BEFORE THE
OIL CONSERVATION COMMISSION
MABRY HALL
Santa Fe, New Mexico
October 19, 1960

EXAMINER HEARING

IN THE MATTER OF:

Application of Pan American Petroleum Corporation for permission to commingle the production from two separate pools. Applicant, in the above-styled cause, seeks permission to commingle the Denton (Devonian) and Denton (Wolfcamp) Pool production from two wells on the W. H. Fort "A" lease comprising the E/2 of Section 25, Township 14 South, Range 37 East, Lea County, New Mexico, without separately metering the production from each pool. Case 2107

BEFORE:

Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. MORRIS: Application of Pan American Petroleum Corporation for permission to commingle the production from two separate pools.

MR. MALONE: Charles Malone of Atwood and Malone, Roswell, New Mexico, appearing on behalf of Pan American. We have one witness, Mr. Sandidge, Jr. If it please the Commission, this application was erroneously filed and advertised as including the entire east half of Section 25, Township 24, 37, whereas in fact it involves only the southeast quarter and we do have a waiver in our exhibit from the working interest owner of the west half of the east half and would move that the consideration of the application be limited to the southeast quarter.

MR. NUTTER: We are narrowing the scope of the hearing rather than broadening it. The limitation will be so amended. Let's see, the southeast quarter only.

MR. MALONE: Yes, sir.

MR. SANDIDGE, JR.

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

DIRECT EXAMINATION

BY MR. MALONE:

Q You are W. J. Sandidge, Jr.?

A That is correct.

Q You have not previously testified before the Oil Conservation Commission in New Mexico, will you state your educational background.

A I graduated from Texas A&M College and have a degree as Petroleum Engineer.

Q How many years of experience and what capacity?

A I have about 14 and a half years actual experience in petroleum industries in various capacities in Oklahoma, Texas, North and South Louisiana, Arkansas, Mississippi and in New Mexico.

Q You are testifying here as an employee of the applicant, Pan American.

A I am.

Q What is your title for Pan American?

A I am an operation section leader in the Operation Section of Pan American, Lubbock District, I have jurisdiction over its production in Southeast New Mexico.

Q Including Lea County?

A It includes Lea County.

Q Have you prepared an exhibit to substantoate your application?

A I have.

MR. MALONE: Does the Commission desire more than two copies?

MR. NUTTER: Two will be sufficient. This will be all one exhibit, is that correct?

MR. MALONE: Yes, those are identical copies of the same exhibit.

Q (By Mr. Malone) Mr. Sandidge, was this Exhibit 1 of Pan American prepared by you or under your direct supervision and control?

A It was.

Q What is the purpose of this application?

A To obtain Commission authorization to commingle crude production from the Denton (Devonian) Reservoir and the Denton (Wolfcamp) without prior metering.

Q Where will this be done?

A If you will refer to an attachment 1 in the exhibit which is a map of the Denton field, it will be done on Pan American's W. H. Fort Lease up in the northeastern portion of the map which is previously located in the southeast quarter of Section 25, Township 14 South, Range 37 East.

Q What is the present nature of those two wells that are shown in the red outline?

A The southeasternmost well is the Fort "A" No. 1 which is a

Devonian completion producing at a rate of approximately 17 barrels of oil per day and 11 barrels of water per day. Well No. 2 as marked by the green dot, which has pencil marks on it, is presently a shut-in Devonian completion and it has reached an uneconomical producing rate. Pan American proposes to re-complete this well in the Wolfcamp formation.

Q And I believe at first it was a Devonian Well.

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Q What is the top allowable for the Devonian Wells on that lease?

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Q Who are the off-set operators.

A Sinclair operates the lease to the south and to the southwest, Shell operates the lease to the west and northwest, Pan American operates the one well lease to the north which is designated the W. H. Fort "B" Lease.

Q And there are no operations to the east of it at all?

A The acreage east is undesignated.

Q Entries 3 and 4 of your exhibit are waivers from Sinclair and numbers 5 and 6.

