's almost a straight line decline, indicating we are going to obtain very low ultimate recovery from the well; that is it's just, oh, very close to being depleted right now.

Q That again would support your conclusion that there is no communication between the producing oil zone and the Bagley-Upper Pennsylvanian Gas Zone?

A Yes, sir, and all the production of this zone right now just amounts to a salvage operation.

Q Have you any pressure information on BTO Well No. 1?

A Yes, sir, I do. We obtained a bottom-hole pressure in the

well of 1441 pounds, which is 950 pounds below the reservoir pressure of the Upper Pennsylvanian Gas Zone.

Q Does that indicate anything to you in connection with the communication between the two zones?

A Well, here again, it would indicate that the zone is definitely separated from the Upper Pennsylvanian Gas Zone.

Q Now, referring to what has been marked as Exhibit No. 19, would you state what that is?

A Well, Exhibit No. 19 is a marked electric log of Caudle No. 7. I think probably I should clarify something before we actually discuss the marked electric log here. It was prepared as a possible solution to handling the vertical limits situation that has come up in the pool. Now we have two suggestions as to how the vertical limit situation can be handled.

Our first suggestion is to ignore the BTO Oil Zone and actually consider it as an isolated zone of production, and it will only be defined or it is confined say to the immediate area surrounding the BTO Well. If we ignore that and consider it that way, why we can define the limit of the, on the various zones as was previously submitted to the Commission.

In other words, leave the vertical limits just as they are. Those vertical limits are minus 4250 to minus 4510 for the upper zone, minus 4600 to minus 5200 for the oil zone, and the lower zone is minus 5400 to minus 5620. The only conflict that has

come up on vertical limits is the fact that the BTO Oil Zone was productive within about five to seven feet, I believe, of the base of the lower vertical limit for the Upper Bagley-Pennsylvanian Zone. We have shown that the zone is definitely separated from the reservoir in previous testimony, but due to a structural change in the area there are points where the BTO Oil Zone will overlap what is now known as the vertical limit for the upper gas zone.

Our first suggestion would be to just ignore that the BTO oil well is an oil well and producing close to the vertical limits as defined, and treat the vertical limits as they are.

Now, our other suggestion would be to define the limits on the basis of the Caudle No. 7 electric log where we have marked here the tops and bottoms of each of the producing zones in the field. In other words, we could describe the zone not by vertical limit, but by comparison of section to what we have marked here in Caudle No. 7.

Q Now, Mr. Kidd, that producing oil zone is close to the defined vertical limit of the upper zone?

A Yes, sir, it is within ten feet of it.

Q But your actual separation amounts to approximately what?

A Oh, between 78 and 125 feet, as has been testified to.

Q Have you found any evidence whatever that the upper gas zone and the oil zone in State BTO No. 1 are connected?

A No, I have not.

Q You have found evidence to indicate to you that they are not connected?

A I have, and I have also found evidence that that zone probably will not be productive anywhere else than in the BTO well.

Q Now, in connection with these cases, have you made any further study of the economics of developing the gas zones and the oil zones involved here?

A Yes, sir, I have, but maybe I would like to enter two more recommendations that we have on handling the situation here. Now, we recommend that Mathers "B" 1, which is the oil well and is producing from the Bagley-Upper Pennsylvanian Gas Zone, be classified as a separate reservoir and continued on the schedule, or shown in the producing schedule as a wildcat well, or undesignated.

Then, two, we suggest that the BTO Zone be classified as a separate reservoir, or for purposes of prorationing, inasmuch as it's a marginal well and is rapidly declining, just be carried as a Pennsylvanian oil well on the Pennsylvanian proration schedule. That was all I had on that.

Q You have no intention of seeking any dual dedication of acreage as a result of that oil zone there, do you?

A No, we do not.

Q Now, have you made a further study of the economics of developing the gas zones and the oil zones?

A Yes, sir, I have. My findings still indicate that

development on 160 acres would be uneconomical.

Q Based upon your study of the reservoir performance and the engineering information available to you, in your opinion will one well effectively and economically drain 320 acres in the Bagley-Upper Pennsylvanian Gas Zone?

A Yes, sir, I believe it will, and I believe that the evidence we have presented here shows that.

Q Based upon the same study and information as to the Bagley-Lower Pennsylvanian Gas Zone, in your opinion will one well effectively drain and develop 320 acres?

A Yes, sir, in my opinion it will.

Q Would an order setting the spacing in the Bagley-Upper Pennsylvanian Gas Zone and the Bagley-Lower Pennsylvanian Gas Zone at 320 acres be in the interest of preventing waste?

A Yes, sir, it would, and I would recommend that a permanent order be granted, granting 320 or establishing 320 acre spacing units for both the Bagley-Upper Pennsylvanian and Bagley-Lower Pennsylvanian Gas Zones.

Q Would such an order, in your opinion, protect correlative rights?

A Yes, sir, it would.

Q In your opinion would any appreciable amount of gas remain unrecovered in the reservoir as the result of such a spacing program?

A No, sir, I feel that the loss in gas production would

only be negligible.

Q Were Exhibits 1, 2 and 7 through 19, inclusive, prepared by you or under your direction and supervision?

A Yes, sir, they were.

MR. KELLAHIN: We would like to offer in evidence Exhibits 1, 2 and 7 through 19.

MR. PORTER: Without objection they will be received.

Q Have you any other comments you would like to make, Mr. Kidd?

A No, sir.

MR. KELLAHIN: That's all the questions we have.

MR. PORTER: We will take a ten minute recess.

(Recess.)

MR. PORTER: The meeting will come to order, please.

MR. KELLAHIN: If the Commission please, I have one further point I would like to clear up of this witness.

Q Mr. Kidd, Case No. 1384 has to do with the dual completion of Amerada State BTO Well No. 1. That is a dual completion at the present time, is it not? A Yes, sir, it is.

Q In what zones is it completed?

A Our State BTO No. 1 Well is producing from what we testified to here today, or referred to, as the BTO Oil Zone, and is also producing from perforations in the Bagley-Lower Pennsylvanian Gas Zones. The well is completed with a Baker Model D Packer and two strings of two and a sixteenth inch Hydril tubing.

Q What is your recommendation in regard to status of this well?

A I recommend that the status be left as it is. In other words, the dual completion be approved, and to permit depletion of this BTO Oil Zone which we believe and have shown as a salvage operation to permit simultaneous production from the Bagley-Pennsylvanian Zones.

Q Would it be practical, in your opinion, or economical, to drill for the production of the BTO Oil Zone oil?

A No, sir, absolutely not.

Q Unless the dual completion is continued as to production from that zone, what would happen to that oil?

A It would be left in the reservoir, you couldn't afford to

attempt to recover it in any other way than the way we have done it now.

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

MR. PORTER: Anyone have a question of the witness?

MR. CAMPBELL: I have one or two.

CROSS EXAMINATION

By MR. CAMPBELL:

Q With regard to BTO No. 1 Well, are you now producing that gas by gas lift?

A Yes.

Q You maintain any separate metering or record of the gas lift, gas production and the reservoir gas production?

A We do for test purposes, yes, sir.

Q And the tests that are reflected on your Exhibit No. 18 as to monthly gas production are exclusively gas production, is that correct?

A The test part would be, yes, sir. On the production that is reported, there is some calculation involved there, inasmuch as the produced gas and the gas lift gas goes to -- I stated that gas goes to Warren, but it does not, it goes into our low pressure gathering system, but we, through meters, balance out the gas in the field and actually determine how much gas goes to any one well, so that the figure we use is a reliable figure and actually would give you a true formation gas production figure.

Q You do not consider that the figures vary in any measureable

degree by the fact it is being gas lifted?

A No, sir.

Q At the original hearings in connection with this area, you had requested, as I recall, 640 acre units for the two gas zones?

A Yes, sir.

Q You are now requesting permanent order for 320 acre units for each of the gas zones?

A Yes, sir, that's right.

MR. CAMPBELL: I think that's all.

MR. PORTER: Does anyone else have a question of the witness?

MR. PORTER: Mr. Nutter.

By MR. NUTTER:

Q Mr. Kidd, would you indicate on your cross section there the top, with reference to the BTO No. 1 Well, the top and bottom of each of the three pools as defined by the Commission?

A On the BTO?

Q Yes, sir, on the BTO Well.

A I'll have to -- you mean now the vertical limits?

Q Yes, sir, the vertical limits.

A I'll have to do a little calculating here.

Q In the interest of time, Mr. Kidd, perhaps you could just give us, or indicate on the exhibit the top of the Bagley-Upper Pennsylvanian Gas Zone and the bottom of it, and the top of the oil zone.

A All right. Well, the top of it, minus 4250, will fall actually on this line right here. You won't be able to see that, that is the upper vertical limit. The lower vertical limit falls right here. Now, the top of the oil zone vertical limit is almost right at the base of the BTO oil line, and the lower would be down here.

Q Would you label those on there, please, Mr. Kidd?

A All right.

Q Now, Mr. Kidd, in other words, the section shown in brown as the upper or the oil productive zone for this BTO No. 1, which is the well that is not encountered in any other well here, is actually in between the lower limits of the upper Pennsylvanian Gas Pool and the upper limit of the oil zone, the recognized oil zone? A It is.

Q Do you concur in the opinion of Mr. Phelps that the upper part of this oil zone is separated from the lower part of the gas zone by an impervious line member?

A Yes, sir, I do.

Q And that there is no connection between those zones?

A No, sir.

Q Do you feel there is any connection whatsoever between the bottom of this oil zone, the small oil zone and the lower main portion of the Bagley Oil Pool?

A Actually, I do not believe there is. There is shale

stringers in between here and also dense line stringers, and as you can see, just looking across here, it looks fairly uniform.

Q So you believe that this section is separated from the main body of the oil zone by the same type of impervious line with shale stringers that you have separating it from the gas zone above?

