

## NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARINGSANTA FE, NEW MEXICOHearing Date JANUARY 3, 1985 Time: 8:00 A.M.

NAME	REPRESENTING	LOCATION
Karen Garbrey	Kellahan & Kellahan	Santa Fe
MARVIN L. ZWER	BTA Oil Products	MIDLAND
MARK K. NEARBURG	Chama Pet. Co.	Dallas
Bob Huber	Byram	Santa Fe
William L. Jan	Campbell and Black	Santa Fe
Cecil Chearing	Chama Pet. Co.	Dallas
Scott Hall	Campbell & Black	SF
W. V. Kellorhin	Kellorhin & Kellorhin	Santa Fe

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STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO

3 January 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of Chama Petroleum Com-      CASE  
pany for two unorthodox gas well      8446  
locations, Lea County, New Mexico.

Application of Chama Petroleum Com-      CASE  
pany to limit the Lea Pennsylvanian      8449  
Gas Pool Rules, Lea County, New  
Mexico.

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation  
Division:

For Chama Production Co.:      William F. Carr  
Attorney at Law  
CAMPBELL & BLACK P.A.  
P. O. Box 2208  
Santa Fe, New Mexico 87501

For ETA Oil Producers:      Karen Aubrey  
Attorney at Law  
KELLAHIN & KELLAHIN  
P. O. Box 2265  
Santa Fe, New Mexico 87501

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I N D E X

CHARLES E. NEARBURG

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MARVIN L. ZOLLER

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E X H I B I T S

Chama Exhibit One, Plat 7

Chama Exhibit Two, Plat 9

BTA Exhibit One, Map 39

BTA Exhibit Two, Cross Section 40

BTA Exhibit Three, Cross Section 44

BTA Exhibit Four, 19

1  
2  
3 MR. STOGNER: We will now call  
4 Case Number 8446, which is the application of Chama Petro-  
5 leum Company for two unorthodox gas well locations, Lea  
6 County, New Mexico.

7 We will now call for appear-  
8 ances.

9 MR. CARR: May it please the  
10 Examiner, my name is William F. Carr, with the law firm  
11 Campbell and Black, P. A., of Santa Fe, appearing on behalf  
12 of Chama Petroleum Company.

13 I have one witness.

14 MS. AUBREY: Karen Aubrey, Kel-  
15 lahin and Kellahin, appearing on behalf of BTA Oil Produ-  
16 cers.

17 MR. CARR: May it please the  
18 Examiner, at this time we would request that this case be  
19 consolidated for purposes of hearing with the following  
20 case, Case 8447, and that separate orders be entered.

21 MR. STOGNER: Are there any ob-  
22 jections to this consolidation?

23 If not, at this time we will  
24 call now Case Number 8447, which is the application of Chama  
25 Petroleum Company to limit the Lea Pennsylvanian Gas Pool  
Rules, Lea County, New Mexico.

26 We will now call for appear-  
27 ances in this matter, also.

1  
2 MR. CARR: Mr. Stogner, my name  
3 is William F. Carr, with the law firm Campbell and Black, P.  
4 A., of Santa Fe, appearing on behalf of the applicant.

5 MS. AUBREY: Karen Aubrey, Kel-  
6 lahin and Kellahin, appearing on behalf of BTA Oil Produ-  
7 cers.

8 MR. STOGNER: Ms. Aubrey, do  
9 you have any witnesses?

10 MS. AUBREY: Yes, Mr. Examiner,  
11 I have one witness to be sworn.

12 MR. STOGNER: At this time will  
13 all the witnesses please stand to be sworn?

14 (Witnesses sworn.)

15 MR. CARR: At this time I would  
16 call Mr. Nearburg.

17  
18 CHARLES NEARBURG,  
19 being called as a witness and being duly sworn upon his  
20 oath, testified as follows, to-wit:

21 DIRECT EXAMINATION

22 BY MR. CARR:

23 Q Will you state your full name and place  
24 of residence?

25 A My name is Charles Nearburg. I live in

1  
2 Dallas, Texas.

3 Q Mr. Nearburg, by whom are you employed  
4 and in what capacity?

5 A I'm President of Chama Petroleum Company.

6 Q Have you previously testified before this  
7 Commission or one of its Examiners and had your credentials  
8 as an engineer accepted and made a matter of record?

9 A Yes, sir, I have.

10 Q Are you familiar with what Chama is seek-  
11 ing in each of these cases?

12 A Yes, sir, I am.

13 Q And are you familiar with the applica-  
14 tions filed in these cases?

15 A Yes, sir, I am.

16 MR. CARR: Are the witness'  
17 qualifications acceptable?

18 MR. STOGNER: If there are no  
19 objections his qualifications are so accepted.

20 Q Mr. Nearburg, would you briefly state  
21 what Chama seeks with each of these applications?

22 A The first -- we seek two things, an order  
23 limiting the pool rules governing the Lea Pennsylvanian Gas  
24 Pool to the present pool boundaries and, secondly, approval  
25 for two unorthodox well locations for wells that we propose  
to re-enter, the first of these being the No. 1 "L" Federal,  
Section 25, Township 20 South, Range 24 East, which is lo-  
cated 1650 feet from the north line, 1980 feet from the west

1  
2 line, and the second well being the Rett Federal No. 1, lo-  
3 cated in Section 23, Township 20 South, Range 24 East, 660  
4 feet from the south and 660 feet from the east lines.

5 Q And that's Range 34 East?

6 A 34, yes.

7 Q Would you now refer to what's been marked  
8 Chama Exhibit Number One and explain what this is and what  
9 it shows?

10 A Exhibit Number One is a plat, land owner-  
11 ship plat, showing the Chama 1-L Federal located in Section  
12 25, with a, basically a green dot, that now looks sort of  
13 blue, over the well location.

