

CASE 3400: Application of PAN AM.
for creation of new oil pool for
its Big Eddy Unit Well No. 7.

ASE No.

3400

Application,

Transcripts,

All Exhibits

ETC.

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

P. O. BOX 2088
SANTA FE

April 11, 1967

Mr. Guy Buell
Pan American Petroleum Corporation
Post Office Box 1410
Fort Worth, Texas

Re: Case No. 3400
Order No. R-3064-A
Applicant:
PAN AMERICAN

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC X

Artesia OCC X

Aztec OCC

Other _____

COMPARISON OF POOL DATA
LUSK STRAWN AND PROPOSED BIG EDDY STRAWN POOLS

	<u>LUSK STRAWN</u>	<u>BIG EDDY WELL NO. 7</u>
Producing Formation	Strawn	Strawn
Average Depth, Ft.	11,300	11,435
Reservoir Temperature, °F	169	170
Bottom Hole Pressure Datum, Ft.	-7800	-7886
Initial Bottom Hole Pressure, psi	5862	5900
Current Bottom Hole Pressure, psi	2671	5900
Original Oil-Water Contact, Ft.	-7915' to -8000'	-8004'
Average Water Saturation, %	30.4	28.0
Average Porosity, % (Core)	4.85	5.24
Average Permeability, md (Core)	12.9	26.9
Average Permeability, md (Buildup Data)	30.4	Not Available
Crude Gravity, °API	48.0	50.1
Initial Gas-Oil Ratio, Cu.Ft./Bbl.	2100	3139

*Producing
no correlation L & R.*

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
PAN AM'S	EXHIBIT NO. <u>3</u>
CASE NO.	<u>3400</u>

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO



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

EXAMINER

HEARING

IN THE MATTER OF:

Application of Pan American Petroleum
Corporation for creation of a new pool and
special pool rules, Eddy County, New Mexico.

Case No. 3400

BEFORE:

Elvis A. Utz, Gas Engineer

TRANSCRIPT OF HEARING

MR. UTZ: Call Case 3400. Application of Pan American Petroleum Corporation for creation of a new pool and special pool rules, Eddy County, New Mexico.

MR. BUELL: Guy Buell representing Pan American Petroleum Corporation.

MR. PORTER: You have one witness?

MR. BUELL: Yes, sir, one witness.

MR. PORTER: Would you ask your witness to stand and be sworn?

(Witness sworn.)

(Whereupon, Applicant's Exhibits 1 through 4 marked for identification.)

MR. UTZ: Are there any other appearances in this case? You may proceed.

* * *

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, I'm employed by Pan American Petroleum Corporation, Lubbock District Office, Regional Section Leader.



Q Mr. Howell, I believe you've testified at previous hearings and your qualifications are a matter of public record?

A Yes, they are.

MR. BUELL: Are there any questions as to this witness's qualifications?

MR. UTZ: None.

Q (By Mr. Buell) Does your Lubbock District Office have supervision over the Pan American Office in the area of the Big Eddy Unit?

A Yes, sir.

Q Are you familiar with the drilling and completion of that well?

A Yes, sir, I am.

Q Are you also familiar with the Lusk-Strawn Oil Pool some several miles to the Northeast?

A Yes, sir.

Q In connection with this subject case, I wish you would look first at what has been identified as Pan American's Exhibit Number 1. What is that exhibit, Mr. Howell?

A Our Exhibit Number 1 is a map of the Big Eddy Lusk Area. Shown on this map with the large green colored dot in Section 19 is the location of our Big Eddy Unit Well

Number 7, which is the discovery well of the proposed Big Eddy Strawn Pool. Shown with smaller dots in the vicinity of this well is the 3 current drilling wells in this area of Section 19 where Pan American is drilling Big Eddy. Next in Section 29 Union Texas is drilling its Big Eddy Unit Well Number 14.

Shown with the large brown colored dots are the pertinent dry holes in the area, and then further to the North and Northeast of the map is colored with the red dots, is the current completions in the Lusk-Strawn Oil Pool.

Q Does Exhibit 1 also reflect the structure of the Strawn Reservoir in this general area?

A Yes, sir, it does. As shown by the heavy blue lines here, the Strawn formation occurs as a Northeast - Southwest trending monocline.

Q In the area of the Big Eddy Unit 7, the structure appears to be more simple than it is up to the Northeast in the Lusk-Strawn Field. Do you feel that as we acquire subsequent data that the structural picture may become more complex in the Big Eddy Area?

A Yes, sir.

Q In your opinion, is the production from our Big Eddy separate and distinct from the Lusk-Strawn Oil Pool for the Northeast?



A Yes, sir, it is.

Q What, in your opinion, causes this separation?

A I believe this separation is caused by a porosity and permeability.

Q What is the significance of the blue dash line that starts with Big Eddy 7 and comes through several wells up to the Northeast?

A This is the surface trace of the cross section prepared in this area.

Q While we're on structure let's go into that cross section. Step over to Pan American's Exhibit Number 3 and briefly describe that exhibit for the record, please?

A This is the structural cross section prepared in the Big Eddy Lusk-Strawn Area. Each log is hung on a datum of minus (-) 7,000 feet which is the heavy dotted blue line across. It starts with Pan American's Big Eddy 7, which is located in Section 19, Township 20 South, Range 31 East, then moves on to the closest dry hole, which is the Pan American Big Eddy Unit 1, also in Township 20, 31 East. Next dry hole is Pan American's Big Eddy 6 located in Section 34 Township 19 South, Range 31 East; next to the first productive well in the Lusk-Strawn Oil Pool, which is Pan American's Big Eddy 5, located in Section 34. And finally ending up with Tenneco Jones' Federal in Township 20, Range 31 East.

Q What are the various markers you have identified? You might briefly name them, starting with the top one there.

A I've shown four correlations here, starting with the top of the Wolfcamp, moving down to the correlative marker beginning with the top of the Strawn and the base of the Strawn, and those wells that have penetrated the base of the Strawn.

Q How have you designated the completion intervals of the wells?

A The producing interval in our Big Eddy Unit 7, which is the proposed discovery well for the Big Eddy Strawn Pool, is colored green, while the Lusk-Strawn Oil Pool Wells are colored red.

Q That ties in with the colors you identified with you other wells?

A Yes.

Q What is the significance of the two wavy brown lines between Big Eddy 7 and Big Eddy Unit 1?

A This is to indicate the separation between the 2 pools.

Q You don't mean to show by scale where you think it occurs in the reservoir, that's just to show that these two wells are separate?

A That's correct, sir.

Q In addition to adopting temporary oil pool rules, the purpose of this hearing is to create and designate a new oil pool. What is your recommendation to the Commission with regard to the name of this pool we're asking them to create and designate?

A The Big Eddy Strawn.

Q And what is your recommendation to the Commission with regard to the horizontal limits of the new pool?

A I would recommend that the horizontal limits include Section 19, Township 20 South, Range 31 East, and all wells drilled to the Strawn formation within 1 mile of the section.

Q Would those horizontal limits include all 3 of the wells that are currently drilling into this reservoir?

A Yes, sir.

Q What is your recommendation to the Commission with regard to the vertical limits of this new pool?

A I recommend that the vertical limits of the pool be set from the top of the Strawn, which occurs in our Big Eddy 7 at a depth of 11,330' or the subsea depth of 11,384'.

Q You mentioned Lusk-Strawn Pool in your testimony on your Exhibit Number 2 that you covered. Let me ask you this, does that pool have special pool rules in effect?

A Yes, sir.

Q From the standpoint of the more important provisions of those rules, what do they provide for that pool?

A That the pool shall be assigned a 160-acre proportional factor of 8.67 and the limiting gas-oil ratio in the Big Eddy Pool shall be 4000.1 cubic feet per barrel.

Q If they had been gathered and examined in the Lusk-Strawn Pool and approved conclusively, that one well there will effectively drain in excess of 160-acres?

A Yes, sir.

Q I'm sure you have been curious about the comparison of the reservoir rock and fluid characteristics in the Lusk-Strawn. Have you made such a comparison?

A Yes, sir, I have.

Q In that connection, I wish you would look now at what has been designated as Pan American's Exhibit 3 and explain that?

A This shows a comparison of the pool data between the Lusk-Strawn and our Big Eddy 7.

Q These data are self-explanatory, and in order not to burden the record and save time, I won't ask you to read all of these but pick what you think are the more pertinent data and relate their comparisons for the record.

A Both the Lusk-Strawn Pool and the Big Eddy is producing in the strawn formation. The average depth of the Lusk-Strawn is 11,300' while Big Eddy is at a depth of 11,435'.

Q Next.