A That's right.

Q Was any oil encountered in the BTO No. 1 in the main oil zone?

A I do not believe it was, no, sir.

Q Were any drill stem tests made, or any perforations made in that section at all?

A I am not sure, I would have to check, I do not believe there was.

Q That well is presently completed as an oil-gas dual completion in this upper small oil section, and as a gas well in the Lower Bagley?

A The perforations through here, and through here. As you can see, there is very little pay in that zone compared to a good Pennsylvanian producer.

Q Well, now, Mr. Kidd, you gave us one alternative that the Commission could take, to just ignore this little pool. What was the other alternative that you suggested?

A To ignore it or to, and do away with vertical limits and actually define the zones on electric logs of a representative well

of the pool.

Q You mean for each well in the pool?

A Well, actually you would refer each well back to one log which is described that zone. Now, that's done on quite a few places. In fact, that is how you actually end up correlating these things any way when you do produce. We've described on that log what we call the top of the gas zone and the bottom. And we show also the BTO Oil Zone on there, top and bottom, and the main oil zone, and then the lower gas zone defined the same way.

Q And then the vertical limits of the pool would actually fluctuate? A Yes.

Q From well to well?

A They would. Actually in a multi-zone reservoir with any structure, vertical limits most of the time wouldn't work.

Q What do you think we have here now, four separate pays?

A Yes, sir.

Q In this multi-zone pool?

A Yes, sir. You would be fortunate if you, if the condition existed where you could set up vertical limits and not have them overlap.

Q Well, now, some of these pool rules that have been established so far prohibit simultaneous dedication of acreage. Would this sytem interfere with that move in any way?

A I'm not sure, I can't see where it would, where we are

dually producing, we are dually producing gas, or oil and gas, we are not dually producing any oil and we do not anticipate any oil duals at Bagley, so there wouldn't be any simultaneous dedication of acreage in the oil zone and there isn't in the gas, I mean each well is designated for a zone and the acreage is designated for that zone.

Q Mr. Kidd, in compiling the pressure production summary on your Exhibit No. 10, and also on your Exhibit No. 14 for the upper and lower gas pool, are these the total production from all of the wells that are completed in the pool?

A Yes, sir, with the exception of Mathers "B" 1, we ignored that.

Q And in the case of the pressures that are reported, are they the average pressure of all the wells?

A They are the average of the pressures of our wells. Now, we didn't have a complete pressure history on Texas-Pacific, and didn't get any pressure information from them until right at the very last, which was too late to change this or to put it into this, but actually it went along with what we had determined, and fit in good.

Q And the pressures that they furnished you would not have changed the average pressures that you have used?

A In the case of the Bagley-Upper Pennsylvanian Gas Pool, it would have raised it some, and, which would have made it an even

better reservoir than what the calculations show it to be.

Q How are you able to determine the average pay thickness in the case of the Upper Pennsylvanian Gas Pool? Didn't you say you had some difficulty in attempting to draw an isopack map of that pool?

A I did, and what I did, I actually attempted to draw one and in the area where we had any control at all, why I simply took that area and I calculated what the average pay thickness was over that area. Now, there is an additional area where we have no control where you can't tell what the pay would be, so I simply assumed that the pay there, since it is not a structural feature, would average out approximately the same as in the area where I did have some control, even though it was erratic.

Q Even though the thickness or porosities are erratic?

A Yes.

MR. NUTTER: I believe that's all, thank you.

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

By MR. UTZ:

Q Mr. Kidd, can you tell me what well is dedicated to the south half of Section 34?

A The south half of Section 34, now in the Bagley-Upper Pennsylvanian Gas Pool the State BTK No. 1 is the producing well, and it is located in the southeast quarter of the southwest quarter of Section 34.

Now, in the Bagley-Lower Pennsylvanian Gas Pool, the unit well is our State BTO No. 1, which is located in the southwest quarter of the southeast quarter of Section 34.

MR. UTZ: Thank you.

MR. CAMPBELL: May I ask another question, please?

MR. PORTER: Mr. Campbell.

By MR. CAMPBELL:

Q Mr. Kidd, I believe one of your suggested alternatives was to treat the BTO Well No. 1 as an oil well?

A Yes, sir, for proration purposes and record purposes.

Q And that zone is the zone, the wide zone indicated in brown on that particular cross section, is it not?

A Yes, sir, it is.

Q Wouldn't that be the simplest method of handling this situation?

A I believe it would, rather than set up a separate zone for one well, why since it is a marginal well and is declining rapidly and will be depleted soon, I think the simplest would be, for proration purposes, to call it a Pennsylvanian oil well.

Q And this acreage on which it is situated is not presently dedicated to any well producing from that zone, is it?

A No, sir, it is not.

MR. CAMPBELL: I think that's all. One other question.

Q Your definition of zone is the same as they are at the present time?

A Yes, sir.

MR. PORTER: Any further questions of Mr. Kidd? The witness may be excused.

(Witness excused.)

MR. KELLAHIN: We will call as our next witness Mr. Wenger.

E. C. WENGER

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

DIRECT EXAMINATION

By MR. KELLAHIN:

Q Will you state your name, please?

A Mr. E. C. Wenger.

Q Spell that. A W-e-n-g-e-r.

Q By whom are you employed and in what position?

A Amerada Petroleum Corporation in the Tulsa Gas Department.

Q Are you a petroleum engineer or --

A (Interrupting) I am a petroleum engineer.

Q Have you ever testified before this Commission?

A I have not.

Q Will you state briefly your educational qualification and experience as a petroleum engineer?

A Graduated from Tulsa University in 1941 with a Bachelor of Science Degree in petroleum engineering; for the first two years thereafter was employed by Pan American Petroleum Corporation in

the Gasoline Department as a gas engineer. For two years following that, employed by the Cotton Valley Operators Committee, Cotton Valley, Louisiana, was in charge of gas condensate and sampling. In 1945 was employed by Amerada Petroleum Corporation as a petroleum production engineer, working on various problems in connection with the sampling and analysis of oil and gas. In 1952 I believe, I became the chief engineer of the Gas Department, I worked on various engineering problems in association with the production, selling, analysing the gas, and continued to work on oil and gas analysis.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. PORTER: Yes, sir.

Q Now, Mr. Wenger, in connection with the previous hearings in the three cases which are now before the Commission, some questions were raised as to the fluid characteristics in the various zones involved. Have you made a study and compilation of crude oil distillation affecting these cases? A I have.

Q Referring to what has been marked as Exhibit No. 20, will you state what that shows?

A Exhibit No. 20 is a curve showing the ASBM distillation on four liquid samples from the areas involved in this case. The Exhibit No. 20 shows distillations for three oil samples and one condensate sample.

Q What wells were those samples taken from?

A The oil samples were taken from the Mathers "B" 1, the

Chambers No. 2 and the BTO No. 1, and the distillate sample was taken from the BTK No. 1.

Q Now, do you know where the Chambers No. 2 well is completed?

A Chambers No. 2 was completed in the main Pennsylvanian oil zone.

Q And, other wells?

A That have been identified previously?

Q Have been identified. The State BTK is in the upper gas zone, is it not? A Tnat is correct.

Q Now, can you make a comparison between the Mathers fluids and the BTK fluids? The basis of your analysis.

A You said the Mathers, is that what you meant?

Q Yes, sir, the Mathers "B" 1, they are, as I understand it, from the same reservoir insofar as the vertical limits as defined by the Commission.

A That is correct, in the same zone. The Mathers "B" 1 distillation shows that it is of an oil reservoir nature whereas the distillation on the BTK, No. 1, shows that, what is commonly considered as a gas condensate reservoir.

Q Now, as to the other analysis which you made, can you make a comparison on them?

A Only to the extent that the distillations of the BTO No. 1 and the Chambers No. 2 are also in the zone which normally would be

considered as an oil reservoir, and that in general they show what you would expect from any oil distillation, that the higher gravity oils show lower distillation temperatures.

Q On the basis of the type of examination which has been made, is it possible to determine where the fluids came from, whether a gas reservoir or an oil reservoir?

A That would be impossible.

Q On the basis of that type of analysis, or examination, can you predict whether an oil well will go to gas or vice versa?

A You can not make such a prediction. The analysis of the fluids sampled from any particular well shows the characteristics that -- of the fluids that were produced by that well, but it is not possible to use that information to predict the characteristics of the fluid that you would get from any other portion of the same reservoir.

Q Now, as I understand, these are not based on a bottom-hole sample, is that correct? A They are not.

Q Would a bottomhole sample give better indications as to the character of the reservoir?

A The bottom-hole sample would simply reflect the information that is shown on this curve, instead of breaking it down in temperature implements, it would break it down by components, but you would have the same difficulty in making identification with bottom-hole samplings as you would have with these installations.

Q Was Exhibit No. 20 prepared by you or under your supervision, Mr. Wenger? A It was.

MR. KELLAHIN: At this time I would like to offer in evidence Exhibit No. 20.

MR. PORTER: Without objection it will be received.

Q Is there anything you care to add to your comments?

A I might mention this, that previous testimony has shown in this case as well as in the previous cases today that for any given reservoir you can have wide variation in oil gravities and gas variations which are not ascertainable by samples from any one well. You have to sample the various wells to determine whether you have that variation present.

Q And then you take an average of that?

A And bottom-hole samples are usually employed for the purpose of determining what that variation is and what the average is, not in trying to predict what is present in some other part of the reservoir, but trying to evaluate the total composition of a reservoir after it is defined.

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

CROSS EXAMINATION

By MR. CAMPBELL:

Q Using only the testimony of reservoir fluid characteristics and ignoring the geological circumstances for the moment, would you say that your study would make it possible that the BTO No. 1 Well is,

or could be, considered as producing from the Pennsylvanian Oil Zone considering the differences that exist on your Exhibit 20, that that is a possibility?

