

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 25, 1961

EXAMINER HEARING

IN THE MATTER OF:

Application of Pan American Petroleum Corporation
for permission to take interference tests and trans-
fer allowables. Applicant, in the above-styled cause,) Case
seeks permission to take interference tests in the) 2166
Cha Cha-Gallup Oil Pool, San Juan County, New Mexico,
by shutting in its Navajo Tribal "E" Well No. 3,
located in the NE/4 SW/4 of Section 21, Township 29
North, Range 14 West and transferring the allowable
of said well in equal parts to the other five wells
on the said Navajo "E" lease.

BEFORE:

Elvin A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: 2166.

MR. PAYNE: 2166, Application of Pan American Petroleum
Corporation for permission to take interference tests and transfer
allowables.

MR. BUELL: We have one witness, Mr. Examiner, Mr. Eaton.

MR. PAYNE: Let the record show the witness was sworn in
a preceding case.

GEORGE W. EATON, JR.

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

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DIRECT EXAMINATION

BY MR. BUELL:

Q Would you state your complete name, by whom you are employed, in what capacity, and in what location?

A George W. Eaton, Jr., Senior Petroleum Engineer for Pan American Petroleum Corporation, in Farmington, New Mexico.

Q Your qualifications as a petroleum engineer are in the records of the Commission in prior cases, are they not?

A Yes, sir.

MR. BUELL: Are his qualifications acceptable?

MR. UTZ: Yes, sir.

Q (By Mr. Buell) I direct your attention to what has been marked Pan American's Exhibit No. 1. What does that exhibit reflect?

A Exhibit No. 1 is a location map of that portion of San Juan County showing the location of the Cha Cha-Gallup Oil Pool. The orange line on Exhibit 1 is the NMOCC boundaries of the Cha Cha-Gallup Pool as defined by nomenclature orders.

Q What about Sections 15 and 16 to the south there; is there an order out on those two half sections?

A No, sir, there isn't. The south half of Sections 15 and 16 actually isn't covered by a nomenclature order that has been issued, although hearing has been held to include those sections in the pool limits.

Q Have there been any rules adopted for this pool?

A This pool has special pool rules.

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Q What did they set up in the way of proration units?

A NMOCC Order R-1800 sets forth temporary 80-acre proration units for this pool, and further stipulates that a hearing will be held in October, 1961 to consider the adoption of permanent rules.

Q Did that order also authorize Benson, Montin and Greer to conduct an interference test in this pool?

A Yes, sir, it did.

Q To your knowledge have they initiated that test?

A That test is now underway.

Q Does Exhibit 1 show the area of the field in which that test is being run?

A Yes, sir. Exhibit 1 shows the location of the Benson-Montin-Greer, Section 17, Township 28 North, Range 13 West, and that is identified by the large green circle. The control well is within that large green circle.

Q That test, then, is being run at this time?

A Yes, sir.

Q And would you say that is the southern end of the field, or the southeastern end of the field?

A Yes, sir.

Q Where does Pan American propose to run its interference test?

A The proposed Pan American Test is in Section 21, Township 29, Range 14 West, and is depicted on Exhibit 1 by the large red circle.



Q If the Commission approves our request, then we would have an interference test being conducted in the southeastern portion of the field by Benson, Montin and Greer, and by Pan American in the north or northwestern?

A Yes, sir. There would be one test in operation in either end of the field.

Q What do you, as a reservoir engineer, think about the location of these two interference tests?

A I think that these two tests are located, geographically, in such a way that definite conclusions might be reached with regard to the ability of a well, any well in this pool, to drain 80 acres or more.

Q You feel that you, as a reservoir engineer, if you saw data obtained on these two tests which showed interference, you would feel, then, that would be applicable anywhere in the field?

A Yes, sir.

Q Is there any other difference besides geography in these two particular areas?

A Yes, sir. This additional test will provide data in one other aspect that is unrelated to geographic location. You will note from Exhibit 1 that the Benson-Montin-Greer test in Section 17 is being conducted in an area where the property is developed down a density approximating 80 acres. Now, the proposed Pan American test in Section 21 is located in an area which is developed, essentially to a density of 160 acres per well; in other words,

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one well per quarter section.

Q Would you expect, as a reservoir engineer, that in the Pan American area, the area that is developed to about 160-acre density, would you expect similar data to be accumulated on that test as you would down in the Benson-Montin-Greer 80-acre area?

A I would expect the data collected would be similar. However, I would also expect that it would take longer to establish the initial evidence of interference, and that the rate of decline on the control or shut in well might be less than in the area where the density of development is greater.

Q Would that be true because you are observing interference over a larger area?

A Over a much larger area, yes, sir.

Q Let me direct your attention now to what has been marked Pan American's Exhibit No. 2. What does that exhibit reflect?

