

CASE NO.

7057

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APPLICATION,  
TRANSCRIPTS,  
SMALL EXHIBITS,

ETC.



BRUCE KING  
GOVERNOR  
LARRY KEHOE  
SECRETARY

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

April 24, 1981

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Campbell, Byrd & Black  
Attorneys at Law  
Post Office Box 2208  
Santa Fe, New Mexico

Re: CASE NO. 7057  
ORDER NO. R-6524-A

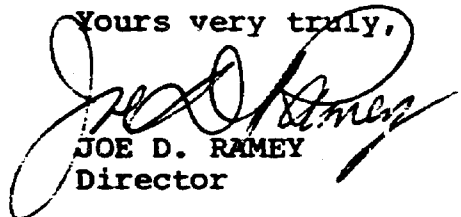
Applicant:

Doyle Hartman

Dear Sir:

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

Yours very truly,

  
JOE D. RAMEY  
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x  
Artesia OCC x  
Aztec OCC           

Other Don Maddox, Owen Lopez, Gary Kilpatrick, Horace Burton

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE NO. 7057 DE NOVO  
Order No. R-6524-A

APPLICATION OF DOYLE HARTMAN FOR  
EXTENSION OF VERTICAL LIMITS OF  
THE LANGLIE MATTIX POOL, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on March 18, 1981, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 23rd day of April, 1981, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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, Doyle Hartman, seeks the contraction of the vertical limits of the Jalmat Pool and the upward extension of the vertical limits of the Langlie Mattix Pool to the following depths underlying the following 40-acre tracts in Township 24 South, Range 37 East, Lea County, New Mexico: 3364 feet underlying the SE/4 SE/4 of Section 30, dedicated to applicant's Corrigan Well No. 1; 3389 feet underlying the NE/4 SE/4 of Section 30, dedicated to applicant's Corrigan Well No. 2; and 3390 feet underlying the SE/4 SW/4 of Section 20, dedicated to applicant's Harrison Well No. 1.

(3) That the matter came on for hearing at 9 a.m. on October 29, 1980, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter and, pursuant to this hearing, Order No. R-6524 was issued on November 25, 1980, which granted the application.

(4) That on December 29, 1980, application for Hearing De Novo was made by ARCO Oil and Gas Company and the matter was set for hearing before the Commission.

(5) That the matter came on for hearing de novo on March 18, 1981.

(6) That the vertical limits of the Jalmat Pool as defined by Order No. R-520, dated August 12, 1954, include the Yansill and Yates formations and all but the lowermost 100 feet of the Seven Rivers formation.

(7) That the vertical limits of the Langlie Mattix Pool, as defined by said Order No. R-520, include the lowermost 100 feet of the Seven Rivers formation and all of the Queen formation.

(8) That there has been some disparity among some geologists as to the actual base of the Seven Rivers formation and the top of the Queen formation and hence as to the location of the 100-foot marker separating the Jalmat and Langlie Mattix Pools.

(9) That as a result of this disparity, the subject wells which are classified as Langlie Mattix wells have perforations extending across the aforesaid 100-foot marker in the Seven Rivers formation and into the Jalmat Pool.

(10) That the top of the Langlie Mattix Pool, perforated intervals, and percentage of the perforated interval in the Jalmat and Langlie Mattix Pools are as follows:

<u>Well</u>	<u>Langlie Mattix Pool Top</u>	<u>Perforated Interval</u>	<u>Percent in Jalmat</u>	<u>Percent in Langlie Mattix</u>
Corrigan No. 1	3434	3364-3502	51	49
Corrigan No. 2	3468	3389-3503	69	31
Harrison No. 1	3435	3390-3454	70	30

(11) That such crossing over from one pool into the other in this case appears to be an unintentional error.

(12) That to rectify the aforesaid error would require workover operations on the subject wells which would be expensive and might endanger the productivity of the subject wells.

(13) That a reasonable solution to the problem is to adjust the vertical limits of the Langlie Mattix Pool upward under each of the above-described tracts in order to accommodate the present



perforations in the lower Seven Rivers formation in the subject wells which are actually within the present Jalmet vertical limits.

(14) That ARCO Oil and Gas Company, as offset operator to the subject wells, did not object to the extension and contraction of the vertical limits of said pools but did recommend that the gas allowables for the subject wells be restricted to that which a well on a 40-acre Jalmet Pool proration unit would receive or 94 MCF per day per well.

(15) That to prevent drainage from offset leases, the production from the wells should be restricted.

(16) That establishing a gas allowable based on the percentage of the perforated interval in the Langlie Mattix Pool multiplied by the casinghead gas allowable for wells in the pool is a practicable method for restricting production from said wells.

(17) That inasmuch as the subject wells are classified as Langlie Mattix wells, no allowable should be assigned in the Jalmet Pool.

(18) That the casinghead gas allowable for wells in the Langlie Mattix Pool is 800 MCF per day.

(19) That the casinghead gas allowables for the subject wells are as follows:

<u>Well</u>	<u>Percentage of perforated interval in Langlie Mattix Pool</u>	<u>Daily casinghead gas allowable</u>
Corrigan No. 1	49%	392 MCF
Corrigan No. 2	31%	248 MCF
Harrison No. 1	30%	240 MCF

(20) That the adjustment of the vertical limits of the Langlie Mattix Pool and the Jalmet Pool and restricted allowables to the said wells in the Langlie Mattix Pool will prevent waste and should not impair correlative rights and should be approved.

-4-

Case No. 7057 De Novo  
Order No. R-6524-A

IT IS THEREFORE ORDERED:

(1) That the lowermost vertical limits of the Jalmat Pool underlying the SE/4 SE/4 and the NE/4 SE/4 of Section 30, and the SE/4 SW/4 of Section 20, Township 24 South, Range 37 East, NMPH, Lea County, New Mexico, are hereby contracted to a subsurface depth of 3364 feet, 3389 feet, and 3390 feet, respectively, and the uppermost limits of the Langlie Mattix Pool underlying said tracts are hereby extended upward to the same subsurface depths.

(2) That the daily casinghead gas allowables for the subject wells are as listed below:

<u>Lease</u>	<u>Well No.</u>	<u>Unit Letter</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>	<u>Allowable</u>
Corrigan	1	P	30	24S	37E	392 MCF
Corrigan	2	I	30	24S	37E	248 MCF
Harrison	1	N	20	24S	37E	240 MCF

(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

ALEX J. ARMISTO, Member

  
EMERY C. ARNOLD, Member

  
JOE D. RAMEY, Member & Secretary

  
S E A L

fd/

## NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARINGSANTA FE, NEW MEXICOHearing Date MARCH 16, 1981 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
<i>Gary R. Koptm</i> Huan Pham	<i>Montgomery / Andrews (ARCO)</i> ARCO	<i>Santa Fe</i> Midland
<i>David P. Storer</i> <i>William F. Hall</i>	ARCO <i>Campbell, Boyd and Jack</i>	Midland <i>Santa Fe</i>
DON MADDOX Wm. P. Aycock	MADDOX, MADDOX Rothke, Aycock & Assoc., Inc	Hobbs Midland

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
STATE LAND OFFICE BLDG.  
SANTA FE, NEW MEXICO  
16 March 1981

COMMISSION HEARING

IN THE MATTER OF:

Application of Doyle Hartman for the  
extension of the vertical limits of  
the Langlie Mattix Pool, Lea County,  
New Mexico.

CASE  
7057

BEFORE: Commissioner Ramey

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation  
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## A P P E A R A N C E S

For ARCO:

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and  
Owen Lopez, Esq.  
MONTGOMERY & ANDREWS  
Paseo de Peralta  
Santa Fe, New Mexico 87501

Mr. Horace Burton, Esq.  
For ARCO

## I N D E X

## WILLIAM P. AYCOCK

Direct Examination by Mr. Carr

7

Cross Examination by Mr. Ramey

36

Cross Examination by Mr. Kilpatric

37

## HUAN PHAM

Direct Examination by Mr. Lopez

43

Cross Examination by Mr. Carr

58

## WILLIAM P. AYCOCK RECALLED

Redirect Examination by Mr. Carr

73

Recross Examination by Mr. Kilpatric

77

STATEMENT BY MR. LOPEZ

81

STATEMENT BY MR. CARR

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E X H I B I T S

Applicant Exhibit One, Schematic	11A
Applicant Exhibit Two, Structure Map	15
Applicant Exhibit Three, Cross Section	16
Applicant Exhibit Four, Cross Section	18
Applicant Exhibit Five, Tabulation	19
Applicant Exhibit Six, Structure Map	21
Applicant Exhibit Seven, Land Map	23
Applicant Exhibit Eight, Tabulation	27
Applicant Exhibit Nine, Tabulation	27
Applicant Exhibit Ten, Tabulation	27
ARCO Exhibit One, Plat	45
ARCO Exhibit Two, Log	45
ARCO Exhibit Three, Log	47
ARCO Exhibit Four, Log	48
ARCO Exhibit Five, Comparison	48
ARCO Exhibit Six, Plat	50
ARCO Exhibit Seven, Graph	51
ARCO Exhibit Eight, Graph	51
ARCO Exhibit Nine, Graph	51

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E X H I B I T S

ARCO Exhibit Ten, Calculation

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ARCO Exhibit Eleven, Log

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MR. RAMEY: Call Case Number 7057.

MR. PADILLA: Application of Doyle  
Hartman for the extension of vertical limits of the Langlie  
Mattix Pool, Lea County, New Mexico.

MR. KILPATRIC: May it please the Com-  
mission, I am Gary Kilpatric, Montgomery and Andrews, and  
Owen Lopez is here with me representing ARCO.

We have a witness and are prepared to go  
ahead but we understand there is no quorum.

MR. RAMEY: That is correct, gentlemen.  
There is no quorum and this case will be continued until  
2:00 p. m. Wednesday, March the 18th, either here or in  
Morgan Hall.

MR. KILPATRIC: That's satisfactory with  
me.

MR. CARR: I guess the record should  
note my appearance.

I'm William F. Carr, appearing for  
Doyle Hartman. I'm appearing today in association with Don  
Maddox with the law firm Maddox and Maddox in Hobbs, who is  
also representing Mr. Hartman, and my client is ready to go  
forward at this time, but can be here and will be here on  
Wednesday at 2:00 o'clock, on this matter.

MR. RAMEY: I apologize for not having



1  
2 a quorum.

3 (Thereupon the case was  
4 continued to 18 March, 1981,  
5 at which time the following  
6 proceedings were had, to-wit:)

7  
8 MR. RAMEY: The hearing will come to  
9 order.

10 We'll call Case 7057.

11 MR. PADILLA: Application of Doyle  
12 Hartman for the extension of the vertical limits of the  
13 Langlie Mattix Pool, Lea County, New Mexico.

14 MR. CARR: May it please the Commission,  
15 my name is William F. Carr, with the law firm Campbell, Byrd,  
16 and Black, P. A., in Santa Fe, New Mexico. I'm appearing  
17 on behalf of Doyle Hartman, and appearing in association  
18 today with Mr. Don Maddox of the law firm Maddox and Maddox,  
19 in Hobbs, New Mexico, who also represents Mr. Hartman.

20 MR. LOPEZ: Mr. Chairman, my name is  
21 Owen Lopez from the law firm of Montgomery and Andrews, P. A.,  
22 Santa Fe, New Mexico, appearing on behalf of ARCO Oil and  
23 Gas Company, and appearing with me here today is Gary Kil-  
24 patric from our office and Horace Burton, in the Legal De-  
25 partment of ARCO Oil and Gas.

1  
2 MR. RAMEY: I'll ask at this time that  
3 all the witnesses stand and be sworn.  
4

5 (Witnesses sworn.)  
6

7 MR. RAMEY: You may proceed, Mr. Carr.

8 MR. CARR: At this time I would call  
9 Mr. Aycock.  
10

11 WILLIAM P. AYCOCK

12 being called as a witness and being duly sworn upon his oath,  
13 testified as follows, to-wit:  
14

15 DIRECT EXAMINATION

16 BY MR. CARR:

17 MR. RAMEY: In the matter of saving a  
18 little time, Mr. Carr, why, we will consider Mr. Aycock  
19 qualified to testify at this time.

20 MR. CARR: Are his qualifications as  
21 an expert witness in petroleum engineering acceptable?

22 MR. RAMEY: Yes, they are.

23 Q. Mr. Aycock, will you briefly state what  
24 Mr. Hartman seeks with this application?

25 A. In accordance with the application that

1  
2 has been filed with this Commission as Case 7057, Mr. Hartman  
3 seeks the extension of the vertical limits of the Langlie  
4 Mattix Pool in Lea County, New Mexico, and the simultaneous  
5 contraction of the vertical limits for the Jalmat Pool in  
6 Lea County, New Mexico, underlying the following units, all  
7 of which are 40-acre tracts in Township 24 South, Range 37  
8 East: The southeast quarter of the southeast quarter of  
9 Section 30 to a depth of 3364 feet; the northeast quarter of  
10 the southeast quarter of Section 30 to 3389 feet; and the  
11 southeast quarter of the southwest quarter of Section 20 to  
12 the depth of 3390 feet.

13 Q Mr. Aycock, are you familiar with the  
14 application filed in this case?

15 A Yes, I am.

16 Q Have you performed a study of the area  
17 which is the subject of this case?

18 A Yes, sir, I have.

19 Q Will you briefly summarize the events  
20 which resulted in Mr. Hartman's seeking this exception to  
21 the vertical limits of the Langlie Mattix Pool?

22 A I'm referring to the transcript of the  
23 prior hearing in order that I can get the dates exact, Mr.  
24 Ramey, in reply to his question.

25 MR. Hartman was notified by a communi-

1  
2 cation from the Hobbs District Office, which was dated July  
3 28th, 1980, that certain wells, including those that are the  
4 subject of this hearing, had been studied by Mr. John Runyon,  
5 at that time District Geologist in the Hobbs District, and  
6 found to be out of zone; that is, certain wells in both the  
7 Langlie Mattix and Jalmat Pools.

8           On August 7th, 1980, there was a meeting  
9 of all of the operators concerned in the Hobbs District  
10 Office. I attended that meeting on behalf of Mr. Hartman.  
11 Copies of Mr. Runyon's study were provided to all of the con-  
12 cerned parties, and at that point Mr. Sexton and Mr. Runyon  
13 enabled any of the concerned parties who wished to discuss  
14 the matter as pertained to their particular situation to make  
15 an special appointment with them to do that, which I did on  
16 Mr. Hartman's behalf, and that hearing, I mean that appoint-  
17 ment was on a Monday, and I believe the meeting was on a --  
18 was either on a Wednesday or a Thursday, so it would either  
19 be on the 9th or 10th, I had a private meeting with Mr.  
20 Sexton and Mr. Runyon and reviewed the situation with regard  
21 to Mr. Hartman's wells, and found that using the criteria  
22 established in the industry committee cross sections that  
23 we were substantially in agreement with Mr. Runyon's picks  
24 as to the degree of overlap that there was between the Jalmat  
25 and the Langlie Mattix Pool intervals in the wells in ques-

1  
2 tion.

3 At the meeting Mr. Sexton presented an  
4 ultimatum to all of the concerned employees and the ultimatum  
5 was this: There was a sixty day period allowed from the  
6 August 7th, 1980, meeting in which each operator could launch ---  
7 could initiate an action that would remedy this situation.  
8 The penalty that was held out was that if the operators did  
9 not do this, then the Commission would take unilateral action  
10 and the type of unilateral action that was anticipated was  
11 not described but it was pretty well understood that the  
12 allowables would be cancelled for those leases which some  
13 attempt to get into compliance had not been made.

14 Mr. Sexton outlined three courses of  
15 action that he felt could be used by the operators to remedy  
16 it, among them were seeking an exception to the vertical  
17 pool limits to bring the acreage assigned to each of the  
18 wells found to be in violation of the Commission's pool depth  
19 limitations in a hearing; a request for downhole commingling  
20 underneath the units in question; let's see, I'm trying to  
21 think, I think there was another one and I can't remember  
22 what it was just now. Those were the major two.

23 The other one would have been, of  
24 course, remedying the --- physically remedying the overlap  
25 by subsurface well work. That was excluded out of hand be-

1  
2 cause we felt without any question that would lead to waste  
3 and not only would it probably lead to waste within the  
4 intervals in question, but it would probably lead to addi-  
5 tional waste because our experience with these highly de-  
6 pleted old reservoirs is that once the wells are killed in  
7 order to do any subsurface work, there is a very strong risk  
8 that you will not be able to get production at commercial  
9 rates back, or if you are able to get it back at all. that  
10 the productivity of the wells will be impaired and as a re-  
11 sult of that, that the remaining reserves that they might  
12 produce will be substantially reduced.

13 This -- the application which is the  
14 subject of this -- of the original hearing and of this de  
15 novo hearing resulted from our desire to comply on behalf  
16 of Mr. Hartman with Mr. Sexton's request, and the fact that  
17 the only one of the three measures that I've outlined to  
18 you as presented by Mr. Sexton that was either acceptable  
19 or possible from Mr. Hartman's standpoint, was the request  
20 of the extension of the vertical limits of the Langlie Mattix  
21 Pool and the concurrent contraction of the vertical limits  
22 of the Jalmat Pool for these three 40-acre tracts.

23 Q Mr. Aycock, have you prepared certain  
24 exhibits for introduction in this case?

25 A Yes, sir, I have.

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Q           Would you please refer to what has been marked for identification as Hartman Exhibit Number One and explain to the Commission what this is and what it shows?

A           Hartman's Exhibit Number One is a schematic of the -- of Langlie Mattix/Jalmat Pool definitions which shows the well log for the Union Texas Petroleum Corporation Langlie-Jal Unit No. 4. It is a well located in Section 32, 24 South, 37 East, immediately south of the area that's in question here, and it was used for purposes of illustration because it was nearby and because it has a modern well log on which the picks that are defined through the use of the industry committee cross sections are more easily made than they are on some of the older logs, if any logs are available, which as Mr. Ramey is aware, having been at the Hobbs District, many of those old wells do not have any logs at all.

          What this shows is the -- what is known in some circles as the -- what we've called the CUQ marker, which some people in the industry call the first Queen, what is called the -- what has been determined to be the Queen by the industry committee, which is called by some operators the second Queen, and what the boundaries of the -- the upper vertical boundaries -- I mean the upper -- yes, the upper vertical boundary of the Langlie Mattix Pool would be, whether

1  
2 one used the committee Queen top or the -- what we've -- what  
3 we have called here the CUQ marker, the 100 feet interval  
4 complies with the Langlie Mattix Pool rule that specifies  
5 that the -- that the limits of the Langlie Mattix Pool extend  
6 from the top of the Grayburg to the -- to 100 feet above the  
7 base of the Seven Rivers formation.

8 As you can see from examining this well  
9 log, there is approximately 60 feet of overlap on this well  
10 between the -- what is -- what is actually a portion of the  
11 Jalmat Pool and what is -- would properly be limit of the  
12 Langlie Mattix Pool by the definition of the industry com-  
13 mittee that is adopted by the Commission and the -- what it  
14 would be if the commonly used Queen marker, or first Queen  
15 were used as a basis for determination of the -- what is  
16 the base of the Seven Rivers formation.

17 Q Mr. Aycock, I believe you've stated  
18 that CUQ stands for commonly used Queen, is that correct?

19 A Yes, sir, that's correct.

20 Q Is this marker used by a number of  
21 operators in the area?

22 A Yes, sir, it has been and is. It's a  
23 lithologic marker that is the first one that's encountered  
24 when you drill from a basically carbonate matrix containing  
25 interspersed sands into a basically shale matrix containing



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2 interspersed dolomitic sands.

3

Q Now, when you say committee top, how --  
4 I believe you indicated that is defined somewhere. Where is  
5 it defined?

6

A It's defined on a series of cross sec-  
7 tions that were promulgated in the mid-fifties and to provide  
8 the Commission with a basis for determining what should  
9 properly be the limits or the boundaries between the Jalmat  
10 and Langlie Mattix Pools, which overlies each other, and which  
11 occupy different portions of the Permian age oil and gas  
12 reservoirs.

13

Q How would an operator in this area learn  
14 of the existence of these cross sections?

15

A It would have to be by word of mouth  
16 either from the Commission representative in the Hobbs Office  
17 or from some other operator. It's not referred to anywhere  
18 in the pool rules or anywhere in writing that I'm aware of.

19

Q Do the pool rules provide any type log  
20 from which an operator could key off of in picking these  
21 zones?

22

A As we previously testified in the ori-  
23 ginal hearing, I'm not aware of any objective definition of  
24 the pool boundaries that's provided in writing either with  
25 regard to a type log or any reference to these cross sec-

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tions. If you had not had the experience of knowing that they were the basis for this determination, that you would know that you should avail yourself of it.

In addition -- excuse me.

Q Go ahead.

A In addition to that fact, at the time that Mr. Hartman would have had to have availed himself of them had he known about them, one of the cross sections, and I'm not prepared to say how that would have entered into his decision, but one of the cross sections was not in the District Office of the Oil Conservation Division, and according to what Mr. Sexton told me personally, it had to be procured from outside sources. They were made available at Superior Office Service in Hobbs, New Mexico, subsequent to this August 7th, 1980, meeting, and I personally secured five copies for the use of me and the clients that I represent in this area.

Q Could you just for the purposes of the record state how the Langlie Mattix is defined in them?

A The portion that's consequential here -- you're talking about the vertical limits?

Q Yes, sir.

A Is defined as the vertical interval between the top of the Grayburg and 100 feet above the base

1  
2 of the Seven Rivers formation. The base of the Queen being  
3 the top of the Grayburg.

4 Q Now, Mr. Aycock, is it correct to sum-  
5 marize your testimony as being that there is no public record  
6 available to an operator that makes reference to the logs  
7 upon which the Commission based its definition?

8 A If there is, I don't know where it is,  
9 no, sir.

10 Q Now the yellow shaded area on Exhibit  
11 Number One depicts what?

12 A This is the overlap between the pool  
13 boundaries, in other words, the encroachment into what should  
14 properly be the Jalmat vertical interval that an operator  
15 would -- in which an operator would complete if he were  
16 under the mis-assumption that the Queen -- that the base of  
17 the Seven Rivers as defined by the top of the Queen would  
18 be predicated upon the CUQ marker rather than upon the  
19 second Queen, or committee Queen. In this case it's appro-  
20 ximately 60 feet.

21 Q Mr. Aycock, will you now refer to Hart-  
22 man Exhibit Number Two and explain what this is to the Com-  
23 mission?

24 A Hartman Exhibit Number Two is a structure  
25 map on top of this first Queen, or commonly used Queen marker,

1  
2 indicating the area that is involved in this application with  
3 the well that is the subject of Exhibit One indicated as  
4 type log and the location of two cross sections which will  
5 subsequently be presented in our testimony also indicated.

6 I would call the Commission's attention  
7 to the fact that the -- where these wells are located on  
8 this map that are the subject of this application in Section  
9 30, the southeast quarter of the southeast quarter, would  
10 be the Hartman Corrigan No. 1; the northeast quarter of the  
11 southeast quarter would be the Hartman Gulf Corrigan No. 2;  
12 and the southeast quarter of the southwest quarter of Section  
13 20 is the Hartman Henry Harrison No. 1 Well.

14 Q What importance does structure play in  
15 this situation?

16 A The only importance that structure  
17 plays is that there was apparently in both the Jalmat and the  
18 Langlie Mattix zones a large accumulation of free gas ori-  
19 ginally contained within these zones, a substantial portion  
20 of which has been produced in the east half of Section 29 by  
21 wells that are not now active.

22 Q Are those wells depicted on this exhibit?

23 A Yes, sir, they are.

24 Q Will you next go to Hartman Exhibit  
25 Three and review this for the Commission?

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A. Hartman Exhibit Number Three is cross section A-A', the trace of which is indicated on Hartman Exhibit Number Two in red as running from the northeast direction to the southwest direction.

I will call the Commission's attention to the fact that certain depth intervals are indicated in red on this cross section for each of these indicated wells. Those intervals in red are the amount of overlap that existed for those wells, in other word encroachment, from the Langlie Mattix into the Jalmat for all of these wells -- each of these wells which were classified as Langlie Mattix producers as a result of the misunderstanding about what constituted the base of the Seven Rivers formation due to the use of the lithologic first Queen as the marker upon which that base was predicated rather than the second Queen.

All of the pertinent information is shown for each of the wells, but the most consequential thing to be gathered is that the overlap ranges from approximately 15 feet up to approximately 100 feet for various wells on the cross section.

We think that this demonstrates quite graphically the degree of misunderstanding that was prevalent at various times, both before the 1954 Order R-570 and after it.

1  
2 Q Will you now review the information  
3 contained on Hartman Exhibit Four for the Commission?

4 A Hartman Exhibit Number Four is cross  
5 section B-B', the trace of which is indicated in green as  
6 running from the northwest to the southeast direction on  
7 Hartman Exhibit Number Two.

8 We'll call the Commission's attention  
9 once again to the same factors that we called before. No  
10 attempt has been made to select wells to portray the struc-  
11 tural and completion practices that have been prevalent in  
12 the area on other basis really than their availability and  
13 their adjacent location to the area that's in question in  
14 this hearing, and we think once again the intervals that  
15 are colored red, which indicate the degree of overlap on  
16 each of those wells, indicates that at the time they were  
17 completed that there was misunderstanding about what consti-  
18 tutes the pool limits.

19 We are completely aware that whenever  
20 one of the waterflood units is constructed, that it is the  
21 practice of the operators to request, and has been the prac-  
22 tice of the Commission to grant, a complete relief from the  
23 pool boundary limitations that are present outside of these  
24 unit areas. We're not questioning that at all. We're simply  
25 saying that -- that this shows that -- that prudent operation,

1  
2 whether governed by the pool limits or not, would indicate  
3 that there would be overlap from what is the Langlie -- or  
4 what is properly called the Langlie Mattix and what is pro-  
5 perly called the Jalmat.

6 We believe that that -- that operation  
7 occurs because what is known to some operators as the third  
8 Seven Rivers formation is of a lower degree of permeability  
9 than other of the oil and gas commercial reservoirs that  
10 are located -- that are contained within the vertical limits  
11 of the Jalmat reservoir, and as a consequence in the past,  
12 because of the small -- the low price for gas and the tech-  
13 nology of well stimulation was not in existence at the time  
14 that many of these wells were completed and has been the  
15 subject of intense development by the industry since it was  
16 initiated in about 1954, has meant that there are substantial  
17 undepleted gas reserves contained within the third Seven  
18 Rivers formation through much of the Langlie Mattix/Jalmat  
19 area.

20 Q Mr. Aycock, will you now review the  
21 information contained in Hartman Exhibit Number Five for  
22 the Commission?

23 A Hartman Exhibit Number Five is a tabu-  
24 lation of wells -- it is -- there are four pages of it. The  
25 first two pages pertain to wells in the vicinity of Hartman's

1  
2 Henry Harrison No. 1, which is in the southeast of the south-  
3 west of 20, and the second two pages of which are applicable  
4 to wells within the vicinity of Hartman's Gulf Eddie Corrigan  
5 Nos. 1 and 2, which are located in the east half of the  
6 southeast of Section 30.

7 This is information that was gleaned  
8 from the Commission files, basically from Forms C-105, and  
9 it shows all the pertinent information that we can obtain  
10 from Forms C 105 for each of these wells, including both the  
11 third column from the right, which we've called overlap into  
12 the Jalmat.

13 Now, it is quite apparent in many -- in  
14 many cases that these wells were completed back in the thirties  
15 and were -- this predated any Commission prescription upon  
16 what might be called Langlie Mattix or Jalmat.

17 In any event, we think it shows that --  
18 that prudent operation by the operators entailed completion  
19 in these intervals, and we would call the Commission's at-  
20 tention to the fact that substantial production has been ob-  
21 tained, both on the tracts which Mr. Hartman drilled and  
22 those that offset him and each of the proration units on  
23 which Mr. Hartman drilled his wells were the subject of an  
24 exception to R-570 that was granted in 1954. The wells were  
25 no longer active at the time that he drilled them but all



1  
2 of those 40-acre tracts had been granted an exception at the  
3 time that R-570 was written and placed into the Commission  
4 archives.

5 Q Mr. Aycock, I believe you mean R-520,  
6 is that correct?

7 A R-520, I beg your pardon, that's the  
8 second, third time I've done that.

9 Q Will you please refer to Hartman Exhibit  
10 Number Six and review this for the Commission?

11 A Hartman Exhibit Number Six is a structure  
12 map on the top of the CUQ marker with certain information  
13 as to gas production and gas/oil ratio that are available  
14 for wells in the vicinity of the acreage that is concerned  
15 in this application.

16 The Hartman wells, all of the wells that  
17 for which gas production could be documented are surrounded  
18 by hexagons. The three Hartman wells, the hexagons for  
19 those three wells are colored in yellow for the Commission's  
20 convenience in being able to understand the implications of  
21 this exhibit.

22 We would like to call the Commission's  
23 attention to the fact that the three wells located in the  
24 east half of the southeast quarter of Section 30, between  
25 them, as of the effective date of the information presented

1  
2 here, had produced approximately five Bcf of gas from the  
3 Langlie Mattix intervals. If you will look across the line  
4 immediately to the east in the east half of the west -- I  
5 mean the west half of the west half of 29, you will notice  
6 that two of ARCO wells, two of ARCO's wells in the past  
7 alone have produced about 16 Bcf, not counting what has oc-  
8 curred as a result of Mr. Yuronka's activities under the  
9 farmout agreement granted him by ARCO.

10 At the present time, based upon the  
11 producing capacities and producing trends of the Hartman  
12 wells there is not any possible physical way that the gas  
13 production on a per well or per acre basis, the withdrawals  
14 could ever be equalized between the acreage that's in the  
15 south half of Section 30, whether the 40-acre tracts  
16 included within this application or not, could ever equal  
17 the gas production that's already been withdrawn by ARCO  
18 from wells in the west half of the west half of 29.

19 You might also note that to the north,  
20 where the Henry Harrison 1 is located, the old Wiser Calley  
21 Well that's located on the same 40-acre tract accumulated  
22 2.3 Bcf of gas before it was plugged and abandoned, and  
23 Hartman's Henry Harrison 1 has accumulated about 320 million  
24 cubic feet of gas for a total of about 2.6 Bcf. So if we  
25 took all of Hartman's past production, where Hartman is now,

1  
2 and looked at -- take any objective look at the producing  
3 trends, we'll find that ARCO has already produced gas by a  
4 factor of two or three more than could ever be produced from  
5 these 40-acre tracts on its production -- its formerly active  
6 wells in the west half of the west half of 29.

7 In the --

8 Q Will you --

9 A -- pardon me, in the original hearing  
10 which was conducted with Mr. Nutter as the Examiner, ARCO's  
11 witness complained about the disparity in withdrawal between  
12 Hartman and ARCO and pointed out that ARCO had no remedy  
13 since it had farmed out its interest in the west half of the  
14 west half of 29 to Mr. Yuronka, and I don't think any of us  
15 would want to become a party to, or interfere with ARCO's  
16 private contractual situation with regard to Mr. Yuronka,  
17 whatever Mr. Yuronka and ARCO may have agreed between them  
18 is not the subject of this hearing, and is not any business  
19 of Mr. Hartman's, nor does he wish to become involved in it.  
20 Our understanding of what the Commission attempts to do in  
21 providing correlative rights to the operators is to allow  
22 each operator the opportunity to produce, not guarantee him  
23 that he can produce.

24 Q Mr. Aycock, will you please refer to  
25 Exhibit Number Seven and review it for the Commission?

1  
2 A Exhibit Number Seven is a land map of  
3 the entire area, including that that is the subject of this  
4 application, as well as much other. This information, with  
5 the exception of the five blue tracts, was obtained from Mr.  
6 Runyon's study that was provided to the industry on August  
7 7th, 1980, and it shows all of the exceptions to the vertical  
8 pool limits prescriptions between the Jalmat and Langlie  
9 Mattix Pools that have been -- have been allowed by the Com-  
10 mission in the past under various orders. Some of these are  
11 waterflood orders and others are not, and we simply submit  
12 it because we think that it illustrates once again the  
13 general nature of the problem that has existed since the time  
14 that the Langlie Mattix and Jalmat Pools were separated, both  
15 before R-520 and after it, because the Commission will  
16 notice that many of these orders granting these exemptions,  
17 not all of which are waterflood, include waterflood units,  
18 are after the 1954 R-520.

19 Q Mr. Aycock, referring to Exhibit Seven,  
20 are all three of the 40-acre tracts which are the subject  
21 of this hearing shown as having been previously operated  
22 under an exception to the vertical limits?

23 A Yes, sir, they have been.

24 Q Does this map show exceptions which  
25 have been approved by this Commission since the August, 1980.

1  
2 meeting in Hobbs?

3 A No, sir.

4 Q Do you know how many exceptions have  
5 been --

6 A Well, I know in this immediate area  
7 both Gulf and Getty have been granted exceptions to it.

8 MR. CARR: May it please the Commission,  
9 we would note that the Getty exception was granted by Case  
10 7056 and the Gulf exception by Case 7059, and would ask that  
11 you take administrative notice of these cases.

12 MR. RAMEY: So noted, Mr. Carr.

13 Q Mr. Aycock, are you aware of any ex-  
14 ceptions having been granted in this general area to ARCO  
15 Oil and Gas?

16 A Well, yes, sir.

17 Q When was that exception granted?

18 A On the 6th day of March, 1981, Case  
19 Number 7163.

20 Q What acreage was involved?

21 A The acreage involved was the northeast  
22 quarter of the southeast quarter of Section 35, Township 23  
23 South, Range 36 East.

24 Q Have you reviewed the transcript of  
25 that hearing?

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A. Yes, sir, I have.

Q. What was the basis of the argument advanced by ARCO in seeking their exception?

A. The basis of the argument by ARCO was that they ought to be allowed the opportunity to produce from the same zones as Mr. Hartman was in an offsetting lease.

Q. And were the offsetting leases operating under exceptions to the vertical limits of the Langlie Mattix Pool?

A. The Hartman leases you mean?

Q. Yes, sir.

A. Yes, they were granted, they had, they were granted in a special hearing, I don't have the number of that, but yes, they were granted exceptions to the pool limits.

Q. Are the tracts which are the subject of this hearing also offset by acreage which is being operated under an exception to the vertical limits of the Langlie Mattix?

A. Yes.

Q. Will you now refer to what has been marked for identification as ARCO Exhibits Eight, Nine, and Ten, and review these for the Commission?

A. ARCO Exhibits Eight, Nine, and Ten?

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Q. I'm sorry, Hartman Exhibits Eight, Nine, and Ten.

A. Hartman Exhibits Eight, Nine, and Ten are tabulations of, first, the first part of it is a tabulation of wells formerly or currently operated by ARCO under exceptions that we could document, and I think this is -- I think it can -- it is obvious that there are a number of them. We bring this up because in the original hearing ARCO indulged in a character assassination of Mr. Hartman, stating that because he had a number of wells which had been called to account for themselves under Mr. Runyon's study and by Mr. Sexton, that that necessarily indicated that he was trying to deceive the Commission and take unfair advantage of the rules.

We felt that it was necessary to show that the problem is one of a misunderstanding of what the Commission requires and Mr. Hartman is not the only one that has suffered from that misunderstanding.

Q. Mr. Aycock, will you now just refer to the second part of this exhibit, Exhibit Nine, and state to the Commission what this is and what it shows?

A. This is a tabulation of the wells formerly or currently operated by ARCO throughout the trend, showing the amount of recovery that has -- that we can docu-



1  
2 ment from the public information available from them. The  
3 bulk of them were oil wells in the Langlie Mattix Pool; some  
4 of them were Jalmat gas wells. They range over the entire  
5 area that was covered by the -- Mr. Ranyon's study.

6 Q Will you now refer to the last exhibit,  
7 Exhibit Number Ten, and identify this for the Commission and  
8 explain what it shows?

9 A This is a detail of the wells that are  
10 located in the west half of Section 29, Township 24 South,  
11 Range 37 East, in Lea County, New Mexico, showing this was  
12 also brought up by ARCO in their direct testimony in the  
13 original hearing, and it shows the situation with regard to  
14 all of those wells.

15 Mr. Yuronka operates six wells that he  
16 for which he received his ownership by drilling on ARCO  
17 farmouts, and there are three wells formerly operated by  
18 ARCO, that were produced in both the Langlie Mattix and Jalmat  
19 Pools, that are located in this -- it's actually the west  
20 half of the west half.

21 We would call the Commission's attention  
22 to the fact that from the Langlie Mattix intervals 15.8,  
23 roughly 16 Bcf of gas were produced from the three wells,  
24 and from the Jalmat intervals approximately 3.8 Bcf of gas  
25 have been produced, for a total amount of gas approaching

1  
2 20 Bcf. There is not any way conceivable that the offsetting  
3 acreage, whether normalized on a per acreage basis or per  
4 well basis, could ever hope to participate in the remaining  
5 reserves to the degree that ARCO's already participated on.

6 Q Mr. Aycock, when did ARCO acquire its  
7 interest in Section 29?

8 A July 1st, 1935, according to an assign-  
9 ment that we had extracted from the deed records of Lea County,  
10 New Mexico, in Lovington.

11 Q Do you happen to know when the wells  
12 were drilled that previously operated under exceptions to  
13 the pool limits of the vertical -- pool limits of the Langlie  
14 Mattix Pool on those tracts which are the subject of this  
15 hearing?

16 A As shown on the last page of our exhibit,  
17 the original completions on two of them were in 1937.

18 Q And do you know how long these wells  
19 produced from those tracts?

20 A Let's see, on the Harrison "WN" No. 2,  
21 located in Unit D of 29, in May of 1967 was the last Langlie  
22 Mattix production.

23 On the Harrison D "WN" No. 2, located  
24 in Unit L, the last Langlie Mattix production was in April  
25 of 1969.

1  
2 And on the Harrison No. 6, located in  
3 Unit N of Section 29, the Langlie Mattix was plugged and  
4 abandoned in May of 1977.

5 Q Mr. Aycock, how did Mr. Hartman acquire  
6 his interest in the subject tracts?

7 A Farmouts from Fluor and Gulf.

8 Q And when were these farmouts acquired?

9 A Immediately prior to the time he drilled  
10 them, which was in -- just a minute and I can tell you exactly.  
11 1977. Oh, excuse me, that's not the right -- that's not the  
12 right lease.

13 1977 for the Harrison 1, and in 1978 for  
14 the Gulf Corrigan 1 and 2.

15 Q Mr. Aycock, have you reviewed these  
16 farmouts?

17 A Yes, sir.

18 Q Do they require that Mr. Hartman protect  
19 these leases from drainage from offsetting wells?

20 A They require two things, as the Commis-  
21 sion is aware that all major company farmouts virtually re-  
22 quire, they require that the leases be protected from drain-  
23 age, and they also require that the -- all of the intervals  
24 that are farmed out be thoroughly tested to the satisfaction  
25 of the company farming the acreage out to determine whether

1  
2 or not they bear hydrocarbons in commercial quantities.

3 It is apparent that Gulf and Mr. Hartman  
4 both suffered from the same misconception as to what the pool  
5 limits were, and that Gulf in -- in affirming what Mr. Hartman  
6 has done, and also appearing in a hearing of their own that  
7 concerns immediately adjacent acreage, was suffering from  
8 that same misconception as to what constituted the pool  
9 boundaries, and so it is quite apparent that their require-  
10 ments would be that he test those intervals that are the sub-  
11 ject of this application; that is, those that are in the  
12 overlap between what would properly be the Langlie Mattix  
13 and what was tested as being thought to be part of the Langlie  
14 Mattix Pool, that being in the third Seven Rivers formation.

15 Q Mr. Aycock, if Hartman's application is  
16 granted in this case, will it result in conflict of owner-  
17 ship on the subject tracts?

18 A No, sir.

19 Q Based on your review of the area, in  
20 determining that the subject wells were Langlie Mattix com-  
21 pletions, was Mr. Hartman using the same picks that were  
22 used by other operators in the pool?

23 A By many in the area, as we previously  
24 testified, due to their also misunderstanding of what con-  
25 stituted the top of the Queen and therefor the base of the

1  
2 Seven Rivers.

3 Q Could production in these wells be  
4 downhole commingled?

5 A No, it could not.

6 Q Would denial of this application, in  
7 your opinion, result in hydrocarbons being left in the ground  
8 that otherwise would be produced?

9 A Yes, sir, I believe it would.

10 Q And how would this be caused?

11 A Well, I think it could be caused one of  
12 two ways. I doubt that the remaining reserves are sufficient  
13 for anybody to indulge in a great deal of expense to try to  
14 complete wells in them. If the -- if the reservoirs that  
15 are the subject of -- first of all, we don't know how much  
16 of the common source of supply being drained by either Mr.  
17 Hartman's wells or those on nearby leases are actually  
18 coming from those zones that are within the vertical interval  
19 that is the overlap between the Jalmat and Langlie Mattix  
20 Pool intervals.

21 Assuming that it is some substantial  
22 portion of what is being withdrawn, if it is plugged off the  
23 likelihood is that the expense of completing or drilling  
24 other wells to it could not be borne, and therefor, those  
25 reserves would be abandoned in place.

1  
2 In addition, as we've previously testi-  
3 fied, due to our experience, that is, Mr. Hartman's experience  
4 as well as other operators' experience throughout the Langlie  
5 Mattix/Jalmat Pools, we believe that killing these wells with  
6 the advanced state of depletion would lead to the invasion of  
7 the killing fluid, whether it were oil or water, to a -- pro-  
8 bably a very deep depth within the reservoir intervals, and  
9 even if you were able to affect a separation which is doubtful  
10 because of the fracturing techniques that were used in the  
11 initial completion. The likelihood is that the remaining  
12 intervals, which are properly a portion of the Langlie Mattix  
13 Pool, could not be restored to their former productivity or  
14 could not be restored to productivity at all.

15 Q Mr. Aycock, would granting this appli-  
16 cation impair the right of any operator or any interest owner  
17 in the pool to produce his just and fair share of the reserves  
18 from the --

19 A No, sir, I think Mr. Hartman's position  
20 is -- was well stated by ARCO's witness in the hearing pre-  
21 viously referred to, and with the Commission's indulgence,  
22 I'd like to quote directly from that -- from that testimony.

23 MR. KILPATRIC: Mr. Commissioner, we  
24 would object to the question as calling for irrelevant testi-  
25 mony from an individual with different surroundings, set of

1  
2 facts. If Mr. Aycock has a rationale for Mr. Hartman in this  
3 case, then he ought to state it. I don't believe he ought  
4 to quote out of context from some other case.

5 MR. CARR: I will redirect the question  
6 to Mr. Aycock.

7 Q Mr. Aycock, in your own words would you  
8 state why you believe this application would not violate  
9 correlative rights --

10 A There's no -- in granting this application  
11 there's no prohibition from any other operator availing him-  
12 self of the remedies that are available to him, which is to  
13 develop these reserves through existing wellbores or other  
14 wellbores.

15 Q In your opinion will granting this ap-  
16 plication be in the best interest of conservation?

17 A I believe that it will, yes.

18 Q Were Exhibits One through Ten either  
19 prepared by you or under your direction and supervision?

20 A Yes, sir, they were.

21 MR. CARR: At this time we would offer  
22 into evidence Hartman Exhibits One through Ten.

23 MR. KILPATRIC: Mr. Chairman, for the  
24 record we want to object to Exhibits Eight and Nine, dealing  
25 with other ARCO wells and their exceptions, and we will con-

1  
2 tend they are not the subject of this hearing, and they come  
3 under all kinds of exceptions and they are showing that ARCO  
4 had sought exceptions prior to Order R-520, and in waterfloods  
5 and all kinds of situations, and that's not germane informa-  
6 tion.

7 MR. CARR: We would submit that what we  
8 have here is a situation where a pool has been developed, a  
9 number of exceptions have had to be granted to various oper-  
10 ators because of confusion as to the pool limits; that it is  
11 a proper matter for you to consider in reviewing this case,  
12 whether or not a number of exceptions have been given to  
13 ARCO and other operators in the pool and exactly where these  
14 exceptions lie with respect to the subject property.

15 We submit that all three Exhibits, Eight,  
16 Nine, and Ten are relevant and are proper for you to consider  
17 in this proceeding.

18 MR. RAMEY: We will accept the exhibits,  
19 Hartman's Exhibits One through Ten.

20 MR. CARR: At this time, may it please  
21 the Commission, we would ask that you take administrative  
22 note of Case 7163, which is the application of ARCO Oil and  
23 Gas for an exception to the vertical limits of the Langlie  
24 Mattix Pool.

25 MR. RAMEY: Okay, it's so noted, Mr.



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Carr.

CROSS EXAMINATION

BY MR. RAMEY:

Q Mr. Aycock, you were very definite in stating that these wells could not be downhole commingled.

A Yes, sir.

Q Why is that? Why can't they be downhole commingled?

A Because Mr. Hartman by virtue of the farmout agreement with Gulf does not own Jalmat rights. He only owns Langlie Mattix rights. And in the, in his correspondence with Gulf and their correspondence with him, they cited the intervals that are the question of this and it's quite apparent that both of them thought that the intervals in which these wells were completed were in the Langlie Mattix pool, within it.

MR. RAMEY: Thank you.

MR. CARR: Mr. Ramey, with your permission we would like a very brief recess, during which time we'd like to have an opportunity to talk to Mr. Aycock for a moment.

MR. RAMEY: All right, we'll have a very brief recess.

(Thereupon a recess was  
taken.)

MR. RAMEY: Do you have anything further,  
Mr. Carr?

MR. CARR: Nothing further, Mr. Ramey.

MR. RAMEY: Anyone have any questions  
of Mr. Aycock?

MR. KILPATRIC: May I have just one moment,  
Mr. Ramey?

CROSS EXAMINATION

BY MR. KILPATRIC:

Q Mr. Aycock, I believe you testified on  
direct examination that there were no public records avail-  
able in order for Mr. Hartman to determine the Committee top,  
is that correct?

A. There was no mention made anywhere in  
any published record, that's right. Cross sections were in  
existence but there was no mention of them made in the pool  
rules or any other location that I'm aware of.

Q But in fact nine of the ten cross sec-  
tions were available in Hobbs, is that correct?

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2 A. They were in the Hobbs office, that's  
3 correct.

4 Q. And other operators did make use of  
5 those cross sections.

6 A. Well, whether they did or not, I'm not  
7 prepared to testify, Mr. Kilpatric.

8 Q. You're not aware as to whether or not  
9 any operators made use of those --

10 A. I'm not aware of whether anybody -- the  
11 first time Mr. Hartman heard of them was from Lewis Burleson,  
12 and as soon as he heard about them, he availed himself of  
13 them.

14 Mr. Hartman was in -- was in elementary  
15 school at the time that information was developed and made  
16 available as a public record. He was not an active indepen-  
17 dent or in a major company at the time that it was done, and  
18 without a specific reference to it in a public record place  
19 that he would normally refer to, then there was not any way  
20 that he could know that it was available.

21 Q. The fact is the cross sections were  
22 available through the entire time that he's been operating  
23 in the field, though, is that correct?

24 A. They were available.

25 Q. All right.

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A. I will accept Mr. Sexton's word for that and that's my basis for that understanding.

Q. Mr. Aycock, I'd like to refer you to your Exhibit Number Three.

A. Okay.

Q. Which you identify as cross section A-A', I believe.

A. Uh-huh.

Q. On that exhibit you show two ARCO wells, and you have them marked as ARCO wells.

A. Right.

Q. Isn't it a fact that the first ARCO well starting from the left and going to the right, that isn't really an ARCO well, is it?

A. I don't understand what you mean, it isn't really an ARCO well.

Q. You have ARCO up there at the top, right?

A. It was originally a Western Natural well, if that's what you're asking.

Q. Well, why do you have the word ARCO after the word company?

A. Why do I have the word ARCO after the word company? Because ARCO owns the acreage on which it's located.

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Q And how did you determine that information?

A From referenced available public records.

Q And what well was completed when?

A 2-16-37.

Q 1937, right, before the 1953 R-520 order is that right?

A Uh-huh, and after ARCO had acquired the interest on July 1st, 1935.

Q And referring to the other well you have marked as an ARCO Well, do you see that, the fourth one over?

A Uh-huh.

Q When was that well completed?

A 9-10-37.

Q And you don't show any other ARCO wells on this exhibit.

A That's right.

Q I'd now like to refer you to your Exhibit Number Six, and refer you to your gas/oil ratios for the Hartman Henry Harrison No. 4, I believe. You show a 37.1/25.5, am I correct?

A Uh-huh.

Q Where -- how did you obtain the informa-

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tion as to those numbers?

A From the public information production records.

Q As of what date?

A As of the last date that we could get prior to this hearing, which I believe this was in October, and I believe the last information that's available as of that point in time was through the month of August, 1980.

Q You're aware, aren't you, there there's more current data available as of October of 1980?

A Uh-huh.

Q You didn't see fit to update this --

A We didn't call the hearing, Mr. Kilpatrick. You did.

Q I just asked you a question, did you see fit to update it?

A No, sir, I did not.

Q So it's incorrect as to those numbers?

A It's correct as of the date of the hearing, the original hearing that was held. That's correct.

Q Not --

A It is not correct, it has not been updated to the present time.

Q This hearing, right?

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A. That's correct.

Q. This de novo hearing.

A. That's correct.

Q. Do you have any other reason for not bringing the exhibit up to date, other than the fact that is accurate as of the first hearing?

A. No, I have no reason to bring it up to date. I didn't realize that the Commission required us to -- on a de novo hearing to do anything to the exhibits that were presented at that time. If that's a requirement, I'm unaware of it.

MR. KILPATRIC: Just a moment, please.

Q. Mr. Aycock, I just have one more question.

A. Uh-huh.

Q. Isn't it a fact that the most current information shows that gas/oil ratio to be a lot lower than you have it on this?

A. I'm not aware, because I haven't made any attempt to research it, Mr. Kilpatric. I'd be lying to you if I told you I knew.

Q. All right, thank you.

MR. KILPATRIC: That's all I have.

MR. RAMEY: Any other questions of Mr.

1  
2 Aycock?

3 MR. CARR: We have nothing further.

4 MR. RAMEY: He may be excused.

5 MR. CARR: That concludes our direct  
6 case.

7 MR. RAMEY: Thank you, Mr. Carr.

8  
9 HUAN PHAM

10 being called as a witness and being duly sworn upon his oath,  
11 testified as follows, to-wit:

12  
13 DIRECT EXAMINATION

14 BY MR. LOPEZ:

15 Q Will you please state your name?

16 A My name is Huan Pham.

17 Q By whom are you employed and in what  
18 capacity?

19 A I have been employed by ARCO Oil and  
20 Gas Company since 1976. My current assignment is as an  
21 area engineer.

22 Q Have you previously testified before  
23 the Commission and had your qualifications as a petroleum  
24 engineer accepted as a matter of record?

25 A Yes, sir, I have.



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2 Q Are you familiar with the application  
3 in Case 7057?

4 A Yes, I am.

5 MR. LOPEZ: Mr. Chairman, I would at  
6 this time request the Commission to take administrative  
7 notice of Case 7057 and the record of the hearing.

8 MR. RAMEY: So noted, Mr. Lopez.

9 MR. LOPEZ: Are the witness' qualifi-  
10 cations acceptable to the Commission?

11 MR. RAMEY: Yes, they're acceptable.

12 Q What is ARCO's position as to Mr.  
13 Hartman's application in this case?

14 A Should the application of Mr. Hartman  
15 be granted ARCO respectfully requests an order restricting  
16 the allowables on the production from Mr. Hartman's Corrigan  
17 No. 1, located in the southeast quarter of the southeast  
18 quarter of Section 30, Township 24 South, and Range 27 East;  
19 the Hartman Corrigan No. 2, located in the northeast quarter  
20 of the southeast quarter of the same section; and also the  
21 Hartman Harrison No. 1, located in the southeast quarter of  
22 the southwest quarter of Section 20, all in Township 24 South,  
23 Range 37 East, in Lea County, New Mexico.

24 A restriction of the allowables of  
25 these wells to an equivalent of a 40-acre Jalmat gas prora-

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2 tion unit per well is necessary to prevent drainage and to  
3 protect ARCO's correlative rights in the Jalmat underlying  
4 the offset acreage.

5 Q I now refer you to what has been marked  
6 for identification as ARCO Exhibit Number One and ask that  
7 you describe and explain it.

8 A Exhibit Number One is an area map showing  
9 the west half of Section 29 outlined in red. Also colored  
10 in red are the three wells that Mr. Hartman operates and for  
11 which he has asked for an extension of the vertical limits  
12 of the Langlie Mattix.

13 ARCO owns 100 percent working interest  
14 in the Jalmat Gas Reservoir underlying the west half of  
15 Section 29. 100 percent of ARCO interest in the Langlie  
16 Mattix underlying the northwest quarter and the west half  
17 of the southwest quarter was farmed out to Mr. John Yuronka  
18 in December of '78.

19 ARCO also owns a 25 percent working  
20 interest to all depths in the northeast quarter of Section  
21 30, which is operated by Continental Oil Company.

22 Q Next I refer you to what has been marked  
23 for identification as ARCO Exhibit Number Two and ask that  
24 you describe and explain it.

25 A Exhibit Number Two is the gamma ray

1  
2 density log of the Hartman Corrigan No. 1, which is shown  
3 on this exhibit as being located in the southeast quarter of  
4 the southeast quarter of Section 30. The gamma ray is exhibited  
5 in the lefthand column and the density is exhibited in the  
6 righthand column.

7 The density curve indicates porosity.  
8 The best porosity -- the better porosity a zone has the fur-  
9 ther the curve moves to the left.

10 As the Commission well knows, the better  
11 the porosity, the more hydrocarbons the zone can produce.

12 This exhibit shows the top of the Yates,  
13 the Seven Rivers, and the Queen formations as defined by  
14 the New Mexico Oil Conservation Division.

15 The Langlie Mattix, the top of which is  
16 located 100 feet above the top of the Queen, is marked by a  
17 red line at 3434 feet. Marked in green is the original gas/  
18 oil contact at -150 feet subsea, as recognized by the in-  
19 dustry.

20 The perforation interval from 3364 to  
21 3502 is colored in red. In this well Mr. Hartman perforated  
22 70 feet into the Jalmat and only 68 feet in the Langlie  
23 Mattix. More than half of the perforation interval is in  
24 the Jalmat, although the well was submitted to the New Mexico  
25 Oil Conservation Division as a Langlie Mattix well, and is

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now producing under the Langlie Mattix allowable.

As can be seen on this exhibit, the best porosity zones within the perforated interval are in the Jalmat and that is where we believe most of the production is coming from.

Q I refer you to what has been marked for identification as ARCO Exhibit Number Three and ask that you describe and explain it.

A Exhibit Number Three is the gamma ray density log of the Hartman Corrigan No. 2. As can be seen on this Exhibit Number One, the well is located in the northeast quarter of the southeast quarter of Section 30. The density curve in the righthand column indicates porosity and has the same characteristics I referred to in my discussion of Exhibit Number Two.

On this well the top of the Langlie Mattix is marked at 3468 feet by a red line. The perforation interval from 3389 to 3503 is colored in red.

In this well Mr. Hartman perforated 79 feet into the Jalmat and only 35 feet in the Langlie Mattix. This indicates that 69 percent of the perforations interval is in the Jalmat gas pool, even though the well was submitted to the Division as a Langlie Mattix well is now producing under the Langlie Mattix allowable.

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2 Q Next I refer you to what has been marked  
3 for identification as ARCO Exhibit Number Four and ask that  
4 you describe and explain it.

5 A Exhibit Number Four is the gamma ray  
6 density log of the Hartman Harrison No. 1. As shown on Ex-  
7 hibit Number One, this well is located in the southeast  
8 quarter of the southwest quarter of Section 20. The density  
9 curve in the righthand column is an indication of porosity  
10 as previously discussed.

11 The top of the Langlie Mattix is marked  
12 at 3435 feet. The perforation interval which runs from 3390  
13 to 3454 is colored in red.

14 In this well Mr. Hartman perforated 45  
15 feet into the Jalmat and only 19 feet into the Langlie Mattix  
16 therefor, 70 percent of the perforation interval is in the  
17 Jalmat gas pool, although this well was submitted to the  
18 Division as a Langlie Mattix well and is now producing under  
19 the Langlie Mattix allowable.

20 Also shown on this exhibit, the best  
21 porosity zones within the perforated interval are in the  
22 Jalmat and we believe that this is where substantially all  
23 of the production is coming from.

24 Q Next I refer you to what has been  
25 marked for identification as ARCO Exhibit Number Five and ask

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that you describe and explain it.

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A. Exhibit Number Five is a comparison of the October, 1980, daily gas allowables for the Langlie Mattix and Jalmat on equivalent 40-acre tracts.

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As can be seen on this exhibit, by having the Langlie Mattix gas allowable Mr. Hartman is allowed to produce up to 800 Mcf a day per 40-acre tract, while for a Jalmat 40-acre tract ARCO is allowed to produce only 94 Mcf a day. Thus for a 40-acre tract Hartman's allowable is more than eight times that of ARCO's allowable. In fact, in the month of October, 1980, Mr. Hartman produced an average of 367 Mcf a day from the Corrigan No. 1; 367 Mcf a day from the Corrigan No. 2; and 422 Mcf a day from the Harrison No. 1. This is more than four times the 94 Mcf a day allowable limit for the Jalmat gas pool.

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In addition, Mr. Hartman's wells are at unorthodox locations and are not in compliance with the Jalmat gas pool spacing. Had these wells been properly submitted as Jalmat gas wells, Mr. Hartman would have been requested to obtain Commission's approval and the offset operators' approval before he could have drilled the wells because they are too close to the lease lines and therefor could drain offset leases.

25

Q

What effect would the difference in the

allowables have upon the correlative rights between Mr. Hartman and ARCO?

A. So long as Mr. Hartman is allowed to produce Jalmat gas from these wells under the Langlie Mattix allowable while ARCO's offsetting wells are restricted to the Jalmat allowable, ARCO's Jalmat gas reserves in the offsetting acreage will continue to be drained and its correlative rights violated.

Q. Next I refer you to what has been marked for identification as ARCO Exhibit Number Six and ask that you describe and explain it.

A. Exhibit Number Six shows the area from which the Hartman Corrigan No. 1, the Corrigan No. 2, and the Harrison No. 1 Wells are draining Jalmat gas.

ARCO has 100 percent working interest in the areas colored in red and 25 percent working interest in areas colored in green. The drainage areas were determined by calculations shown on Exhibit Number Ten.

As can be seen from this Exhibit Number Six, a significant amount of the drainage area underlies ARCO acreage and therefor is subject to being drained by Jalmat gas production from Mr. Hartman's wells.

Q. Next I refer you to what has been marked for identification as ARCO Exhibits Seven, Eight, and

1  
2 Nine and ask that you describe and explain them.

3 A. Exhibits Seven, Eight, and Nine depict  
4 production curves of Mr. Hartman's three wells in Mcf per day  
5 and barrels of oil per day.

6 For example, Exhibit Number Seven shows  
7 the Hartman Corrigan No. 1 as producing 367 Mcf a day and 2  
8 barrels of oil per day during October, 1980. The extrapo-  
9 lated dotted line is the expected production rate based upon  
10 a decline rate of 18 percent. This decline rate is used to  
11 determine the remaining recoverable gas reserves.

12 Also shown at the bottom of the exhibit  
13 is the cumulative oil and gas production through October of  
14 1980.

15 Exhibits Eight and Nine show the same  
16 type information on the Corrigan No. 2 and the Harrison No.  
17 1 wells.

18 Q. Next I refer you to what has been  
19 marked for identification as ARCO Exhibit Number Ten and ask  
20 that you describe and explain it.

21 A. Exhibit Number Ten is a sample calcula-  
22 tion of the Jalmat gas drainage area shown on Exhibit Number  
23 Six.

24 This exhibit shows that the Hartman  
25 Henry Harrison No. 1 well has produced 370 MMCF as of January



1st, 1981.

Based on the expected decline rate of 20 percent, remaining reserves were calculated to be 622 MMCF. The ultimate reserves equal the sum of the cumulative and remaining reserves, which in this case is 992 MMCF.

Based on the porosity feet allocation of the perforated interval, 82 percent of the ultimate gas reserves will be produced from the Jalmat; therefor, the ultimate Jalmat gas reserves are 813 MMCF.

To calculate the drainage area this gas reserve is set equal to the volumetric equation of gas in place and the recovery factor is estimated at 75 percent.

Based upon these calculations the drainage area was determined to be 264 acres. By planimentering the drainage area it shows 51 percent of the area is ARCO's acreage; therefor, ARCO's Jalmat gas reserves equal to 51 percent of 813 MMCF, or 416 MMCF.

As a result, if Hartman's application is granted the Hartman Henry Harrison No. 1 will capture 416 MMCF of ARCO's Jalmat gas reserves.

Q Next I refer you to what has been marked for identification as ARCO Exhibit Number Eleven and ask that you describe and explain it.

A Exhibit Number Eleven is the gamma ray

1  
2 density log of the Yuronka Harrison A No. 1, which is shown  
3 on Exhibit Number One as being located in the northeast  
4 quarter of the northwest quarter of Section 29. This well is  
5 the direct offset to the south of the Hartman Harrison NO. 1,  
6 in Section 20.

7 Mr. Yuronka perforated less than 20 feet  
8 into the Jalmat and is within the tolerance for error  
9 adopted by the Runyon report.

10 Now, please refer to Exhibit Number Four  
11 which shows the gamma ray density logs of the Hartman Henry  
12 Harrison No. 1.

13 By correlating the two logs one can see  
14 that Mr. Hartman perforated much higher in the Jalmat where  
15 the porosity is much better than in the Langlie Mattix. As  
16 a result, during October of 1980 the Hartman Henry Harrison  
17 No. 1 produced 422 Mcf per day, which was more than six times  
18 greater than the 70 Mcf per day produced by the Yuronka  
19 Harrison No. 1. The reason for this great difference in  
20 production is 70 percent of the perforation interval in Mr.  
21 Hartman's Henry Harrison No. 1 Well lies in the Jalmat where  
22 porosity is better developed.

23 Q. Mr. Pham, in light of what has been  
24 presented here today, can you suggest any methods by which  
25 ARCO's correlative rights can be protected?

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A In order to protect ARCO correlative rights the following solutions could be carried out:

First is to squeeze off the perforations in the Jalmat.

Second, to dually complete the well in the Jalmat and the Langlie Mattix.

Third, downhole commingle the two zones.

And fourth, to allow the extension of the Langlie Mattix as requested by Mr. Hartman but to restrict the allowable to the equivalent of a 40-acre Jalmat gas proration unit per well.

It should be noted that ARCO's correlative rights cannot be protected by the granting of a similar extension of the Langlie Mattix underlying ARCO's offset acreage because ARCO has farmed out the Langlie Mattix rights on that acreage to Mr. Yuronka.

Q Which of these solutions, if any, do you recommend?

A I would recommend the fourth solution, that is, to allow the extension of the Langlie Mattix as requested by Mr. Hartman, but to restrict the allowable to the equivalent of a 40-acre Jalmat gas proration unit per well.

The first two solutions involve working

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2 over the wells, which could result in loss of hydrocarbons.

3 The third solution may cause problems  
4 in ownership.

5 Therefor, the fourth solution is the  
6 most reasonable because it will prevent waste, eliminate un-  
7 necessary drainage, and protect ARCO's correlative rights,  
8 while still allowing Mr. Hartman to produce from his wells  
9 without any additional expense or risk.

10 However, ARCO would accept any solution  
11 chosen by the Commission which would protect its correlative  
12 rights.

13 Q Mr. Pham, in your opinion what will  
14 happen if a restriction of allowable is not imposed on the  
15 three wells operated by Mr. Hartman?

