BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
February 19, 1964.

EXAMINER HEARING

IN THE MATTER OF:

In the matter of application of Socony Mobil Oil Company, Inc., for the abolishment of an existing pool and the creation of two new oil pools, and for special temporary pool rules, Lea County, New Mexico.

Case No. 2997

BEFORE: ELVIS A. UTZ, EXAMINER

TRANSCRIPT OF HEARING

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
February 19, 1964

EXAMINER HEARING

IN THE MATTER OF:

Application of Socony Mobil Oil Company, Inc., for the abolishment of an existing pool and the creation of two new oil pools, and for special temporary pool rules, Lea County, New Mexico.

CASE NO. 2997

BEFORE: ELVIS A. UTZ, EXAMINER

TRANSCRIPT OF HEARING

MR. UTZ: Case 2997.

MR. DURRETT: Application of Socony Mobil Oil Company, Inc., for the abolishment of an existing pool and the creation of two new oil pools, and for special temporary pool rules, Lea County, New Mexico.

MR. SPERLING: Jim Sperling of Modrall, Seymour, Sperling, Roehl & Harris, Albuquerque, appearing for the applicant. We have one witness, Mr. Examiner.

MR. UTZ: Are there other appearances?

(Witness sworn)

R. L. FLOWERS, JR.,

called as a witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. SPERLING:

Q State your name, please?

A R. L. Flowers, Jr.

Q Where do you live and by whom are you employed and in what capacity, Mr. Flowers?

A Hobbs, New Mexico, employed by Socony Mobil Oil, Inc.

Q And what is your position?

A Production Engineer.

Q Have you testified on previous occasions before the Commission and are your qualifications a matter of record?

A Yes.

Q All right.

MR. SPERLING: Are his qualifications acceptable?

MR. UTZ: Yes, sir, they are.

Q (By Mr. Sperling) Mr. Flowers, are you familiar with the application filed in this case on behalf of Socony Mobil Oil Company, Inc.?

A Yes, I am.

Q What is proposed by the application?

A Socony Mobil wishes to establish a Vacuum Lower Penn field, which will have horizontal limits of the East Half of

Section 26, Township 17 South, Range 34 East. The subject East Half of Section 26 contains Socony Mobile's State Bridges Number 96 and Number 98 wells, which produce from a lower Penn reservoir, and approximately 11,400 feet in depth.

Q Now, Mr. Flowers, would you please refer to what has been marked as Exhibit Number One, and tell us what that portrays?

A Exhibit Number One is a base map which shows all wells producing from the Vacuum Penn Field. To enumerate these wells, the ones marked in blue are the Penn producers, and there is quite a difference in horizontal extent between the State Bridges lease and the other three producers, which are owned by Texaco. Texaco State "Q" Number 4 and their Number O-18 and their O-17 are the Penn producers there. Number 11 tested this zone at an initial potential, but it was then plugged back and did not have any other production. Other wells which have penetrated this zone are Continental's Number Seven in Section 35, 17-34, and Marathon's Number Five and Seven in Section 25, 17-34, and Tidewater's Number 6-F in Section 36, 17-34, and Texaco's State "M" Five and Seven in Section One of 17-35, and Number State L-6, Texaco, in the same section. Number One, 17-35- - 18-35. If I stated 17, I am sorry.

Q Well, now, Mr. Flowers, the wells which are described in the application are shown, I believe, in the East Half of Section 26 and are designated respectively as Mobil State Bridges Number 96 and 98; is that correct?

A Yes, sir.

Q And these wells are currently producing from the Vacuum Penn Field as presently designated; is that right?

A Yes. Exhibit Number Two is a cross section which shows all wells presently completed in the Vacuum Penn Pool. You will note the section covered here in the lower right-hand corner is an AA Prime cross section. This cross section shows three producing wells from an Upper Penn just below the base of the Wolfcamp reservoir. And this- - These are Texaco's State "O" Number 17, "O" Number 18, and State "Q" Number 4. And on the left-hand side, we have State Bridges Number 98, producing from a zone below 11,400, and State Bridges Number 96, producing from the same zone at a little different depth, somewhere below 11,300.

Q Well, then, as I understand it, there is approximately 1,000 feet of vertical separation between the Texaco wells to which you have referred, and which are shown on the cross section, and the Mobil State Bridges Number 98 and 96; is that correct?