A Exhibit No. 2 is a plat of the particular area in which Pan American desires to run its interference test.

Q How have you designated the wells that will play a part in this test?

A The control well or shut in well is colored with the large red circle. The remaining five producing wells on the Navajo "E" lease are denoted by the small green circles.

Q Let me direct your attention now to what has been marked as Pan American's Exhibit No. 3. What does that exhibit reflect?

A ~~Exhibit 3 is a tabulation of the recent tests on the six~~



wells on the Navajo "E" lease.

Q Does Exhibit 3 show that these wells have the capacity and the ability to produce the allowable of the control well?

A Yes, sir, they do.

Q What is the allowable of these wells at this time?

A The allowable of the well on 80-acre spacing, 80-acre proration unit in the Cha Cha Pool is 164 barrels per day.

Q How would you propose to divide that, or allocate it, to the other wells on the lease, the allowable of the shut in well?

A It is our proposal to distribute that shut in well's allowable in approximate equal proportions to the remaining five wells. I say approximate, because under that allocation, four of the wells would receive 197 barrels per day and one 196 barrels per day.

Q The current producing wells on this particular lease have the capacity, as you stated, to produce the allowable of the control well?

A Yes, sir, that is true.

Q That lease is being actively developed, is it not, Mr. Eaton?

A Yes, sir, it is.

Q Would you recommend that as new wells come in that they get an equal portion of the allowable of the control well?

A Yes, sir, that would be my recommendation.

Q So, as other wells were completed, then the 196, 197 that



you mentioned would be proportionately reduced?

A Yes, sir.

Q Is there a well drilling or being completed at this time on that lease?

A There is one drilling well on this lease, in the SW/4 NW/4 of Section 22.

Q ~~But~~ even with the producing wells that we now have, none would produce in excess of 197 barrels per day?

A That is true.

Q Do you, as a reservoir engineer, feel that is a wasteful rate for this reservoir?

A No, sir.

Q Would you consider this as a rate-sensitive reservoir?

A In my opinion that is not a rate-sensitive reservoir.

Q Do you feel, if the Commission approves this interference test it will serve conservation as well as protect the correlative rights of interested parties?

A Yes, sir, I do.

Q Do you have anything else you would like to add?

A No, sir, I don't.

MR. BUELL: May I offer at this time Pan American's Exhibits 1 through 3?

MR. UTZ: Without objection Pan American's Exhibits 1 through 3 will be admitted into the record.

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BY MR. UTZ:

Q Mr. Eaton, is it Pan American's intention to develop this lease on 160 acres?

A Initially at that rate, yes, sir.

Q Is that the purpose of this interference test, to show 160-acre drainage?

A No, sir, although if interference is established that would be the result; it would show 160-acre drainage.

Q Would this information also be used to evaluate a secondary recovery program?

A The data that would be obtained would be useful to any group that might study and evaluate the possibility of secondary recovery. The evidence will be conclusive in showing the reservoir is continuous over this big area, and injection of fluid might be expected to affect wells drilled on this density.

Q Would you expect the increased allowable for wells No. 1 and 6 to recover any oil from the El Paso Natural Gas Products Lease in Section 27?

A They are probably recovering all from that lease now.

Q Has El Paso Natural Gas Products Company been notified of this hearing?

A Yes, sir.

REDIRECT EXAMINATION

BY MR. BUELL:

Q ~~As a matter of fact, they volunteered a waiver, did they~~



not?

A Yes, sir, they did, and I told them I didn't think one would be necessary.

MR. UTZ: Any other questions of the witness?

BY MR. PAYNE:

Q How long a period of time do you wish to take these interference tests?

A We think we will have positive evidence of interference in a period of three to six months.

Q So you would have no objection to a time limit of six months?

A We would prefer not to set such a time limit because there is always a possibility we won't. We think we will have, certainly, the data, and we want to get started soon enough to take every opportunity to get it by the time of the hearing in October, but we think we will have positive evidence in three to six months.

BY MR. UTZ:

Q In the manner of conducting these tests, how do you propose to evaluate the pressures from your producing wells as well as your shut in well, or control well?

A Pressures will be obtained on the control well at regular intervals. Periodic tests will be taken on the producing wells as conditions permit, pressure tests.

Q Will you take bottomhole pressures?

A Yes, sir.

~~Q On the flowing wells as well as the shut in well?~~



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A I don't want to leave the impression we are going to take flowing bottomhole pressures, but static bottomhole pressure on the producing wells.

Q You don't intend to take flowing bottomhole pressures on the producing wells?

A No, sir.

Q If you don't do that how will you evaluate the pressure drop between the wells?

A We will observe it, simply observe the pressure in the shut in well, bottomhole pressure of the shut in well.