16 A Unless the Commission restricts the gas  
17 production from Mr. Hartman's wells to the equivalent of a  
18 40-acre Jalmat gas proration unit per well, Mr. Hartman will  
19 continue to produce the wells at a much higher rate under  
20 the Langlie Mattix allowable. As a result the drainage  
21 problem that ARCO has been suffering will continue and its  
22 correlative rights will therefor continue to be violated.

23 Q What then, Mr. Pham, is ARCO's position  
24 concerning Mr. Hartman's application and what is the basis  
25 for that position?

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A. ARCO is not interested in the reason why Mr. Hartman perforated into the Jalmat. The fact of the matter is at this very moment ARCO gas reserves are continuing to be drained because Mr. Hartman's wells have the unfair advantage of a significantly higher allowable. Therefor, we request an order be issued to restrict the allowable on these three -- on these three wells to the equivalent of a 40-acre Jalmat gas proration unit per well.

Q. Does the solution you are recommending compensate ARCO for the loss ARCO has already suffered as a result of the drainage that has occurred?

A. No, sir.

Q. Is the remedy requested by ARCO in the interest of the prevention of waste and the protection of correlative rights?

A. In my opinion it is.

Q. Were Exhibits One through Eleven prepared by you or under your supervision?

A. Yes, sir.

MR. LOPEZ: At this time I would move the admission of ARCO's Exhibits One through Eleven.

MR. RAMEY: ARCO's Exhibits One through Eleven will be admitted.

Q. Mr. Pham, I think we just have one more

1  
2 question, which is do you have the gas/oil ratio currently  
3 of the well that's in dispute?

4 A. Yes, I have.

5 Q. Regarding Mr. Hartman's Exhibit Number  
6 Three, I believe.

7 A. Based on the October production report,  
8 the Harrison -- the Yuronka Harrison No. 4 Well, which is  
9 located in the southwest quarter of the southwest quarter of  
10 Section 29, --

11 Q. I think I mis-referred. I think it's  
12 Exhibit Number Six.

13 I'll hand you Mr. Hartman's Exhibit  
14 Number Six and ask you if you have any other comments con-  
15 cerning the exhibit?

16 A. On this Exhibit Number Six the gas/oil  
17 ratio for the Yuronka Harrison No. 4 was shown to be 37000  
18 and 1 -- I mean 37 -- 37 Mcf and 1, while in the October  
19 report it was shown to be 17000-to-1. So this is more than  
20 two times higher than the October gas/oil ratio reached.

21 And I would also like to point out to  
22 the Commission that on Mr. Hartman Corrigan No. 2 Well, where  
23 it shows the gas/oil ratio of 127,000 on this same exhibit,  
24 I believe that that number is come up with because there is  
25 a lot of Jalmat gas produced in the well, and that is the

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reason why the gas/oil ratio is significantly higher than the  
offset Langlie Mattix well, which runs between 11000 to 17000  
to 1.

MR. LOPEZ: Mr. Chairman, I have no  
further questions of this witness.

MR. RAMEY: Any questions of Mr. Pham?  
Mr. Carr?

MR. CARR: Mr. Pham, do you still have  
a copy of Exhibit Number Six, Hartman Exhibit Number Six?

MR. LOPEZ: NO, I'll give it to him.

A. Yes, sir.

CROSS EXAMINATION

BY MR. CARR:

Q Did you check the GOR's as reported to  
determine whether or not they were accurate as of August,  
1980?

A I did not, sir. I just checked on the  
last available numbers that we have.

Q So your testimony is not that as of  
August, 1980, any figures reported are necessarily incorrect?

A No, sir, that's correct. It is based  
on the October figures.

Q Now any of the new figures that you dis-

1  
2 covered in October, did any of these changes cause gas wells  
3 to then become classified as oil wells, oil-gas?

4 A Well, based on these figures here, it's  
5 to the left of the ratio 100,000-to-1, you know, that will  
6 change the status of the well, but I want to point out that,  
7 you know, --

8 Q Well, are there any oil wells here that  
9 were, because of the new data that you have, would they be  
10 classified as gas wells under your data that were not --

11 A I'm sorry, I hadn't finished my sentence.

12 Q I'm sorry.

13 A I would like to point out that the  
14 reason that this well has a higher gas/oil ratio based on  
15 the August production number, that was so that, you know, when  
16 the well in the Langlie Mattix produces a lot higher gas  
17 production, and that seems, you know, misleading to me.

18 Q Mr. Pham, is there any data available  
19 to you more current than the October data?

20 A Up till now I would say maybe in  
21 November is some.

22 Q Have you checked that?

23 A No, sir.

24 Q So you picked October and we picked  
25 August.



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A. Well, at the time that we prepared this, and it was the last work available.

Q. And at the time we prepared this you're not disputing that what we had was August?

A. I do not know.

Q. All right, thank you.

Now I'd like to refer to your Exhibit Number One. I just didn't understand what acreage here was farmed out to Yuronka. I just didn't catch that on direct.

A. The Langlie Mattix zone is farmed out to Mr. Yuronka.

Q. Under what --

A. Under the northwest quarter and also the west half of the southwest quarter.

Q. Of Section 29?

A. Yes, sir.

Q. But that farmout runs just to the Langlie Mattix.

A. Right.

Q. Would you now refer to -- well, let's refer to your Exhibit Number Four. Now the green line on this exhibit is labeled, I believe, gas/oil contact, is that correct?

A. Yes, sir, that's the original gas/oil

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contact.

Q Now when you said original, is this the gas/oil contact that has been used for some period of time throughout this pool?

A Yes, sir.

Q For how long -- for what period of time, do you know, has this gas/oil contact been used?

A It has been used for a long time by the industry.

Q Would this gas/oil contact be affected by, say, waterflooding in the area?

A It could be.

Q Could it be affected by withdrawals from wells in the immediate area?

A It could be.

Q It could be other than as portrayed on your exhibits, say, Two through Four, all of the exhibits that show this green gas/oil contact.

A Yeah, that's right, sir. However, I'd like dwell on that. I don't think the vertical displacement of this gas/oil contact is significant, and the reason is because I see wells in the area with perforations below the -150 and produce oil from the wells.

Q Is it your testimony -- I'm trying to

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understand what this line means.

Is gas produced above that line and oil below it?

A. Gas would be above it and oil produced below it, that's right.

Q. Could you produce gas below the line?  
I mean --

A. Well, what I'm saying is this is the original gas/oil contact and it is possible that as the gas reservoir is produced the gas/oil contact could move; however the movement -- the vertical displacement, the movement down or up is not significant because I've seen wells in this area that produce oil right beneath the -150.

Q. So you believe there are other wells that re-establish this in the immediate area, is that your testimony?

A. Right, I mean it could move and it's not significant.

Q. Which wells, can you tell me any in particular?

A. Yes, sir, I have the Yuronka Henry Harrison No. 4, located in the southwest quarter of the southwest quarter of Section 29, which produced 11 barrels of oil during October, and also the No. 3, located in the

1  
2 northwest quarter of the southwest quarter produced 22 barrels  
3 of oil during October.

4 Q Were those wells also producing gas?

5 A Yes, sir.

6 Q Well, how do you know what perforations  
7 were yielding oil and which ones were yielding the gas?

8 A Yes, sir, well, the Langlie Mattix is  
9 an oil reservoir; however, it has associated gas, you know,  
10 producing with the oil, and that is where the gas is coming  
11 from.

12 Q Were there perforations in both of the  
13 zones? The Langlie Mattix and the Jalmat in each of these  
14 wells?

15 A In Mr. Yuronka's wells it penetrated  
16 less than 20 feet, so very little, very little of the gas is  
17 in the Jalmat.

18 Q Do you have any way of knowing on which  
19 perforations, whether the little ones that were, I guess,  
20 in the Jalmat, whether they were giving gas or oil?

21 A It could be -- it could yield some gas.

22 Q Could it also yield some oil?

23 A No, sir, because it's above the -150.

24 Q In other words, because of the existence  
25 of this line at 150 you're assuming that it couldn't give oil.

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A Right. It is at -150. I don't believe it could produce oil up above that line.

Q Well then, if that line was not at -150, wouldn't that change your thinking?

A Well, as I say --

Q I'm trying to see what it is that tells you that in any of these wells 150, -150 is in fact the line and I don't see that.

A Well, I'd like to point out that this is the original gas/oil contact, and I already said, you know, that this gas/oil contact can move.

Q That's right.

A As the gas -- as the reservoir is produced, but it wouldn't be able to move very much down, further down below -150 because there are wells in the area that produce the oil right below it. If it moves further down below -150 then you shouldn't have the oil production.

However, I'd like to point out on this Exhibit Number Four, it doesn't matter where the gas/oil contact is. The fact is Mr. Hartman's perforated 70 percent into the Jalmat, as shown on this exhibit, so regardless where the gas/oil contact is, most of the production, I believe, comes from above the Langlie Mattix.

Q How -- do you know how the Henry

1  
2 Harrison No. 1 Well, shown on Exhibit Four, was actually  
3 completed? Do you know what sort of fracture treatment was  
4 used?

5 A. Yes, sir.

6 Q. How would you characterize that, the  
7 fracture treatment?

8 A. It was of significant volume.

9 Q. Do you know that the fracture treatment  
10 used in each of the wells which are on your cross sections --

11 A. No, sir.

12 Q. You don't. The Eddie Corrigan No. 2,  
13 are you aware of the fracturing that was done in completing  
14 that well? That's Exhibit Number Three.

15 A. Are you asking about Exhibit Number  
16 Three?

17 Q. Yes, sir.

18 A. Yeah, the volume is also significant.

19 Q. If you have an effective fracturing in  
20 a well, won't that affect the production from the well?

21 A. It's so.

22 Q. Do you happen to know how Mr. Yuronka  
23 fractured, or how he -- whether or not he fractured his  
24 Harrison A No. 1 Well in completing it?

25 A. Which one are you talking about now,

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I'm sorry?

A. I'm talking about Exhibit Number Eleven.

A. I have it shown here as being acidized.

Q. Does this tell you that this was stimulated the same way that the Hartman well was?

A. No, sir.

Q. Now I believe you stated that -- back to Exhibit Number Four, that 70 percent of the production was coming from the upper zone, the Jalmat zone, is that correct?

A. Well, I said 70 percent of the perforation interval is in the Jalmat based on the line that was accepted by the Commission as the top of the Langlie Mattix. The red line on this Exhibit Number Four.

Q. Okay. How did you determine that, just 70 percent of the actual footage was above that line?

A. Yes, sir.

Q. Can you reach any conclusion from this as to what percentage of the production would be coming from this zone?

A. Well, I don't use that as the -- as the percentage of the production, you know, to come from this zone. I use a different method, which shows on Exhibit Number Ten, as to how I come up with it, the percentage of the gas coming out of the Jalmat. And it shows to be 82 per-

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cent, so --

Q Mr. Pham, I'd like you to look at your Exhibit Number Ten now, which is your calculation, which I don't understand.

A Well, I am sorry. I do my best to explain it.

Q Let's try to understand part of it. If we take a look at -- I don't understand which of the figures that you're using here are hard figures that you get from well data or from the reservoir itself, and what are general assumptions that are used in the industry in making this.

A I would be glad, you know, to explain it to you if you would please, you know, show me where you have reference rather than just go right into it. I don't know where to start.

Would you show me where, you know, where you have problem with?

Q Down on the bottom, toward the bottom of the exhibit, it says GIP equals.

A Yes, sir.

Q Okay what's that first figure, 43.560?

A That is the converting given acres into square feet.

Q And what's that designed to show?



1  
2 A. That is to make these units incompatible  
3 with each other to come out with the unit for Mcf in the  
4 second sentence.

5 Q. Okay, what are we talking about here?  
6 Are we talking about porosity? Are we talking about feet?

7 A. Well, I already said it. It is a  
8 converting factor.

9 Q. And what are you converting?

10 A. I converted into feet, you know. That  
11 make the whole equation compatible to each other.

12 If you want to use -- if you want to use  
13 an equation, you have to put various terms into compatible  
14 unit --

15 Q. Okay.

16 A. -- so that you can use it.

17 Q. Okay, but you're converting something.

18 Is this feet that you're converting here?

19 A. Right. Well --

20 Q. This is a productive interval, the  
21 number of feet, is that what that's designed to show?

22 A. No, sir.

23 Q. What's it designed to show?

24 A. This 43.560 is -- well, let me explain  
25 it this way. One acre has 43560 square feet, and that's what

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that number is.

Q. Just one second.

A. And I would say that that equation is --  
is known throughout industry and it is well known by the  
Commission, I would believe.

MR. CARR: Can I have just a short recess?

MR. RAMEY: Very short.

MR. CARR: It will facilitate --

(Thereupon a short recess  
was taken.)

Q. All right, Mr. Pham, I want to go back  
to the same formula --

A. All right.

Q. -- after the number 43.560.

A. Uh-huh.

Q. There's a figure there that I believe  
stands for porosity.

A. Yes, sir, that's correct.

Q. Where do you get the porosity? What  
do you plug in there? Is that a definitive figure that you  
can pull somewhere? Where do you --

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A. The porosity is based on whatever is available on the well, and in this case it would be the Henry Harrison No. 1 number.

Q And were you able to establish a definitive pressure or did it require some interpretation?

A. What do you mean by pressure?

Q I'm sorry, I mean porosity. I'm talking about this symbol that indicates porosity in the Henry Harrison Well, were you able to get a definitive figure, hard data, or did it require some interpretation on your part?

A. It does require interpretation on my part, and anything does, you know. It is a matter of interpretation.

Q But that's the way it is in engineering. All right, now the h afterwards, what does that show you? What does that little h stand for?

A. The h?

Q Uh-huh.

A. It would be the thickness of the -- of the zones.

Q Now in this Harrison well do you have a precise thickness that you can rely on there?

Or does this again require some interpretation?

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2

A. It would be some.

3

Q. I'm sorry, I didn't understand you.

4

A. It would require interpretation.

5

Q. And you multiply those together, is that

6

what you do when they're right next to each other like that?

7

A. Right.

8

Q. If we go over a little ways we have Scw.

9

A. Uh-huh.

10

Q. What does that stand for?

11

A. That is the connate water saturation.

12

Q. And on this well would that again be a

13

matter that required some interpretation or is that a defini-

14

tive figure?

15

A. It requires interpretation.

16

Q. Do most of these numbers, letters, that

17

follow, I mean do they also require some interpretation?

18

The P that follows the 35.35?

19

A. Yes, sir, it does, but if it would be

20

the best judgment, it would be the best, you know, reasonable

21

educated judgment interpretation.

22

Q. Have you used this formula for ARCO in

23

the past?

24

A. I have, sir. Many times. And I believe,

25

like I say, it was accepted, you know, throughout industry.

1  
2 Q You did not use this formula, I don't  
3 believe, in the prior hearing, is that correct?

4 A I used it many times.

5 Q Did you use it in the prior hearing?  
6 I just have not -- haven't seen it before.

7 A It didn't require this calculation at  
8 the last hearing. You mean ARCO's hearing?

9 Q Yeah.

10 MR. CARR: I have no further questions  
11 of Mr. Pham.

12 MR. RAMEY: Any other questions? You  
13 may be excused.

14 Do you have anything further, Mr. Kil-  
15 patric?

16 MR. KILPATRIC: May it please the Com-  
17 mission, we have nothing further.

18 MR. CARR: Mr. Ramey, I would like to  
19 recall Mr. Aycock very briefly.

20 MR. RAMEY: All right, Mr. Carr.

21 MR. CARR: Mr. Aycock.

22  
23 WILLIAM P. AYCOCK (RECALLED)  
24 being previously sworn, testified as follows, to-wit:  
25

## REDIRECT EXAMINATION

BY MR. CARR:

Q. Mr. Aycock, did you -- have you seen the ARCO exhibits which show the oil/gas contact with a green line, and particularly Exhibit Four?

A. Yes, sir.

Q. In your opinion can that gas/oil contact be at locations other than indicated on these exhibits?

A. Yes, sir, and I think ARCO's witness, Mr. Pham, also agrees with that. That is a generalized number that was used in the beginning for planning purposes, and that's all. Certainly the withdrawal of almost 20 Bcf of gas by ARCO in the west half of the west half of 29 alone would have by itself affected significant variations in what that number was, if it was in fact originally at a depth of 150 feet subsea in this area.

Q. If it was not at that original 150 foot depth subsea, what effect would that have on the data that was offered?

A. What effect? Well, it would -- it would mean that the presumption as to what is oil and what is gas and therefor that the -- the whole basis, as I understood it, of the previous witness' testimony was the fact that you

1  
2 could demonstrate that the Langlie Mattix is basically oil  
3 and the Jalmat is basically gas, and therefor, if you produced  
4 at a higher gas/oil ratio than Mr. Yuronka is producing at,  
5 then that definitively and necessarily states that you are  
6 producing gas that had to come from the Jalmat zone.

7 I find that a very difficult opinion to  
8 agree with, and I think it is strictly a matter of individual  
9 interpretation and engineering judgment, and I would not agree  
10 with it in any particular whatsoever.

11 Q Now, I'd like you to -- did you see Ex-  
12 hibit Number Eleven, which was the formula which I attempted  
13 to discuss with Mr. Pham?

14 A Yes, sir.

15 Q Exhibit Number Ten.

16 In your opinion is this the kind of a  
17 formula that the Commission should rely upon in making a  
18 determination as to how much production comes from various  
19 zones in the well?

20 A Well, the application of the -- of the  
21 equation, first of all, as the witness, previous witness  
22 testified, and to which I would agree, requires a significant  
23 amount of engineering judgment in determining what proper  
24 numerals should be inserted for the various variables. That  
25 alone introduces the possibility of a significant variation

1  
2 between the numbers that derive from an application of the  
3 equation and what true reality may be.

4 Q Mr. Aycock, could another engineer using  
5 this formula, a fully qualified engineer, come up with a --  
6 using the same formula, a very different conclusion, and I  
7 will explain to you the explicit way that could happen.

8 In order to derive the porosity and  
9 water saturation you have to go into an analysis of two sets  
10 of logs, one of which purports to measure porosity and the  
11 other of which measures electrical resistivity or electrical  
12 conductivity.

13 The physical parameters in one case are  
14 a density as determined by a gamma gamma tool and the other  
15 it's an electrical resistivity. Those have to be converted  
16 indirectly using standard equations that were developed in  
17 the industry many years ago into porosity and water satura-  
18 tion. That application requires a significant amount of  
19 judgment to be applied as to the way those equations -- in  
20 addition to that fact, when you -- when you jump to the con-  
21 clusion, the undocumented conclusion that where you have  
22 porosity you necessarily have permeability without some ob-  
23 jective way to determine that you do necessarily have perme-  
24 ability associated with it, it is conjecture. It may be  
25 well founded conjecture and it may be the best that you can



1  
2 do but it still amounts to conjecture.

3 MR. CARR: I have nothing --

4 A. I'm not aware that there are any pro-  
5 duction logs of any kind, including differential temperature  
6 surveys, flow meter surveys, or any of that kind of thing,  
7 that's ever been run that could determine objectively how  
8 much of the fluid of what type is coming from various portions  
9 of the intervals in which the wells are completed.

10 Q. Now back to my original question. Is  
11 this the kind of formula that the Commission --

12 A. No, sir, it is not.

13 MR. CARR: I have no further questions  
14 of Mr. Aycock.

15 A. May I -- may I inject one more thing?  
16 I know Mr. Ramey is aware of it, and that is the way in which  
17 the wells are stimulated and completed is a very consequential  
18 factor in determining the results that are derived therefrom.  
19 When two operators choose for good reasons that appeal to  
20 both of them to use radically different methods to complete  
21 their wells, I think it is reasonable to suspect that the  
22 results that come from those efforts could as well be radi-  
23 cally different.

24 MR. RAMEY: Any questions?  
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## RE CROSS EXAMINATION

BY MR. KILPATRIC:

Q Mr. Aycock, on that last, you don't know  
that the methods were radically different, do you?

A Yes, I do, your witness said that they  
were.

Q I'll let the record speak for itself.

A I think that's fine. I will too.

Q That will be a switch.

Let me hand you what's been marked as  
Exhibit Number Four for ARCO.

Now, looking at Exhibit Number Four,  
and you're trying to determine where the gas comes from, the  
gas/oil contact line really is insignificant in that exhibit,  
isn't it?

A Well, I don't know why it was put on  
there in the first place, if that's what you're asking.

Q No, what I'm asking you is the fact  
that it's insignificant in looking at that particular ex-  
hibit in determining where the gas comes from.

A The whole -- the whole log is insigni-  
ficant in determining where the gas comes from.

Q I'm only asking you as to the green

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line. I'm not asking you about the whole log.

A. Okay, well, the green line is insignificant.

MR. RAMEY: Mr. Carr.

MR. KILPATRIC: May I have just a moment?

MR. RAMEY: Oh.

Q. In looking at this exhibit, isn't the real significance the number of feet --

A. No.

Q. I haven't finished the question.

A. The number of feet is not the real significance, no.

The real significance is where the effective permeability is located and that's not a function of feet.

Q. Well, the fact is that this well is making gas, isn't that right?

A. Yes.

Q. And the fact is there's hardly -- there is an almost insignificant amount in the Langlie Mattix, isn't that right, insignificant amount of perforations.

A. Your witness and I both agree that the way in which the wells are stimulated dictates that exactly where it's perforated is not necessarily where the production

1  
2 is coming from.

3 When you heavily stimulate a well to  
4 decide that -- in particular under those conditions -- to  
5 decide that production is necessarily coming from the per-  
6 forated interval, once again is an undocumented assumption.

7 Q You don't know that it's coming from  
8 anywhere other than the perforated interval, do you?

9 A I don't know where it's coming from  
10 exactly. I know that's where the point of entry for the  
11 fracture fluid was and that's where -- those perforations are  
12 where the gas and oil is coming from. Where they actually  
13 originate as to the reservoir, I do not know.

14 Q And isn't it much more likely that they  
15 are in fact coming from this locality?

16 A Not necessarily.

17 Q Isn't it much more likely?

18 A No, sir, not necessarily.

19 Q It's your testimony then that it's not  
20 much more likely --

21 A I don't know. I don't know whether  
22 it's likely or not without an objective way to determine it,  
23 and I'm not aware that there is any objective way at this  
24 point.

25 Q Mr. Aycock, I'd like to ask you one

1  
2 hypothetical question. Do you understand a hypothetical  
3 question? I'd like you to assume the facts I'm giving you.

4 A. You can ask it.

5 Q. I hope you can answer it.

6 Assuming that these are all the facts  
7 you have and you had to determine where to perforate in order  
8 to get the best production out of that well, where would you  
9 perforate? Isn't it a fact that you would perforate --

10 A. I don't know because I don't know any-  
11 thing about it other than just what I'm looking at here.

12 Q. And that's what I'm asking you.

13 MR. CARR: Would you identify that ex-  
14 hibit, Gary?

15 MR. KILPATRIC: It's Four.

16 Q. That's right, based upon the information  
17 you have in your hand --

18 A. Uh-huh.

19 Q. -- wouldn't you in fact perforate where  
20 perforations have been made?

21 A. No, I see some zones that are down  
22 much lower that I would probably have perforated. I see  
23 two, three of them in particular.

24 Q. And you wouldn't have perforated where  
25 the perforations are?

1  
2 A I might have perforated there but there  
3 are additional intervals I would have perforated as well.

4 Q All right, that would have been one of  
5 the ones you would have perforated?

6 A Probably, yes.

7 Q Thank you.

8 MR. KILPATRIC: I have no further ques-  
9 tions.

10 MR. RAMEY: The witness may be excused.  
11 Do you have a closing statement, Mr. Lopez?

12 MR. LOPEZ: Yes, Mr. Chairman.

13 The evidence before us today is fairly  
14 well undisputed that Mr. Hartman's three wells are all com-  
15 pleted and perforated in the Jalmat Gas Pool interval, and  
16 ARCO, ARCO is not in a position to remedy the drainage that  
17 it believes it is experiencing by seeking the same kind of  
18 remedy that Mr. Hartman is, simply because we do not own the  
19 rights to the Langlie Mattix; therefor, we can only protect  
20 our Jalmat zone.

21 The -- I think that ARCO's position  
22 here today is to -- is more than reasonable inasmuch as all  
23 we're requesting the Commission to do is to limit the allow-  
24 able, according to Jalmat Pool rules, for the wells that  
25 Mr. Hartman has that there is production coming from the

1  
2 Jalmat, and we are not asking for any radical relief and  
3 we're not even asking for relief for the drainage that we've  
4 already been -- feel that we have suffered.

5 That seems to be a reasonable request  
6 for a number of reasons, not the least of which is the fact  
7 that if Mr. Hartman were to request a Jalmat gas well at  
8 this point, he would not be able to drill it that close to  
9 a lease line and have to offset it as we are offsetting the  
10 lease line substantially in the next -- or west half of  
11 Section 29.

12 I also think it is completely irrele-  
13 vant what amount of production has occurred prior to the  
14 hearing or how much gas was produced in the west half of 29.  
15 We're here to talk about prevention of waste and protection  
16 of correlative rights.

17 We cannot protect our correlative rights  
18 unless the Commission would limit the production allowable  
19 on Mr. Hartman's wells.

20 MR. RAMEY: Thank you, Mr. Lopez.

21 Mr. Carr?

22 MR. CARR: May it please the Commission,  
23 we are here today seeking an exception to the vertical  
24 limits of the Langlie Mattix Pool pursuant to a Commission  
25 directive to do just that.

1  
2 The problem results from confusion as  
3 to the definition of the Queen. It's a confusion that is  
4 widespread throughout the industry, as is evidenced by the  
5 number of hearings that have been held recently and the num-  
6 ber of wells that had to be brought before you so they can  
7 be brought in compliance with the Commission definition of  
8 the vertical limits of the Langlie Mattix Pool.

9 We have a situation here where the two  
10 questions you've got to consider are waste and correlative  
11 rights. It's clear that anything other than granting the --  
12 any other -- any possible exception of the relief that you  
13 can grant, other than granting an exception to the vertical  
14 limits, will cause waste. It will cause going downhole,  
15 working with the wells, and the testimony here was it would  
16 likely kill it, kill the well. and that it is not economical  
17 to re-enter the wells -- to drill additional wells to pro-  
18 duce these formations on these tracts.

19 There's been a lot of talk about cor-  
20 relative rights. I think it's important to remember that  
21 correlative rights are affording to the interest owners in  
22 a pool the opportunity to produce their just and fair share  
23 of reserves in the pool, and if we start talking in those  
24 terms it does become relevant to note that substantially  
25 more reserves in these zones have been produced from the



1

2 ARCO properties than have been or could be produced from the  
3 wells which are the tracts which are the subject of the ap-  
4 plication here today.

5

6 I think ARCO has noted that they don't  
7 maybe have the options available to them to come in and off-  
8 set the Hartman acreage because they've farmed out to Mr.  
9 Yuronka. Well, I would submit that private contractual  
10 arrangements entered into by ARCO should not control what  
11 this Commission does to deal with this particular problem.

12

13 There have been a number of exceptions  
14 granted, and we're coming in in a similar position to all  
15 those who have appeared before you, and we're asking to be  
16 treated the same way.

17

18 This is a hearing on our application.  
19 It is an application for an exception to the vertical limits  
20 of this pool. It isn't an application to ask for a certain  
21 allocation of allowables or a change in the allowables to  
22 any of these wells. That's simply not before you, and I sub-  
23 mit in this hearing you don't have jurisdiction to consider  
24 that.

25

26 There is one thing before you. It's an  
27 application for exception to the limits of this pool, and we  
28 feel that if you do anything other than grant that, you're  
29 going to cause waste of hydrocarbons, and that if you grant

1  
2 it, you will not impair correlative rights as defined by the  
3 statutes under which you operate.

4 MR. RAMEY: Does anyone have anything  
5 further in this case?

6 If not, we'll take the case under ad-  
7 visement, and the hearing is adjourned.

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9 (Hearing concluded.)  
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C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREPY CERTIFY that  
the foregoing Transcript of Hearing before the Oil Conserva-  
Commission  
tion Division was reported by me; that the said transcript  
is a full, true, and correct record of the hearing, prepared  
by me to the best of my ability.

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STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
STATE LAND OFFICE BLDG.  
SANTA FE, NEW MEXICO  
16 March 1981

COMMISSION HEARING

IN THE MATTER OF:

Application of Doyle Hartman for the  
extension of the vertical limits of  
the Langlie Mattix Pool, Lea County,  
New Mexico.

CASE  
7057

BEFORE: Commissioner Ramey

TRANSCRIPT OF HEARING

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## I N D E X

## WILLIAM P. AYCOCK

Direct Examination by Mr. Carr	7
Cross Examination by Mr. Ramey	36
Cross Examination by Mr. Kilpatric	37

## HUAN PHAM

Direct Examination by Mr. Lopez	43
Cross Examination by Mr. Carr	58

## WILLIAM P. AYCOCK RECALLED

Redirect Examination by Mr. Carr	73
Recross Examination by Mr. Kilpatric	77

STATEMENT BY MR. LOPEZ	81
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STATEMENT BY MR. CARR	82
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1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
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22  
23  
24  
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E X H I B I T S

Applicant Exhibit One, Schematic	11A
Applicant Exhibit Two, Structure Map	15
Applicant Exhibit Three, Cross Section	16
Applicant Exhibit Four, Cross Section	18
Applicant Exhibit Five, Tabulation	19
Applicant Exhibit Six, Structure Map	21
Applicant Exhibit Seven, Land Map	23
Applicant Exhibit Eight, Tabulation	27
Applicant Exhibit Nine, Tabulation	27
Applicant Exhibit Ten, Tabulation	27
ARCO Exhibit One, Plat	45
ARCO Exhibit Two, Log	45
ARCO Exhibit Three, Log	47
ARCO Exhibit Four, Log	48
ARCO Exhibit Five, Comparison	48
ARCO Exhibit Six, Plat	50
ARCO Exhibit Seven, Graph	51
ARCO Exhibit Eight, Graph	51
ARCO Exhibit Nine, Graph	51

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

E X H I B I T S

ARCO Exhibit Ten, Calculation	51
ARCO Exhibit Eleven, Log	52

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2 MR. RAMEY: Call Case Number 7057.

3 MR. PADILLA: Application of Doyle  
4 Hartman for the extension of vertical limits of the Landlee  
5 Mattix Pool, Lea County, New Mexico.

6 MR. KILPATRIC: May it please the Com-  
7 mission, I am Gary Kilpatric, Montgomery and Andrews, and  
8 Owen Lopez is here with me representing ARCO.

9 We have a witness and are prepared to go  
10 ahead but we understand there is no quorum.

11 MR. RAMEY: That is correct, gentlemen.  
12 There is no quorum and this case will be continued until  
13 2:00 p. m. Wednesday, March the 18th, either here or in  
14 Morgan Hall.

15 MR. KILPATRIC: That's satisfactory with  
16 me.

17 MR. CARR: I guess the record should  
18 note my appearance.

19 I'm William F. Carr, appearing for  
20 Doyle Hartman. I'm appearing today in association with Don  
21 Maddox with the law firm Maddox and Maddox in Hobbs, who is  
22 also representing Mr. Hartman, and my client is ready to go  
23 forward at this time, but can be here and will be here on  
24 Wednesday at 2:00 o'clock, on this matter.

25 MR. RAMEY: I apologize for not having



1  
2 a quorum.

3 (Thereupon the case was  
4 continued to 18 March, 1981,  
5 at which time the following  
6 proceedings were had, to-wit:)

7  
8 MR. RAMEY: The hearing will come to  
9 order.

10 We'll call Case 7057.

11 MR. PADILLA: Application of Doyle  
12 Hartman for the extension of the vertical limits of the  
13 Langlie Mattix Pool, Lea County, New Mexico.

14 MR. CARR: May it please the Commission,  
15 my name is William F. Carr, with the law firm Campbell, Byrd,  
16 and Black, P. A., in Santa Fe, New Mexico. I'm appearing  
17 on behalf of Doyle Hartman, and appearing in association  
18 today with Mr. Don Maddox of the law firm Maddox and Maddox,  
19 in Hobbs, New Mexico, who also represents Mr. Hartman.

20 MR. LOPEZ: Mr. Chairman, my name is  
21 Owen Lopez from the law firm of Montgomery and Andrews, P. A.,  
22 Santa Fe, New Mexico, appearing on behalf of ARCO Oil and  
23 Gas Company, and appearing with me here today is Gary Kil-  
24 patric from our office and Horace Burton, in the Legal De-  
25 partment of ARCO Oil and Gas.

1  
2 MR. RAMEY: I'll ask at this time that  
3 all the witnesses stand and be sworn.  
4

5 (Witnesses sworn.)  
6

7 MR. RAMEY: You may proceed, Mr. Carr.

8 MR. CARR: At this time I would call  
9 Mr. Aycock.  
10

11 WILLIAM P. AYCOCK

12 being called as a witness and being duly sworn upon his oath,  
13 testified as follows, to-wit:  
14

15 DIRECT EXAMINATION

16 BY MR. CARR:

17 MR. RAMEY: In the matter of saving a  
18 little time, Mr. Carr, why, we will consider Mr. Aycock  
19 qualified to testify at this time.

20 MR. CARR: Are his qualifications as  
21 an expert witness in petroleum engineering acceptable?

22 MR. RAMEY: Yes, they are.

23 Q Mr. Aycock, will you briefly state what  
24 Mr. Hartman seeks with this application?

25 A In accordance with the application that

1  
2 has been filed with this Commission as Case 7057. Mr. Hartman  
3 seeks the extension of the vertical limits of the Langlie  
4 Mattix Pool in Lea County, New Mexico, and the simultaneous  
5 contraction of the vertical limits for the Jalmat Pool in  
6 Lea County, New Mexico, underlying the following units, all  
7 of which are 40-acre tracts in Township 24 South, Range 37  
8 East: The southeast quarter of the southeast quarter of  
9 Section 30 to a depth of 3364 feet; the northeast quarter of  
10 the southeast quarter of Section 30 to 3389 feet; and the  
11 southeast quarter of the southwest quarter of Section 20 to  
12 the depth of 3390 feet.

13 Q Mr. Aycock, are you familiar with the  
14 application filed in this case?

15 A Yes, I am.

16 Q Have you performed a study of the area  
17 which is the subject of this case?

18 A Yes, sir, I have.

19 Q Will you briefly summarize the events  
20 which resulted in Mr. Hartman's seeking this exception to  
21 the vertical limits of the Langlie Mattix Pool?

22 A I'm referring to the transcript of the  
23 prior hearing in order that I can get the dates exact. Mr.  
24 Ramey, in reply to his question.

25 MR. Hartman was notified by a communi-

1  
2 cation from the Hobbs District Office, which was dated July  
3 28th, 1980, that certain wells, including those that are the  
4 subject of this hearing, had been studied by Mr. John Runyon,  
5 at that time District Geologist in the Hobbs District, and  
6 found to be out of zone; that is, certain wells in both the  
7 Langlie Mattix and Jalmat Pools.

8                   On August 7th, 1980, there was a meeting  
9 of all of the operators concerned in the Hobbs District  
10 Office. I attended that meeting on behalf of Mr. Hartman.  
11 Copies of Mr. Runyon's study were provided to all of the con-  
12 cerned parties, and at that point Mr. Sexton and Mr. Runyon  
13 enabled any of the concerned parties who wished to discuss  
14 the matter as pertained to their particular situation to make  
15 an special appointment with them to do that, which I did on  
16 Mr. Hartman's behalf, and that hearing, I mean that appoint-  
17 ment was on a MOnday, and I believe the meeting was on a --  
18 was either on a Wednesday or a Thursday, so it would either  
19 be on the 9th or 10th, I had a private meeting with Mr.  
20 Sexton and Mr. Runyon and reviewed the situation with regard  
21 to Mr. Hartman's wells, and found that using the criteria  
22 established in the industry committee cross sections that  
23 we were substantially in agreement with Mr. Runyon's picks  
24 as to the degree of overlap that there was between the Jalmat  
25 and the Langlie Mattix Pool intervals in the wells in ques-

tion.

At the meeting Mr. Sexton presented an ultimatum to all of the concerned employees and the ultimatum was this: There was a sixty day period allowed from the August 7th, 1980, meeting in which each operator could launch ... could initiate an action that would remedy this situation. The penalty that was held out was that if the operators did not do this, then the Commission would take unilateral action and the type of unilateral action that was anticipated was not described but it was pretty well understood that the allowables would be cancelled for those leases which some attempt to get into compliance had not been made.

Mr. Sexton outlined three courses of action that he felt could be used by the operators to remedy it, among them were seeking an exception to the vertical pool limits to bring the acreage assigned to each of the wells found to be in violation of the Commission's pool depth limitations in a hearing; a request for downhole commingling underneath the units in question; let's see, I'm trying to think, I think there was another one and I can't remember what it was just now. Those were the major two.

The other one would have been, of course, remedying the -- physically remedying the overlap by subsurface well work. That was excluded out of hand be-

1  
2 cause we felt without any question that would lead to waste  
3 and not only would it probably lead to waste within the  
4 intervals in question, but it would probably lead to addi-  
5 tional waste because our experience with these highly de-  
6 pleted old reservoirs is that once the wells are killed in  
7 order to do any subsurface work, there is a very strong risk  
8 that you will not be able to get production at commercial  
9 rates back, or if you are able to get it back at all that  
10 the productivity of the wells will be impaired and as a re-  
11 sult of that, that the remaining reserves that they might  
12 produce will be substantially reduced.

13 This -- the application which is the  
14 subject of this -- of the original hearing and of this de  
15 novo hearing resulted from our desire to comply on behalf  
16 of Mr. Hartman with Mr. Sexton's request, and the fact that  
17 the only one of the three measures that I've outlined to  
18 you as presented by Mr. Sexton that was either acceptable  
19 or possible from Mr. Hartman's standpoint, was the request  
20 of the extension of the vertical limits of the Langlie Mattix  
21 Pool and the concurrent contraction of the vertical limits  
22 of the Jalmat Pool for these three 40-acre tracts.

23 Q Mr. Aycock, have you prepared certain  
24 exhibits for introduction in this case?

25 A Yes, sir, I have.

Q Would you please refer to what has been marked for identification as Hartman Exhibit Number One and explain to the Commission what this is and what it shows?

A Hartman's Exhibit Number One is a schematic of the -- of Langlie Mattix/Jalmat Pool definitions which shows the well log for the Union Texas Petroleum Corporation Langlie-Jal Unit No. 4. It is a well located in Section 32, 24 South, 37 East, immediately south of the area that's in question here, and it was used for purposes of illustration because it was nearby and because it has a modern well log on which the picks that are defined through the use of the industry committee cross sections are more easily made than they are on some of the older logs, if any logs are available, which as Mr. Ramey is aware, having been at the Hobbs District, many of those old wells do not have any logs at all.

What this shows is the -- what is known in some circles as the -- what we've called the CUQ marker, which some people in the industry call the first Queen, what is called the -- what has been determined to be the Queen by the industry committee, which is called by some operators the second Queen, and what the boundaries of the -- the upper vertical boundaries -- I mean the upper -- yes, the upper vertical boundary of the Langlie Mattix Pool would be, whether

1  
2 one used the committee Queen top or the -- what we've -- what  
3 we have called here the CUQ marker, the 100 feet interval  
4 complies with the Langlie Mattix Pool rule that specifies  
5 that the -- that the limits of the Langlie Mattix Pool extend  
6 from the top of the Grayburg to the -- to 100 feet above the  
7 base of the Seven Rivers formation.

8 As you can see from examining this well  
9 log, there is approximately 60 feet of overlap on this well  
10 between the -- what is -- what is actually a portion of the  
11 Jalmat Pool and what is -- would properly be limit of the  
12 Langlie Mattix Pool by the definition of the industry com-  
13 mittee that is adopted by the Commission and the -- what it  
14 would be if the commonly used Queen marker, or first Queen  
15 were used as a basis for determination of the -- what is  
16 the base of the Seven Rivers formation.

17 Q Mr. Aycock, I believe you've stated  
18 that CUQ stands for commonly used Queen, is that correct?

19 A Yes, sir, that's correct.

20 Q Is this marker used by a number of  
21 operators in the area?

22 A Yes, sir, it has been and is. It's a  
23 lithologic marker that is the first one that's encountered  
24 when you drill from a basically carbonate matrix containing  
25 interspersed sands into a basically shale matrix containing



1  
2 interspersed dolomitic sands.

3 Q Now, when you say committee top, how --  
4 I believe you indicated that is defined somewhere. Where is  
5 it defined?

6 A It's defined on a series of cross sec-  
7 tions that were promulgated in the mid-fifties and to provide  
8 the Commission with a basis for determining what should  
9 properly be the limits or the boundaries between the Jalmat  
10 and Langlie Mattix Pools, which overlies each other, and which  
11 occupy different portions of the Permian age oil and gas  
12 reservoirs.

13 Q How would an operator in this area learn  
14 of the existence of these cross sections?

15 A It would have to be by word of mouth  
16 either from the Commission representative in the Hobbs Office  
17 or from some other operator. It's not referred to anywhere  
18 in the pool rules or anywhere in writing that I'm aware of.

19 Q Do the pool rules provide any type log  
20 from which an operator could key off of in picking these  
21 zones?

22 A As we previously testified in the ori-  
23 ginal hearing, I'm not aware of any objective definition of  
24 the pool boundaries that's provided in writing either with  
25 regard to a type log or any reference to these cross sec-

1  
2 tions. If you had not had the experience of knowing that  
3 they were the basis for this determination, that you would  
4 know that you should avail yourself of it.

5 In addition -- excuse me.

6 Q Go ahead.

7 A In addition to that fact, at the time  
8 that Mr. Hartman would have had to have availed himself of  
9 them had he known about them, one of the cross sections, and  
10 I'm not prepared to say how that would have entered into  
11 his decision, but one of the cross sections was not in the  
12 District Office of the Oil Conservation Division, and ac-  
13 cording to what Mr. Sexton told me personally, it had to be  
14 procured from outside sources. They were made available at  
15 Superior Office Service in Hobbs, New Mexico, subsequent to  
16 this August 7th, 1980, meeting, and I personally secured  
17 five copies for the use of me and the clients that I repre-  
18 sent in this area.

19 Q Could you just for the purposes of the  
20 record state how the Langlie Mattix is defined in them?

21 A The portion that's consequential here --  
22 you're talking about the vertical limits?

23 Q Yes, sir.

24 A Is defined as the vertical interval  
25 between the top of the Grayburg and 100 feet above the base

1  
2 of the Seven Rivers formation. The base of the Queen being  
3 the top of the Grayburg.

4 Q Now, Mr. Aycock, is it correct to sum-  
5 marize your testimony as being that there is no public record  
6 available to an operator that makes reference to the logs  
7 upon which the Commission based its definition?

8 A If there is, I don't know where it is,  
9 no, sir.

10 Q Now the yellow shaded area on Exhibit  
11 Number One depicts what?

12 A This is the overlap between the pool  
13 boundaries, in other words, the encroachment into what should  
14 properly be the Jalmat vertical interval that an operator  
15 would -- in which an operator would complete if he were  
16 under the mis-assumption that the Queen -- that the base of  
17 the Seven Rivers as defined by the top of the Queen would  
18 be predicated upon the CUQ marker rather than upon the  
19 second Queen, or committee Queen. In this case it's approx-  
20 imately 60 feet.

21 Q Mr. Aycock, will you now refer to Hart-  
22 man Exhibit Number Two and explain what this is to the Com-  
23 mission?

24 A Hartman Exhibit Number Two is a structure  
25 map on top of this first Queen, or commonly used Queen marker,

1  
2 indicating the area that is involved in this application with  
3 the well that is the subject of Exhibit One indicated as  
4 type log and the location of two cross sections which will  
5 subsequently be presented in our testimony also indicated.

6 I would call the Commission's attention  
7 to the fact that the -- where these wells are located on  
8 this map that are the subject of this application in Section  
9 30, the southeast quarter of the southeast quarter, would  
10 be the Hartman Corrigan No. 1; the northeast quarter of the  
11 southeast quarter would be the Hartman Gulf Corrigan No. 2;  
12 and the southeast quarter of the southwest quarter of Section  
13 20 is the Hartman Henry Harrison No. 1 Well.

14 Q What importance does structure play in  
15 this situation?

16 A The only importance that structure  
17 plays is that there was apparently in both the Jalmat and the  
18 Langlie Mattix zones a large accumulation of free gas ori-  
19 ginally contained within these zones, a substantial portion  
20 of which has been produced in the east half of Section 29 by  
21 wells that are not now active.

22 Q Are those wells depicted on this exhibit?

23 A Yes, sir, they are.

24 Q Will you next go to Hartman Exhibit  
25 Three and review this for the Commission?

1  
2                   A.           Hartman Exhibit Number Three is cross  
3 section A-A', the trace of which is indicated on Hartman  
4 Exhibit Number Two in red as running from the northeast  
5 direction to the southwest direction.

6                   I will call the Commission's attention  
7 to the fact that certain depth intervals are indicated in  
8 red on this cross section for each of these indicated wells.  
9 Those intervals in red are the amount of overlap that existed  
10 for those wells, in other word encroachment, from the Langlie  
11 Mattix into the Jalmat for all of these wells -- each of  
12 these wells which were classified as Langlie Mattix producers  
13 as a result of the misunderstanding about what constituted  
14 the base of the Seven Rivers formation due to the use of the  
15 lithologic first Queen as the marker upon which that base  
16 was predicated rather than the second Queen.

17                   All of the pertinent information is  
18 shown for each of the wells, but the most consequential  
19 thing to be gathered is that the overlap ranges from approx-  
20 imately 15 feet up to approximately 100 feet for various  
21 wells on the cross section.

22                   We think that this demonstrates quite  
23 graphically the degree of misunderstanding that was preva-  
24 lent at various times, both before the 1954 Order R-570 and  
25 after it.

Q Will you now review the information contained on Hartman Exhibit Four for the Commission?

A Hartman Exhibit Number Four is cross section B-B', the trace of which is indicated in green as running from the northwest to the southeast direction on Hartman Exhibit Number Two.

We'll call the Commission's attention once again to the same factors that we called before. No attempt has been made to select wells to portray the structural and completion practices that have been prevalent in the area on other basis really than their availability and their adjacent location to the area that's in question in this hearing, and we think once again the intervals that are colored red, which indicate the degree of overlap on each of those wells, indicates that at the time they were completed that there was misunderstanding about what constitutes the pool limits.

We are completely aware that whenever one of the waterflood units is constructed, that it is the practice of the operators to request, and has been the practice of the Commission to grant, a complete relief from the pool boundary limitations that are present outside of these unit areas. We're not questioning that at all. We're simply saying that -- that this shows that -- that prudent operation,

1  
2 whether governed by the pool limits or not, would indicate  
3 that there would be overlap from what is the Langlie -- or  
4 what is properly called the Langlie Mattix and what is properly  
5 called the Jalmat.

6 We believe that that -- that operation  
7 occurs because what is known to some operators as the third  
8 Seven Rivers formation is of a lower degree of permeability  
9 than other of the oil and gas commercial reservoirs that  
10 are located -- that are contained within the vertical limits  
11 of the Jalmat reservoir, and as a consequence in the past,  
12 because of the small -- the low price for gas and the technology  
13 of well stimulation was not in existence at the time  
14 that many of these wells were completed and has been the  
15 subject of intense development by the industry since it was  
16 initiated in about 1954, has meant that there are substantial  
17 undepleted gas reserves contained within the third Seven  
18 Rivers formation through much of the Langlie Mattix/Jalmat  
19 area.

20 Q Mr. Aycock, will you now review the  
21 information contained in Hartman Exhibit Number Five for  
22 the Commission?

23 A Hartman Exhibit Number Five is a tabu-  
24 lation of wells -- it is -- there are four pages of it. The  
25 first two pages pertain to wells in the vicinity of Hartman's

1  
2 Henry Harrison No. 1, which is in the southeast of the south-  
3 west of 20, and the second two pages of which are applicable  
4 to wells within the vicinity of Hartman's Gulf Eddie Corrigan  
5 Nos. 1 and 2, which are located in the east half of the  
6 southeast of Section 30.

7 This is information that was gleaned  
8 from the Commission files, basically from Forms C-105, and  
9 it shows all the pertinent information that we can obtain  
10 from Forms C 105 for each of these wells, including both the  
11 third column from the right, which we've called overlap into  
12 the Jalmat.

13 Now, it is quite apparent in many -- in  
14 many cases that these wells were completed back in the thirties  
15 and were -- this predated any Commission prescription upon  
16 what might be called Ianglie Mattix or Jalmat.

17 In any event, we think it shows that --  
18 that prudent operation by the operators entailed completion  
19 in these intervals, and we would call the Commission's at-  
20 tention to the fact that substantial production has been ob-  
21 tained, both on the tracts which Mr. Hartman drilled and  
22 those that offset him and each of the proration units on  
23 which Mr. Hartman drilled his wells were the subject of an  
24 exception to R-570 that was granted in 1954. The wells were  
25 no longer active at the time that he drilled them but all



1  
2 of those 40-acre tracts had been granted an exception at the  
3 time that R-570 was written and placed into the Commission  
4 archives.

5 Q Mr. Aycock I believe you mean P-520,  
6 is that correct?

7 A R-520, I beg your pardon, that's the  
8 second, third time I've done that.

9 Q Will you please refer to Hartman Exhibit  
10 Number Six and review this for the Commission?

11 A Hartman Exhibit Number Six is a structure  
12 map on the top of the CUQ marker with certain information  
13 as to gas production and gas/oil ratio that are available  
14 for wells in the vicinity of the acreage that is concerned  
15 in this application.

16 The Hartman wells, all of the wells that  
17 for which gas production could be documented are surrounded  
18 by hexagons. The three Hartman wells, the hexagons for  
19 those three wells are colored in yellow for the Commission's  
20 convenience in being able to understand the implications of  
21 this exhibit.

22 We would like to call the Commission's  
23 attention to the fact that the three wells located in the  
24 east half of the southeast quarter of Section 30, between  
25 them, as of the effective date of the information presented

1 here, had produced approximately five Bcf of gas from the  
2 Langlie Mattix intervals. If you will look across the line  
3 immediately to the east in the east half of the west -- I  
4 mean the west half of the west half of 29, you will notice  
5 that two of ARCO wells, two of ARCO's wells in the past  
6 alone have produced about 16 Bcf, not counting what has oc-  
7 curred as a result of Mr. Yuronka's activities under the  
8 farmout agreement granted him by ARCO.  
9

10 At the present time, based upon the  
11 producing capacities and producing trends of the Hartman  
12 wells there is not any possible physical way that the gas  
13 production on a per well or per acre basis, the withdrawals  
14 could ever be equalized between the acreage that's in the  
15 south half of Section 30, whether the 40-acre tracts  
16 included within this application or not, could ever equal  
17 the gas production that's already been withdrawn by ARCO  
18 from wells in the west half of the west half of 29.

19 You might also note that to the north,  
20 where the Henry Harrison 1 is located, the old Wiser Calley  
21 Well that's located on the same 40-acre tract accumulated  
22 2.3 Bcf of gas before it was plugged and abandoned, and  
23 Hartman's Henry Harrison 1 has accumulated about 320 million  
24 cubic feet of gas for a total of about 2.6 Bcf. So if we  
25 took all of Hartman's past production, where Hartman is now,

1  
2 and looked at -- take any objective look at the producing  
3 trends, we'll find that ARCO has already produced gas by a  
4 factor of two or three more than could ever be produced from  
5 these 40-acre tracts on its production -- its formerly active  
6 wells in the west half of the west half of 29.

7 In the --

8 Q Will you --

9 A -- pardon me, in the original hearing  
10 which was conducted with Mr. Nutter as the Examiner, ARCO's  
11 witness complained about the disparity in withdrawal between  
12 Hartman and ARCO and pointed out that ARCO had no remedy  
13 since it had farmed out its interest in the west half of the  
14 west half of 29 to Mr. Yuronka, and I don't think any of us  
15 would want to become a party to, or interfere with ARCO's  
16 private contractual situation with regard to Mr. Yuronka,  
17 whatever Mr. Yuronka and ARCO may have agreed between them  
18 is not the subject of this hearing, and is not any business  
19 of Mr. Hartman's, nor does he wish to become involved in it.  
20 Our understanding of what the Commission attempts to do in  
21 providing correlative rights to the operators is to allow  
22 each operator the opportunity to produce, not guarantee him  
23 that he can produce.

24 Q Mr. Aycock, will you please refer to  
25 Exhibit Number Seven and review it for the Commission?

1  
2 A Exhibit Number Seven is a land map of  
3 the entire area, including that that is the subject of this  
4 application, as well as much other. This information, with  
5 the exception of the five Blue tracts, was obtained from Mr.  
6 Runyon's study that was provided to the industry on August  
7 7th, 1980, and it shows all of the exceptions to the vertical  
8 pool limits prescriptions between the Jalnat and Langlie  
9 Mattix Pools that have been -- have been allowed by the Com-  
10 mission in the past under various orders. Some of these are  
11 waterflood orders and others are not, and we simply submit  
12 it because we think that it illustrates once again the  
13 general nature of the problem that has existed since the time  
14 that the Langlie Mattix and Jalnat Pools were separated, both  
15 before R-520 and after it, because the Commission will  
16 notice that many of these orders granting these exemptions,  
17 not all of which are waterflood, include waterflood units,  
18 are after the 1954 R-520.

19 Q Mr. Aycock, referring to Exhibit Seven,  
20 are all three of the 40-acre tracts which are the subject  
21 of this hearing shown as having been previously operated  
22 under an exception to the vertical limits?

23 A Yes, sir, they have been.

24 Q Does this map show exceptions which  
25 have been approved by this Commission since the August, 1980,

1  
2 meeting in Hobbs?

3 A. No, sir.

4 Q. Do you know how many exceptions have  
5 been --

6 A. Well, I know in this immediate area  
7 both Gulf and Getty have been granted exceptions to it.

8 MR. CARR: May it please the Commission,  
9 we would note that the Getty exception was granted by Case  
10 7056 and the Gulf exception by Case 7059, and would ask that  
11 you take administrative notice of these cases.

12 MR. PAMELY: So noted, Mr. Carr.

13 Q. Mr. Aycock, are you aware of any ex-  
14 ceptions having been granted in this general area to ARCO  
15 Oil and Gas?

16 A. Well, yes, sir.

17 Q. When was that exception granted?

18 A. On the 6th day of March, 1981, Case  
19 Number 7163.

20 Q. What acreage was involved?

21 A. The acreage involved was the northeast  
22 quarter of the southeast quarter of Section 35, Township 23  
23 South, Range 36 East.

24 Q. Have you reviewed the transcript of  
25 that hearing?

1

2

A. Yes, sir, I have.

3

4

Q. What was the basis of the argument advanced by ARCO in seeking their exception?

5

6

A. The basis of the argument by ARCO was that they ought to be allowed the opportunity to produce from the same zones as Mr. Hartman was in an offsetting lease.

7

8

9

10

Q. And were the offsetting leases operating under exceptions to the vertical limits of the Langlie Mattix Pool?

11

12

A. The Hartman leases you mean?

13

14

15

16

Q. Yes, sir.

A. Yes, they were granted, they had, they were granted in a special hearing, I don't have the number of that, but yes, they were granted exceptions to the pool limits.

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Q. Are the tracts which are the subject of this hearing also offset by acreage which is being operated under an exception to the vertical limits of the Langlie Mattix?

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24

25

A. Yes.

Q. Will you now refer to what has been marked for identification as ARCO Exhibits Eight, Nine, and Ten, and review these for the Commission?

A. ARCO Exhibits Eight, Nine, and Ten?

Q I'm sorry, Hartman Exhibits Eight, Nine, and Ten.

A Hartman Exhibits Eight, Nine, and Ten are tabulations of, first, the first part of it is a tabulation of wells formerly or currently operated by ARCO under exceptions that we could document, and I think this is -- I think it can -- it is obvious that there are a number of them. We bring this up because in the original hearing ARCO indulged in a character assassination of Mr. Hartman, stating that because he had a number of wells which had been called to account for themselves under Mr. Runyon's study and by Mr. Sexton, that that necessarily indicated that he was trying to deceive the Commission and take unfair advantage of the rules.

We felt that it was necessary to show that the problem is one of a misunderstanding of what the Commission requires and Mr. Hartman is not the only one that has suffered from that misunderstanding.

Q Mr. Aycock, will you now just refer to the second part of this exhibit, Exhibit Nine, and state to the Commission what this is and what it shows?

A This is a tabulation of the wells formerly or currently operated by ARCO throughout the trend, showing the amount of recovery that has -- that we can docu-

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ment from the public information available from them. The bulk of them were oil wells in the Langlie Mattix Pool; some of them were Jalmat gas wells. They range over the entire area that was covered by the -- Mr. Runyon's study.

Q Will you now refer to the last exhibit, Exhibit Number Ten, and identify this for the Commission and explain what it shows?

A. This is a detail of the wells that are located in the west half of Section 29, Township 24 South, Range 37 East, in Lea County, New Mexico, showing this was also brought up by ARCO in their direct testimony in the original hearing, and it shows the situation with regard to all of those wells.

Mr. Yuronka operates six wells that he -- for which he received his ownership by drilling on ARCO farmouts, and there are three wells formerly operated by ARCO, that were produced in both the Langlie Mattix and Jalmat Pools, that are located in this -- it's actually the west half of the west half.

We would call the Commission's attention to the fact that from the Langlie Mattix intervals 15.8, roughly 16 Bcf of gas were produced from the three wells, and from the Jalmat intervals approximately 3.8 Bcf of gas have been produced, for a total amount of gas approaching



20 Bcf. There is not any way conceivable that the offsetting acreage, whether normalized on a per acreage basis or per well basis, could ever hope to participate in the remaining reserves to the degree that ARCO's already participated on.

Q Mr. Aycock, when did ARCO acquire its interest in Section 29?

A July 1st, 1935, according to an assignment that we had extracted from the deed records of Lea County, New Mexico, in Lovington.

Q Do you happen to know when the wells were drilled that previously operated under exceptions to the pool limits of the vertical -- pool limits of the Langlie Mattix Pool on those tracts which are the subject of this hearing?

A As shown on the last page of our exhibit the original completions on two of them were in 1937.

Q And do you know how long these wells produced from those tracts?

A Let's see, on the Harrison "WN" No. 2, located in Unit D of 29, in May of 1967 was the last Langlie Mattix production.

On the Harrison D "WN" No. 2, located in Unit L, the last Langlie Mattix production was in April of 1969.

1  
2 And on the Harrison No. 6, located in  
3 Unit N of Section 29, the Langlie Mattix was plugged and  
4 abandoned in May of 1977.

5 Q Mr. Aycock, how did Mr. Hartman acquire  
6 his interest in the subject tracts?

7 A Farmouts from Fluor and Gulf.

8 Q And when were these farmouts acquired?

9 A Immediately prior to the time he drilled  
10 them, which was in -- just a minute and I can tell you exactly.  
11 1977. Oh, excuse me, that's not the right -- that's not the  
12 right lease.

13 1977 for the Harrison 1, and in 1978 for  
14 the Gulf Corrigan 1 and 2.

15 Q Mr. Aycock, have you reviewed these  
16 farmouts?

17 A Yes, sir.

18 Q Do they require that Mr. Hartman protect  
19 these leases from drainage from offsetting wells?

20 A They require two things, as the Commis-  
21 sion is aware that all major company farmouts virtually re-  
22 quire, they require that the leases be protected from drain-  
23 age, and they also require that the -- all of the intervals  
24 that are farmed out be thoroughly tested to the satisfaction  
25 of the company farming the acreage out to determine whether

1  
2 or not they bear hydrocarbons in commercial quantities.

3 It is apparent that Gulf and Mr. Hartman  
4 both suffered from the same misconception as to what the pool  
5 limits were, and that Gulf in -- in affirming what Mr. Hartman  
6 has done, and also appearing in a hearing of their own that  
7 concerns immediately adjacent acreage, was suffering from  
8 that same misconception as to what constituted the pool  
9 boundaries, and so it is quite apparent that their require-  
10 ments would be that he test those intervals that are the sub-  
11 ject of this application: that is, those that are in the  
12 overlap between what would properly be the Langlie Mattix  
13 and what was tested as being thought to be part of the Langlie  
14 Mattix Pool, that being in the third Seven Rivers formation.

15 Q Mr. Aycock, if Hartman's application is  
16 granted in this case, will it result in conflict of owner-  
17 ship on the subject tracts?

18 A No, sir.

19 Q Based on your review of the area, in  
20 determining that the subject wells were Langlie Mattix com-  
21 pletions, was Mr. Hartman using the same picks that were  
22 used by other operators in the pool?

23 A By many in the area, as we previously  
24 testified, due to their also misunderstanding of what con-  
25 stituted the top of the Queen and therefor the base of the

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Seven Rivers.

Q Could production in these wells be  
downhole commingled?

A. No, it could not.

Q Would denial of this application, in  
your opinion, result in hydrocarbons being left in the ground  
that otherwise would be produced?

A. Yes, sir, I believe it would.

Q And how would this be caused?

A. Well, I think it could be caused one of  
two ways. I doubt that the remaining reserves are sufficient  
for anybody to indulge in a great deal of expense to try to  
complete wells in them. If the -- if the reservoirs that  
are the subject of -- first of all, we don't know how much  
of the common source of supply being drained by either Mr.  
Hartman's wells or those on nearby leases are actually  
coming from those zones that are within the vertical interval  
that is the overlap between the Jalmat and Langlie Mattix  
Pool intervals.

Assuming that it is some substantial  
portion of what is being withdrawn, if it is plugged off the  
likelihood is that the expense of completing or drilling  
other wells to it could not be borne, and therefor, those  
reserves would be abandoned in place.

1  
2 In addition, as we've previously testi-  
3 fied, due to our experience, that is, Mr. Hartman's experience  
4 as well as other operators' experience throughout the Langlie  
5 Mattix/Jalmat Pools, we believe that killing these wells with  
6 the advanced state of depletion would lead to the invasion of  
7 the killing fluid, whether it were oil or water, to a -- pro-  
8 bably a very deep depth within the reservoir intervals, and  
9 even if you were able to affect a separation which is doubtful  
10 because of the fracturing techniques that were used in the  
11 initial completion. The likelihood is that the remaining  
12 intervals, which are properly a portion of the Langlie Mattix  
13 Pool, could not be restored to their former productivity or  
14 could not be restored to productivity at all.

15 Q Mr. Aycock, would granting this appli-  
16 cation impair the right of any operator or any interest owner  
17 in the pool to produce his just and fair share of the reserves  
18 from the --

19 A No, sir, I think Mr. Hartman's position  
20 is -- was well stated by ARCO's witness in the hearing pre-  
21 viously referred to, and with the Commission's indulgence,  
22 I'd like to quote directly from that -- from that testimony.

23 MR. KILPATRIC: Mr. Commissioner, we  
24 would object to the question as calling for irrelevant testi-  
25 mony from an individual with different surroundings, set of

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facts. If Mr. Aycock has a rationale for Mr. Hartman in this case, then he ought to state it. I don't believe he ought to quote out of context from some other case.

MR. CARR: I will redirect the question to Mr. Aycock.

Q Mr. Aycock, in your own words would you state why you believe this application would not violate correlative rights --

A There's no -- in granting this application there's no prohibition from any other operator availing himself of the remedies that are available to him, which is to develop these reserves through existing wellbores or other wellbores.

Q In your opinion will granting this application be in the best interest of conservation?

A I believe that it will, yes.

Q Were Exhibits One through Ten either prepared by you or under your direction and supervision?

A Yes, sir, they were.

MR. CARR: At this time we would offer into evidence Hartman Exhibits One through Ten.