A I would have to say that the samples themselves would not indicate that one way or the other, that the samples are similar enough so that they could come from the same reservoir, but the samples as such do not indicate it because there would be any number of samples which would come from another state.

Q Would you say it would not be unreasonable should the Commission treat that as an oil zone?

A It would not be unreasonable.

MR. PORTER: Mr. Utz.

By MR. UTZ:

Q Mr. Wenger, were these distillation curves which you have shown on Exhibit 20, changed to any degree with the depletion of the reservoir?

A With the depletion of the reservoir?

Q Yes.

A Yes, particularly the one on the BTK. It could change, depending on the type of depletion that occurred, and by type of depletion, I mean by the bottom-hole pressure history that might accompany the depletion of the reservoir. Also it could change if the production came from a different section of the reservoir such as was indicated by Mr. Kidd in Cheadle No. 7.

Q Then classifying a reservoir by distillation curve might cause it to go from gas to an oil reservoir. Do you use such a criteria? In other words, your BTK No. 1 in the later stages of depletion, would that curve show an oil reservoir rather than a gas reservoir?

A I am not exactly sure what you would define as an oil reservoir in your opinion, but I would say that in later stages of depletion if the pressure declines sufficiently that you might have a liquid phase as well as a gas phase present. However, I would not expect the reservoir to ever become 100% liquid phase, which would be my definition of an oil reservoir.

MR. UTZ: That's all.

MR. PORTER: Anyone else have a question? Mr. Nutter.

By MR. NUTTER:

Q Mr. Wenger, there were no liquids available from the Bagley-Upper Pennsylvanian Zone on the BTO No. 1 to compare with the oil produced from that small oil zone, were there?

A I do not think I understood your question exactly.

Q Are there any liquids available from the Bagley-Upper Pennsylvanian Gas Zone in the BTO No. 1?

A Are you speaking of this zone?

Q Yes, sir, the green zone, the BTO No. 1.

A The only liquids that were available from there would be from the Mathers "B" 1, is that right?

Q In other words, that oil is not perforated in that section and no liquids are available to compare with the oil in that same well?

A In that same well, no, sir.

MR. NUTTER: Thank you. That's all.

MR. PORTER: Anyone else have a question?

MR. KELLAHIN: I would like to ask one.

RE-DIRECT EXAMINATION

By MR. KELLAHIN:

Q Mr. Wenger, are you familiar with the location of these wells?

A In the field.

Q Is BTK a direct offset to the BTO?

A I am not that familiar with the field.

Q I believe the exhibit will show the location of the wells.

MR. KELLAHIN: That's all I have.

MR. PORTER: If there are no further questions, the witness may be excused.

(Witness excused.)

MR. KELLAHIN: That's all we have, except I would like to make a brief statement.

If the Commission please, that completes our presentation of these three cases, Case No. 1325 is based upon a temporary order setting up a 320 acre spacing in the Bagley-Upper Pennsylvanian Gas Pool. Case 1276 created temporary 320 acre spacing in the

Bagley-Lower Pennsylvanian Gas Zone, and at this time we urge the Commission to adopt permanent 320 acre spacing for these three pools. In that connection we have merely attempted at this hearing today to supplement the testimony which was heretofor offered in those two cases, and we urge the Commission to take into consideration that testimony with the changes and supplemental material which we have offered today.

As you will note, there were very very little in the way of economic information, feeling that it was fully covered in the preceding cases, and there is also additional testimony and exhibits in the cases showing that one well will efficiently and economically drain and develop 320 acres, and that it would be uneconomical and would result in economic waste to develop those two pools on 160 acres.

Now, Case 1384 is concerned with the dual completion of the State BTO Well No. 1. At the time of the original hearing there was some confusion and some questions raised as to just exactly where this oil was coming from, the possibility being pointed out that it might be a gas zone connected with the Pennsylvanian, Upper Pennsylvanian Gas Zone. I believe that the testimony which we have offered here today conclusively shows that there is no possibility of any connection between those two zones and that, in effect, this is a separate zone found only in the vicinity of this one well, and should be so treated. For that reason we urge a permanent order

approving the dual completion of the State BTO Well No. 1.

MR. PORTER: Anyone else have anything further in this case, in these cases?

MR. KASTLER: Bill Kastler, representing Gulf Oil Corporation. Gulf has interest in both the Bagley-Upper and the Bagley-Lower Pennsylvanian Gas Pools and, however, we have no data to present at this time, but it is our conclusion that based on the interference test and other data presented here by Amerada, that there is being a uniform withdrawal made in both gas pools, and we therefore urge that Order R-1031 and R-1091 be made permanent.

MR. PORTER: Anyone else have a statement?

MR. CAMPBELL: If the Commission please, on behalf of the Texas-Pacific Coal and Oil Company I would simply like to state that at this time we offer no objection to making it a 320 acre permanent in the upper and lower Pennsylvanian Gas Zones, nor do we object to the dual completion, but it does occur to us that the vertical limits of these various pools having once been defined in arriving at the treatment of the BTO No. 1 Well, the Commission could perhaps avoid more confusion by treating that well as an oil well in the Pennsylvanian Gas Zone inasmuch as that acreage is not dedicated to that zone and is not producing what would be a top allowable from that zone and is rapidly becoming depleted. To redefine the zones on the basis of that single situation, it might seem to us further confusing, in an already somewhat confusing

situation in this area, and we can't see how anybody could be hurt by simply describing that well on the schedule as a Pennsylvanian Oil Well.

MR. KELLAHIN: I understood you to say that it should be described as a well completed in the Pennsylvanian Gas.

MR. CAMPBELL: Oil zone, whatever they call that big brown wide strip.

MR. PORTER: In other words, it should remain in the Bagley-Pennsylvanian Oil Pool. Does anyone have anything further? We will take the case under advisement.

C E R T I F I C A T E

STATE OF NEW MEXICO)
: SS
COUNTY OF BERNALILLO)

WE, ADA DEARNLEY AND JOSEPH A. TRUJILLO, Court Reporters, 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 our knowledge, skill and ability.

IN WITNESS WHEREOF we have affixed our hand and notarial seal this day of July, 1958.

Notary Public-Court Reporter

Notary Public-Court Reporter

My Commission expires:

June 19, 1959.

My Commission expires:

Oct. 9 1960

DEARNLEY - MEIER & ASSOCIATES
GENERAL LAW REPORTERS
ALBUQUERQUE, NEW MEXICO
Phone CHapel 3-6691

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

October 17, 1957

TRANSCRIPT OF HEARING

Case 1325

DEARNLEY - MEIER & ASSOCIATES
INCORPORATED
GENERAL LAW REPORTERS
ALBUQUERQUE, NEW MEXICO
3-6691 3-9546

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

October 17, 1957

IN THE MATTER OF:

Application of Amerada Petroleum Corporation for an order amending Order R-991 insofar as said order pertains to the Bagley-Upper Pennsylvanian Gas Pool in Lea County, New Mexico, to extend the horizontal limits of said pool, and to provide for standard drilling units of 320 acres. Applicant, in the above-styled cause, seeks an order extending the Bagley-Upper Pennsylvanian Gas Pool to include the W/2 SW/4 of Section 2; N/2, SE/4 and N/2 SW/4 of Section 3; N/2 and N/2 SE/4 of Section 4, all in Township 12 South, Range 33 East; the S/2 and S/2 N/2 of Section 33; S/2 and S/2 N/2 of Section 34, all in Township 11 South, Range 33 East, Lea County, New Mexico. Applicant further requests the establishment of 320-acre spacing and drilling units in the Bagley-Upper Pennsylvanian Gas Pool and such other rules and regulations as the Commission may deem necessary for the purposes herein stated.

Case 1325

BEFORE: Honorable Edwin L. Mechem
Mr. Murray Morgan
Mr. A. L. Porter

TRANSCRIPT OF HEARING

MR. PORTER: The meeting will come to order. I would like to announce at this time that the normal unit allowable for November will be 37 barrels. We will take up next Case 1325.

MR. COOLEY: Application of Amerada Petroleum Corporation for an order amending Order R-991 insofar as said order pertains

to the Bagley-Upper Pennsylvanian Gas Pool in Lea County, New Mexico, to extend the horizontal limits of said pool, and to provide for standard drilling units of 320 acres.

MR. BUSHNELL: H. D. Bushnell appearing for Amerada, attorney for Amerada, and also appearing on behalf of the applicant is Mr. Jason Kellahin, attorney, Santa Fe. I have one witness to be sworn in, but before doing so I would like to just make an opening comment, statement.

To refresh the recollection of the minds of the Commissioners, as you will recall, Order R No. 991 was issued out of Cause 1220 heard in March, at which time the Commission defined the horizontal and vertical limits of two separate zones in the Bagley Pool and designated those as the Bagley-Upper and the Bagley-Lower gas zones. That two months ago, or perhaps I should say in August, this Commission issued an order providing for standard proration units of 320 acres in the lower formation or zone. This is Amerada's application for amendment R-991, insofar as it pertains to the upper zone, for the purpose of authorizing standard drilling units of 320 acres.

I have one witness to be sworn in, Mr. Cooley.

(Witness sworn.)

O. C. McBRYDE, JR.

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

DIRECT EXAMINATION

By MR. BUSHNELL:

Q Would you state your name and the company forwhich you are employed?

A I am O. C. McBryde, Jr., employed by Amerada Petroleum Corporation.

Q In what capacity? A As Petroleum Engineer.

Q Have you ever testified before this Commission at a prior hearing? A No, sir.

Q What degree or degrees have you earned?

A I earned a Bachelor of Science in Petroleum Engineering from the University of Texas in 1951.

Q Have you been working as a petroleum engineer ever since that date? A Yes, sir.