A Next I would like to discuss the bottom hole pressure. For the Lusk-Strawn it is 5862 psi and for the Big Eddy it is 5900 psi. The current bottom hole pressure is 2671 psi for the Lusk-Strawn and 5900 psi for the Big Eddy. For all practical purposes it is still essentially 5900 psi.

Next going down to the average porosity determined by core analysis, in the Lusk-Strawn it averaged 4.85 percent while in the Big Eddy it was 5.24 percent.

Another real important comparison is the average permeability which was measured from core samples. The Lusk-Strawn averaged 12.9 millidarcies while Big Eddy averaged 26.9 millidarcies.

Q Mr. Howell, are you willing to make a prediction as to what the subsequent data will show with regard to the drainage area in the Big Eddy Strawn Pool?

A Yes, sir, I would venture a guess that the well will drain at least 160 acres, essentially based on the comparison of porosity and permeability.

Q I wish you would look now at our Exhibit 4, Mr. Howell. That's a brief outline of the rules we're recommending that the Commission adopt on a temporary basis. I won't ask you, again, in the interest of saving time, don't read all of these proposed rules in, but I wish you would summarize what you think are the more important rules.

A We're recommending that a proration unit having 160 acres be designated with a proportional factor of 8.67 for allowable purposes. We recommend that no wells be completed closer than 660 feet to any quarter section line nor closer than 330 feet to any quarter-quarter section line. And finally, we're recommending that the limiting gas-oil ratio be set at 4000.1 thousand cubic feet per barrel.

Q Let's talk about that. Do you feel that recommending a 4000.1 limiting ratio at this time is justified?

A Yes, sir, I do. I might refer to our Exhibit 3 and note the initial gas-oil ratio was 3139 cubic feet per barrel, while in the Lusk-Strawn it was 2100. Therefore, I believe that we will be producing high gas-oil ratios.

Q Actually it won't be advising that a future review of the temporary rules, assuming that the Commission adopts them, an even higher limiting gas-oil ratio might need to be recommended?

A Yes, sir, that's probable.

Q Do you feel these will serve conservation as well as protect the Correlative Rights of all the owners of interests?

A Yes, sir. As I pointed out, the rules are temporary. I believe that one well will effectively, sufficiently drain 160 acres, however as we drill and find that less than 160 is being drained the pool can be developed on lesser density and unnecessary wells would have been drilled.

Q You can't undrill a drilled well, can you?

A No, sir.

Q Do you have anything else you would care to add at this time, Mr. Howell?

A No, sir, I don't.

MR. BUELL: That's all we have by way of direct testimony. I might formally offer Pan American's Exhibits 1 through 4, inclusive.

(Whereupon, Applicant's Exhibits 1 through 4 offered into evidence.)

MR. UTZ: Without objection Exhibits 1 through 4 will be admitted.

(Whereupon, Applicant's Exhibits 1 through 4 admitted into evidence.)

CROSS-EXAMINATION

BY MR. UTZ:

Q What is the top of the pay or the top of the perforations in your discovery well Number 7?

A I would have to look at my cross section. I believe it's 11,402 feet, sir, perforated from 11,402 to 420. Then at another interval from 11,450 to 468.

MR. PORTER: I believe the 11,402 figure would have to be entered in the order so as to establish the depth.

Q (By Mr. Utz) Now, the initial GOR which you show on your Exhibit Number 3, of 3139, is that a solution GOR or producing GOR.

A That's the producing GOR, sir.

Q Do you have a solution GOR?

A No, sir, we do not, yet.

MR. BUELL: Would you suspect that it would be very near that figure?

THE WITNESS: Yes, sir, I would think so.

Q (By Mr. Utz) I believe I read somewhere in your rules here, I don't seem to see it right at the moment, that you're proposing 640-acre gas units?

A No, sir.

Q This must be in another pool. In the event of a

gas well in this pool, then you simply propose that it receive the same gas allowable on a 160-acre basis?

MR. BUELL: Yes, sir. At this time that would certainly be our recommendation until we know more about the pool and assure ourselves that no waste would result.

Q (By Mr. Utz) Essentially, then, what you're recommending is rules exactly the same as the Lusk-Strawn?

A Yes, sir.

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

MR. PORTER: Yes.

CROSS-EXAMINATION

BY MR. PORTER:

Q I didn't quite get your recommendations on the pool limits. Now, would you go over that again?

A I recommended that the horizontal limits consist of Section 19, and then any wells drilled to the Strawn formation within one mile of this section.

Q Well, of course, if the Commission should establish Section 19 as the horizontal limits of the pool, the Statewide Rules, I believe would take care of any well within a mile; they would be drilled, spaced, and prorated, is that your recommendation?

A Yes, sir.

Q You have the Union of Texas drilling within a

mile of that well?

A Yes, sir.

Q Another Pan American Well?

A Yes, sir.

Q Number 9?

A Yes, sir.

Q Would you give me those vertical limits?

A Vertical limits as shown on our Exhibit Number 2 or cross section their top at 11,330, which is the top of the Strawn, and the base at 11,902.

Q And that is the base of the Strawn?

A Yes, sir.

Q Did you testify as to the potential of the discovery well?

A No, sir.

Q Would you give us those figures; do you have it?

A Yes, sir, I believe the potential for flowing is 579 barrels of oil per day.

Q What size choke?

A 14 64 choke, tubing pressure of 3450 psi.

Q In other words this well would have no difficulty in making a 160-acre allowable at the present time?

A No, sir.

MR. PORTER: That's all.

RECROSS-EXAMINATION

BY MR. UTZ:

Q Why is Pan American suggesting Section 19 rather than the South half of 19 and the North half of 30?

A Of course, we don't want -- the well will be a producer and we're just including Section 19, which is the location of our Big Eddy Unit 7.

Q You think you will and they might not?

A That's always a possibility, sir.

Q How far along are these two wells?

A Their oil base is 10,900 feet, on our Number 9 it is about 10,200 feet, Big Eddy 14 is 2900 feet.

Q Two of these wells should come in fairly close together?

A Yes, sir.

Q By the way, did the potash people support this application?

MR. BUELL: They're not here opposing. That's the safest thing I can say.

MR. UTZ: Any other questions of the witness? The witness may be excused. Are there any statements in this case?

MR. BUELL: I would like to point out that Perry R. Bass has advised us that he concurs with our recommendations,

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS
1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO
1203 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO

PAGE 16

and we have a telegram from Union Texas and they are also in support of Pan American's application.

MR. ANDERSON: John Anderson, U. S. Geological Survey, Roswell, New Mexico. All of the lands involved in the proposed application are Federal Lands and large portions of them are committed to or included in the boundaries of the Big Eddy Unit which was, of course, approved by the Oil Conservation Commission, the Commissioner of Public Lands and the Director of Geological Survey. Our office supports the application of Pan American in this case as to the special field rules, and also the horizontal and vertical limits of the pool. The casing and cementing requirements, of course, are set out in R-111A as amended, and I assume this special pool rule would continue the provisions of R-111A.

MR. BUELL: We'll continue to follow that rule.

MR. PORTER: All right.

MR. UTZ: Any other statements? The case will be taken under advisement.

I N D E X

<u>WITNESS</u>	<u>PAGE</u>
REX HOWELL	
Direct Examination by Mr. Buell	2
Cross-Examination by Mr. Utz	12
Cross-Examination by Mr. Porter	13
Recross-Examination by Mr. Utz	15

E X H I B I T S

<u>NUMBER</u>	<u>MARKED FOR IDENTIFICATION</u>	<u>OFFERED</u>	<u>ADMITTED</u>
Applt's 1.	2	11	11
Applt's 2.	2	11	11
Applt's 3.	2	11	11
Applt's 4.	2	11	11

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

1203 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO

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.

Bobby J. Davis
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. 3402, held by me on May 12, 1966.
Christine Davis, Examiner
New Mexico Oil Conservation Commission

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMAS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 5, 1967

EXAMINER HEARING

IN THE MATTER OF:

Case 3400 being reopened pursuant)
to the provisions of Order No. R-3064) Case 3400
which order established 160-acre)
spacing units and a gas-oil ratio of)
4000 to 1 for the Big Eddy-Strawn Pool)
Eddy County, New Mexico.)

BEFORE: Daniel S. Nutter, Examiner

Transcript of Hearing

MR. NUTTER: The hearing will come to order, please. The next case will be Case 3400.

MR. HATCH: Case 3400. In the matter of Case 3400 being reopened pursuant to the provisions of Order No. R-3064, which order established 160-acre spacing units and a gas-oil ratio of 4,000 to 1 for the Big Eddy-Strawn pool, Eddy County, New Mexico, for a period of one year.