MR. KILPATRIC: Mr. Chairman, for the record we want to object to Exhibits Eight and Nine, dealing with other ARCO wells and their exceptions, and we will con-

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2 tend they are not the subject of this hearing, and they come  
3 under all kinds of exceptions and they are showing that ARCO  
4 had sought exceptions prior to Order R-520, and in waterfloods  
5 and all kinds of situations, and that's not germane informa-  
6 tion.

7 MR. CARR: We would submit that what we  
8 have here is a situation where a pool has been developed, a  
9 number of exceptions have had to be granted to various oper-  
10 ators because of confusion as to the pool limits; that it is  
11 a proper matter for you to consider in reviewing this case,  
12 whether or not a number of exceptions have been given to  
13 ARCO and other operators in the pool and exactly where these  
14 exceptions lie with respect to the subject property.

15 We submit that all three Exhibits, Eight,  
16 Nine, and Ten are relevant and are proper for you to consider  
17 in this proceeding.

18 MR. RAMEY: We will accept the exhibits,  
19 Hartman's Exhibits One through Ten.

20 MR. CARR: At this time, may it please  
21 the Commission, we would ask that you take administrative  
22 note of Case 7163, which is the application of ARCO Oil and  
23 Gas for an exception to the vertical limits of the Langlie  
24 Mattix Pool.

25 MR. RAMEY: Okay, it's so noted, Mr.

1  
2 Carr.

3  
4 CROSS EXAMINATION

5 BY MR. RAMEY:

6 Q Mr. Aycock, you were very definite in  
7 stating that these wells could not be downhole commingled.

8 A Yes, sir.

9 Q Why is that? Why can't they be downhole  
10 commingled?

11 A Because Mr. Hartman by virtue of the  
12 farmout agreement with Gulf does not own Jalmat rights. He  
13 only owns Langlie Mattix rights. And in the, in his corres-  
14 pondence with Gulf and their correspondence with him, they  
15 cited the intervals that are the question of this and it's  
16 quite apparent that both of them thought that the intervals  
17 in which these wells were completed were in the Langlie  
18 Mattix pool, within it.

19 MR. RAMEY: Thank you.

20 MR. CARR: Mr. Ramey, with your per-  
21 mission we would like a very brief recess, during which time  
22 we'd like to have an opportunity to talk to Mr. Aycock for  
23 a moment.

24 MR. RAMEY: All right, we'll have a  
25 very brief recess.



(Thereupon a recess was  
taken.)

MR. RAMEY: Do you have anything further  
Mr. Carr?

MR. CARR: Nothing further, Mr. Ramey.

MR. RAMEY: Anyone have any questions  
of Mr. Aycock?

MR. KILPATRIC: May I have just one moment,  
Mr. Ramey?

CROSS EXAMINATION

BY MR. KILPATRIC:

Q Mr. Aycock, I believe you testified on  
direct examination that there were no public records avail-  
able in order for Mr. Hartman to determine the Committee top,  
is that correct?

A. There was no mention made anywhere in  
any published record, that's right. Cross sections were in  
existence but there was no mention of them made in the pool  
rules or any other location that I'm aware of.

Q But in fact nine of the ten cross sec-  
tions were available in Hobbs, is that correct?

1  
2 A. They were in the Hobbs office, that's  
3 correct.

4 Q. And other operators did make use of  
5 those cross sections.

6 A. Well, whether they did or not, I'm not  
7 prepared to testify, Mr. Kilpatrick.

8 Q. You're not aware as to whether or not  
9 any operators made use of those ---

10 A. I'm not aware of whether anybody --- the  
11 first time Mr. Hartman heard of them was from Lewis Burleson  
12 and as soon as he heard about them, he availed himself of  
13 them.

14 Mr. Hartman was in -- was in elementary  
15 school at the time that information was developed and made  
16 available as a public record. He was not an active indepen-  
17 dent or in a major company at the time that it was done, and  
18 without a specific reference to it in a public record place  
19 that he would normally refer to, then there was not any way  
20 that he could know that it was available.

21 Q. The fact is the cross sections were  
22 available through the entire time that he's been operating  
23 in the field, though, is that correct?

24 A. They were available.

25 Q. All right.

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A I will accept Mr. Sexton's word for that  
and that's my basis for that understanding.

Q Mr. Aycock, I'd like to refer you to  
your Exhibit Number Three.

A Okay.

Q Which you identify as cross section  
A-A', I believe.

A Uh-huh.

Q On that exhibit you show two ARCO wells,  
and you have them marked as ARCO wells.

A Right.

Q Isn't it a fact that the first ARCO well  
starting from the left and going to the right, that isn't  
really an ARCO well, is it?

A I don't understand what you mean, it  
isn't really an ARCO well.

Q You have ARCO up there at the top, right?

A It was originally a Western Natural  
well, if that's what you're asking.

Q Well, why do you have the word ARCO  
after the word company?

A Why do I have the word ARCO after the  
word company? Because ARCO owns the acreage on which it's  
located.

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Q And how did you determine that information?

A From referenced available public records.

Q And what well was completed when?

A 2-16-37.

Q 1937, right, before the 1953 R-520 order is that right?

A Uh-huh, and after ARCO had acquired the interest on July 1st, 1935.

Q And referring to the other well you have marked as an ARCO Well, do you see that, the fourth one over?

A Uh-huh.

Q When was that well completed?

A 9-10-37.

Q And you don't show any other ARCO wells on this exhibit.

A That's right.

Q I'd now like to refer you to your Exhibit Number Six, and refer you to your gas/oil ratios for the Hartman Henry Harrison No. 4, I believe. You show a 37.1/25.5, am I correct?

A Uh-huh.

Q Where -- how did you obtain the informa-

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tion as to those numbers?

A From the public information production records.

Q As of what date?

A As of the last date that we could get prior to this hearing, which I believe this was in October, and I believe the last information that's available as of that point in time was through the month of August, 1980.

Q You're aware, aren't you, there there's more current data available as of October of 1980?

A Uh-huh.

Q You didn't see fit to update this --

A We didn't call the hearing Mr. Kilpatrick. You did.

Q I just asked you a question, did you see fit to update it?

A No, sir, I did not.

Q So it's incorrect as to those numbers?

A It's correct as of the date of the hearing, the original hearing that was held. That's correct.

Q Not --

A It is not correct, it has not been updated to the present time.

Q This hearing, right?

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A That's correct.

Q This de novo hearing.

A That's correct.

Q Do you have any other reason for not bringing the exhibit up to date, other than the fact that is accurate as of the first hearing?

A No, I have no reason to bring it up to date. I didn't realize that the Commission required us to -- on a de novo hearing to do anything to the exhibits that were presented at that time. If that's a requirement, I'm unaware of it.

MR. KILPATRIC: Just a moment, please.

Q Mr. Aycock, I just have one more question.

A Uh-huh.

Q Isn't it a fact that the most current information shows that gas/oil ratio to be a lot lower than you have it on this?

A I'm not aware, because I haven't made any attempt to research it, Mr. Kilpatric. I'd be lying to you if I told you I knew.

Q All right, thank you.

MR. KILPATRIC: That's all I have.

MR. RAMEY: Any other questions of Mr.

1  
2 Ayccock?

3 MR. CARR: We have nothing further.

4 MR. RAMEY: He may be excused.

5 MR. CARR: That concludes our direct  
6 case.

7 MR. RAMEY: Thank you, Mr. Carr.

8  
9 HUAN PHAM

10 being called as a witness and being duly sworn upon his oath,  
11 testified as follows, to-wit:

12  
13 DIRECT EXAMINATION

14 BY MR. LOPEZ:

15 Q Will you please state your name?

16 A My name is Huan Pham.

17 Q By whom are you employed and in what  
18 capacity?

19 A I have been employed by ARCO Oil and  
20 Gas Company since 1976. My current assignment is as an  
21 area engineer.

22 Q Have you previously testified before  
23 the Commission and had your qualifications as a petroleum  
24 engineer accepted as a matter of record?

25 A Yes, sir, I have.

Q Are you familiar with the application in Case 7057?

A Yes, I am.

MR. LOPEZ: Mr. Chairman, I would at this time request the Commission to take administrative notice of Case 7057 and the record of the hearing.

MR. RAMEY: So noted, Mr. Lopez.

MR. LOPEZ: Are the witness' qualifications acceptable to the Commission?

MR. RAMEY: Yes, they're acceptable.

Q What is ARCO's position as to Mr. Hartman's application in this case?

A Should the application of Mr. Hartman be granted ARCO respectfully requests an order restricting the allowables on the production from Mr. Hartman's Corrigan No. 1, located in the southeast quarter of the southeast quarter of Section 30, Township 24 South, and Range 27 East; the Hartman Corrigan No. 2, located in the northeast quarter of the southeast quarter of the same section; and also the Hartman Harrison No. 1, located in the southeast quarter of the southwest quarter of Section 20, all in Township 24 South, Range 37 East, in Lea County, New Mexico.

A restriction of the allowables of these wells to an equivalent of a 40 acre Jalmat gas prora-



tion unit per well is necessary to prevent drainage and to protect ARCO's correlative rights in the Jalmat underlying the offset acreage.

Q I now refer you to what has been marked for identification as ARCO Exhibit Number One and ask that you describe and explain it.

A Exhibit Number One is an area map showing the west half of Section 29 outlined in red. Also colored in red are the three wells that Mr. Hartman operates and for which he has asked for an extension of the vertical limits of the Langlie Mattix.

ARCO owns 100 percent working interest in the Jalmat Gas Reservoir underlying the west half of Section 29. 100 percent of ARCO interest in the Langlie Mattix underlying the northwest quarter and the west half of the southwest quarter was farmed out to Mr. John Yuronka in December of '78.

ARCO also owns a 25 percent working interest to all depths in the northeast quarter of Section 30, which is operated by Continental Oil Company.

Q Next I refer you to what has been marked for identification as ARCO Exhibit Number Two and ask that you describe and explain it.

A Exhibit Number Two is the gamma ray

density log of the Hartman Corrigan No. 1, which is shown on this exhibit as being located in the southeast quarter of the southeast quarter of Section 30. The gamma ray is exhibited in the lefthand column and the density is exhibited in the righthand column.

The density curve indicates porosity. The best porosity -- the better porosity a zone has the further the curve moves to the left.

As the Commission well knows, the better the porosity, the more hydrocarbons the zone can produce.

This exhibit shows the top of the Yates, the Seven Rivers, and the Queen formations as defined by the New Mexico Oil Conservation Division.

The Langlie Mattix, the top of which is located 100 feet above the top of the Queen, is marked by a red line at 3434 feet. Marked in green is the original gas/oil contact at -150 feet subsea, as recognized by the industry.

The perforation interval from 3364 to 3502 is colored in red. In this well Mr. Hartman perforated 70 feet into the Jalmat and only 68 feet in the Langlie Mattix. More than half of the perforation interval is in the Jalmat, although the well was submitted to the New Mexico Oil Conservation Division as a Langlie Mattix well, and is

1  
2 now producing under the Langlie Mattix allowable.

3 As can be seen on this exhibit, the best  
4 porosity zones within the perforated interval are in the  
5 Jalmat and that is where we believe most of the production  
6 is coming from.

7 Q I refer you to what has been marked for  
8 identification as ARCO Exhibit Number Three and ask that  
9 you describe and explain it.

10 A Exhibit Number Three is the gamma ray  
11 density log of the Hartman Corrigan No. 2. As can be seen  
12 on this Exhibit Number One, the well is located in the north-  
13 east quarter of the southeast quarter of Section 30. The  
14 density curve in the righthand column indicates porosity and  
15 has the same characteristics I referred to in my discussion  
16 of Exhibit Number Two.

17 On this well the top of the Langlie  
18 Mattix is marked at 3468 feet by a red line. The perfora-  
19 tion interval from 3389 to 3503 is colored in red.

20 In this well Mr. Hartman perforated  
21 79 feet into the Jalmat and only 35 feet in the Langlie  
22 Mattix. This indicates that 69 percent of the perforations  
23 interval is in the Jalmat gas pool, even though the well  
24 was submitted to the Division as a Langlie Mattix well is  
25 now producing under the Langlie Mattix allowable.

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Q Next I refer you to what has been marked for identification as ARCO Exhibit Number Four and ask that you describe and explain it.

A Exhibit Number Four is the gamma ray density log of the Hartman Harrison No. 1. As shown on Exhibit Number One, this well is located in the southeast quarter of the southwest quarter of Section 20. The density curve in the righthand column is an indication of porosity as previously discussed.

The top of the Langlie Mattix is marked at 3435 feet. The perforation interval which runs from 3390 to 3454 is colored in red.

In this well Mr. Hartman perforated 45 feet into the Jalmat and only 19 feet into the Langlie Mattix; therefor, 70 percent of the perforation interval is in the Jalmat gas pool, although this well was submitted to the Division as a Langlie Mattix well and is now producing under the Langlie Mattix allowable.

Also shown on this exhibit, the best porosity zones within the perforated interval are in the Jalmat and we believe that this is where substantially all of the production is coming from.

Q Next I refer you to what has been marked for identification as ARCO Exhibit Number Five and ask

1  
2 that you describe and explain it.

3           A           Exhibit Number Five is a comparison of  
4 the October, 1980, daily gas allowables for the Langlie Mat-  
5 tix and Jalmat on equivalent 40-acre tracts.

6                   As can be seen on this exhibit, by  
7 having the Langlie Mattix gas allowable Mr. Hartman is allowed  
8 to produce up to 800 Mcf a day per 40-acre tract, while for  
9 a Jalmat 40-acre tract ARCO is allowed to produce only 94  
10 Mcf a day. Thus for a 40-acre tract Hartman's allowable is  
11 more than eight times that of ARCO's allowable. In fact,  
12 in the month of October 1980, Mr. Hartman produced an  
13 average of 367 Mcf a day from the Corrigan No. 1; 367 Mcf a  
14 day from the Corrigan No. 2; and 422 Mcf a day from the  
15 Harrison No. 1. This is more than four times the 94 Mcf a  
16 day allowable limit for the Jalmat gas pool.

17                   In addition, Mr. Hartman's wells are  
18 at unorthodox locations and are not in compliance with the  
19 Jalmat gas pool spacing. Had these wells been properly sub-  
20 mitted as Jalmat gas wells, Mr. Hartman would have been  
21 requested to obtain Commission's approval and the offset  
22 operators' approval before he could have drilled the wells  
23 because they are too close to the lease lines and therefor  
24 could drain offset leases.

25           Q           What effect would the difference in the

allowables have upon the correlative rights between Mr. Hartman and ARCO?

A. So long as Mr. Hartman is allowed to produce Jalmat gas from these wells under the Langlie Mattix allowable while ARCO's offsetting wells are restricted to the Jalmat allowable, ARCO's Jalmat gas reserves in the offsetting acreage will continue to be drained and its correlative rights violated.

Q. Next I refer you to what has been marked for identification as ARCO Exhibit Number Six and ask that you describe and explain it.

A. Exhibit Number Six shows the area from which the Hartman Corrigan No. 1, the Corrigan No. 2, and the Harrison No. 1 Wells are draining Jalmat gas.

ARCO has 100 percent working interest in the areas colored in red and 25 percent working interest in areas colored in green. The drainage areas were determined by calculations shown on Exhibit Number Ten.

As can be seen from this Exhibit Number Six, a significant amount of the drainage area underlies ARCO acreage and therefor is subject to being drained by Jalmat gas production from Mr. Hartman's wells.

Q. Next I refer you to what has been marked for identification as ARCO Exhibits Seven, Eight, and

1  
2 Nine and ask that you describe and explain them.

3 A Exhibits Seven, Eight, and Nine depict  
4 production curves of Mr. Hartman's three wells in Mcf per day  
5 and barrels of oil per day.

6 For example, Exhibit Number Seven shows  
7 the Hartman Corrigan No. 1 as producing 367 Mcf a day and 2  
8 barrels of oil per day during October, 1980. The extrapo-  
9 lated dotted line is the expected production rate based upon  
10 a decline rate of 18 percent. This decline rate is used to  
11 determine the remaining recoverable gas reserves.

12 Also shown at the bottom of the exhibit  
13 is the cumulative oil and gas production through October of  
14 1980.

15 Exhibits Eight and Nine show the same  
16 type information on the Corrigan No. 2 and the Harrison No.  
17 1 wells.

18 Q Next I refer you to what has been  
19 marked for identification as ARCO Exhibit Number Ten and ask  
20 that you describe and explain it.

21 A Exhibit Number Ten is a sample calcula-  
22 tion of the Jalmat gas drainage area shown on Exhibit Number  
23 Six.

24 This exhibit shows that the Hartman  
25 Henry Harrison No. 1 well has produced 370 MMCF as of January

1st, 1981.

Based on the expected decline rate of 20 percent, remaining reserves were calculated to be 622 MMCF. The ultimate reserves equal the sum of the cumulative and remaining reserves, which in this case is 992 MMCF.

Based on the porosity feet allocation of the perforated interval, 82 percent of the ultimate gas reserves will be produced from the Jalmat; therefor, the ultimate Jalmat gas reserves are 813 MMCF.

To calculate the drainage area this gas reserve is set equal to the volumetric equation of gas in place and the recovery factor is estimated at 75 percent.

Based upon these calculations the drainage area was determined to be 264 acres. By planimentering the drainage area it shows 51 percent of the area is ARCO's acreage; therefor, ARCO's Jalmat gas reserves equal to 51 percent of 813 MMCF. or 416 MMCF.

As a result, if Hartman's application is granted the Hartman Henry Harrison No. 1 will capture 416 MMCF of ARCO's Jalmat gas reserves.

Q Next I refer you to what has been marked for identification as ARCO Exhibit Number Eleven and ask that you describe and explain it.

A Exhibit Number Eleven is the gamma ray



1  
2 density log of the Yuronka Harrison A No. 1, which is shown  
3 on Exhibit Number One as being located in the northeast  
4 quarter of the northwest quarter of Section 29. This well is  
5 the direct offset to the south of the Hartman Harrison NO. 1,  
6 in Section 20.

7 Mr. Yuronka perforated less than 20 feet  
8 into the Jalmat and is within the tolerance for error  
9 adopted by the Runyon report.

10 Now, please refer to Exhibit Number Four  
11 which shows the gamma ray density logs of the Hartman Henry  
12 Harrison No. 1.

13 By correlating the two logs one can see  
14 that Mr. Hartman perforated much higher in the Jalmat where  
15 the porosity is much better than in the Langlie Mattix. As  
16 a result, during October of 1980 the Hartman Henry Harrison  
17 No. 1 produced 422 Mcf per day, which was more than six times  
18 greater than the 70 Mcf per day produced by the Yuronka  
19 Harrison No. 1. The reason for this great difference in  
20 production is 70 percent of the perforation interval in Mr.  
21 Hartman's Henry Harrison No. 1 Well lies in the Jalmat where  
22 porosity is better developed.

23 Q Mr. Pham, in light of what has been  
24 presented here today, can you suggest any methods by which  
25 ARCO's correlative rights can be protected?

1  
2 A In order to protect ARCO correlative  
3 rights the following solutions could be carried out:

4 First is to squeeze off the perforations  
5 in the Jalmat.

6 Second, to dually complete the well in  
7 the Jalmat and the Langlie Mattix.

8 Third, downhole commingle the two zones.

9 And fourth, to allow the extension of  
10 the Langlie Mattix as requested by Mr. Hartman but to restrict  
11 the allowable to the equivalent of a 40-acre Jalmat gas  
12 proration unit per well.

13 It should be noted that ARCO's corre-  
14 lative rights cannot be protected by the granting of a simi-  
15 lar extension of the Langlie Mattix underlying ARCO's offset  
16 acreage because ARCO has farmed out the Langlie Mattix  
17 rights on that acreage to Mr. Yuronka.

18 Q Which of these solutions, if any, do  
19 you recommend?

20 A I would recommend the fourth solution,  
21 that is, to allow the extension of the Langlie Mattix as  
22 requested by Mr. Hartman, but to restrict the allowable to  
23 the equivalent of a 40-acre Jalmat gas proration unit per  
24 well.

25 The first two solutions involve working

over the wells, which could result in loss of hydrocarbons.

The third solution may cause problems in ownership.

Therefor, the fourth solution is the most reasonable because it will prevent waste, eliminate unnecessary drainage, and protect ARCO's correlative rights, while still allowing Mr. Hartman to produce from his wells without any additional expense or risk.

However, ARCO would accept any solution chosen by the Commission which would protect its correlative rights.

Q. Mr. Pham, in your opinion what will happen if a restriction of allowable is not imposed on the three wells operated by Mr. Hartman?

A. Unless the Commission restricts the gas production from Mr. Hartman's wells to the equivalent of a 40-acre Jalmat gas proration unit per well, Mr. Hartman will continue to produce the wells at a much higher rate under the Langlie Mattix allowable. As a result the drainage problem that ARCO has been suffering will continue and its correlative rights will therefor continue to be violated.

Q. What then, Mr. Pham, is ARCO's position concerning Mr. Hartman's application and what is the basis for that position?

1  
2 A ARCO is not interested in the reason  
3 why Mr. Hartman perforated into the Jalmat. The fact of the  
4 matter is at this very moment ARCO gas reserves are continuing  
5 to be drained because Mr. Hartman's wells have the unfair  
6 advantage of a significantly higher allowable. Therefore, we  
7 request an order be issued to restrict the allowable on these  
8 three -- on these three wells to the equivalent of a 40-acre  
9 Jalmat gas proration unit per well.

10 Q Does the solution you are recommending  
11 compensate ARCO for the loss ARCO has already suffered as  
12 a result of the drainage that has occurred?

13 A No, sir.

14 Q Is the remedy requested by ARCO in the  
15 interest of the prevention of waste and the protection of  
16 correlative rights?

17 A In my opinion it is.

18 Q Were Exhibits One through Eleven pre-  
19 pared by you or under your supervision?

20 A Yes, sir.

21 MR. LOPEZ: At this time I would move  
22 the admission of ARCO's Exhibits One through Eleven.

23 MR. RAMEY: ARCO's Exhibits One through  
24 Eleven will be admitted.

25 Q Mr. Pham, I think we just have one more

1  
2 question, which is do you have the gas/oil ratio currently  
3 of the well that's in dispute?

4 A Yes, I have.

5 Q Regarding Mr. Hartman's Exhibit Number  
6 Three, I believe.

7 A Based on the October production report,  
8 the Harrison -- the Yuronka Harrison No. 4 Well, which is  
9 located in the southwest quarter of the southwest quarter of  
10 Section 29, --

11 Q I think I mis-referred. I think it's  
12 Exhibit Number Six.

13 I'll hand you Mr. Hartman's Exhibit  
14 Number Six and ask you if you have any other comments con-  
15 cerning the exhibit?

16 A On this Exhibit Number Six the gas/oil  
17 ratio for the Yuronka Harrison No. 4 was shown to be 37000  
18 and 1 -- I mean 37 -- 37 Mcf and 1, while in the October  
19 report it was shown to be 17000-to-1. So this is more than  
20 two times higher than the October gas/oil ratio reached.

21 And I would also like to point out to  
22 the Commission that on Mr. Hartman Corrigan No. 2 Well, where  
23 it shows the gas/oil ratio of 127,000 on this same exhibit,  
24 I believe that that number is come up with because there is  
25 a lot of Jalmat gas produced in the well, and that is the

1  
2 reason why the gas/oil ratio is significantly higher than the  
3 offset Langlie Mattix well, which runs between 11000 to 17000  
4 to 1.

5 MR. LOPEZ: Mr. Chairman, I have no  
6 further questions of this witness.

7 MR. RAMEY: Any questions of Mr. Pham?  
8 Mr. Carr?

9 MR. CARR: Mr. Pham, do you still have  
10 a copy of Exhibit Number Six, Hartman Exhibit Number Six?

11 MR. LOPEZ: NO, I'll give it to him.

12 A Yes, sir.

13  
14 CROSS EXAMINATION

15 BY MR. CARR:

16 Q Did you check the GOR's as reported to  
17 determine whether or not they were accurate as of August,  
18 1980?

19 A I did not, sir. I just checked on the  
20 last available numbers that we have.

21 Q So your testimony is not that as of  
22 August, 1980, any figures reported are necessarily incorrect?

23 A No, sir, that's correct. It is based  
24 on the October figures.

25 Q Now any of the new figures that you dis-

1  
2 covered in October, did any of these changes cause gas wells  
3 to then become classified as oil wells, oil-gas?

4 A Well, based on these figures here, it's  
5 to the left of the ratio 100,000-to-1, you know, that will  
6 change the status of the well, but I want to point out that,  
7 you know, --

8 Q Well, are there any oil wells here that  
9 were, because of the new data that you have, would they be  
10 classified as gas wells under your data that were not --

11 A I'm sorry, I hadn't finished my sentence.

12 Q I'm sorry.

13 A I would like to point out that the  
14 reason that this well has a higher gas/oil ratio based on  
15 the August production number, that was so that, you know, when  
16 the well in the Langlie Mattix produces a lot higher gas  
17 production, and that seems, you know, misleading to me.

18 Q Mr. Pham, is there any data available  
19 to you more current than the October data?

20 A Up till now I would say maybe in  
21 November is some.

22 Q Have you checked that?

23 A No, sir.

24 Q So you picked October and we picked  
25 August.

1  
2 A Well, at the time that we prepared this,  
3 and it was the last work available.

4 Q And at the time we prepared this you're  
5 not disputing that what we had was August?

6 A I do not know.

7 Q All right, thank you.

8 Now I'd like to refer to your Exhibit  
9 Number One. I just didn't understand what acreage here was  
10 farmed out to Yuronka. I just didn't catch that on direct.

11 A The Langlie Mattix zone is farmed out  
12 to Mr. Yuronka.

13 Q Under what --

14 A Under the northwest quarter and also  
15 the west half of the southwest quarter.

16 Q Of Section 29?

17 A Yes, sir.

18 Q But that farmout runs into the  
19 Langlie Mattix.

20 A Right.

21 Q Would you now refer to -- well, let's  
22 refer to your Exhibit Number Four. Now the green line on  
23 this exhibit is labeled, I believe, gas/oil contact, is that  
24 correct?

25 A Yes, sir, that's the original gas/oil



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contact.

Q Now when you said original, is this the gas/oil contact that has been used for some period of time throughout this pool?

A Yes, sir.

Q For how long -- for what period of time, do you know, has this gas/oil contact been used?

A It has been used for a long time by the industry.

Q Would this gas/oil contact be affected by, say, waterflooding in the area?

A It could be.

Q Could it be affected by withdrawals from wells in the immediate area?

A It could be.

Q It could be other than as portrayed on your exhibits, say, Two through Four, all of the exhibits that show this green gas/oil contact.

A Yeah, that's right, sir. However, I'd like dwell on that. I don't think the vertical displacement of this gas/oil contact is significant, and the reason is because I see wells in the area with perforations below the -150 and produce oil from the wells.

Q Is it your testimony -- I'm trying to

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understand what this line means.

Is gas produced above that line and oil below it?

A Gas would be above it and oil produced below it, that's right.

Q Could you produce gas below the line?  
I mean --

A Well, what I'm saying is this is the original gas/oil contact and it is possible that as the gas reservoir is produced the gas/oil contact could move; however, the movement -- the vertical displacement, the movement down or up is not significant because I've seen wells in this area that produce oil right beneath the -150.

Q So you believe there are other wells that re-establish this in the immediate area, is that your testimony?

A Right, I mean it could move and it's not significant.

Q Which wells, can you tell me any in particular?

A Yes, sir, I have the Yuronka Henry Harrison No. 4, located in the southwest quarter of the southwest quarter of Section 29, which produced 11 barrels of oil during October, and also the No. 3, located in the

1  
2 northwest quarter of the southwest quarter produced 22 barrels  
3 of oil during October.

4 Q Were those wells also producing gas?

5 A Yes, sir.

6 Q Well, how do you know what perforations  
7 were yielding oil and which ones were yielding the gas?

8 A Yes, sir, well, the Langlie Mattix is  
9 an oil reservoir; however, it has associated gas, you know,  
10 producing with the oil, and that is where the gas is coming  
11 from.

12 Q Were there perforations in both of the  
13 zones? The Langlie Mattix and the Jalmat in each of these  
14 wells?

15 A In Mr. Yuronka's wells it penetrated  
16 less than 20 feet, so very little, very little of the gas is  
17 in the Jalmat.

18 Q Do you have any way of knowing on which  
19 perforations, whether the little ones that were, I guess,  
20 in the Jalmat, whether they were giving gas or oil?

21 A It could be -- it could yield some gas.

22 Q Could it also yield some oil?

23 A No, sir, because it's above the -150.

24 Q In other words, because of the existence  
25 of this line at 150 you're assuming that it couldn't give oil.

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A Right. It is at -150. I don't believe it could produce oil up above that line.

Q Well then, if that line was not at -150, wouldn't that change your thinking?

A Well, as I say --

Q I'm trying to see what it is that tells you that in any of these wells 150, -150 is in fact the line and I don't see that.

A Well, I'd like to point out that this is the original gas/oil contact, and I already said, you know, that this gas/oil contact can move.

Q That's right.

A As the gas -- as the reservoir is produced, but it wouldn't be able to move very much down, further down below -150 because there are wells in the area that produce the oil right below it. If it moves further down below -150 then you shouldn't have the oil production.

However, I'd like to point out on this Exhibit Number Four, it doesn't matter where the gas/oil contact is. The fact is Mr. Hartman's perforated 70 percent into the Jalmat, as shown on this exhibit, so regardless where the gas/oil contact is, most of the production, I believe, comes from above the Langlie Mattix.

Q How -- do you know how the Henry

1  
2 Harrison No. 1 Well, shown on Exhibit Four, was actually  
3 completed? Do you know what sort of fracture treatment was  
4 used?

5 A Yes, sir.

6 Q How would you characterize that, the  
7 fracture treatment?

8 A It was of significant volume.

9 Q Do you know that the fracture treatment  
10 used in each of the wells which are on your cross sections --

11 A No, sir.

12 Q You don't. The Eddie Corrigan No. 2,  
13 are you aware of the fracturing that was done in completing  
14 that well? That's Exhibit Number Three.

15 A Are you asking about Exhibit Number  
16 Three?

17 Q Yes sir.

18 A Yeah, the volume is also significant.

19 Q If you have an effective fracturing in  
20 a well, won't that affect the production from the well?

21 A It's so.

22 Q Do you happen to know how Mr. Yuronka  
23 fractured, or how he -- whether or not he fractured his  
24 Harrison A No. 1 Well in completing it?

25 A Which one are you talking about now,

1  
2 I'm sorry?

3 A I'm talking about Exhibit Number Eleven.

4 A I have it shown here as being acidized.

5 Q Does this tell you that this was stimu-  
6 lated the same way that the Hartman well was?

7 A No, sir.

8 Q Now I believe you stated that -- back to  
9 Exhibit Number Four, that 70 percent of the production was  
10 coming from the upper zone, the Jalmat zone, is that correct?

11 A Well, I said 70 percent of the perfor-  
12 ation interval is in the Jalmat based on the line that was  
13 accepted by the Commission as the top of the Langlie Mattix.  
14 The red line on this Exhibit Number Four.

15 Q Okay. How did you determine that, just 70  
16 percent of the actual footage was above that line?

17 A Yes, sir.

18 Q Can you reach any conclusion from this  
19 as to what percentage of the production would be coming from  
20 this zone?

21 A Well, I don't use that as the -- as the  
22 percentage of the production, you know, to come from this  
23 zone. I use a different method, which shows on Exhibit  
24 Number Ten, as to how I come up with it, the percentage of  
25 the gas coming out of the Jalmat. And it shows to be 82 per-

1  
2 cent, so --

3 Q Mr. Pham, I'd like you to look at your  
4 Exhibit Number Ten now, which is your calculation. which I  
5 don't understand.

6 A Well, I am sorry. I do my best to ex-  
7 plain it.

8 Q Let's try to understand part of it. If  
9 we take a look at -- I don't understand which of the figures  
10 that you're using here are hard figures that you get from  
11 well data or from the reservoir itself, and what are general  
12 assumptions that are used in the industry in making this.

13 A I would be glad, you know, to explain  
14 it to you if you would please, you know, show me where you  
15 have reference rather than just go right into it. I don't  
16 know where to start.

17 Would you show me where, you know, where  
18 you have problem with?

19 Q Down on the bottom, toward the bottom  
20 of the exhibit, it says GIP equals.

21 A Yes, sir.

22 Q Okay what's that first figure. 43.560?

23 A That is the converting given acres into  
24 square feet.

25 Q And what's that designed to show?

1  
2 A That is to make these units incompatible  
3 with each other to come out with the unit for Mcf in the  
4 second sentence.  
5 Q Okay, what are we talking about here?  
6 Are we talking about porosity? Are we talking about feet?  
7 A Well, I already said it. It is a  
8 converting factor.  
9 Q And what are you converting?  
10 A I converted into feet, you know. That  
11 make the whole equation compatible to each other.  
12 If you want to use -- if you want to use  
13 an equation, you have to put various terms into compatible  
14 unit --  
15 Q Okay.  
16 A -- so that you can use it.  
17 Q Okay, but you're converting something.  
18 Is this feet that you're converting here?  
19 A Right. Well --  
20 Q This is a productive interval, the  
21 number of feet, is that what that's designed to show?  
22 A No, sir.  
23 Q What's it designed to show?  
24 A This 43.560 is -- well, let me explain  
25 it this way. One acre has 43560 square feet, and that's what



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that number is.

Q Just one second.

A And I would say that that equation is --  
is known throughout industry and it is well known by the  
Commission, I would believe.

MR. CARR: Can I have just a short recess?  
cess?

MR. RAMEY: Very short.

MR. CARR: It will facilitate --

(Thereupon a short recess  
was taken.)

Q All right, Mr. Pham, I want to go back  
to the same formula --

A All right.

Q -- after the number 43.560.

A Uh-huh.

Q There's a figure there that I believe  
stands for porosity.

A Yes, sir, that's correct.

Q Where do you get the porosity? What  
do you plug in there? Is that a definitive figure that you  
can pull somewhere? Where do you --

1  
2 A The porosity is based on whatever is  
3 available on the well, and in this case it would be the Henry  
4 Harrison No. 1 number.

5 Q And were you able to establish a defin-  
6 itive pressure or did it require some interpretation?

7 A What do you mean by pressure?

8 Q I'm sorry, I mean porosity. I'm talking  
9 about this symbol that indicates porosity in the Henry Harri-  
10 son Well, were you able to get a definitive figure, hard data,  
11 or did it require some interpretation on your part?

12 A It does require interpretation on my  
13 part, and anything does, you know. It is a matter of inter-  
14 pretation.

15 Q But that's the way it is in engineering.  
16 All right, now the h afterwards, what does that show you?  
17 What does that little h stand for?

18 A The h?

19 Q Uh-huh.

20 A It would be the thickness of the -- of  
21 the zones.

22 Q Now in this Harrison well do you have  
23 a precise thickness that you can rely on there?

24 Or does this again require some inter-  
25 pretation?

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A It would be some.

3

Q I'm sorry, I didn't understand you.

4

A It would require interpretation.

5

Q And you multiply those together, is that

6

what you do when they're right next to each other like that?

7

A Right.

8

Q If we go over a little ways we have Scw.

9

A Uh-huh.

10

Q What does that stand for?

11

A That is the connate water saturation.

12

Q And on this well would that again be a

13

matter that required some interpretation or is that a definitive figure?

14

15

A It requires interpretation.

16

Q Do most of these numbers, letters, that

17

follow, I mean do they also require some interpretation?

18

The P that follows the 35.35?

19

A Yes, sir, it does, but if it would be

20

the best judgment, it would be the best, you know, reasonable educated judgment interpretation.

21

22

Q Have you used this formula for ARCO in

23

the past?

24

A I have, sir. Many times. And I believe,

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like I say, it was accepted, you know, throughout industry.

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Q You did not use this formula, I don't believe, in the prior hearing, is that correct?

A I used it many times.

Q Did you use it in the prior hearing?  
I just have not -- haven't seen it before.

A It didn't require this calculation at the last hearing. You mean ARCO's hearing?

Q Yeah.

MR. CARR: I have no further questions of Mr. Pham.

MR. RAMEY: Any other questions? You may be excused.

Do you have anything further, Mr. Kilpatric?

MR. KILPATRIC: May it please the Commission, we have nothing further.

MR. CARR: Mr. Ramey, I would like to recall Mr. Aycock very briefly.

MR. RAMEY: All right, Mr. Carr.

MR. CARR: Mr. Aycock.

WILLIAM P. AYCOCK (RECALLED)  
being previously sworn, testified as follows, to-wit:

## REDIRECT EXAMINATION

BY MR. CARR:

Q Mr. Aycock, did you -- have you seen the ARCO exhibits which show the oil/gas contact with a green line, and particularly Exhibit Four?

A Yes, sir.

Q In your opinion can that gas/oil contact be at locations other than indicated on these exhibits?

A Yes, sir, and I think ARCO's witness Mr. Pham, also agrees with that. That is a generalized number that was used in the beginning for planning purposes, and that's all. Certainly the withdrawal of almost 20 Bcf of gas by ARCO in the west half of the west half of 29 alone would have by itself affected significant variations in what that number was, if it was in fact originally at a depth of 150 feet subsea in this area.

Q If it was not at that original 150 foot depth subsea, what effect would that have on the data that was offered?

A What effect? Well, it would -- it would mean that the presumption as to what is oil and what is gas and therefor that the -- the whole basis, as I understood it, of the previous witness' testimony was the fact that you

1  
2 could demonstrate that the Langlie Mattix is basically oil  
3 and the Jalmat is basically gas, and therefor, if you produced  
4 at a higher gas/oil ratio than Mr. Yuronka is producing at,  
5 then that definitively and necessarily states that you are  
6 producing gas that had to come from the Jalmat zone.

7 I find that a very difficult opinion to  
8 agree with, and I think it is strictly a matter of individual  
9 interpretation and engineering judgment, and I would not agree  
10 with it in any particular whatsoever.

11 Q Now, I'd like you to -- did you see Ex-  
12 hibit Number Eleven, which was the formula which I attempted  
13 to discuss with Mr. Pham?

14 A Yes, sir.

15 Q Exhibit Number Ten.

16 In your opinion is this the kind of a  
17 formula that the Commission should rely upon in making a  
18 determination as to how much production comes from various  
19 zones in the well?

20 A Well, the application of the -- of the  
21 equation, first of all, as the witness, previous witness  
22 testified, and to which I would agree, requires a significant  
23 amount of engineering judgment in determining what proper  
24 numerals should be inserted for the various variables. That  
25 alone introduces the possibility of a significant variation

1  
2 between the numbers that derive from an application of the  
3 equation and what true reality may be.

4           Q           Mr. Aycock, could another engineer using  
5 this formula, a fully qualified engineer, come up with a --  
6 using the same formula, a very different conclusion, and I  
7 will explain to you the explicit way that could happen.

8                   In order to derive the porosity and  
9 water saturation you have to go into an analysis of two sets  
10 of logs, one of which purports to measure porosity and the  
11 other of which measures electrical resistivity or electrical  
12 conductivity.

13                   The physical parameters in one case are  
14 a density as determined by a gamma gamma tool and the other  
15 it's an electrical resistivity. Those have to be converted  
16 indirectly using standard equations that were developed in  
17 the industry many years ago into porosity and water satura-  
18 tion. That application requires a significant amount of  
19 judgment to be applied as to the way those equations -- in  
20 addition to that fact, when you -- when you jump to the con-  
21 clusion, the undocumented conclusion that where you have  
22 porosity you necessarily have permeability without some ob-  
23 jective way to determine that you do necessarily have perme-  
24 ability associated with it, it is conjecture. It may be  
25 well founded conjecture and it may be the best that you can

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do but it still amounts to conjecture.

MR. CARR: I have nothing --

A. I'm not aware that there are any production logs of any kind, including differential temperature surveys, flow meter surveys, or any of that kind of thing, that's ever been run that could determine objectively how much of the fluid of what type is coming from various portions of the intervals in which the wells are completed.

Q. Now back to my original question. Is this the kind of formula that the Commission --

A. No, sir, it is not.

MR. CARR: I have no further questions of Mr. Aycock.

A. May I -- may I inject one more thing? I know Mr. Ramey is aware of it, and that is the way in which the wells are stimulated and completed is a very consequential factor in determining the results that are derived therefrom. When two operators choose for good reasons that appeal to both of them to use radically different methods to complete their wells, I think it is reasonable to suspect that the results that come from those efforts could as well be radically different.

MR. RAMEY: Any questions?



## REXCROSS EXAMINATION

BY MR. KILPATRIC:

Q Mr. Aycock, on that last, you don't know that the methods were radically different, do you?

A Yes, I do, your witness said that they were.

Q I'll let the record speak for itself.

A I think that's fine. I will too.

Q That will be a switch.

Let me hand you what's been marked as Exhibit Number Four for ARCO.

Now, looking at Exhibit Number Four, and you're trying to determine where the gas comes from, the gas/oil contact line really is insignificant in that exhibit, isn't it?

A Well, I don't know why it was put on there in the first place, if that's what you're asking.

Q No, what I'm asking you is the fact that it's insignificant in looking at that particular exhibit in determining where the gas comes from.

A The whole -- the whole log is insignificant in determining where the gas comes from.

Q I'm only asking you as to the green

1  
2 line. I'm not asking you about the whole log.

3 A. Okay, well, the green line is insigni-  
4 ficant.

5 MR. RAMEY: Mr. Carr.

6 MR. KILPATRIC: May I have just a moment?

7 MR. RAMEY: Oh.

8 Q. In looking at this exhibit, isn't the  
9 real significance the number of feet --

10 A. No.

11 Q. I haven't finished the question.

12 A. The number of feet is not the real sig-  
13 nificance, no.

14 The real significance is where the ef-  
15 fective permeability is located and that's not a function of  
16 feet.

17 Q. Well, the fact is that this well is  
18 making gas, isn't that right?

19 A. Yes.

20 Q. And the fact is there's hardly -- there  
21 is an almost insignificant amount in the Langlie Mattix,  
22 isn't that right, insignificant amount of perforations.

23 A. Your witness and I both agree that the  
24 way in which the wells are stimulated dictates that exactly  
25 where it's perforated is not necessarily where the production

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is coming from.

When you heavily stimulate a well to decide that -- in particular under those conditions -- to decide that production is necessarily coming from the perforated interval, once again is an undocumented assumption.

Q You don't know that it's coming from anywhere other than the perforated interval, do you?

A I don't know where it's coming from exactly. I know that's where the point of entry for the fracture fluid was and that's where -- those perforations are where the gas and oil is coming from. Where they actually originate as to the reservoir, I do not know.

Q And isn't it much more likely that they are in fact coming from this locality?

A Not necessarily.

Q Isn't it much more likely?

A No, sir, not necessarily.

Q It's your testimony then that it's not much more likely --

A I don't know. I don't know whether it's likely or not without an objective way to determine it, and I'm not aware that there is any objective way at this point.

Q Mr. Aycock, I'd like to ask you one

1  
2 hypothetical question. Do you understand a hypothetical  
3 question? I'd like you to assume the facts I'm giving you.

4 A. You can ask it.

5 Q. I hope you can answer it.

6 Assuming that these are all the facts  
7 you have and you had to determine where to perforate in order  
8 to get the best production out of that well, where would you  
9 perforate? Isn't it a fact that you would perforate --

10 A. I don't know because I don't know any-  
11 thing about it other than just what I'm looking at here.

12 Q. And that's what I'm asking you.

13 MR. CARR: Would you identify that ex-  
14 hibit, Gary?

15 MR. KILPATRICK: It's Four.

16 Q. That's right, based upon the information  
17 you have in your hand --

18 A. Uh-huh.

19 Q. -- wouldn't you in fact perforate where  
20 perforations have been made?

21 A. No, I see some zones that are down  
22 much lower that I would probably have perforated. I see  
23 two, three of them in particular.

24 Q. And you wouldn't have perforated where  
25 the perforations are?

1  
2 A I might have perforated there but there  
3 are additional intervals I would have perforated as well.

4 Q All right, that would have been one of  
5 the ones you would have perforated?

6 A Probably, yes.

7 Q Thank you.

8 MR. KILPATRICK: I have no further ques-  
9 tions.

10 MR. RAMEY: The witness may be excused.  
11 Do you have a closing statement, Mr. Lopez?

12 MR. LOPEZ: Yes, Mr. Chairman.

13 The evidence before us today is fairly  
14 well undisputed that Mr. Hartman's three wells are all com-  
15 pleted and perforated in the Jalmat Gas Pool interval, and  
16 ARCO, ARCO is not in a position to remedy the drainage that  
17 it believes it is experiencing by seeking the same kind of  
18 remedy that Mr. Hartman is, simply because we do not own the  
19 rights to the Langlie Mattix: therefor, we can only protect  
20 our Jalmat zone.

21 The -- I think that ARCO's position  
22 here today is to -- is more than reasonable inasmuch as all  
23 we're requesting the Commission to do is to limit the allow-  
24 able, according to Jalmat Pool rules, for the wells that  
25 Mr. Hartman has that there is production coming from the

1  
2 Jalmat, and we are not asking for any radical relief and  
3 we're not even asking for relief for the drainage that we've  
4 already been -- feel that we have suffered.

5 That seems to be a reasonable request  
6 for a number of reasons, not the least of which is the fact  
7 that if Mr. Hartman were to request a Jalmat gas well at  
8 this point, he would not be able to drill it that close to  
9 a lease line and have to offset it as we are offsetting the  
10 lease line substantially in the next -- or west half of  
11 Section 29.

12 I also think it is completely irrele-  
13 vant what amount of production has occurred prior to the  
14 hearing or how much gas was produced in the west half of 29.  
15 We're here to talk about prevention of waste and protection  
16 of correlative rights.

17 We cannot protect our correlative rights  
18 unless the Commission would limit the production allowable  
19 on Mr. Hartman's wells.

20 MR. RAMEY: Thank you, Mr. Lopez.

21 Mr. Carr?

22 MR. CARR: May it please the Commission,  
23 we are here today seeking an exception to the vertical  
24 limits of the Langlie Mattix Pool pursuant to a Commission  
25 directive to do just that.

1  
2 The problem results from confusion as  
3 to the definition of the Queen. It's a confusion that is  
4 widespread throughout the industry, as is evidenced by the  
5 number of hearings that have been held recently and the num-  
6 ber of wells that had to be brought before you so they can  
7 be brought in compliance with the Commission definition of  
8 the vertical limits of the Langlie Mattix Pool.

9 We have a situation here where the two  
10 questions you've got to consider are waste and correlative  
11 rights. It's clear that anything other than granting the --  
12 any other -- any possible exception of the relief that you  
13 can grant, other than granting an exception to the vertical  
14 limits, will cause waste. It will cause going downhole,  
15 working with the wells, and the testimony here was it would  
16 likely kill it, kill the well, and that it is not economical  
17 to re-enter the wells -- to drill additional wells to pro-  
18 duce these formations on these tracts.

19 There's been a lot of talk about cor-  
20 relative rights. I think it's important to remember that  
21 correlative rights are affording to the interest owners in  
22 a pool the opportunity to produce their just and fair share  
23 of reserves in the pool, and if we start talking in those  
24 terms it does become relevant to note that substantially  
25 more reserves in these zones have been produced from the

1  
2 ARCO properties than have been or could be produced from the  
3 wells which are the tracts which are the subject of the ap-  
4 plication here today.

5 I think ARCO has noted that they don't  
6 maybe have the options available to them to come in and off-  
7 set the Hartman acreage because they've farmed out to Mr.  
8 Yuronka. Well, I would submit that private contractual  
9 arrangements entered into by ARCO should not control what  
10 this Commission does to deal with this particular problem.

11 There have been a number of exceptions  
12 granted, and we're coming in in a similar position to all  
13 those who have appeared before you, and we're asking to be  
14 treated the same way.

15 This is a hearing on our application.  
16 It is an application for an exception to the vertical limits  
17 of this pool. It isn't an application to ask for a certain  
18 allocation of allowables or a change in the allowables to  
19 any of these wells. That's simply not before you, and I sub-  
20 mit in this hearing you don't have jurisdiction to consider  
21 that.

22 There is one thing before you. It's an  
23 application for exception to the limits of this pool, and we  
24 feel that if you do anything other than grant that, you're  
25 going to cause waste of hydrocarbons, and that if you grant



1  
2 it, you will not impair correlative rights as defined by the  
3 statutes under which you operate.

4 MR. RAMEY: Does anyone have anything  
5 further in this case?

6 If not, we'll take the case under ad-  
7 visement, and the hearing is adjourned.

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9 (Hearing concluded.)  
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2 it, you will not impair correlative rights as defined by the  
3 statutes under which you operate.  
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5 MR. RAMEY: Does anyone have anything  
6 further in this case?  
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8 If not, we'll take the case under ad-  
9 visement, and the hearing is adjourned.  
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11 (Hearing concluded.)  
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## C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREPY CERTIFY that  
the foregoing Transcript of Hearing before the Oil Conserva-  
Commission  
tion Division was reported by me; that the said transcript  
is a full, true, and correct record of the hearing, prepared  
by me to the best of my ability.

Sally W. Boyd C.S.R.

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

DENOVO HEARING

Q. Would you please state your name.

A. Huan Pham

Q. By whom are you employed and in what capacity?

A. I have been employed by ARCO Oil and Gas Company since 1976. My current assignment is as an Area Engineer.

Q. Have you previously testified before the Commission and had your qualifications as a petroleum engineer accepted as matter of record?

A. Yes.

Q. Are you familiar with the application in case 7057?

A. Yes.

Q. Are the witnesses qualifications acceptable to the Commission?

A.

Q. What is ARCO's position as to Mr. Hartman's application in this case?

A. Should the application be granted, ARCO respectfully requests an order restricting the allowables on the production from the Hartman Corrigan No. 1, located in the

SE/4 of the SE/4 of Section 30, T-24-S, R-37-E, the Hartman Corrigan No. 2, located in the NE/4 of the SE/4 of the same section, and the Hartman Harrison No. 1, located in the SE/4 of the SW/4 of Section 20, all in T-24-S, R-37-E in Lea County, New Mexico. A restriction of the allowables of these wells to an equivalent of a 40-acre Jalmat gas production unit per well is necessary to prevent drainage and to protect ARCO's correlative rights in the Jalmat underlying the offset acreage.

- Q. I refer you to what has been marked for identification as ARCO Exhibit #1 and ask that you describe and explain it.
- A. Exhibit No. 1 is an area map showing the W/2 of Section 29 outlined in red. Also colored in red are the three wells that Mr. Hartman operates and for which he has asked for an extension of the vertical limits of the Langlie Mattix. ARCO owns 100% working interest in the Jalmat Gas Reservoir underlying the W/2 of Section 29. 100% of ARCO's working interest in the Langlie Mattix underlying the NW/4 and the W/2 of the SW/4 was farmed out to Mr. John Yuronka in December, 1978. ARCO also owns a 25% working interest to all depths in the NE/4 of Section 30 which is operated by Continental Oil Company.

- Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #2 and ask that you describe and explain it.
- A. Exhibit No. 2 is the Gamma Ray-Density log for the Hartman Corrigan No. 1 which is shown on exhibit No. 1 as being located in the SE/4 of the SE/4 of Section 30. The Gamma Ray is exhibited in the left hand column and the density curve is exhibited in the right hand column. The density curve indicates porosity. The better porosity a zone has, the further the curve moves to the left. As the Commission well knows, the better the porosity, the more hydrocarbons the zone can produce.

This exhibit shows the tops of the Yates, 7-Rivers, and the Queen formations as defined by the New Mexico Oil Conservation Division. The Langlie Mattix, the top of which is located 100 feet above the top of the Queen, is marked by a red line at 3434 feet. Marked in green is the original gas oil contact at - 150 feet subsea as recognized by the industry.

The perforation interval from 3364 feet to 3502 feet is colored in red. In this well Mr. Hartman perforated 70-feet into the Jalmat and only 68 feet in the Langlie Mattix. More than half of the perforation interval is in the Jalmat although the well was submitted to the New Mexico Oil Conservation Division as a Langlie Mattix well and is now producing under the Langlie Mattix allowable. As can be

seen on this exhibit, the best porosity zones within the perforated interval are in the Jalmat and that is where we believe most of the production is coming from.

- Q. I refer you to what has been marked for identification as ARCO Exhibit #3 and ask that you describe and explain it.
- A. Exhibit No. 3 is the Gamma Ray-Density log of the Hartman Corrigan No. 2. As can be seen on Exhibit No. 1 this well is located in the NE/4 of the SE/4 of Section 30. The density curve in the right hand column indicates porosity and has the same characteristics I referred to in my discussion of Exhibit #2.

On this exhibit the top of the Langlie Mattix is marked at 3468 feet by a red line. The perforation interval from 3389 feet to 3503 feet is colored in red. In this well Mr. Hartman perforated 79-feet into the Jalmat and only 35 feet in the Langlie Mattix. This indicates that 69% of the perforation interval is in the Jalmat gas pool even though the well was submitted to the Oil Conservation Division as a Langlie Mattix well and is now producing under the Langlie Mattix allowable.

- Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #4 and ask that you describe and explain it.
- A. Exhibit No. 4 is the Gamma Ray-Density log for the Hartman Harrison No. 1. As shown on Exhibit No. 1 this well is

located in the SE/4 of the SW/4 of Section 20. The density curve in the right hand column is an indication of porosity as previously discussed.

The top of the Langlie Mattix is marked at 3435 feet. The perforation interval which runs from 3390 feet to 3454 feet is colored in red. In this well Mr. Hartman perforated 45 feet into the Jalmat and only 19 feet into the Langlie Mattix. Therefore, 70% of the perforation interval is in the Jalmat gas pool although this well was submitted to the Oil Conservation Division as a Langlie Mattix well and is now producing under the Langlie Mattix allowable. Also shown on this exhibit, the best porosity zones within the perforation interval are in the Jalmat and we believe that this is where substantially all of the production is coming from.

- Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #5 and ask that you describe and explain it.
- A. Exhibit No. 5 is a comparison of the October, 1980 daily gas allowables for the Langlie Mattix and Jalmat pools on equivalent 40-acre tracts.

As can be seen on this exhibit, by having the Langlie Mattix gas allowable, Mr. Hartman is allowed to produce up to 800 MCFD per 40-acre tract, while for a Jalmat 40-acre tract ARCO is allowed to produce only 94 MCFD. Thus, per



40-acre tract Hartman's allowable is more than eight times that of ARCO's allowable. In fact, in the month of October, 1980, Mr. Hartman produced an average of 367 MCFD from the Corrigan No. 1, 367 MCFD from the Corrigan No. 2, and 422 MCFD from the Harrison No. 1. This is more than 4 times the 94 MCFD allowable limit for the Jalmat gas pool.

In addition, Mr. Hartman's wells are at unorthodox locations and are not in compliance with the Jalmat gas pool spacing. Had these wells been properly submitted as Jalmat wells, Mr. Hartman would have been requested to obtain the Commission's approval and the offset operators' approval before he could have drilled the wells because they are too close to the lease line and therefore, could drain the offset leases.

- Q. What effect would the difference in the allowables have upon the correlative rights between Mr. Hartman and ARCO?
- A. So long as Mr. Hartman is allowed to produce Jalmat gas from these wells under a Langlie Mattix allowable while ARCO's offsetting wells are restricted to the Jalmat allowable, ARCO's Jalmat gas reserves in the offsetting acreage will continue to be drained and its correlative rights violated.
- Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #6 and ask that you describe and explain it.

A. Exhibit No. 6 shows the areas from which the Hartman Corrigan No. 1, the Corrigan No. 2, and the Harrison No. 1 wells are draining Jalmat gas. ARCO has 100% working interest in the areas colored in red and 25% working interest in the areas colored in green. The drainage areas were determined by calculations shown on Exhibit No. 10. As can be seen from this exhibit #6, a significant amount of the drainage area underlies ARCO acreage and therefore is subject to being drained by Jalmat gas production from Mr. Hartman's wells.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibits #7, 8, & 9 and ask that you describe and explain them.

A. Exhibits 7, 8, & 9 depict production curves of Hartman's three wells in MCFD and BOPD. For example, Exhibit No. 7 shows the Hartman Corrigan No. 1 as producing 367 MCFD and 2 BOPD during October, 1980. The extrapolated dotted line is the expected production rate based upon a decline rate of 18%. This decline rate is used to determine the remaining recoverable gas reserves. Also shown at the bottom of the exhibit is the cumulative oil and gas production through October, 1980.

Exhibits 8 and 9 show the same type of information on the Corrigan No. 2 and the Harrison No. 1 wells.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #10 and ask that you describe and explain it.

A. Exhibit No. 10 is a sample calculation of the Jalmat Gas Drainage Area shown on Exhibit No. 6. This exhibit shows that the Hartman Henry Harrison No. 1 well has produced 370 MMCF as of January 1, 1981. Based on the expected decline rate of 20%, remaining reserves were calculated to be 622 MMCF. The ultimate reserves equal the sum of the cumulative and remaining reserves, which in this case is 992 MMCF.

Based on a porosity-feet allocation of the perforated interval, 82% of the ultimate gas reserves will be produced from the Jalmat. Therefore, the ultimate Jalmat gas reserves are 813 MMCF. To calculate the drainage area this gas reserve is set equal to the volumetric equation of Gas in Place and the recovery factor is estimated at 75%. Based upon these calculations, the drainage area was determined to be 264 acres. By planimetry the drainage area it shows 51% of the area is ARCO acreage. Therefore ARCO's Jalmat gas reserves equal  $.51 \times 813$  or 416 MMCF. As a result, if Hartman's application is granted, the Hartman Henry Harrison #1 will capture 416 MMCF of ARCO's Jalmat gas reserves.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #11 and ask that you describe and explain it.

A. Exhibit No. 11 is a Gamma Ray-Density log of the Yuronka Harrison A No. 1, which is shown on Exhibit No. 1 as being located in the NE/4 of the NW/4 of Section 29. This well is the direct offset to the south of the Hartman Harrison No. 1, in Section 20. Mr. Yuronka perforated less than 20 feet into the Jalmat and is within the tolerance for error adopted by the Runyan report.

Now please refer to Exhibit No. 4 which shows the Gamma Ray-Density log of the Hartman Henry Harrison No. 1 well. By correlating the two logs one can see that Mr. Hartman perforated much higher into the Jalmat where the porosity is much better than in the Langlie Mattix. As a result during October of 1980 the Hartman Henry Harrison No. 1 well produced 422 MCFD which was more than 6 times greater than the 70 MCFD produced by the Yuronka Harrison No. 1 well.

The reason for this great difference in production is 70% of the perforation interval in Mr. Hartman's Henry Harrison #1 well lies in the Jalmat where porosity is better developed.

Q. Mr. Pham, in light of what has been presented here today, can you suggest any methods by which ARCO's correlative rights can be protected?

A. In order to protect ARCO correlative rights the following solutions could be carried out:

- 1) To squeeze off the perforations in the Jalmat.
- 2) To dually complete the well in the Jalmat and the Langlie Mattix.
- 3) To downhole commingle the two zones.
- 4) To allow the extension of the Langlie Mattix as requested by Mr. Hartman but to restrict the allowable to the equivalent of a 40-acre Jalmat gas proration unit per well.

It should be noted that ARCO's correlative rights cannot be protected by the granting of a similar extension of the Langlie Mattix underlying ARCO's offset acreage because ARCO has farmed out the Langlie Mattix rights on that acreage to Mr. Yuronka.

Q. Which of these solutions, if any, do you recommend?

A. I would recommend the fourth solution, that is, to allow the extension of the Langlie Mattix as requested by Mr. Hartman but to restrict the allowable to the equivalent of a 40-acre Jalmat gas proration unit per well.

The first two solutions involve working over the wells which could result in the loss of hydrocarbons. The third solution may cause problems in ownership. The forth solution is the most reasonable because it will prevent waste, eliminate unnecessary drainage and protect ARCO's correla-

tive rights while still allowing Mr. Hartman to produce from his wells without any additional expense or risk.

However, ARCO would accept any solution chosen by the Commission which would protect its correlative rights.

- Q. Mr. Pham, in your opinion, what will happen if a restriction of allowable is not imposed on the three wells operated by Mr. Hartman?
- A. Unless the Commission restricts the gas production from Mr. Hartman's wells to the equivalent of a 40-acre Jalmat gas proration unit per well, Mr. Hartman will continue to produce the wells at a much higher rate under the Langlie Mattix allowable. As a result the drainage problem that ARCO has been suffering will continue and its correlative rights will therefore continue to be violated.
- Q. What, then Mr. Pham, is ARCO's position concerning Mr. Hartman's application and what is the basis for that position?
- A. ARCO is not interested in the reason why Mr. Hartman perforated into the Jalmat. The fact of the matter is that at this very moment ARCO gas reserves are continuing to be drained because Mr. Hartman's wells have the unfair advantage of a significantly higher allowable. Therefore, we request an order be issued to restrict the allowable on

these three wells to the equivalent of a 40-acre Jalmat gas proration unit per well.

Q. Does the solution you are recommending compensate ARCO for the loss ARCO has already suffered as a result of the drainage that has occurred?

A. No.

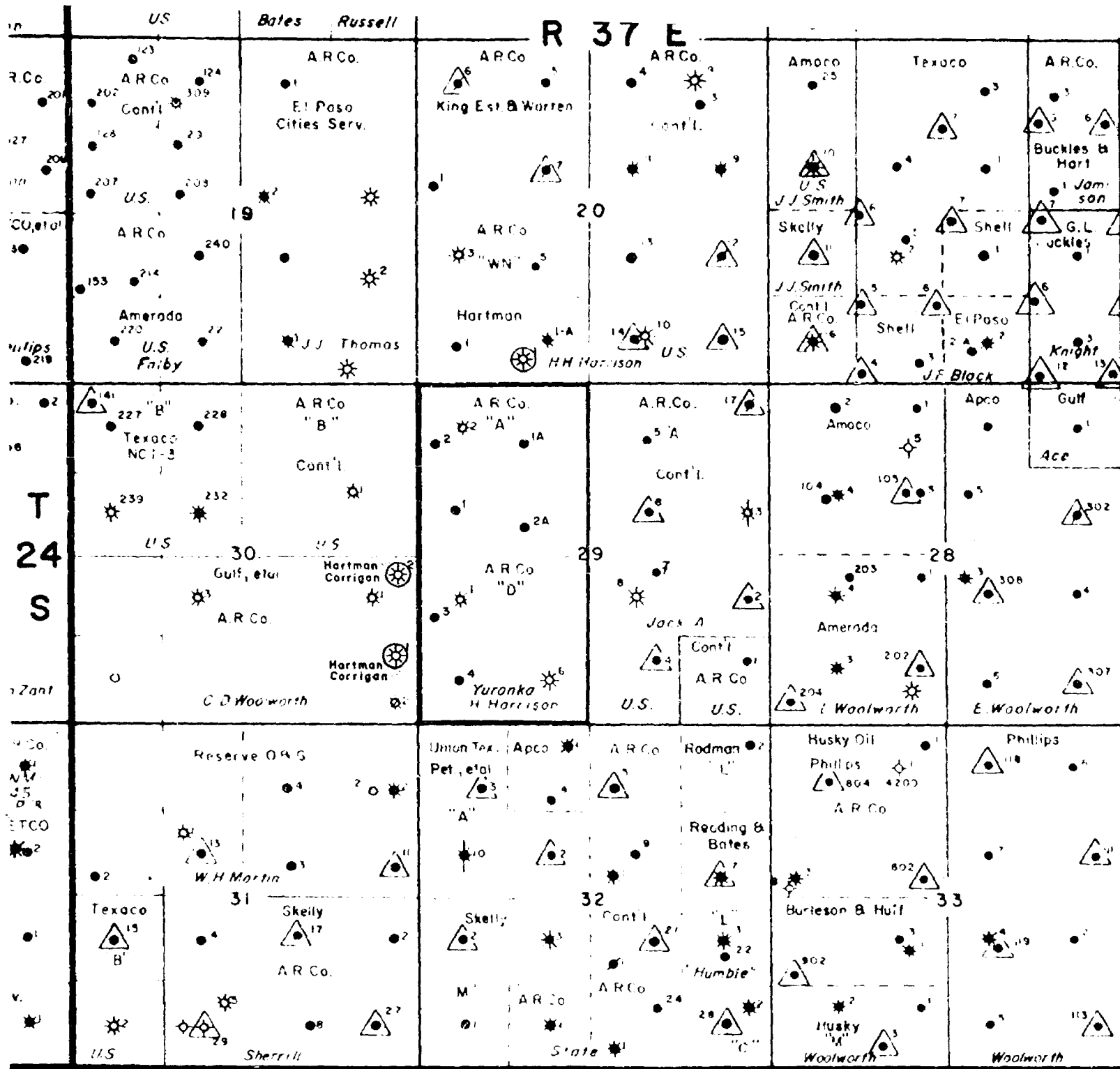
Q. Is the remedy requested by ARCO in the interest of the prevention of waste and the protection of correlative rights?