Q Show a certain decline?

A Yes, sir.

Q But you still won't know what the pressure drop is over the radius you are testing unless you took the flowing bottomhole pressures?

A We will know this: That the reservoir is being depleted at a rate that can be defined by the decline in pressure on the shut in well. Naturally, the pressure will be declining at a more rapid rate in the area where withdrawals are occurring, around the producing wells. The rate that we will observe in the shut in well will be the minimum rate of decline that occurs in this whole Section 21, .

BY MR. PAYNE:

Q Were all of these wells, shut in and the proposed wells you would transfer the allowable to drilled within a relatively



short period of time; they are all about the same age, aren't they?

A Yes, sir.

BY MR. UTZ:

Q Mr. Eaton, will that show the efficiency of drainage on 80 or 160, whatever the radius happens to be from your nearest well to this control well?

A When compared with pure volume estimates of oil in place, the decline in pressure on the shut in well should be an excellent tool to determine the efficiency with which the acreage in the vicinity of the shut in well was being depleted.

Q Even though there may be a two or three hundred pound difference between the well bore of each well?

A Yes, sir, because you see, the flow and bottomhole pressure characteristic is a rather unstable thing unless the well is conditioned enough that there is no fluctuation in producing rate and, therefore, bottomhole pressure characteristics. In other words, when you shut that producing well in the static pressure in that well should approximate the pressure that is obtained on the control well.

MR. UTZ: Any other questions?

REDIRECT EXAMINATION

BY MR. BUELL:

Q Mr. Eaton, to your knowledge, is Benson, Montin and Greer obtaining pressure data on producing wells or are they simply observing their control well like we propose to do?



A To the best of my knowledge they are only taking pressures on their shut in well, although they take, as we plan to do, periodic bottomhole pressures on their producing wells under static conditions. I don't believe they are taking flowing bottomhole pressures.

BY MR. UTZ:

Q On your producing wells, how long do you intend to shut them in for bottomhole pressures?

A Seventy-two hours.

Q Do you think that will obtain stabilization?

A We think that it will either be stabilized at that point or will have a sufficient degree of a build-up curve established that it can be extrapolated to represent stable conditions. We are confident that we can get a stabilized bottomhole pressure after seventy-two hours, either by extrapolation or actually having had it recorded.

MR. UTZ: Any other questions? Witness may be excused. Other statements in this case?

MR. BUELL: I would like to make this request, if I may, Mr. Examiner. If it is possible we would like to have temporary authority to initiate this test pending formal action on the hearing. We are facing this Commission-called hearing in October to prove up permanent rulings for the pool, and we would like to initiate the test just as soon as we possibly could.

MR. PAYNE: Mr. Buell, we will expedite the order, but all



the Examiner does is recommend to the Commission, either an approval or denial, and all orders are actually Commission orders.

MR. BUELL: I was hoping there might be some kind of temporary authority the Commission could grant pending formal action on the hearing here today. I just wanted to make that request, if that procedure was open to us.

MR. UTZ: I don't believe there will be anything we can do to prevent you from shutting in this well, but I doubt if we can give you permission to transfer allowables.

MR. PAYNE: Inasmuch as there is no emergency in the ordinary sense of the term.

MR. BUELL: It wouldn't classify as an emergency.

MR. PAYNE: We will certainly expedite the order.

MR. BUELL: Thank you very much. That is all we have, Mr. Examiner.

MR. UTZ: The case will be taken under advisement.

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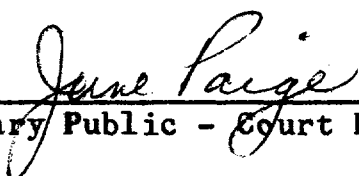
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STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO) ss

I, JUNE PAIGE, 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 1st day of February, 1961.



Notary Public - Court Reporter

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I N D E XWITNESSPAGE

GEORGE W. EATON, JR.	
Direct Examination by Mr. Buell	2
QUESTIONS by Mr. Utz	8
Redirect Examination by Mr. Buell	8
QUESTIONS by Mr. Payne	9
QUESTIONS by Mr. Utz	9
QUESTIONS BY Mr. Payne	10
QUESTIONS BY Mr. Utz	11
Redirect Examination by Mr. Buell	11
QUESTIONS by Mr. Utz	12

E X H I B I T S

<u>NUMBER</u>	<u>EXHIBIT</u>	<u>IDENTIFIED</u>	<u>OFFERED</u>	<u>ADMITTED</u>
Ex.#1	Location map	2	7	7
Ex.#2	Plat	5	7	7
Ex.#3	Tabulation	5	7	7

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 2166
heard by me on Jan. 25, 1961.

Shirley H. [Signature] Examiner
New Mexico Oil Conservation Commission

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