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Q Why do you wish to commingle this production?

A Commingling of production will permit the use of the existing hydraulic artificial lifting, utilizing tank batteries.

Q What is the name of that equipment?

A It's Polar Cobe equipment. Cobe is the leading manufacturer of that type of equipment.

Q Is that equipment injection oil to bring back more oil, is that correct?

A Yes, sir. We commonly designate the oil that is injected as power oil.

Q Power oil?

A Power oil.

Q What is the recent production history in these two wells in their condition in the Devonian?

A As I previously mentioned, Well No.2 has been shut-in due to uneconomical production. It was shut-in in March after producing approximately 34000 barrels of oil. Well No.1 is producing at a rate of approximately 17 barrels of oil per day and 11 barrels of water. It has cumulative production of approximately 115,000 barrels.

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Q What is the top allowable for the Wolfcamp there?

A The top allowable for the Wolfcamp in this field is 125 barrels of oil per day.

Q How much will the procedure which you have outlined in your application save Pan American if this application be granted?

A We estimate that we will save approximately $24,000.00 if we utilize the existing facilities.

Q Would an expenditure of that amount be justified on this lease without this proposed procedure for which you are applying?

A In my opinion, it would not be justified. We propose to spend an additional $7600.00 to re-complete Well No. 2 in the Wolfcamp. In view of the marginal nature of this lease, our management is of course very anxious to get expenditures to an absolute minimum.

Q How do you propose to allocate production to each of these reservoirs?

A We propose to allocate production to each reservoir on the basis of periodic well tests.

Q Now, then, at this point the lease ownership is common on this southeast quarter of Section 25, is it not?

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A If you will refer to attachments 2, 3 and 4, we have

demonstrated schematically how they will be produced. Attachment 2 shows the schematic flow pattern while producing normally without any test in operation and effect. In the lower left portion of the attachment, we have shown diagrammatically the power oil manifold. Power oil will come to this manifold from the tri-plex power oil pump and will pass it to the power oil line, to the pipeline through the control section and out section. Power oil will be designated in brown on the drawing. If you will look at the upper portion of the diagram, we have drawn a flow line coming from the individual wells to the testing manifold, the valves at the manifold will be set in such a position that the power oil and production oil from both wells will be commingled at this manifold and will pass there from through the treater and thence into the tank battery where it will first enter the power oil supply tank, that is not shown on the exhibit.

For testing of Well No. 1, the Devonian completion if you will refer to attachment No. 3, power oil again will come from the power oil supply pump; instead of passing through the control section for Well No. 1, the control section for that well will be closed. The power oil will be diverted through the power oil meter loop and thence to the power oil line to Well No. 1. This will afford a measure of the oil that is pumped into Well No. 1, to operate the hydraulic pump. Power oil then will become power oil and production well will come from Well No. 1 into the testing manifold where it will be diverted upward through the manifold, through the treater, where the water will be eliminated and thence back to this manifold around the testing meter. It will pass through the meter where the running power oil production oil will be measured. We can deduct the oil

we pump in from the oil metered there and determine the amount of production oil made on that particular test. If you will refer to an attachment number 4, that will show schematically how we will test the Wolfcamp Well. Essentially the flow pattern is similar, the power oil passing again through the meter loop and thence to Well No. 2. Power oil and production oil from Well No. 2.will come to the testing manifold instead of going through the treater and will pass through a test separator and thence through the testing meter in the upper portion of the drawing. There again, we will deduct the amount of oil pumped in from the amount of power oil and production oil recovered and make a correction for any BS & W noted and that will be our test from that well. I neglected to mention on the test that while one well is being metered, the production from the other well will continue and will pass directly to the battery.

Q Is it correct that there will be no commingling within the well bores, instead it will occur at the surface.

A All commingling will be affected on the surface.

Q And your attachments show that there is metering available on each well for use.

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Q What policy has Pan American on testing production of its wells, how frequently is it done?