A. In my opinion it is.

Q. Were Exhibits 1-11 prepared by you or under your supervision?

A. Yes.

Q. ARCO moves the admission of ARCO's Exhibits 1-11.



BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7057 Exhibit No. 1  
Submitted by Huan Pham  
Hearing Date 3/18/81

<b>ARCO Oil and Gas Company</b>	
Division of Atlantic Richfield Company	
Permian District Midland, Texas	
<b>HARRISON LEASE</b>	
LEA COUNTY, NEW MEXICO	
<b>EXHIBIT I</b>	
SCALE: 1" = 2000'	
By: <u>R. LUBKE</u>	Drawn By: <u>JL</u> Date <u>5-79</u>
Date <u>10-23-80</u>	Revised By: <u>JRL</u> Date <u>10-80</u>
Dept. <u>WEST ENGINEERING</u>	Dwg. No. <u></u>



DOYLE HARTMAN  
GULF - EDDY CORRIGAN NO. 1

990' FSL & 330' FEL  
SEC 30, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL K B 3261'

YATES — — — — —

SEVEN RIVERS — — — — —

G/O 3411 (-150' ss)  
LANGLIE - MATTIX 3434

QUEEN — — — — —

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7057 Exhibit No. 2

Submitted by H. Phelan

Hearing Date 3/19/81



DOYLE HARTMAN  
GULF - EDDY CORRIGAN NO. 2

2310' FSL & 330' FEL  
SEC 30, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL. KB 3266'

YATES

SEVEN RIVERS

G/O

3416

(-150' ss)

LANGLIE-MATTIX

3468

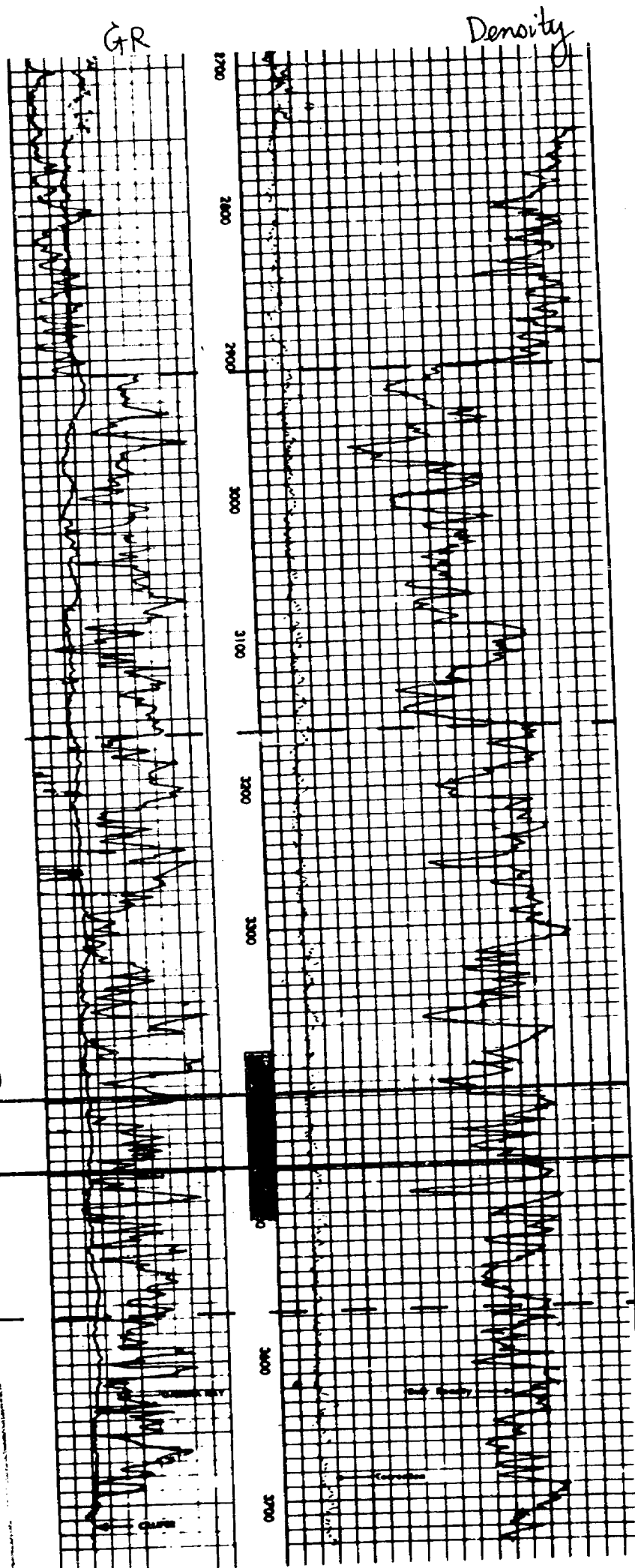
QUEEN

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7057 Exhibit No. 3

Submitted by H. Thom

Hearing Date 3/18/81



DOYLE HARTMAN  
HENRY HARRISON NO. 1

1650' FWL @ 330' FSL  
SEC 20, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL K B 3292

YATES — — — — —

SEVEN RIVERS — — — — —

LANGLIE - MATTIX 3435

G/O 3442 (-150 ss)

QUEEN — — — — —

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7057 Exhibit No. 4

Submitted by H. Pharr

Hearing Date 3/10/81

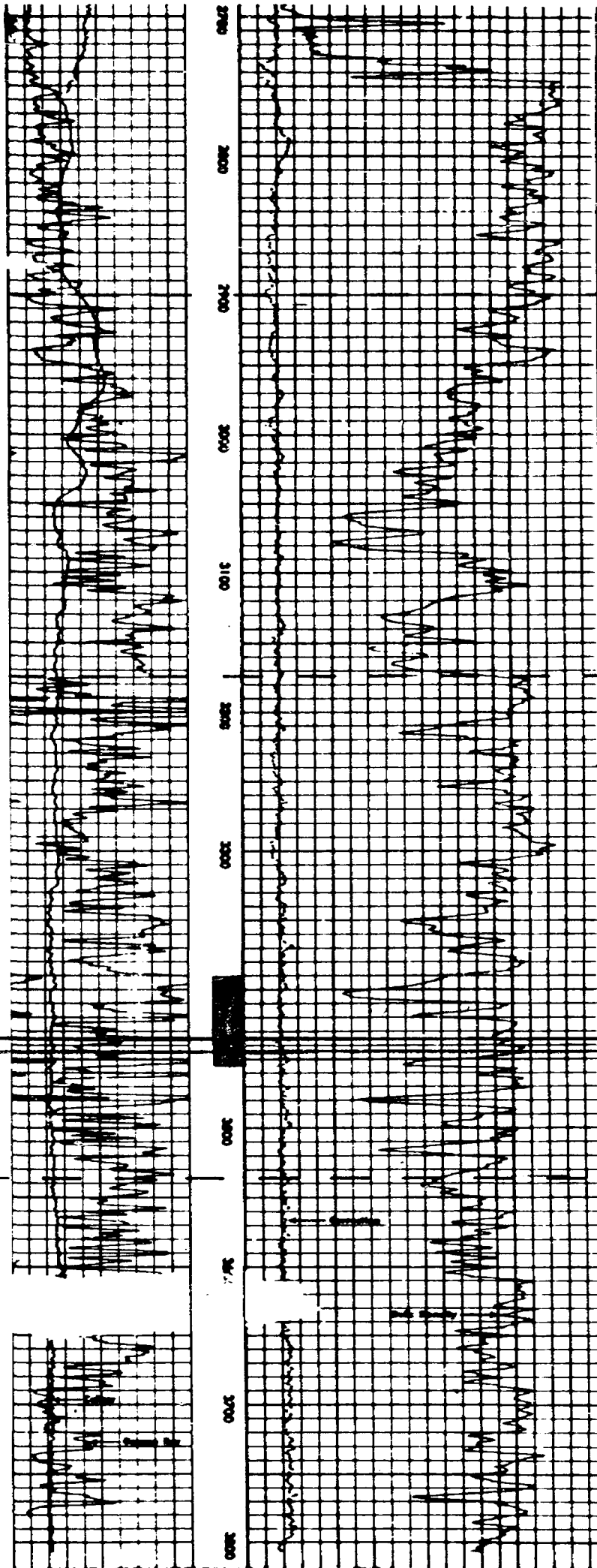


EXHIBIT 5

COMPARISON OF GAS ALLOWABLES  
FOR LANGLIE MATTIX AND JALMAT POOLS ON  
EQUIVALENT TRACTS

October, 1980  
Daily Allowable

D. Hartman  
40-Acre  
Langlie  
Mattix Gas

800 MCFD

ARCO  
40-  
Acre  
Jalmat Gas

94 MCFD

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. \_\_\_\_\_ Exhibit No. \_\_\_\_\_  
Submitted by \_\_\_\_\_  
Hearing Date \_\_\_\_\_

DOYLE HARTMAN  
WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
<u>ARCO</u>											
Fredrick H. Curry #2	1(N)-24-36	L.M.	4-24-80	3750 (3710)	3463-3700		Currently Producing L.M.	4,081	16.9		
Fredrick H. Curry #1	1(P)-24-36	Jalmat	2-10-65	3379 (3250)	2866-3192		Currently Producing Jalmat 1969 ARCO Operator 1963 Sinclair Operator			0	13,088
			6-01-38	3697 (3538)	3310-3538OH		Western Gas Company				
<u>Getty Oil Company</u>											
Cooper WN #3	12(B)-24-36	Jalmat (Dual)	4-20-73	3630 (3622)	2931-3400		Currently Producing Jalmat			832	1,437
		L.M.	4-20-73	3630 (3622)	3469-3610		Request to TA 8-23-73 TA L.M. Seat Seating Nipple at 3450	0	0		
Myers L.M. Unit #207	12(F)-24-36	L.M.	9-25-75	3644	3485-3644OH		Currently Producing L.M. P&A Jalmat	From 1975 6,237	14.9	0	721
			10-02-41	3644	3485-3644		At one time this was a dual completion from Jalmat 3400- 3425 and L.M. 3485-3644. 1st completed L.M. pre 1954. Converted to Gas pre 1954.				
Myers L.M. UN #208	12(G)-24-36	L.M.	12-29-78	3698	3487-3633		Currently water injector Produced Jal Gas to 8-75	107,448			
			9-29-75	3588	3465-3588OH		Squeezed Jalmat Perfs 2910- 3150 and converted to WIN				
			7-18-40	3588	3477-3588OH		L.M. Completion				
<u>ARCO</u>											
G.W. Toby WN Gas UN #4	12(I)-24-36	Jalmat	5-15-75	3550	2945-3401		Currently Producing Jal (Gas)				669
<u>Getty Oil Company</u>											
Myers L.M. Unit #240 (G. W. Toby #3)	12(J)-24-36	L.M.	9-14-40	3599	3448-3599		Currently Producing L.M. Oil 1963 Sinclair Operated 1969 ARCO 1974 Joined Myers L.M. Un-Skelly 1977 Getty	141,395			

## DOYLE, HARTMAN

PAGE 2 OF 3

## WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO

CURRENT OPERATOR		LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
LEASE NAME									OIL (BBLs.)	GAS (MMCF)	OIL (BBLs.)	GAS (MMCF)
ARCO												
G.W. Toby WN Gas #1		12(P)-24-36	Jalmat	1-14-79 12-18-78 2-19-37	3240 3040 3685	2989-3236 3256-3685 3256-3685		Currently Producing Jalmat Squeezed OH El Paso Natural Gas Co. Comp. L.M. Pre 1954 Recomp. Jalmat Pre 1954 1963 Sinclair 1969 ARCO			2690	
G.W. Toby Gas #2		13(A)-24-36	Jalmat	3-14-42	3607	3444-3607		Currently Producing Jalmat No other completion interval available (1975 form 102 called well Jalmat) 1954 Western Natural Gas 1963 Sinclair 1969 ARCO			4158	
Getty Reserve Oil												
Cooper Jal Unit #115 (Maggie Dunn #1)		13(P)-24-36	L.M.	5-27-78		Added Perfs 3221-3303 & 3046-3153		Currently Carried as L.M. NMOCC Order R-5590 Down- hole Commingling of Jalmat and Langlie Mattix	222,543	652		
				5-23-75 5-07-47	3668 3505	3426-3518 3015-3505		Remedial Workover OH Completion 1954 Western Natural Gas 1963 Sinclair 1969 ARCO 1970 Reserve O&G 2-80 Getty Reserve				
Cooper Jal Unit #121 (Maggie Dunn B #1)		24(B)-24-36	L.M.	2-11-78		3018-3292		Currently Carried L.M. NMOCC R-5590 Downhole Commingling of Jalmat and Langlie Mattix	233,468	479		
				2-20-75 1-02-49	3560 3520	3423-3522 3017-3520		Remedial Workover OH Completion 1954 Western Natural Gas 1963 Sinclair 1969 ARCO 1970 Reserve O&G 2-80 Getty Reserve				
Cooper Jal Unit #206 (WN Dunn #2)		24(H)-24-36	Jal(Oil)	5-04-50	3230	2983-3230		OH Currently Producing Jal(OIL) 1963 Sinclair 1969 ARCO 1970 Reserve O&G 2-80 Getty Reserve			523,275	

## DOYLE HARTMAN

PAGE 3 OF 3

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO

CURRENT OPERATOR		LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBTD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
LEASE NAME									OIL (BBLs.)	GAS (MMCF)	OIL (BBLs.)	GAS (MMCF)
<u>Atlantic Production Co.</u>												
Woolworth #1		26(G)-24-36	Jal(Oil)	7-22-35	3481	3452-3481		P&A 1942 Cums Not Available				
<u>ARCO</u>												
Jim Camp #2		6(E)-24-37	Jal(Gas)	9-29-80 4-06-65 8-30-54	3575 3380BP 3575	3450-3575SLM 2944-3234Jal 3450-3575		Dual completed L.M. & Jalmat Recompleted to Jalmat L.M. Producer 1954 Western Natural 1963 Sinclair 1969 ARCO	27,622	30	0	1906
Jim Camp #3		6(O)-24-37	L.M.	2-25-55	3578	3451-3578		1954 Western Natural Gas 1963 Sinclair 1969 ARCO	51,050	76		
Hair #1		9(D)-24-37	L.M.	6-26-37 7-12-59	3575	3069-3575		Produced L.M. P&A	89,890	-		
<u>Getty Oil Co.</u>												
Myers L.M. Un. #218 (Fowler Hair #2)		9(E)-24-37	L.M.	9-30-76 7- -76 8-13-38	3560 3560	3412-3550 3143-3560		Currently WIW Jalmat Zone Abandoned Repollo Oil Co. 1954 Sinclair Op (Jal Gas Prod) 1969 ARCO 1977 Getty Oil				3477
<u>ARCO</u>												
P. Carter #1		9(G)-24-37	L.M.	1-06-38 7-16-59	3705	3161-3705OH		Repollo Oil Co. P&A Sinclair	23,128			
<u>Getty Oil Co.</u>												
Myers L.M. Unit #221 (L. Carter #1)		9(H)-24-37	L.M.	11-02-37	3787	3129-3787OH		Repollo Oil Co. 1954 Sinclair 1969 ARCO 1974 Unitized Skelly 1977 Getty	66,069	124		

## DOYLE HARTMAN

PAGE 1 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

BEFORE THE	
OIL CONSERVATION COMMISSION	
Santa Fe, New Mexico	
Case No. <u>7057</u>	Exhibit No. <u>9</u>
Submitted by <u>HARTMAN</u>	
Hearing Date <u>3/18/81</u>	

CURRENT OPERATOR		LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (FBTD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
LEASE NAME									OIL (BBLs.)	GAS (MMCF)	OIL (BBLs.)	GAS (MMCF)
<u>Getty Reserve</u>												
Cooper Jal Un #122 (Dunn SCP WN #6)		24(A)-24-36	L.M.	5-17-71	3553	Pkr#3411	R-1019 (1970)	Currently Water Injector				
				6-14-54	3552	3465-35530H	3465-35520H	Southern California Petrol. 1960 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 1-70 Last Langlie Mattix Prod. 45,298 1974 Put on Injection 1980 Getty Reserve				
Cooper Jal Un #201 (WN Dunn #3)		24(A)-24-36	Jalmat	9-21-71	3157	Pkr#2929	R-4020 (1970)	Currently Water Injector				
				5-13-50	3237	2994-31570H	2994-32370H	Culbertson & Irwin, Inc. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 9-71 Last Jalmat (Oil) Prod. 1974 Put on Injection 1980 Getty Reserve			221,507	
Cooper Jal Unit #126 (Dunn SCP WN #4)		24(G)-24-36	L.M.	5-14-54	3560	3470-35600H	R-5590 (1977)	Currently Producing L.M. 1954 Southern Calif. Petrol. 1960 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 1980 Getty Reserve	262,906			
Cooper Jal Unit #205 (WN Dunn #1)		24(G)-24-36	Jalmat	9-21-71	3251	Pkr#2927	R-4020 (1970)	Currently Water Injector				
				4-30-50	3251	2988-32510H	2988-32510H	Culbertson & Irwin, Inc. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 7-71 Last Jal (Oil) Prod. 1974 Put on Injection 1980 Getty Reserve			146,818	



## DOYLE HARTMAN

PAGE 2 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (FBTD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
								OIL (BBLs.)	GAS (MMCF)	OIL (BBLs.)	GAS (MMCF)
<u>Getty Reserve (Continued)</u>											
Cooper Jal Unit #127 (Dunn SCP WN #5)	24(H)-24-36	L.M.	8-25-71	3537	Pkr03398 3460-35370H	R-4019 (1970)	Currently Water Injector				
			5-29-54	3541	3460-35410H		Southern Calif. Petrol. 1960 Western Natural Gas 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 7-71 Last Langlie Mattix Prod. 41,204 1974 Put on Injection 1980 Getty Reserve				
<u>ARCO</u>											
Jim Camp #1	6(M)-24-37	L.M.(Gas)	6-13-37	3656	3246-36560H	R-520 (1954)	Currently Producing L.M.(Gas)	103	1,575,133		
							1937 El Paso Natural Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO				
<u>Getty Reserve</u>											
Cooper Jal Unit #101 (Bates #1)	18(C)-24-37	L.M.	4-21-76	3572	Pkr03312 3440-35720H	R-4019 (1970)	Currently Water Injector				
			11-20-41	3572	3440-35720H		Western Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 8-69 Last Langlie Mattix Prod. 133,797 1976 Put on Injection 1980 Getty Reserve				
<u>Cordova Resources</u>											
Jamison #2	22(E)-24-37	L.M.	3-12-37	3485	3092-3485	R-520 (1954)	Currently Producing L.M.	122,268			
							1937 Repollo Oil Co. 1954 Sinclair 1964 Geo Buckles 1979 Cordova Resources				

## DOYLE HARTMAN

PAGE 3 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR		LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
LEASE NAME									OIL (BBLS.)	GAS (MMCF)	OIL (BBLS.)	GAS (MMCF)
<u>ARCO</u>												
Harrison "D" WN #1		29(L)-24-37	Jalmat	4-18-73	3500 (3285)	2927-3185	R-520 L.M. (1954)	Currently Producing Jal (Gas)				2780.9
#4				9-02-37	3699 (3500)	3360-3490		Western Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 465 Dual L.M.-Jalmat 1969 ARCO 4-69 Last L.M. Prod. 4-73 Jalmat Producer Only The #4 is actually the L.M. which the exception applies to		6700.2		
						2927-2994						
<u>Union Texas Petroleum Corp.</u>												
Langlie Jal Un #25 (State 24 #1)		32(N)-24-37	L.M.	8-19-76	3631	3318-3612	R-4051 (1970)	Currently Water Injector Pre 1954 Rec. Jal(Gas) from prod., no forms Atlantic Refining Co. 1969 ARCO 1971 Langlie Jal Un-Union TX 12-73 Last Jalmat Prod. 1974 Zone Abandoned 1975 Injection Well				3175.6
				6-16-38	3546	3470-3546						
<u>Amerada Hess</u>												
L.M. Woolworth Un #163 (Mosely #3)		34(M)-24-37	L.M.	1-20-69	3565	3194-3565OH	R-520 (1954)	Currently Producing L.M.	328,000			
				12-30-37	3493	3194-3493OH		Repollo Oil Company 1954 Sinclair 1962 L.M.W.U. Tr #16, #3 Amerada 10-67 Last Oil Production 1968 L.M.W.U. #163-Amerada 5-70 Production Began Again				
L.M. Woolworth Un #162 (Mosely #2)		34(N)-24-37	L.M.	12-20-56	3480 (3455)	3275-3455OH	R-520 (1954)	Currently Prod. L.M.	195,893			
				10-02-37	3480	3275-3480OH		Repollo Oil Company 1954 Sinclair 1962 L.M.W.U. Tr #16, #2 Amerada 7-64 Last Oil Production 1968 L.M.W.U. #162 - Amerada 11-70 Oil Produc. Began Again				

## DOYLE HARTMAN

PAGE 4 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
<u>Union Texas Petroleum Corp.</u>											
Langlie Jal Unit #72 (F. M. Burleson #1)	8(C)-25-37	L.M.	2-05-75	3748	3348-3595	R-4051 (1970)	Currently Producing L.M.	246,913			
			9-11-74	3748	3651-3704		Union Texas				
			3-20-74	3476	3402-3476		Squeezed Perfs 3000-3012				
			12-12-47	3100	3000-3012		Producing Oil-Bridgeport Oil				
			12-06-47	3200	3112-3160		Producing gas-no oil				
			12-26-37	3476	3242-34760H		Herschbach Drilling Co. 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1-72 Langlie Jal Unit-Union TX				

DOYLE HARTMAN  
W/2 SECTION 29-24S-37E  
LEA COUNTY, NEW MEXICO

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
Case No. 7057 Exhibit No. 10  
Submitted by HARTMAN  
Hearing Date 3/18/81

CURRENT OPERATOR	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBTD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
LEASE NAME								OIL (BBLS.)	GAS (MMCF)	OIL (BBLS.)	GAS (MMCF)
John Yuronka											
Harrison "A" #1	29(C)-24-37	L.M.	3-21-79	3680 (3624)	3407-3504		Currently Producing L.M. Gas				
Harrison #2	29(D)-24-37	L.M.	4-26-79	3682 (3632)	3393-3494		Currently Producing L.M. Gas				
Harrison #1	29(E)-24-37	L.M.	10-26-78	3680 (3620)	3413-3518		Currently Producing L.M. Gas				
Harrison "A" #2	29(F)-24-37	L.M.	10-30-79	3660 (3490)	3400-3480		Currently Producing L.M. Gas				
Harrison #3	29(L)-24-37	L.M.	9-19-79	3670 (3609)	3410-3510		Currently Producing L.M. Gas				
Harrison #4	29(M)-24-37	L.M.	2-27-80	3653 (3588)	3404-3505		Currently Producing L.M. Gas				
ARCO											
Harrison "D" WN #2	29(D)-24-37	Jalmat	12-24-75	3650	2931-3333		Currently Producing Jalmat (Gas)				548.4
		L.M.	2-16-37	3650 (3650)	3356-36500H		1937 Operator El Paso Natural 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 5-67 Last Langlie Mattix Prod. 1975 Recompleted to Jalmat (Gas)		9111.6		
Harrison "D" WN #1	29(L)-24-37	Jalmat	4-18-73	3500 (3285)	2927-3185		Currently Producing Jalmat (Gas)				2780.9
#4	29(L)-24-37	L.M.	9-02-37	3699 (3500)	3360-3490		1937 Western Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair				
					2927-2994		4-65 Dual L.M.-Jalmat 1969 ARCO 4-69 Last Langlie Mattix Prod. 4-73 Jalmat Producer Only		6700.2		
Harrison "D" WN #6	29(N)-24-37	Jalmat	6-01-77	3656 (3640)	2951-3259		Currently Producing Jalmat (Gas)				465.6
		L.M.	4-28-74	3654 (3640)	3428-3533		12-76 Last Langlie Mattix Prod. 5-77 P&A Langlie Mattix 6-77 Recompleted to Jalmat	2129	244.2		

DOYLE HARTMAN  
 AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
 OF THE EDDIE CORRIGAN 1 & 2  
 JALMAT POOL, LEA COUNTY, NEW MEXICO

EXHIBIT NO. \_\_\_\_\_

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
ARCO													
Harrison #4 (Wm. H. Harrison "D" WN Com #1)	29L-24-37	8-29-37 ✓				3521			3421	61	9-18-37	3360-3400 3360-3699 3360-3699 2927-3185	Perf L.M. OH L.M. Plugged Off Perf Jal.
										No overlap			
CONOCO, INC.													
Jack B-30 #1	30H-24-37	10-18-47 ✓	2950			Called Jalmat 12-31-52					12-31-53	2833-3372	Called L.M. Till 12-31-52

## DOYLE HARTMAN

AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE EDDIE CORRIGAN 1 & 2  
LANGLIE MATTIX POOL, LEA COUNTY, NEW MEXICO

EXHIBIT NO. 1

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
GULF OIL CO. Woolworth #1	30I-24-37	5-16-37 ✓ 4-06-38 ✓ 3-10-77				3544			3444	318	8-13-37	3126-3217 3126-3773	Shot Deepened - OH P&A
GETTY OIL CO. Martin #2	31A-24-37	9-12-39 ✓ 4-14-41 ✓									10-05-39	3467-3535 2936-2976	Shot Perf
UNION TEXAS PETRO. CORP. Langlie Jal Unit #3	32D-24-37	2-02-40 ✓ 4-18-72									2-21-40	3496-3555	Shot WIW
GULF OIL CO. Woolworth #2	X 30P-24-37	3-04-40 ✓ 2905 6-12-60				3514			3414	148 No Overlap	4-23-40	3266-3460 3490-3580	Perf OH P&A
UNION TEXAS PETRO. CORP. Langlie Jal Unit #1	31B-24-37	9-11-57 2885 5-25-72 (285)	3170 (332)	3502 (52)				3402			9-23-57	3465-3548	Perf WIW
Langlie Jal Unit #2	31A-24-37	10-05-74 2882 (226)	3108 (343)	3451 (218)	3505	54	3351	3405		81	10-09-74	3324-3548	Perf
JOHN YURONKA Harrison #1	29E-24-37	10-26-78 2949 (205)	3154 (361)	3515 (105)	3537	22	3415	3437		24	11-06-78	3413-3518	Perf
DOYLE HARTMAN Gulf-Eddie Corrigan #1	X 30P-24-37	10-27-78 2888 (236)	3124 (339)	3463 (167)	3534	71	3363	3434		70	11-15-78	3364-3502	Perf-SI
Gulf-Eddie Corrigan #2	X 30I-24-37	10-29-78 2910 (248)	3158 (325)	3483 (151)	3568	85	3383	3468		79	11-15-78	3389-3503	Perf-SI
JOHN YURONKA Harrison #3	29L-24-37	9-19-79 2901 (253)	3154 (355)	3509 (100)	3523	14	3409	3423		13	10-30-79	3410-3510	Perf
Harrison #4	29M-24-37	2-27-80 2897 (234)	3131 (371)	3502 (86)	3520	18	3402	3420		16	3-10-80	3404-3505	Perf

**DOYLE HARTMAN**  
**AVAILABLE HISTORIES ON WELLS IN THE VICINITY**  
**THE HENRY HARRISON #1**  
**JALMAT POOL, LEA COUNTY, NEW MEXICO**

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP 7-RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
<b>ARCO</b>													
Harrison "A" WN #2	29D-24-37	2-18-37 ✓ 12-12-75 12-14-75 12-17-75				3530			3430	74 95	3-17-37	3356-3650 *3335-3650 2931 3333 3356-3650 *3335-3650	Perf L.M. OH Perf Jal. P&A L.M. Squeezed OH
Harrison #3 (Wm. H. Harrison "C" #3)	20L-24-37	8-06-37 ✓ 3-11-65 3-17-65 3-06-74				3486			3386	No overlap	8-07-37	3425-3465 3624-3694 2826-2828 2287 3134 3425-3694	Perf L.M. OH L.M. Perf & Squeeze Perf (Dual Comple.) P&A L.M.
<b>CITIES SERVICE</b>													
Thomas #1	190-24-37	10-04-50 ✓									10-13-50	3025-3215	Called L.M. Till 2-21-55
<b>CONTINENTAL OIL CO.</b>													
Jack A-20 #10	200-24-37	8-07-74	2890 (280)	3170 (130)							10-09-74	2995-3300	Always Jalmat OH
<b>DOYLE HARTMAN</b>													
Fluor Harrison #1	20M-24-37	5-04-77 2-13-80	2908 (242)	3150 (344)	3494 (121)	3510	16	3394	3410	58 No overlap	5-10-77	3352-3582 2939-3141	L.M. Recompleted to Jal.

\*Mistake on Form C-103 dated 12-17-75 carried Forward. Actual completion interval was 3356-3650 in all cases.

BEFORE EXAMINER NUTTER  
OIL CONSERVATION DIVISION

~~HARTMAN~~ EXHIBIT NO. 5

CASE NO. 7057

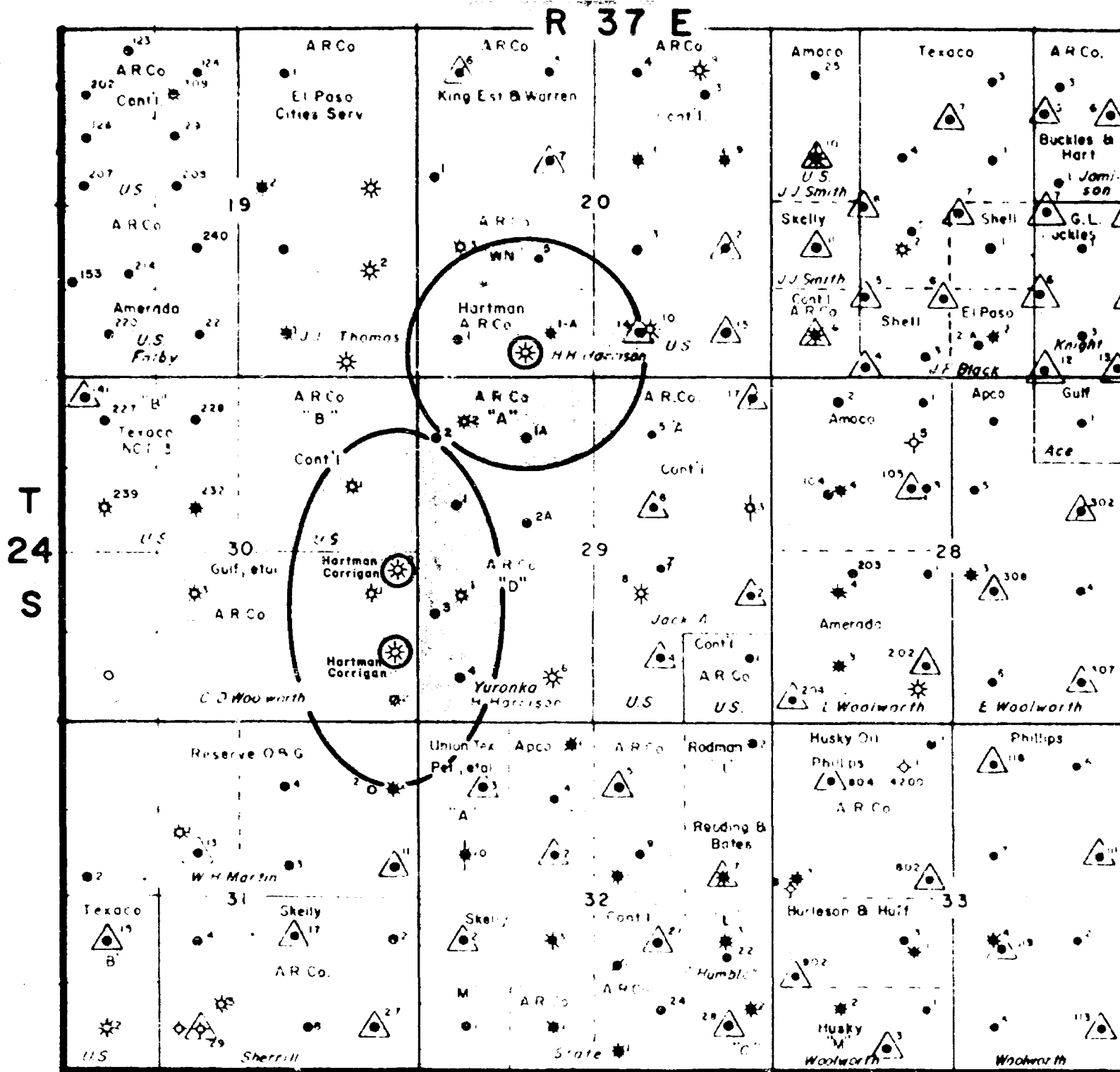
DOYLE HARTMAN

AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE HENRY HARRISON #1  
LANGLIE MATTIX POOL, LEA COUNTY, NEW MEXICO

EXHIBIT NO. \_\_\_\_\_

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP 7-RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
CONOCO, INC.													
Jack A-20 #5	20J-24-37	7-01-39✓				3525			3425	28	7-27-39	3485-3584 3397-3594	Shot OH
Jack A-20 #6 (Langlie Jack Unit #14)	200-24-37	9-01-39✓ 10-07-68				3483			3383	53 87	9-08-39	3330-3585 3296-3590	OH W1W
THE WISER OIL CO.													
Calley A #1	20N-24-37	10-02-39✓ 5-16-78				3516			3416	56	10-17-39	3360-3635	OH P&A
CONOCO, INC.													
Jack A-29 #5	29B-24-37	11-21-70	2915 (275)	3190 (357)	3547 (83)	3553	6	3447	3453	24	12-07-70	3429-3612	Perf
ARCO													
W.C.Harrison "C" #5	20K-24-37	4-08-72	2956 (232)	3188 (290)	3478 (93)	3540	62	3378	3440	39	4-14-72	3401-3553	Perf
DOYLE HARTMAN													
Adele Sowell #1	19P-24-37	9-23-77	2935 (240)	3175 (325)	3500 (200)	3567	67	3400	3467	65	10-04-77	3402-3515	Perf
Adele Sowell #2	19I-24-37	1-31-78	2930 (245)	3175 (310)	3485 (233)	3555	70	3385	3455	68	2-02-78	3387-3497	Perf
Henry Harrison #1	20N-24-37	9-26-78	2908 (268)	3176 (300)	3476 (164)	3535	59	3376	3435	45	9-26-78	3390-3454	Perf
JOHN YURONKA													
Harrison "A" #1	29C-24-37	3-21-79	2932 (213)	3145 (356)	3501 (123)	3520	19	3401	3420	13	5-14-79	3407-3504	Perf
Harrison #2	29D-24-37	4-26-79	2940 (210)	3150 (342)	3492 (140)	3530	38	3392	3430	37	5-02-79	3393-3494	Perf
CITIES SERVICE													
Thomas "A" #3	19J-24-37	4-27-79	2959 (219)	3178 (388)	3566 (184)			3466			4-27-79	3477-3636	Perf





## JALMAT GAS DRAINAGE

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7057 Exhibit No. 6

Submitted by A. Pham

Hearing Date 3/18/81

☒ ARCO 100 % INTEREST  
☒ ARCO 25 % INTEREST

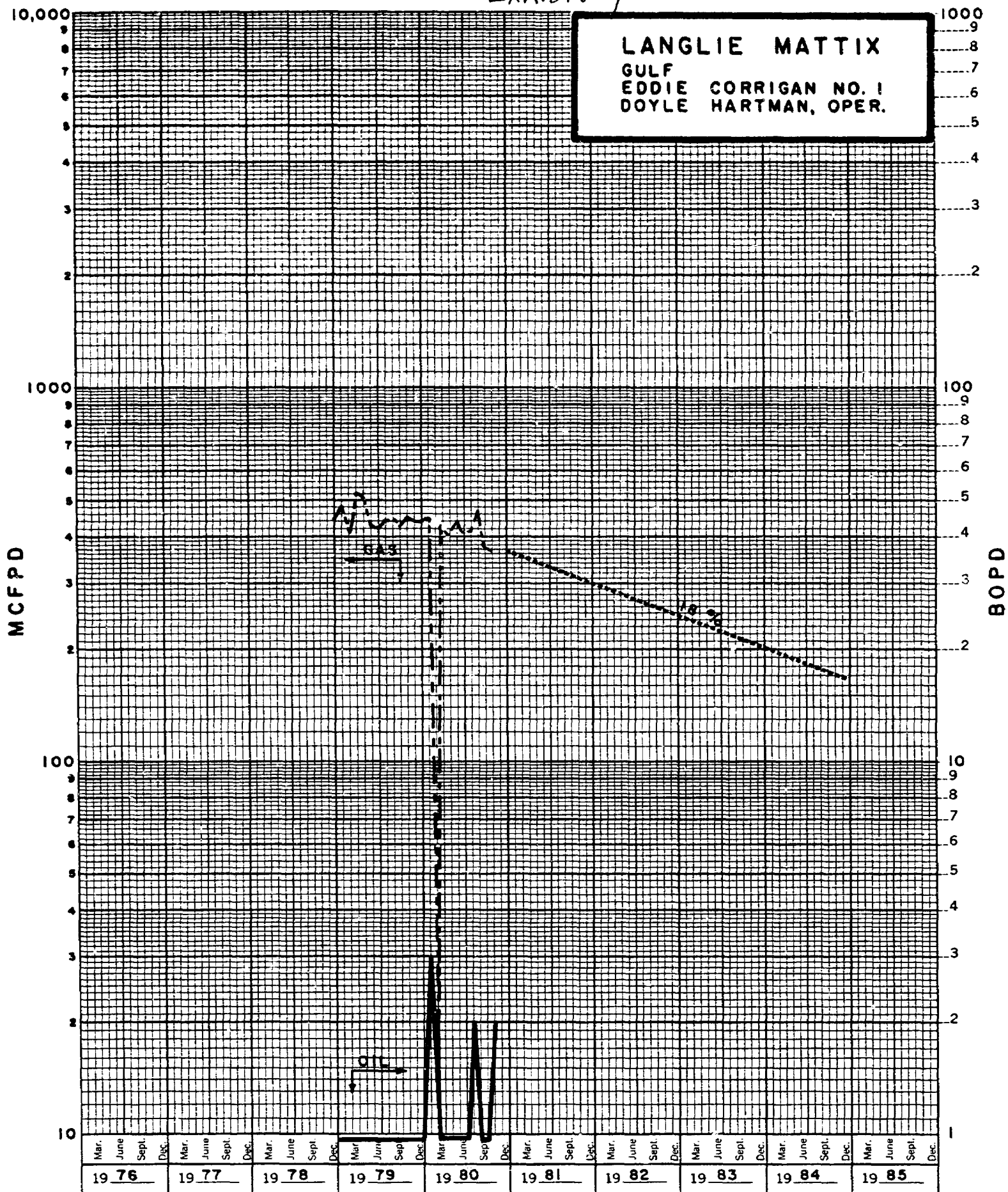
**ARCO Oil and Gas Company**  
Division of Atlantic Richfield Company  
Permian District Midland, Texas

**HARRISON LEASE**  
LEA COUNTY, NEW MEXICO

**EXHIBIT 6**

SCALE: 1" = 2000'

By <u>R. LUBKE</u>	Drawn By <u>  </u> Date <u>5-79</u>
Date <u>1-81</u>	Revised By <u>  </u> Date <u>1-81</u>
Dept <u>WEST ENGINEERING</u>	Proj No <u>  </u>



OIL CUM. — 0 0 220 80  
 GAS CUM. — 13,198 176,165 290,740 MCF

# Exhibit 8

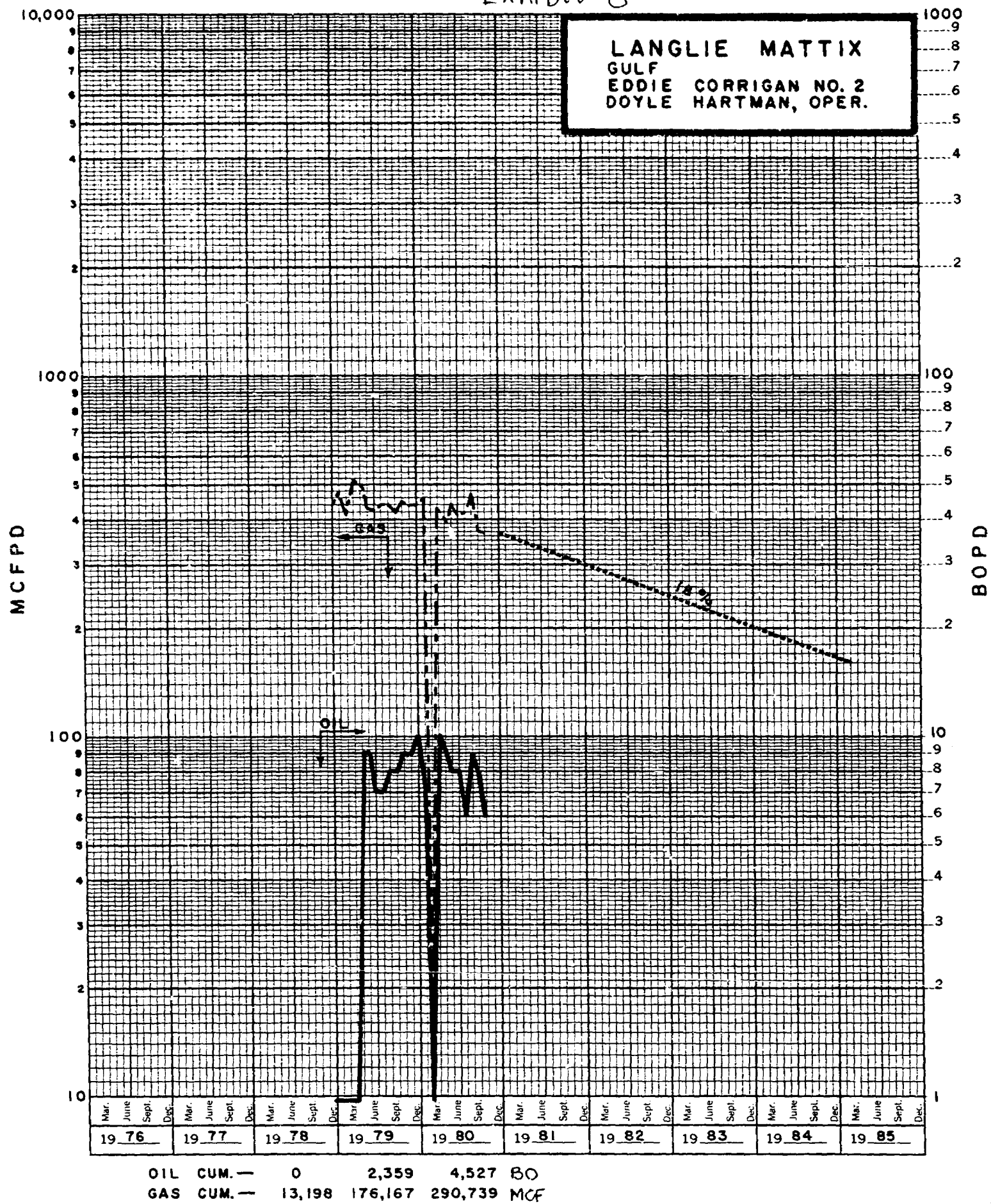
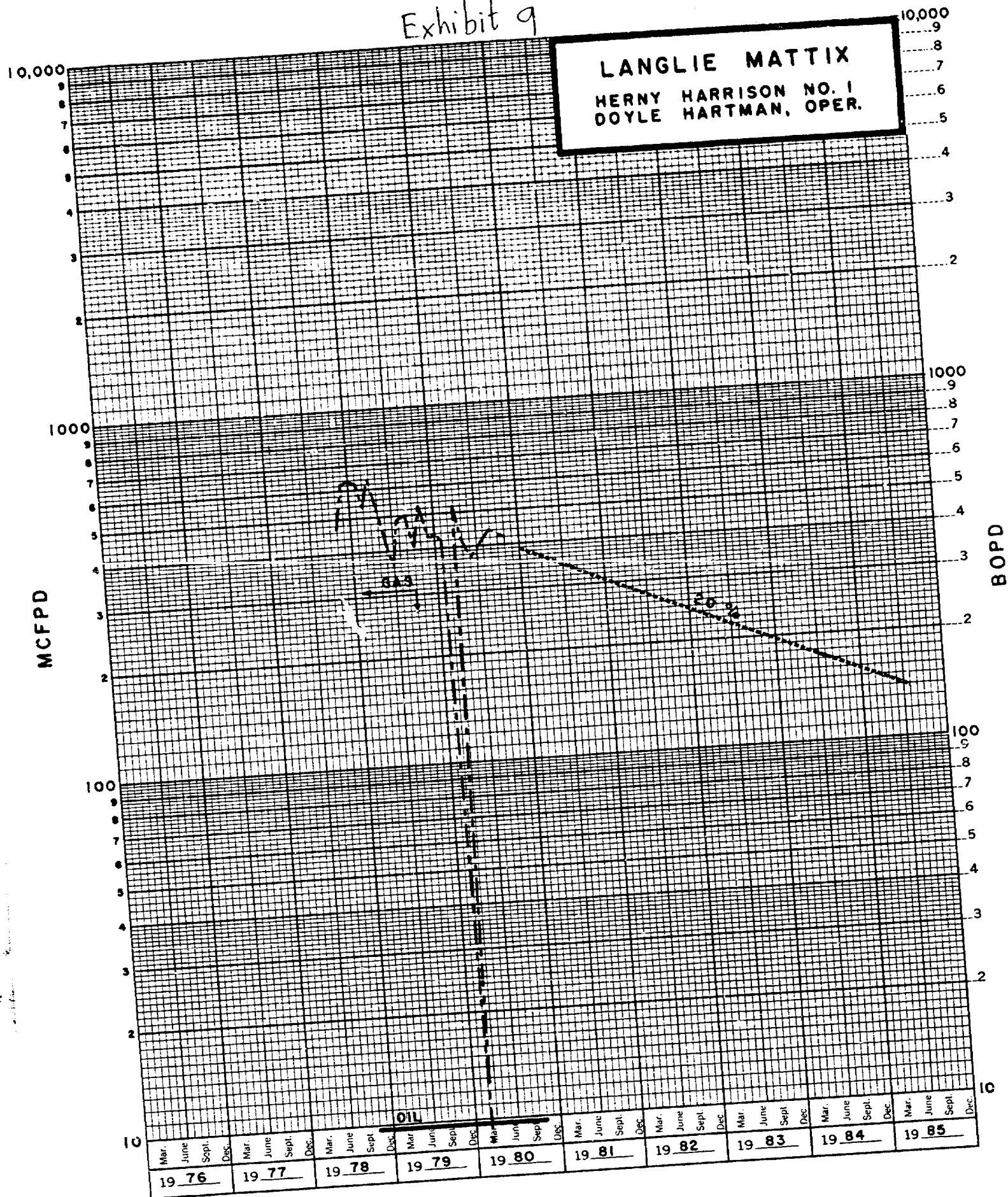


Exhibit 9



GAS CUM. — 51,827 230,675 347,024 MCF

EXHIBIT 10

Sample Calculation

Jalmat Gas Drainage Area Shown on Exhibit No. 6

Doyle Hartman Henry Harrison No. 1  
Section 20, T-24-S, R-37-E

---

Cumulative production to 1-1-81 = 370 MMCF

Remaining reserves based on an estimated decline rate of 20%:

$$\text{Remaining Reserves} = \frac{Q_{IR} - Q_{EL}}{D} \times 365$$

D = Decline as fraction of production rate

$$D = -\ln(1 - k) \text{ where } k = \frac{q_t - q_{t+1}}{q_t}$$

$$\text{At } k = 20\% \quad D = .22314$$

$$Q_{IR} = \text{production rate on 1-1-81} = 380 \text{ MCFD}$$

$$Q_{EL} = \text{production rate at economic limit} = 20 \text{ MCFD}$$

$$\text{Remaining Reserves} = \frac{380 - 20}{.22314} \times 365 = 622 \text{ MMCF}$$

$$\text{Ultimate Reserves} = 370 \text{ MMCF} + 622 \text{ MMCF}$$

$$\text{Ultimate Reserves} = 992 \text{ MMCF}$$

Based on Porosity-Feet Allocation 82% of the Gas Reserves should come from the Jalmat.

$$\text{Therefore, the Jalmat ultimate gas reserves} = .82 \times 992 = \underline{813 \text{ MMCF}}$$

$$\text{GIP} = 43.560 \phi h (1 - S_{cw}) 35.35 \frac{P}{ZT} \times A = 1540 \phi h (1 - .20) \frac{271}{.95(569)} \times A$$

$$\text{GIP} = 618 \phi h A \text{ MCF}$$

$$\text{At 75\% recovery factor, ultimate Jalmat reserves} = .75 \times 618 \phi h A = 463 \phi h A \text{ MCF}$$

$$463 (\phi h) A = 813,000 \text{ MCF}$$

$$\text{Drainage Area } A = \frac{813,000}{463 (6.66)} = \underline{264 \text{ Acres}}$$

JOHN YURONKA  
HARRISON "A" NO. 1

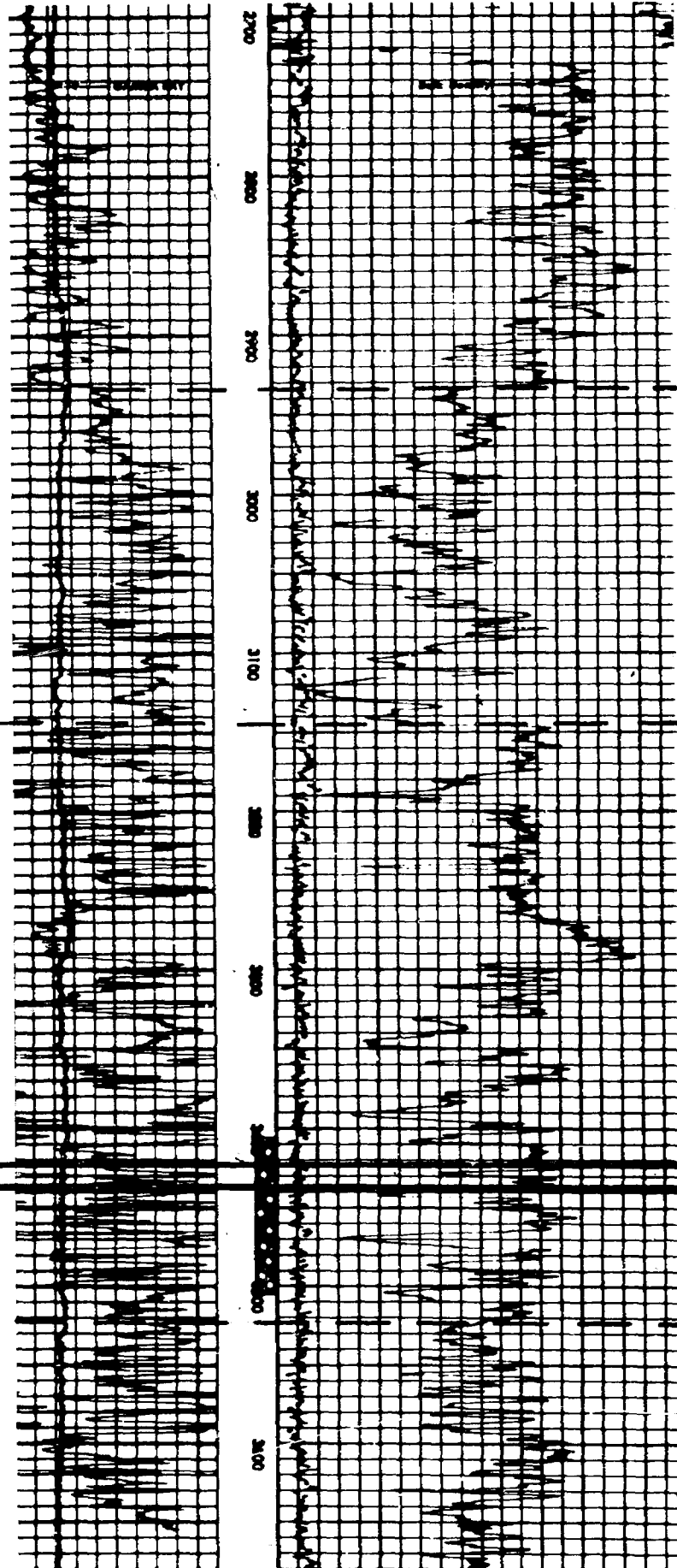
990' FNL B 1650' FWL  
SEC. 29, T 24 S, R 37 E.  
LEA COUNTY, NEW MEXICO  
EL. K.B. 3287'

YATES —————

SEVEN RIVERS —————

LANGLIE - MATTIX  
G/O —————

QUEEN —————



BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7057 Exhibit No. 11  
Submitted by Hi. Pham  
Hearing Date 5/18/81

DENOVO HEARING

Q. Would you please state your name.

A. Huan Pham

Q. By whom are you employed and in what capacity?

A. I have been employed by ARCO Oil and Gas Company since 1976. My current assignment is as an Area Engineer.

Q. Have you previously testified before the Commission and had your qualifications as a petroleum engineer accepted as matter of record?

A. Yes.

Q. Are you familiar with the application in case 7057?

A. Yes.

Q. Are the witnesses qualifications acceptable to the Commission?

A.

Q. What is ARCO's position as to Mr. Hartman's application in this case?

A. Should the application be granted, ARCO respectfully requests an order restricting the allowables on the production from the Hartman Corrigan No. 1, located in the



SE/4 of the SE/4 of Section 30, T-24-S, R-37-E, the Hartman Corrigan No. 2, located in the NE/4 of the SE/4 of the same section, and the Hartman Harrison No. 1, located in the SE/4 of the SW/4 of Section 20, all in T-24-S, R-37-E in Lea County, New Mexico. A restriction of the allowables of these wells to an equivalent of a 40-acre Jalmat gas production unit per well is necessary to prevent drainage and to protect ARCO's correlative rights in the Jalmat underlying the offset acreage.

- Q. I refer you to what has been marked for identification as ARCO Exhibit #1 and ask that you describe and explain it.
- A. Exhibit No. 1 is an area map showing the W/2 of Section 29 outlined in red. Also colored in red are the three wells that Mr. Hartman operates and for which he has asked for an extension of the vertical limits of the Langlie Mattix. ARCO owns 100% working interest in the Jalmat Gas Reservoir underlying the W/2 of Section 29. 100% of ARCO's working interest in the Langlie Mattix underlying the NW/4 and the W/2 of the SW/4 was farmed out to Mr. John Yuronka in December, 1978. ARCO also owns a 25% working interest to all depths in the NE/4 of Section 30 which is operated by Continental Oil Company.



- Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #2 and ask that you describe and explain it.
- A. Exhibit No. 2 is the Gamma Ray-Density log for the Hartman Corrigan No. 1 which is shown on exhibit No. 1 as being located in the SE/4 of the SE/4 of Section 30. The Gamma Ray is exhibited in the left hand column and the density curve is exhibited in the right hand column. The density curve indicates porosity. The better porosity a zone has, the further the curve moves to the left. As the Commission well knows, the better the porosity, the more hydrocarbons the zone can produce.

This exhibit shows the tops of the Yates, 7-Rivers, and the Queen formations as defined by the New Mexico Oil Conservation Division. The Langlie Mattix, the top of which is located 100 feet above the top of the Queen, is marked by a red line at 3434 feet. Marked in green is the original gas oil contact at - 150 feet subsea as recognized by the industry.

The perforation interval from 3364 feet to 3502 feet is colored in red. In this well Mr. Hartman perforated 70-feet into the Jalmat and only 68 feet in the Langlie Mattix. More than half of the perforation interval is in the Jalmat although the well was submitted to the New Mexico Oil Conservation Division as a Langlie Mattix well and is now producing under the Langlie Mattix allowable. As can be

seen on this exhibit, the best porosity zones within the perforated interval are in the Jalmat and that is where we believe most of the production is coming from.

- Q. I refer you to what has been marked for identification as ARCO Exhibit #3 and ask that you describe and explain it.
- A. Exhibit No. 3 is the Gamma Ray-Density log of the Hartman Corrigan No. 2. As can be seen on Exhibit No. 1 this well is located in the NE/4 of the SE/4 of Section 30. The density curve in the right hand column indicates porosity and has the same characteristics I referred to in my discussion of Exhibit #2.

On this exhibit the top of the Langlie Mattix is marked at 3468 feet by a red line. The perforation interval from 3389 feet to 3503 feet is colored in red. In this well Mr. Hartman perforated 79-feet into the Jalmat and only 35 feet in the Langlie Mattix. This indicates that 69% of the perforation interval is in the Jalmat gas pool even though the well was submitted to the Oil Conservation Division as a Langlie Mattix well and is now producing under the Langlie Mattix allowable.

- Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #4 and ask that you describe and explain it.
- A. Exhibit No. 4 is the Gamma Ray-Density log for the Hartman Harrison No. 1. As shown on Exhibit No. 1 this well is

located in the SE/4 of the SW/4 of Section 20. The density curve in the right hand column is an indication of porosity as previously discussed.

The top of the Langlie Mattix is marked at 3435 feet. The perforation interval which runs from 3390 feet to 3454 feet is colored in red. In this well Mr. Hartman perforated 45 feet into the Jalmat and only 19 feet into the Langlie Mattix. Therefore, 70% of the perforation interval is in the Jalmat gas pool although this well was submitted to the Oil Conservation Division as a Langlie Mattix well and is now producing under the Langlie Mattix allowable. Also shown on this exhibit, the best porosity zones within the perforation interval are in the Jalmat and we believe that this is where substantially all of the production is coming from.

- Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #5 and ask that you describe and explain it.
- A. Exhibit No. 5 is a comparison of the October, 1980 daily gas allowables for the Langlie Mattix and Jalmat pools on equivalent 40-acre tracts.

As can be seen on this exhibit, by having the Langlie Mattix gas allowable, Mr. Hartman is allowed to produce up to 800 MCFD per 40-acre tract, while for a Jalmat 40-acre tract ARCO is allowed to produce only 94 MCFD. Thus, per

40-acre tract Hartman's allowable is more than eight times that of ARCO's allowable. In fact, in the month of October, 1980, Mr. Hartman produced an average of 367 MCFD from the Corrigan No. 1, 367 MCFD from the Corrigan No. 2, and 422 MCFD from the Harrison No. 1. This is more than 4 times the 94 MCFD allowable limit for the Jalmat gas pool.

In addition, Mr. Hartman's wells are at unorthodox locations and are not in compliance with the Jalmat gas pool spacing. Had these wells been properly submitted as Jalmat wells, Mr. Hartman would have been requested to obtain the Commission's approval and the offset operators' approval before he could have drilled the wells because they are too close to the lease line and therefore, could drain the off-set leases.

- Q. What effect would the difference in the allowables have upon the correlative rights between Mr. Hartman and ARCO?
- A. So long as Mr. Hartman is allowed to produce Jalmat gas from these wells under a Langlie Mattix allowable while ARCO's offsetting wells are restricted to the Jalmat allowable, ARCO's Jalmat gas reserves in the offsetting acreage will continue to be drained and its correlative rights violated.
- Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #6 and ask that you describe and explain it.

A. Exhibit No. 6 shows the areas from which the Hartman Corrigan No. 1, the Corrigan No. 2, and the Harrison No. 1 wells are draining Jalmat gas. ARCO has 100% working interest in the areas colored in red and 25% working interest in the areas colored in green. The drainage areas were determined by calculations shown on Exhibit No. 10. As can be seen from this exhibit #6, a significant amount of the drainage area underlies ARCO acreage and therefore is subject to being drained by Jalmat gas production from Mr. Hartman's wells.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibits #7, 8, & 9 and ask that you describe and explain them.

A. Exhibits 7, 8, & 9 depict production curves of Hartman's three wells in MCFD and BOPD. For example, Exhibit No. 7 shows the Hartman Corrigan No. 1 as producing 367 MCFD and 2 BOPD during October, 1980. The extrapolated dotted line is the expected production rate based upon a decline rate of 18%. This decline rate is used to determine the remaining recoverable gas reserves. Also shown at the bottom of the exhibit is the cumulative oil and gas production through October, 1980.

Exhibits 8 and 9 show the same type of information on the Corrigan No. 2 and the Harrison No. 1 wells.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #10 and ask that you describe and explain it.

A. Exhibit No. 10 is a sample calculation of the Jalmat Gas Drainage Area shown on Exhibit No. 6. This exhibit shows that the Hartman Henry Harrison No. 1 well has produced 370 MMCF as of January 1, 1981. Based on the expected decline rate of 20%, remaining reserves were calculated to be 622 MMCF. The ultimate reserves equal the sum of the cumulative and remaining reserves, which in this case is 992 MMCF.

Based on a porosity-feet allocation of the perforated interval, 82% of the ultimate gas reserves will be produced from the Jalmat. Therefore, the ultimate Jalmat gas reserves are 813 MMCF. To calculate the drainage area this gas reserve is set equal to the volumetric equation of Gas in Place and the recovery factor is estimated at 75%. Based upon these calculations, the drainage area was determined to be 264 acres. By planimetry the drainage area it shows 51% of the area is ARCO acreage. Therefore ARCO's Jalmat gas reserves equal  $.51 \times 813$  or 416 MMCF. As a result, if Hartman's application is granted, the Hartman Henry Harrison #1 will capture 416 MMCF of ARCO's Jalmat gas reserves.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #11 and ask that you describe and explain it.

A. Exhibit No. 11 is a Gamma Ray-Density log of the Yuronka Harrison A No. 1, which is shown on Exhibit No. 1 as being located in the NE/4 of the NW/4 of Section 29. This well is the direct offset to the south of the Hartman Harrison No. 1, in Section 20. Mr. Yuronka perforated less than 20 feet into the Jalmat and is within the tolerance for error adopted by the Runyan report.

Now please refer to Exhibit No. 4 which shows the Gamma Ray-Density log of the Hartman Henry Harrison No. 1 well. By correlating the two logs one can see that Mr. Hartman perforated much higher into the Jalmat where the porosity is much better than in the Langlie Mattix. As a result during October of 1980 the Hartman Henry Harrison No. 1 well produced 422 MCFD which was more than 6 times greater than the 70 MCFD produced by the Yuronka Harrison No. 1 well.

The reason for this great difference in production is 70% of the perforation interval in Mr. Hartman's Henry Harrison #1 well lies in the Jalmat where porosity is better developed.

