BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 27, 1966

EXAMINER HEARING

IN THE MATTER OF:

In the matter of Case No. 3002 being reopened pursuant to the provisions of Order No. R-2684-A, which order continued the original order for an additional year, establishing 320-acre spacing for the Fowler-Lower Paddock Gas Pool, Lea County, New Mexico.

Case No. 3002 (Reopened)

BEFORE:

Elvis A. Utz, Gas Engineer

TRANSCRIPT OF HEARING

MR. UTZ: Call Case 3002 (Reopened). In the matter of Case No. 3002 being reopened pursuant to the provisions of Order No. R-2684-A, which order continued the original order for an additional year, establishing 320-acre spacing for the Fowler-Lower Paddock Gas Pool, Lea County, New Mexico.

MR. BUELL: We have one witness, Mr. Howell.

MR. UTZ: Let the **record** show that Mr. Howell was sworn in the previous case.

MR. BUELL: Mr. Examiner, it might be well, with regard to this case, to briefly review some of the history. The temporary pool rules were first adopted by the Commission March 31, 1964, by your Order R-2684. These were temporary rules for a one year period and at that time we only had one gas well completed in the lower Paddock Gas Pool. The Commission called a review hearing in April of 1965. Unfortunately, at that time we still had this one lone gas well in the lower Paddock, and based upon our recommendation the Commission again continued the temporary rules for another 12 month period; that was done by R-2684-A.

Unfortunately, subsequent to the April 1965 hearing, Pan American has drilled and completed 3 wells in this reservoir. I say "unfortunately" because they are all oil wells, so actually what we're dealing here with, now, is not

a non-associated gas reservoir but rather an associated oil and gas reservoir, which we think is primarily and predominantly a gas reservoir with a small rim-type accumulation of oil. Therefore, today, viewing the type reservoir that we have and the well that we have in it, we would like to present evidence and testimony supporting pool rule recommendations that will go to the type reservoir we actually have.

We would like to, at this time, recommend an associated oil and gas pool rule recommendation. We recognize, certainly, Mr. Examiner, that the scope of the hearing as advertised on this docket does not cover a presentation of that kind. What we would like to do, and it's a plea that the Examiner heard a little earlier today, is to be allowed to present evidence and testimony on the recommendations and ask that the case be readvertised, sufficiently broad in scope, to cover associated oil and gas pool rules, and after it has been readvertised and when it's called at the readvertised docket, that the record of this hearing simply be incorporated into the record of that docket by reference.

I might point out to the Examiner that all four lower Paddock completions are within the South Mattix Unit which Pan American operates. There are no other operators

in this area that, at this time, have any lower Mattix completions.

I can certainly tell the Examiner at this time that I don't believe any operator in the area would object to this procedure.

MR. UTZ: The Examiner will hear this case as proposed by Pan American's counsel, and the case will be readvertised and called again at the May 27th hearing, at which time any interested parties may give testimony or make statements.

MR. BUELL: Thank you very much, Mr. Examiner.

(Whereupon, Applicant's Exhibits 1 through 6 marked for identification.)

* * *

R E X H O W E L L, a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BUELL:

Q Mr. Howell, state your name, by whom you are employed, in what location, and in what capacity?

A Rex Howell, employed by Pan American Corporation in the Lubbock District Office as a Reservoir Engineer and Section Leader.

Q Mr. Howell, you have previously testified before

this Commission and your qualifications are a matter of public record?

A Yes, sir.

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

MR. UTZ: Yes, sir.

Q (By Mr. Buell) Would you look first at what has been identified as Pan American's Exhibit 1?

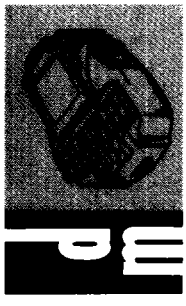
A Yes, sir. Exhibit 1 is an area map of the Fowler Area and shown by colored dots are the current completed production intervals of the different wells in this area. Also shown on this map in the heavy dashed blue line, is the outline of the South Mattix Unit in which Pan American is the operator. Other working owners are Continental, Standard of Texas, Atlantic and Tenneco.

Q How many separate reservoirs have produced in the Fowler Area?

A Eight that have produced. At the current time only 7 produce in the area. Now, the Drinkard is not productive in this area at the present time.