Q During that six-year period have you been working for Amerada as a petroleum engineer? A Yes, sir.

Q Are you acquainted with, and have you made a study of the Bagley Pool and more specifically the Bagley, upper zone of the Bagley Field? A Yes, I have.

MR. BUSHNELL: Are his qualifications acceptable?

MR. PORTER: They are.

(Marked Amerada's Exhibit No. 1, for identification.)

Q I hand you what is marked as Amerada's Exhibit No. 1. Will you identify this exhibit, please?

A Exhibit 1 is a map of the Bagley Field; shown on the map are contours at the base of the Upper Pennsylvanian gas zone.

Q Are you familiar with the data and information used to draw these contour lines on this exhibit? A Yes, sir.

Q And in your opinion does this exhibit reflect that information and data correctly? A Yes, it does.

Q Now, there are five wells circled in red pencil. Would you state what these symbols represent?

A The wells circled in red represent wells that are now completed in the Bagley-Upper Pennsylvanian gas zone, or wells that are presently in the process of completion or drilling to the Upper Pennsylvanian gas zone.

Q Now, referring to the specific five wells in particular, would you identify, describe their location and state the status of these respective five wells?

A The Amerada Mathers B No. 1, located in the southeast of the northwest of Section 33, Township 11 South, Range 33 East, is now completed in the Bagley-Upper Pennsylvanian gas zone. However, it is being produced as an oil well. The Texas Pacific well located in the northeast of the northeast of Section 4, Township 12 South, is in the process of being completed in the Bagley-Upper Pennsylvanian gas zone, I understand. The Amerada Caudle No. 7 located in the northeast of the northwest of Section 3, Township 12 South, is presently dually completed in the upper and lower Pennsylvanian

gas zones, the lower zone has been producing since completion. However, the upper zone has been shut in since completion last December. The Amerada State BTO No. 1 located in the southwest of the southeast of Section 4, Township 11 South --

Q (Interrupting) You mean Section 34?

A Excuse me, that's right. (Continuing) -- is presently drilling. We anticipate drilling to the Lower Pennsylvanian gas zone and attempting to dually complete the well in the upper and lower gas zone. The Amerada Mathers No. 2 located down in the southeast of the southeast of Section 3, Township 12 South, has been completed in the Bagley-Upper Pennsylvanian zone since April of 1951. It was produced as an oil well until a couple of months ago when it was reclassified as a gas well, and it is now shut in.

Q So that the only well that has been producing for any period of time is the Mathers No. 2, located in the southeast of the southeast of Section 3. The only exception being that the well located in the southeast of the northwest of 33 has been put on production just recently, and is classified an oil well, is that correct?

A That's right.

Q The only well currently as a gas well then, is the Mathers No. 2 well?

A It is not now producing. It is shut in.

Q But has been commercially produced until just a recent date, is that correct?

A Yes, sir.

Q Now, what do the solid red lines represent on this exhibit?

A The solid red line represents the present boundary of the Bagley-Upper Pennsylvanian Gas Pool as set out in Order R-991.

Q And what do the dashed red lines represent?

A They represent the area that we propose to include under this application.

Q In your opinion does the Bagley-Upper Pennsylvanian Pool underlie all or a substantial portion of this area outlined by the dashed red lines? A Yes, sir.

Q In setting out these dashed red lines, do you include, or in your opinion, do these necessarily set out the limits of the pool?

A No, I don't think so. I think there might be other acreage that would be productive that we haven't included.

Q You have drawn this line as the most reasonable line based on the information now available, is that correct?

A Yes, sir.

Q Do the contour lines on this exhibit reasonably reflect the structure of this particular zone? A Yes, I think they do.

(Marked Amerada's Exhibit No. 2, for identification.)

Q Now, I hand you what is marked Exhibit No. 2. Would you please identify this exhibit?

A Exhibit 2 is an east-west electric log cross section of the

Bagley Field with the Bagley-Upper Pennsylvanian gas zone shown.

Q Now, the line of eight wells shown on this cross section has been referred to and cross referenced on Exhibit No. 1 as Line A and A_1, is that correct? A That's right.

Q Such line being made for reference purposes for the convenience of showing where this cross section is located?

A Yes, sir.

Q Are all the wells on this cross section located within the area which we propose to extend by this application?

A No, the three wells on the far right-hand side of the cross section are outside the proposed boundaries. They are the Amerada State BTI No. 1, the Amerada State BTC No. 1, and the Amerada State BTD No. 3.

Q The logs reflected on here are electric logs, is that correct? A That's right.

Q However, there is data correlated on each of these logs taken from micrologs which purport to show the area of porosity found in each well, is that correct?

A That's right. That is the little black marks opposite the pay in the zone.

Q This map or exhibit also shows that the Upper Bagley-Pennsylvanian zone is continuous throughout the area covered by this exhibit, is that correct? A That's right.

Q What, in your opinion, is the average thickness of the net

pay of the Upper Bagley zone? A About 15 feet.

Q And what do you estimate is the average net porosity?

A About 6%.

Q What do you estimate is the percent of connate water in the reservoir? A About 20%.

Q What was the initial reservoir pressure in this pool?

A The initial reservoir pressure was 2931 pounds.

Q What have you used as a basis for this figure?

A I have used the average of six buildup pressures that we measured on drill stem tests of this zone.

(Marked Amerada's Exhibit No. 3, for identification.)

Q Now, I hand you what is marked Exhibit No. 3. Would you please identify and tell us what that purports to show?

A It is a tabulation of the drill stem tests that Amerada has run in the Bagley-Upper Pennsylvanian gas zone.

Q Do you have knowledge of the facts set out on this exhibit?

A Yes, sir.

Q In your opinion does this exhibit reflect these facts accurately? A Yes, sir.

Q What do the red lines under the figures on this exhibit represent?

A I have underlined those six wells on the exhibit that I used in arriving at the average initial reservoir pressure of 2931 pounds.

Q It is the average of these figures then from which you conclude that initial reservoir pressure was 2931, is that correct?

A That's right.

Q Have you taken some recent bottomhole pressure tests from wells in this pool?

A Yes, sir. Within the past thirty days we have run bottomhole pressures on the Mathers No. 2 and the Caudle No. 7.

Q What do you find as a result of those tests?

A On October 1st, 1957, we measured a pressure in the Caudle 7 of 2675 pounds. On October the 7th, 1957 in the Mathers No. 2 we measured a bottomhole pressure of 2333 pounds.

Q How much of a drop is this below the initial reservoir pressure insofar as the Caudle No. 7 well showed?

A 256 pounds.

Q What do you attribute to this drop in the Caudle No. 7?

A Since the Caudle No. 7 has been shut in since completion in this zone last December has not produced commercially since then, the only other well that has been producing in the pool since April of 1951 is Mathers No. 2, and I think that the production from the Mathers No. 2 has caused this 256 pound drop in Caudle No. 7.

Q How far away is the Mathers No. 2 from the Caudle No. 7?

A It's about 4650 feet.

Q What do you calculate would be the size of area drained if this 4650 feet were the radius of a circle?

A It would be about 1950 acres.

Q In connection with your testimony as to the bottomhole pressure test taken in the Caudle No. 7, Mr. McBryde, isn't it true that on February, 1957, you also took a bottomhole pressure test in that same well? A Yes, sir.

Q What results did you get as a result of that test?

A The bottomhole pressure was 2931 pounds. Excuse me, it was 2692 pounds.

Q The test taken on Caudle No. 7 in February of 1957 was 2692? A That's right.

MR. BUSHNELL: I would like to correct the record in Cause 1220, the witness testified that this particular test showed 2665 pounds. That figure must have been made inadvertently, it was incorrect and inadvertently made and as Mr. McBryde, you now testify that that test actually was 2692 pounds, is that correct?

A Yes, sir.

Q Now, I hand you what is marked Exhibit No. 4.

(Marked Amerada's Exhibit No. 4, for identification.)

Q Would you please identify and describe what that purports to show?

A Exhibit 4 is a tabulation of the production history on Amerada Mathers No. 2 from date of completion in April of 1951 through August of 1957. This well has produced continuously since

1951, and is the only well that has produced from this zone until Amerada's Mathers B No. 1 was completed in April of this year.

Q Was this exhibit prepared by you or one under your supervision?

A Yes, sir.

Q Does it show the total production, total cumulative production from the Mathers 2?

A Yes, sir, down at the bottom there the cumulative gas is 1,406,908 MCF. The cumulative oil is 51,319 barrels.

Q Now, Mr. McBryde, considering the pressure drop in the Caudle No. 7 in relation to the production figures of the Mathers No. 2 as shown on this exhibit, in your opinion, has the Mathers No. 2 well drained an area of more than 320 acres?

A Yes, I would say it has drained far in excess of 320 acres.

Q What is your estimated cost for drilling and completing a well to the Bagley-Upper Pennsylvanian Gas Pool?

A We would estimate it would cost about $125,000 to drill and complete such a well.

Q In your opinion would it be economical to drill and complete a well in this zone of 15 feet net thickness on the basis of 160 acre units?

A No, sir.

Q On the basis of the facts and testimony here, you give, is it your opinion that one well can efficiently, effectively and economically drain a minimum of 320 acres?

A Yes, sir.

Q As a matter of fact, your testimony here is that the one well, Mathers No. 2, has in fact done so, is that right?

A That's right.

MR. BUSHNELL: I would like to offer Exhibits 1, through 4 as Amerada's exhibits into this record.

MR. PORTER: Are there any objections to the admission of these exhibits? They will be admitted.

MR. BUSHNELL: I have no further questions of the witness as this time.

MR. PORTER: Does anyone have a question of Mr. McBryde? Mr. Utz.

CROSS EXAMINATION

By MR. UTZ:

Q Mr. McBryde, did I understand you to say that your Mathers B-1 was an oil well?