(Whereupon Pan-American's Exhibit's 1 through 8 were marked for identification)

MR. BUELL: For Pan-American Petroleum Corporation, Guy Buell. We have one witness.

(Witness sworn)

BILLY BALTHROP called as a witness on behalf of the applicant, having first been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. BUELL:

Q Mr. Balthrop, would you state your complete name, by whom you are employed and in what capacity and in what location, please?

A Billy Balthrop, employed by Pan-American Petroleum Corporation, as Petroleum Engineer, Fort Worth District Office.

Q Would you briefly state your educational background

and your employment experience in the field of petroleum engineering?

A I graduated from the University of Texas in 1958 and for the past nine years have held various engineering jobs with Pan-American.

Q All right, sir, now in order that the Examiner may evaluate your testimony and your exhibits, I would like for you at the outset to state what your recommendation to the Commission will be with regard to rules for this pool?

A My recommendation will be that the pool rules, as contained in Order No. R-3064, be made permanent, with the exception of the limiting gas-oil ratio, and I recommend that the limiting gas-oil ratio be increased from 4,000 to 6,000.

Q All right, sir, now in connection with your testimony and exhibits, I wish you would look first at what has been identified as Pan-American's Exhibit No. 1. What is that exhibit, Mr. Balthrop?

A Exhibit 1a is a combination exhibit. The upper portion of the exhibit is a cross-section, the lower portion is a map.

Q All right, sir, first, let's discuss the map portion of this combination exhibit. What does the map portion reflect?

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1724 • ALBUQUERQUE, NEW MEXICO 87108

A Well, on the map is shown the producing wells in the Big Eddy-Strawn pool. They're designated by green dots. The dry holes in the immediate vicinity of the Big Eddy pool and between the Lusk-Strawn pool in the northeast portion of the map are shown by brown dots.

Q All right, sir, now at the time the Commission adopted temporary pool rules, how many producing wells did we have in the Big Eddy-Strawn?

A There was one producing well. Well No. 7

Q Locate that well for the record?

A That is located in the southeast quarter of Section 19, Township 20 South, Range 31 East.

Q And, we now have three additional producing wells for a total of four, is that correct?

A Yes, that's correct.

Q All right, sir, have any other wells been drilled in this interim period in the immediate vicinity of the Big Eddy-Strawn pool?

A Yes, two dry holes have been drilled since the April, 1966 hearing. These are Big Eddy Unit 9, which is located in the northeast quarter of Section 19, and Big Eddy Unit 14, located in the northwest corner of Section 29.

Q Does this map also show the structure of the Strawn in this general area?

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

A Yes, this map is countoured on top of the Strawn and the countour level is 100 feet.

Q Would you briefly comment on the structure as reflected by this exhibit?

A It is a small structure, but it is an elongated anti-cline.

Q Now, earlier you mentioned Lusk-Strawn as shown on the northeast portion of this exhibit. Is it on the same common structure with Big Eddy?

A Yes, sir, it is on the same common structure.

Q In your opinion, are the data conclusive that these two pools are, in fact, separate?

A Yes, they are separate.

Q Upon what data do you base that conclusion?

A Well, there are five dry holes shown on the map as being located between the Lusk-Strawn and the Big Eddy pool, which provide the separation.

Q All right, sir, now let's go to the upper portion of Exhibit 1a, the cross-section. Would you comment briefly on that, please?

A This cross-section contains logs from all four producing wells in the Big Eddy pool, in addition to Pan-American's Big Eddy 9, which was a dry hole in the Strawn. Pertinent completion data is shown for each of the wells and

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS
1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

the top of the Strawn is shown by a heavy solid line.

Q Does this cross-section portion of this exhibit pretty well show the separation between the Big Eddy and the Lusk-Strawn?

A Yes, it does.

Q By the dry hole on the extreme right, the Big Eddy No. 9?

A Yes.

Q All right, sir, looking at this Exhibit 1, in its entirety, let me ask you this? From the standpoint of the subject matter of this hear, what, in your opinion, is the significance of these two geological interpretations?

A Well, I believe that you could say that there are no impediments to communication in the Big Eddy pool, which would impare drainage between the wells.

Q So, the well does have an opportunity to drain a large area?

A Yes, it does.

Q All right, sir, would you look, now, Mr. Balthrop at what has been identified as Pan-American's Exhibit No. 2a. What is that exhibit?

A Exhibit 2a is a performance curve of the four wells in the Big Eddy-Strawn Pool.

Q Would you, as briefly as possible, discuss each

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

one of the curves reflected on 2a?

A There are five curves on Exhibit 2a, and, beginning at the top, the bottom-hole pressure is plotted, beginning in March, 1966 with an initial pressure of 9,900 pounds and in December, 1966, a pressure of 4,676 pounds. Now, the data, as plotted here, was cut off January 1, 1967. Since that time, we have collected a pressure data that is not shown but it is 4,346 pounds.

Q All right, sir, go on now to your next curve.

A The second curve is the gas-oil ratio performance and in December, 1966, the pool gas-oil ratio was 5,756 cubic feet per barrel.

Q In conjunction with the average gas-oil ratio as shown on this curve, have you also plotted the 6,000 to 1 limiting ratio you are recommending as well as the present 4,000 to 1 limiting ratio?

A Yes, I have shown that on the exhibit.

Q This exhibit shows very vividly that from the standpoint of the average producing gas-oil ratio, it is mighty close to the 6,000 to 1 limit that you are recommending.

A Yes, it does.

Q All right, sir, go on to your next curve, please.

A The third curve is the number of wells and there are now four wells producing. The next curve is the plot of

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS
1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

daily oil production. In December, 1966 the daily production from the four wells equaled 1,275 barrels per day. The last curve is daily water production and in December of '66 the four wells made a total of 260 barrels of water per day.

Q What, in your opinion, Mr. Balthrop is the producing mechanism in this Strawn reservoir?

A I believe it is a solution gas drive mechanism.

Q Going back for just a moment to the first, or upper curve on this exhibit, the bottom-hole pressure curve, what do these data indicate to you as a reservoir engineer?

A I would say with the drop-in pressure that has been experienced during the past year, that it would denote a small reservoir.

Q All right, sir, let me ask you this. Have you made a study to determine the exact size of this reservoir?

A Yes, I have.

Q What methods do you engineers have available to you to determine reserves?

A Well, essentially, there are two methods, the poor volume method and the material balance method.

Q Did you conduct a material balance study to determine the reserves in this pool?

A Yes, I did.

Q All right, sir, in connection with that study, I

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

wish you would look now at what has been identified as Pan-American's Exhibit 3a. What is that exhibit, Mr. Balthrop?

A Exhibit 3a is plot of bottom-hole pressure and gas-oil ratio versus cumulative oil production from the Big Eddy pool. On the exhibit, I have plotted actual pressure data and gas-oil ratio data to January 1, 1967.

Q Well, actually, you have gone a little past that, in that you have also plotted your most recent bottom-hole pressure, haven't you, your 4,346?

A Yes, it is shown on the plot.

Q All right, sir, after you plotted these observed data, what did you do then?

A Well, there was a definite trend established from the bottom-hole pressure data and that trend was as extrapolated, denoted by the dash line to an abandonment pressure of 600 pounds, at which point I concluded that that was in the neighborhood of the ultimate recovery to be expected from the pool.

Q All right, sir, what does this exhibit show the ultimate recovery to be at the abandonment pressure?

A On the order of 560,000 barrels.

Q Mr. Balthrop let me ask you this? In January of 1967, when your last pressure point was obtained, what was the approximate cumulative production?

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

A Approximately 250,000 barrels.

Q So, at this time, the pool based on these data is a little less than 50% depleted?

A Yes, that's right.

Q All right, sir, now you said another method of determining reserve was the poor volume method. Did you make a study to determine the reserves using that method?

A Yes, I did.

Q All right, sir, in conjunction with that study, I wish you would look now at what has been identified as Pan-American's Exhibit 4a. What is that exhibit, Mr. Balthrop?

A Exhibit 4a is a net isopac map of the Big Eddy-Strawn pool area.

Q Just how did you go about preparing this isopac?

A Reviewed core and log data and arrived at the net pay assignable to each of the wells, and this net pay is shown at the top of the wells on the exhibit.

Q Then, what did you do?

A Contoured it in a standard way of using a twenty-five foot contour interval and then this isopac was perometered to arrive at a total acre feet volume of 26,920 acre feet.

Q All right, sir, would you look now at what has been identified as Pan-American's Exhibit 5a. What is that exhibit?

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1-800 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

A 5a is the pour volume determination. It is the calculation that I made to arrive at the ultimate recovery from the Big Eddy-Strawn pool using factors derived from this Exhibit 4a.