A As a general policy, we test every well in the company at least quarterly. If the pumper or production forman feels he needs additional test data, he performs it, at need.

Q Attachment number 5 and 6 have been mentioned, is there anything else about the exhibit which you wish to explain to the Commission?

A I have nothing further to add.

MR. MALONE: We would offer this exhibit.

MR. NUTTER: Pan American's Exhibit 1 will be admitted.

Q (By Mr. Malone) Will any price differential result from the commingling?

A Well No. 1, the Devonian Well, produces 44 API gravity oil, an average of the gravities of 10 of the Wolfcamp Wells near this lease indicates that Well No. 2 when it's re-completed from the Wolfcamp will produce 41 degree gravity oil. The purchaser, Independent Oil Purchasing Company, pays $3.01 from oil photographs from 40. degrees API through 44.9 degrees API. Therefore, there will be no price differential involved.

Q Would Pan American re-complete Well No. 2 in the Wolfcamp if this exception is not granted?

A I can't answer definitely for the management of the company. Of course, however, I would like to emphasize the very marginal nature of this lease. We have approximately $450,000.00 invested in the two wells plus our initial lease equipment plus the tank battery and to the first of 1960, our cumulative recovery from both wells has been only 145,479 barrels of oil. Our operating cost during the year 1959 was $407.88 per well per month. So for that reason, you can see we are very anxious to get our expenses on the lease to the minimum.

Q Has Pan American made a study of oil reserves in the

Devonian No. 1 and Wolfcamp No. 2, if so, what does it show?

A Our reserve studies indicate remaining reserves of 25,000 barrels from the Devonian for Well No. 1. We estimate reserves of 20,000 barrels for Well No. 2.

MR. NUTTER: is that the Wolfcamp?

A In the Wolfcamp.

MR. NUTTER: How much?

A 20,000.

Q (By Mr. Malone) Correlative righes are protected by this application, are they not?

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MR. MALONE: That concludes the questions that I have to the witness, Mr. Examiner.

MR. NUTTER: How do you spell your name?

A S-A-N-D-I-D-G-E

MR. NUTTER: Are there any questions of Mr. Sandidge?

CROSS EXAMINATION

BY MR. MORRIS:

Q I am a little confused, Mr. Sandidge, how are you going to attribute back your power oil and deduct it from your meter reading? Where did you take out your power oil to begin with?

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and test set up into a large vessel at the tank battery, which is commonly the power oil tank. That vessel normally stays almost full. I think the outlet is approximately 18 inches to 5 feet down, depending on the operator, from the top. And production oil spills over through this outlet into the tank battery. In other words, you start off with this power oil tank with a certain volume of oil in it and any additional oil that passes through there into the battery is your production oil.

Q What I am getting at is this, maybe you have answered it, your metering takes place and then your total production including the power oil comes together on the top part of the page on attachment 4.

A Yes, sir.

Q Now, how do you know how much of that meter reading was power oil from the - in this case the green and brown?

A If you will refer to the Cobe power manifold, there is a meter indicated power oil as passing through that we measure the quantity of power oil that passes through that meter.

MR. NUTTER: You don't measure power oil unless you are on test.

A Only when we are on test.

Q (By Mr. Morris) You measure the amount of power oil as it is introduced into the system, you don't measure it again.

A Well, then we measure what comes back which will be both power oil and production oil to determine the production. We deduct the amount of power oil introduced.

Q Is there any chance throughout the whole system of

losing any power oil so that your amounts either Wolfcamp or Devonian would thereby seem to be increased in the meter reading?

A I know of none.

MR. MORRIS: That is all. Thank you.

A Unless of course you should develop a leak in your system on the surface, then you would see oil spraying, you would know something is wrong. That would be a possibility but to the probability, the system has operated for a number of runnings with no trouble.

MR. MORRIS: Thank you.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Sandidge, does Pan American expect to get a top allowable in the pool when they re-complete this well?