Q. Mr. Pham, in light of what has been presented here today, can you suggest any methods by which ARCO's correlative rights can be protected?

A. In order to protect ARCO correlative rights the following solutions could be carried out:

- 1) To squeeze off the perforations in the Jalmat.
- 2) To dually complete the well in the Jalmat and the Langlie Mattix.
- 3) To downhole commingle the two zones.
- 4) To allow the extension of the Langlie Mattix as requested by Mr. Hartman but to restrict the allowable to the equivalent of a 40-acre Jalmat gas proration unit per well.

It should be noted that ARCO's correlative rights cannot be protected by the granting of a similar extension of the Langlie Mattix underlying ARCO's offset acreage because ARCO has farmed out the Langlie Mattix rights on that acreage to Mr. Yuronka.

Q. Which of these solutions, if any, do you recommend?

A. I would recommend the fourth solution, that is, to allow the extension of the Langlie Mattix as requested by Mr. Hartman but to restrict the allowable to the equivalent of a 40-acre Jalmat gas proration unit per well.

The first two solutions involve working over the wells which could result in the loss of hydrocarbons. The third solution may cause problems in ownership. The fourth solution is the most reasonable because it will prevent waste, eliminate unnecessary drainage and protect ARCO's correla-



tive rights while still allowing Mr. Hartman to produce from his wells without any additional expense or risk.

However, ARCO would accept any solution chosen by the Commission which would protect its correlative rights.

- Q. Mr. Pham, in your opinion, what will happen if a restriction of allowable is not imposed on the three wells operated by Mr. Hartman?
- A. Unless the Commission restricts the gas production from Mr. Hartman's wells to the equivalent of a 40-acre Jalmat gas proration unit per well, Mr. Hartman will continue to produce the wells at a much higher rate under the Langlie Mattix allowable. As a result the drainage problem that ARCO has been suffering will continue and its correlative rights will therefore continue to be violated.
- Q. What, then Mr. Pham, is ARCO's position concerning Mr. Hartman's application and what is the basis for that position?
- A. ARCO is not interested in the reason why Mr. Hartman perforated into the Jalmat. The fact of the matter is that at this very moment ARCO gas reserves are continuing to be drained because Mr. Hartman's wells have the unfair advantage of a significantly higher allowable. Therefore, we request an order be issued to restrict the allowable on

these three wells to the equivalent of a 40-acre Jalmat gas proration unit per well.

Q. Does the solution you are recommending compensate ARCO for the loss ARCO has already suffered as a result of the drainage that has occurred?

A. No.

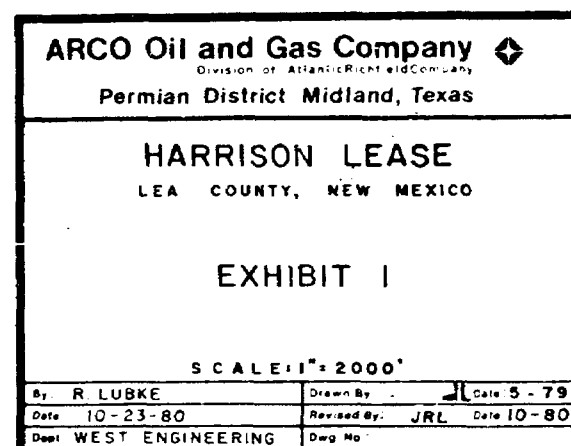
Q. Is the remedy requested by ARCO in the interest of the prevention of waste and the protection of correlative rights?

A. In my opinion it is.

Q. Were Exhibits 1-11 prepared by you or under your supervision?

A. Yes.

Q. ARCO moves the admission of ARCO's Exhibits 1-11.



DOYLE HARTMAN  
GULF - EDDY CORRIGAN NO. 1

990' FSL 8 330' FEL  
SEC 30, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL KB 3261'

YATES — — — — —

SEVEN RIVERS — — — — —

G/O 3411 (-150' SS)  
LANGLIE - MATTIX 3434

QUEEN — — — — —

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7057 Exhibit No. 2  
Submitted by H. Pham  
Hearing Date 3/18/81



DOYLE HARTMAN  
GULF - EDDY CORRIGAN NO. 2

2310' FSL & 330' FEL  
SEC 30, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL. KB 3266'

YATES — — — — —

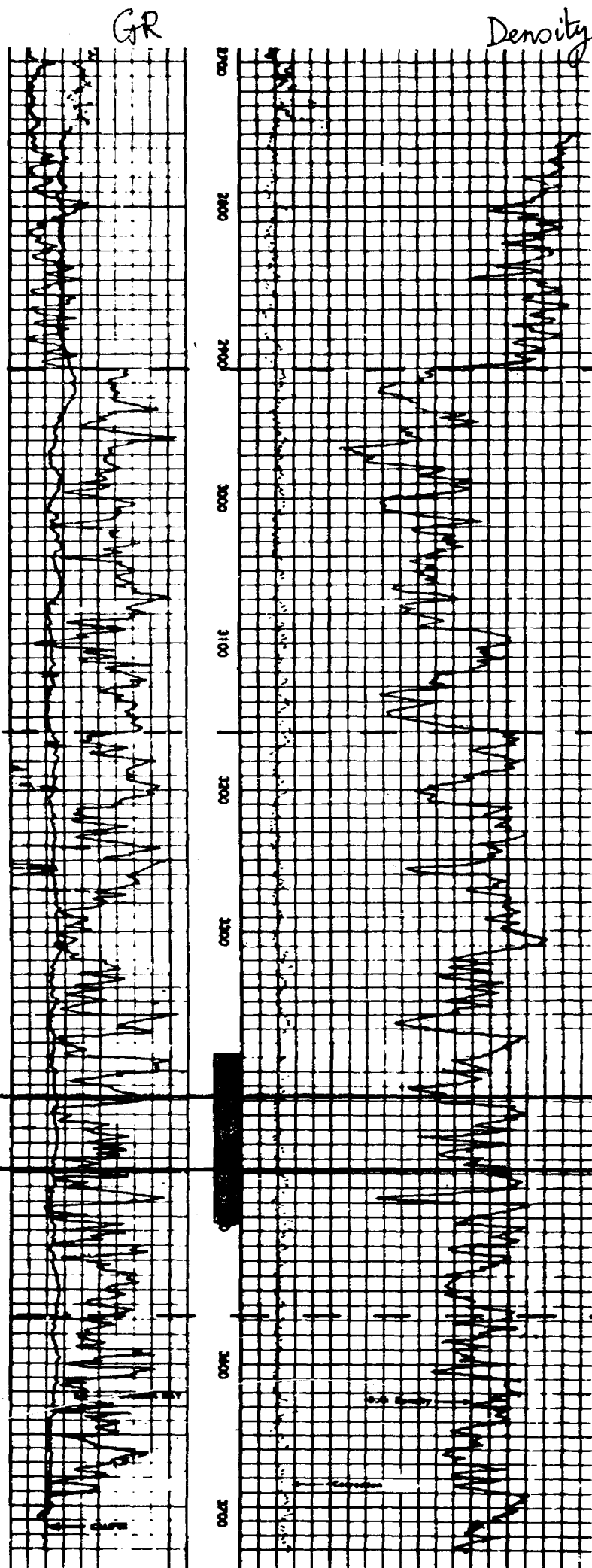
SEVEN RIVERS — — — — —

G/O 3416 (~ 150 ss)

LANGLIE-MATTIX 3468

QUEEN — — — — —

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
Case No. 7057 Exhibit No. 3  
Submitted by H. Pham  
Hearing Date 3/18/81



DOYLE HARTMAN  
HENRY HARRISON NO. 1

1650' FWL @ 330' FSL  
SEC. 20, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL KB 3292

YATES — — — — —

SEVEN RIVERS — — — — —

LANGLIE - MATTIX 3435  
G/O 3442 (-150' SS)

QUEEN — — — — —

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
Case No. 7057 Exhibit No. 4  
Submitted by H. Pharr  
Hearing Date 3/18/81

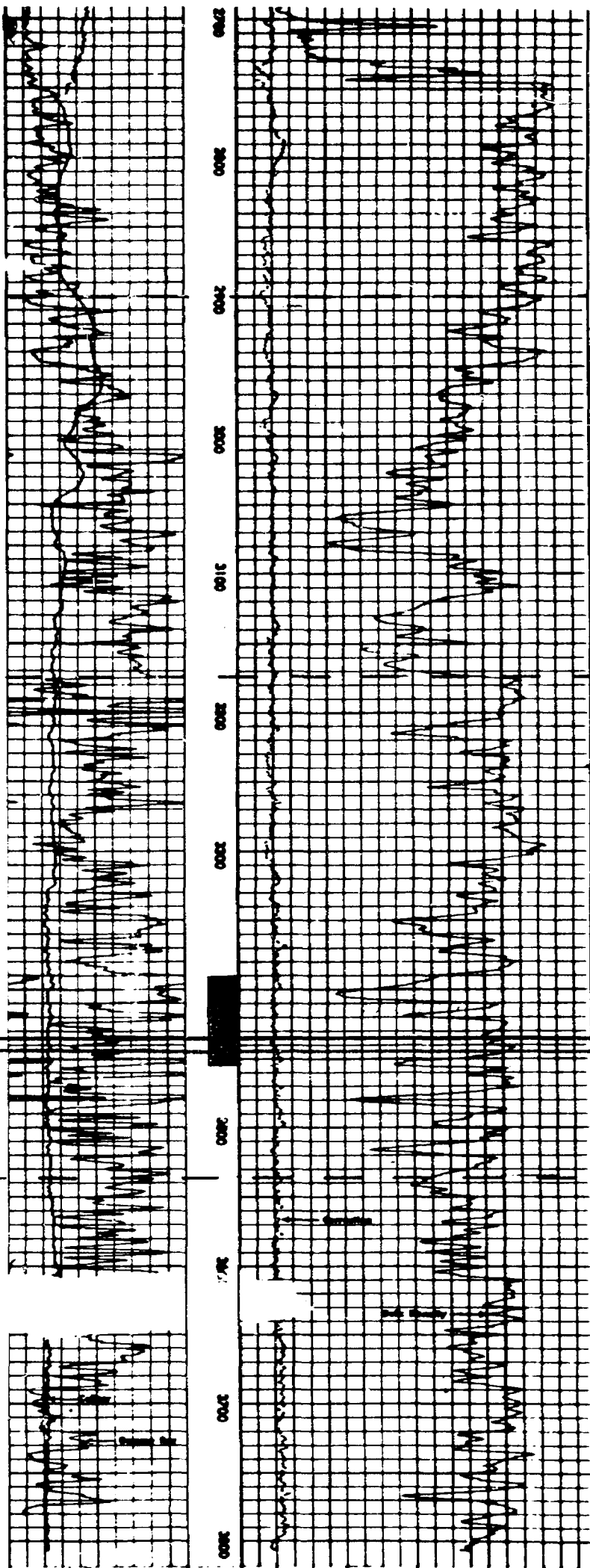


EXHIBIT 5

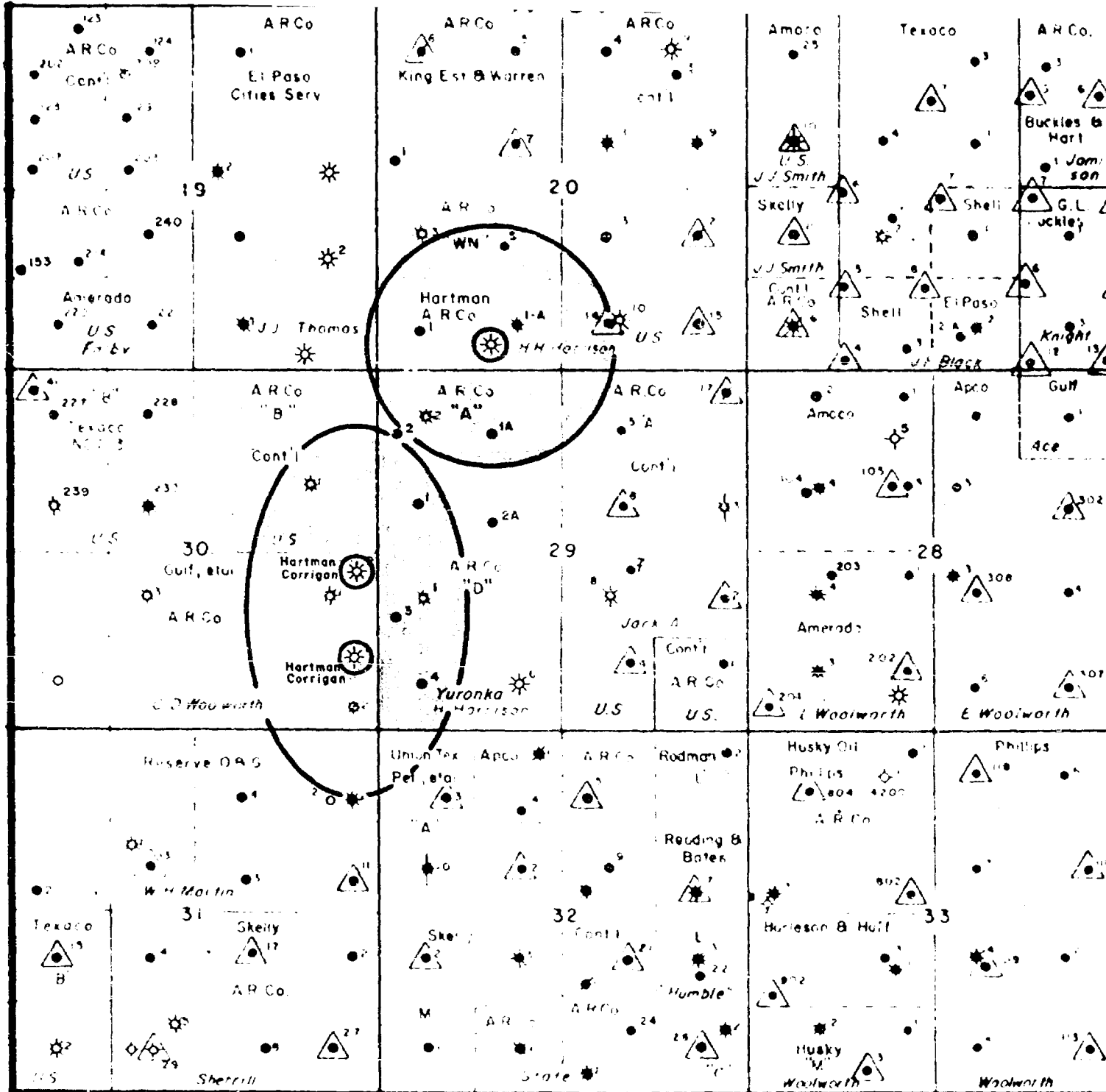
COMPARISON OF GAS ALLOWABLES  
FOR LANGLIE MATTIX AND JALMAT POOLS ON  
EQUIVALENT TRACTS

	D. Hartman	ARCO
	40-Acre	40-Acre
	Langlie	Langlie
	Mattix Gas	Jalmat Gas
October, 1980		
Daily Allowable	800 MCFD	94 MCFD

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7097 Exhibit No. 5  
Submitted by H. Pham  
Hearing Date 3/18/81

T  
24  
S



# JALMAT GAS DRAINAGE

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7057 Exhibit No. 6

Presented by H. Pham

Hearing Date 3/12/81

- ☒ ARCO 100 % INTEREST
- ☐ ARCO 25 % INTEREST

ARCO Oil and Gas Company  
Permian District Midland, Texas

HARRISON LEASE  
LEA COUNTY, NEW MEXICO

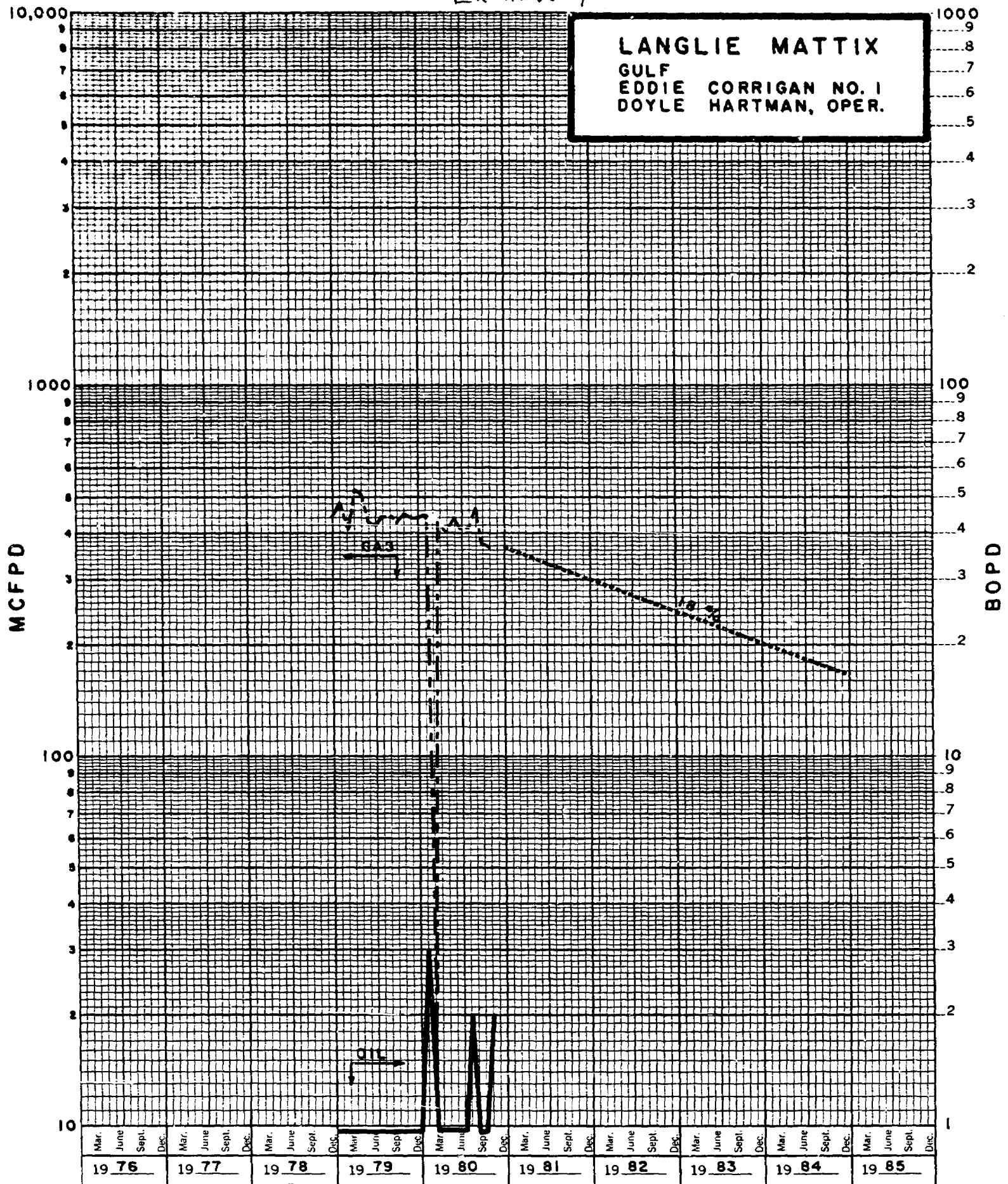
EXHIBIT 6

SCALE 1" = 2000'

By: R. LUBKE	Drawn By: J. B. 79
Date: 1 - 81	Revised By: J. B. 81
Dept: WEST ENGINEERING	Page No:

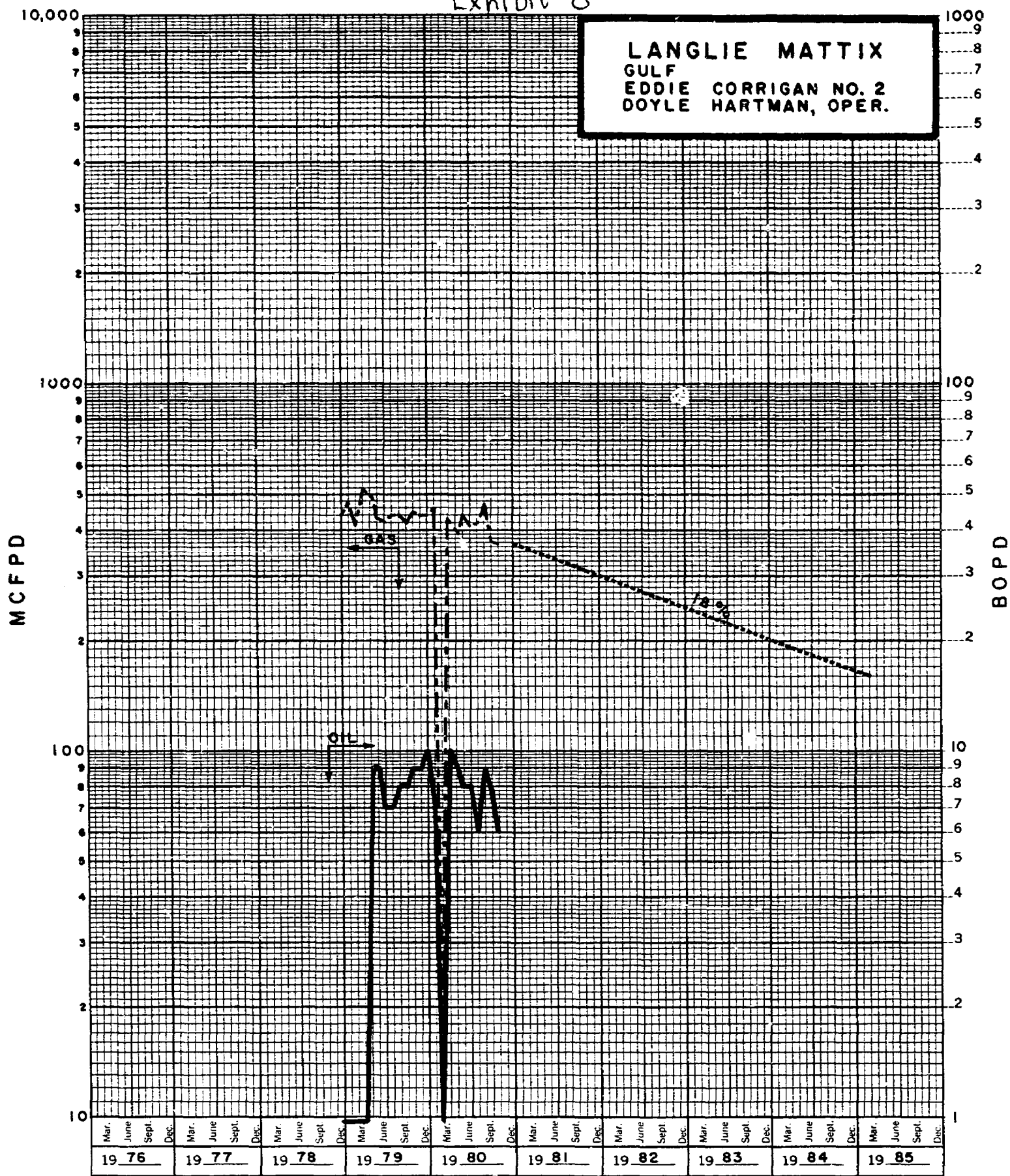


# Exhibit 7



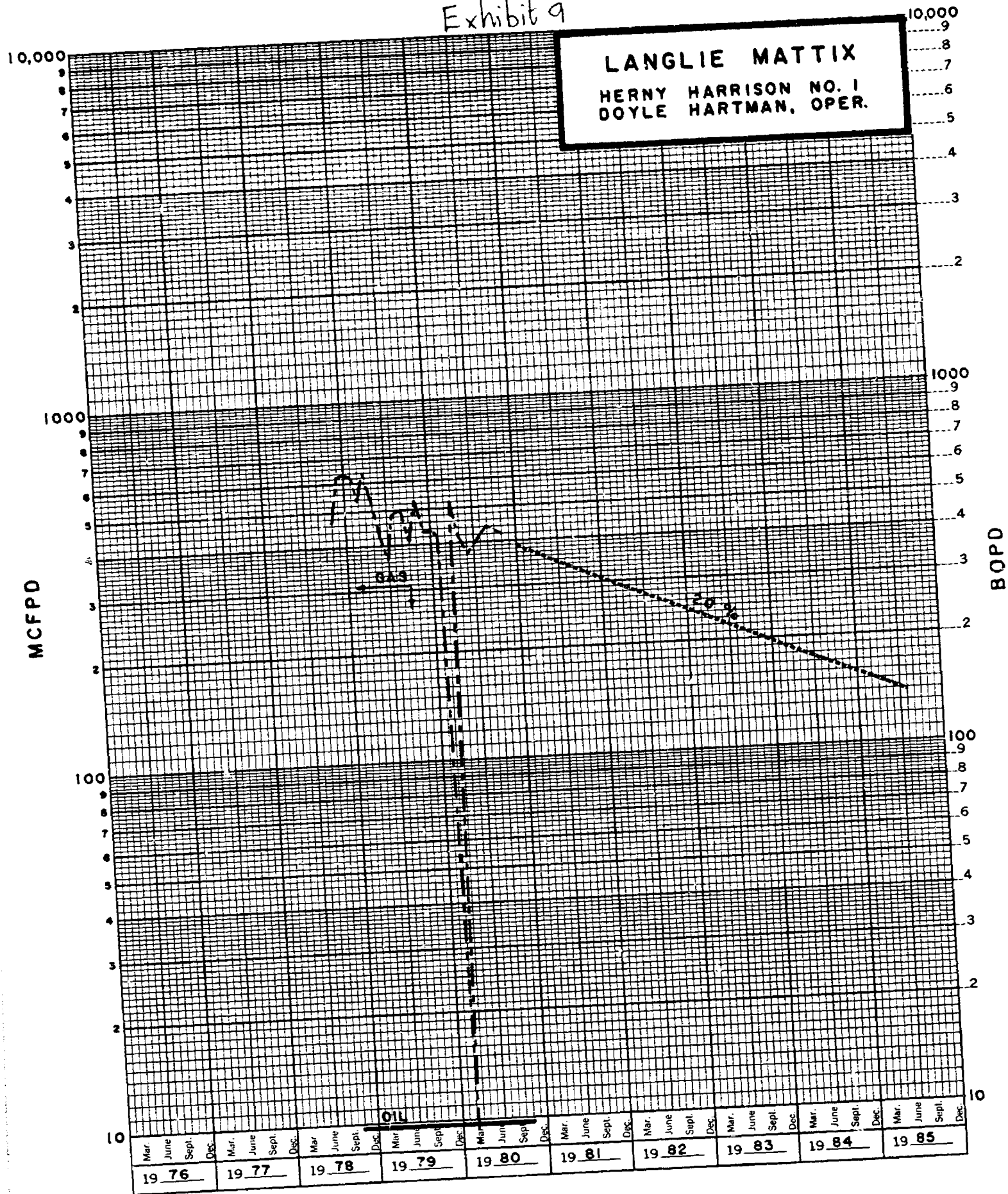
OIL CUM.— 0 0 220 BO  
 GAS CUM.— 13,198 176,165 290,740 MCF

# Exhibit 8



OIL CUM. — 0 2,359 4,527 BO  
 GAS CUM. — 13,198 176,167 290,739 MCF

Exhibit 9



GAS CUM. — 51,827 230,675 347,024 MCF

EXHIBIT 10

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Jalmat Gas Drainage Area Shown on Exhibit No. 6

Doyle Hartman Henry Harrison No. 1  
Section 20, T-24-S, R-37-E

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Cumulative production to 1-1-81 = 370 MMCF  
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$$D = \text{Decline as fraction of production rate}$$
$$D = -\ln(1 - k) \text{ where } k = \frac{q_t - q_{t+1}}{q_t}$$

$$\text{At } k = 20\% \quad D = .22314$$

$$Q_{IR} = \text{production rate on 1-1-81} = 380 \text{ MCFD}$$

$$Q_{EL} = \text{production rate at economic limit} = 20 \text{ MCFD}$$

$$\text{Remaining Reserves} = \frac{380 - 20}{.22314} \times 365 = 622 \text{ MMCF}$$

$$\text{Ultimate Reserves} = 370 \text{ MMCF} + 622 \text{ MMCF}$$
$$\text{Ultimate Reserves} = 992 \text{ MMCF}$$

Based on Porosity-Feet Allocation 82% of the Gas Reserves should come from the Jalmat.

$$\text{Therefore, the Jalmat ultimate gas reserves} = .82 \times 992 = \underline{813 \text{ MMCF}}$$

$$\text{GIP} = 43.560 \phi h (1 - S_{cw}) 35.35 \frac{P}{ZT} \times A = 1540 \phi h (1 - .20) \frac{271}{.95(569)} \times A$$

$$\text{GIP} = 618 \phi h A \text{ MCF}$$

$$\text{At 75\% recovery factor, ultimate Jalmat reserves} = .75 \times 618 \phi h A = 463 \phi h A \text{ MCF}$$

$$463 (\phi h) A = 813,000 \text{ MCF}$$

$$\text{Drainage Area } A = \frac{813,000}{463 (6.66)} = \underline{264 \text{ Acres}}$$

JOHN YURONKA  
HARRISON "A" NO. 1

990' FNL & 1650' FWL  
SEC. 29, T 24 S, R 37 E.  
LEA COUNTY, NEW MEXICO  
EL. K.B. 3287'

YATES — — — — —

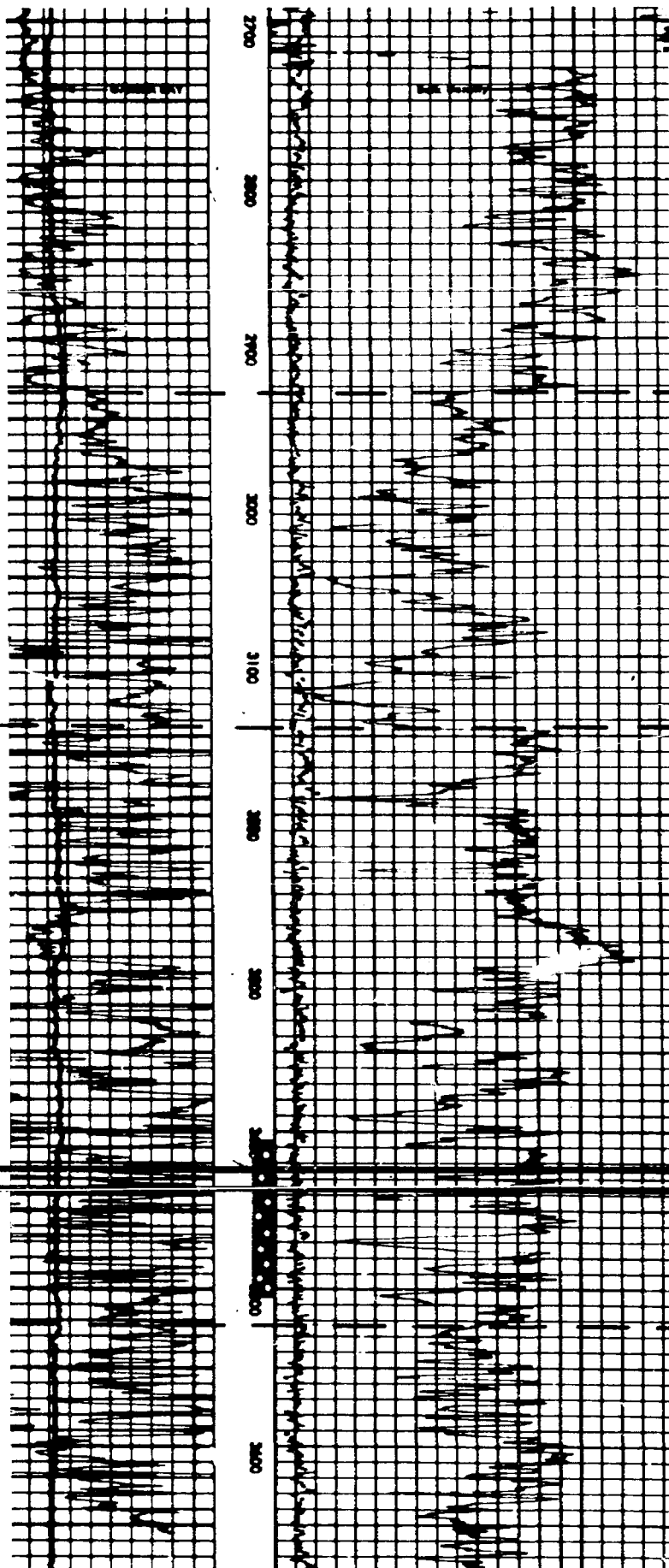
SEVEN RIVERS — — — — —

LANGLIE - MATTIX  
G/O — — — — —

QUEEN — — — — —

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7057 Exhibit No. 11  
Submitted by H. Phoner  
Hearing Date 3/18/81



OIL COMPANY

SAND

Case No. 7057

Submitter: HARTMAN

Hearing Date: 3/12/81

DOYLE HARTMAN

AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE HENRY HARRISON #1  
LANGLIE MATTIX POOL, LEA COUNTY, NEW MEXICO

EXHIBIT NO. 1

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
CONOCO, INC.													
Jack A-20 #5	20J-24-37	7-01-39				3525			3125	No overlap 28	7-27-39	3485-3584 3397-3594	Shot OH
Jack A-20 #6 (Langlie Jack Unit #14)	200-24-37	9-01-39 10-07-68				3483			3383	53 87	9-08-39	3330-3585 3296-3590	OH WIW
THE WISER OIL CO.													
Calley A #1	20N-24-37	10-02-39 5-16-78				3516			3416	56	10-17-39	3360-3635	OH P&A
CONOCO, INC.													
Jack A-29 #5	29B-24-37	11-21-70	2915 (275)	3190 (357)	3547 (83)	3553	6	3447	3453	24	12-07-70	3429-3612	Perf
ARCO													
W.C.Harrison "C" WN #5	20K-24-37	4-08-72	2956 (232)	3188 (290)	3478 (93)	3540	62	3378	3440	39	4-14-72	3401-3553	Perf
DOYLE HARTMAN													
Adele Sowell #1	19P-24-37	9-23-77	2935 (240)	3175 (325)	3500 (200)	3567	67	3400	3467	65	10-04-77	3402-3515	Perf
Adele Sowell #2	19I-24-37	1-31-78	2930 (245)	3175 (310)	3485 (233)	3555	70	3385	3455	68	2-02-78	3387-3497	Perf
Henry Harrison #1	20N-24-37	9-26-78	2908 (268)	3176 (300)	3476 (164)	3535	59	3376	3435	45	9-26-78	3390-3454	Perf
JOHN YERONKA													
Harrison "A" #1	29C-24-37	3-21-79	2932 (213)	3145 (356)	3501 (123)	3520	19	3401	3420	13	5-14-79	3407-3504	Perf
Harrison #2	29D-24-37	4-26-79	2940 (210)	3150 (342)	3492 (140)	3530	38	3392	3430	37	5-02-79	3393-3494	Perf
CITIES SERVICE													
Thomas "A" #3	19J-24-37	4-27-79	2959 (219)	3178 (388)	3566 (184)				3466		4-27-79	3477-3636	Perf

EXHIBIT NO. 1

DOYLE HARTMAN  
 AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
 THE HENRY HARRISON #1  
 JALMAT POOL, LEA COUNTY, NEW MEXICO

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP 7-RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
ARCO													
Harrison "A" WN #2	29D-24-37	2-18-37				3530			3430	74 95	3-17-37	3356-3650 *3335-3650 2931 3333 3356-3650 *3335-3650	Perf L.M. OH Perf Jal. P&A L.M. Squeezed OH
		12-12-75 12-14-75 12-17-75											
Harrison #3 (Wm. H. Harrison "C" #3)	20L-24-37	8-06-37				3485			3386	No overlap	8-07-37	3425-3465 3624-3694 2826-2828 2287 3134 3425-3694	Perf L.M. OH L.M. Perf & Squeeze Perf (Dual Comple.) P&A L.M.
		3-11-65 3-17-65 3-06-74											
CITIES SERVICE													
Thomas #1	190-24-37	10-04-50									10-13-50	3025-3215	Called L.M. Till 2-21-55
CONTINENTAL OIL CO.													
Jack A-20 #10	200-24-37	8-07-74	2890 (280)	3170 (130)							10-09-74	2995-3300	Always Jalmat OH
DOYLE HARTMAN													
Fluor Harrison #1	20M-24-37	5-04-77 2-13-80	2908 (242)	3150 (344)	3494 (121)	3510	16	3394	3410	58 No overlap	5-10-77	3352-3582 2939-3141	L.M. Recompleted to Jal.

\*Mistake on Form C-103 dated 12-17-75 carried Forward. Actual completion interval was 3356-3650 in all cases.

DOYLE HARTMAN  
AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE EDDIE CORRIGAN 1 & 2  
LANGLIE MATTIX POOL, LEA COUNTY, NEW MEXICO

EXHIBIT NO. \_\_\_\_\_

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
GULF OIL CO.													
Woolworth #1	30I-24-37	5-16-37 4-06-38 3-10-77				3544			3444	318	8-13-37	3126-3217 3126-3773	Shot Deepened - OH P&A
GETTY OIL CO.													
Martin #2	31A-24-37	9-12-39 4-14-41									10-05-39	3467-3535 2936-2976	Shot Perf
UNION TEXAS PETRO. CORP.													
Langlie Jal Unit #3	32D-24-37	2-02-40 4-18-72									2-21-40	3496-3555	Shot WIW
GULF OIL CO.													
Woolworth #2	30P-24-37	3-04-40 6-12-60	2905			3514			3414	148 No Overlap	4-23-40	3266-3460 3490-3580	Perf OH P&A
UNION TEXAS PETRO. CORP.													
Langlie Jal Unit #1	31B-24-37	9-11-57 5-25-72	2885 (285)	3170 (332)	3502 (52)			3402			9-23-57	3465-3548	Perf WIW
Langlie Jal Unit #2	31A-24-37	10-05-74	2882 (226)	3108 (343)	3451 (218)	3505	54	3351	3405	81	10-09-74	3324-3548	Perf
JOHN YURONKA													
Harrison #1	29E-24-37	10-26-78	2949 (205)	3154 (367)	3515 (105)	3537	22	3415	3437	24	11-06-78	3413-3518	Perf
DOYLE HARTMAN													
Gulf-Eddie Corrigan #1	30P-24-37	10-27-78	2888 (236)	3124 (339)	3463 (167)	3534	71	3363	3434	70	11-15-78	3364-3502	Perf-SI
Gulf-Eddie Corrigan #2	30I-24-37	10-29-78	2910 (248)	3158 (325)	3483 (151)	3568	85	3383	3468	79	11-15-78	3389-3503	Perf-SI
JOHN YURONKA													
Harrison #3	29L-24-37	9-19-79	2901 (253)	3154 (355)	3509 (100)	3523	14	3409	3423	13	10-30-79	3410-3510	Perf
Harrison #4	29M-24-37	2-27-80	2897 (234)	3131 (371)	3502 (86)	3520	18	3402	3420	16	3-10-80	3404-3505	Perf



EXHIBIT NO. \_\_\_\_\_

DOYLE HARTMAN  
AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE EDDIE CORRIGAN 1 & 2  
JALMAT POOL, LEA COUNTY, NEW MEXICO

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
ARCO													
Harrison #4 (Wm. H. Harrison "D" WN Com #1)	29L-24-37	8-29-37				3521			3421	61	9-18-37	3360-3400 3360-3699 3360-3699 2927-3185	Perf L.M. OH L.M. Plugged Off Perf Jal.
										No overlap			
CONOCO, INC.													
Jack B-30 #1	30H-24-37	10-18-47	2950				Called Jalmat 12-31-52				12-31-53	2833-3372	Called L.M. Till 12-31-52

BEFORE THE  
OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO  
Case No. 7057 EXHIBIT No. 8  
Submitted by HARTMAN  
Hearing Date 3/18/81

DOYLE HARTMAN

PAGE 1 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
<u>Getty Reserve</u>											
Cooper Jal Un #122 (Dunn SCP WN #6)	24(A)-24-36	L.M.	5-17-71	5553	Pkr#3411	R-4019 (1970)	Currently Water Injector				
			6-14-54	5552	3465-35530H		Southern California Petrol. 1960 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 1-70 Last Langlie Mattix Prod. 45,298 1974 Put on Injection 1980 Getty Reserve				
Cooper Jal Un #201 (WN Dunn #3)	24(A)-24-36	Jalmat	9-21-71	3157	Pkr#2929	R-4020 (1970)	Currently Water Injector				
			5-13-50	3237	2994-31570H		Culbertson & Irwin, Inc. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 9-71 Last Jalmat (Oil) Prod. 221,507 1974 Put on Injection 1980 Getty Reserve				
Cooper Jal Unit #126 (Dunn SCP WN #4)	24(G)-24-36	L.M.	5-14-54	5560	3470-35600H	R-5590 (1977)	Currently Producing L.M. 1954 Southern Calif. Petrol. 1960 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 1980 Getty Reserve	262,806			
Cooper Jal Unit #205 (WN Dunn #1)	24(G)-24-36	Jalmat	9-21-71	3251	Pkr#2927	R-4020 (1970)	Currently Water Injector				
			4-30-50	3251	2988-32510H		Culbertson & Irwin, Inc. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 7-71 Last Jal (Oil) Prod. 146,818 1974 Put on Injection 1980 Getty Reserve				

## DOYLE HARTMAN

PAGE 2 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
<u>Getty Reserve (Continued)</u>											
Cooper Jal Unit #127 (Dunn SCP WN #5)	24(H)-24-36	L.M.	8-25-71	3537	Pkr#3398	R-4019 (1970)	Currently Water Injector				
			5-29-54	3541	3460-35370H 3460-35410H		Southern Calif. Petrol. 1960 Western Natural Gas 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 7-71 Last Langlie Mattix Prod. 41,204 1974 Put on Injection 1980 Getty Reserve				
<u>ARCO</u>											
Jim Camp #1	6(M)-24-37	L.M.(Gas)	6-13-37	3656	3246-36560H	R-520 (1954)	Currently Producing L.M.(Gas)	193	1,573,133		
							1937 El Paso Natural Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO				
<u>Getty Reserve</u>											
Cooper Jal Unit #101 (Bates #1)	18(C)-24-37	L.M.	4-21-76	3572	Pkr#3312	R-4019 (1970)	Currently Water Injector				
			11-20-41	3572	3440-35720H 3440-35720H		Western Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 8-69 Last Langlie Mattix Prod. 133,797 1976 Put on Injection 1980 Getty Reserve				
<u>Cordova Resources</u>											
Jamison #2	22(E)-24-37	L.M.	3-12-37	3485	3092-3485	R-520 (1954)	Currently Producing L.M.	122,268			
							1937 Repollo Oil Co. 1954 Sinclair 1964 Geo Buckles 1979 Cordova Resources				

## DOYLE HARTMAN

PAGE 3 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR		LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
LEASE NAME									OIL (BBLs.)	GAS (MMCF)	OIL (BBLs.)	GAS (MMCF)
<u>ARCO</u>												
Harrison "D" WN #1		29(L)-24-37	Jalmat	4-18-73	3500 (3285)	2927-3185	R-520 L.M. (1954)	Currently Producing Jal (Gas)				2780.9
#4				9-02-37	3699 (3500)	3360-3490		Western Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 465 Dual L.M.-Jalmat 1969 ARCO 4-69 Last L.M. Prod. 4-73 Jalmat Producer Only The #4 is actually the L.M. which the exception applies to		6700.2		
						2927-2994						
<u>Union Texas Petroleum Corp.</u>												
Langlie Jal Un #25		32(N)-24-37	L.M.	8-19-76	3631	3318-3612	R-4051 (1970)	Currently Water Injector Pre 1954 Rec. Jal(Gas) from prod., no forms Atlantic Refining Co. 1969 ARCO 1971 Langlie Jal Un-Union TX 12-73 Last Jalmat Prod. 1974 Zone Abandoned 1975 Injection Well				3175.6
(State 24 #1)				6-16-38	3546	3470-3546						
<u>Amerada Hess</u>												
L.M. Woolworth Un #163		34(M)-24-37	L.M.	1-20-69	3565	3194-35650H	R-520	Currently Producing L.M.	328,000			
(Mosely #3)				12-30-37	3493	3194-34930H	(1954)	Repollo Oil Company 1954 Sinclair 1962 L.M.W.U. Tr #16, #3 Amerada 10-67 Last Oil Production 1968 L.M.W.U. #163-Amerada 5-70 Production Began Again				
L.M. Woolworth Un #162		34(N)-24-37	L.M.	12-20-56	3480 (3455)	3275-34550H	R-520 (1954)	Currently Prod. L.M.	195,893			
(Mosely #2)				10-02-37	3480	3275-34800H		Repollo Oil Company 1954 Sinclair 1962 L.M.W.U. Tr #16, #2 Amerada 7-64 Last Oil Production 1968 L.M.W.U. #162 - Amerada 11-70 Oil Produc. Began Again				

## DOYLE HARTMAN

PAGE 4 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
<u>Union Texas Petroleum Corp.</u>											
Langlie Jal Unit #72 (F. M. Burleson #1)	8(C)-25-37	L.M.	2-05-75	3748	3348-3595	R-4051 (1970)	Currently Producing L.M.	246,913			
			9-11-74	3748	3651-3704		Union Texas				
			3-20-74	3476	3402-3476		Squeezed Perfs 3000-3012				
			12-12-47	3100	3000-3012		Producing Oil-Bridgeport Oil				
			12-06-47	3200	3112-3160		Producing gas-no oil				
			12-26-37	3476	3242-3476OH		Herschbach Drilling Co. 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1-72 Langlie Jal Unit-Union TX				

OIL COMPANY  
 Santa Fe, New Mexico  
 Case No. **7087** Entry No. **9**  
 Submitted by **HARTMAN**  
 Hearing Date **3/18/81**

PAGE 1 OF 3

DOYLE HARTMAN  
WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
<u>ARCO</u>											
Fredrick H. Curry #2	1(N)-24-36	L.M.	4-24-80	3750 (5710)	3463-3700		Currently Producing L.M.	4,081	16.9		
Fredrick H. Curry #1	1(?) -24-36	Jalmat	2-10-65	3379 (3250)	2866-3192		Currently Producing Jalmat 1969 ARCO Operator 1963 Sinclair Operator			0	13,088
			6-01-38	3697 (3538)	3510-3538OH		Western Gas Company				
<u>Getty Oil Company</u>											
Cooper WN #3	12(B)-24-36	Jalmat (Dual)	4-20-73	3630 (3622)	2931-3400		Currently Producing Jalmat			832	1,437
		L.M.	4-20-75	3630 (3622)	3469-3610		Request to TA 8-23-75 TA L.M. Seat Seating Nipple at 3450	0	0		
Myers L.M. Unit #207	12(F)-24-36	L.M.	9-25-75	3644	3485-3644OH		Currently Producing L.M. P&A Jalmat	From 1975 6,237	14.9	0	721
			10-02-41	3644	3485-3644		At one time this was a dual completion from Jalmat 3400- 3425 and L.M. 3485-3644. 1st completed L.M. pre 1954. Converted to Gas pre 1954.				
Myers L.M. UN #208	12(G)-24-36	L.M.	12-29-78	3698	3487-3633		Currently water injector Produced Jal Gas to 8-75	107,448			
			9-29-75	3588	3465-3588OH		Squeezed Jalmat Perfs 2910- 3150 and converted to WIW				
			7-18-40	3588	3477-3588OH		L.M. Completion				
<u>ARCO</u>											
G.W. Toby WN Gas UN #4	12(I)-24-36	Jalmat	5-15-75	3550	2945-3401		Currently Producing Jal (Gas)				669
<u>Getty Oil Company</u>											
Myers L.M. Unit #240 (G. W. Toby #3)	12(J)-24-36	L.M.	9-14-40	3599	3448-3599		Currently Producing L.M. Oil 1963 Sinclair Operated 1969 ARCO 1974 Joined Myers L.M. Un-Skelly 1977 Getty	141,395			

## DOYLE, HARTMAN

PAGE 2 OF 3

## WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
								OIL (BBLs.)	GAS (MMCF)	OIL (BBLs.)	GAS (MMCF)
<u>ARCO</u>											
G.W. Toby WN Gas #1	12(P)-24-36	Jalmat	1-14-79	3240	2989-3236		Currently Producing Jalmat				2690
			12-18-78	3040	3256-3685		Squeezed OH				
			2-19-37	3685	3256-3685		El Paso Natural Gas Co. Comp. L.M. Pre 1954 Recomp. Jalmat Pre 1954 1963 Sinclair 1969 ARCO				
G.W. Toby Gas #2	13(A)-24-36	Jalmat	3-14-42	3607	3444-3607		Currently Producing Jalmat No other completion interval available (1975 form 102 called well Jalmat) 1954 Western Natural Gas 1963 Sinclair 1969 ARCO				4158
<u>Getty Reserve Oil</u>											
Cooper Jal Unit #115 (Maggie Dunn #1)	13(P)-24-36	L.M.	5-27-78		Added Perfs 3221-3303 & 3046-3153		Currently Carried as L.M. NMOCC Order R-5590 Down- hole Commingling of Jalmat and Langlie Mattix	222,543	652		
			5-23-75	3668	3426-3518		Remedial Workover				
			5-07-47	3505	3015-3505		OH Completion 1954 Western Natural Gas 1963 Sinclair 1969 ARCO 1970 Reserve O&G 2-80 Getty Reserve				
Cooper Jal Unit #121 (Maggie Dunn B #1)	24(B)-24-36	L.M.	2-11-78		3018-3292		Currently Carried L.M. NMOCC R-5590 Downhole Commingling of Jalmat and Langlie Mattix	233,468	479		
			2-20-75	3560	3423-3522		Remedial Workover				
			1-02-49	3520	3017-3520		OH Completion 1954 Western Natural Gas 1963 Sinclair 1969 ARCO 1970 Reserve O&G 2-80 Getty Reserve				
Cooper Jal Unit #206 (WN Dunn #2)	24(H)-24-36	Jal(Oil)	5-04-50	3230	2983-3230		OH Currently Producing Jal(OIL) 1963 Sinclair 1969 ARCO 1970 Reserve O&G 2-80 Getty Reserve			323,275	

## DOYLE HARTMAN

PAGE 3 OF 3

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO

CURRENT OPERATOR	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBTD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
Atlantic Production Co.											
Woolworth #1	26(G)-24-36	Jal(Oil)	7-22-35	3481	3452-3481		P&A 1942 Cums Not Available				
ARCO											
Jim Camp #2	6(E)-24-37	Jal(Gas)	9-29-80 4-06-65 8-30-54	3575 3380BP 3575	3450-3575LM 2944-3234Jal		Dual completed L.M. & Jalmat Recompleted to Jalmat L.M. Producer 1954 Western Natural 1963 Sinclair 1969 ARCO	27,622	30	0	1906
Jim Camp #3	6(O)-24-37	L.M.	2-25-55	3578	3451-3578		1954 Western Natural Gas 1963 Sinclair 1969 ARCO	51,050	76		
Hair #1	9(D)-24-37	L.M.	6-26-37 7-12-59	3575	3069-3575		Produced L.M. P&A	89,890	-		
Getty Oil Co.											
Myers L.M. Un. #218 (Fowler Hair #2)	9(E)-24-37	L.M.	9-30-76 7- -76 8-13-38	3560 3560	3412-3550 3143-3560		Currently WIW Jalmat Zone Abandoned Repollo Oil Co. 1954 Sinclair Op (Jal Gas Prod) 1969 ARCO 1977 Getty Oil			3477	
ARCO											
P. Carter #1	9(G)-24-37	L.M.	1-06-38 7-16-59	3705	3161-3705OH		Repollo Oil Co. P&A Sinclair	23,128			
Getty Oil Co.											
Myers L.M. Unit #221 (L. Carter #1)	9(H)-24-37	L.M.	11-02-37	3787	3129-3787OH		Repollo Oil Co. 1954 Sinclair 1969 ARCO 1974 Unitized Skelly 1977 Getty	66,069	124		



DOYLE HARTMAN  
W/2 SECTION 29-24S-37E  
LEA COUNTY, NEW MEXICO

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
Case No. 7057 Exhibit No. 10  
Submitted by HARTMAN  
Hearing Date 3/18/81

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
<u>John Yuronka</u>											
Harrison "A" #1	29(C)-24-37	L.M.	3-21-79	3680 (3624)	3407-3504		Currently Producing L.M. Gas				
Harrison #2	29(D)-24-37	L.M.	4-26-79	3682 (3632)	3393-3494		Currently Producing L.M. Gas				
Harrison #1	29(E)-24-37	L.M.	10-26-78	3680 (3620)	3413-3518		Currently Producing L.M. Gas				
Harrison "A" #2	29(F)-24-37	L.M.	10-30-79	3660 (3490)	3400-3480		Currently Producing L.M. Gas				
Harrison #3	29(L)-24-37	L.M.	9-19-79	3670 (3609)	3410-3510		Currently Producing L.M. Gas				
Harrison #4	29(M)-24-37	L.M.	2-27-80	3653 (3588)	3404-3505		Currently Producing L.M. Gas				
<u>ARCO</u>											
Harrison "D" WN #2	29(D)-24-37	Jalmat	12-24-75	3650	2931-3333		Currently Producing Jalmat (Gas)				548.4
		L.M.	2-16-37	3650 (3650)	3356-36500H		1937 Operator El Paso Natural 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 5-67 Last Langlie Mattix Prod. 1975 Recompleted to Jalmat (Gas)		9111.6		
Harrison "D" WN #1	29(L)-24-37	Jalmat	4-18-73	3500 (3285)	2927-3185		Currently Producing Jalmat (Gas)				2780.9
#4	29(L)-24-37	L.M.	9-02-37	3699 (3500)	3360-3490		1937 Western Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 4-65 Dual L.M.-Jalmat 1969 ARCO 4-69 Last Langlie Mattix Prod. 4-73 Jalmat Producer Only		6700.2		
					2927-2994						
Harrison "D" WN #6	29(N)-24-37	Jalmat	6-01-77	3656 (3640)	2951-3259		Currently Producing Jalmat (Gas)				465.6
		L.M.	4-28-74	3654 (3640)	3428-3533		12-76 Last Langlie Mattix Prod. 5-77 P&A Langlie Mattix 6-77 Recompleted to Jalmat	2129	244.2		

BEFORE THE  
OIL AND NATURAL GAS COMMISSION  
DOYLE HARTMAN  
Case No. 7057  
HARTMAN  
Hearing Date 3/18/81

DOYLE HARTMAN

AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE HENRY HARRISON #1  
LANGLIE MATTIX POOL, LEA COUNTY, NEW MEXICO

EXHIBIT NO. 1

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP 7-RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
CONOCO, INC.													
Jack A-20 #5	20J-24-37	7-01-39				3525			3425	No overlap 28	7-27-39	3485-3584 3397-3594	Shot OH
Jack A-20 #6 (Langlie Jack Unit #14)	200-24-37	9-01-39 10-07-68				3483			3583	53 87	9-08-39	3330-3585 3296-3590	OH WIW
THE WISER OIL CO.													
Calley A #1	20N-24-37	10-02-39 5-16-78				3516			3416	56	10-17-39	3360-3635	OH P&A
CONOCO, INC.													
Jack A-29 #5	29B-24-37	11-21-70	2915 (275)	3190 (357)	3547 (83)	3553	6	3447	3453	24	12-07-70	3429-3612	Perf
ARCO													
W.C.Harrison"C" WN #5	20K-24-37	4-08-72	2956 (232)	3188 (290)	3478 (93)	3540	62	3378	3440	39	4-14-72	3401-3553	Perf
DOYLE HARTMAN													
Adele Sowell #1	19P-24-37	9-23-77	2935 (240)	3175 (325)	3500 (200)	3567	67	3400	3467	65	10-04-77	3402-3515	Perf
Adele Sowell #2	19I-24-37	1-31-78	2930 (245)	3175 (310)	3485 (233)	3555	70	3385	3455	68	2-02-78	3387-3497	Perf
Henry Harrison #1	20N-24-37	9-26-78	2908 (268)	3176 (300)	3476 (164)	3535	59	3376	3435	45	9-26-78	3390-3454	Perf
JOHN YURONKA													
Harrison "A" #1	29C-24-37	3-21-79	2932 (213)	3145 (356)	3501 (123)	3520	19	3401	3420	13	5-14-79	3407-3504	Perf
Harrison #2	29D-24-37	4-26-79	2940 (210)	3150 (342)	3492 (140)	3530	38	3392	3430	37	5-02-79	3393-3494	Perf
CITIES SERVICE													
Thomas "A" #3	19J-24-37	4-27-79	2959 (219)	3178 (388)	3566 (184)				3466		4-27-79	3477-3636	Perf

DOYLE HARTMAN  
AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
THE HENRY HARRISON #1  
JALMAT POOL, LEA COUNTY, NEW MEXICO

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP 7-RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
<b>ARCO</b>													
Harrison "A" WN #2	29D-24-37	2-18-37				3530			3430	74 95	3-17-37	3356-3650 *3335-3650 2931 3333 3356-3650 *3335-3650	Perf L.M. OH Perf Jal. P&A L.M. Squeezed OH
		12-12-75 12-14-75 12-17-75											
Harrison #3 (Wm. H. Harrison "C" #3)	20L-24-37	8-06-37				3486			3386	No overlap	8-07-37	3425-3465 3624-3694 2826-2828 2287 3134 3425-3694	Perf L.M. OH L.M. Perf & Squeeze Perf (Dual Comple.) P&A L.M.
		3-11-63 3-17-65 3-06-74											
<b>CITIES SERVICE</b>													
Thomas #1	190-24-37	10-04-50									10-13-50	3025-3215	Called L.M. Till 2-21-55
<b>CONTINENTAL OIL CO.</b>													
Jack A-20 #10	200-24-37	8-07-74	2890 (280)	3170 (130)							10-09-74	2995-3300	Always Jalmat OH
<b>DOYLE HARTMAN</b>													
Fluor Harrison #1	20M-24-37	5-04-77 2-13-80	2908 (242)	3150 (344)	3494 (121)	3510	16	3394	3410	58 No overlap	5-10-77	3352-3582 2939-3141	L.M. Recompleted to Jal.

\*Mistake on Form C-103 dated 12-17-75 carried Forward. Actual completion interval was 3356-3650 in all cases.

DOYLE HARTMAN

AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE EDDIE CORRIGAN 1 & 2  
LANGLIE MATTIX POOL, LEA COUNTY, NEW MEXICO

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
GULF OIL CO.													
Woolworth #1	30I-24-37	5-16-37 4-06-38 3-10-77				3544			3444	318	8-13-37	3126-3217 3126-3773	Shot Deepened - OH P&A
GETTY OIL CO.													
Martin #2	31A-24-37	9-12-39 4-14-41									10-05-39	3467-3535 2936-2976	Shot Perf
UNION TEXAS PETRO. CORP.													
Langlie Jal Unit #3	32D-24-37	2-02-40 4-18-72									2-21-40	3496-3555	Shot WIW
GULF OIL CO.													
Woolworth #2	30P-24-37	3-04-40 6-12-60	2905			3514			3414	148 No Overlap	4-23-40	3266-3460 3490-3580	Perf OH P&A
UNION TEXAS PETRO. CORP.													
Langlie Jal Unit #1	31B-24-37	9-11-57 5-25-72	2885 (285)	3170 (332)	3502 (52)			3402			9-23-57	3465-3548	Perf WIW
Langlie Jal Unit #2	31A-24-37	10-05-74	2882 (226)	3108 (345)	3451 (218)	3505	54	3351	3405	81	10-09-74	3324-3548	Perf
JOHN YURONKA													
Harrison #1	29E-24-37	10-26-78	2949 (205)	3154 (361)	3515 (105)	3537	22	3415	3437	24	11-06-78	3413-3518	Perf
DOYLE HARTMAN													
Gulf-Eddie Corrigan #1	30P-24-37	10-27-78	2888 (236)	3124 (339)	3463 (167)	3534	71	3363	3434	70	11-15-78	3364-3502	Perf-SI
Gulf-Eddie Corrigan #2	30I-24-37	10-29-78	2910 (248)	3158 (325)	3483 (151)	3568	85	3383	3468	79	11-15-78	3389-3503	Perf-SI
JOHN YURONKA													
Harrison #3	29L-24-37	9-19-79	2901 (253)	3154 (355)	3509 (100)	3523	14	3409	3423	13	10-30-79	3410-3510	Perf
Harrison #4	29M-24-37	2-27-80	2897 (234)	3131 (371)	3502 (86)	3520	18	3402	3420	16	3-10-80	3404-3505	Perf

EXHIBIT NO. \_\_\_\_\_

DOYLE HARTMAN  
AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE EDDIE CORRIGAN 1 & 2  
JALMAT POOL, LEA COUNTY, NEW MEXICO

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
ARCO													
Harrison #4 (Wm. H. Harrison "D" WN Com #1)	29L-24-37	8-29-37				3521			3421	61	9-18-37	3360-3400 3360-3699 3360-3699 2927-3185	Perf L.M. OH L.M. Plugged Off Perf Jal.
										No overlap			
CONOCO, INC.													
Jack B-30 #1	30H-24-37	10-18-47	2950				Called Jalmat 12-31-52				12-31-53	2833-3372	Called L.M. Till 12-31-52

DOYLE HARTMAN  
W/2 SECTION 29-24S-37E  
LEA COUNTY, NEW MEXICO

Case No. 7057 DATE 10  
Submitted by HARTMAN  
Hearing Date 3/19/81

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BRLS.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BRLS.)	GAS (MMCF)
<u>John Yuronka</u>											
Harrison "A" #1	29(C)-24-37	L.M.	3-21-79	3680 (3624)	3407-3504		Currently Producing L.M. Gas				
Harrison #2	29(D)-24-37	L.M.	4-26-79	3682 (3632)	3493-3494		Currently Producing L.M. Gas				
Harrison #1	29(E)-24-37	L.M.	10-26-78	3680 (3620)	3413-3518		Currently Producing L.M. Gas				
Harrison "A" #2	29(F)-24-37	L.M.	10-30-79	3660 (3490)	3400-3480		Currently Producing L.M. Gas				
Harrison #3	29(L)-24-37	L.M.	9-19-79	3670 (3609)	3410-3510		Currently Producing L.M. Gas				
Harrison #4	29(M)-24-37	L.M.	2-27-80	3653 (3588)	3404-3505		Currently Producing L.M. Gas				
<u>ARCO</u>											
Harrison "D" WN #2	29(D)-24-37	Jalmat	12-24-75	3650	2931-3333		Currently Producing Jalmat (Gas)				548.4
		L.M.	2-16-37	3650 (3650)	3356-36500H		1937 Operator El Paso Natural 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 5-67 Last Langlie Mattix Prod. 1975 Recompleted to Jalmat (Gas)		9111.6		
Harrison "D" WN #1	29(L)-24-37	Jalmat	4-18-73	3500 (3285)	2927-3185		Currently Producing Jalmat (Gas)				2780.9
#4	29(L)-24-37	L.M.	9-02-37	3699 (3500)	3360-3490		1937 Western Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 4-65 Dual L.M.-Jalmat 1969 ARCO 4-69 Last Langlie Mattix Prod. 4-73 Jalmat Producer Only		6700.2		
					2927-2994						
Harrison "D" WN #6	29(N)-24-37	Jalmat	6-01-77	3656 (3640)	2951-3259		Currently Producing Jalmat (Gas)				465.6
		L.M.	4-28-74	3654 (3640)	3428-3533		12-76 Last Langlie Mattix Prod. 5-77 P&A Langlie Mattix 6-77 Recompleted to Jalmat	2129	244.2		

DOYLE HARTMAN  
AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE HENRY HARRISON #1  
LANGLIE MATTIX POOL, LEA COUNTY, NEW MEXICO

OIL COMPANY	
7057	5
HARTMAN	
3/18/81	

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP 7-RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
CONOCO, INC.													
Jack A-20 #5	20J-24-37	7-01-39				3525			3425	No overlap 28	7-27-39	3485-3584 3397-3594	Shot OH
Jack A-20 #6 (Langlie Jack Unit #14)	20O-24-37	9-01-39 10-07-68				3483			3383	53 87	9-08-39	3330-3585 3296-3590	OH WIW
THE WISER OIL CO.													
Calley A #1	20N-24-37	10-02-39 5-16-78				3516			3416	56	10-17-39	3360-3635	OH P&A
CONOCO, INC.													
Jack A-29 #5	29B-24-37	11-21-70	2915 (275)	3190 (357)	3547 (83)	3553	6	3447	3453	24	12-07-70	3429-3612	Perf
ARCO													
W.C.Harrison"C" WN #5	20K-24-37	4-08-72	2956 (232)	3188 (290)	3478 (93)	3540	62	3378	3440	39	4-14-72	3401-3553	Perf
DOYLE HARTMAN													
Adele Sowell #1	19P-24-37	9-23-77	2935 (240)	3175 (325)	3500 (200)	3567	67	3400	3467	65	10-04-77	3402-3515	Perf
Adele Sowell #2	19I-24-37	1-31-78	2930 (245)	3175 (310)	3485 (233)	3555	70	3385	3455	68	2-02-78	3387-3497	Perf
Henry Harrison #1	20N-24-37	9-26-78	2908 (268)	3176 (300)	3476 (164)	3535	59	3376	3435	45	9-26-78	3390-3454	Perf
JOHN YURONKA													
Harrison "A" #1	29C-24-37	3-21-79	2932 (213)	3145 (356)	3501 (123)	3520	19	3401	3420	13	5-14-79	3407-3504	Perf
Harrison #2	29D-24-37	4-26-79	2940 (210)	3150 (342)	3492 (140)	3530	38	3392	3430	37	5-02-79	3393-3494	Perf
CITIES SERVICE													
Thomas "A" #3	19J-24-37	4-27-79	2959 (219)	3178 (388)	3566 (184)			3466			4-27-79	3477-3636	Perf

EXHIBIT NO. 1

EXHIBIT NO. \_\_\_\_\_

DOYLE HARTMAN  
 AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
 THE HENRY HARRISON #1  
 JALMAT POOL, LEA COUNTY, NEW MEXICO

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
ARCO													
Harrison "A" WN #2	29D-24-37	2-18-37				3530			3430	74 95	3-17-37	3356-3650 * 3335-3650 2931 3333 3356-3650 * 3335-3650	Perf L.M. OH Perf Jal. P&A L.M. Squeezed OH
		12-12-75 12-14-75 12-17-75											
Harrison #3 (Wm. H. Harrison "C" #3)	20L-24-37	8-06-37				5486			3386	No overlap	8-07-37	3425-3465 3624-3694 2826-2828 2287 3134 3425-3694	Perf L.M. OH L.M. Perf & Squeeze Perf (Dual Comple.) P&A L.M.
		3-11-65 3-17-65 3-06-74											
CITIES SERVICE													
Thomas #1	190-24-37	10-04-50										10-13-50 3025-3215	Called L.M. Till 2-21-55
CONTINENTAL OIL CO.													
Jack A-20 #10	200-24-37	8-07-74	2890 (280)	3170 (130)								10-09-74 2995-3300	Always Jalmat OH
DOYLE HARTMAN													
Fluor Harrison #1	20M-24-37	5-04-77 2-13-80	2908 (242)	3150 (344)	3494 (121)	3510	16	3394	3410	58 No overlap	5-10-77	3352-3582 2939-3141	L.M. Recompleted to Jal.