A Yes. Our State Bridges Number 95 has been used as a type log for this area. However, because Well Number 95 does not have a full section of the lower Penn, Socony Mobil wishes to submit Well Number 96 as a type log for this reservoir. Socony Mobil recommends that the vertical limits of the lower Penn Field be defined at an interval of 11,292 feet to 11,492 feet, which is the top of the Mississippi.

From the type log of the State Bridges Number 96, this

log is submitted as Exhibit Number Three, I wish to point out here that Socony Mobil has attempted to limit the vertical limits of this lower reservoir as much as possible. The member we are interested in is a fairly clean section. It is not clean in lithology, but in character. And you can see from the full cross section, it is correlated, I believe, through this area, however, the sand that is a producing member is not present in all wells. There has been no other production developed in Texaco's leases, or other operators, and there have been 15 wells penetrated this zone.

Q Now, as I understand your testimony, only the two Mobil wells,which you described in the application, that is, the Bridges 96 and 98, those are the only wells in this lower section which is some 1,000 feet below the other Penn section, from which the other wells that you have referred to are producing?

A Yes.

Q Now, would you refer to Exhibit Number Four, and tell us what that is?

A Exhibit Number Four is reservoir data on the Vacuum Penn, lower Penn. I should qualify that as the lower Penn. The formation is Morrow, the net pay is approximately 28 feet, and the estimated formation volume factor is 2.7. Estimated solution gas-oil ratio is 3900 to one, the formation temperature is 140 degrees, the oil gravity is 50 degrees API, the estimated bubble point pressure is 6,450 PSI, the crude being produced is a high gravity. It is

saturated crude, which means that the pressure is below the bubble point. The initial GOR is believed to be 3900 to one. Exhibit Number One- - Five and Six will show that the GOR is increasing at a rapid rate. And the wells will be penalized throughout the remaining life if the 6,000 to one ratio is not permitted. The GOR is expected to climb, thus continually reducing the oil allowable. Socony Mobil is permitted the top allowable at the present time of 222 barrels of oil per day. The State Bridges Number 96 has top allowable because of the 5,000 to one GOR, limited, which is effective February 5, 1964. The well is not capable of producing top allowable at this time. Exhibit Five is test summary. You will note the special test at the bottom dated 2-14-64. This well flowed- - 96 flowed 113 barrels new oil, no water, in 24 hours, on a 13/64ths choke, and a GOR was 9740 to one.

Exhibit Number Six shows the only two tests we have on State Bridges Number 98, which is a fairly recent completion. The date of the last test was the 2-10-64. This well flowed 156 barrels of new oil and no water in 24 hours on a 16/64ths choke. The GOR was 8,551 to one. There is no evidence of gas cap at this time.

Q What is the reservoir mechanism?

A It is solution gas.

Q Now, would you please refer to Exhibit Number Seven and tell us what that indicates?

A Exhibit Number Seven shows first of all that the reservoir

is not rate sensitive. Wh en you combine this data with a later exhibit, this exhibit, Number Seven, shows pressure versus accumulative production for the Vacuum Penn reservoir. This shows the anticipated recovery from the lower Penn reservoir. This type of plot has been used successfully in predicting recovery in similar Penn reservoirs. It shows the expected recovery which is small. Recovery will be a function of the reservoir pressure. The rate at which this reservoir is produced will not affect the oil or gas recovery.

Exhibit Number Eight covers the same data, but it does include the date at which the pressure measurements were made along with the accumulative production. It is to be noted that during the period of 4-19-63 to 6-1-63, approximately one and one half months, 9,200 barrels of oil were produced. During the period of 6-1-63 to 7-19-63, approximately one and one half months, 9,000 barrels of oil were produced. During the last period from 7-19-63 to 1-6-64, approximately eight months- - six months, only 20,300 barrels of oil were produced. Therefore, although the rate of production was approximately one half the rate during the previous two periods, the rate on decline on the pressure versus accumulative, plotted on Exhibit Seven, did not improve. Thus, showing that the reservoir is not rate sensitive. Socony Mobil will suffer economic waste if a 6,000 to one GOR limit is not permitted, because of the prolonged producing life due to a penalized allowable, which is caused by limited gas allowable.

Q Now, Mr. Flowers, we have already established that the two Mobil wells are the only wells which are producing from this particular reservoir that you have been discussing and that you have explained. What do you anticipate so far as extension of the horizontal limit is concerned in view of the unsuccessful attempt to test this particular formation in the other wells that you have referred to?