Q Why don't you just explain for the record the factors that you used and the results of grinding these factors into this formula?

A The formula is a standard formula and I used for porosity an average of 5.24%, an average water saturation of 28%, and the acre feet number of 26,920 determined from the isopac map. I used a 20% recovery factor and a reservoir volume factor of 2.7. After grinding these numbers out, I arrived at an ultimate recovery of 580,000 barrels for the pool.

Q Which is very close to your material balance prediction of 560,000 barrels, is it not?

A Yes, it is.

Q All right, sir, now how did you determine the ultimate recovery of gas from this pool?

A I used an average gas-oil ratio over the life of the pool of 7,500 cubic feet per barrel, per well.

Q All right, sir, there are now four producing wells in the pool. Does this exhibit show what the per-well recovery, is assuming that each of the four wells produces its

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY C.P.Y. CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-4491 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

proportional share of the reserve?

A Yes, it does, and it illustrates that each well should recover approximately 145,000 barrels of oil and slightly over a billion cubic feet of gas.

Q All right, sir, knowing your reserves and knowing your investment cost and your predicted operating costs, you can then make an economic evaluation, can you not, of the pool and its development prospect?

A Yes, you can.

Q Have you done that?

A Yes, I have.

Q All right, sir, in that connection, would you look now at what has been identified as Pan-American's Exhibit No. 6a. What is that exhibit?

A Exhibit 6a is the summary of development economics associated with the Big Eddy-Strawn pool development. Thus far, it shows development cost for the four producing wells and workover cost that has been spent on Wells 7 and 8 during the past few months.

Q What is that total?

A A total cost of \$919,000.00 for the four wells.

Q Before we leave that, let's go back to the first well that you have listed there, the Big Eddy Unit No. 7. I noticed you have that shown as estimated cost. Would you

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

briefly explain that please?

A Well, sir, Big Eddy 7 was drilled deeper than the Strawn formation at the outset and consequently more money was spent on the exploration of deeper horizons, but the Big Eddy's 8, 15 and 10 were drilled to the Strawn and their costs were in the neighborhood of \$220,000.00, so I assumed an average cost applicable to Well No. 7.

Q Although the actual well cost on that, the actual money spent by Pan-American was \$375,000.00?

A Yes, that's correct.

Q All right, sir, go ahead with your economic analyses, Mr. Balthrop.

A I have shown operating costs of \$72,000.00 for the four wells assuming a five year life and \$300.00 per well per month operating cost, and \$15,000.00 for future work-overs, which would give a total development operating cost and work-over cost of slightly over \$1,000,000.00.

Q All right, sir, when you analyze these figures, and your revenue figures, what kind of a return on investment do you receive?

A A 1.1 return on investment.

Q That would be the return on investment for a 160 acres development?

A Yes, that's correct.

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 236-1294 • ALBUQUERQUE, NEW MEXICO 87108

Q Is a return of only 1.1 considered a very profitable investment?

A No, sir. I would consider it a minimum return on your money.

Q What would be the economic results if the operators in this pool were forced to develop down to a density of 80 acres per well?

A They would just barely get their money back. There would be essentially no return on your investment.

Q All right, sir, now you have testified that from a geological standpoint the wells in this reservoir have the opportunity to drain a large area. Let me ask you this, do engineering data, which have been collected from this pool, show that a well can and is effectively draining a large area?

A Yes, there has been.

Q All right, sir, in connection with that testimony, I wish you would look first at what has been identified as our Exhibit No. 7a. What is that exhibit, Mr. Balthrop?

A Exhibit 7-A is a plot of bomb hole pressure versus time taken from a build-up test on Pan American's Big Eddy No. 10 in January of this year.

Q What is the significance of this exhibit from the standpoint of effective communication and drainage?

A Well, it demonstrates that the well builds up

rapidly and that only after twenty hours shutin, the well was 99.3% built up.

Q So, this is evidence itself of excellent permeability and effective communication?

A Yes, it is.

Q All right, sir. I wish you would look now at what has been identified as Pan American's Exhibit No. 8-A. What is that exhibit, Mr. Balthrop?

A Exhibit 8-A is a base map of the pool area which has as an insert a summary of all bottom hole pressure data collected from the pool wells.

Q Now, you have shown on this insert to 8-A all the bottom hole pressure data from all four producing wells?

A Yes, I do.

Q What is the format for that insert, how have you shown the wells and the pressures?

A I have shown the completion date at the top of each well and then the months since the pool was discovered in March of '66 and under each well I have shown all the pressures that have been taken.

Q All right, sir, now the Big Eddy Unit No. 7 was the discovery well, what was the original virgin reservoir pressure here?

A 5900 pounds.

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS
1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-4491 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87103

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

Q All right, sir, now what was the second well that was completed in the field?

A The Big Eddy Unit 8 was completed approximately two months after the Big Eddy Unit No. 7 was completed.

Q Was an initial pressure run on that well?

A Yes, it was, and it was recorded at 5842 pounds.

Q How far below the original virgin pressure was this initial pressure on the first well completed after discovery?

A Fifty-eight pounds below original.

Q All right, sir, let's look over now, at the top portion of this exhibit, how far is Well No. 8 from Well No. 7?

A Approximately 1900 feet.

Q I notice you have an area there shaded in brown, what is the significance of that?

A This denotes an area that Well No. 7 is effecting and it encompasses approximately 261 acres.

Q Actually, that would be the minimum area that it was affecting, would it not, because it would be extremely remote for the drainage area to go to Well No. 8 and no further?

A Yes, that's right.

Q All right, sir. What are the next pressures shown on your pressure insert?

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS
1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

A In June, 1966 the Big Eddy Units 7 and 8 had pressures recorded and on Well No. 7 a pressure of 5720 pounds was recorded and on Well No. 8, 5717 pounds was recorded.

Q So, there were of the two then producing wells in the field, pressures taken at approximately the same time and resulted in approximately the same magnitude of pressure?

A Yes, sir, that's correct.

Q Would that indicate to you as a reservoir engineer that those wells were producing from the same reservoir and in excellent communication, one with the other?

A Yes, it would.

Q If, in truth and in fact, they were actually separate, would it not be extremely gratuitous to have pressures so similar?

A Yes, it would.

Q All right, sir. What is the next well upon which you have an initial completion pressure?

A The Big Eddy Unit No. 10 was completed in October 1966. At that time an initial pressure of 5276 pounds was recorded.

Q How far below original virgin pressure was the initial pressure on that well?

A Over 600 pounds below original.

Q All right, sir, let's look at the map portion of the exhibit. What is the nearest well, the nearest then producing well to Well No. 10?

A The Big Eddy Unit No. 7.

Q Is it approximately 1900 feet from Well No. 7?

A Yes, it is.

Q So, again, this initial pressure illustrates very vividly the fact that wells in this reservoir are draining a tremendously large area?

A Yes, it certainly does.

Q All right, sir, do you have any other pressures taken at about the same time as the initial pressure on Well No. 10?

A Yes, sir, Big Eddy Unit No. 8 and 15 had pressures recorded in October of 1966. Well No. 8, a pressure of 5195 pounds was recorded. Big Eddy Unit 15 recorded a pressure of 5166 pounds.

Q Now, those two pressures were fairly close together and less than the initial pressure on Well No. 10, is that about what you would expect in a reservoir with excellent communication and drainage?

A Yes, it is.

Q All right, sir, are there any other pressures on this insert exhibit that you would like to mention for the

record?

A Yes, the Big Eddy Unit had a pressure of 4679 pounds recorded in December of 1966 and then in January, a pressure of 4346 pounds was recorded.

Q And that is the last pressure point we have on any of the producing wells in this pool?

A Yes, that's right.

Q Mr. Balthrop, let me ask you this, do you feel that the adoption of the rules you have recommended to the Commission as permanent pool rules will serve conservation as well as protect the correlative rights of all the owners of interest?

A Yes, I do, I believe that we have shown that this reservoir is not rate sensitive and that it is operating under a solution gas drive and that the actual gas-oil ratios are in the order of 6,000 cubic feet per barrel and that anything to reduce or lower this number would not serve conservation since all the gas that is being produced is being sold, and furthermore, that 160 acre development has been shown to be just minimum economics and eighty acres have shown to be not economical at all, and then, we have shown pressure data to support drainage in excess of 160 acres.

Q Do you have anything else that you would care to add to the record at this time, Mr. Balthrop?

dearnley-meier

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-4691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

A No, I don't.

MR. BUELL: May it please the Examiner, that is all we have by way of direct testimony. I would like to formally offer Pan American's Exhibits 1-A through 8-A, inclusive.

MR. NUTTER: Pan Am's Exhibits 1-A through 8-A will be admitted in evidence.