A Yes, sir, it is producing as an oil well with an oil allowable. However, it is completed in this zone.

Q Well, if it is an oil well, why are you asking for it to be put to the gas pool?

A Well, it's completed within the vertical limits of the gas pool and we anticipate that it will do what the Mathers 2 did, and that is go to gas shortly. The gas-oil ratio is increasing at a rather rapid rate right now.

Q When it did become a gas well it could be included in the

gas pool at that time, couldn't it? A I think so.

Q How much acreage do you plan to dedicate to that well?

A Well, we would hope to dedicate 320 acres.

Q As an oil well? A No, as a gas well.

Q When it becomes a gas well? A Yes, sir.

Q Did I understand you to also say that your BTO No. 1 is now drilling? A Yes, sir.

Q Yet you are asking for the portion of Section 34 to be put in a gas pool on the basis of a drilling well?

A Yes, sir. We have other information, however, drill stem tests, and of course, the logs to indicate that that would be productive.

Q You have drilled into the Upper Pennsylvania gas zone far enough to have drill stem tests?

A Well, let me check here. If you will look on Exhibit No. 1 at our State BTK No. 1 in the southeast of the southwest of Section 34 and on Exhibit 3 down at the bottom of the page, we have that drill stem test. You will note that on drill stem test we produced at the rate of 5,420 MCF per day --

Q (Interrupting) Just a minute, let me get these wells straight here. A Okay.

Q Which well were you referring to on your Exhibit No. 1?

A To Amerada State BTK No. 1, located in the southeast of the southwest of Section 34.

Q All right.

A Now, on Exhibit No. 3, the last well listed there is the State BTK No. 1.

Q Yes.

A And on four-hour drill stem test we flowed gas at the rate of 5,420 MCF per day, and during that four hours we made 35.92 barrels of distillate.

Q That drill stem test was in the present vertical limits of the Upper Pennsylvanian Gas Pool? A Yes, sir.

Q Then that is the well that you are basing your extension on, is it not? A Yes, sir.

MR. UTZ: That's all I have.

MR. PORTER: Mr. Cooley.

By MR. COOLEY:

Q Mr. McBryde, what is the present GOR on the Mathers B No. 1 well?

A On test October 4th, 1957, the Mathers B No. 1 had a gas-oil ratio of 5,275 to 1.

Q Then that, by all practical standards, in your opinion can be classified as an oil well with that ratio?

A At the present time I would say yes.

Q Now, at what point do this gas-oil ratio increases as you expect it to do, at what point do you think this well, will become a gas well? What is your definition of a gas well in this area?

A I can't answer that.

Q Do you feel there is a necessity for such a definition?

A I can't answer that either.

Q How are you going to know whether it is a gas well or oil well?

A I can't tell you at what ratio we will act. On the Mathers No. 2 I think the ratio was 20 to 25,000.

Q Is your ratio 20,000 to 1 as a gas ratio?

A As I understand it, New Mexico has no definition of a gas well.

Q That is what I'm getting at, we may need one in this area. We may very well need one all over the state. I would like to draw you out a little more on what you think the proper definition would be on this area.

A Would you like to have an exact answer, ratio?

Q Approximation.

A Well, it would be merely my opinion, and I --

MR. BUSHNELL: (Interrupting) You are not asking with reference to this particular well, you are asking his opinion?

MR. COOLEY: For the pool.

MR. BUSHNELL: For this particular pool or for the benefit of the Commission on the statewide basis?

MR. COOLEY: No, I would rather confine it to the Upper Bagley-Pennsylvanian Gas Pool.

Q We have a defined gas pool, and they are all overlying each other in this Bagley area.

A Could I bring something else into the record on the Mathers No. 2, the gravity of the distillate went up at the same time the gas-oil ratio did. In the Mathers B No. 1, at the present time the gravity is 45.8 corrected. I would anticipate that the gravity here would go up also, and when it got up 55 or above, the ratio would probably be such that we would want to change it to a gas well then.

Q This change in the No. 2 well came about strictly as a result of the passage of time and not as a result of any workover operation?

A We didn't, or have never, worked over Mathers No. 2. Now, we haven't had a market for gas in this area for high pressure gas until just recently. That's one factor that we considered in changing this from an oil to a gas well.

Q My question was, however, that the Mathers No. 2 well, the change in the producing characteristics of the well came about merely through the passage of time and through production of the well?

A That's right.

Q And through no physical efforts on the part of Amerada?

A That's right.

Q You expect that the No. 1 well will react similarly?

A You are speaking of the Mathers B No. 1?

Q B No. 1.

A Yes, sir, I think that it will.

Q Now, you started to give me an approximation awhile ago of what you thought the gas-oil definition should be in this area. Would you proceed?

A I don't believe I can give you an answer on that. I would be glad to give it to you later. I haven't studied that enough to give you an answer.

Q You stated that the No. 2 well, Mathers No. 2 well is about 20 to 25,000 to 1 when you considered it a gas well?

A That is right.

Q Then it must lie somewhere between 5,275 and 20,000?

A Well, that's the way it was for Mathers No. 2.

Q You think that the definition should also be tied to the gravity?

A I'm not prepared to answer that either. I'll be glad to try to give you an answer later.

Q What acreage is dedicated to the Mathers B No. 1 well at the present time?

A Well, it is carried on the oil proration schedule and has a standard oil unit, 80 acre, I think. Excuse me, it's 40.

MR. COOLEY: That's all.

MR. PORTER: Mr. McBryde, has this Mathers No. 2 been re-classified as a gas well?

A Yes, sir. We have an administrative order on that. I don't know the number on that, but we got it recently within a month or so back.

Q I notice it still appears on the oil schedule.

A I think that's right. It's still on the schedule, but we haven't taken it off yet, or it hasn't been taken off yet.

MR. PORTER: Anyone else have a question? Mr. Utz.

By MR. UTZ:

Q I would like to inquire, Mr. McBryde, if you are in a position to recommend the type of units that you would dedicate to each of these wells?

A You mean the exact area that we would dedicate to each well?

Q That's right, yes, sir.

A I don't believe I could give it exact. I could show you in a general way I believe.

Q Well, let's take Mathers B No. 1 which is now an oil well, when and if it becomes a gas well, can you say what size unit and what the unit would be for that well?

A I don't believe I can answer it on that particular well.

Q Can you answer the question for any of your wells?

A I think on the Amerada Caudle No. 7, we would dedicate the north half of Section 3. On the Amerada State BTO, we would probably dedicate the south half of Section 34. I don't believe we have decided on the Mathers No. 2 yet.

Q I don't suppose that you could speak for Texas and Pacific Coal and Oil Company about what they want to dedicate to their well?

A No, sir, I don't think so.

Q That would leave the south half of the north half of Section 34 not dedicated to any well, but still within the horizontal limits of the pool, would it not? A That's right.

Q Could you supply this information to us in the next few days?

A I think we could. For each of our wells that we have?

Q We could do that.

I would like very much to have it. That's

's go off the record for just a moment.

(Off the record.)

go back on the record at this point.

ed at this point.

(Witness excused.)

I have a couple of questions.

We would like to have the testimony com-

n we will move for the continuance on the other

MR. PORTER: Go ahead, Mr. Nutter.

Further Cross Examination
Mr. O. C. McBryde

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ALBUQUERQUE, NEW MEXICO
3-6691 5-9546

Q I don't suppose that you could speak for Texas and Pacific Coal and Oil Company about what they want to dedicate to their well?

A No, sir, I don't think so.

Q That would leave the south half of the north half of Section 34 not dedicated to any well, but still within the horizontal limits of the pool, would it not? A That's right.

Q Could you supply this information to us in the next few days?

A I think we could. For each of our wells that we have?

Q Yes, sir.

A I think we could do that.

MR. UTZ: I would like very much to have it. That's all I have.

MR. PORTER: Let's go off the record for just a moment.

(Discussion off the record.)

MR. PORTER: Let's go back on the record at this point. The witness may be excused at this point.

(Witness excused.)

MR. NUTTER: I have a couple of questions.

MR. KELLAHIN: We would like to have the testimony completed today and then we will move for the continuance on the other phase.

MR. PORTER: Go ahead, Mr. Nutter.

Further Cross Examination
Mr. O. C. McBryde

By MR. NUTTER:

Q You stated that you had several means of determining where the probable limits of this pool should be. What do those means include now?

A Well, we have used drill stem test information and also information obtained from logs.

Q Now, by this information obtained from logs, do you mean to establish these contour lines and draw the limits of the pool in accordance with the location of certain contours?

A No, sir, we did not use the contour lines to establish this area. Contour lines are used merely to show the structure of the pool and they have no bearing on the presence of porosity of commercial porosity.

Q In other words, the horizontal limits of the pool would have no bearing on the structural shaping of the formation?

A Very little bearing except there is a structure there.

Q Are drill stem tests in the Upper Pennsylvanian available on all wells which are included within the dashed red line on your Exhibit No. 1?

A No, sir, we did not test every well. We have on Exhibit No. 3, I think it is, all of the drill stem tests that we have run in this zone.

Q And some of these wells are outside of the proposed pool boundaries?

A That's right.

Q Was the drill stem test available in the Upper Pennsylvanian zone on your BTM No. 1 up in the southeast of the northeast of Section 34?

A I don't think so. It is not on Exhibit No. 3.

Q Was the drill stem test taken in the Upper Pennsylvanian, taken on Gulf's BTN No. 1 in the Southeast of the southeast of 34?

A You mean Amerada's well?

Q No, Gulf's well in the southeast of the southeast.

A Oh, the BTN, I'm sorry. I have no knowledge of one.

Q What is the basis for including the northwest quarter of Section 4 in the proposed pool?

A Well, I think the fact that our Mathers B No. 1 was productive and it's similarly located on the structure would be the only basis we had there.