\*Mistake on Form C-103 dated 12-17-75 carried Forward. Actual completion interval was 3356-3650 in all cases.



DOYLE HARTMAN  
AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE EDDIE CORRIGAN 1 & 2  
LANGLIE MATTIX POOL, LEA COUNTY, NEW MEXICO

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP 7-RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
GULF OIL CO.													
Woolworth #1	30I-24-37	5-16-37 4-06-38 3-10-77				3544			3444	318	8-13-37	3126-3217 3126-3773	Shot Deepened - OH P&A
GETTY OIL CO.													
Martin #2	31A-24-37	9-12-39 4-14-41									10-05-39	3467-3535 2936-2976	Shot Perf
UNION TEXAS PETRO. CORP.													
Langlie Jal Unit #3	32D-24-37	2-02-40 4-18-72									2-21-40	3496-3555	Shot WIW
GULF OIL CO.													
Woolworth #2	30P-24-37	3-04-40 6-12-60	2905			3514			3414	148 No Overlap	4-23-40	3266-3460 3490-3580	Perf OH P&A
UNION TEXAS PETRO. CORP.													
Langlie Jal Unit #1	31B-24-37	9-11-57 5-25-72	2885 (285)	3170 (332)	3502 (52)			3402			9-23-57	3465-3548	Perf WIW
Langlie Jal Unit #2	31A-24-37	10-05-74	2882 (226)	3108 (343)	3451 (218)	3505	54	3351	3405	81	10-09-74	3324-3548	Perf
JOHN YURONKA													
Harrison #1	29E-24-37	10-26-78	2949 (205)	3154 (361)	3515 (105)	3537	22	3415	3437	24	11-06-78	3413-3518	Perf
DOYLE HARTMAN													
Gulf-Eddie Corrigan #1	30P-24-37	10-27-78	2888 (236)	3124 (339)	3463 (167)	3534	71	3363	3434	70	11-15-78	3364-3502	Perf-SI
Gulf-Eddie Corrigan #2	30I-24-37	10-29-78	2910 (248)	3158 (325)	3483 (151)	3568	85	3383	3468	79	11-15-78	3389-3503	Perf-SI
JOHN YURONKA													
Harrison #3	29L-24-37	9-19-79	2901 (253)	3154 (355)	3509 (100)	3523	14	3409	3423	13	10-30-79	3410-3510	Perf
Harrison #4	29M-24-37	2-27-80	2897 (234)	3131 (371)	3502 (86)	3520	18	3402	3420	16	3-10-80	3404-3505	Perf

## DOYLE HARTMAN

AVAILABLE HISTORIES ON WELLS IN THE VICINITY  
OF THE EDDIE CORRIGAN 1 & 2  
JALMAT POOL, LEA COUNTY, NEW MEXICO

OPERATOR LEASE NAME	LOCATION SEC(UT)-T-R	COMPLE- TION DATE	TOP YATES (THICK- NESS)	TOP RIVERS (THICK- NESS)	TOP REPORTED QUEEN (THICK- NESS)	TOP COM- MITTEE QUEEN	DIFFER- ENCE QUEEN	TOP REPORTED LANGLIE MATTIX	TOP COM- MITTEE LANGLIE MATTIX	OVERLAP INTO JALMAT	DATE OF FORMS	COMPLETION INTERVAL	REMARKS
ARCO													
Harrison #4 (Wm. H. Harrison "D" WN Com #1)	29L-24-37	8-29-37				3521			3421	61	9-18-37	3360-3400 3360-3699 3360-3699 2927-3185	Perf L.M. OH L.M. Plugged Off Perf Jal.
										No overlap			
CONOCO, INC.													
Jack B-30 #1	30H-24-37	10-18-47	2950				Called Jalmat 12-31-52				12-31-53	2833-3372	Called L.M. Till 12-31-52

DENOVO HEARING

Q. Would you please state your name.

A. Huan Pham

Q. By whom are you employed and in what capacity?

A. I have been employed by ARCO Oil and Gas Company since 1976. My current assignment is as an Area Engineer.

Q. Have you previously testified before the Commission and had your qualifications as a petroleum engineer accepted as matter of record?

A. Yes.

Q. Are you familiar with the application in case 7057?

A. Yes.

Q. Are the witnesses qualifications acceptable to the Commission?

A.

Q. What is ARCO's position as to Mr. Hartman's application in this case?

A. Should the application be granted, ARCO respectfully requests an order restricting the allowables on the production from the Hartman Corrigan No. 1, located in the

SE/4 of the SE/4 of Section 30, T-24-S, R-37-E, the Hartman Corrigan No. 2, located in the NE/4 of the SE/4 of the same section, and the Hartman Harrison No. 1, located in the SE/4 of the SW/4 of Section 20, all in T-24-S, R-37-E in Lea County, New Mexico. A restriction of the allowables of these wells to an equivalent of a 40-acre Jalmat gas production unit per well is necessary to prevent drainage and to protect ARCO's correlative rights in the Jalmat underlying the offset acreage.

- Q. I refer you to what has been marked for identification as ARCO Exhibit #1 and ask that you describe and explain it.
- A. Exhibit No. 1 is an area map showing the W/2 of Section 29 outlined in red. Also colored in red are the three wells that Mr. Hartman operates and for which he has asked for an extension of the vertical limits of the Langlie Mattix. ARCO owns 100% working interest in the Jalmat Gas Reservoir underlying the W/2 of Section 29. 100% of ARCO's working interest in the Langlie Mattix underlying the NW/4 and the W/2 of the SW/4 was farmed out to Mr. John Yuronka in December, 1978. ARCO also owns a 25% working interest to all depths in the NE/4 of Section 30 which is operated by Continental Oil Company.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #2 and ask that you describe and explain it.

A. Exhibit No. 2 is the Gamma Ray-Density log for the Hartman Corrigan No. 1 which is shown on exhibit No. 1 as being located in the SE/4 of the SE/4 of Section 30. The Gamma Ray is exhibited in the left hand column and the density curve is exhibited in the right hand column. The density curve indicates porosity. The better porosity a zone has, the further the curve moves to the left. As the Commission well knows, the better the porosity, the more hydrocarbons the zone can produce.

This exhibit shows the tops of the Yates, 7-Rivers, and the Queen formations as defined by the New Mexico Oil Conservation Division. The Langlie Mattix, the top of which is located 100 feet above the top of the Queen, is marked by a red line at 3434 feet. Marked in green is the original gas oil contact at - 150 feet subsea as recognized by the industry.

The perforation interval from 3364 feet to 3502 feet is colored in red. In this well Mr. Hartman perforated 70-feet into the Jalmat and only 68 feet in the Langlie Mattix. More than half of the perforation interval is in the Jalmat although the well was submitted to the New Mexico Oil Conservation Division as a Langlie Mattix well and is now producing under the Langlie Mattix allowable. As can be

seen on this exhibit, the best porosity zones within the perforated interval are in the Jalmat and that is where we believe most of the production is coming from.

Q. I refer you to what has been marked for identification as ARCO Exhibit #3 and ask that you describe and explain it.

A. Exhibit No. 3 is the Gamma Ray-Density log of the Hartman Corrigan No. 2. As can be seen on Exhibit No. 1 this well is located in the NE/4 of the SE/4 of Section 30. The density curve in the right hand column indicates porosity and has the same characteristics I referred to in my discussion of Exhibit #2.

On this exhibit the top of the Langlie Mattix is marked at 3468 feet by a red line. The perforation interval from 3389 feet to 3503 feet is colored in red. In this well Mr. Hartman perforated 79-feet into the Jalmat and only 35 feet in the Langlie Mattix. This indicates that 69% of the perforation interval is in the Jalmat gas pool even though the well was submitted to the Oil Conservation Division as a Langlie Mattix well and is now producing under the Langlie Mattix allowable.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #4 and ask that you describe and explain it.

A. Exhibit No. 4 is the Gamma Ray-Density log for the Hartman Harrison No. 1. As shown on Exhibit No. 1 this well is

located in the SE/4 of the SW/4 of Section 20. The density curve in the right hand column is an indication of porosity as previously discussed.

The top of the Langlie Mattix is marked at 3435 feet. The perforation interval which runs from 3390 feet to 3454 feet is colored in red. In this well Mr. Hartman perforated 45 feet into the Jalmat and only 19 feet into the Langlie Mattix. Therefore, 70% of the perforation interval is in the Jalmat gas pool although this well was submitted to the Oil Conservation Division as a Langlie Mattix well and is now producing under the Langlie Mattix allowable. Also shown on this exhibit, the best porosity zones within the perforation interval are in the Jalmat and we believe that this is where substantially all of the production is coming from.

- Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #5 and ask that you describe and explain it.
- A. Exhibit No. 5 is a comparison of the October, 1980 daily gas allowables for the Langlie Mattix and Jalmat pools on equivalent 40-acre tracts.

As can be seen on this exhibit, by having the Langlie Mattix gas allowable, Mr. Hartman is allowed to produce up to 800 MCFD per 40-acre tract, while for a Jalmat 40-acre tract ARCO is allowed to produce only 94 MCFD. Thus, per

40-acre tract Hartman's allowable is more than eight times that of ARCO's allowable. In fact, in the month of October, 1980, Mr. Hartman produced an average of 367 MCFD from the Corrigan No. 1, 367 MCFD from the Corrigan No. 2, and 422 MCFD from the Harrison No. 1. This is more than 4 times the 94 MCFD allowable limit for the Jalmat gas pool.

In addition, Mr. Hartman's wells are at unorthodox locations and are not in compliance with the Jalmat gas pool spacing. Had these wells been properly submitted as Jalmat wells, Mr. Hartman would have been requested to obtain the Commission's approval and the offset operators' approval before he could have drilled the wells because they are too close to the lease line and therefore, could drain the off-set leases.

- Q. What effect would the difference in the allowables have upon the correlative rights between Mr. Hartman and ARCO?
- A. So long as Mr. Hartman is allowed to produce Jalmat gas from these wells under a Langlie Mattix allowable while ARCO's offsetting wells are restricted to the Jalmat allowable, ARCO's Jalmat gas reserves in the offsetting acreage will continue to be drained and its correlative rights violated.
- Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #6 and ask that you describe and explain it.



A. Exhibit No. 6 shows the areas from which the Hartman Corrigan No. 1, the Corrigan No. 2, and the Harrison No. 1 wells are draining Jalmat gas. ARCO has 100% working interest in the areas colored in red and 25% working interest in the areas colored in green. The drainage areas were determined by calculations shown on Exhibit No. 10. As can be seen from this exhibit #6, a significant amount of the drainage area underlies ARCO acreage and therefore is subject to being drained by Jalmat gas production from Mr. Hartman's wells.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibits #7, 8, & 9 and ask that you describe and explain them.

A. Exhibits 7, 8, & 9 depict production curves of Hartman's three wells in MCFD and BOPD. For example, Exhibit No. 7 shows the Hartman Corrigan No. 1 as producing 367 MCFD and 2 BOPD during October, 1980. The extrapolated dotted line is the expected production rate based upon a decline rate of 18%. This decline rate is used to determine the remaining recoverable gas reserves. Also shown at the bottom of the exhibit is the cumulative oil and gas production through October, 1980.

Exhibits 8 and 9 show the same type of information on the Corrigan No. 2 and the Harrison No. 1 wells.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #10 and ask that you describe and explain it.

A. Exhibit No. 10 is a sample calculation of the Jalmat Gas Drainage Area shown on Exhibit No. 6. This exhibit shows that the Hartman Henry Harrison No. 1 well has produced 370 MMCF as of January 1, 1981. Based on the expected decline rate of 20%, remaining reserves were calculated to be 622 MMCF. The ultimate reserves equal the sum of the cumulative and remaining reserves, which in this case is 992 MMCF.

Based on a porosity-feet allocation of the perforated interval, 32% of the ultimate gas reserves will be produced from the Jalmat. Therefore, the ultimate Jalmat gas reserves are 813 MMCF. To calculate the drainage area this gas reserve is set equal to the volumetric equation of Gas in Place and the recovery factor is estimated at 75%. Based upon these calculations, the drainage area was determined to be 264 acres. By planimetry the drainage area it shows 51% of the area is ARCO acreage. Therefore ARCO's Jalmat gas reserves equal  $.51 \times 813$  or 416 MMCF. As a result, if Hartman's application is granted, the Hartman Henry Harrison #1 will capture 416 MMCF of ARCO's Jalmat gas reserves.

Q. Next, I refer you to what has been marked for identification as ARCO Exhibit #11 and ask that you describe and explain it.

A. Exhibit No. 11 is a Gamma Ray-Density log of the Yuronka Harrison A No. 1, which is shown on Exhibit No. 1 as being located in the NE/4 of the NW/4 of Section 29. This well is the direct offset to the south of the Hartman Harrison No. 1, in Section 20. Mr. Yuronka perforated less than 20 feet into the Jalmat and is within the tolerance for error adopted by the Runyan report.

Now please refer to Exhibit No. 4 which shows the Gamma Ray-Density log of the Hartman Henry Harrison No. 1 well. By correlating the two logs one can see that Mr. Hartman perforated much higher into the Jalmat where the porosity is much better than in the Langlie Mattix. As a result during October of 1980 the Hartman Henry Harrison No. 1 well produced 22 MCFD which was more than 6 times greater than the 70 MCFD produced by the Yuronka Harrison No. 1 well.

The reason for this great difference in production is 70% of the perforation interval in Mr. Hartman's Henry Harrison #1 well lies in the Jalmat where porosity is better developed.

Q. Mr. Pham, in light of what has been presented here today, can you suggest any methods by which ARCO's correlative rights can be protected?

A. In order to protect ARCO correlative rights the following solutions could be carried out:

- 1) To squeeze off the perforations in the Jalmat.
- 2) To dually complete the well in the Jalmat and the Langlie Mattix.
- 3) To downhole commingle the two zones.
- 4) To allow the extension of the Langlie Mattix as requested by Mr. Hartman but to restrict the allowable to the equivalent of a 40-acre Jalmat gas proration unit per well.

It should be noted that ARCO's correlative rights cannot be protected by the granting of a similar extension of the Langlie Mattix underlying ARCO's offset acreage because ARCO has farmed out the Langlie Mattix rights on that acreage to Mr. Yuronka.

Q. Which of these solutions, if any, do you recommend?

A. I would recommend the fourth solution, that is, to allow the extension of the Langlie Mattix as requested by Mr. Hartman but to restrict the allowable to the equivalent of a 40-acre Jalmat gas proration unit per well.

The first two solutions involve working over the wells which could result in the loss of hydrocarbons. The third solution may cause problems in ownership. The fourth solution is the most reasonable because it will prevent waste, eliminate unnecessary drainage and protect ARCO's correla-

tive rights while still allowing Mr. Hartman to produce from his wells without any additional expense or risk.

However, ARCO would accept any solution chosen by the Commission which would protect its correlative rights.

- Q. Mr. Pham, in your opinion, what will happen if a restriction of allowable is not imposed on the three wells operated by Mr. Hartman?
- A. Unless the Commission restricts the gas production from Mr. Hartman's wells to the equivalent of a 40-acre Jalmat gas proration unit per well, Mr. Hartman will continue to produce the wells at a much higher rate under the Langlie Mattix allowable. As a result the drainage problem that ARCO has been suffering will continue and its correlative rights will therefore continue to be violated.
- Q. What, then Mr. Pham, is ARCO's position concerning Mr. Hartman's application and what is the basis for that position?
- A. ARCO is not interested in the reason why Mr. Hartman perforated into the Jalmat. The fact of the matter is that at this very moment ARCO gas reserves are continuing to be drained because Mr. Hartman's wells have the unfair advantage of a significantly higher allowable. Therefore, we request an order be issued to restrict the allowable on

these three wells to the equivalent of a 40-acre Jalnat gas proration unit per well.

Q. Does the solution you are recommending compensate ARCO for the loss ARCO has already suffered as a result of the drainage that has occurred?

A. No.

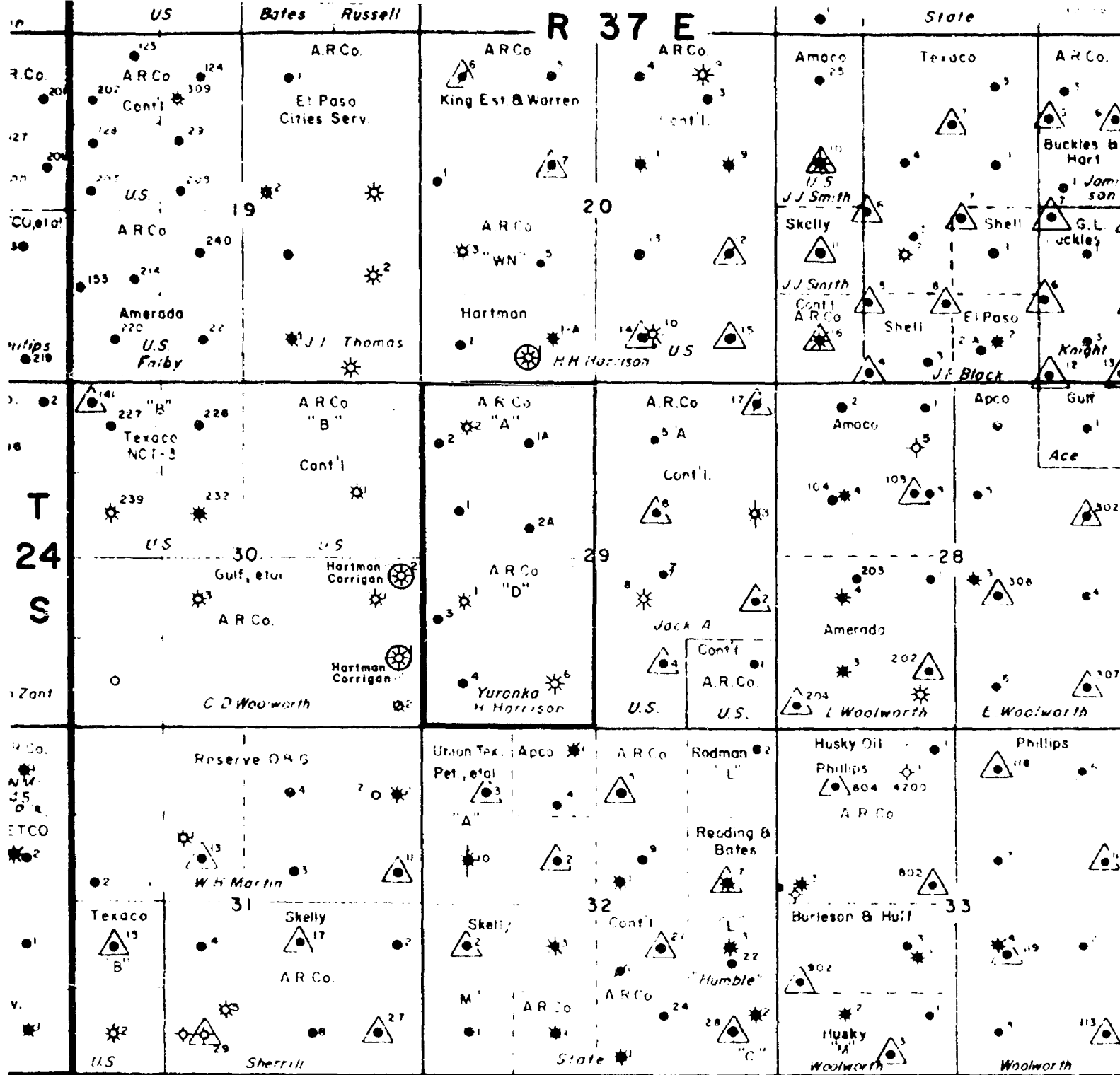
Q. Is the remedy requested by ARCO in the interest of the prevention of waste and the protection of correlative rights?

A. In my opinion it is.

Q. Were Exhibits 1-11 prepared by you or under your supervision?

A. Yes.

Q. ARCO moves the admission of ARCO's Exhibits 1-11.



BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
Case No. 7057 Exhibit No. 1  
Submitted by Huan Pham  
Hearing Date 3/10/81

ARCO Oil and Gas Company		Division of Atlantic Richfield Company	
Permian District Midland, Texas			
HARRISON LEASE			
LEA COUNTY, NEW MEXICO			
EXHIBIT I			
SCALE: 1" = 2000'			
By: R. LUBKE	Drawn By:	Date: 5-79	
Date: 10-23-80	Revised By: JRL	Date: 10-80	
Dept: WEST ENGINEERING	Dwg No:		

DOYLE HARTMAN  
GULF - EDDY CORRIGAN NO. 1

990' FSL & 330' FEL  
SEC 30, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL KB 3261'

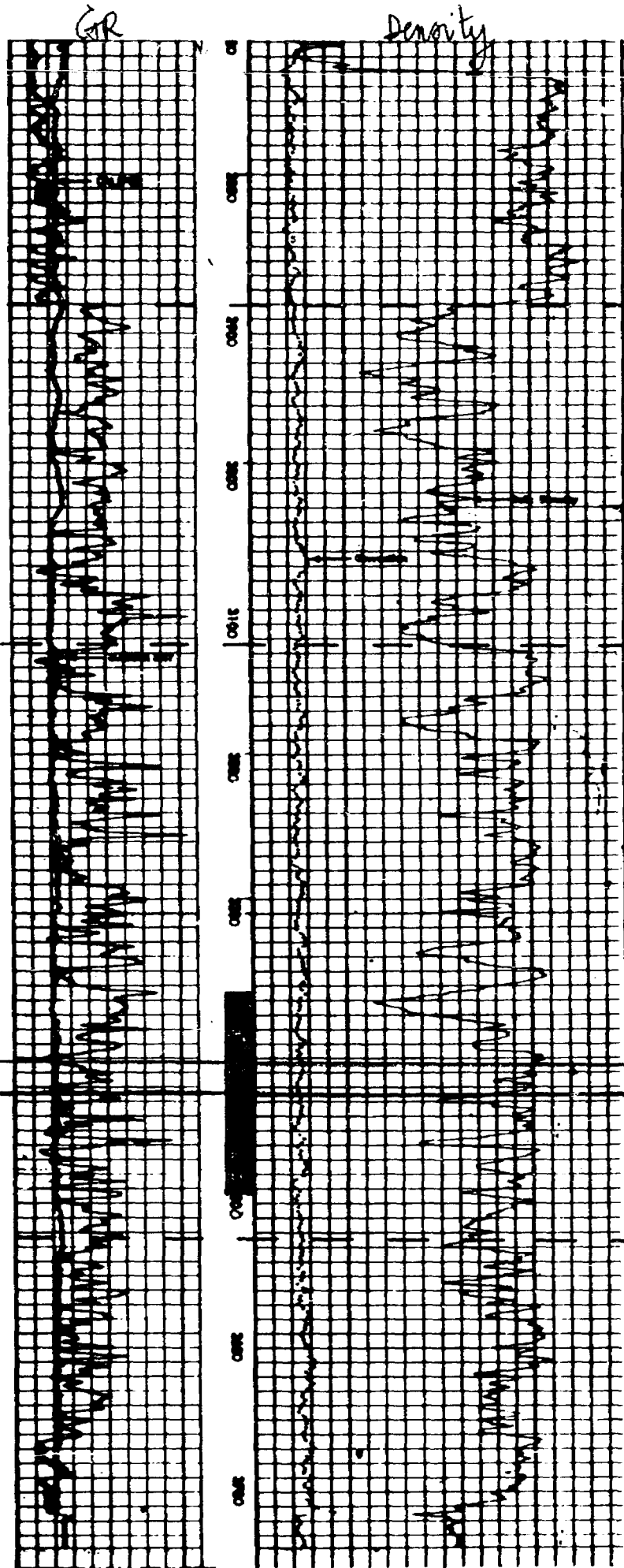
YATES — — — — —

SEVEN RIVERS — — — — —

G/O 3411 (-150' ss)  
LANGLIE - MATTIX 3434

QUEEN — — — — —

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
Case No. 7657 Exhibit No. 2  
Submitted by H. Phomm  
Hearing Date 3/18/81





DOYLE HARTMAN  
GULF - EDDY CORRIGAN NO. 2

2310' FSL @ 330' FEL  
SEC 30, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL. KB 3266'

YATES — — — — —

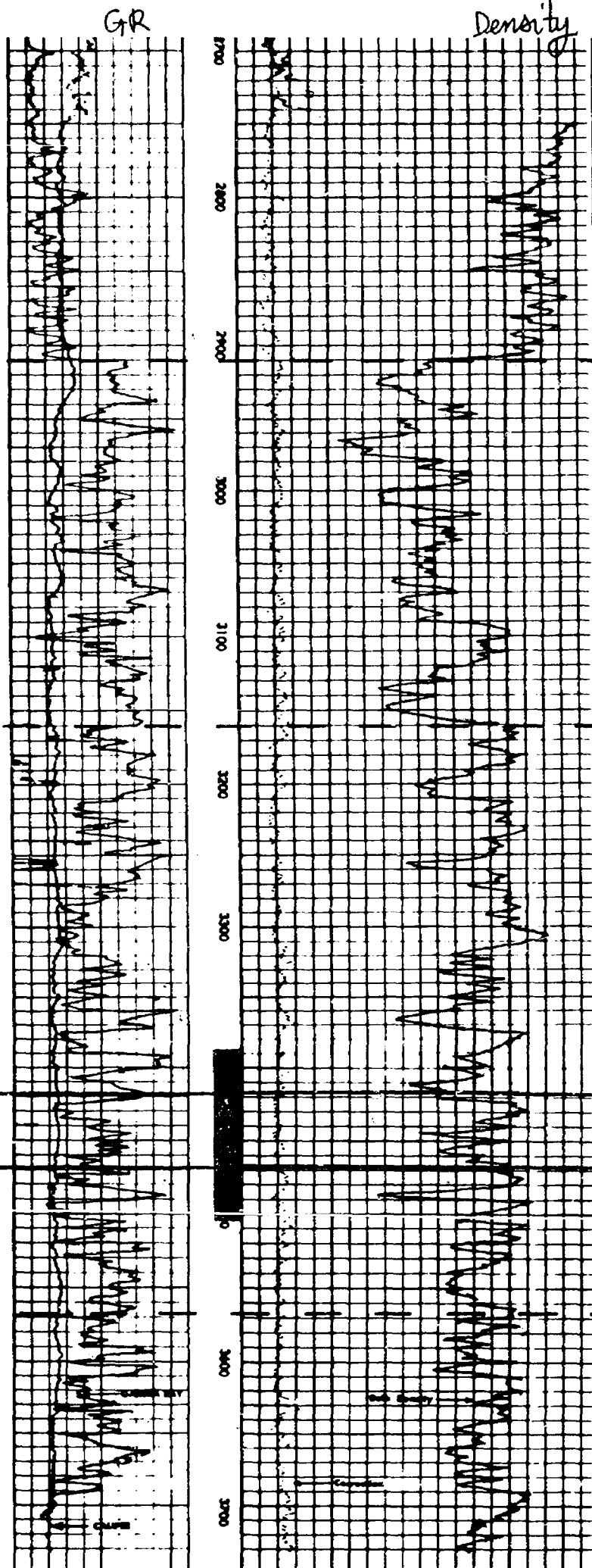
SEVEN RIVERS — — — — —

G/O 3416 (-150' ss)

LANGLIE-MATTIX 3468

QUEEN — — — — —

BEFORE THE	
OIL CONSERVATION COMMISSION	
Santa Fe, New Mexico	
Case No. <u>7057</u>	Exhibit No. <u>3</u>
Submitted by <u>H. Proctor</u>	
Hearing Date <u>3/18/81</u>	



DOYLE HARTMAN  
HENRY HARRISON NO. 1

1650' FWL @ 330' FSL  
SEC 20, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL KB 3292

YATES — — — — —

SEVEN RIVERS — — — — —

LANGLIE - MATTIX 3435  
G/O 3442 (-150 SS)

QUEEN — — — — —

BEFORE THE OIL CONSERVATION COMMISSION Santa Fe, New Mexico	
Case No. <u>7057</u>	Exhibit No. <u>4</u>
Submitted by <u>H. Pham</u>	
Hearing Date <u>3/18/81</u>	

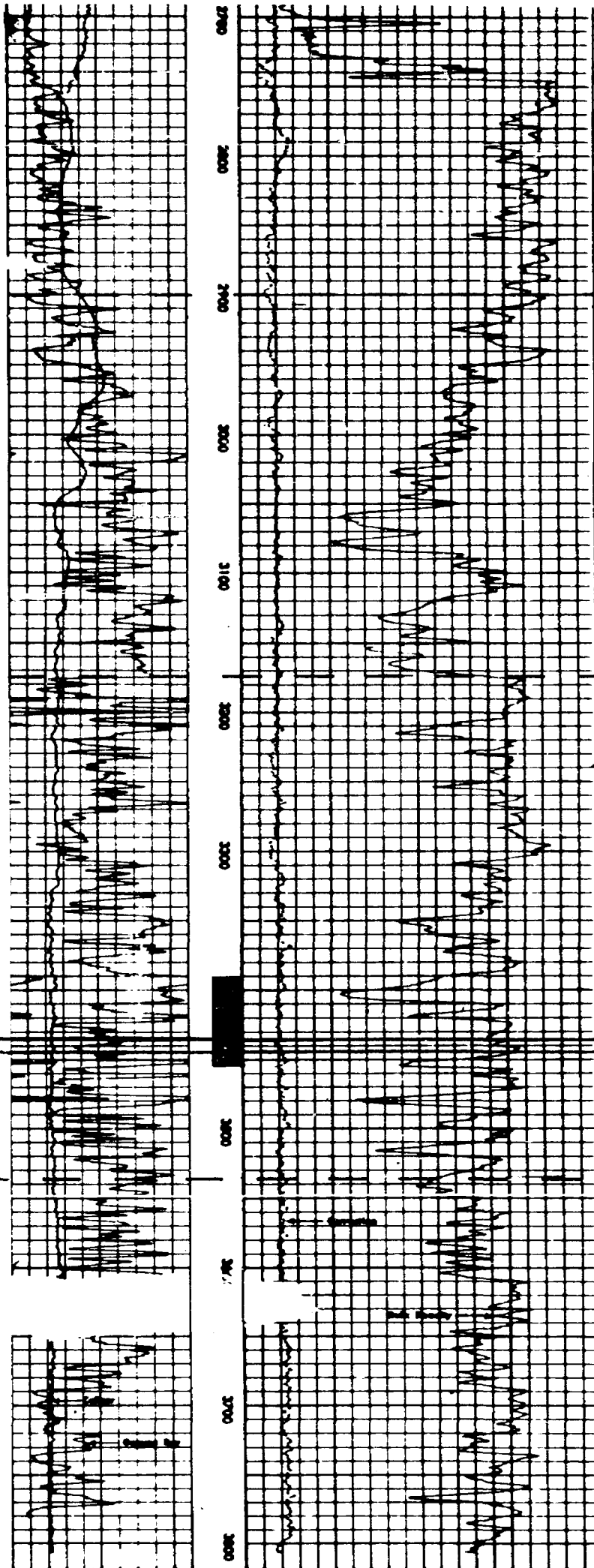


EXHIBIT 5

COMPARISON OF GAS ALLOWABLES  
FOR LANGLIE MATTIX AND JALMAT POOLS ON  
EQUIVALENT TRACTS

	D. Hartman 40-Acre Langlie <u>Mattix Gas</u>	ARCO 40-Acre Acre <u>Jalmat Gas</u>
October, 1980 Daily Allowable	800 MCFD	94 MCFD

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

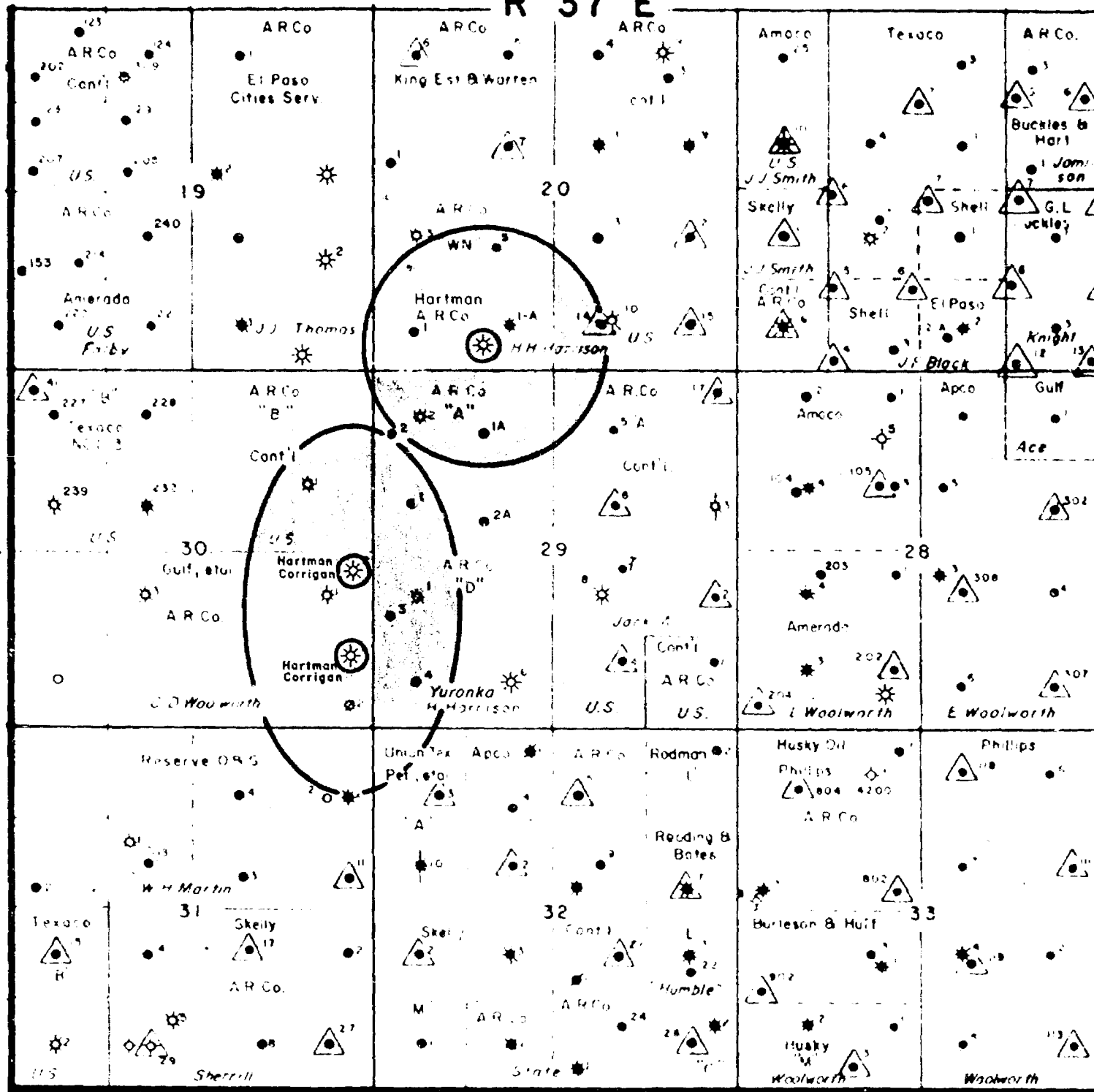
Case No. \_\_\_\_\_ Exhibit No. \_\_\_\_\_

Submitted by \_\_\_\_\_

Hearing Date \_\_\_\_\_

T  
24  
S

R 37 E



# JALMAT GAS DRAINAGE

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 7057 Exhibit No. 6

Submitted by H. Pham

Hearing Date 3/12/81

- ☒ ARCO 100 % INTEREST
- ☒ ARCO 25 % INTEREST

ARCO Oil and Gas Company  
Division of Atlantic Richfield Company  
Permian District Midland, Texas

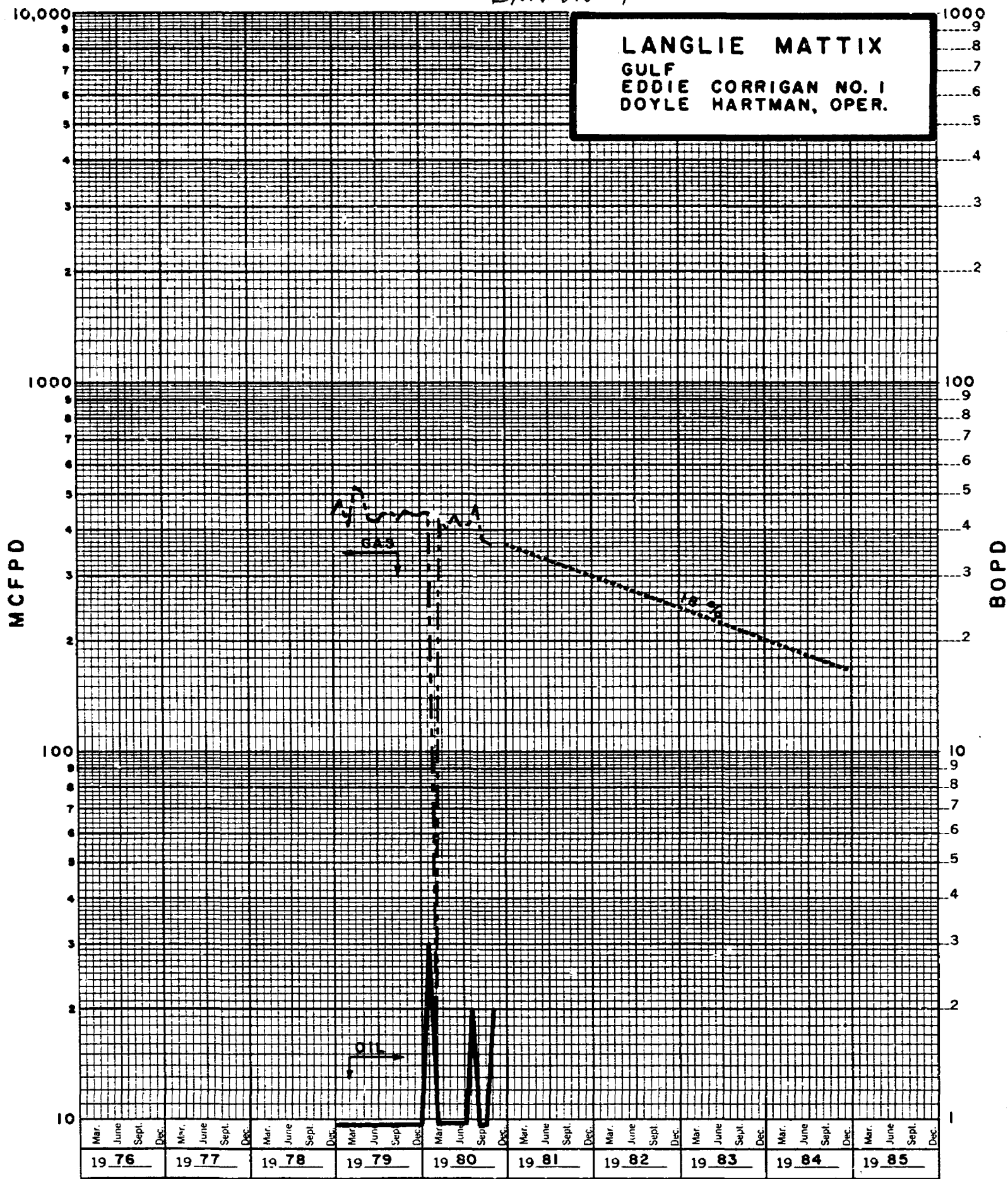
HARRISON LEASE  
LEA COUNTY, NEW MEXICO

EXHIBIT 6

SCALE 1" = 2000'

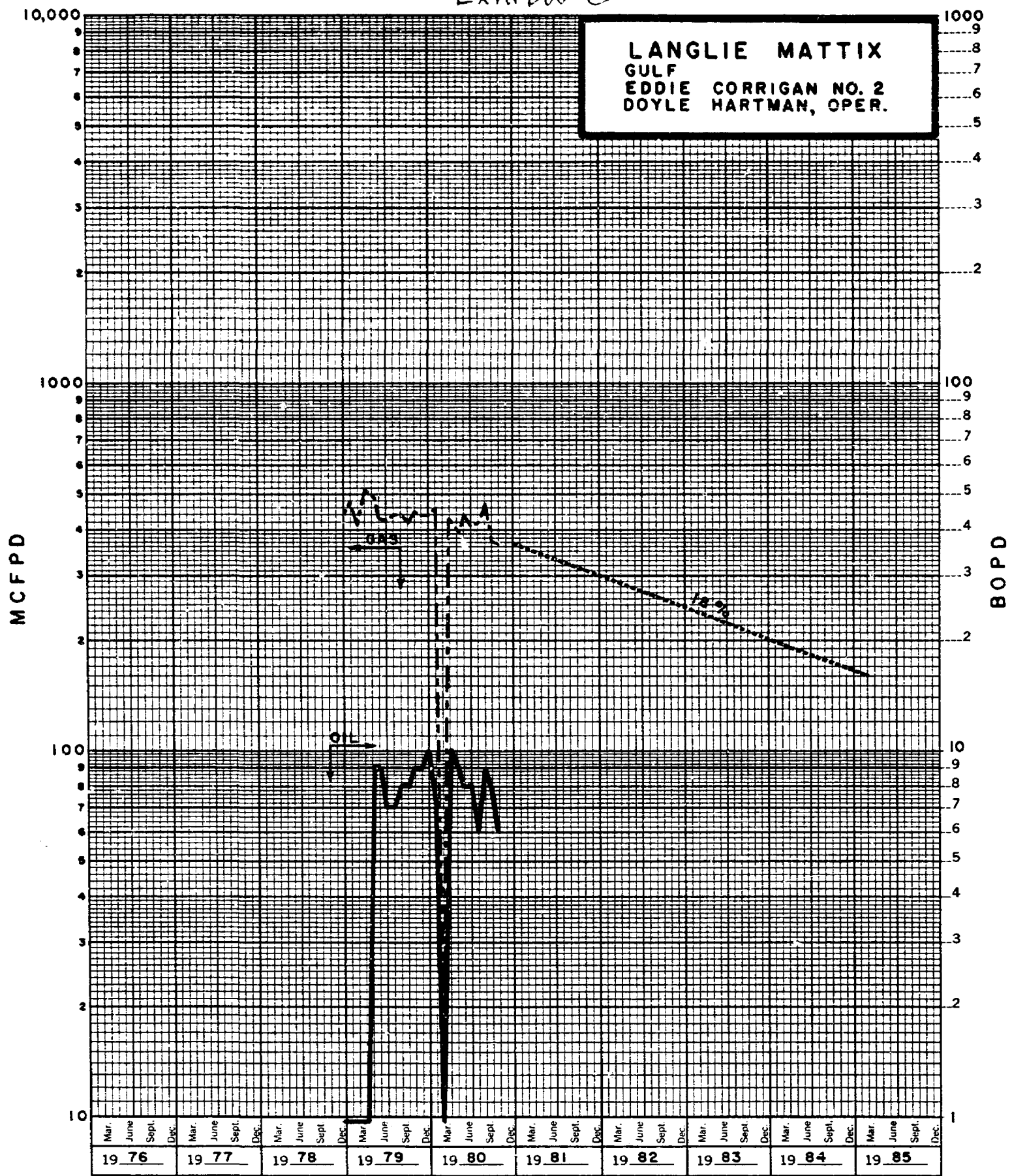
By: R. LUBKE	Drawn By:	Date: 8-79
Date: 1-81	Revised By:	Date: 1-81
Dept: WEST ENGINEERING	Rep: No.	

# Exhibit 7



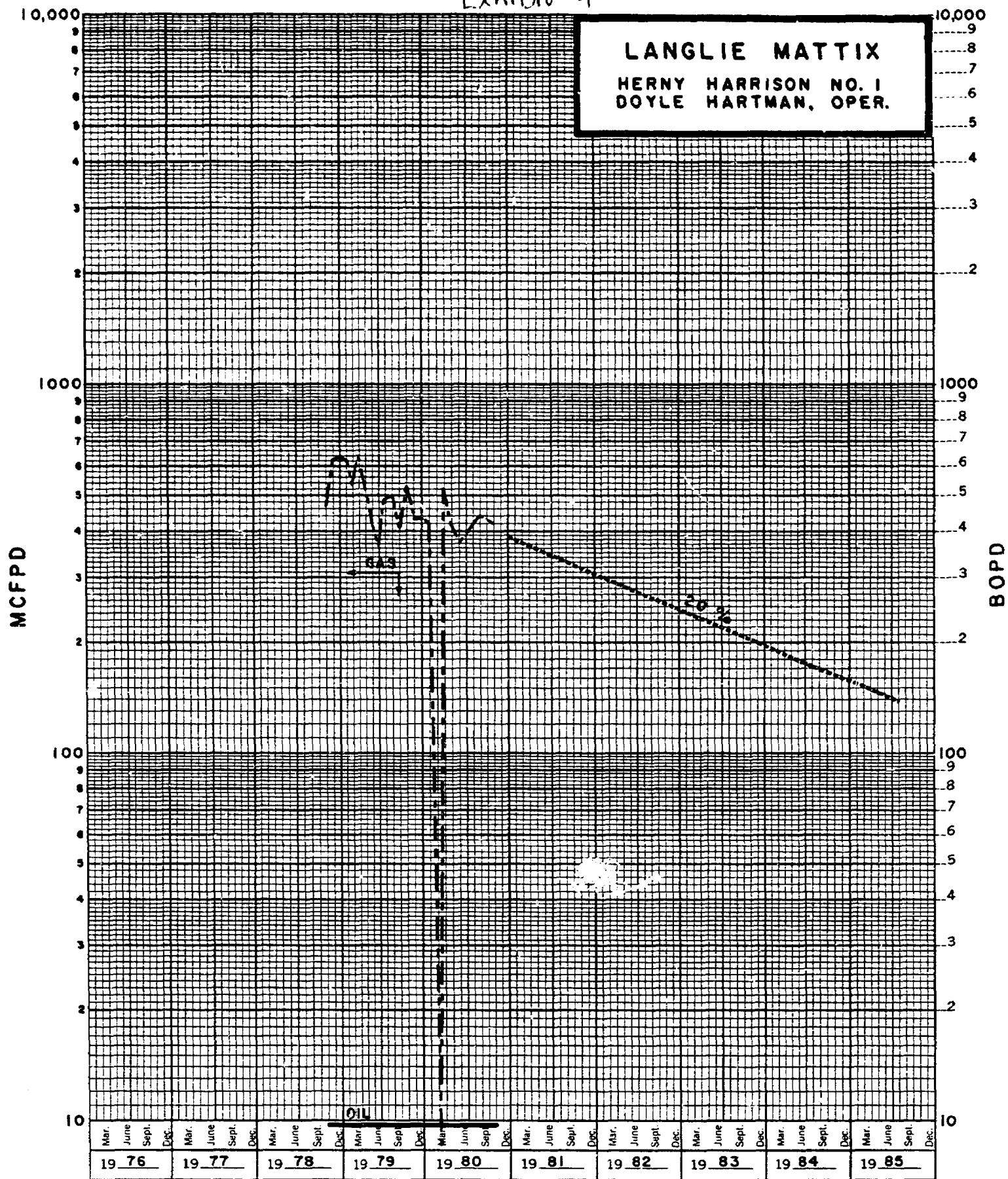
OIL CUM.— 0 0 220 BO  
 GAS CUM.— 13,198 176,165 290,740 MCF

# Exhibit 8



OIL CUM. — 0 2,359 4,527 BO  
 GAS CUM. — 13,198 176,167 290,739 MCF

# Exhibit 9



GAS CUM.— 51,827 230,675 347,024 MCF



EXHIBIT 10

Sample Calculation

Jalmat Gas Drainage Area Shown on Exhibit No. 6

Doyle Hartman Henry Harrison No. 1  
Section 20, T-24-S, R-37-E

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Cumulative production to 1-1-81 = 370 MMCF  
Remaining reserves based on an estimated decline rate of 20%:

$$\text{Remaining Reserves} = \frac{Q_{IR} - Q_{EL}}{D} \times 365$$

$$D = \text{Decline as fraction of production rate}$$
$$D = -\ln(1 - k) \text{ where } k = \frac{q_t - q_{t+1}}{q_t}$$

$$\text{At } k = 20\% \quad D = .22314$$

$$Q_{IR} = \text{production rate on 1-1-81} = 380 \text{ MCFD}$$

$$Q_{EL} = \text{production rate at economic limit} = 20 \text{ MCFD}$$

$$\text{Remaining Reserves} = \frac{380 - 20}{.22314} \times 365 = 622 \text{ MMCFG}$$

$$\text{Ultimate Reserves} = 370 \text{ MMCF} + 622 \text{ MMCF}$$
$$\text{Ultimate Reserves} = 992 \text{ MMCF}$$

Based on Porosity-Feet Allocation 82% of the Gas Reserves should come from the Jalmat.

$$\text{Therefore, the Jalmat ultimate gas reserves} = .82 \times 992 = \underline{\underline{813 \text{ MMCF}}}$$

$$\text{GIP} = 43.560 \phi h (1 - S_{cw}) 35.35 \frac{P}{ZT} \times A = 1540 \phi h (1 - .20) \frac{271}{.95(569)} \times A$$

$$\text{GIP} = 618 \phi h A \text{ MCF}$$

$$\text{At 75\% recovery factor, ultimate Jalmat reserves} = .75 \times 618 \phi h A = 463 \phi h A \text{ MCF}$$

$$463 (\phi h) A = 813,000 \text{ MCF}$$

$$\text{Drainage Area } A = \frac{813,000}{463 (6.66)} = \underline{\underline{264 \text{ Acres}}}$$



JOHN YURONKA  
HARRISON "A" NO. 1

990' FNL & 1650' FWL  
SEC. 29, T 24 S, R 37 E.  
LEA COUNTY, NEW MEXICO  
EL. K.B. 3287'

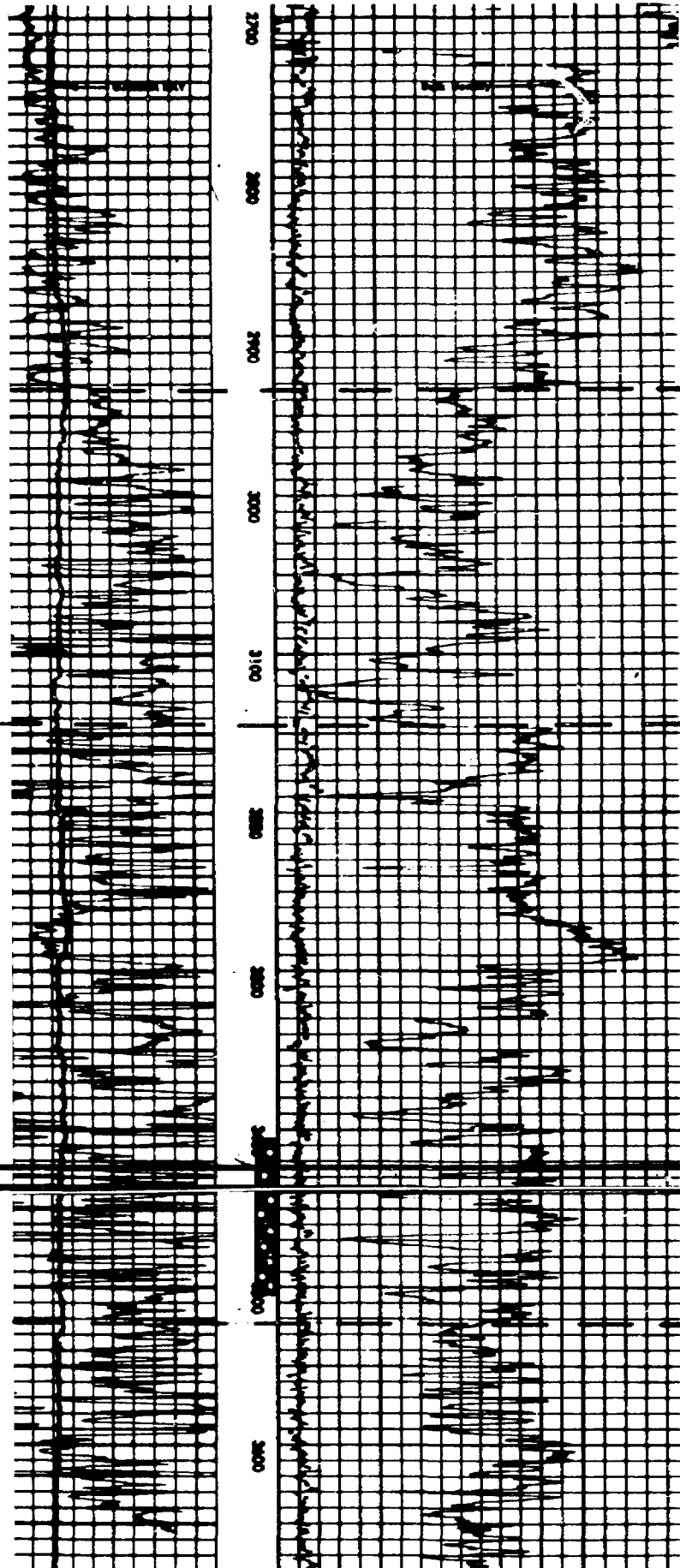
YATES — — — — —

SEVEN RIVERS — — — — —

LANGLIE - MATTIX  
G/O

QUEEN — — — — —

BEFORE THE OIL CONSERVATION COMMISSION Santa Fe, New Mexico	
Case No. <u>7059</u>	Exhibit No. <u>11</u>
Submitted by <u>H. Phelan</u>	
Hearing Date <u>3/18/81</u>	



DOYLE HARTMAN  
WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO

OIL COMMISSION

Semi-Annual Report

Case No. 7057 Exhibit No. 8Submitted by HARTMANHearing Date 3/18/81

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
<u>ARCO</u>											
Fredrick H. Curry #2	1(N)-24-36	L.M.	4-24-80	3750 (3710)	3463-3700		Currently Producing L.M.	4,081	16.9		
Fredrick H. Curry #1	1(P)-24-36	Jalmat	2-10-65	3379 (3250)	2866-3192		Currently Producing Jalmat 1969 ARCO Operator 1963 Sinclair Operator			0	13,088
			6-01-38	3697 (3538)	3310-35380H		Western Gas Company				
<u>Getty Oil Company</u>											
Cooper WN #3	12(B)-24-36	Jalmat (Dual)	4-20-73	3630 (3622)	2931-3400		Currently Producing Jalmat			832	1,437
		L.M.	4-20-73	3630 (3622)	3469-3610		Request to TA 8-23-73 TA L.M. Seat Seating Nipple at 3450	0	0		
Myers L.M. Unit #207	12(F)-24-36	L.M.	9-25-75	3644	3485-36440H		Currently Producing L.M. P&A Jalmat	From 1975 6,237	14.9	0	721
			10-02-41	3644	3485-3644		At one time this was a dual completion from Jalmat 3400- 3425 and L.M. 3485-3644. 1st completed L.M. pre 1954. Converted to Gas pre 1954.				
Myers L.M. UN #208	12(G)-24-36	L.M.	12-29-78	3698	3487-3633		Currently water injector Produced Jal Gas to 8-75	107,448			
			9-29-75	3588	3465-35880H		Squeezed Jalmat Perfs 2910- 3150 and converted to WIW				
			7-18-40	3588	3477-35880H		L.M. Completion				
<u>ARCO</u>											
G.W. Toby WN Gas UN #4	12(I)-24-36	Jalmat	5-15-75	3550	2945-3401		Currently Producing Jal (Gas)				669
<u>Getty Oil Company</u>											
Myers L.M. Unit #240 (G. W. Toby #3)	12(J)-24-36	L.M.	9-14-40	3599	3448-3599		Currently Producing L.M. Oil 1963 Sinclair Operated 1969 ARCO 1974 Joined Myers L.M. Un-Skelly 1977 Getty	141,395			

## DOYLE, HARTMAN

PAGE 2 OF 3

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO

CURRENT OPERATOR		LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
LEASE NAME									OIL (BBLS.)	GAS (MMCF)	OIL (BBLS.)	GAS (MMCF)
ARCO												
G.W. Toby WN Gas #1		12(P)-24-36	Jalmat	1-14-79 12-18-78 2-19-37	3240 3040 3685	2989-3236 3256-3685 3256-3685		Currently Producing Jalmat Squeezed OH El Paso Natural Gas Co. Comp. L.M. Pre 1954 Recomp. Jalmat Pre 1954 1963 Sinclair 1969 ARCO			2690	
G.W. Toby Gas #2		13(A)-24-36	Jalmat	3-14-42	3607	3444-3607		Currently Producing Jalmat No other completion interval available (1975 form 102 called well Jalmat) 1954 Western Natural Gas 1963 Sinclair 1969 ARCO			4158	
Getty Reserve Oil												
Cooper Jal Unit #115 (Maggie Dunn #1)		13(P)-24-36	L.M.	5-27-78		Added Perfs 3221-3303 & 3046-3153		Currently Carried as L.M. NMOCC Order R-5590 Down- hole Commingling of Jalmat and Langlie Mattix	222,543	652		
				5-23-75 5-07-47	3668 3505	3426-3518 3015-3505		Remedial Workover OH Completion 1954 Western Natural Gas 1963 Sinclair 1969 ARCO 1970 Reserve O&G 2-80 Getty Reserve				
Cooper Jal Unit #121 (Maggie Dunn B #1)		24(B)-24-36	L.M.	2-11-78		3018-3292		Currently Carried L.M. NMOCC R-5590 Downhole Commingling of Jalmat and Langlie Mattix	233,468	479		
				2-20-75 1-02-49	3560 3520	3423-3522 3017-3520		Remedial Workover OH Completion 1954 Western Natural Gas 1963 Sinclair 1969 ARCO 1970 Reserve O&G 2-80 Getty Reserve				
Cooper Jal Unit #206 (WN Dunn #2)		24(H)-24-36	Jal(Oil)	5-04-50	3230	2983-3230		OH Currently Producing Jal(OIL) 1963 Sinclair 1969 ARCO 1970 Reserve O&G 2-80 Getty Reserve			323,275	

## DOYLE HARTMAN

PAGE 3 OF 3

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO

CURRENT OPERATOR	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
Atlantic Production Co.											
Woolworth #1	26(G)-24-36	Jal(Oil)	7-22-35	3481	3452-3481		P&A 1942 Cums Not Available				
ARCO											
Jim Camp #2	6(E)-24-37	Jal(Gas)	9-29-80 4-06-65 3-30-54	3575 3380BP 3575	3450-3575LM 2944-3234Jal		Dual completed L.M. & Jalmat Recompleted to Jalmat L.M. Producer 1954 Western Natural 1963 Sinclair 1969 ARCO	27,622	30	0	1906
Jim Camp #3	6(O)-24-37	L.M.	2-25-55	3578	3451-3578		1954 Western Natural Gas 1963 Sinclair 1969 ARCO	51,050	76		
Hair #1	9(D)-24-37	L.M.	6-26-37 7-12-59	3575	3069-3575		Produced L.M. P&A	89,890	-		
Getty Oil Co.											
Myers L.M. Un. #218 (Fowler Hair #2)	9(E)-24-37	L.M.	9-30-76 7- -76 8-13-38	3560 3560	3412-3550 3143-3560		Currently WIW Jalmat Zone Abandoned Repollo Oil Co. 1954 Sinclair Op (Jal Gas Prod) 1969 ARCO 1977 Getty Oil				3477
ARCO											
P. Carter #1	9(G)-24-37	L.M.	1-06-38 7-16-59	3705	3161-3705OH		Repollo Oil Co. P&A Sinclair	23,128			
Getty Oil Co.											
Myers L.M. Unit #221 (L. Carter #1)	9(H)-24-37	L.M.	11-02-37	3787	3129-3787OH		Repollo Oil Co. 1954 Sinclair 1969 ARCO 1974 Unitized Skelly 1977 Getty	66,069	124		

DOYLE HARTMAN

Case No. 7057 Exhibit No. 9

submitted by HARTMAN

Hearing Date 3/18/81

DOYLE HARTMAN

PAGE 1 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)	JALMAT CUMULATIVE 9-1-80 OIL (BBLs.)	GAS (MMCF)
<u>Getty Reserve</u>											
Cooper Jal Un #122 (Dunn SCP WN #6)	24(A)-24-36	L.M.	5-17-71	3553	Pkr#3411	R-4019 (1970)	Currently Water Injector				
			6-14-54	3552	3465-35530H		Southern California Petrol. 1960 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 1-70 Last Langlie Mattix Prod. 45,298 1974 Put on Injection 1980 Getty Reserve				
Cooper Jal Un #201 (WN Dunn #3)	24(A)-24-36	Jalmat	9-21-71	3157	Fkr#2929	R-4020 (1970)	Currently Water Injector				
			5-13-50	3237	2994-31570H		Culbertson & Irwin, Inc. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 9-71 Last Jalmat (Oil) Prod. 1974 Put on Injection 1980 Getty Reserve			221,507	
Cooper Jal Unit #126 (Dunn SCP WN #4)	24(G)-24-36	L.M.	5-14-54	3560	3470-35600H	R-5590 (1977)	Currently Producing L.M.	262,906			
							1954 Southern Calif. Petrol. 1960 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 1980 Getty Reserve				
Cooper Jal Unit #205 (WN Dunn #1)	24(G)-24-36	Jalmat	9-21-71	3251	Pkr#2927	R-4020 (1970)	Currently Water Injector				
			4-30-50	3251	2988-32510H		Culbertson & Irwin, Inc. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 7-71 Last Jal (Oil) Prod. 1974 Put on Injection 1980 Getty Reserve			146,818	

## DOYLE HARTMAN

PAGE 2 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
LEASE NAME								OIL (BBLs.)	GAS (MMCF)	OIL (BBLs.)	GAS (MMCF)
Getty Reserve (Continued)											
Cooper Jal Unit #127 (Dunn SCP WN #5)	24(H)-24-36	L.M.	8-25-71	3537	Pkr@3398	R-4019 (1970)	Currently Water Injector				
			5-29-54	3541	3460-35370H 3460-35410H		Southern Calif. Petrol. 1960 Western Natural Gas 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 7-71 Last Langlie Mattix Prod. 41,204 1974 Put on Injection 1980 Getty Reserve				
ARCO											
Jim Camp #1	6(M)-24-37	L.M. (Gas)	6-13-37	3656	3246-36560H	R-520 (1954)	Currently Producing L.M. (Gas)	103	1,575,133		
							1937 El Paso Natural Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO				
Getty Reserve											
Cooper Jal Unit #101 (Bates #1)	18(C)-24-37	L.M.	4-21-76	3572	Pkr@3312	R-4019 (1970)	Currently Water Injector				
			11-20-41	3572	3440-35720H 3440-35720H		Western Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1970 Cooper-Jal Un-Reserve O&G 8-69 Last Langlie Mattix Prod. 133,797 1976 Put on Injection 1980 Getty Reserve				
Cordova Resources											
Jamison #2	22(E)-24-37	L.M.	3-12-37	3485	3092-3485	R-520 (1954)	Currently Producing L.M.	122,268			
							1937 Repollo Oil Co. 1954 Sinclair 1964 Geo Buckles 1979 Cordova Resources				

## DOYLE HARTMAN

PAGE 3 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR		LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (PBTB)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
LEASE NAME									OIL (BBLs.)	GAS (MMCF)	OIL (BBLs.)	GAS (MMCF)
<u>ARCO</u>												
Harrison "D" WN #1		29(L)-24-37	Jalmat	4-18-73	3500 (3285)	2927-3185	R-520 L.M. (1954)	Currently Producing Jal (Gas)				2780.9
#4				9-02-37	3699 (3500)	3360-3496		Western Gas Co. 1954 Western Natural Gas Co. 1963 Sinclair 465 Dual L.M.-Jalmat 1969 ARCO 4-69 Last L.M. Prod. 4-73 Jalmat Producer Only The #4 is actually the L.M. which the exception applies to		6700.2		
						2927-2994						
<u>Union Texas Petroleum Corp.</u>												
Langlie Jal Un #25		32(N)-24-37	L.M.	8-19-76	3631	3318-3612	R-4051 (1970)	Currently Water Injector Pre 1954 Rec. Jal(Gas) from prod., no forms Atlantic Refining Co. 1969 ARCO 1971 Langlie Jal Un-Union TX 12-73 Last Jalmat Prod. 1974 Zone Abandoned 1975 Injection Well				3175.6
(State 24 #1)				6-16-38	3546	3470-3546						
<u>Amerada Hess</u>												
L.M. Woolworth Un #163		34(M)-24-37	L.M.	1-20-69	3565	3194-3565OH	R-520 (1954)	Currently Producing L.M.	328,000			
(Mosely #3)				12-30-37	3493	3194-3493OH		Repollo Oil Company 1954 Sinclair 1962 L.M.W.U. Tr #16, #3 Amerada 10-67 Last Oil Production 1968 L.M.W.U. #163-Amerada 5-70 Production Began Again				
L.M. Woolworth Un #162		34(N)-24-37	L.M.	12-20-56	3480 (3455)	3275-3455OH	R-520 (1954)	Currently Prod. L.M.	195,893			
(Mosely #2)				10-02-37	3480	3275-3480OH		Repollo Oil Company 1954 Sinclair 1962 L.M.W.U. Tr #16, #2 Amerada 7-64 Last Oil Production 1968 L.M.W.U. #162 - Amerada 11-70 Oil Produc. Began Again				

## DOYLE HARTMAN

PAGE 4 OF 4

WELLS FORMERLY OR CURRENTLY OPERATED BY ARCO  
WHICH OPERATE UNDER EXCEPTIONS

CURRENT OPERATOR LEASE NAME	LOCATION	POOL	COMPLETION DATE	TOTAL DEPTH (FBTD)	COMPLETION INTERVAL	EXCEPTION (DATE)	REMARKS AND HISTORY	L.M. CUMULATIVE 9-1-80		JALMAT CUMULATIVE 9-1-80	
								OIL (BBLs.)	GAS (MMCF)	OIL (BBLs.)	GAS (MMCF)
<u>Union Texas Petroleum Corp.</u>											
Langlie Jal Unit #72 (F. M. Burleson #1)	8(C)-25-37	L.M.	2-05-75	3748	3348-3595	R-4051 (1970)	Currently Producing L.M.	246,913			
			9-11-74	3748	3651-3704	Union Texas					
			3-20-74	3476	3402-3476	Squeezed Perfs 3000-3012					
			12-12-47	3100	3000-3012	Producing Oil-Bridgeport Oil					
			12-06-47	3200	3112-3160	Producing gas-no oil					
			12-26-37	3476	3242-3476CH	Herschbach Drilling Co. 1954 Western Natural Gas Co. 1963 Sinclair 1969 ARCO 1-72 Langlie Jal Unit-Union TX					



Dockets Nos. 12-81 and 13-81 are tentatively set for April 8 and 22, 1981. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: COMMISSION HEARING - MONDAY - MARCH 16, 1981

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205  
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases are continued from the February 18, 1981, Commission Hearing:

CASE 7155: Application of Southland Royalty Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the E/2 of Section 35, Township 18 South, Range 29 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7057: (DE NOVO)

Application of Doyle Hartman for the extension of the vertical limits of the Langlie Mattix Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the vertical limits of the Jalmat Pool and the upward extension of the vertical limits of the Langlie Mattix Pool to the following depths underlying the following 40-acre tracts in Township 24 South, Range 37 East: SE/4 SE/4 of Section 30: 3364 feet; NE/4 SE/4 of Section 30: 3389 feet; and SE/4 SW/4 of Section 20: 3390 feet.