(Whereupon Pan American's Exhibits 1-A through 8-A were admitted in evidence.)

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

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Balthrop, what about the casinghead gas here, is this gas sold?

A Yes, it is.

Q Is this the area where Phillips Petroleum Company has a gasoline plant, or a gathering facility somewhere in the neighborhood?

A Yes, Phillips Petroleum has a gathering system as does Potash Company and both of these, Phillips and Potash, are taking gas from the Big Eddy Pool.

Q If the G.O.R. were raised here, would they be in a position to handle additional gas?

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMAS BLVD. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1794 • ALBUQUERQUE, NEW MEXICO 87108

A Yes, they would.

Q Have they assured you of that?

A I have not contacted Phillips or Potash, but I have spoken to representatives of Pan American who are familiar with the gas sales and they have assured me that Phillips and Potash could handle any extra gas we might have available as a result of increased gas-oil ratio limits.

Q There would be no problem in that respect, then?

A That's right.

Q Has the G.O.R. here been going up since the day one in this pool?

A Yes, at sort of a steady increase. I believe this exhibit -- it has been going up.

Q This was probably under saturated, was it not?

A I believe it was, yes, sir.

Q Do you know whether it is contemplated by Pan American Petroleum Corporation to drill additional wells in this area?

A Pan American does not contemplate drilling any more wells in the Big Eddy Pool.

Q How about any other operators in this area?

A Perry-Bass has indicated they do not plan to drill anymore wells, so I believe we could say that development has ceased.

Q I see. What are the actual production figures for the four wells to date, Mr. Balthrop? I believe, you stated that the total cumulative production through January was some two hundred fifty or sixty thousand barrels, what has each of the four wells made, please?

A I don't have that, let me see if I can find it in here. The Big Eddy No. 7, these numbers are as of 1-1, '67, the Big Eddy No. 7 has produced 92,497 barrels of oil; the Big Eddy No. 8, 68,658 barrels of oil; Well No. 10, 32,369; Well 15, 59,330.

Q And what is the current producing capacity of each of the four wells, or, I will put it this way, are they all top allowable wells?

A Two of the wells are top allowable, two of them are penalized.

Q For high G.O.R.?

A For G.O.R. in excess of 4,000, yes, sir.

MR. BUELL: Do you have the allowables in accordance with the most recent schedule, you could give the Examiner that?

THE WITNESS: Yes.

Q (By Mr. Nutter) Well, the latest tests on the wells, including the G.O.R., would be adequate here.

A I know that the two Pan American wells have 434

barrel allowables and the Bass Wells have approximately 365 penalized, in that range. Now, the wells are not making that allowable, I know that. The last production data that I have on the individual wells --

Q Okay.

A -- is on Pan American's Wells 7 and 10 in March, 1967. Well No. 7 flowed 228 barrels of oil, 130 barrels of water in twenty-four hours.

Q And how about gas?

A There was not a gas test made at that time. Well No. 10, in March of '67 flowed 375 barrels of oil and no water and no gas-oil ratio measured. Perry-Bass' Well No. 8, in February of 1967, this is just an average daily test for the months production, 152 barrels of oil and 152 barrels of water. Well No. 15, in March, flowed 310 barrels of oil and 55 barrels of water

MR. NUTTER: Are there any further questions of Mr. Balthrop? He may be excused.

(Witness excused)

MR. NUTTER: Do you have anything further, Mr. Buell?

MR. BUELL: No, sir, Mr. Examiner, that's all we have at this time.

MR. NUTTER: Does anyone have anything they wish to

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 258-1294 • ALBUQUERQUE, NEW MEXICO 87108

offer in Case No. 3400?

MR. SEMON: I would like to make a closing statement for Perry R. Bass. My name is Jack Semon. I am employed as a Division Engineer at Monahans, Texas. We have studied the Big Eddy Strawn pool, Eddy County, New Mexico, listened to the testimony and examined the exhibits tendered by Pan American representatives. Perry R. Bass is in agreement and concurs with the recommendations as set forth by Pan American for the Big Eddy Strawn Pool.

MR. NUTTER: How do you spell your last name?

MR. SEMON: S-e-m-o-n.

MR. NUTTER: And you are in Monahan's, you say?

MR. SEMON: Yes, sir.

MR. NUTTER: Is there anything further in Case No. 3400? We will take the case under advisement.

dearley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, JERRY POTTS, Notary Public, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission Examiner 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 15th day of May, 1967.

[Signature]
Notary Public

My Commission Expires:

7-10-70

I do hereby verify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3400 heard by me on 7/5 1967.

[Signature]
New Mexico Oil Conservation Commission

SPECIAL RULES AND REGULATIONS
FOR THE BIG EDDY POOL

RULE 1. Each well completed or recompleted in the Big Eddy Pool or in the Strawn formation within one mile of the Big Eddy Pool, and not nearer to nor within the limits of another designated Strawn pool, shall be spaced, drilled, operated, and prorated in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well completed or recompleted in the Big Eddy Pool shall be located on a unit containing 160 acres, more or less, substantially in the form of a square, which is a quarter section being a legal subdivision of the United States Public Lands Survey.

RULE 3. Each well completed or recompleted in said pool shall not be drilled closer than 660 feet to any quarter section line nor closer than 330 feet to any quarter-quarter section line. Any well which was drilled to or recompleted in the Big Eddy Pool prior to April 27, 1966, is granted an exception to the well location requirements of this Rule.

RULE 4. For good cause shown, the Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when the application is for a non-standard unit comprising less than 160 acres. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director of the Commission may approve the application if, after a period of 30 days, no offset operator has entered an objection to the formation of such non-standard unit.

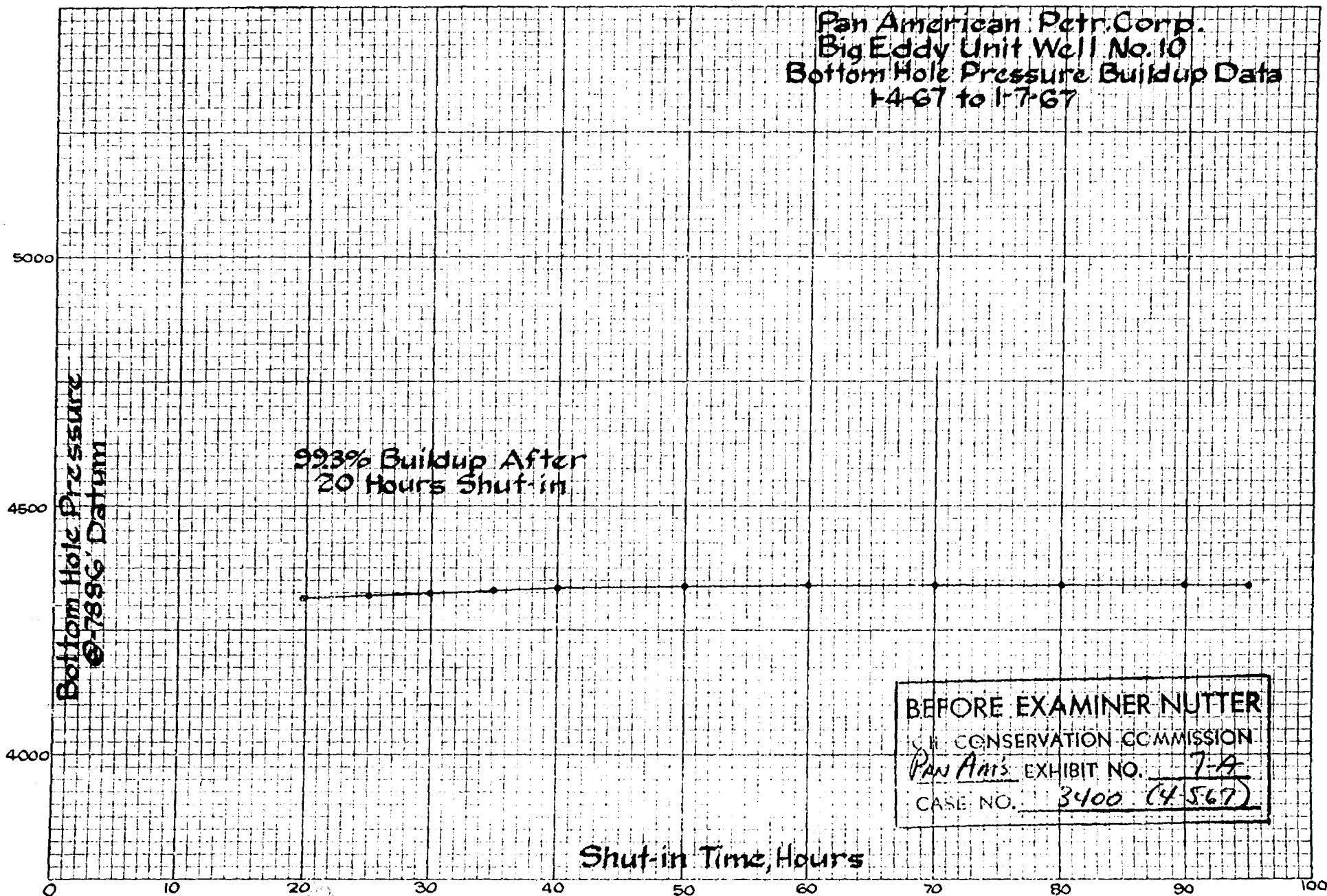
The allowable assigned to any such non-standard unit shall bear the same ratio to a standard allowable in the Big Eddy Pool as the acreage in such non-standard unit bears to 160 acres.