Q What's the control that you have for drawing those structure lines in the southwest side of that structure?

A Well, we have no control down in that area. The control is up in the field proper.

Q Over on the east side of the field in particular, is that right?

A Yes, sir. Well, there's some in the middle there in Section 3, and north of there in Section 34.

Q What is the name of your well or the two wells in the west half of the southwest quarter of Section 2?

A Section 2?

Q Yes.

A Those are not our wells, those are Texas and Pacific.

Q What are the lease names of those wells?

A I don't know.

Q Do they appear on this Exhibit No. 3 as having had drill stem tests run on them?

A No, sir. These tests on Exhibit No. 3 are Amerada's tests only.

Q Is it possible that some of these other companies have taken drill stem tests?

A I would say it would be possible.

Q What is the basis of including the west half of the southwest quarter of Section 2 in the pool?

A Our Mathers No. 2 is productive in the pool and our Simmons No. 1 had a moderately successful drill stem test, I would say, the Simmons No. 1 is immediately south of those two wells.

MR. NUTTER: I believe that's all. Thank you.

MR. PORTER: Are there any other questions? Mr. McBryde, you may be excused.

(Witness excused.)

MR. COOLEY: Mr. Bushnell, in view of Mr. McBryde's testimony concerning the existence of oil wells in the Bagley-Upper Pennsylvanian Gas Pool, do you have a witness present who could

testify as to what a proper definition for a gas well or an oil well would be?

MR. BUSHNELL: No, we do not at this time.

MR. COOLEY: Would you then, Mr. Bushnell, be willing to continue this case until the regular hearing in November until such time as such evidence could be presented?

MR. BUSHNELL: We would agree to that.

MR. ADAIR: Eugene Adair, representing Texas and Pacific Coal and Oil Company of Fort Worth. Might we have it understood that the case is continued for all purposes? We would like to furnish some of the information that Mr. Nutter and Mr. Utz asked for in connection with drill stem tests on some of the other wells, and some other data obviously that the case presented is incomplete, we would like to try to complete it one way or another.

MR. PORTER: Did you put this matter of continuance in the form of a motion?

MR. COOLEY: I think it should more properly be moved by the applicant.

MR. ADAIR: If there is no motion before the Commission to continue the case, I so move, based on two reasons: One, for with respect to completing the testimony with respect to the two units and with respect to having the testimony for the definition of oil and gas wells in this matter, and any other matters that may come before this Commission for this hearing.

MR. PORTER: Is there any objection to Mr. Adair's motion for continuance of the case in all of its aspects?

MR. BUSHNELL: It is my understanding that the Commission wants the case to be continued for the taking of additional testimony pertaining to the matter of what will be a basis of classifying a gas well to an oil well in this particular pool.

MR. COOLEY: At the outset of the discussion of the continuance of the case that was my inquiry to you. Yes, sir. However, I feel that if there is any information as a result of drilling operations by other companies, it should come before the Commission. The more information we can have --

MR. BUSHNELL: (Interrupting) We agree to that. I thought the continuance was for only the limited purpose we have mentioned here, that is to present testimony for perhaps putting it in the order that will be issued on the basis of classifying one well from an oil well and the other well a gas well. We still have notice of the case, and the case has been presented for hearing so far as the merits of the case is concerned, for the purpose of amending R-991 in this Upper Bagley Pool. For that reason I would object to the motion that the representative of Texas and Pacific has filed here. I would hope that he would amend that motion to provide that this case, insofar as the merits of the case is concerned and so far as the notice of the case is concerned, the purpose of that notice, that this case is complete, that the continuance is

only for the purpose of furnishing to the Commission this additional information as a basis for classifying the wells, and perhaps putting it in an order to that extent.

MR. COOLEY: If Texas Pacific Coal and Oil Company have additional information concerning this pool --

MR. BUSHNELL: (Interrupting) We would hope that they would put on today.

MR. COOLEY: Could you present that testimony today, Mr. Adair?

MR. ADAIR: I don't think we have it all. I think I can show the need of it if you want to put the witness back on the stand. For example, I don't have the bottomhole pressure in the 8600 zone on our well in the northeast corner of Section 4. I think that pressure -- do you have that pressure, Mr. McBryde?

MR. McBRYDE: No, sir.

MR. ADAIR: Have you made any effort to get it?

MR. McBRYDE: Just for the record?

MR. PORTER: Yes.

MR. McBRYDE: I called your engineer in Hobbs and got some information from him two or three days ago and he did not give me a pressure.

MR. ADAIR: Did you ask him for the pressure?

MR. McBRYDE: Not specifically.

MR. BUSHNELL: My point is everyone has had notice of the

hearing, and if Texas and Pacific had information or data they wanted to present, it would seem to me that today is the day that they would want to present it.

MR. PORTER: The Commission has ruled that the case will be continued in all its aspects in order that the Commission will have all the information that we can get before making a final determination in this case. This case will be continued until the regular hearing in November.

C E R T I F I C A T E

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 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 25th day of October, 1957.

Ada Dearnley
Notary Public-Court Reporter

My commission expires:

June 19, 1959.

No. 33-57

DOCKET: REGULAR HEARING NOVEMBER 14, 1957

Oil Conservation Commission 9 a.m., Mabry Hall, State Capitol, Santa Fe, NM

ALLOWABLE: (1) Consideration of the oil allowable for December, 1957.

(2) Consideration of purchasers' nominations for the six-month period beginning January 1, 1958, for six prorated pools in Lea County, New Mexico; also consideration of the allowable production of gas for December, 1957, for six prorated pools in Lea County, New Mexico, and consideration of the allowable production of gas from six prorated pools in San Juan and Rio Arriba Counties, New Mexico for December, 1957.

NEW CASES

CASE 1337: Application of Gulf Oil Corporation for approval of a lease automatic custody transfer system to receive and measure the production from more than eight wells and for permission to commingle the oil produced from the McKee and Ellenburger Pools underlying said lease in Lea County, New Mexico, and for permission to produce the wells on said lease in excess of the monthly allowable tolerance for a limited period of time. Applicant, in the above-styled cause, seeks an order approving a lease automatic custody transfer system for its Learcy McBuffington Lease in Section 13, Township 25 South, Range 37 East, Lea County, New Mexico, to receive and measure the production from more than eight wells, and further authorizing the commingling of the oil produced from the McKee and Ellenburger Pools underlying said lease, and further authorizing the production of the wells on said lease in excess of the monthly allowable tolerance until such time as the lease allowable is sufficient to fill and storage volume of the surge tank.

CASE 1338: Southeastern New Mexico nomenclature case calling for an order for the creation of new pools and the extension of existing pools in Lea and Eddy Counties, New Mexico.

(a) Create a new oil pool for Yates production, designated as the South Lusk Pool and described as:

Township 19 South, Range 32 East
SW/4 of Section 29

(b) Create a new oil pool for Siluro-Devonian production, designated as the Shugart Siluro-Devonian Pool and described as:

Township 18 South, Range 31 East
SE/4 of Section 27

(c) Extend the Crossroads Slaughter Pool to include:

Township 9 South, Range 36 East
W/2 W/2 of Section 29

(d) Extend the Drinkard Pool to include:

Township 22 South, Range 37 East
W/2 NE/4 of Section 27

(e) Extend the Eumont Gas Pool to include:

Township 20 South, Range 37 East
S/2 NE/4 of Section 12
SW/4 of Section 24

(f) Extend the North Gladiola-Devonian Pool to include:

Township 12 South, Range 38 East
NE/4 & N/2 SW/4 of Section 5

(g) Extend the West Henshaw-Grayburg Pool to include:

Township 16 South, Range 30 East
E/2 of Section 18
N/2 NE/4 of Section 19

(h) Extend the Justis Ellenburger Pool to include:

Township 25 South, Range 37 East
SE/4 of Section 13
NW/4 of Section 24

(i) Extend the Maljamar Pool to include:

Township 17 South, Range 33 East
N/2 of Section 17
S/2 SW/4 of Section 34

(j) Extend the Pearl Queen Pool to include:

Township 19 South, Range 35 East
W/2 & S/2 SE/4 of Section 27

(k) Extend the San Simon Pool to include:

Township 21 South, Range 35 East
S/2 SE/4 of Section 29
NE/4 of Section 32

(l) Extend the Shugart Pool to include:

Township 18 South, Range 31 East
N/2 SW/4 of Section 26

(m) Extend the Square Lake Pool to include:

Township 16 South, Range 29 East
N/2 S/2 of Section 36

(n) Extend the Townsend Wolfcamp Pool to include:

Township 16 South, Range 36 East
Lots 12 & 13 of Section 6

CASE 1339: (a) Extend the Blanco Mesaverde Pool to include:

Township 31 North, Range 12 West
All of Section 19

Township 31 North, Range 13 West
All of Section 24
N/2 of Section 25

(b) Extend the Aztec-Pictured Cliffs Pool to include:

Township 29 North, Range 8 West
W/2 of Section 30
W/2 of Section 31

Township 29 North, Range 9 West
All of Section 25
All of Section 36

(c) Extend the Canyon Largo-Pictured Cliffs Pool to include:

Township 25 North, Range 6 West
S/2 and NW/4 of Section 16
All of Section 17
E/2 of Section 18

(d) Extend the South Blanco-Pictured Cliffs Pool to include:

Township 24 North, Range 4 West
N/2 of Section 8
N/2 of Section 9

Township 25 North, Range 3 West
S/2 of Section 19

Township 25 North, Range 4 West
S/2 Section 24

Township 27 North, Range 6 West
All of Section 21
S/2 of Section 22
S/2 of Section 23
SW/4 of Section 24
W/2 of Section 25
All of Sections 26 and 27
N/2 of Section 28
N/2 of Section 34