Upon application of ARCO Oil and Gas Company this case will be heard De Novo pursuant to the provisions of Rule 1220.

\*\*\*\*\*

Docket No. 10-81

DOCKET: COMMISSION HEARING - WEDNESDAY - MARCH 18, 1981

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

CASE 7198: Application of Amoco Production Company for temporary special rules, Union, Harding, and Quay Counties, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of temporary special area rules for the Bravo Dome carbon dioxide gas area, including provision for 640-acre spacing units, specified well locations, casing and cementing rules, and authority to inject carbon dioxide gas for test purposes only.

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Docket No. 11-81

DOCKET: EXAMINER HEARING - WEDNESDAY - MARCH 25, 1981

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

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

CASE 7199: In the matter of the hearing called by the Oil Conservation Division on its own motion to consider amendments to its SPECIAL RULES FOR APPLICATIONS FOR WELLHEAD PRICE CEILING CATEGORY DETERMINATIONS as promulgated by Division Order No. R-5878, as amended. The proposed amendments relate to individual well filing requirements for price category determinations for the following categories:

- (1) High cost production enhancement gas under Section 107 of the NGPA;
- (2) Continued stripper qualification resulting from temporary pressure buildups under Section 108 of the NGPA.

- CASE 7200: Application of Estoril Producing Corporation for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Belco Fed. Well No. 1 located in Unit O of Section 15, Township 23 South, Range 34 East, to produce gas and gas liquids from the Strawn and Morrow formations, Antelope Ridge Field, thru parallel strings of tubing.
- CASE 7201: Application of Layton Enterprises, Inc. for a unit agreement, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Todd Lower San Andres Unit Area, comprising 3256 acres, more or less, of Federal and State lands in Township 7 South, Ranges 35 and 36 East.
- CASE 7202: Application of Layton Enterprises, Inc. for a waterflood project, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the San Andres formation thru 4 injection wells located in Sections 30, 31 and 32 of its Todd Lower San Andres Unit in Township 7 South, Range 36 East.
- CASE 7203: Application of Southern Union Exploration Co. of Texas for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Susco Bough "C" Unit Area, comprising 2560 acres, more or less, of State lands in Township 10 South, Range 33 East.
- CASE 7204: Application of Bass Enterprises Production Company for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Delaware formation in the interval from 3820 feet to 3915 feet in its Federal Legg Well No. 1 in Unit B of Section 27, Township 22 South, Range 30 East, Quahada Ridge Field.
- CASE 7205: Application of Supron Energy Corporation for a non-standard gas proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard Blanco Mesaverde gas proration unit comprising the NE/4 of Section 35, Township 31 North, Range 12 West, to be dedicated to a well to be drilled at a standard location thereon.
- CASE 7183: (Continued from March 11, 1981, Examiner Hearing)  
Application of Flag-Redfern Oil Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its Osudo St. Com Well No. 2 at an unorthodox location 990 feet from the North and East lines of Section 18, Township 20 South, Range 36 East, North Osudo-Morrow Gas Pool.
- CASE 7206: Application of Mobil Producing Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation through perforations from 12,212 feet to 12,218 feet and the open hole interval from 12,240 feet to 12,555 feet in its Santa Fe Pacific Well No. 3 in Unit M of Section 26, Township 9 South, Range 36 East, Crossroads Field.
- CASE 7207: Application of Mobil Producing Inc. for lease commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the commingling of Vacuum Grayburg-San Andres production from the State J and State II leases in Section 22, Township 17 South, Range 34 East.
- CASE 7208: Application of Gulf Oil Corporation for the amendment of pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of the White City-Pennsylvanian Gas Pool Rules to provide for 320-acre spacing rather than 640 acres with well locations specified as being at least 1650 feet from the end boundary and 660 feet from the side boundary of the proration unit.
- CASE 7129: (Continued from February 25, 1981, Examiner Hearing)  
Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the N/2 of Section 28, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.
- CASE 7169: (Continued from February 25, 1981, Examiner Hearing)  
Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the S/2 of Section 22, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7209: Application of Koch Industries, Inc. for designation of a tight formation, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Mesaverde formation underlying portions of Township 32 North, Ranges 8 and 9 West, containing 10,551 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.

CASE 7181: (Readvertised)

- Application of Read & Stevens, Inc. for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Hernandez Draw Unit Area, comprising 2,560 acres, more or less, of Federal, State, and Fee lands in Townships 4 and 5 South, Ranges 26 and 27 East.

CASE 7197: (Readvertised)

In the matter of the hearing called by the Oil Conservation Division on its own motion for an order extending certain pools in Chaves County, New Mexico:

(g) EXTEND the Bull's Eye-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM  
Section 1: SE/4 SW/4

(i) EXTEND the Chaveroo-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM  
Section 10: NE/4

(l) EXTEND the Diablo-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 10 SOUTH, RANGE 27 EAST, NMPM  
Section 22: W/2 SW/4 and SW/4 NW/4  
Section 27: NW/4 NW/4

(m) EXTEND the Diamond Mound-Atoka Gas Pool in Eddy and Chaves Counties, New Mexico, to include therein:

TOWNSHIP 15 SOUTH, RANGE 27 EAST, NMPM  
Section 34: S/2

TOWNSHIP 16 SOUTH, RANGE 27 EAST, NMPM  
Section 15: N/2  
Section 16: N/2

(r) EXTEND the L.E. Ranch-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 10 SOUTH, RANGE 28 EAST, NMPM  
Section 29: S/2 NW/4  
Section 30: S/2 NE/4

(s) EXTEND the Linda-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 6 SOUTH, RANGE 26 EAST, NMPM  
Section 30: NW/4 SE/4 and SW/4 NE/4

(y) EXTEND the Railroad Mountain-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 28 EAST, NMPM  
Section 35: SW/4 SW/4

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM  
Section 2: W/2 NW/4

(z) EXTEND the East Siete-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 31 EAST, NMPM  
Section 10: SE/4  
Section 11: SW/4

(2a) EXTEND the Twin Lakes-San Andres Associated Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NNPM  
Section 32: W/2 SW/4

TOWNSHIP 9 SOUTH, RANGE 28 EAST, NNPM  
Section 12: N/2 NE/4

TOWNSHIP 9 SOUTH, RANGE 29 EAST, NNPM  
Section 6: N/2 N/2

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
STATE LAND OFFICE BLDG.  
SANTA FE, NEW MEXICO

18 February 1981

COMMISSION HEARING

IN THE MATTER OF:

Application of Doyle Hartman for  
the extension of the vertical limits  
of the Langlie Mattix Pool, Lea  
County, New Mexico.

CASE  
7057

BEFORE: Commission Ramey  
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation  
Division:

Ernest L. Padilla, Esq.  
Legal Counsel to the Division  
State Land Office Bldg.  
Santa Fe, New Mexico 87501

For the Applicant:

MR. RAMEY: Call Case Number 7057.

MR. PADILLA: Application of Doyle Hartman for the extension of vertical limits of the Langleie Mattix Pool, Lea County, New Mexico.

MR. RAMEY: At the request of applicant this case is continued to March 16th at the same time, same place.

(Hearing concluded.)

## C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that  
the foregoing Transcript of Hearing before the Oil Conserva-  
tion Division was reported by me; that the said transcript  
is a full, true, and correct record of the hearing, prepared  
by me to the best of my ability.

Sally W. Boyd C.S.R.

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

COMMISSION HEARING

For the Applicant:



MR. RAMEY: Call Case Number 7057.

MR. PADILLA: Application of Doyle Hartman for the extension of vertical limits of the Langlie Mattix Pool, Lea County New Mexico.

MR. RAMEY: At the request of applicant this case is continued to March 16th at the same time, same place.

(Hearing concluded.)

## C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREPY CERTIFY that  
the foregoing Transcript of Hearing before the Oil Conserva-  
tion Division was reported by me; that the said transcript  
is a full, true, and correct record of the hearing, prepared  
by me to the best of my ability.

Sally W. Boyd C.S.R.

SALLY W. BOYD, C.S.R.

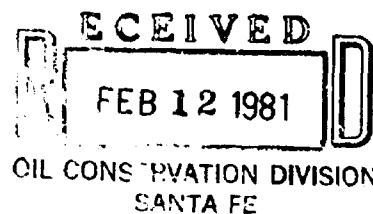
Rt. 1 Box 191-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

CAMPBELL, BYRD & BLACK, P.A.  
LAWYERS

JACK M. CAMPBELL  
HARL D. BYRD  
BRUCE D. BLACK  
MICHAEL B. CAMPBELL  
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POST OFFICE BOX 2208  
SANTA FE, NEW MEXICO 87501  
TELEPHONE: (505) 988-4421  
TELECOPIER: (505) 983-6043

February 12, 1981



Mr. Joe D. Ramey  
Director  
Oil Conservation Division  
New Mexico Department of  
Energy and Minerals  
Post Office Box 2088  
Santa Fe, New Mexico 87501

Re: Case 7057: Application of Doyle Hartman for  
the Extension of the Vertical Limits of the  
Langlie-Mattix Pool, Lea County, New Mexico

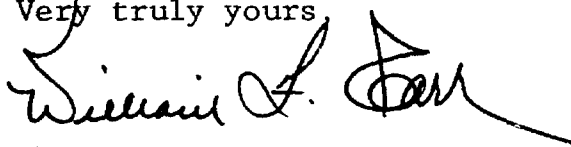
Dear Mr. Ramey:

Doyle Hartman hereby requests that the above-referenced case be continued from the Commission hearing scheduled for February 18, 1981. It is necessary for us to seek this continuance due to the fact that William P. Aycock, Mr. Hartman's engineering witness, will be unable to attend the hearing on February 18.

I have discussed this matter with Gary Kilpatric, attorney for Arco Oil and Gas, and will be happy to work with the Commission and Mr. Kilpatric in arranging an alternative hearing date at the earliest possible time following February 20.

Your attention to this matter is appreciated.

Very truly yours,

  
William F. Carr

WFC:lr

cc: Mr. Gary Kilpatric

Dockets Nos. 7-81 and 8-81 are tentatively set for February 25 and March 11, 1981. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - FEBRUARY 11, 1981

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

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Nutter, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for March, 1981, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for March, 1981, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

(3) Consideration of purchaser's nominations for the one year period beginning April 1, 1981, for both of the above areas.

CASE 7146: Application of Amoco Production Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Perro Grande Unit Area, comprising 3524 acres, more or less, of State and Federal lands in Townships 25 and 26 South, Range 35 East.

CASE 7135: (Continued and Readvertised)

Application of Celeste C. Grynberg for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the South Cottonwood Draw Unit Area, comprising 3,195 acres, more or less, of State lands in Township 16 South, Range 24 East.

CASE 7147: Application of Yates Petroleum Corporation for an unorthodox gas well location and simultaneous dedication, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Morrow test well to be drilled 1650 feet from the South line and 660 feet from the East line of Section 35, Township 18 South, Range 25 East, the S/2 of said Section 35 to be dedicated to said well and to applicant's "JX" Well No. 2 located in Unit N.

CASE 7140: (Continued from January 28, 1981, Examiner Hearing)

Application of Yates Petroleum Corporation for compulsory pooling and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the N/2 of Section 26, Township 21 South, Range 26 East, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the North line and 1650 feet from the East line of said Section 26. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 4063: (Reopened and Readvertised)

In the matter of Case No. 4063 being reopened on the motion of the Oil Conservation Division to consider the abolishment of the special rules and regulations for the Four Mile Draw-Morrow Gas Pool, Eddy County, New Mexico, as promulgated by Order No. R-3698. In the absence of objection said rules will be rescinded.

CASE 7148: Application of Twin Montana Oil Company for a non-standard oil proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of an 80-acre Vada-Pennsylvanian oil proration unit comprising the S/2 NE/4 of Section 3, Township 9 South, Range 35 East, to be dedicated to its Webb Federal Well No. 1 located in Unit G of said Section 3.

CASE 7149: Application of John H. Hendrix Corporation for the extension of the vertical limits of the Langlie Mattix Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the vertical limits of the Jalmat Pool and the upward extension of the vertical limits of the Langlie Mattix Pool to a depth of 3362 feet, subsurface, underlying Unit O of Section 19, Township 23 South, Range 37 East.

CASE 7150: Application of Cavalcade Oil Corporation for an exception to Order No. R-3221, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221 to permit disposal of produced brine into an unlined surface pit located in Unit K or L of Section 33, Township 18 South, Range 30 East.

- CASE 7151: Application of C & E Operators, Inc. for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde formation underlying the N/2 of Section 9, Township 30 North, Range 11 West, to be dedicated to a well to be drilled at a standard location in the NE/4 and a well to be drilled at a previously approved unorthodox location in the NW/4 of said Section 9. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the wells, and a charge for risk involved in drilling said wells.
- CASE 7152: Application of C & E Operators, Inc. for compulsory pooling and a non-standard proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde formation underlying a 158.54-acre non-standard gas proration unit comprising the SW/4 of Section 9, Township 30 North, Range 11 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.
- CASE 7153: Application of C & E Operators, Inc. for compulsory pooling and a non-standard proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde formation underlying a 158.54-acre non-standard gas proration unit comprising the SW/4 of Section 8, Township 30 North, Range 11 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.
- CASE 7129: (Continued from January 28, 1981, Examiner Hearing)
- Application of Koch Exploration Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the N/2 of Section 28, Township 28 North, Range 8 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.
- CASE 6670: (Continued from January 14, 1981, Examiner Hearing)
- In the matter of Case 6670 being reopened and pursuant to the provisions of Order No. R-6183 which order promulgated temporary special rules and regulations for the Red Hills-Devonian Gas Pool in Lea County, New Mexico, including a provision for 640-acre spacing units. Operators in said pool may appear and show cause why the pool should not be developed on 320-acre spacing units.
- CASE 7154: Application of Mobil Producing Texas and New Mexico, Inc. for designation of a tight formation, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Mesaverde formation underlying portions of Townships 26 and 27 North, Ranges 2 and 3 West, containing 13,920 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.
- CASE 7134: (Continued and Readvertised)
- Application of Read & Stevens, Inc. for an unorthodox gas well location and two non-standard gas proration units, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of two 160-acre non-standard proration units in the Buffalo Valley-Pennsylvanian Gas Pool, the first being the NW/4 of Section 13, Township 15 South, Range 27 East, to be dedicated to its Langley "Com" Well No. 1 in Unit C, and the other being the NE/4 of said Section 13 to be dedicated to a well to be drilled at an unorthodox location 1315 feet from the North and East lines of the section.

DOCKET: COMMISSION HEARING - WEDNESDAY - FEBRUARY 18, 1981

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205  
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 7155: Application of Southland Royalty Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the E/2 of Section 35, Township 18 South, Range 29 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

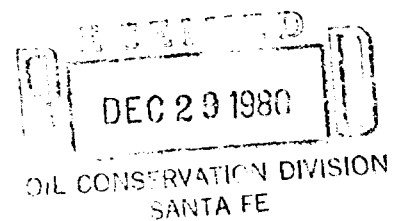
CASE 7057: (DE NOVO)

Application of Doyle Hartman for the extension of the vertical limits of the Langlie Mattix Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the Langlie Mattix Pool to the following depths underlying the following 40-acre tracts in Township 24 South, Range 37 East: SE/4 SE/4 of Section 30: 3364 feet; NE/4 SE/4 of Section 30: 3389 feet; and SE/4 SW/4 of Section 20: 3390 feet.

Upon application of ARCO Oil and Gas Company this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 7156: Application of Parabo, Inc. for amendment of Order No. R-5516, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-5516 which authorized the disposal of produced salt water in unlined surface pits in Section 29, Township 21 South, Range 38 East. Applicant proposes modification of the Commission's requirements for the number, location, and depths of monitor wells, casing and perforating monitor wells, and a change in maximum depths of water permitted in the pits.

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION



IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:

*Nov. 25*

CASE NO. 7057  
Order No. R-6524

APPLICATION OF DOYLE HARTMAN FOR  
EXTENSION OF VERTICAL LIMITS OF  
THE LANGLIE-MATTIX POOL, LEA  
COUNTY, NEW MEXICO.

APPLICATION OF ARCO OIL AND GAS COMPANY  
FOR HEARING DE NOVO

COMES NOW ARCO Oil and Gas Company ("ARCO") and applies  
to the Oil Conservation Division for a hearing de novo of  
Case No. 7057 and Order No. R-6524 before the Oil Conservation  
Commission pursuant to Commission Rule 1220, and in support  
thereof, states as follows:

1. Doyle Hartman ("Hartman") sought an application  
for the extension of vertical limits of the Langlie-Mattix  
Pool, Lea County, New Mexico wherein he sought the contrac-  
tion of the vertical limits of the Jalmat Pool and the upward  
extension of the vertical limits of the Langlie-Mattix Pool  
to the following depths underlying the following 40-acre tracts  
in Township 24 South, Range 37 East:

- (a) SE/4 SE/4 of Section 30; 3364 feet;
- (b) NE/4 SE/4 of Section 30; 3389 feet;
- (c) SE/4 SW/4 of Section 30; 3390 feet.

*Section 20*

2. The Hartman application was heard as Case No. 7057 before the Examiner on October 29, 1980. At that time, ARCO appeared and opposed said application.

3. The Division entered its Order No. R-6524 on November 25, 1980, granting Hartman's application in Case 7057.

4. ARCO is adversely affected by Order No. R-6524 for the reason that said order will not prevent waste nor protect correlative rights, as hereinafter shown.

5. Order No. R-520, dated August 12, 1954, defines the vertical limits of the Jalmat Pool and the Langlie-Mattix Pool, each of which has a different allowable.

6. Order No. R-520 has been in existence over twenty-seven years and has been complied with by the vast majority of those subject to the order and Hartman, as an inadvertent trespasser, should not be allowed to disregard the vertical limits of the pools set forth in that order.

7. The production from the Hartman wells which are located on the tracts which are the subject of Case No. 7057 and Order No. R-6524 is primarily from the Jalmat Pool, yet these wells have a Langlie-Mattix allowable of 800 MCF per day per forty acres.

8. ARCO operates Jalmat wells offsetting the Hartman wells which are the subject of this order. These Jalmat wells have an allowable of 94 MCF per day per forty acres. ARCO has farmed out its Langlie-Mattix rights in these offset wells.

PAGE TWO



9. The fact that the production from the Hartman wells is primarily from the Jalmat combined with the fact that the Hartman wells have a Langlie-Mattix allowable of 800 MCF per day per 40 acres and all the offsetting ARCO Jalmat wells have an allowable of 94 MCF per day per 40 acres results in the Hartman wells draining the reserves from the ARCO offset acreage, for which ARCO has no remedy, all in derogation of ARCO's correlative rights.

WHEREFORE, ARCO requests that a hearing de novo be granted in Case No. 7057 and Order No. R-6524 before the Commission pursuant to Commission Rule 1220.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

By Gary R. Kilpatrick  
Gary R. Kilpatrick  
Post Office Box 2307  
Santa Fe, New Mexico 87501

Attorneys for Applicant ARCO  
Oil and Gas Company

Certificate of Mailing

I hereby certify that I caused to be mailed or hand-delivered a true and correct copy of the foregoing Application of ARCO Oil and Gas Company for Hearing de novo to Ernest L. Padilla, Esq., counsel to the Commission and to William F. Carr, Esq., Post Office Box 2208, Santa Fe, New Mexico 87501, counsel for Doyle Hartman, on this 29th day of December, 1980.

Gary R. Kilpatrick

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

RECEIVED  
DEC 29 1980  
OIL CONSERVATION DIVISION  
SANTA FE

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 7057  
Order No. R-6524

APPLICATION OF DOYLE HARTMAN FOR  
EXTENSION OF VERTICAL LIMITS OF  
THE LANGLIE-MATTIX POOL, LEA  
COUNTY, NEW MEXICO.

APPLICATION OF ARCO OIL AND GAS COMPANY  
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- (b) NE/4 SE/4 of Section 30; 3389 feet;
- (c) SE/4 SW/4 of Section 30; 3390 feet.

*Section 20*

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6. Order No. R-520 has been in existence over twenty-seven years and has been complied with by the vast majority of those subject to the order and Hartman, as an inadvertent trespasser, should not be allowed to disregard the vertical limits of the pools set forth in that order.

7. The production from the Hartman wells which are located on the tracts which are the subject of Case No. 7057 and Order No. R-6524 is primarily from the Jalmat Pool, yet these wells have a Langlie-Mattix allowable of 800 MCF per day per forty acres.

8. ARCO operates Jalmat wells offsetting the Hartman wells which are the subject of this order. These Jalmat wells have an allowable of 94 MCF per day per forty acres. ARCO has farmed out its Langlie-Mattix rights in these offset wells.

9. The fact that the production from the Hartman wells is primarily from the Jalmat combined with the fact that the Hartman wells have a Langlie-Mattix allowable of 800 MCF per day per 40 acres and all the offsetting ARCO Jalmat wells have an allowable of 94 MCF per day per 40 acres results in the Hartman wells draining the reserves from the ARCO offset acreage, for which ARCO has no remedy, all in derogation of ARCO's correlative rights.

WHEREFORE, ARCO requests that a hearing de novo be granted in Case No. 7057 and Order No. R-6524 before the Commission pursuant to Commission Rule 1220.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

By Gary R. Kilpatrick  
Gary R. Kilpatrick  
Post Office Box 2307  
Santa Fe, New Mexico 87501

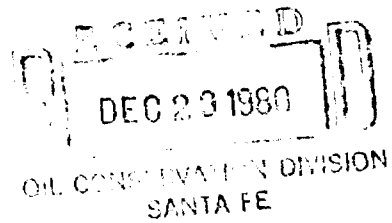
Attorneys for Applicant ARCO  
Oil and Gas Company

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I hereby certify that I caused to be mailed or hand-delivered a true and correct copy of the foregoing Application of ARCO Oil and Gas Company for Hearing de novo to Ernest L. Padilla, Esq., counsel to the Commission and to William F. Carr, Esq., Post Office Box 2208, Santa Fe, New Mexico 87501, counsel for Doyle Hartman, on this 29th day of December, 1980.

Gary R. Kilpatrick

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION



IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 7057  
Order No. R-6524

APPLICATION OF DOYLE HARTMAN FOR  
EXTENSION OF VERTICAL LIMITS OF  
THE LANGLIE-MATTIX POOL, LEA  
COUNTY, NEW MEXICO.

APPLICATION OF ARCO OIL AND GAS COMPANY  
FOR HEARING DE NOVO

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tion of the vertical limits of the Jalmat Pool and the upward  
extension of the vertical limits of the Langlie-Mattix Pool  
to the following depths underlying the following 40-acre tracts  
in Township 24 South, Range 37 East:

- (a) SE/4 SE/4 of Section 30; 3364 feet;
- (b) NE/4 SE/4 of Section 30; 3389 feet;
- (c) SE/4 SW/4 of Section 30; 3390 feet.

*Section 20*

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8. ARCO operates Jalmat wells offsetting the Hartman wells which are the subject of this order. These Jalmat wells have an allowable of 94 MCF per day per forty acres. ARCO has farmed out its Langlie-Mattix rights in these offset wells.

9. The fact that the production from the Hartman wells is primarily from the Jalmat combined with the fact that the Hartman wells have a Langlie-Mattix allowable of 800 MCF per day per 40 acres and all the offsetting ARCO Jalmat wells have an allowable of 94 MCF per day per 40 acres results in the Hartman wells draining the reserves from the ARCO offset acreage, for which ARCO has no remedy, all in derogation of ARCO's correlative rights.

WHEREFORE, ARCO requests that a hearing de novo be granted in Case No. 7057 and Order No. R-6524 before the Commission pursuant to Commission Rule 1220.

Respectfully submitted,  
MONTGOMERY & ANDREWS, P.A.

By Gary R. Kilpatrick  
Gary R. Kilpatrick  
Post Office Box 2307  
Santa Fe, New Mexico 87501

Attorneys for Applicant ARCO  
Oil and Gas Company

Certificate of Mailing

I hereby certify that I caused to be mailed or hand-delivered a true and correct copy of the foregoing Application of ARCO Oil and Gas Company for Hearing de novo to Ernest L. Padilla, Esq., counsel to the Commission and to William F. Carr, Esq., Post Office Box 2208, Santa Fe, New Mexico 87501, counsel for Doyle Hartman, on this 29th day of December, 1980.

Gary R. Kilpatrick

ROUGH

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE NO. 2057 DE NOVO

Order No. R-6524-A

*JHR*  
APPLICATION OF DOYLE HARTMAN FOR  
EXTENSION OF VERTICAL LIMITS OF THE  
LANGHE-MATTIX POOL, LEA COUNTY, NEW MEXICO. *KVL*

ORDER OF THE COMMISSION

BY THE COMMISSION:

*March 18*  
This cause came on for hearing at 9 a.m. on ~~October 29~~,  
1981, at Santa Fe, New Mexico, before the Oil Conservation  
Commission of New Mexico, hereinafter referred to as the  
"Commission."

NOW, on this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, the  
Commission, a quorum being present, having considered the testimony  
presented and the exhibits received at said hearing, 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, Doyle Hartman  
seeks ~~an order~~ *the contraction of the vertical limits of the Talmat Pool and the*  
*upward extension of the vertical limits of the Langhe-Mattix Pool to the*  
*following depth underlying the following 40 acre tracts in*  
*Township 24 South, Range 137 East, Lea County, New Mexico: 3364 feet*  
*underlying the SE 1/4 SE 1/4 of Section 30, dedicated to applicant's*  
*Corrigan Well No. 1; 3389 feet underlying the NE 1/4 SE 1/4 of Section 30,*  
*dedicated to applicant's Corrigan Well No. 2; and 3390 feet underlying the SE 1/4 SW 1/4*  
*of Section 20, dedicated to applicant's Harrison Well No. 1.*

(3) That the matter came on for hearing at 9 a.m. on



ROUGH

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE NO. 7057 DE NOVO

Order No. R-6524-A

APPLICATION OF DOYLE HARTMAN FOR  
EXTENSION OF VERTICAL LIMITS OF THE  
LANGUE-MATTIX POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on March 18  
1981, at Santa Fe, New Mexico, before the Oil Conservation  
Commission of New Mexico, hereinafter referred to as the  
"Commission."

NOW, on this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, the  
Commission, a quorum being present, having considered the testimony  
presented and the exhibits received at said hearing, 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, Doyle Hartman,  
seeks the contraction of the vertical limits of the Talmat Pool and the  
upward extension of the vertical limits of the Langue-Mattix Pool to the  
following depth underlying the following 40 acre tracts in  
Township 24 South, Range 37 East, Lea County, New Mexico: 3364 feet  
underlying the SE 1/4 SE 1/4 of Section 30, dedicated to Applicant's  
Carrigan Well No. 1; 3389 feet underlying the NE 1/4 SE 1/4 of Section 30,  
dedicated to Applicant's Carrigan Well No. 2; and 3390 feet underlying the SE 1/4 SW 1/4  
of Section 20, dedicated to Applicant's Harrison Well No. 1.

(3) That the matter came on for hearing at 9 a.m. on  
October 29, 1980, at Santa Fe, New Mexico, before  
Examiner Daniel S. Nutter and, pursuant to this  
hearing, Order No. R-6524 was issued on November 25,  
1980, which granted the application

(4) That on December 29, 1980, application for Hearing De Novo was made by Arco Oil & Gas Company and the matter was set for hearing before the Commission.

(5) That the matter came on for hearing de novo on March 18, 1981.

(6) That the vertical limits of the Jalmat Pool as defined by Order No. R-520, dated August 12, 1954, include the Tansill and Yates formations and all but the lowermost 100 feet of the Seven Rivers formation.

(7) That the vertical limits of the Langlie-Mattix Pool, as defined by said Order No. R-520, include the lowermost 100 feet of the Seven Rivers formation and all of the Queen formation.

(8) That there has been some disparity among some geologists as to the actual base of the Seven Rivers formation and the top of the Queen formation and hence as to the location of the 100-foot marker separating the Jalmat and Langlie-Mattix Pools.

(9) That as a result of this disparity, the subject wells and ~~certain other wells in the general area~~ which are classified as Langlie-Mattix wells have perforations extending across the aforesaid 100-foot marker in the Seven Rivers formation and into the Jalmat Pool.

(10) That the top of the Langlie-Mattix Pool, perforated intervals, and percentage of the perforated interval in the Jalmat & Langlie-Mattix Pools are as follows:

Well	Top Langlie-Mattix Pool Top	Perforated Interval	Percent in Jalmat	Percent in Langlie-Mattix
Corrigan Well No. 1	3434	3364-3502	51	49 ✓
Corrigan Well No. 2	3468	3389-3503	69	31 ✓
Harrison Well No. 1	3435	3390-3454	70	30 ✓

(11) That such crossing over from one pool into the other in this case appears to be an unintentional error.

(12) That to rectify the aforesaid error would require workover operations on the subject wells which would be expensive and might endanger the productivity of the subject wells, ~~and would actually serve no beneficial purpose, inasmuch as the production and reservoir characteristics of the perforations immediately above and below the 100-foot marker are quite similar.~~

(13) That a reasonable solution to the problem is to adjust the vertical limits of the Langlie-Mattix Pool upward under each of the above-described tracts in order to accommodate the present perforations in the lower Seven Rivers formation in the subject wells which are actually within the present Jalmat vertical limits.

(3)

(14) That Arco Oil & Gas Company, as offset operator to the subject wells, did not object to the extension & contraction of the vertical limits of said pools but did recommend that the ~~allowable~~ gas allowables for the subject wells be restricted to ~~a~~ that which a ~~40-acre~~ ~~Talbot well would~~ well on a 40-acre Talbot Pool proration unit would receive or 94 MCF per day per well.

(15) That to prevent drainage from offset leases, the production from the wells should be restricted.

(16) That there is no ~~practicable~~ accurate method of determining the volume of gas attributable to each of the pools from said wells.

establishing a gas allowable based  
(16) That ~~allocating production~~ on the percentage of the perforated interval in the Langlie-Mattix Pool is ~~practicable~~ multiplied by the ~~gas allowable~~ casinghead gas allowable for wells in the pool is a practicable method for restricting production from said wells.

(17) That <sup>in a proration</sup> since the subject wells are classified as Langlie-Mattix wells,

(4)

no allowable should be assigned in the Tabmet Pool.

(18) That the casinghead gas allowable for wells in the Langlie-Mattix Pool is 800 MCF per day.

(19) That the casinghead gas allowables for the subject wells ~~is~~ are as follows:

Well	Percentage of perforated interval in Langlie-Mattix Pool	Daily casinghead gas allowable
Corrigan No. 1	49%	392 MCF ✓
" No. 2	31%	248 "
Harrison No. 1	30%	240 "

(20) That the adjustment of the vertical limits of the Langlie-Mattix<sup>Pool</sup> & the Tabmet Pool & restricted allowables to the said wells <sup>in the Langlie-Mattix Pool</sup> will prevent waste & should not impair correlative rights & should be approved.

IT IS THEREFORE ORDERED:

(1) That the lowermost vertical limits of the Jalmat Pool underlying the SE/4 SE/4 and the NE/4 SE/4 of Section 30, and the SE/4 SW/4 of Section 20, Township 24 South, Range 37 East, NMPN, Lea County, New Mexico, are hereby contracted to a subsurface depth of 3364 feet, 3389 feet, and 3390 feet, respectively, and the uppermost limits of the Langlie-Mattix Pool underlying said tracts are hereby extended upward to the same subsurface depths.

(2) That <sup>daily</sup> the casing head gas allowables <sup>for the subject wells</sup> are as listed below:

<u>Lease</u>	<u>Well No.</u>	<u>Unit Letter</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>	<u>Allowable</u>
Corrigan	1	P	30	24S	37E	392 MCF
Corrigan	2	I	30	24S	37E	248 MCF
Harrison	1	N	20	24S	37E	240 MCF

(3) Jurisdiction

## NEW MEXICO OIL CONSERVATION COMMISSION

## EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date OCTOBER 29, 1980 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
John Freeman	Tahoe Oil & Cattle Co.	Midland, TX.
William F. San	Campbell + Clark, P.A.	Santa Fe
DAVID T. BURLISON	El Paso NAT. GAS CO.	El Paso, TX.
Paul W. Burchell	El Paso Natural Gas Co.	El Paso, TX.
H.L. Keadwell	El Paso Natural Gas Co.	Santa Fe
W.T. Kellaborn	Kellaborn & Kellaborn	Santa Fe, NM
Gary Kipatone	Montgomery & Ambrose	Midland, TX.
Royce L. Latta	ARCO Oil & Gas Co.	Midland, TX.
Don V. O'Grady	Roadside, Amarillo, Texas	
DON MADDOX	MADDOX & MADDOX, ATTYS	Hobbs
Thomas Luff	Pettis, Boyle & Stoner	Hobbs
Charles F. Kallenger	Gulf Oil Corp.	Midland
JOSEPH SOLIZ	Gulf Oil Corp.	HOUSTON
C.D. STENBERG	" " "	MIDLAND
SEN. BUELL	JASPER & BUELL	Santa Fe
W.A. Erickson	Anadarko Prod. Co.	Midland
J.W. FREEMAN	ANADARKO PROD. CO.	MIDLAND
Bob Walker	CAPITOL OBSERVER	SANTA FE
Sue Vanshick	USGS, CD.	Albuquerque

## NEW MEXICO OIL CONSERVATION COMMISSION

## EXAMINER HEARING

SANTA FE, NEW MEXICOHearing Date OCTOBER 29, 1980 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
George L. Hunter Jr.	D. L. Hannifin	Roswell, N.M.
JA Davidson	Self	Midland TX
Sam L. Hannifin	"	Roswell NM
Eddie Corrigan	"	Midland TX
Robert M. Hanft	Self	Midland, Texas
Wm J Mc Cormick	Self	Midland, Texas
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Cecil Hopewell	Montgomery Law Firm	Santa Fe
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Hugh Ingram	Conoco	HOBBS
R. M. Williams	Morris R. Antweil	Hobbs
RANDALL DARR	Conoco	Hobbs
Jerry Hoover	Conoco	Hobbs
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STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
STATE LAND OFFICE BLDG.  
SANTA FE, NEW MEXICO  
29 October 1980

## EXAMINER HEARING

IN THE MATTER OF:

Application of Doyle Hartman for  
the extension of vertical limits  
of the Langlie Mattix Pool, Lea  
County, New Mexico.

CASE  
7057

BEFORE: Daniel S. Nutter

## TRANSCRIPT OF HEARING

## A P P E A R A N C E S

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Division:

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*Hearing  
Register  
in this  
Transcript*



## A P P E A R A N C E S

For ARCO:

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## I N D E X

## WILLIAM P. AYCOCK

Direct Examination by Mr. Carr	3
Cross Examination by Mr. Kilpatric	19
Cross Examination by Mr. Nutter	24

## ROYCE LUBKE

Direct Examination by Mr. Kilpatric	29
Cross Examination by Mr. Nutter	39
Cross Examination by Mr. Carr	42
Recross Examination by Mr. Nutter	46

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3  
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E X H I B I T S

3

Hartman Exhibit One, Schematic	8
Hartman Exhibit Two, Structure Map	11
Hartman Exhibit Three, Cross Section	12
Hartman Exhibit Four, Cross Section	12
Hartman Exhibit Five, Tabulations	13
Hartman Exhibit Six, Structure Map	15
Hartman Exhibit Seven, Land Map	16
ARCO Exhibit One, Plat	31
ARCO Exhibit Two, Log	32
ARCO Exhibit Three, Log	32
ARCO Exhibit Four, Log	32
ARCO Exhibit Five, Comparison	37
ARCO Exhibit Six, Map	34

1  
2 MR. NUTTER: We'll call next Case Number  
3 7057.

4 MR. PEARCE: Application of Doyle Hartman  
5 for an extension of vertical limits of the Langlie Mattix  
6 Pool, Lea County, New Mexico.  
7

8 MR. CARR: May it please the Examiner,  
9 I'm William F. Carr, Campbell and Black, P. A., Santa Fe,  
10 appearing on behalf of the applicant. I have one witness.

11 MR. NUTTER: Are there other appear-  
12 ances in Case Number 7057?  
13

14 MR. KILPATRIC: Yes, Mr. Examiner, Gary  
15 Kilpatric appearing on behalf of ARCO in opposition, and  
16 I have one witness.

17 MR. NUTTER: Will both witnesses stand --  
18 or all witnesses please stand and be sworn?  
19

20 (Witnesses sworn.)  
21

22 WILLIAM P. AYCOCK  
23 being called as a witness and having been duly sworn upon  
24 his oath, testified as follows, to-wit:  
25  
26  
27  
28

## DIRECT EXAMINATION

BY MR. CARR:

Q Will you please state your full name and place of residence?

A William P. Aycock, Midland, Texas.

Q Mr. Aycock, by whom are you employed and in what capacity?

A By Mr. Doyle Hartman in connection with the application under Case 7057 on the docket that's the subject of this hearing.

Q Have you previously testified before this Commission, had your credentials accepted and made a matter of record?

A Yes, sir, I have.

Q Are you familiar with the application filed in this case?

A I am.

Q Are you familiar with the subject matter of this case?

A Yes, sir, I am.

MR. CARR: Are the witness qualifications acceptable?

MR. NUTTER: He is.

1  
2 Q. Mr. Aycock, will you briefly state what  
3 Mr. Hartman seeks with this application?  
4

5 A. Mr. Hartman in this application is  
6 seeking the contraction of the vertical limits of the Jalmat  
7 Pool and the upward extension of the vertical limits of the  
8 Langlie Mattix Pool to the indicated depths underlying the  
9 indicated 40-acre tracts, all in Township 24 South, Range  
10 37 East, as follows:  
11

12 The southeast quarter of the southeast  
13 quarter of Section 30, to 3364 feet.

14 The northeast quarter of the southeast  
15 quarter of Section 30, 3389 feet.

16 And the southeast quarter of the south-  
17 west quarter of Section 20, 3390 feet.

18 Q. Will you briefly summarize for the Ex-  
19 aminer the events which resulted in Mr. Hartman filing this  
20 application?  
21

22 A. Mr. Hartman was notified by a communi-  
23 cation from Hobbs District Office, dated July 28th, 1980,  
24 that the wells that are the subject of this hearing were  
25 had been reviewed by a Mr. John Runyon, who was the District  
26 Geologist at Hobbs, and indicated the wells were out of  
27 zone.  
28

1  
2  
3 There was a meeting set up on August  
4 7th, 1980, which I attended on behalf of Mr. Hartman, in  
5 which the -- Mr. Runyon's study, a copy of Mr. Runyon's  
6 study, was provided to all the attendees, and the general  
7 situation was reviewed by Mr. Sexton, at which time he gave  
8 all of the operators who were affected thereby thirty days  
9 to initiate some action on behalf of remedying the out of  
10 zone wells, of which there are a considerable number, or  
11 else action would be taken by the Commission.  
12

13 As a result of that, this application is  
14 a result of that ultimatum by Mr. Sexton.

15 Q Mr. Aycock, in determining that the  
16 subject wells were Langlie Mattix completions, was Hartman  
17 using the same picks that other companies in the area were  
18 using to determine whether or not they had Langlie Mattix  
19 wells?  
20

21 A Well, as Mr. Nutter is -- is probably  
22 the most qualified -- one of the most qualified people I  
23 know to realize the -- this whole controversy revolves  
24 around the fact that the industry for years, or many people  
25 in the industry, have used a lithologic Queen as -- when  
26 they say Queen, what they mean is a lithologic unit; whereas  
27 under the cross sections that were done by a committee of  
28

1  
2  
3 industry people in the mid-1950's, and which the Commission  
4 has used for determining what is the Queen, that Queen is  
5 a time line Queen, not a lithologic Queen, and the entire  
6 matter results in a misunderstanding among people in the  
7 industry about what actually constitutes the Queen, as is  
8 demonstrated by the -- the way the wells have been completed  
9 in the area, and in fact, most of them have been -- are in  
10 violation at one time or another that have been called  
11 Langlie Mattix, and in my opinion this revolves strictly  
12 around the fact that this misunderstanding existed, and  
13 still exists.  
14

15 Q Will you please refer to what has been  
16 Marked for identification as Hartman Exhibit Number One and  
17 explain to the Examiner what it is and what it shows?

18 A Hartman Exhibit Number One is a schematic  
19 of the pool definitions as required by the Commission for  
20 the Union Texas Petroleum Corporation Langlie Jal Unit  
21 No. 4. This well was picked because it is on one of our  
22 subsequent exhibits and is a nearby well and was drilled  
23 and completed in the recent past after the time that the  
24 development project was launched on what's now the Langlie  
25 Jal Unit, and prior to the time that the waterflood hearing,  
26 the hearing was held requesting an exception to the vertical  
27  
28

limits for the waterflood.

All of the consequential lithologic markers, what we have indicated as the "CUQ" marker, is what the -- many people in the industry call the Queen. We'll demonstrate this on one of our subsequent exhibits where we review what's been called the Queen on the C-105 forms that have been submitted to the Commission by a variety of operators at various times.

But the overlap situation is engendered by the fact that the so-called Committee Queen is called by some people the second Queen, and it is the second dolomitic radioactive sand that is penetrated below the base of the Seven Rivers formation rather than the first one, and the pool rules, as the Commission is well aware, specify that the boundary of the vertical limits dividing line between the Jalmat Pool and the Langlie Mattix Pool lie 100 feet above the base of the Seven Rivers formation, and the base of the Seven Rivers formation is determined by what is the top of the Queen.

So, as many people in the industry call the -- have called the "CUQ" marker the top of the Queen out of ignorance, therefor, they have tended to complete in what some operators call the third Seven Rivers interval, which actually lies within the pool limits of the Jalmat Pool,



1  
2 according to the Commission nomenclature.

3 Q. And what does "CUQ" stand for?

4 A. Commonly used Queen. This is simply  
5 a method on our part to develop a label that would indicate  
6 that it is something that has been widely used in the in-  
7 dustry by many operators. I won't say all, but by many  
8 operators.  
9

10 MR. NUTTER: But, Mr. Aycock, what you've  
11 labeled here as the committee top, this is the top that the  
12 Commission has recognized over the years as being the --

13 A. Since the 19 --

14 MR. NUTTER: -- base of the Seven Rivers--

15 A. Yes, sir.

16 MR. NUTTER: -- or the base of the Jalmat  
17 and top of the Langlie Mattix.  
18

19 A. This is what's specified in the cross  
20 sections that were set up in the -- in the mid-50's by the  
21 industry committee.

22 Q. Mr. Aycock, there is a yellow shaded  
23 area on this exhibit. What does that signify?

24 A. that signifies the overlap interval be-  
25 tween the -- where a completion would be affected if an  
26 operator were working 100 feet above the base of the Seven  
27  
28

1  
2 Rivers as determined from the commonly used Queen as com-  
3 pared to the Commission recognized Queen. In other words,  
4 that is the overlapping interval into the Jalmat Pool verti-  
5 cal limits that would occur if an operator were to mistakenly  
6 use the commonly used Queen as the Queen that the Commission  
7 is referring to in the pool rules.  
8

9 Q Will you now refer to what has been  
10 marked Applicant's Exhibit Number Two and explain what it is  
11 and what it shows?  
12

13 A Exhibit Number Two is a structure map  
14 contoured on the top of the commonly used Queen marker that  
15 shows the structural configuration in the immediate vicinity  
16 of Mr. Hartman's wells, which are the subject of this appli-  
17 cation. The traces of two cross sections, which will subse-  
18 quently be put into evidence, are indicated, as well as the  
19 location of the type log which was the subject of Exhibit  
20 One.  
21

22 What this indicates is that in the imme-  
23 diate area there is -- we're in a plateau, and there is no  
24 significant immediate structural development as far as the  
25 Queen zone is concerned. We believe that the Queen zone is  
26 the most reasonably reflective of what the true -- the true  
27 structure is in this immediate vicinity.  
28

1  
2 Q If Mr. Hartman's application is granted,  
3 will it result in any conflicts as to overlapping zones on  
4 the leases involved in this case?

5 A No, there will be no conflicts. Do you  
6 mean as to ownership?  
7

8 Q Yes.

9 A No, there will be no conflicts.

10 Q Will you now refer to what has been  
11 marked for identification as Hartman Exhibit Number Three  
12 and review this for Mr. Nutter?

13 A Hartman Exhibit Number Three is cross  
14 section A-A', which is indicated in red, the trace of which  
15 is indicated in red on Exhibit Two, and it simply shows the  
16 wells on that cross section, the consequential geologic  
17 markers, the Committee Queen, and the red interval colored  
18 on each well is the overlap of Langlie Mattix into the verti-  
19 cal limits of the Jalmat for each of the indicated wells,  
20 based on the -- based on the Commission's definition.  
21

22 Q Will you now refer to Exhibit Number Four  
23 and review this for Mr. Nutter?  
24

25 A Exhibit Number is indicated in green  
26 on Exhibit -- the trace of it is indicated in green on Ex-  
27 hibit Number Two, and it provides similar information,  
28

1  
2 showing the overlap of the wells in their completion inter-  
3 val above the top of the Commission recognized vertical  
4 pool limits of the Langlie Mattix Pool.

5 Q Mr. Aycock, I direct your attention to  
6 Hartman Exhibit Five and ask that you review the data con-  
7 tained thereon for Mr. Nutter.

8 A Hartman's Exhibit Number Five consists  
9 of four tabulations, one applying to the Henry Harrison No.  
10 1, and the other to the area of the Corrigan Wells Nos. 1  
11 and 2, and this simply lists all of the consequential geolo-  
12 gic markers, the dates of C-105 forms, and information, a  
13 summary of information that's contained on C-105 forms that  
14 have been submitted to the Commission.  
15

16 I call Mr. Nutter's attention to the  
17 fact that there is a tabulation for each of the two areas  
18 for the Langlie Mattix wells and for the Jalmat wells, and  
19 that in general, a quick perusal of these will indicate  
20 that most of the wells have an overlap into the Jalmat, or  
21 most of the Langlie Mattix wells have an overlap into the  
22 Jalmat by the Committee definition, and as well as many of  
23 the Jalmat wells that are in this immediate vicinity.  
24

25 I would also call Mr. Nutter's attention  
26 to the fact that all of Mr. Hartman's wells which are the  
27 subject of this hearing had existing, prior existing wells,  
28

1  
2 which were included, which my understanding is were included  
3 under the R-570 exception that was granted by the Commission  
4 in the mid-50's on the same 40-acre unit, as follows:  
5

6 Mr. Hartman's Henry Harrison 1, which  
7 is located in Unit N of Section 20.

8 The Wiser Oil Company Calley A No. 1 is  
9 located in the same 40-acre tract. It was completed on the  
10 2nd of October, 1939, and plugged on the 16th of May, 1978.  
11 That's on the -- that information is listed on the Henry  
12 Harrison 1 Langlie Mattix tabulation that is a portion of  
13 this exhibit.  
14

15 Also listed on the Langlie Mattix portion  
16 of this exhibit for the Corrigan Nos. 1 and 2, it is indi-  
17 cated that Mr. Hartman's Gulf-Corrigan No. 1, located in  
18 Unit P of Section 30, is in the same 40-acre unit as the  
19 Gulf Woolworth No. 2, which according to the forms on file  
20 in the Commission's Hobbs Office was completed on the 4th  
21 of March in 1940 and plugged on the 12th of June in 1960.  
22

23 Mr. Hartman's Gulf-Corrigan No. 2 is  
24 located in Unit I of Section 30, as is Gulf's Woolworth No.  
25 1, which was originally completed on the 16th of May in 1937  
26 and was deepened on the 6th of April, 1938, and was plugged  
27 and abandoned on the 10th of March in 1977.

28 So all of the 40-acre tracts on which

1  
2 Mr. Hartman's wells are located that are the subject of this  
3 application have prior existing wells that were granted a  
4 blanket exemption under Order R-570.

5 Q Mr. Aycock, will you now refer to Exhibit  
6 Number Six and review this for Mr. Nutter?  
7

8 A Exhibit Number Six is the same structure  
9 map as Exhibit Number Two with the following exceptions:

10 We have indicated Mr. Hartman's wells  
11 which are the subject of this application in yellow, and each  
12 of the hexagonal lines encloses a well for which we have been  
13 able to ascertain some substantial portion of the production  
14 history. Not all of the production history are available for  
15 all wells, because we've been unable to find it for some of  
16 them prior to 1959.  
17

18 But in any event, you will notice that  
19 the cumulative average GOR for the Langlie Mattix completions  
20 is indicated within the hexagonal lines by the number above  
21 the horizontal black line and the cumulative Langlie Mattix  
22 gas production is indicated below this line.

23 This figure was prepared to show that  
24 in the immediate vicinity of the Hartman -- the wells in the  
25 immediate vicinity of the Hartman application by -- would be  
26 considered gas wells by most people simply because the gas  
27 production is high and the gas/oil ratio is low to -- I mean  
28

1  
2  
3 is very high to infinite for those that have produced no  
4 liquids at all. You'll notice that the initials DG indicate  
5 dry gas and many of these wells have not reported any liquid  
6 production whatsoever.

7 MR. NUTTER: What about the well in the  
8 same unit as the Hartman -- the Corrigan No. 1 in P of 30  
9 there?

10 A We're not able to document the production  
11 history of that well, Mr. Nutter.  
12

13 MR. NUTTER: You didn't find any data  
14 on it?

15 A No, sir.

16 MR. NUTTER: Okay.

17 Q Mr. Aycock, will you refer to Hartman  
18 Exhibit Number Seven and review this for Mr. Nutter?  
19

20 A This is a land map of the area that  
21 includes the wells, Mr. Hartman's wells that are the subject  
22 of this application, indicating the prior exceptions which  
23 have been granted both in the Langlie Mattix Pool and the  
24 Jalmat Pool, exceptions as to the vertical limits.

25 Also indicated are the waterflood areas  
26 in heavy dashed lines and the waterflood. The practice has  
27 been to request a blanket exemption within a waterflood area  
28

1  
2 at the time the waterflood order is requested.

3  
4 So the indicated colors apply to the  
5 listed orders with the exception that the blue five units are  
6 all wells that existed at the time of R-520 in 1954, but were --  
7 but have been plugged and were therefor not listed on Mr.  
8 Runyon's tabulation that he presented with his study that was  
9 provided to all members of the industry who had wells whose  
10 completion intervals were considered to be out of zone by  
11 the Commission in the August 6th, 1980 hearing.

12  
13 MR. NUTTER: Mr. Aycock, awhile ago you  
14 mentioned some wells exempt by R-570. You meant 520?

15 A. I meant 520. I beg your pardon.

16 MR. NUTTER: Okay. So any reference to  
17 570 meant 520?

18 A. Should have said 520, Mr. Nutter, that's  
19 correct.

20 MR. NUTTER: Okay.

21 A. My mistake.

22  
23 Q. Mr. Aycock, would it be possible to  
24 downhole commingle the production in the subject wells?

25 A. No, it would not, because of the -- it  
26 would violate the ownership rights. Mr. Hartman has earned  
27 certain ownership rights by farmout from both Fluor and Gulf  
28 under the units, 40-acre units that contain the wells in



1  
2 question, and they intended to farm out the rights in which  
3 he's completed and the mistake was universal among both farmer  
4 and farmee in the case of all three 40-acre units, and it  
5 would not be possible to downhole commingle because we would  
6 get into a question of ownership.  
7

8 Q Would denial of this application result  
9 in hydrocarbons being left in the ground that otherwise would  
10 be produced?

11 A Well, yes, sir, I think they would, be-  
12 cause I think he would be faced with having an allowable can-  
13 celled and either having to redrill the wells or having to  
14 perform some sort of remedial work to meet the Commission's  
15 criteria, and in that case it would be my opinion that there  
16 would be a significant risk that the -- once the wells were  
17 killed they would never be able to be restored to production  
18 at the former rates, and therefor, they would be -- the reserves  
19 would be less than what they would otherwise be.  
20

21 I do not think that the economics of  
22 the remaining reserves would justify drilling new wells,  
23 plugging the wells that exist and drilling new wells.  
24

25 Q Will granting this application be in the  
26 interest of conservation, the prevention of waste, and the  
27 protection of correlative rights?

28 A Yes, it will, in my opinion.

1  
2 Q Were Exhibits One through Seven prepared  
3 by you or under your direction and supervision?  
4

5 A Yes, sir.

6 MR. CARR: At this time, Mr. Examiner,  
7 we would offer into evidence Hartman Exhibits One through  
8 Seven.

9 MR. NUTTER: Exhibits One through Seven  
10 will be admitted in evidence.

11 MR. CARR: I have nothing further on  
12 direct.

13 MR. NUTTER: Any questions of the wit-  
14 ness?  
15

16 MR. KILPATRIC: Yes, Mr. Examiner, a  
17 couple questions.  
18

19 CROSS EXAMINATION

20 BY MR. KILPATRIC:

21 Q Mr. Aycock, as I understand it, your  
22 explanation for the overlap caused here is based upon a con-  
23 fusion as to the location of the Queen?  
24

25 A A confusion as to what the term Queen  
26 specifically applies to.

27 Q And so if there was a new -- you char-  
28 acterized this confusion as industry-wide confusion?

1  
2 A Yes, I would characterize it that way,  
3 as evidenced by the exhibit that we placed that shows that  
4 many operators in the area have suffered from that confusion,  
5 as evidenced by the fact that there are overlaps.  
6

7 Q Which exhibit number is that you're  
8 referring to?

9 A That's our, what, five? Our next to  
10 last one, the tabulation that you have in your hand, Six.

11 Q Five or Six?

12 MR. CARR: Five is the tabulation.

13 Q And so you agree with me that if this  
14 was an industry-wide confusion, then there would be an industry-  
15 wide overlap? You'd see a lot of overlap from a lot of  
16 different --  
17

18 A Correct.

19 Q -- owners? And is it your testimony  
20 that this confusion has continued since the 1954 order?

21 A Yes.

22 Q Because your tabulation shows those wells  
23 completed before and after 1954.  
24

25 A That's correct.

26 Q But really the significant wells would  
27 be those completed after 1954 when the order came out, wouldn't  
28 it?

1  
2 A Well --

3 Q Isn't that when the rule was established?

4 A Well, there is no rule in the pool rules  
5 that specifically gives a definition of what constitutes the  
6 Queen formation, in the first place.  
7

8 In the second place, the cross sections  
9 that provide the basis for discrimination are not referred to  
10 in the pool rules.

11 And in the third place, until recently  
12 the Commission did not have all of those cross sections avail-  
13 able in its Hobbs Office for industry-wide examination.  
14

15 Q And would you agree with me, though, that  
16 all the wells completed before 1954 were exempt, anyway?

17 A That's correct.

18 Q So the significance would come for the  
19 wells after 1954?

20 A Uh-huh.

21 Q And it's your testimony that specifically  
22 this confusion is the reason why Mr. Hartman's wells in fact  
23 have overlapped?  
24

25 A That's part of the reason. The other  
26 reason is that as we've already testified, all three of the  
27 proration units had already been granted exemptions under  
28 R-570 by virtue of having existing wells that were existing

1  
2 and had allowables at the time that the R-520 was issued.

3 And additionally to that, Mr. Hartman  
4 was an employee of Union Texas Petroleum prior to the time that  
5 he became an independent and the Langlie Jal Unit was put to-  
6 gether, and in fact he was in charge of preparing the drilling  
7 and completion AFE's for the last ten wells that were drilled  
8 in the Langlie Jal Unit, and he was privy to a study that  
9 they had performed of the entire area in which they had dealt  
10 with this problem and concluded that the Queen formation to  
11 which the bulk of industry referred was what we call the  
12 commonly used Queen.  
13

14 Q Would that be your explanation as to  
15 why Mr. Hartman has significantly more wells that overlap  
16 than -- since 1954 than any of the other producers in the  
17 area?  
18

19 A I don't quite understand what your  
20 question is. I'm not prepared to render an opinion on who  
21 has what without a -- without taking the time to review the  
22 records.  
23

24 Mr. Hartman has three wells that are  
25 the subject of this application.

26 Q And do you know how many he has that  
27 overlap?

28 A Not right offhand I don't.

1  
2 Q You haven't tried to make that tabula=  
3 tion?