Q How have you distinguished the wells which are in the reservoir subject matter of this hearing?

A Shown in the lower Paddock in Section 16 there are three lower Paddock completions, 15, 2 and 22 which are



colored red.

Q Would you go now to what has been identified as Exhibit 2. What is that Exhibit?

A Again, Exhibit 2 is a map of the Fowler Area. On it is shown our present interpretation of the lower Paddock pay zone. Also shown on this map in the heavy blue line is the outline in yellow for the gas wells and red for the three oil wells shown on the Paddock completions. Also show is the approximate gas-oil contact based on production data.

Q How would you describe the structure of the lower Paddock reservoir which is reflected by Exhibit 2?

A The structure is an assymetrical anticline and this is similar to the other producing horizons in this area.

Q Look at Exhibit 3; what is that exhibit?

A Exhibit 3 is a North - South structural cross section. Included on it are the logs of the four lower Paddock completions. Each are hung on the subsea depth of minus (-) 1700 feet shown by the heavy dashed blue line. Also shown is the correlation of the top of the lower Paddock formation and pay, and top of the Blinebry pay. And also shown by each one of the wells is the current producing interval and the initial completion of the reservoir.

Also shown with the lighter dashed blue line at the subsea depth of minus (-) 1960, is the approximate depth of the gas-oil contact.

Q Mr. Howell, I've stated that I thought this was primarily and predominantly a gas reservoir, do you share that opinion?

A Yes, sir, I agree.

Q What has been our experience with these three oil wells we have recently completed?

A The three oil wells' potential have fairly low rates. It appears that all these oil wells will be marginal in nature.

Q Let's look at out next exhibit, Exhibit 4; what is that exhibit?

A This is a tabulation of the production data, both oil, water and gas, for all of the Fowler Lower Paddock completions.

Q These data more or less are self-explanatory, I don't think you need to read it all. Do you have any comments you would like to make about any of these data?

A The latest March production data on the individual wells indicate Well 9 is making 26 barrels of oil per day, per calendar day; Well 18, 8 barrels; Well 19, 19 barrels of oil per day.

Q Mr. Howell, look next at what has been marked as Pan American's Exhibit 5 and 5A, companion exhibits, and state for the record what 5 and 5A is.

A Exhibits 5 and 5A plot the bottom hole pressures in the Lower Paddock Pool. Where Attachment 5A is, is a tabulation of the same plotted pressure data.

Q Sticking now with Exhibit 5, what significant data are reflected on that exhibit?

A On Exhibit 5 is shown the initial reservoir pressure of the lower Paddock formation which was measured on December 10, 1963. Its initial pressure at the pool data of minus (-) 1912' subsea, was 2214 psi.

Also shown is the initial pressure on our South Mattix 19, which was 1911 psi, also at the same datum measured in May of 1965.

Q The initial pressure on the subsequently completed well was how much lower than virgin reservoir pressure?

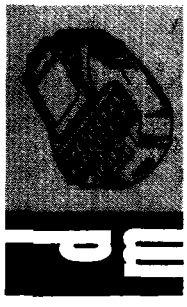
A 303 pounds.

Q How far away was that subsequently completed well Number 9 from the discovery well, Well Number 16?

A Number 9 is about 3600 feet North of Well 16.

Q What is the area of the circle, the radius of which is 3600 feet?

A It would be in excess of 900 acres.



Q These data show that we were having pressure interference over an area of 900 acres?

A Yes, sir.

Q What other data are on this exhibit?

A The last point shown to the right on Exhibit 5 is the initial pressure measured in our South Mattix Well 18, which is 1828 psi, also at a datum of 1912 feet.

Q How much below virgin pressure was that, and how far before the nearest producing well is Well Number 18?

A I believe that's 386 psi lower than the initial reservoir pressure. This well is located about 3,000 feet South of Well Number 16.

Q What is the area of the circle, the radius of which is 3,000 feet?

A In excess of 600 acres.

Q Again, we see by pressure interference data that one well has the ability to drain a tremendous area?

A Yes, sir, that's correct.

Q Do you have any other comments you would like to make on 5 or 5A?

A No, sir.

Q Look then, at Exhibit 6, which contains the rules that you're recommending here, today. Again, in the interest of time and in order not to burden the record, I wish you

would summarize for the record what you feel are the more important rules.