Township 27 North, Range 7 West
NW/4 Section 14
N/2 Section 15
N/2 Section 16

Township 28 North, Range 8 West
E/2 of Section 34

(e) Extend the Tapacito-Pictured Cliffs Pool to include:

Township 25 North, Range 3 West
S/2 of Section 10
E/2 of Section 11

Township 26 North, Range 3 West
W/2 of Section 20

(f) Extend the Bisti-Lower Gallup Oil Pool to include:

Township 25 North, Range 12 West
SW/4 Section 3

(g) Extend the Verde-Gallup Oil Pool to include:

Township 30 North, Range 15 West
NE/4 Section 8

Township 31 North, Range 14 West
SE/4 of Section 7

Township 31 North, Range 15 West
SW/4 of Section 23
NW/4 of Section 24
NW/4 of Section 33

CONTINUED CASES

CASE 1325: Application of Amerada Petroleum Corporation for an order amending Order R-991 insofar as said order pertains to the Bagley-Upper Pennsylvanian Gas Pool in Lea County, New Mexico, to extend the horizontal limits of said pool, and to provide for standard drilling units of 320 acres. Applicant, in the above-styled cause, seeks an order extending the Bagley-Upper Pennsylvanian Gas Pool to include the W/2 SW/4 of Section 2; N/2, SE/4 and N/2 SW/4 of Section 3; N/2 and N/2 SE/4 of Section 4, all in Township 12 South, Range 33 East; the S/2 and S/2 N/2 of Section 33; S/2 and S/2 N/2 of Section 34, all in Township 11 South, Range 33 East, Lea County, New Mexico. Applicant further requests the establishment of 320-acre spacing and drilling units in the Bagley-Upper Pennsylvanian Gas Pool and such other rules and regulations as the Commission may deem necessary for the purposes herein stated.

CASE 1327: Application of Texas Pacific Coal and Oil Company for an order immediately terminating gas prorationing in the Jalmat Gas Pool; or in the alternative, revising the Special Pool Rules for the Jalmat Gas Pool in Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order immediately terminating gas prorationing in the Jalmat Gas Pool, or in the alternative, an order immediately cancelling all accumulated underproduction and redistributing such underproduction to overproduced wells in the Jalmat Gas Pool, and requiring gas purchasers to nominate a sufficient amount of gas from the pool to permit wells from which purchasers are able to take gas to have an allowable equal to their actual production, and upon this basis to thereafter balance the pool production at the end of each proration period, and establishing deliverability of gas wells as a factor in the proration formula for the pool, and establishing a maximum amount of gas which may be taken from any well in the pool during a specified period of time. Applicant further requests the Commission to issue such further order or orders as will bring the pool immediately into balance and maintain such balance without waste and without abuse of applicant's or others' correlative rights.

ir/

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF AMERADA PETROLEUM CORPORATION FOR AN ORDER AMENDING ORDER NO. R-991 INSOFAR AS SAID ORDER PERTAINS TO THE BAGLEY UPPER PENNSYLVANIAN GAS POOL, LEA COUNTY, NEW MEXICO, TO EXTEND THE HORIZONTAL LIMITS OF SAID POOL AND TO PROVIDE FOR STANDARD DRILLING UNITS OF 320 ACRES

CAUSE NO. 1325

APPLICATION

Comes now, Amerada Petroleum Corporation, Tulsa, Oklahoma, and alleges and states:

1. This Commission by its Order No. R-991, Case No. 1220, dated May 1, 1957, identified the Bagley-Upper Pennsylvanian Gas Pool as a separate common source of supply anddefined its vertical limits to be between minus 4250 feet to minus 4510 feet subsea datum and the horizontal limits to be the N/2 and SE/4 of Section 3-12S-33E, N.M.P.M., Lea County, New Mexico.

2. This Order No. R-991 also provides in Rule 2 (a) thereof that each well drilled or recompleted within the limits of the Bagley-Upper Pennsylvanian Gas Pool shall be drilled, spaced and operated in accordance with the applicable provisions of Rule 104 of the Commission's general rules and regulations which provides that each well drilled within said pool shall be located on a designated drilling tract consisting of 160 acres substantially in the form of a square which is a quarter section, being a legal subdivision of the United States Public Land Survey.

3. Wells now completed in the Bagley-Upper Pennsylvanian Gas Pool include the following:

(a) Amerada-J. T. Caudle Well No. 7C located in the NE/4 NW/4 Sec. 3-12S-33E;

(b) Amerada-Mathers No. 2 Well located in the SE/4 SE/4 Sec. 3-12S-33E;

(c) Texas Pacific Coal & Oil Company State "C" Ac/2 Well No. 1 located in the NE/4 NE/4 Sec. 4-12S-33E;

(d) Amerada-Mathers "B" Well No. 1 located in the SE/4 NW/4 Sec. 33-11S-33E.

4. Applicant has evidence to show that the Bagley-Upper Pennsylvanian Gas Pool underlies all or a substantial portion of the W/2 SW/4 Section 2; N/2, SE/4, N/2 SW/4 of Section 3; N/2 and the N/2 SE/4 of Section 4-12S-33E; S/2, S/2 N/2 of Section 33; S/2, S/2 N/2 of Section 34-11S-33E, Lea County, New Mexico, and further alleges that the horizontal limits of said pool should be extended to include the lands herein described.

5. Applicant has evidence to show that one well will efficiently and economically drain a minimum of 320 acres and alleges that Rule 2 of Order No. R-991 should be amended to provide for the drilling, spacing and operation of one well for each 320 acres and that a standard proration unit shall comprise of such 320 acres.

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6. Applicant alleges that an amendment of Order No. R-991 to extend the horizontal limits of the Bagley-Upper Pennsylvanian Gas Pool and to provide for drilling and proration units of 320 acres is necessary in order to prevent waste and to protect correlative rights of owners in the pool.

WHEREFORE, Applicant respectfully requests that the Commission set this application for public hearing at the time and place to be fixed by the Commission, that due and proper notice be given as required by law, and at the conclusion of said hearing the Commission make and enter its order amending Order No. R-991 in the manner herein provided and provide for such other rules and regulations as the Commission deems necessary for the purposes herein stated.

DATED, this 23 day of August, 1957.

AMERADA PETROLEUM CORPORATION

By H. D. Bushnell

H. D. Bushnell, Attorney

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. 1335
Order No. R-1091-A

APPLICATION OF AMERADA PETROLEUM
CORPORATION TO MAKE PERMANENT THE
SPECIAL RULES AND REGULATIONS FOR
THE BAGLEY-UPPER PENNSYLVANIAN GAS
POOL, LEA COUNTY, NEW MEXICO, AS
SET FORTH IN ORDER NO. R-1091.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 17, 1957, November 14, 1957, and again on July 16, 1958, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 6th day of August, 1958, the Commission, a quorum being present, having considered the application, the evidence addduced 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 preponderance of the evidence presented in this case indicates that one well will efficiently and economically drain 320 acres in the Bagley-Upper Pennsylvanian Gas Pool, Lea County, New Mexico.

(3) That the Special Rules and Regulations for the Bagley-Upper Pennsylvanian Gas Pool as set forth in Order No. R-1091 should be continued in effect until further order of the Commission.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations for the Bagley-Upper Pennsylvanian Gas Pool, Lea County, New Mexico, as set forth in Order No. R-1091, be and the same are hereby continued in effect until further order of the Commission.

(2) That this order shall become effective September 1, 1958.

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

State of New Mexico
Oil Conservation Commission

Edwin L. Mechem, Chairman

Murray E. Morgan, Member

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

Memo

From

8-6-58

To

2 copies J Order
R-1091-A given to
Jason Kellahin.

1 copy mailed to:
Jack Campbell &
Bill Kastler.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF THE STATE OF NEW
MEXICO FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 1325
Order No. R-1091

APPLICATION OF AMERADA PETROLEUM
CORPORATION FOR AN ORDER AMENDING
ORDER NO. R-991, INSOFAR AS SAID
ORDER PERTAINS TO THE EAGLEY-UPPER
PENNSYLVANIAN GAS POOL IN LEA COUNTY,
NEW MEXICO, TO EXTEND THE HORIZONTAL
LIMITS OF SAID POOL AND TO PROVIDE
FOR STANDARD DRILLING UNITS OF 320
ACRES.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 17, 1957, and again at 9 o'clock a.m. on November 14, 1957, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 22nd day of November, 1957, the Commission, a quorum being present, having considered the application and the evidence adduced, 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, Amerada Petroleum Corporation, proposes the establishment of 320-acre gas well spacing in the Eagley-Upper Pennsylvanian Gas Pool and such other Rules and Regulations as the Commission may deem necessary.

(3) That there is sufficient evidence to justify the establishment of 320-acre spacing in the Eagley-Upper Pennsylvanian Gas Pool on a temporary basis.

(4) That the 320-acre spacing units should be comprised of any two contiguous quarter sections of a single governmental section, being a sub-division of the United States Public Lands Survey.

(5) That no well should be drilled to or recompleted in the Eagley-Upper Pennsylvanian Gas Pool nearer than 660 feet to any boundary line of the unit nor nearer than 330 feet to any governmental quarter-quarter section line; provided however that the Secretary-Director of the Commission should have authority to grant exception to the foregoing well location requirements.

(6) That this case should be heard again by the Commission at the monthly hearing in July, 1958, to permit the applicant and all other interested parties to appear and show cause why the spacing provisions of this order should be continued in effect.

(7) That any well presently projected to or completed in the Eagley-Upper Pennsylvanian Gas Pool should be excepted from the 320-acre spacing requirements for said pool.