A We anticipate it will produce at 15 or 20 barrels per day commensurate with the production from the nearby wells.

Q Even on the potential?

A Yes, sir.

Q Initial potential?

A Yes, sir.

Q If you get that type of production, chances are the oil won't be pipeline quality oil, isn't there?

A Our reservoir engineers have studied this area and they think that the Wolfcamp in this vicinity will produce little or no water, perhaps some BS & W. That is one reason we don't want to measure the oil on a daily basis. We feel we can introduce this contaminated oil into the power oil on the periodic basis and it won't present a problem. However, if we put in untreated

oil on a day to day basis, we will have considerable trouble on the hydraulic equipment there.

Q So your normal process, the oil from the two pools on commingling will be passing through a treater.

A Yes, sir.

Q Would that be clean prior to entering into the power tank?

A That is correct.

Q When you got the Devonian on test, you pass the Devonian production through the treater but your Wolfcamp oil goes on into the tank which will introduct BS & W into the power oil supply.

A On that particular supply when it goes into the tank, we feel it is a 750 barrel tank, will be introducing 15 or 20 barrels of oil and 2 or 3 percent of that will be BS & W which will be a neglegible amount on the daily basis.

Q In the event the Wolfcamp production, while you got the Devonian on test, should contaminate the power oil supply to the degree that you have trouble with your pumps or something, you could shut in the Devonian.

A We could shut it in.

Q And pass the Wolfcamp through the treater?

A That would be done, then we would lose a days production from the Devonian.

Q You haven't lost much, have you?

A We are trying to get every drop we can.

Q When you got the Wolfcamp on production, on test, I mean -

A All right, sir.

- You are still passing the oil through the meter, when

going through the treater you are reserving the Devonian test, you are reserving the treating for the Devonian.

A Which makes the water.

Q You do that with the Devonian whether the Wolfcamp is on test.

A If you notice A, 3 and 4, the routing of power oil and production from both wells is identical on both of them except for the way it passes through the testing meter in the upper portion of the drawing.

Q Would Pan American be willing to take another look at this and consider the advisability of installing separate metering facilities in the event they should get a top allowable well in the Wolfcamp.

A I feel that Pan American will abide with the Commission's decision.

MR. NUTTER: Any further questions of Mr. Sandidge?

(No response)

MR. NUTTER: You may be excused.

MR. NUTTER: Do you have anything further Mr. Malone?

MR. MALONE: I believe not.

MR. NUTTER: Does anyone have anything further for Case 2107?

(No response)

MR. NUTTER: We will take the case under advisement and call 2108.

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# I N D E X


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| Cross Examination by Mr. Nutter | 13 |


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STATE OF NEW MEXICO )
) ss
COUNTY OF BERNALILLO )

I, LEWELLYN NELSON, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing was reported by me in Stenotype, and that the same was reduced to typewritten transcript under my personal supervision and contains a true and correct record of said proceedings, to the best of my knowledge, skill and ability.

DATED this 8th day of November, 1960, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Lewellyn D. Nelson
NOTARY PUBLIC

My Commission Expires:
June 14, 1964.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2107, heard by me on 10/19, 1960.

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

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Q [illegible] Lea [illegible].

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and test set up into a large vessel at the tank battery, which is commonly the power oil tank. That vessel normally stays almost full. I think the outlet is approximately 18 inches to 5 feet down, depending on the operator, from the top. And production oil spills over through this outlet into the tank battery. In other words, you start off with this power oil tank with a certain volume of oil in it and any additional oil that passes through there into the battery is your production oil.

Q What I am getting at is this, maybe you have answered it, your metering takes place and then your total production including the power oil comes together on the top part of the page on attachment 4.

A Yes, sir.

Q Now, how do you know how much of that meter reading was power oil from the - in this case the green and brown?

A If you will refer to the Cobe power manifold, there is a meter indicated power oil as passing through that we measure the quantity of power oil that passes through that meter.

MR. NUTTER: You don't measure power oil unless you are on test.