A All right, sir. Since we have both oil and gas wells in this field I'm recommending rules that I think will take care of both situations. I would like to recommend that the gas well be classified as a well that is producing with a gas liquid ratio of 50,000 cubic feet of gas or more.

Q Why do you recommend 50,000 to 1 as a breakover point?

A It appears that once a well starts making or producing with 50,000 cubic feet per well, it's predominantly a gas well.

Q Go ahead.

A If it produces less, it's to be classified as an oil well. I would recommend that proration units of 320 acres be set up for the gas wells and 80 acres for the oil wells, with a proportional factor of 2.33 for allowable purposes for the oil wells, and recommend that acreage cannot be simultaneously dedicated to an oil and gas well, nor can a well be dually completed to produce gas from the Fowler Lower Paddock Gas Pool.

I recommend that, and then finally I would recommend that the maximum allowable for a gas well shall be equal to four times the top allowable gas limit for an oil

well.

Q With interference data of the magnitude reflected on Exhibit 5, why are you recommending 320 acre gas units and not 640 acre units?

A Refer to Exhibit 2, showing the approximate gas-oil contact of minus (-) 1960, neither in Section 15 or 22 do we have 640 acres strictly productive of gas. I believe that future completions in the Lower Paddock will be the result of the other wells completed in the lower horizon.

Q So your 320 gas unit recommendation will not result in drilling unnecessary wells?

A No, sir, it will not.

Q Let me ask you a question about a limited gas-oil ratio for oil wells. Do you think that under the performance of oil wells this ratio is justified?

A Yes, sir. Refer to Exhibit 4, which shows the gas-oil ratio history of the oil wells, and note that all the gas-oil ratios have increased on the wells. Therefore, since we do have a gas cap in this area, that the oil wells will produce at a farily high limit. So I believe 6,000 cubic feet limit is a practical number to use.

Q Do you feel that these recommended rules will serve conservation as well as protect the Correlative Rights of the interest owners?

A Yes, sir, I believe our data show that one well in this reservoir can effectively drain 320 acres for gas and 80 acres for oil. I believe that the reservoir is principally and predominantly a gas reservoir. These rules have taken these facts into consideration and I believe they form a basis for developing and depleting this associated gas reservoir in a manner that will serve conservation.

Q Do you have anything else to add at this time?

A No, sir.

MR. BUELL: That concludes our direct testimony and I would like to offer Pan American's Exhibits 1 through 6.

(Whereupon, Applicant's Exhibits 1 through 6 offered into evidence.)

MR. UTZ: If there are no objections they will be admitted.

(Whereupon, Applicant's Exhibits 1 through 6 admitted into evidence.)

CROSS-EXAMINATION

BY MR. PORTER:

Q What was your recommendation for the gas-oil ratio?

A 6,000 for an oil well, sir.

CROSS-EXAMINATION

BY MR. UTZ:

Q Mr. Howell, I note that your Number 9 was 2269 and your 18 was 59,506, and 19 was 3,693?

A Yes, sir.

Q Now, according to your definition here, then, the Number 18 would also be a gas well?

A Yes, sir, that's correct.

Q What acreage would be dedicated to Number 18?

A When Well 18 was going to be developed we had a hearing to get an unorthodox gas proration unit; we were drilling that well again as a gas well; we were going to use the well in the upper 40 acre tract in Section 22.

Q The North half?

A Yes, sir, plus the North half of the Southeast Quarter --

Q I see.

A -- which would have been 320 acres. This was approved by the Commission, however the well resulted, initially, as an oil completion. I think if the well is reclassified as a gas well, then we would recommend that, essentially, the East half be included as the proration unit for the gas well with the 80 acres around Well 19, being dedicated to the oil well.

Q A 280 acre unit?

A Yes, sir, that's correct.

Q In regard to the Number 19 Well, then, I presume the West half of the Northwest Quarter?

A Yes, sir, that would be correct.

Q How about the Number 16?

A At the present time the South half of Section 15. 320 acres is dedicated to this gas well.

Q Do you think that 320 acres is productive?

A Yes, sir.

Q How about Number 9?

A Number 9, we probably dedicated the North half of the Northeast Quarter to that well.

Q Then you probably will recomplete either the 10 or 17?