4 A No, sir, I have not.

5 Q And you haven't tabulated how many other  
6 wells overlap in the pool.  
7

8 A I have not, but there are a significant  
9 number. I don't have Mr. Runyon's study with me, but there  
10 are a significant number of wells, and that's indicated by  
11 the fact that this docket is -- is pretty well concerned with  
12 cases that involve the overlap.

13 Q Well, would it surprise you to know that  
14 Mr. Hartman has a significantly more --  
15

16 A I'm not prepared to render an opinion  
17 on that. I don't believe that's within the realm of the  
18 questions as I'm expected to answer, as I understand it.

19 Q You don't know whether he does or not,  
20 then?

21 A I don't know whether he does or not and  
22 I'm not prepared to render an opinion on that.  
23

24 Q All right.

25 MR. KILPATRIC: I have no further ques-  
26 tions, Mr. Examiner.  
27  
28

## CROSS EXAMINATION

BY MR. NUTTER:

Q. Mr. Aycock, after the Commission appointed that committee and came up with that definition back in the early 50's and decided what the boundary of the Jalmat Pool should be and what the boundary of the Langlie Mattix should be, has anyone ever filed an application, to your knowledge, requesting a clarification or a pinpoint as to what the top of the Queen should be?

A. Not to my knowledge, Mr. Nutter, no.

Q. And that definition is not pinpointed in Order R520 or in other order --

A. No, sir.

Q. -- or in any other order --

A. It just says --

Q. -- as a specific depth on a type log?

A. No, sir. It does not give a type log. There is no objective definition of which I'm aware that's anywhere in a public record source that could be obtained by an operator. If you will not --

Q. It just says that the Jalmat shall be all of the Seven Rivers -- the other formations and all of the Seven Rivers except the lowermost 100 feet.

A. As near as I can quote it, which will

1  
2 not be exact, Mr. Nutter, it says that the vertical limits of  
3 the Langlie Mattix Pool will extend from the top of the Gray-  
4 burg to a point 100 feet above the base of the Seven Rivers  
5 formation.  
6

7 Q And it doesn't give that Seven Rivers --

8 A No, sir.

9 Q -- formation base on a type log?

10 A No, sir, it does not.

11 Q And so what you're saying is that the  
12 committee and the Commission adopted one point on that log  
13 and Mr. Runyon in making his study recognized that point --  
14

15 A Yes, sir.

16 Q -- that was adopted by the Commission.

17 A Yes, sir.

18 Q But then certain industry people over  
19 the years have used another marker, which they call the CUQ --  
20

21 A Right.

22 Q -- or the commonly used Queen.

23 A And that's just a lithologic marker and  
24 the -- and I'm not trying to sound like I'm trying to blame  
25 anybody, but if you were not a practicing operator at the time  
26 this was done, unless you picked it up by word of mouth,  
27 there's no way -- there's no way in the record of which I'm  
28 aware that you would know that these cross sections existed,



1  
2 and that therefor there was some objective criteria determining  
3 what would be considered the base of the Seven Rivers.  
4

5 So all you could go on was to look at  
6 what industry practice had been in wells that were classified  
7 by the Commission as Langlie Mattix wells within the framework  
8 that you -- when you have farmouts from major companies in  
9 which you have restrictions in those agreements to protect  
10 the leases against drainage, and to adequately test each of  
11 the hydrocarbon-bearing intervals within the farmed out inter-  
12 val, you've got several constraints that you're working under,  
13 and Mr. Hartman simply attempted to find the appropriate com-  
14 promise under all of these constraints.  
15

16 Q Now you have worked -- I've seen you in  
17 here for numerous hearings, working other areas of the Jalmat  
18 Pool besides this specific area here that we're talking about  
19 today, Sections 30 and 20.  
20

21 A Yes, sir.

22 Q Do you feel that a revision of the  
23 vertical limits of the Jalmat and Langlie Mattix is due?  
24

25 A I either --

26 Q On an overall basis throughout the pool?

27 A I don't think that, Mr. Nutter, but it  
28 would be my unqualified recommendation that the Commission  
give consideration to amending the pool rules to provide an

1  
2 objective criterion in one of several forms. I could make  
3 some suggestions, and I'm certainly only rendering these in  
4 terms of suggestions.  
5

6 Number one would be to require that any  
7 operators submit the prospective proration -- I mean the com-  
8 pletion interval within either the Jalmat or the Langlie  
9 Mattix Pool to the Hobbs Office of the Commission for approval  
10 prior to the time he perforated.

11 Number Two would be to specify either  
12 a type log or a series of type logs.  
13

14 Or number three would be to specifically  
15 put into the rules that the cross sections which have now been  
16 made available to the industry in Hobbs are the basis for  
17 the determination of the pool boundaries between the Langlie  
18 Mattix and the Jalmat, and that they will constitute the  
19 criterion for issuing an allowable to various operators in  
20 the various pools.

21 Q Now when you say that they've now been  
22 made available, it sounds like as though they weren't avail-  
23 able?  
24

25 A They were available -- one of them was  
26 not -- the Commission had either misplaced or someone had  
27 extracted from the Commission's files, and they had to --  
28 according to what Mr. Sexton told me, they had to go outside

1  
2 of the Commission -- I don't know whether it was Mr. Burleson,  
3 it was one of the operators that had -- that was aware of the  
4 whole situation and had them, I believe, had to furnish one  
5 of the cross sections to the Commission. That's my under-  
6 standing.  
7

8 They have now been placed, I believe  
9 it's the Superior Office Service in Hobbs, and I personally  
10 have gotten five copies of all of them.

11 Q I see, and would you also recommend then  
12 that the Commission or the Division should adopt a specific  
13 marker, then, on a type log --  
14

15 A Yes, sir.

16 Q -- and use that?

17 A Yes, sir. I think that would --

18 Q And all people would be --

19 A I think everybody would be put on public  
20 record notice that at that point there was an objective criterion  
21 for determining, and I think, I would recommend that whatever  
22 objective criterion the Commission might give consideration to,  
23 in addition, the Commission should require all operators  
24 to submit their prospective completion intervals to the  
25 Hobbs Office prior to the time that the wells are perforated  
26 for prior approval. I think that would eliminate the problem  
27 entirely.  
28

1  
2 Q Well, will this cause some delay, I  
3 mean, from the time that you run your logs on a well till the  
4 time you're ready to perforate, to get that approved by --

5 A It might. It might cause some delay  
6 but in my personal opinion it would be worth it to avoid a  
7 burdensome situation for both the Commission and the operators  
8 having to come in here and request exceptions when mistakes  
9 are made.  
10

11 Q I see.  
12 MR. NUTTER: Are there any further  
13 questions of Mr. Aycock? He may be excused.

14 Do you have any other witnesses, Mr.  
15 Carr?  
16

17 MR. CARR: No, Mr. Nutter, we don't.

18 MR. NUTTER: Mr. Kilpatric?

19 MR. KILPATRIC: Yes, Mr. Nutter, we have  
20 one witness.  
21

22 ROYCE LUBKE  
23 being called as a witness and having been duly sworn upon his  
24 oath, testified as follows, to-wit:  
25

26  
27 DIRECT EXAMINATION

28 BY MR. KILPATRIC:

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Q. Would you please state your name for the record?

A. My name is Royce Lubke.

Q. By whom are you employed, Mr. Lubke?

A. ARCO Oil and Gas Company.

Q. And in what capacity?

A. I'm an area engineer.

Q. Have you testified before the Commission before as an engineer and had your qualifications accepted as a matter of record?

A. No, sir, I have not.

Q. Then would you briefly outline your educational and employment background for the Commission?

A. I graduated from Texas A&M University in May of 1973 with a BS degree in chemical engineering. At that time I went to work for ARCO Oil and Gas Company in Midland, Texas. I worked there as an operations engineer for Midland under a development training program and then was transferred to Bakersfield, California.

In Bakersfield I worked as an operations engineer for two and a half years. My responsibilities were development drilling, waterflood analysis, and farmouts and any evaluations.

Then I was transferred back to Midland,

1  
2 Texas, in January of 1977. Since that time I have worked as  
3 an operations engineer, also performing development drilling,  
4 evaluating development drilling prospects, and monitoring  
5 waterfloods, tertiary recovery, and other enhanced recovery  
6 projects.  
7

8 And in December of last year I was pro-  
9 moted from an operation engineer to first land manager with  
10 a title of Area Engineer.

11 MR. KILPATRIC: Mr. Nutter, are the  
12 witness' qualifications accepted?

13 MR. NUTTER: Yes, they are.

14 Q Mr. Lubke, are you familiar with the  
15 facts and the history underlying the request made in Case  
16 7057 by Mr. Hartman?  
17

18 A Yes, I am.

19 Q And what have you done to become fami-  
20 liar with these facts and this history?

21 A Well, I've reviewed the completion in-  
22 tervals and production histories and the working and net in-  
23 terest in the acreage in the area under question.

24 Q I ask you now to turn your attention to  
25 what has been marked as ARCO's Exhibit Number One, and ask  
26 you to tell the Hearing Examiner just what this exhibit is  
27 and how it was prepared.  
28

1  
2 A. This is a nine section plat centered on  
3 Section 29, Township 24, Range 37, Lea County, New Mexico.  
4 Circled in red are the three wells under question in Case  
5 7057. The 320 acres in Section 29 circled in red is ARCO  
6 acreage 100 percent in the Jalmat. We have farmed out the  
7 Langlie Mattix to a Mr. Yuronka in the northwest quarter and  
8 also the west half of the southeast -- or southwest quarter  
9 of it.  
10

11 We also own a 25 percent working inter-  
12 est in the northeast quarter of Section 30.

13 Q. Would you next turn your attention to  
14 what has been marked for identification as ARCO Exhibits Two,  
15 Three, and Four, and describe them and tell how they were  
16 prepared?  
17

18 A. Okay. These are log sections of the  
19 three wells in question in Case 7057.

20 Our Exhibit Two is of the Eddie Corrigan  
21 No. 1 Doyle Hartman Well, and Exhibit Number Three is the  
22 Eddie Corrigan No. 2, operated by Doyle Hartman, and Exhibit  
23 Number Four is the Henry Harrison No. 1, operated by Doyle  
24 Hartman.  
25

26 These are gamma ray density logs with  
27 the gamma ray in the lefthand column and the density in the  
28 righthand track, and the porous zones are shown by the density

1  
2 log, which is in the righthand track. Those porous zones are  
3 denoted by kicks to the left.

4 On these logs the tops of the different  
5 formations as picked by the New Mexico Oil Conservation Com-  
6 mission are shown by dotted lines, those being the Yates,  
7 Seven Rivers, and Queen formations.  
8

9 The Jalmat zone, which consists of the  
10 Yates and that portion of the Seven Rivers which is 100 feet  
11 above the Queen, is -- is the portion shown above the red  
12 line labeled Langlie Mattix.

13 The Langlie Mattix Pool is the zone  
14 which is -- starts with a point 100 feet above the top of the  
15 Queen and extends through the Queen.  
16

17 As you can see in all of these exhibits,  
18 the perforated portion continues a good distance above what  
19 is considered to be the top of the Langlie Mattix interval.

20 Q Can you tell me whether or not these  
21 exhibits give you any indication as to why the wells which  
22 are the subject of the exhibits were perforated above the  
23 Langlie Mattix Pool?  
24

25 A It's obvious to me that Mr. Hartman  
26 was trying to pick up a little bit more pay interval, so he  
27 perforated some distance above the top of the Langlie Mattix  
28 interval. This is particularly apparent in Exhibits Number



Two and Four, which are the Eddie Corrigan No. 1 and the Henry Harrison No. 1. Here we see that the major portion, or the largest pay portion that is perforated lies within the Jalmat interval.

It is not quite so apparent on Exhibit Three on the Eddie Corrigan No. 2; however, there is about twice as many feet perforated in the Jalmat as there is in the Langlie Mattix.

Q From your examinations of these exhibits, Mr. Lubke, are you able to form a conclusion as to where most of the production is coming from?

A Yes, sir. It is apparent from my observation that most of the production has to be coming from the Jalmat.

Q Now I'd like to refer you out of numerical sequence to what has been marked as ARCO Exhibit Number Six and ask you to explain it -- how that exhibit was prepared.

A Okay. ARCO Exhibit Number Six is a map of the large portion of southern Lea County, which should include all of the Langlie Mattix and Jalmat Pools.

On there are a number of dots which show those wells which were outlined in Mr. Runyon's study of May 1st, 1980, which were found to be perforated out of interval

1  
2 in the Langlie Mattix, or out of interval in the Jalmat,  
3 whichever the case may be.

4 Those shown in light yellow are the --  
5 the rest of the industry's; those shown in red are those per-  
6 forated out of zone by Mr. Hartman.

7  
8 Q Have you tabulated the total number of  
9 wells owned by Mr. Hartman in the area and compared it to  
10 total number of wells in the area and compared also the --  
11 those wells of Mr. Hartman's which have been drilled outside  
12 the Langlie Mattix in comparison --

13 A Yes, Mr. Hartman has perforated some  
14 eight wells out of the Langlie Mattix zone, as shown by the  
15 red dots on the map. This amounts to some 23 percent, or 23-  
16 1/2 percent of those total wells that are in violation of  
17 Commission rules.

18  
19 Now, there was originally 50 wells that  
20 were found to be in violation. I think the tabulation is  
21 somewhere down around 34 or 35 at the present time, if I --  
22 if I have been keeping abreast of what has been going on.

23 This eight also constitutes 20-1/2 per-  
24 cent of the total number of wells that Mr. Hartman operates  
25 in the Langlie Mattix and Jalmat pools, which is a sizeable  
26 portion of his total operation.

27  
28 Okay. Industry-wide, let's see, the

1  
2 next -- the next three largest individuals in violation have  
3 a total of nine wells, which amount to 26-1/2 percent of the  
4 total violations.

5 Q When you say that, it means three wells  
6 for each --  
7

8 A Each of the three.

9 Q Each of the three.

10 A Nine wells total. It takes three of  
11 the -- of all of the rest of the largest -- the next three  
12 largest people in violation to equal Mr. Hartman, and this  
13 amounts to 26-1/2 percent, which is slightly more than what  
14 he has; however, those three people operate only 3.1 -- or  
15 this amounts to only 3.1 percent of the total wells that they  
16 do operate.  
17

18 So it appears to me that Mr. Hartman  
19 is somewhat alone in the problem with picking the top of the  
20 Queen, since 1954.

21 MR. CARR: I'm going to object to this.  
22 I'm going to object to this line of questioning. Mr. Hartman  
23 is not here being tried today because he happens to have  
24 eight of thirty, or eight of thirty-six, or whatever the  
25 figure was.  
26

27 The question here is whether or not the  
28 wells that are the subject of this application are on tracts

1  
2 for which an exception to the vertical limits of the Langlie  
3 Mattix Pool appropriately can be granted.

4 I submit that this entire line of  
5 questioning is irrelevant and certainly outside anything be-  
6 fore this Commission and raises questions which, if they're  
7 appropriate at all, certainly are not appropriate before a  
8 body of this nature.  
9

10 MR. NUTTER: I think you may be correct,  
11 Mr. Carr. We do have the record here that on this exhibit  
12 that the yellow dots represent wells that are completed by  
13 other operators; the red wells represent wells that are com-  
14 pleted by Mr. Hartman.  
15

16 MR. KILPATRIC: Yes.

17 MR. NUTTER: Go ahead.

18 A. Okay.

19 Q. Now let's turn to what has been marked  
20 for identification as ARCO's Exhibit Number Five and describe  
21 that exhibit for the Commission.  
22

23 A. Okay. Exhibit Five is a comparison of  
24 gas allowables for the Langlie Mattix and Jalmat Pools on  
25 equivalent tracts, and this is the October, 1980, daily allow-  
26 able, and you can see from there that Mr. -- on Mr. Hartman's  
27 40-acre tract assuming a Langlie Mattix gas allowable, he  
28 would be allowed 800 Mcf of gas per day, while on ARCO's off-

1  
2 set 40-acre Jalmat tract we would only be allowed 94 Mcf a  
3 day, which Mr. Hartman would be allowed something like eight  
4 and a half times what our allowable would be.

5 Q And what effect, if any, would that have  
6 upon the correlative rights of the two owners?  
7

8 A Well, it's no doubt that Mr. Hartman  
9 would be draining reserves from the ARCO acreage.

10 Q Does ARCO have any remedy for this  
11 drainage?  
12

13 A ARCO recommends that Mr. Hartman be  
14 required to squeeze off his -- the interval he perforated in  
15 the Jalmat.

16 Q Were ARCO Exhibits Numbers One through  
17 Six prepared by you or under your direction?

18 A Yes, they were.

19 MR. KILPATRIC: At this time I move for  
20 the admission of Exhibits One through Six.

21 MR. NUTTER: Exhibits One through Six  
22 will be admitted in evidence.  
23

24 MR. KILPATRIC: Thank you.

25 Q Mr. Lubke, can you summarize for the  
26 Examiner why ARCO opposes Mr. Hartman's application to extend  
27 the vertical limits in the Langlie Mattix Pool?

28 A Yes. ARCO opposes Mr. Hartman because

1 of the facts previously presented. First of all, there's a  
2 disproportionality between the allowables which we will re-  
3 ceive for the Jalmat as compared to what he receives in the  
4 Langlie Mattix.  
5

6 Also, we have farmed out our Langlie  
7 Mattix rights to a Mr. Yuronka in the acreage offset to Mr.  
8 Hartman's wells and have no recourse to be able to extend our  
9 limits to the Langlie Mattix because that would then give the  
10 rights to Mr. Yuronka.  
11

12 And I feel it's apparent from the ob-  
13 servations that I have made that Mr. Hartman has disregarded  
14 the rules laid out by the New Mexico Oil Conservation Commis-  
15 sion.  
16

17 Q. Thank you, Mr. Lubke.

18 MR. KILPATRIC: No further questions,  
19

20 Mr. Nutter.  
21

22 CROSS EXAMINATION

23 BY MR. NUTTER:

24 Q. name, please?

25 Mr. Lubke, or -- how do you spell your  
26

27 A. L-U-B-K-E.

28 Q. I had L-U-P-K-E. What's your first  
name?

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28

A. Royce.

Q. As in Rolls?

A. Yes, sir.

Q. Mr. Lubke, on your Exhibit Number One, now you show on your ARCO acreage a gas well there in the southwest quarter of Section 29. Is that a Jalmat gas well?

A. Southwest quarter, the --

Q. That 1.

A. Yes, sir, that is a gas well.

Q. Okay, that's in the Jalmat?

A. Yes, sir.

Q. And then you show No. 3 and 4 being oil wells. Are those Yuronka Langlie Mattix oil wells?

A. Yes, sir.

Q. And No. 6 there in the southwest quarter, what is it?

A. That is an ARCO operated Jalmat gas well.

Q. Now up in the northwest quarter, you've got that No. 2 gas well. Is it a Jalmat gas well?

A. Yes, sir.

Q. And the oil wells there, what about them?

A. They're Yuronka Langlie Mattix oil

1  
2 wells.

3 Q All Yuronka?

4 A Yes, sir.

5 Q So you have no Langlie Mattix rights  
6 here any more; you farmed all of your Langlie Mattix out to  
7 Yuronka, but you have three Jalmat gas wells on the west  
8 half.  
9

10 A Yes, sir, that's correct. All except  
11 the east half of the southwest quarter, we have not farmed  
12 out that portion in the Langlie Mattix.

13 Q Okay, and -- now, on your Exhibits Two,  
14 Three, and Four, what does the green line "GO" --  
15

16 A That's the gas/oil contact.

17 Q So it's your opinion, then, that Mr.  
18 Hartman not only has an advantage on gas production, as evi-  
19 denced by your tabulation on Exhibit Five, but he also has  
20 perforations extending beyond the gas/oil contact.  
21

22 A Yes, sir.

23 Q Up into the dry gas section of the Jal-  
24 mat Pool, is that it?

25 A Yes, sir.

26 MR. NUTTER: Mr. Carr, did you have any  
27 questions?  
28



## CROSS EXAMINATION

BY MR. CARR:

Q Mr. Lubke, would you refer to your Exhibit Number One? Does ARCO have any working interest in any of the tracts dedicated to the three Hartman wells in question?

A No, sir.

Q Do you have any operating rights?

A No, sir. We have a 1/128th royalty interest in the south half of Section 30, which would be pertaining to the Corrigan No. 1 and the Corrigan No. 2 Wells, which amounts to very little compared to what we have offset. And the Henry Harrison No. 1, we have no operating rights, right.

Q When did ARCO acquire its interest in the west half of Section 29?

A I really don't know when we acquired it.

Q Do you have any idea? Has it been twenty years or --

A It's been a number of years. We have a large number of Harrison leases in this area. I couldn't testify the exact number of years, but I would say we've had it a long time.

Q Could it have been acquired back in the

1  
2 50's or 40's?

3 A Yes, sir, it could have.

4 Q  
5 Could it have been acquired while ex-  
6 ceptions were in existence for the leases on which the present  
7 Hartman wells are drilled?

8 A I don't know whether it could have or  
9 not.

10 Q Is it possible?

11 A I'm not qualified to answer that ques-  
12 tion.

13 Q  
14 I'd like to direct you to your Exhibit  
15 Number Two. The marker that you're using as the Queen marker  
16 on this exhibit, is that the Queen marker as defined by the  
17 Commission?

18 A Yes, sir.

19 Q  
20 And so the other -- the limits of the  
21 Langlie Mattix are 100 feet above that marker, is that correct?

22 A Yes, sir.

23 Q  
24 Now I believe you stated that most of  
25 the production, in your opinion, was coming from the Jalmat,  
26 not from the Langlie Mattix, is that correct?

27 A Yes, sir.

28 Q On what do you base this conclusion?

A I'm basing that on porosity feet. The

1  
2 curve on the righthand track is a density log, and that curve  
3 reading bulk density. And the bulk density, of course, is  
4 proportional to a porosity and any large kicks to the left  
5 represent more porosity than -- than the smaller ones. There-  
6 for, say, on Exhibit Two right at the top of the perforated  
7 interval there is a very large kick to the left, and another  
8 smaller one below it, and you see no responses that large in  
9 the portion down below what is marked as the top of the Langlie  
10 Mattix.  
11

12 Q A substantial portion of the pay, how-  
13 ever, does fall within the traditional definition of the  
14 Langlie Mattix, is that not correct?  
15

16 A Some -- some of it does. I would say  
17 the majority of it is in the Jalmat.

18 Q Looking at your Exhibit Number Six,  
19 you've indicated a number of wells that according to the  
20 Commission report are completed above the traditional top of  
21 the Langlie Mattix, is that correct?  
22

23 A Yes, sir.

24 Q Have you indicated the other wells in  
25 the area that are completed in comparable intervals but which  
26 are operating under exceptions granted by this Commission?  
27

28 A No, sir. No, sir, I have not because  
I -- I felt like everybody's been operating under the same

rules since 1954, so I outlined only those wells which were out of -- or in violation after that ruling had been issued.

Q Is the Langlie Jal Unit immediately to the south of the subject wells?

A I do not show the Langlie Jal Unit on my map.

Q Would you refer to what has been introduced in this case as Hartman Exhibit Number Seven? I direct your attention to the acreage colored in yellow and ask you if that appears to be the boundaries of the Langlie Jal Unit?

A Yes, sir.

Q Now where does that lie with respect to the subject wells?

A It lies directly south.

Q Now, are you aware that that is operating under an exception to the vertical limits of the Langlie Mattix Pool?

A Yes, sir.

Q If you indicated all wells on this plat that are perforated above the traditional top of the Langlie Mattix, wouldn't you have hundreds of additional wells to put on your exhibit Number Six?

A No, sir, I only included those that were operating without an exemption.

1  
2 Q But if you included those that had the  
3 exemption, wouldn't there be hundreds of additional wells to  
4 add to your exhibit?

5 A Yes, sir, there would.

6 MR. CARR: I have nothing further on  
7 cross.  
8

9  
10 RECROSS EXAMINATION

11 BY MR. NUTTER:

12 Q Mr. Lubke, on determining that gas/oil  
13 contact on those Exhibits Two, Three, and Four of yours, how  
14 was that gas/oil contact determined?

15 A That was from the -- the gas/oil contact  
16 accepted, generally accepted in the area.  
17

18 Q Is that the old gas/oil contact that  
19 was picked plus 150 feet subsea, or whatever it was, years and  
20 years ago?

21 A Yes, sir. Yes, sir, approximately.

22 Q It's not any current gas/oil contact,  
23 is it?  
24

25 A No, sir.

26 MR. NUTTER: Are there any other ques-  
27 tions of Mr. Lubke? He may be excused.

28 Do you have anything further, Mr. Kil-

1  
2 patric?

3 MR. KILPATRIC: No. No, that's all.

4 MR. NUTTER: Does anyone have anything  
5 they wish to offer in Case Number 7057?  
6

7 We'll take the case under advisement.

8  
9 (Hearing concluded.)  
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C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that  
the foregoing Transcript of Hearing before the Oil Conserva-  
tion Division was reported by me; that the said transcript  
is a full, true, and correct record of the hearing, prepared  
by me to the best of my ability.

Sally W. Boyd C.S.R.

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

I do hereby certify that the foregoing is  
a true and correct copy of the transcript  
of the hearing held on 10/29 1980  
at 7057  
80  
Examiner  
Oil Conservation Division

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 7057  
Order No. R-6524

APPLICATION OF DOYLE HARTMAN FOR  
EXTENSION OF VERTICAL LIMITS OF  
THE LANGLIE-MATTIX POOL, LEA  
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 29, 1980,  
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 25th day of November, 1980, the Division  
Director, 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 Division has jurisdiction of this cause and the  
subject matter thereof.

(2) That the applicant, Doyle Hartman, seeks the contrac-  
tion of the vertical limits of the Jalnet Pool and the upward  
extension of the vertical limits of the Langlie-Mattix Pool to  
the following depths underlying the following 40-acre tracts  
in Township 24 South, Range 37 East, Lea County, New Mexico:  
3364 feet underlying the SE/4 SE/4 of Section 30, dedicated to  
applicant's Corrigan Well No. 1; 3389 feet underlying the  
NE/4 SE/4 of Section 30, dedicated to applicant's Corrigan  
Well No. 2; and 3390 feet underlying the SE/4 SW/4 of Section  
20, dedicated to applicant's Harrison Well No. 1.

(3) That the vertical limits of the Jalnet Pool as defined  
by Order No. R-520, dated August 12, 1954, include the Tansill  
and Yates formations and all but the lowermost 100 feet of the  
Seven Rivers formation.



(4) That the vertical limits of the Langlie-Mattix Pool, as defined by said Order No. R-520, include the lowermost 100 feet of the Seven Rivers formation and all of the Queen formation.

(5) That there has been some disparity among some geologists as to the actual base of the Seven Rivers formation and the top of the Queen formation and hence as to the location of the 100-foot marker separating the Jalmat and Langlie-Mattix Pools.

(6) That as a result of this disparity, the subject wells and certain other wells in the general area which are classified as Langlie-Mattix wells have perforations extending across the aforesaid 100-foot marker in the Seven Rivers formation and into the Jalmat Pool.

(7) That such crossing over from one pool into the other in this case appears to be an unintentional error.

(8) That to rectify the aforesaid error would require workover operations on the subject wells which would be expensive and might endanger the productivity of the subject wells, and would actually serve no beneficial purpose, inasmuch as the production and reservoir characteristics of the perforations immediately above and below the 100-foot marker are quite similar.

(9) That a reasonable solution to the problem is to adjust the vertical limits of the Langlie-Mattix Pool upward under each of the above-described tracts in order to accommodate the present perforations in the lower Seven Rivers formation in the subject wells which are actually within the present Jalmat vertical limits.

(10) That such adjustment will prevent waste and should not impair correlative rights and should be approved.

IT IS THEREFORE ORDERED:

(1) That the lowermost vertical limits of the Jalmat Pool underlying the SE/4 SE/4 and the NE/4 SE/4 of Section 30, and the SE/4 SW/4 of Section 20, Township 24 South, Range 37 East, NMPM, Lea County, New Mexico, are hereby contracted to a subsurface depth of 3364 feet, 3389 feet, and 3390 feet, respectively, and the uppermost limits of the Langlie-Mattix Pool underlying said tracts are hereby extended upward to the same subsurface depths.

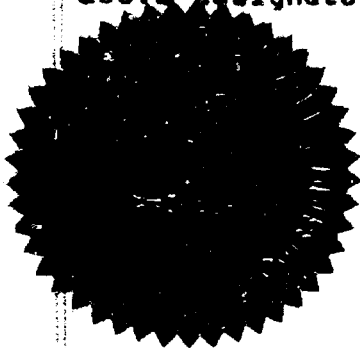
-3-

Case No. 7057  
Order No. R-6524

(2) That the effective date of the aforesaid revisions of the vertical limits of said pools underlying each of the aforesaid tracts shall be the date the Corrigan Well No. 1 was perforated between 3364 feet and 3434 feet, the date when the Corrigan Well No. 2 was perforated between 3389 feet and 3468 feet, and the date when the Harrison Well No. 1 was perforated between 3390 feet and 3435 feet, respectively.

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

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

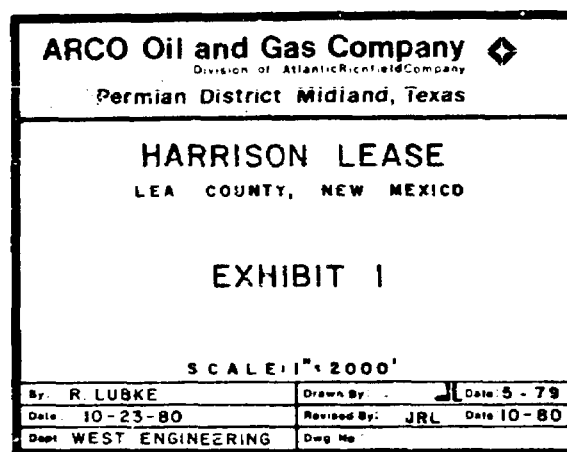


SEAL

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

*Joe D. Ramey*  
JOE D. RAMEY  
Director

rd/





**ENERGY AND MINERALS DEPARTMENT**  
**OIL CONSERVATION DIVISION**

BRUCE KING  
GOVERNOR  
LARRY KEHOE  
SECRETARY

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87501  
(505) 827-2434

November 26, 1980

Mr. William F. Carr  
Campbell and Black  
Attorneys at Law  
Post Office Box 2208  
Santa Fe, New Mexico

Re: CASE NO. 7057  
ORDER NO. R-6524

**Applicant:**

Doyle Hartman

**Dear Sir:**

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

Yours very truly,

JOE D. RAMEY  
Director

JDR/fd

**Copy of order also sent to:**

Hobbs OCD	x
Artesia OCD	x
Aztec OCD	

Other Gary Kilpatrick

DOYLE HARTMAN  
GULF - EDDY CORRIGAN NO. 1

990' FSL & 330' FEL  
SEC 30, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL KB 3261'

*Hamme Ray*

*Density*

YATES — — — — —

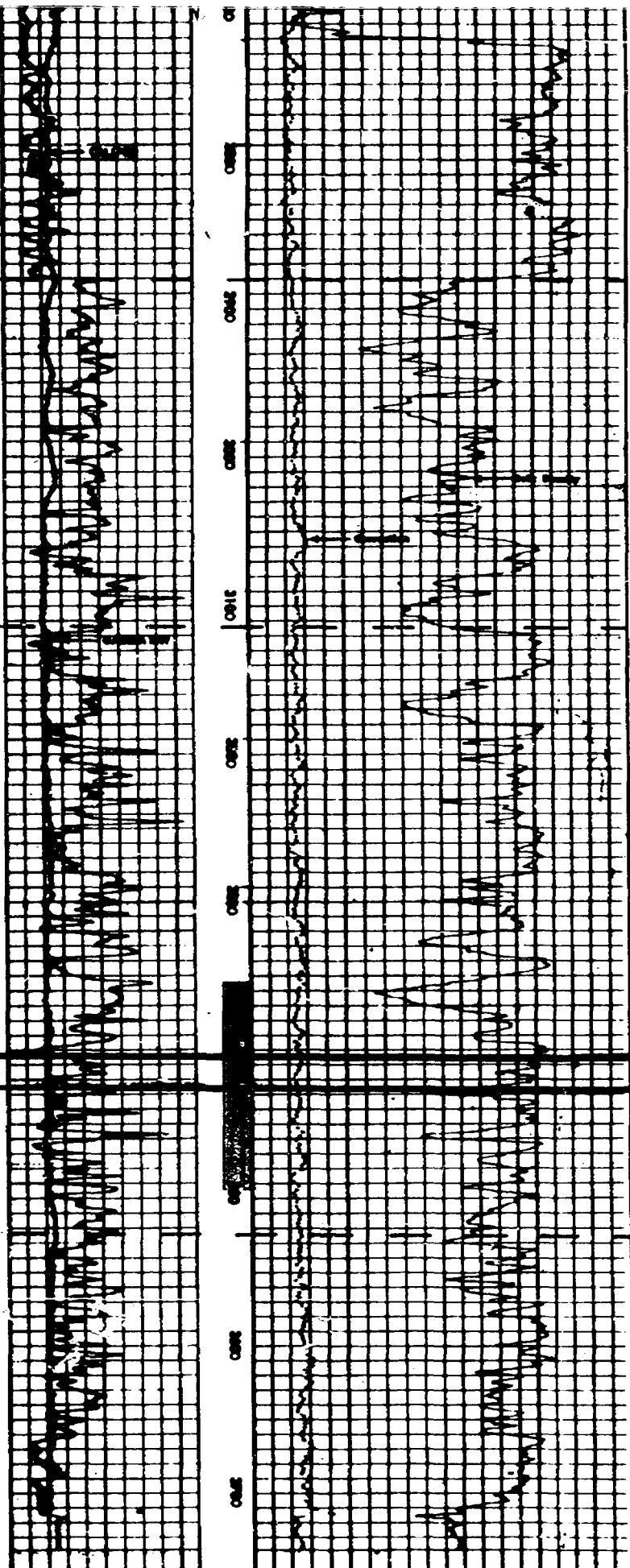
SEVEN RIVERS — — — — —

*Gas oil contact*

G/O  
LANGLIE - MATTIX — — — — —

QUEEN — — — — —

BEFORE EXAMINER MUTTER	
OIL CONSERVATION DIVISION	
ARCO	EXHIBIT NO. 2
CASE NO.	7057



DOYLE HARTMAN  
GULF - EDDY CORRIGAN NO. 2

2310' FSL & 330' FEL  
SEC 30, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL. KB 3266'

YATES — — — — —

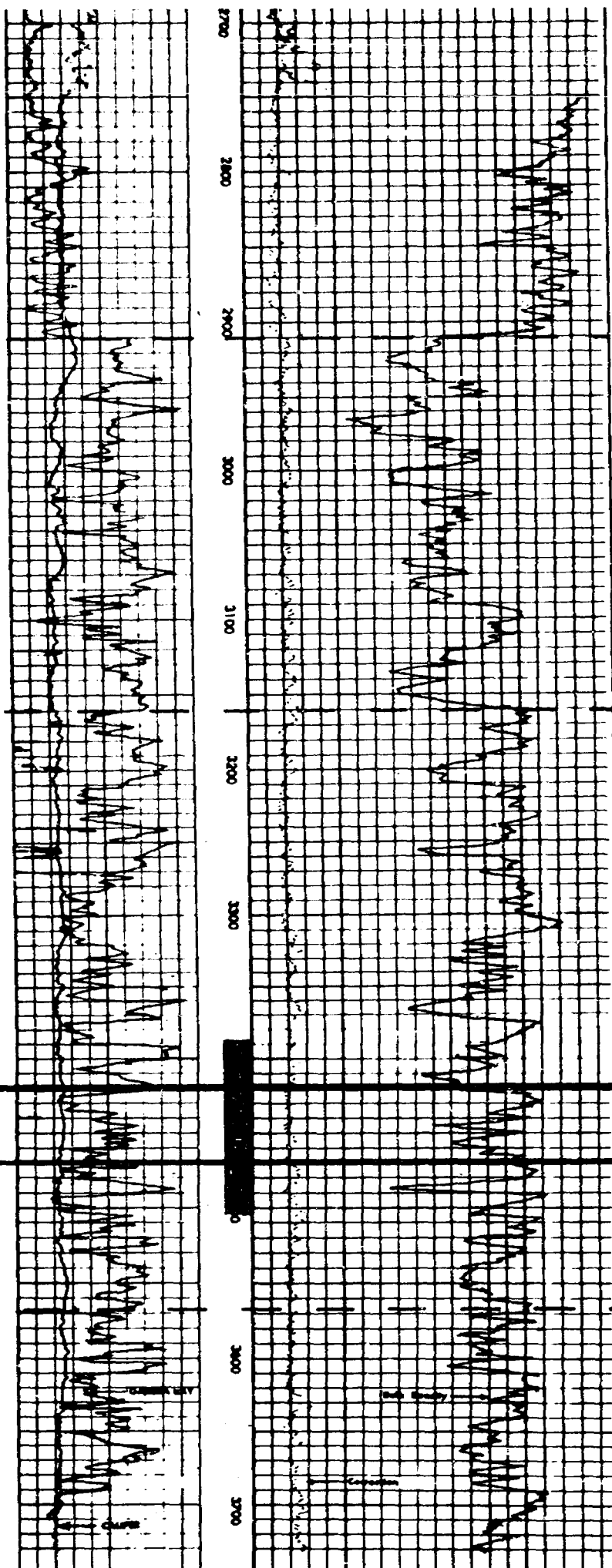
SEVEN RIVERS — — — — —

G/O

LANGLIE-MATTIX

QUEEN — — — — —

RECEIVED BY THE DIRECTOR	
OF THE NEW MEXICO DEPARTMENT OF	
ARCO	EXHIBIT NO. 3
CASE NO.	7057



DOYLE HARTMAN  
HENRY HARRISON NO. 1

1650' FWL & 330' FSL  
SEC. 20, T 24 S, R 37 E  
LEA COUNTY, NEW MEXICO  
EL K B 3292

YATES — — — — —

SEVEN RIVERS — — — — —

LANGLIE - MATTIX  
G/O — — — — —

QUEENS — — — — —

DOYLE HARTMAN NUTTER	
OIL CO. OF NEW MEXICO	
ARCO	EXHIBIT NO. 4
CASE NO.	7057

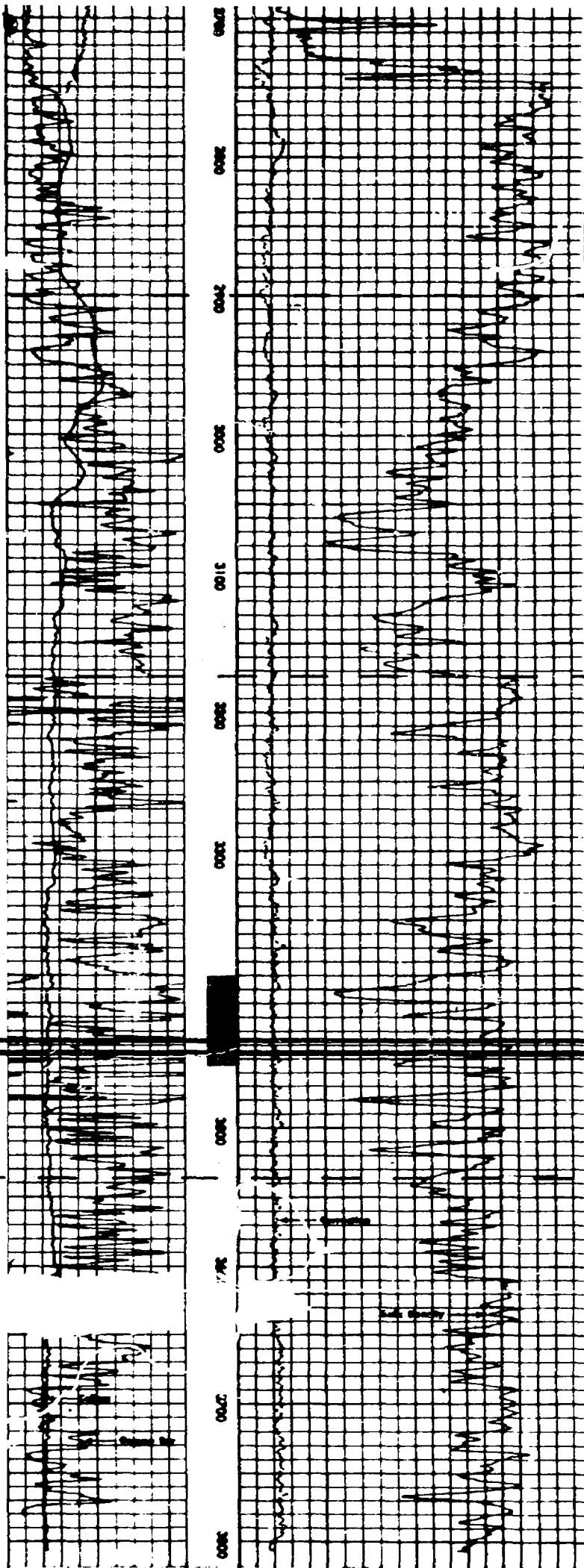


EXHIBIT 5

COMPARISON OF GAS ALLOWABLES  
FOR LANGLIE MATTIX AND JALMAT POOLS ON  
EQUIVALENT TRACTS

	D. Hartman 40-Acre Langlie <u>Mattix Gas</u>	ARCO Offset 40- Acre <u>Jalmat Gas</u>
October, 1980 Daily Allowable	800 MCFD	94 MCFD

BEFORE EXAMINER NUTTER  
OIL COMMISSION DIVISION  
ARCO EXHIBIT NO. 5  
CASE NO. 7057



Dockets Nos. 36-80 and 37-80 are tentatively set for November 12 and 25, 1980. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 29, 1980

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

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

CASE 7055: (This case will be continued to the November 25 hearing.)

Application of Union Oil Company of California for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Eaves-Lea Unit Area, comprising 2209 acres, more or less, of State and Federal lands in Township 21 South, Ranges 32 and 33 East.

CASE 7056: Application of Getty Oil Company for the extension of vertical limits of the Langlie Mattix Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the vertical limits of the Jalmat Pool and the upward extension of the vertical limits of the Langlie Mattix Pool to a depth of 3540 feet, subsurface, under the NW/4 SW/4 of Section 3, Township 24 South, Range 36 East.

CASE 7057: Application of Doyle Hartman for the extension of vertical limits of the Langlie Mattix Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the vertical limits of the Jalmat Pool and the upward extension of the vertical limits of the Langlie Mattix Pool to the following depths underlying the following 40-acre tracts in Township 24 South, Range 37 East: SE/4 SE/4 of Section 30: 3364 feet; NE/4 SE/4 of Section 30: 3389 feet; and SE/4 SW/4 of Section 20: 3390 feet.

CASE 7058: Application of Tahoe Oil & Cattle Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Jalmat and Langlie Mattix production in the wellbores of its Harrison Wells Nos. 1 and 2 located in Units A and H. respectively, and its Judy Well No. 1 located in Unit C, all in Section 7, Township 25 South, Range 37 East.

CASE 7059: Application of Gulf Oil Corporation for the extension of vertical limits of the Langlie Mattix Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the vertical limits of the Jalmat Pool and the upward extension of the vertical limits of the Langlie Mattix Pool to a depth of 3406 feet under the W/2 SW/4 of Section 30, Township 24 South, Range 37 East.

CASE 7060: Application of Mobil Producing Inc. for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Jalmat and Langlie Mattix production in the wellbores of its Humphrey Queen Unit Wells Nos. 13 in Unit I of Section 4 and 16 in Unit K of Section 3 and its Langlie Mattix Queen Unit Well No. 10 in Unit C of Section 15, all in Township 25 South, Range 37 East.

CASE 7061: Application of Bettis, Boyle & Stovall for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Jalmat and Langlie Mattix production in the wellbore of its Justis B Well No. 8 located in Unit G of Section 20, Township 25 South, Range 37 East.

CASE 7062: Application of El Paso Natural Gas Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Jalmat and Langlie Mattix production in the wellbore of its Carlson Federal Well No. 2 located in Unit N of Section 23, Township 25 South, Range 37 East.

CASE 7063: Application of Lewis Burleson for the extension of vertical limits of the Langlie Mattix Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the vertical limits of the Jalmat Pool and the upward extension of the vertical limits of the Langlie Mattix Pool to a depth of 3150 feet under the SE/4 NW/4 of Section 22, Township 25 South, Range 37 East.

CASE 7041: (Continued from October 8, 1980, Commission Hearing)

Application of John Yuronka for the extension of vertical limits of the Langlie Mattix Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the contraction of the vertical limits of the Jalmat Pool and the upward extension of the vertical limits of the Langlie Mattix Pool to a depth of 3,408 feet, subsurface, under the NW/4 SW/4 of Section 17, Township 24 South, Range 37 East.

CASE 7064: Application of El Paso Natural Gas Company for an unorthodox location and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the simultaneous dedication of a previously approved 440-acre proration unit comprising the S/2, S/2 NW/4, and NW/4 NW/4 of Section 33, Township 25 South, Range 37 East, Jalmat Gas Pool, to its Gregory Fed. Well No. 1 located in Unit J and its Gregory Fed. A Well No. 2, at an unorthodox location in the center of Unit L of said Section 33.

- CASE 7065: Application of El Paso Natural Gas Company for twelve non-standard proration units, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the establishment of eight non-standard proration units for Pictured Cliffs wells to be drilled in the W/2 of partial Sections 6, 7, 18, 19, 30 and 31 of Township 30 North, Range 4 West, and four non-standard proration units for Pictured Cliffs wells in partial Sections 7, 8, and 9 of Township 28 North, Range 4 West.
- CASE 7066: Application of Conoco Inc. for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Britt "B" Well No. 27 located in Unit C of Section 13, Township 20 South, Range 37 East, to produce oil from the Weir-Drinkard or an undesignated Blinbry pool and an undesignated Abo pool.
- CASE 7067: Application of Conoco Inc. for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Dagger Draw Com. Well No. 4 located in Unit J of Section 23, Township 19 South, Range 24 East, to produce oil from the North Dagger Draw-Upper Penn Pool and gas from an undesignated Morrow pool.
- CASE 7068: Application of Conoco Inc. for a dual completion and an unorthodox well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Penny Federal Com. Well No. 2 at an unorthodox location 1650 feet from the North line and 1980 feet from the East line of Section 23, Township 20 South, Range 24 East, to produce oil from the South Dagger Draw-Upper Penn Pool and gas from an undesignated Morrow pool.
- CASE 7069: Application of Anadarko Production Company for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Morrow test well to be drilled 660 feet from the South and East lines of Section 4, Township 19 South, Range 25 East, the S/2 of said Section 4 to be dedicated to the well.
- CASE 7070: Application of Tesoro Petroleum Corporation for a pilot caustic flood project, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a one-acre pilot caustic flood project in the Hospah Field by the injection of caustic fluid into the Seven Lakes Sand of the Upper Hospah Field at an approximate depth of 300-500 feet through four injection wells in Unit K of Section 1, Township 17 North, Range 9 West.
- CASE 7071: Application of Jake L. Hamon for an unorthodox well location and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the simultaneous dedication of a 640-acre proration unit comprising all of Section 17, Township 20 South, Range 36 East, North Osudo-Morrow Pool, to its Amerada Federal Well No. 2 located in Unit F and its Amerada Federal Well No. 3, to be drilled at an unorthodox location 1650 feet from the South line and 660 feet from the East line of said Section 17.
- CASE 6668: (Reopened and Readvertised)
- In the matter of Case 6668 being reopened pursuant to the provisions of Order No. R-6139 which order promulgated temporary special rules and regulations for the South Culebra Bluff-Bone Spring Pool in Eddy County, New Mexico, including a provision for 80-acre spacing units. Operators in said pool may appear and show cause why the pool should not be developed on 40-acre spacing units.
- CASE 7005: (Continued from September 17, 1980, Examiner Hearing)
- Application of Sol West III for an NCPA determination, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks a new onshore reservoir determination in the Morrow formation for his Turkey Track-Morrow Sand Well No. 1 in Unit I of Section 26, Township 18 South, Range 28 East.
- CASE 7072: Application of Enserch Exploration, Inc. for pool creation and special pool rules, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Pennsylvanian oil pool for its Enserch Amoco State Well No. 1 located in Unit L of Section 16, Township 4 South, Range 33 East, and the promulgation of special pool rules therefor, including a provision for 80-acre spacing.
- CASE 7073: Application of Enserch Exploration, Inc. for pool creation, temporary special pool rules, and assignment of a discovery allowable, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Fusselman oil pool for its J. G. O'Brien Well No. 1 located 1980 feet from the North line and 660 feet from the West line of Section 31, Township 7 South, Range 29 East, with special rules therefor, including provisions for 80-acre spacing, a limiting gas-oil ratio of 3000 to one and special well location requirements providing for the drilling of wells within 150 feet of the center of a quarter-quarter section. Applicant further seeks approval of a 74.24-acre proration and spacing unit and a discovery allowable for said J. G. O'Brien Well No. 1.

CASE 7074: Application of Enserch Exploration, Inc. for pool creation, an unorthodox gas well location, and non-standard proration unit, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Fusselman gas pool for its J. G. O'Brien Well No. 2 located at an unorthodox location 660 feet from the South and West lines of Section 30, Township 7 South, Range 29 East, to be dedicated to a 308.96-acre non-standard unit comprising the W/2 of said Section 30.

CASE 6822: (Continued from October 1, 1980, Examiner Hearing)

In the matter of Case 6822 being reopened pursuant to the provisions of Order No. R-6293 which order created the West Double X-Wolfcamp Gas Pool as a retrograde gas condensate pool and set special production limitations therein. Operator(s) may appear and present evidence to establish the true nature of the reservoir and proper rates of withdrawal therefrom.

CASE 6643: (Continued from October 1, 1980, Examiner Hearing)

In the matter of Case 6648 being reopened pursuant to the provisions of Order No. R-6124 which order promulgated temporary special rules and regulations for the North Caprock-Mississippian Pool in Lea County, New Mexico, including a provision for 160-acre spacing and a 4000 to one gas-oil ratio limitation. Operators in said pool may appear and show cause why the pool should not be developed on 40-acre spacing with a 2000 to one GOR.

CASE 7045: (Continued from October 15, 1980, Examiner Hearing)

Application of Texas Oil & Gas Corp. for downhole commingling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Atoka and Upper Morrow production in the wellbore of its Superior Federal Com. Well No. 1 located in Unit C of Section 8, Township 20 South, Range 29 East.

CASE 7024: (Continued from October 15, 1980, Examiner Hearing)

Application of Southland Royalty Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the E/2 of Section 35, Township 18 South, Range 29 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7038: (Continued from October 15, 1980, Examiner Hearing)

Application of Natura Energy Corporation for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the San Andres formation underlying the NE/4 NE/4 of Section 6, Township 19 South, Range 39 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

\*\*\*\*\*

Docket No. 35-80

DOCKET: COMMISSION HEARING - FRIDAY - OCTOBER 31, 1980

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205  
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 7075: Application of Berson-Montin-Greer Drilling Corporation for the amendment of pool rules, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of the Special Rules and Regulations for the West Puerto Chiquito-Mangos Oil Pool as promulgated by Order No. R-2565-B and amended by Order No. R-6469, to require that the locations of wells in said pool be at least 1650 feet from the outer boundary of the spacing and proration unit, and that the drilling of wells be controlled so as to allow no more than a 330-foot horizontal deviation from the surface location. Further, that the location of wells on certain specified non-standard proration units approved by Order No. R-6469 should be no closer than 660 feet to the outer boundary of the non-standard unit nor closer than 330 feet to a quarter section line or 10 feet to a quarter-quarter section line. Said specified non-standard units are the two 640-acre units in Township 24 North, Range 1 West; the two 480-acre units in Township 24 North, Range 1 East; the four 640-acre units in Township 26 North, Range 1 West; the 640-acre unit in Township 26 North, Range 1 East; and the two 640-acre units, the three 600-acre units, and the 400-acre unit, all in Township 27 North, Range 1 West. Applicant further seeks an administrative procedure whereby unorthodox locations could be approved upon receipt of written waivers from all offsetting operators being "crowded" by the unorthodox location.

ROUGH

dr/

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 7057

Order No. R-6524

APPLICATION OF DOYLE HARTMAN FOR  
EXTENSION OF VERTICAL LIMITS OF  
THE LANGLIE-MATTIX POOL, LEA COUNTY,  
NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on October 29  
19 80, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this \_\_\_\_\_ day of November, 19 80, the  
Division Director, 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 Division has jurisdiction of this cause and the  
subject matter thereof.

(2) That the applicant, Doyle Hartman, seeks the contraction  
of the vertical limits of the Jalmat Pool and the upward extension

of the vertical limits of the Langlie-Mattix Pool to the following depths underlying the following 40-acre tracts in Township 24 South, Range 37 East, Lea County, New Mexico: 3364 feet underlying the SE/4 SE/4 of Section 30, dedicated to applicant's Corrigan Well No. 1; 3389 feet underlying the NE/4 SE/4 of Section 30, dedicated to applicant's Corrigan Well No. 2; and 3390<sup>feet</sup> underlying the SE/4 SW/4 of Section 20, dedicated to applicant's Harrison Well No. 1.

(3) That the vertical limits of the Jalmat Pool as defined by Order No. R-520, dated August 12, 1954, include the Tansill and Yates formations and all but the lowermost 100 feet of the Seven Rivers formation.

(4) That the vertical limits of the Langlie-Mattix Pool, as defined by said Order No. R-520, include the lowermost 100 feet of the Seven Rivers formation and all of the Queen formation.

(5) That there has been some disparity among some geologists as to the <sup>actual</sup> base of the Seven Rivers formation and the top of the Queen formation and hence as to the location of the 100-foot marker separating the Jalmat and Langlie Mattix pools.

(6) That as a result of this disparity, the subject wells and <sup>certain</sup> other wells in the general area which are classified as Langlie-Mattix wells have perforations extending across the aforesaid 100-foot marker in the Seven Rivers formation *and into the Jalmat Pool.*

(7) That such crossing over from one pool into the other in this case appears to be an unintentional error.

(8) That to rectify the aforesaid error would require workover operations on the subject wells which would be expensive and might endanger the productivity of the subject wells, and would actually serve no beneficial purpose, inasmuch as the production and reservoir characteristics of the perforations immediately above and below the 100-foot marker are quite similar.

(9) That a reasonable solution *contract the vertical limits of the Jalmat Pool and to* to the problem is to adjust *under each of the above-described tracts* the vertical limits of the Langlie-Mattix Pool upward *in order to* to accommodate the present perforations in the lower Seven Rivers *in the subject wells* formation which are actually within the present Jalmat vertical limits.

(10) That such adjustment will prevent waste and should not impair correlative rights and should be approved.

IT IS THEREFORE ORDERED:

*subsurface*

(1) That the lowermost vertical limits of the Jalmat Pool underlying ~~the SE /4 SE /4 of Section 30~~ *and the NE/4/E/4 and the SE/4/SW/4 of Section 20,* Township 24 South, Range 37 East, NMPM, *3389 feet, and 3390 feet, respectively,* Lea County, New Mexico, ~~be~~ hereby contracted to a depth of 3364 feet, ~~etc~~

~~surface~~, and the uppermost limits of the Langlie-Mattix Pool underlying said tracts ~~are~~ hereby extended upward to the same subsurface depths. ~~feet~~

(2) That the effective date of the aforesaid revisions of the vertical limits of said pools *underlying each of the aforesaid tracts* shall be the date the *Carrigan* Well

No. 1 was perforated between 3364 feet and 3434 feet,

(3) Jurisdiction.

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

*the date when the Carrigan Well No. 2 was perforated between 3389 feet and 3468 feet, and the date when the Harrison Well No. 1 was perforated between 3390 feet and 3435 feet, respectively.*

CAMPBELL AND BLACK, P.A.

LAWYERS

JACK M. CAMPBELL  
BRUCE D. BLACK  
MICHAEL B. CAMPBELL  
WILLIAM F. CARR

POST OFFICE BOX 2208  
JEFFERSON PLACE  
SANTA FE, NEW MEXICO 87501  
TELEPHONE (505) 988-4421

September 15, 1980

RECEIVED

SEP 5 1980

~~Oil Conservation~~

Case 7057

Mr. Joe D. Ramey  
Director  
Oil Conservation Division  
New Mexico Department of  
Energy and Minerals  
Post Office Box 2088  
Santa Fe, New Mexico 87501

Re: Applications of Doyle Hartman for Orders Extending  
the Top of the Vertical Limits of the Langlie-  
Mattix Pool for Certain Acreage Within Said Pool,  
Lea County, New Mexico

Dear Mr. Ramey:

On September 4, 1980, we filed for Doyle Hartman an application seeking an order extending the top of the vertical limits of the Langlie-Mattix Pool for certain acreage within said pool. This application requested an exception for eight wells.

Inasmuch as opposition is anticipated to an extension for five of the wells and no opposition is anticipated for the other three, we hereby withdraw the application filed on September 5.

Enclosed in triplicate for filing are two applications for Doyle Hartman requesting extensions of the vertical limits of certain portions of the Langlie-Mattix Pool. We request that the case involving the Cities Thomas Wells and the Adele Sowell Wells be set for hearing before the full Commission and the other application be set before an examiner.

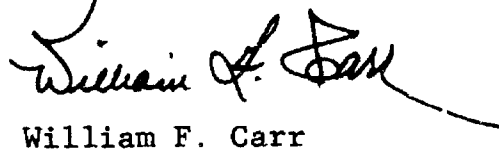
If you have questions concerning these applications or this request, please advise.

Your attention to this matter is appreciated.



Mr. Joe D. Ramey  
September 15, 1980  
Page -2-

Very truly yours,

  
William F. Carr

WFC:lr

Enclosures

cc: Mr. Doyle Hartman  
Mr. Bill Aycock  
Mr. George Hunker

RECEIVED  
SEP 5 1980  
Oil Conservation

BEFORE THE  
OIL CONSERVATION DIVISION  
NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION  
OF DOYLE HARTMAN FOR AN ORDER  
EXTENDING THE TOP VERTICAL LIMITS  
OF THE LANGLIE-MATTIX POOL FOR  
CERTAIN ACREAGE WITHIN SAID POOL,  
LEA COUNTY, NEW MEXICO.

CASE 7057

APPLICATION

Comes now DOYLE HARTMAN and applies to the Oil Conservation Division, New Mexico Department of Energy and Minerals, for an order extending the top vertical limits of the Langlie-Mattix Pool for a portion of said pool and for deletion of certain acreage from the lower vertical limits of the Jalmat Gas Pool, Lea County, New Mexico, and in support thereof would show:

1. Applicant is an operator in the Langlie-Mattix and Jalmat Pools, Lea County, New Mexico.
2. That on August 7, 1980, a meeting of certain operators in the Langlie-Mattix Pool was held in the offices of the Oil Conservation Division in Hobbs, New Mexico to discuss problems the Division was encountering with certain wells which were allegedly completed out of zone.
3. That without admitting that the following wells are completed out of zone, this application is filed to comply with the Division's directive of August 7, 1980, that action be initiated to obtain Oil Conservation Division approval for the completion intervals in certain wells specified by the Division.

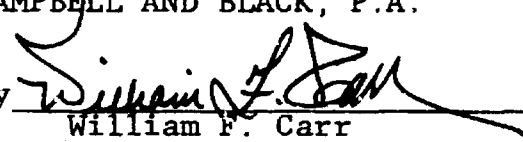
4. That Applicant seeks to extend the top of the vertical limits of the Langlie-Mattix Pool with the corresponding deletion from the Jalmat Gas Pool in Township 24 South, Range 37 East, NMPM, Lea County, New Mexico as follows:

<u>Well</u>	<u>Acreage</u>	<u>Subsurface depth of extension of the top of the vertical limits of the Langlie-Mattix Pool</u>
Hartman's Gulf Eddie Corrigan Well No. 1	Sec. 30, SE/4 SE/4	3364 feet
Hartman's Gulf Eddie Corrigan Well No. 2	Sec. 30, NE/4 SE/4	3389 feet
Hartman's H. Harrison Well No. 1	Sec. 20, SE/4 SW/4	3390 feet

5. That extension of the Langlie-Mattix Pool as requested will permit the efficient operation of wells in the area, will prevent waste and will not violate correlative rights.

WHEREFORE, Applicant prays that this application be set for hearing before a duly appointed examiner of the Oil Conservation Division and that after notice and hearing as required by law, the Division enter its order granting this application and making such other and further provisions as may be proper in the premises.

Respectfully submitted,  
CAMPBELL AND BLACK, P.A.

By   
William F. Carr  
Post Office Box 2208  
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Attorneys for Applicant

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SEP. 5 1980

Oil Conservation

BEFORE THE  
OIL CONSERVATION DIVISION  
NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION  
OF DOYLE HARTMAN FOR AN ORDER  
EXTENDING THE TOP VERTICAL LIMITS  
OF THE LANGLEIE-MATTIX POOL FOR  
CERTAIN ACREAGE WITHIN SAID POOL,  
LEA COUNTY, NEW MEXICO.

CASE 7057

APPLICATION

Comes now DOYLE HARTMAN and applies to the Oil Conservation Division, New Mexico Department of Energy and Minerals, for an order extending the top vertical limits of the Langlie-Mattix Pool for a portion of said pool and for deletion of certain acreage from the lower vertical limits of the Jalmat Gas Pool, Lea County, New Mexico, and in support thereof would show:

1. Applicant is an operator in the Langlie-Mattix and Jalmat Pools, Lea County, New Mexico.
2. That on August 7, 1980, a meeting of certain operators in the Langlie-Mattix Pool was held in the offices of the Oil Conservation Division in Hobbs, New Mexico to discuss problems the Division was encountering with certain wells which were allegedly completed out of zone.
3. That without admitting that the following wells are completed out of zone, this application is filed to comply with the Division's directive of August 7, 1980, that action be initiated to obtain Oil Conservation Division approval for the completion intervals in certain wells specified by the Division.

4. That Applicant seeks to extend the top of the vertical limits of the Langlie-Mattix Pool with the corresponding deletion from the Jalmat Gas Pool in Township 24 South, Range 37 East, NMPM, Lea County, New Mexico as follows:

<u>Well</u>	<u>Acreage</u>	<u>Subsurface depth of extension of the top of the vertical limits of the Langlie-Mattix Pool</u>
Hartman's Gulf Eddie Corrigan Well No. 1	Sec. 30, SE/4 SE/4	3364 feet
Hartman's Gulf Eddie Corrigan Well No. 2	Sec. 30, NE/4 SE/4	3389 feet
Hartman's H. Harrison Well No. 1	Sec. 20, SE/4 SW/4	3390 feet

5. That extension of the Langlie-Mattix Pool as requested will permit the efficient operation of wells in the area, will prevent waste and will not violate correlative rights.

WHEREFORE, Applicant prays that this application be set for hearing before a duly appointed examiner of the Oil Conservation Division and that after notice and hearing as required by law, the Division enter its order granting this application and making such other and further provisions as may be proper in the premises.

Respectfully submitted,  
CAMPBELL AND BLACK, P.A.

By William F. Carr  
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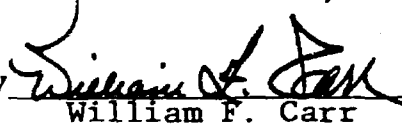
4. That Applicant seeks to extend the top of the vertical limits of the Langlie-Mattix Pool with the corresponding deletion from the Jalmat Gas Pool in Township 24 South, Range 37 East, NMPM, Lea County, New Mexico as follows:

<u>Well</u>	<u>Acreage</u>	<u>Subsurface depth of extension of the top of the vertical limits of the Langlie-Mattix Pool</u>
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