A I don't think I got all your question there. I am sorry.

Q Well, do you think that the horizontal limits which you describe now as encompassing the East Half of Section 26, are going to be expanded any or is this the reservoir that we are concerned with in this hearing?

A Well, our plot here shows the two wells which already are in this zone, are draining the reservoir in its entirety. The feasibility of drilling another well is very questionable.

Q What recommendations are you making with reference to the special rules which you have requested be adopted as a result of this application and hearing?

A Socony Mobil requests special pool rules be adopted for the proposed pool providing for a limiting GOR of 6,000 cubic feet of gas per barrel of oil produced. We are also proposing 80 acre spacing. It is requested for the lower Penn reservoir because the reservoir does not have sufficient reserves to justify drilling a single lower Penn well, it is apparent, from the

initial bottom hole pressure of the State Bridges Number 98, which is given as 105 hour bottom hole pressure,entry of 1-1-64, Exhibit Number Eight. This pressure was 4,680. This was the original pressure on 98. The drainage of the reservoir was taking place with the Well Number 96, and no reserves were added by drilling the second well. Therefore, Socony Mobil requests 80 acre spacing units for the proposed Vacuum Lower Penn Pool.

Q I assume from your testimony, Mr. Flowers, that in your opinion, the reservoir which you have described as the Lower Penn Reservoir is a separate and distinct reservoir from that from which the Texaco wells, that appear on your cross section, Exhibit Number Two, are producing?

A Yes, they are.

Q Do you have anything further you wish to add?

A I would like to add that waste should not occur due to this 6,000 to one GOR limit. All the gas is being sold to Phillips' Buckeye Plant. I believe that is all.

Q Were Exhibits One through Eight, I believe, prepared by you or under your supervision?

A Yes.

MR. SPERLING: We offer One through Eight at this time, Mr. Examiner.

MR. UTZ: Without objection, Exhibits One through Eight will be entered into the record of this case.

MR. SPERLING: That is all we have at this time.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Flowers, your Exhibit Number Four shows an estimated solution gas-oil ratio of 3900 to one. Now, is that from a reservoir sample?

A No, sir, it is not. It is from the original measurements which were- - on our potential test on Exhibit Number Five of this well.

Q Exhibit Number what?

A Number Five. The potential test on the 4-15-63. This well had a GOR of 3876.

Q Isn't it true that producing GORs are usually higher than solution GORs?

A In this- - Due to our data here, we looked at all the zones, or all the tests, I am sorry, and derived that approximately 3900 fit our data the best. Now, in reference to the bottom hole sample, surface samples are sometimes used in the surface measurements, they are used normally for the solution GOR.

Q But, the reservoir or solution GORs usually are lower than producing GORs, are they not?

A Possibly.

Q What is your, or what was your initial bottom hole pressure on this well?

A I believe Exhibit Eight shows the original pressure we

took from the DST, on Well 96, and the plot, Exhibit Number Seven, will show that there is a possibility of some error there because the DST extrapolating backward looks like it might be a little high. It should be approximately in the neighborhood of 6500, perhaps 6450.

Q So, the reservoir,even at the initial stages, are practically at the bubble point?

A Yes, sir.

Q So, any pressure reduction from now on will tend to increase GORs and would you attribute that to the reason why your GORs are going up as the reservoir is produced?

A Yes, it is. It would be physically impossible, I believe, to lower the GOR.

Q What size tubing are you producing these wells through?

A I believe that 98 is producing from a string of 2 3/8ths, tubingless well. 96 I am not sure. I believe it is in the neighborhood of two inch tubing.

Q So, as far as flow efficiency is concerned, there is not too much you can do to help that either, is there?

A No, sir.

Q Now, you made a recommendation as to the type log and vertical limits, is the Lower Penn- -

A Yes, sir.

Q - -that you asked to be designated? How about the Upper Penn?

A The Upper Penn is being produced by Texaco, and it is my understanding they plan a hearing in the very near future to set the limits on this Upper Penn.

Q Neither of these wells are completed in the Upper Penn?

A No.

Q Is the Upper Penn productive in either of these wells?

A Not to my knowledge.

Q Have you - - I got the impression that these were multiple completions. Are they single completions?

A Both wells are multiple compltions. Number 98 is a dual with the Wolfcamp. Number 96 is a triple in the Lower Abo, and Wolfcamp, as well as the Lower Penn.