A Yes, sir, possibly.

Q Looks like the whole Northeast of the North half is productive.

A Yes, sir.

Q Where do you think the productive limit is, of this structure?

A I don't know, sir. Only the four wells we've got as completed have tested the lower Paddock. We have not encountered volumes and I do not know where the productive limits end.

Q What would be the normal unit allowable on 80 acres?

A 2.33 acreage based on a 44 barrels per day. A month would be 103 barrels of oil per day.

Q You were asking for 6,000?

A Yes, sir.

Q So an 80 acre gas well allowable will be 618 MCF per day?

A Yes, sir.

Q And 320 would be four times that?

A Yes, sir.

Q Almost 2-1/2 per day?

A Yes, sir.

Q Let me hear, again, why you think you should have the 6,000 ratio in this pool?

A I believe the 6,000 ratio is needed so that the oil wells can be produced as long as possible, at as high a rate as possible. You note the gas-oil ratio on all three of these wells have increased. On well 9 it's 2269; on well 18, it will be reclassified as a gas well, but it has increased from 700 to essentially 60,000; and Number 19 is up to 3693 feet per barrel. Also, this is the current gas-oil ratio limit for the Fowler Blinebry Pool which is the next producing horizon under the Lower Paddock.

Q If the gas allowable established by 6,000 GOR should prove to be higher than it should be in order to maintain a constant gas-oil contact, how would you determine it, determine that situation in the way these wells were spaced here?

A Actually determine the movement of the gas-oil contact?

Q Yes, sir.

A I think this would just totally depend on the producing characteristics of the well. Of course, the original contact was not established, it was based on the information on the Number 16, which was a gas well, and Well 18, which was the next highest completed well. Therefore, it indicates that it's not lower than 1960 feet but it's pretty close to that. For movement of gas-oil contact, I think we would just have to watch the individual well performance. The other wells are fairly low down-structure and it will probably be a long time before the gas cap would expand out to that.

Q If Number 18 were to decrease it would be a pretty good sign that the oil was moving up structure?

A Yes, sir, it would.

Q How much production do you have out of the 18 at this time?

A Total production, I would guess, sir, about 3,000 barrels.

Q It's a relatively new well?

A Yes, sir.

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

RECROSS-EXAMINATION

BY MR. PORTER:

Q Mr. Howell, I'm sorry, I was out for a moment. What was your recommendation for the definition of a gas well?

A A gas well shall mean a well producing from within the vertical and horizontal limits of the Fowler Lower Paddock Pool which produces with a producing gas liquid ratio of 50,000 cubic feet of gas or more per barrel of liquid hydrocarbons.

Q Two of them would be gas wells?

A Yes.

Q Also, you referred to the Fowler Blinebry Pool as having a gas-oil ratio limitation of 6,000 to 1?

A Yes, sir, that's correct.

Q Is that defined as an oil pool?

A Yes, sir.

Q Does it have any gas wells in it at all?

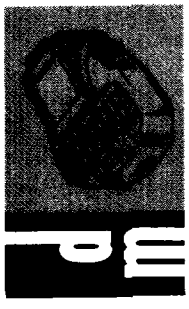
A No, sir, it does not.

MR. PORTER: That's all I have.

MR. UTZ: The witness may be excused. Are there any other statements in this case? We have quite a number of communications from people who show approval and others who have discovered that Pan American was changing the rules on this case. Texas Standard Oil Company, Division of Chevron Oil Company concurs; Tenneco concurs; Continental concurs; and Atlantic Concurs.

Are there other statements in this case? The case will be taken under advisement and the hearing is adjourned.

(Whereupon, the hearing was adjourned at 3:00 o'clock P.M.)



I N D E X

E X H I B I T S

NUMBER	MARKED FOR IDENTIFICATION	OFFERED	ADMITTED
Applt's. 1	4	12	12
Applt's. 2	4	12	12
Applt's. 3	4	12	12
Applt's. 4	4	12	12
Applt's. 5	4	12	12
Applt's. 6	4	12	12

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, BOBBY J. DAVIS, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 15th day of May, 1966.

NOTARY PUBLIC

My Commission Expires:

March 13, 1969.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3602, heard by me on Apr. 27, 1966.

, Examiner
New Mexico Oil Conservation Commission