RULE 5. A 160-acre proration unit (158 through 162 acres) in the Big Eddy Pool shall be assigned a 160-acre proportional factor of 8.67 for allowable purposes, and in the event there is more than one well on a 160-acre proration unit, the operator may produce the allowable assigned to the unit in any proportion.

RULE 6. The limiting gas-oil ratio in the Big Eddy Pool shall be 4000:1.

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
<u>Paul Amis</u>	EXHIBIT NO. <u>4</u>
CASE NO. <u>3000</u>	

Pan American Petr. Corp.
Big Eddy Unit Well No. 10
Bottom Hole Pressure Buildup Data
1-4-67 to 1-7-67



Big Eddy - Strawn Pool
Development Economics

Development Costs

BEU No. 7 \$220,000 (estimated cost of Strawn completion, actual cost \$375,000)

BEU No. 8 \$228,000

BEU No. 15 207,000

BEU No. 10 218,000
\$873,000

Workover Costs

BEU No. 7 \$ 7,500

BEU No. 8 38,500
\$ 46,000

Total Costs

\$919,000

Operating Costs

\$300/well/month x 4 wells x 12 months x 5 years

72,000

Workovers

15,000

\$1,006,000

Value of Reserves

580,000 BO x .8437 x \$2.65 = \$1,300,000

4,350,000 MCF x .8437 x \$.20 = 730,000

\$2,030,000

ROI = $\frac{\$2,030,000 - \$1,006,000}{\$919,000} = \frac{1,024,000}{919,000} = 1.1$

BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

PennAPA's EXHIBIT NO. 6A

CASE NO. 3400 (4-5-67)

Big Eddy - Strawn Pool
Pore Volume Determination

Ultimate Recovery - Oil

$$N = \frac{7758 (\phi) (1-S_w) (AcFt) (Rec)}{RVF}$$

$$N = \frac{7758 (.0524) (.72) (26,920) (.20)}{2.7}$$

N = 580,000 Barrels

Per Well Recovery -

$$\frac{580,000}{4} = 145,000 \text{ Barrels}$$

Ultimate Recovery - gas

Assume average GOR of 7500 CF/Bbl

$$580,000 \text{ Bbls} \times 7.5 \text{ MCF/Bbl} = 4,350,000 \text{ MCF}$$

Per Well Recovery =

$$\frac{4,350,000}{4} \text{ MCF} = 1,090,000 \text{ MCF}$$

where:

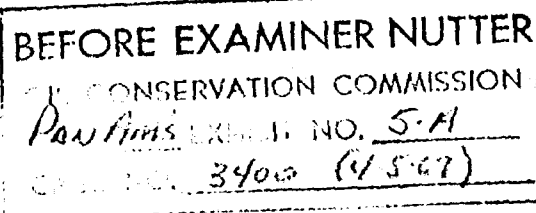
ϕ = average porosity, based 52.1%
on core data

S_w = average water saturation, 28%
based on log analysis

$AcFt$ = total volume of reservoir 26,920
 Rec = estimated primary recovery 20%
from not

RVF = reservoir volume factor, 2.7
analogy with Lusk
Strawn Oil Pool. 2.7

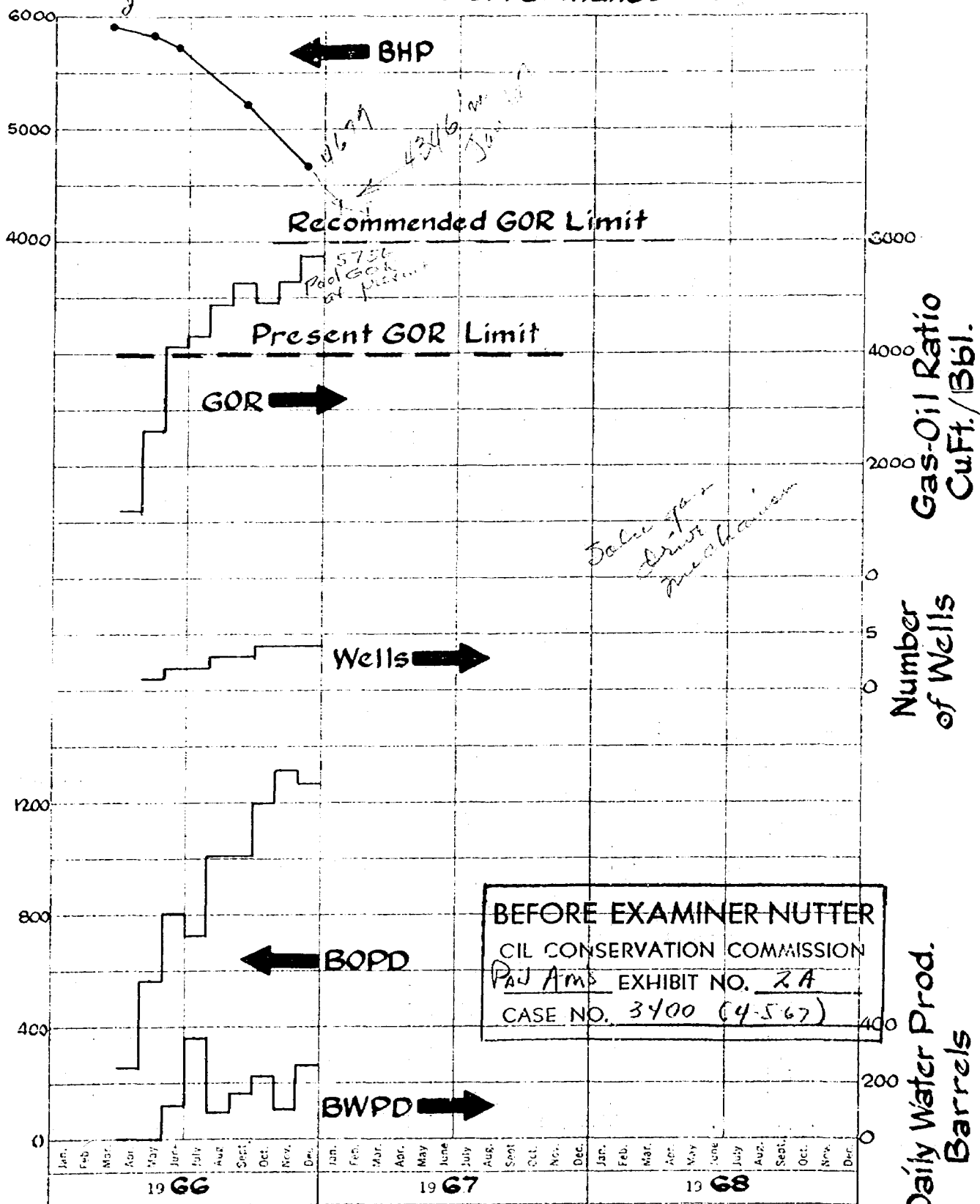
N = ultimate primary recovery



Bottom Hole Pressure
@ -7886 Datum

Big Eddy-Strawn-Pool Performance Curve

Daily Oil Production, Barrels



BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
PAJ AMS EXHIBIT NO. 2A
CASE NO. 3400 (4-567)

Daily Water Prod.
Barrels

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 27, 1966

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner or Daniel S. Nutter, Alternate Examiner:

- CASE 3394: Application of Shell Oil Company for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard gas proration unit comprising the N/2 SW/4, SE/4 SW/4, and NW/4 SE/4 of Section 22, Township 21 South, Range 37 East, Blinbry Gas Pool, Lea County, New Mexico, said unit to be dedicated to applicant's Turner Well No. 13 located in Unit N of said Section 22.
- CASE 3395: Application of R. W. Warner for down-hole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle in the well-bore marginal oil production from undesignated Gallup and Dakota Pools in his Warner-Federal Well No. 1 located in Unit A of Section 10, Township 22 North, Range 8 West, San Juan County, New Mexico.
- CASE 3396: Application of Texaco Inc. for a non-standard oil proration unit and a non-standard location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the approval of a 40-acre non-standard oil proration unit comprising the NE/4 SW/4 of Section 14, Township 12 South, Range 34 East, Ranger Lake-Pennsylvanian Pool, Lea County, New Mexico, said unit to be dedicated to its State of New Mexico "DA" Well No. 2 to be located 1980 feet from the South and West lines of said Section 14.
- CASE 3397: Application of Texaco Inc. for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of its Skaggs-Grayburg Unit Area comprising 880 acres, more or less, of Fee land in Sections 12 and 13, Township 20 South, Range 37 East, and Sections 7 and 18, Township 20 South, Range 38 East, Lea County, New Mexico.
- CASE 3398: Application of Texaco Inc. for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg formation, Skaggs-Grayburg Pool, through eleven wells in its Skaggs-Grayburg Unit, Lea County, New Mexico.
- CASE 3399: Application of Tenneco Oil Company for two non-standard gas proration units, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of two non-standard gas proration units which would comprise all lands in the W/2 of Section 30, Township 30 North, Range 9 West, adjacent to a Blanco-Pictured Cliffs Pool, San Juan County, New Mexico.
- CASE 3400: Application of Pan American Petroleum Corporation for creation of a new pool and special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for its Big Eddy Unit Well No. 7 located in Unit O of Section 19, Township 20 South, Range 31 East, Eddy County, New Mexico, and for the promulgation of special rules therefor, including a provision for 160-acre oil proration units.

- 2 -

APRIL 27, 1966, EXAMINER HEARING

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. All interested parties may appear and show cause why said pool should not be developed on 160-acre spacing units.

PAN AMERICAN PETROLEUM CORPORATION

Box 268
Lubbock, Texas 79401
April 4, 1966

File: RES-3261-986.510.1

File 3400

Subject: Application of Pan American
Petroleum Corporation for
Adoption of Temporary Rules,
Big Eddy (Strawn) Pool
Eddy County, New Mexico

Mr. A. L. Porter, Jr. (3)
Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico

*new docket to
all oil companies*

Dear Sir:

Pan American, as operator of Big Eddy Unit Well No. 7, the only completion in the subject pool, respectfully requests a hearing be docketed to consider its application for adoption of temporary rules for the Big Eddy (Strawn) Pool, Eddy County, New Mexico.

The following temporary rules, which are similar to those now in effect for the Lusk (Strawn) Pool, located some 4-1/2 miles northeast of our Big Eddy Unit Well No. 7, will be requested:

1. 160-acre proration units, more or less, substantially in the form of a square, consisting of a governmental quarter section.
2. Each well drilled or recompleted in said pool, subject to the effective date of the rules, shall not be located closer than 660' to any quarter section line, nor closer than 330' to any quarter-quarter section line.
3. A 160-acre proration unit shall be assigned a 160-acre proportional factor of 8.67 for allowable purposes.
4. The limiting gas-oil ratio shall be 4000:1.

As noted on the attached plat, Perry R. Bass is now drilling its Big Eddy Unit Well No. 8 and Pan American is now drilling its Big Eddy Unit Well No. 9 in this area. In our opinion, the establishment of the above rules on a temporary basis will be in the best interest of conservation and protection

DOCKET MAILED

Date 4-15-66
[Signature]

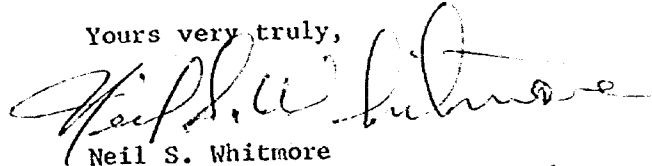
Mr. A. L. Porter, Jr. (3)

-2-

File: RES-3261-986.510.1

of correlative rights.

Yours very truly,

A handwritten signature in cursive script, appearing to read "Neil S. Whitmore".

Neil S. Whitmore
District Production Superintendent

WCC:jt:es
Attachment

APR 21 1966

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION)
OF PAN AMERICAN PETROLEUM COR-)
PORATION FOR CREATION OF A NEW POOL) No. 3400
AND SPECIAL POOL RULES, EDDY COUNTY,)
NEW MEXICO.)

ENTRY OF APPEARANCE

The undersigned, Atwood & Malone, of Roswell, New Mexico,
a firm of attorneys, all of whose members are duly licensed to prac-
tice law in the State of New Mexico, hereby enters its appearance as
local counsel with Guy Buell, Esquire of the Texas Bar, for Pan
American Petroleum Corporation in the above entitled cause.

DATED at Roswell, New Mexico, this 21st day of April,
1966.

ATWOOD & MALONE

BY

Ruth L. Malone
Attorneys for Pan American
Petroleum Corporation
Post Office Drawer 700
Roswell, New Mexico

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

1201 (4-00)

SYMBOLS

DL=Day Letter
NL=Night Letter
LT=International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

LA015 DB016

D MDA018 PPD=MIDLAND TEX 27 840A CST= 1966 APR 27 AM 8 01

OIL CONSERVATION COMM, CONFERENCE ROOM=
STATE LAND OFFICE BLDG SANTA FE NMEX=

UNION TEXAS PETROLEUM SUPPORTS PAN AMERICAN PETROLEUM
IN THEIR REQUEST FOR THE CREATION OF A NEW POOL AND
THE PROMULGATION OF SPECIAL RULES FOR BIG EDDY UNIT
#7 LOCATED SECTION 19 T-20-S R-31-E EDDY COUNTY=
UNION TEX PET==

MAIN OFFICE OCC

#7 19 T-20-S R-31-E=

'66 APR 27 AM 8 26

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

(42)...

Case 3400

ATWOOD & MALONE
LAWYERS

P. O. DRAWER 700
TELEPHONE 505 622-6221
SECURITY NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO
88201

JEFF D. ATWOOD (883-1960)
ROSS L. MALONE
CHARLES F. MALONE
RUSSELL D. MANN
PAUL A. COOTER
BOB F. TURNER
ROBERT A. JOHNSON
JOHN W. BASSETT, JR.

April 21, 1966

Mr. A. L. Porter, Jr., Secretary
New Mexico Oil Conservation Commission
Post Office Box 871
Santa Fe, New Mexico

Dear Mr. Porter:

We enclose herewith our Entry of Appearance on behalf of Pan
American in Cases Nos. 3400 and 3002 on the Examiner's Docket
for April 27, 1966.

With best wishes, we are,

Very truly yours,

ATWOOD & MALONE

Ross L. Malone
Ross L. Malone

RLM:ah

cc: J. K. Smith, Esquire

DOCKET: EXAMINER HEARING- WEDNESDAY- APRIL 5, 1967

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Elvis A. Utz, Alternate Examiner:

- CASE 3545: Application of John Yuronka and Robert E. Chandler for compulsory pooling, Lea County, New Mexico. Applicants, in the above-styled cause, seek an order force-pooling all mineral interests underlying the S/2 SW/4 and NE/4 SW/4 of Section 7, Township 22 South, Range 38 East, Lea County, New Mexico, from the surface to the base of the Drinkard formation or to 7400 feet, whichever is the lesser, but excluding the Granite Wash; in the alternative applicants seek the force-pooling in the above-described vertical interval underlying the SW/4 SW/4 only of said Section 7.
- CASE 3546: Application of Stoltz & Company for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the unorthodox location in an undesignated Pennsylvanian gas pool of its Hudson-Federal Well No. 1 at a point 838 feet from the North line and 1650 feet from the West line of Section 4, Township 21 South, Range 29 East, Eddy County, New Mexico.
- CASE 3547: Application of Skelly Oil Company for a waterflood expansion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order amending Order No. R-2900 to expand the waterflood interval authorized by said order to include the entire Grayburg-Jackson producing interval, to permit the conversion to water injection of 18 additional wells in Sections 14, 15, 22, 23, 26, and 27, Township 17 South, Range 31 East, and further to provide for administrative expansion of said project.
- CASE 3548: Application of Sinclair Oil & Gas Company for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled-cause, seeks approval of the unorthodox location in an undesignated Pennsylvanian gas pool of its Trigg-Federal Well No. 1 at a point 1980 feet from the North line and 660 feet from the West line of Section 27, Township 18 South, Range 27 East, Eddy County, New Mexico.
- CASE 3549: Application of Tesoro Petroleum Corporation for an unorthodox location, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox location for a well to be drilled 1330 feet from the South line and 2310 feet from the West line of Section 1, Township 17 North, Range 9 West, South Hospah Field, McKinley County, New Mexico.