Q Does the present Vacuum Penn Pool encompass the East Half of Section 26 horizontally?

A I don't know.

MR. SPERLING: Yes, I think so.

A I don't believe I have the data on that.

Q (By Mr. Utz) Well, if it does, you are requesting that that portion be deleted from the present pool limits; is that right?

A Yes.

Q And that new horizontal limits be established for a Lower Penn Pool?

A Yes, sir.

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

MR. DURRETT: Yes, sir, I have a question.

CROSS EXAMINATION

BY MR. DURRETT:

Q Now, Mr. Flowers, what you are really seeking to do is abolish the Vacuum Penn Pool as it now exists; is that correct, and to redesignate what is now the Vacuum Penn Pool as the Vacuum Upper Penn Pool, deleting from that pool the East Half of Section 26, and creating a new pool comprising the East Half of Section 26, which is - - you desire to be designated as the Vacuum Lower Penn?

A I believe it is a little fuzzy as to the definitions of the dividing line. The old Vacuum Penn was determined and the type log Number 95, which did not cover the entire Penn section, the entire section of the Penn was not in that well. Therefore- -

Q On the horizontal limits as determined from that log, your two wells in the East Half of Section 26 were included?

MR. SPERLING: They were in the Vacuum Penn.

Q (By Mr. Durrett) Well, am I correct in stating that you don't care what anything else is called except the East Half of 26, you would like it called the Lower Penn, Vacuum Lower Penn, correct?

A Yes, I would.

Q And you would like the Commission to designate the rest of the area that was formerly the Vacuum Penn as something that won't be confused with your new pool?

A Yes, sir.

Q All right.

MR. SPERLING: Just so they are designated as separate pools.

A We have tried to keep the limits as small as possible, the vertical limits as well as horizontal.

Q (By Mr. Durrett) You desire to pick the vertical limits of your new pool off the cross section?

A Or the type log as marked.

Q One additional question, are you familiar with this entire area here, the three or four sections offsetting the Section 26?

A Fairly well.

Q Didn't we just recently grant a GOR exception for some well in that area?

A Well Number 96.

MR. SPERLING: Order Number 2647.

Q (By Mr. Durrett) 2647.granted an exception?

A Yes, sir, 5,000 to one limit.

Q And that was for your Well Number 96, which is also the subject matter of this case?

A Yes.

Q 5,000 to one?

A Granted. We asked for six.

Q You asked for six, we gave you five?

A Yes, sir.

MR. DURRETT: Thank you.

* * *

RECROSS EXAMINATION

BY MR. UTZ:

Q You have already proven, have you not, through the drilling of Number 96 and Number 98 that the Upper Penn is not productive in the East Half of Section 26; is that true?

A Is not productive in the Upper Penn? No, I don't believe it is.

Q Did you DST it, try to complete it?

A We did not try any completions.

Q So, actually, you are not sure?

A We are not sure, but we tried 98 pretty thoroughly in everything that had shows, we ended up with a dual, and it was originally planned as a triple.

Q Now, you asked for the East Half of Section 26 to be designated as the Lower Penn Pool and you are also asking for 80 acre spacing. You have stated that you didn't intend to drill any more wells in the East Half of Section 26, so is there any good reason why the North Half of the Northeast Quarter and the South Half of the Southeast Quarter should be included in the pool?

A No.

MR. UTZ: Other questions? The witness may be excused.

Are there other statements in this case?

MR. WHITE: Charles White of Gilbert, White & Gilbert of Santa Fe, appearing on behalf of the Texaco, Inc., as one of the interested operators in the subject area, andthey fully support Socony Mobil's application, and further concur in the proposed rules.

MR. UTZ: You didn't ever give a recommendation, did you, for a pool name?

A Lower.

MR. SPERLING: Lower.

MR. DURRETT: Vacuum Lower.

MR. UTZ: Take the case under advisement.

* * * *

STATE OF NEW MEXICO)

COUNTY OF BERNALILLO)

I, ROY D. WILKINS, 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 of Office, this 29th day of February, 1964.

My Commission Expires: NOTARY PUBLIC
September 6, 1967

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2982 heard by me on Oct. 9, 1964.

....., Examiner
New Mexico Oil Conservation Commission

DEARNLEY, MEIER, WILKINS and CROWNOVER
General Court Reporting Service
Suite 1120 Simms Building Albuquerque, New Mexico Phone 243-6691