(8) That the applicant proposes to extend the horizontal limits of the Eagley-Upper Pennsylvanian Gas Pool to include the following acreage:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
Section 23: S/2 and S/2 N/2
Section 24: S/2 and S/2 N/2

TOWNSHIP 12 SOUTH, RANGE 33 EAST, NMPM
Section 1: W/2 SW/4
Section 3: N/2, SE/4, and N/2 SW/4
Section 4: N/2 & N/2 SE/4

(9) That the applicant has proven that the following described acreage can reasonably be expected to be productive of gas from the Eagley-Upper Pennsylvanian Gas Pool:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
Section 24: S/2

and that the horizontal limits of the Eagley-Upper Pennsylvanian Gas Pool should be extended to include said acreage.

(10) That the following described acreage is presently within the horizontal limits of the Eagley-Upper Pennsylvanian Gas Pool, as defined by the Commission:

TOWNSHIP 12 SOUTH, RANGE 33 EAST, NMPM
Section 3: E/2 and SE/4
Section 4: NE/4

(11) That the applicant has failed to prove that the following described acreage can reasonably be expected to be productive of gas from the Eagley-Upper Pennsylvanian Gas Pool:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
Section 23: S/2 E/2 E/2
Section 24: S/2 N/2

(5) That no well should be drilled to or recompleted in the Bagley-Upper Pennsylvanian Gas Pool nearer than 660 feet to any boundary line of the unit nor nearer than 330 feet to any governmental quarter-quarter section line; provided however that the Secretary-Director of the Commission should have authority to grant exception to the foregoing well location requirements.

(6) That this case should be heard again by the Commission at the monthly hearing in July, 1956, to permit the applicant and all other interested parties to appear and show cause why the spacing provisions of this order should be continued in effect.

(7) That any well presently projected to or completed in the Bagley-Upper Pennsylvanian Gas Pool should be exempted from the 320-acre spacing requirements for said pool.

(8) That the applicant proposes to extend the horizontal limits of the Bagley-Upper Pennsylvanian Gas Pool to include the following acreage:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
Section 23: E/2 and E/2 W/2
Section 24: E/2 and E/2 W/2

TOWNSHIP 12 SOUTH, RANGE 33 EAST, NMPM
Section 1: W/2 SW/4
Section 3: N/2, SE/4, and N/2 SW/4
Section 4: N/2 & N/2 SE/4

(9) That the applicant has proven that the following described acreage can reasonably be expected to be productive of gas from the Bagley-Upper Pennsylvanian Gas Pool:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
Section 24: E/2

and that the horizontal limits of the Bagley-Upper Pennsylvanian Gas Pool should be extended to include said acreage.

(10) That the following described acreage is presently within the horizontal limits of the Bagley-Upper Pennsylvanian Gas Pool, as defined by the Commission:

TOWNSHIP 12 SOUTH, RANGE 33 EAST, NMPM
Section 3: W/2 and NE/4
Section 4: NE/4

(11) That the applicant has failed to prove that the following described acreage can reasonably be expected to be productive of gas from the Bagley-Upper Pennsylvanian Gas Pool:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
Section 23: E/2 E W/2 W/2
Section 24: E/2 W/2

TOWNSHIP 12 SOUTH, RANGE 33 EAST, NMPM
Section 2: W/2 SW/4
Section 3: N/2 SW/4
Section 4: NW/4 & N/2 SE/4

(12) That certain wells have been completed within one mile of the defined limits of the Bagley-Upper Pennsylvanian Gas Pool which are capable of producing liquid hydrocarbons from the Upper Pennsylvanian (8600-feet) zone with gravities in the range which is commonly accepted to be that of crude petroleum oil, and that such wells should be classified as oil wells.

(13) That an oil well in the Bagley-Upper Pennsylvanian Gas Pool should be defined as a well which produces liquid hydrocarbons possessing a corrected gravity of 55° API or less.

(14) That an oil well in the Bagley-Upper Pennsylvanian Gas Pool should have dedicated thereto a proration unit consisting of 40 acres, more or less, being a governmental quarter-quarter section legal sub-division of the United States Public Lands Survey.

(15) That no acreage should be simultaneously dedicated to an oil well and to a gas well in the Bagley-Upper Pennsylvanian Gas Pool.

IT IS THEREFORE ORDERED:

(1) The Special Rules and Regulations for the Bagley-Upper Pennsylvanian Gas Pool, as set forth in Order R-991, be and the same are hereby superseded by the Special Rules and Regulations hereinafter set forth.

(2) That any well which was projected to or completed in the Bagley-Upper Pennsylvanian Gas Pool prior to the effective date of this order be and the same is hereby granted an exception to Rule 2 (a) of the Special Rules and Regulations hereinafter set forth which requires that each well drilled or recompleted in the Bagley-Upper Pennsylvanian Gas Pool shall have dedicated thereto a tract comprising 320 acres.

Further, that any increase in the acreage dedicated to any such excepted well shall become effective the first day of the month following receipt by the Commission of Commission Form C-128, Well Location and Acreage Dedication Plat, provided said Form C-128 indicates that the acreage dedication to such well has been increased in conformance with the Special Rules and Regulations.

(3) That the horizontal limits of the Bagley-Upper Pennsylvanian Gas Pool, as set forth in Exhibit "A" of Order R-991, and as extended by Order R-1059, be and the same are hereby extended to include therein:

TOWNSHIP 11 SOUTH, RANGE 33 EAST, NMPM
Section 34: E/2

(4) That the Special Rules and Regulations hereinafter set forth shall be of no further force nor effect after August 31, 1956.

(5) That this case shall be called for hearing before the Commission at the monthly hearing in July, 1958, to permit the applicant and all other interested parties to appear and present the results of bottom-hole pressure tests, interference tests, and/or such other evidence as may be available to show cause why the Special Rules and Regulations hereinafter set forth should be continued in effect beyond August 31, 1958.

(6) That special pool rules applicable to the Bagley-Upper Pennsylvanian Gas Pool be and the same are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
BAGLEY-UPPER PENNSYLVANIAN GAS POOL

RULE 1. Any well drilled a distance of one mile or more outside the boundary of the Bagley-Upper Pennsylvanian Gas Pool shall be classified as a wildcat well. Any well drilled less than one mile outside the boundary of the Bagley-Upper Pennsylvanian Gas Pool shall be spaced, drilled, and operated in accordance with the Rules and Regulations in effect in said Bagley-Upper Pennsylvanian Gas Pool provided said well is projected to and/or completed in the so-called "9000-foot" zone.

RULE 2. (a) That each well drilled or recompleted in the Bagley-Upper Pennsylvanian Gas Pool shall be located on a tract consisting of approximately 320 acres comprising any two contiguous quarter sections of a single governmental section, being a legal sub-division of the United States Public Lands Survey.

(b) The Secretary of the Commission shall have authority to grant an exception to Rule 2 (a) without notice and hearing where application has been filed in due form and where the following facts exist and the following provisions are complied with.

1. The non-standard gas proration unit consists of contiguous quarter-quarter sections or lots.

2. The non-standard proration unit lies wholly within a single governmental section.

3. The entire non-standard gas proration unit may reasonably be presumed to be productive of gas.

4. The length or width of the non-standard gas proration unit does not exceed 5280 feet.

5. That applicant presents written consent in the form of waivers from all offset operators and from all operators owning interests in the section in which any part of the non-standard gas proration unit is situated and which acreage is not included in said non-standard gas proration unit.

6. In lieu of Paragraph 5 of this Rule, the applicant may furnish proof of the fact that all of the aforesaid operators were notified by registered mail of his intent to form such non-standard gas proration unit. The Secretary of the Commission may approve the application, if, after a period of 30 days following the mailing of said notice, no operator has made objection to the formation of such non-standard gas proration unit.

RULE 3. (a) That no well shall be drilled to or recompleted in the Bagley-Upper Pennsylvanian Gas Pool nearer than 660 feet to any boundary line of the unit nor nearer than 330 feet to any governmental quarter-quarter section line.

(b) The Secretary-Director of the Commission shall have authority to grant exception to the requirements of Rule 3 (a) without notice and hearing where a verified application therefor has been filed in due form and the necessity for the unorthodox location is based on topographical conditions or is occasioned by the recompletion of a well previously drilled to another horizon.

Applicants shall furnish all operators within a 3300-foot radius of the subject well a copy of the application to the Commission, and applicant shall include with his application a list of names and addresses of all operators within such radius, together with a stipulation that proper notice has been given said operators at the addresses given. The Secretary-Director of the Commission shall wait at least 20 days before approving any such unorthodox location, and shall approve such unorthodox location only in the absence of objection from any offset operators. In the event an operator objects to the unorthodox location the Commission shall consider the matter only after proper notice and hearing.

RULE 4. Each gas purchaser in the Bagley-Upper Pennsylvanian Gas Pool shall take ratably from all wells producing from said common source of supply, apportioning its takes during any given calendar year among said wells on the basis of the acreage dedicated thereto.

RULE 5. No natural gas nor casinghead gas produced from the Bagley-Upper Pennsylvanian Gas Pool shall be flared or vented unless specifically authorized by the Commission after notice and hearing.

RULE 6. The monthly gas production from each well and from each common source of supply shall be metered separately and the gas production and associated liquid hydrocarbon production therefrom shall be reported to the Commission in accordance with the applicable Commission Rules and Regulations.

RULE 7. An oil well in the Bagley-Upper Pennsylvanian Gas Pool shall be defined as a well which produces hydrocarbons possessing a gravity of 55° API or less, corrected to 60° Fahrenheit.

RULE 8. An oil well in the Bagley-Upper Pennsylvanian Gas Pool shall have dedicated thereto a proration unit consisting of 40 acres, more or less, being a governmental quarter-quarter section legal sub-division of the United States Public Lands Survey.

RULE 9. No acreage shall be simultaneously dedicated to an oil well and to a gas well in the Bagley-Upper Pennsylvanian Gas Pool.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

MURRAY E. MORGAN, Member

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

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