CASE 3400 (Reopened)

In the matter of Case No. 3400 being reopened pursuant to the provisions of Order No. R-3064, which order established 160-acre

Examiner Hearing - April 5, 1967

(Case 3400 continued)

spacing units and a gas-oil ratio of 4000 to 1 for the Big Eddy-Strawn Pool, Eddy County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre or 80-acre spacing units and why the limiting gas-oil ratio should not revert to the Statewide limit of 2000 to one.

CASE 3550: Application of Kennedy Oil Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formations through three wells located in Sections 27 and 28, Township 16 South, Range 31 East, Square Lake Pool, Eddy County, New Mexico.

State of New Mexico
Oil Conservation Commission

P. O. BOX 2088
SANTA FE

May 4, 1966

Mr. Guy Buell
Pan American Petroleum Corporation
Post Office Box 1410
Fort Worth, Texas

Re: Case No. 3400
Order No. R-3064
Applicant:
Pan American Petroleum Corporation

DOCKET MAILED

Dear Sir:

Date 2-22-61 *dr*

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other _____

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. 3400
Order No. R-3064-A

APPLICATION OF PAN AMERICAN PETROLEUM
CORPORATION FOR CREATION OF A NEW POOL
AND SPECIAL POOL RULES, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 5, 1967,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 11th day of April, 1967, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, 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 by Order No. R-3064, dated May 4, 1966, temporary
Special Rules and Regulations were promulgated for the Big Eddy-
Strawn Pool, Eddy County, New Mexico.

(3) That pursuant to the provisions of Order No. R-3064,
this case was reopened to allow the operators in the subject pool
to appear and show cause why the Big Eddy-Strawn Pool should not
be developed on 40-acre or 80-acre spacing units and why the
limiting gas-oil ratio should not revert to the Statewide limit
of 2000 to 1.

(4) That the evidence establishes that one well in the
Big Eddy-Strawn Pool can efficiently and economically drain and
develop 160 acres.

-2-

CASE No. 3400

Order No. R-3064-A

(5) That Rule 7 of the Special Rules and Regulations governing the Big Eddy-Strawn Pool provided that the limiting gas-oil ratio shall be 4000 cubic feet of gas for each barrel of oil produced.

(6) That the reservoir characteristics of the subject pool presently available justify the establishment of a gas-liquid ratio limitation of 6000 cubic feet of gas per barrel of liquid hydrocarbons.

(7) That Rule 7 of the Special Rules and Regulations governing the Big Eddy-Strawn Pool should be amended to read in its entirety as follows:

RULE 7. The limiting gas-oil ratio shall be 6000 cubic feet of gas for each barrel of oil produced.

(8) That the Special Rules and Regulations promulgated by Order No. R-3064, as amended by this order, have afforded and will afford to the owner of each property in the pool the opportunity to produce his just and equitable share of the oil and gas in the pool.

(9) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-3064, as amended by this order, should be continued in full force and effect until further order of the Commission.

IT IS THEREFORE ORDERED:

(1) That Rule 7 of the Special Rules and Regulations governing the Big Eddy-Strawn Pool, Eddy County, New Mexico, promulgated by Order No. R-3064, is hereby amended to read in its entirety as follows:

RULE 7. The limiting gas-oil ratio shall be 6000 cubic feet of gas for each barrel of oil produced.

(2) That the Special Rules and Regulations governing the Big Eddy-Strawn Pool, Eddy County, New Mexico, promulgated by Order No. R-3064, as amended by this order, are hereby continued in full force and effect until further order of the Commission.

-3-

CASE No. 3400

Order No. R-3064-A

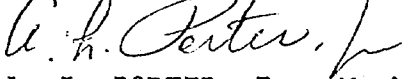
(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


DAVID F. CARGO, Chairman


GUYTON B. HAYS, Member


A. L. PORTER, Jr., Member & Secretary

S E A L

esr/

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. 3400
Order No. R-3064
NOMENCLATURE

APPLICATION OF PAN AMERICAN PETROLEUM
CORPORATION FOR CREATION OF A NEW POOL
AND SPECIAL POOL RULES, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 27, 1966,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of May, 1966, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, 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, Pan American Petroleum Corporation,
seeks the creation of a new oil pool for Strawn production in
Eddy County, New Mexico, and the promulgation of special rules
and regulations governing said pool, including a provision for
160-acre spacing units and a gas-oil ratio of 4000 to 1.

(3) That the Pan American Petroleum Corporation Big Eddy
Unit Well No. 7 located in Unit O of Section 19, Township 20
South, Range 31 East, NMPM, Eddy County, New Mexico, has dis-
covered a separate common source of supply which should be
designated the Big Eddy-Strawn Pool; that the vertical limits
of said pool should be the Strawn formation; and that the
horizontal limits of said pool should be the SE/4 of Section 19,
Township 20 South, Range 31 East, NMPM, Eddy County, New Mexico.

-2-

CASE No. 3400

Order No. R-3064

(4) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations providing for 160-acre spacing units should be promulgated for the Big Eddy-Strawn Pool.

(5) That the temporary special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(6) That the temporary special rules and regulations should provide for a limiting gas-oil ratio of 4000 to 1 in order to allow each operator in the pool the opportunity to use his just and equitable share of the reservoir energy.

(7) That the temporary special rules and regulations should be established for a one-year period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well.

(8) That this case should be reopened at an examiner hearing in April, 1967, at which time the operators in the subject pool should be prepared to appear and show cause why the Big Eddy-Strawn Pool should not be developed on 40-acre or 80-acre spacing units and why the limiting gas-oil ratio should not revert to the Statewide limit of 2000 to one.

IT IS THEREFORE ORDERED:

(1) That a new pool in Eddy County, New Mexico, classified as an oil pool for Strawn production, is hereby created and designated the Big Eddy-Strawn Pool, with vertical limits comprising the Strawn formation, and horizontal limits comprising the SE/4 of Section 19, Township 20 South, Range 31 East, NMPM, Eddy County, New Mexico.

(2) That temporary Special Rules and Regulations for the Big Eddy-Strawn Pool are hereby promulgated as follows:

-3-

CASE No. 3400
Order No. R-3064

SPECIAL RULES AND REGULATIONS
FOR THE
BIG EDDY-STRAWN POOL

RULE 1. Each well completed or recompleted in the Big Eddy-Strawn Pool or in the Strawn formation within one mile thereof, and not nearer to or within the limits of another designated Strawn oil pool, shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 160 acres, more or less, substantially in the form of a square, which is a quarter section being a legal subdivision of the United States Public Land Surveys.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit consisting of less than 160 acres or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. Each well shall be located no nearer than 660 feet to the outer boundary of the proration unit boundary and no nearer than 330 feet to any governmental quarter-quarter section line.

RULE 5. The Secretary-Director may grant an exception to the requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Secretary-Director has received the application.

CASE No. 3400
Order No. R-3064

RULE 6. A standard proration unit (158 through 162 acres) shall be assigned a 160-acre proportional factor of 8.67 for allowable purposes, and in the event there is more than one well on a 160-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.

The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 160 acres.

RULE 7. The limiting gas-oil ratio shall be 4000 cubic feet of gas for each barrel of oil produced.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Big Eddy-Strawn Pool or in the Strawn formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Artesia District Office of the Commission in writing of the name and location of the well on or before May 15, 1966.

(2) That each well presently drilling to or completed in the Big Eddy-Strawn Pool or in the Strawn formation within one mile thereof shall receive a 40-acre allowable until a Form C-102 dedicating 160 acres to the well has been filed with the Commission.

(3) That this case shall be reopened at an examiner hearing in April, 1967, at which time the operators in the subject pool may appear and show cause why the Big Eddy-Strawn Pool should not be developed on 40-acre or 80-acre spacing units and why the limiting gas-oil ratio should not revert to the Statewide limit of 2000 to one.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

-5-

CASE No. 3400

Order No. R-3064

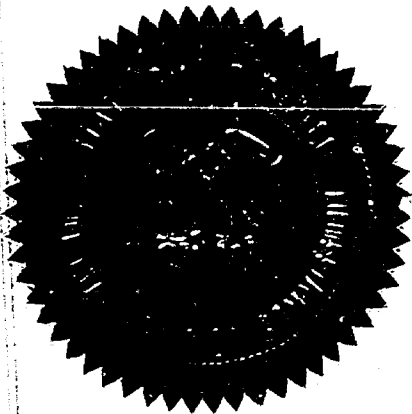
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell
JACK M. CAMPBELL, Chairman

Guyton B. Hays
GUYTON B. HAYS, Member

A. L. Porter, Jr.
A. L. PORTER, Jr., Member & Secretary



esr/