A Only when we are on test.

Q (By Mr. Morris) You measure the amount of power oil as it is introduced into the system, you don't measure it again.

A Well, then we measure what comes back which will be both power oil and production oil to determine the production. We deduct the amount of power oil introduced.

Q Is there any chance throughout the whole system of

losing any power oil so that your amounts either Wolfcamp or Devonian would thereby seem to be increased in the meter reading?

A I know of none.

MR. MORRIS: That is all. Thank you.

A Unless of course you should develop a leak in your system on the surface, then you would see oil spraying, you would know something is wrong. That would be a possibility but to the probability, the system has operated for a number of runnings with no trouble.

MR. MORRIS: Thank you.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Sandidge , does Pan American expect to get a top allowable in the pool when they re-complete this well?

A We anticipate it will produce at 15 or 20 barrels per day commensurate with the production from the nearby wells.

Q Even on the potential?

A Yes, sir.

Q Initial potential?

A Yes, sir.

Q If you get that type of production, chances are the oil won't be pipeline quality oil, isn't there?

A Our reservoir engineers have studied this area and they think that the Wolfcamp in this vicinity will produce little or no water, perhaps some BS & W. That is one reason we don't want to measure the oil on a daily basis. We feel we can introduce this contaminated oil into the power oil on the periodic basis and it won't present a problem. However, if we put in untreated



oil on a day to day basis, we will have considerable trouble on the hydraulic equipment there.

Q So your normal process, the oil from the two pools on commingling will be passing through a treater.

A Yes, sir.

Q Would that be clean prior to entering into the power tank?

A That is correct.

Q When you got the Devonian on test, you pass the Devonian production through the treater but your Wolfcamp oil goes on into the tank which will introduct BS & W into the power oil supply.

A On that particular supply when it goes into the tank, we feel it is a 750 barrel tank, will be introducing 15 or 20 barrels of oil and 2 or 3 percent of that will be BS & W which will be a neglegible amount on the daily basis.

Q In the event the Wolfcamp production, while you got the Devonian on test, should contaminate the power oil supply to the degree that you have trouble with your pumps or something, you could shut in the Devonian.

A We could shut it in.

Q And pass the Wolfcamp through the treater?

A That would be done, then we would lose a days production from the Devonian.

Q You haven't lost much, have you?

A We are trying to get every drop we can.

Q When you got the Wolfcamp on production, on test, I mean -

A All right, sir.

- You are still passing the oil through the meter, when

going through the treater you are reserving the Devonian test, you are reserving the treating for the Devonian.

A Which makes the water.

Q You do that with the Devonian whether the Wolfcamp is on test.

A If you notice A, 3 and 4, the routing of power oil and production from both wells is identical on both of them except for the way it passes through the testing meter in the upper portion of the drawing.

Q Would Pan American be willing to take another look at this and consider the advisability of installing separate metering facilities in the event they should get a top allowable well in the Wolfcamp.

A I feel that Pan American will abide with the Commission's decision.

MR. NUTTER: Any further questions of Mr. Sandidge?

(No response)

MR. NUTTER: You may be excused.

MR. NUTTER: Do you have anything further Mr. Malone?

MR. MALONE: I believe not.

MR. NUTTER: Does anyone have anything further for Case 2107?

(No response)

MR. NUTTER: We will take the case under advisement and call 2108.

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| Number | Marked for Identification | Offered | Received |
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| 1 | | 10 | 10 |

STATE OF NEW MEXICO )
) ss
COUNTY OF BERNALILLO )

I, LEWELLYN NELSON, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing was reported by me in Stenotype, and that the same was reduced to typewritten transcript under my personal supervision and contains a true and correct record of said proceedings, to the best of my knowledge, skill and ability.

DATED this 8th day of November, 1960, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

NOTARY PUBLIC

My Commission Expires:
June 14, 1964.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2107, heard by me on 10/19, 1960.

, Examiner
New Mexico Oil Conservation Commission