14 Also indicated on this exhibit, outlined  
15 in blue, are the boundaries of the Lea Pennsylvanian Gas  
16 Pool, which existed prior to the drilling of the BTA --  
17 what's the name of the well -- prior to the drilling of the  
18 BTA Lynch 8212 JVP No. 1 Well.

19 The brown or orange, red, I guess, on  
20 your exhibit, outline is the extension of the pool bound-  
21 aries which was made subsequent to completion of the Lynch  
22 -- the BTA Lynch 8212 JVP No. 1.

23 Q Mr. Nearburg, the present boundaries of  
24 the Lea Pennsylvanian Gas Pool include the acreage within  
25 the blue line and also the acreage within the red line on  
Exhibit One.

A That's correct.

Q What does the yellow acreage, the shaded

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yellow indicate?

A That is acreage which we have under lease, which we propose to include in our west half proration unit for gas production from the Chama 1-L Federal.

Q Now, when was this well originally drilled?

A This well was originally spudded in January -- on January 15th, 1964.

Q And by whom was it drilled?

A Shell Oil Company.

Q To what horizon was it originally drilled?

A This was originally a Devonian test and --

Q And what acreage is dedicated?

A For this Devonian test the northwest quarter of Section 25 was dedicated.

Q When did Chama acquire an interest in the acreage which is shaded yellow?

A We had been studying this area for some time but we acquired our first acreage in the KGS sale with a lease issued June 1st of 1983.

Q Now at the time you acquired the acreage, to be sure I understand the Exhibit, what were the pool boundaries at that time?

A At that time the pool boundaries, as relevant to our acreage, were the lower or the southernmost

1  
2 blue horizontal line, as on Exhibit Number One.

3 Q And when were the wells drilled that re-  
4 sulted in this expansion of the pool boundary, or the exten-  
5 sion of that boundary?

6 A The well which extended the pool boundary  
7 was the BTA Lynch 8212 JVP No. 1, which was spudded approxi-  
8 mately, almost one year after our purchase of the KGS lease.

9 It was spudded, according to the records  
10 of the Commission, on May 31st, 1984.

11 Q Would you now refer to Exhibit Number Two  
12 and identify that and review that for Mr. Stogner?

13 A Exhibit Number Two is basically the same  
14 as Exhibit Number One, except that it locates the -- the  
15 Rett Federal, which is to be a re-entry of the original  
16 Shell Sinclair Federal, and our purposes in this, this also  
17 shows the original pool boundaries prior to the drilling of  
18 the BTA Lynch 8212 JVP No. 1, outlined in blue, and the ex-  
19 tension caused by that well outlined in red.

20 Q When did Shell originally drill this  
21 well?

22 A This well was originally drilled in -- it  
23 was spudded April 25th of 1964.

24 Q And to what horizon was it drilled?

25 A It was originally drilled as Bone Springs  
test to a depth of -- reached a total depth of approximately  
10,600 feet.

Q As a Bone Springs well was 40 acres dedi-

1 cated to that well?  
2

3 A Yes, southeast quarter southeast quarter  
4 of Section 23 was dedicated to that well and --

5 Q Did Chama acquire its interest in this  
6 acreage at the same time it acquired its interest for the  
7 well in Section 25?

8 A Those interests were acquired a little  
9 bit later due to the timing of certain KGS sales. We made  
10 acquisitions in Section 23. Actually we acquired some of  
11 the acreage there, primarily being the southwest quarter,  
12 around May 3rd of 1984, and we acquired additional acreage  
13 in the -- in a lease that was -- KGS lease that was issued  
14 August 1st of 1984, and our intent on the Rett Federal is to  
15 deepen this from a Bone Springs test to a Morrow or a Devon-  
16 ian test.

17 Q What are the spacing requirements for the  
18 Lea Pennsylvanian Gas Pool?

19 A The spacing requirements for the Lea Penn  
20 Gas Pool are 160-acre spacing with wells -- excuse me --  
21 with wells located 660 feet from the outer boundaries and  
22 330 feet from the quarter -- from any quarter quarter inner  
23 boundary.

24 Q And when was this pool created?

25 A This pool was created back in November  
1st of 1961.

Q Are there special pool rules for the Lea  
Pennsylvanian Gas Pool?

1  
2           A           No. Under Rule 104-2A, Pennsylvanian  
3 pools created prior to June 1st, 1964, are spaced or were  
4 spaced on 160-acre units.

5                       After that date Pennsylvanian wells were  
6 -- gas wells were spaced on 320-acre units.

7           Q           Would you explain to Mr. Stogner why  
8 you're seeking to limit these rules to the present pool  
9 boundary?

10           A           Basically we have several reasons, the  
11 first being only at the -- only at the time of the pool  
12 creation being prior to June 1st of 1964 causes this acreage  
13 to be potentially developed on 160-acre tracts.

14                       As Mr. Stogner knows, 320-acre units are  
15 now standard for gas production of formations of this age.

16                       At the time that we formulated our plans  
17 Section 25 was under 320-acre spacing where it was more than  
18 a mile from the Lea Penn Gas Pool.

19                       We established agreements with partners  
20 based on developing this acreage on 320's and also at the  
21 time BTA's acreage acquired through an Exxon farmout, which  
22 we thought might expire as of 6-1-84, so we did not realize  
23 that there was much opportunity for these pool rules to be  
24 expanded.

25                       Further, 320 is now the standard spacing  
statewide for these formations and we believe that it's ap-  
propriate in this -- in these locations. We are moving away  
from the established producing area in this pool and the de-

1  
2 clining bottom hole pressures in the original Morrow test in  
3 the 1-L Federal and the Kell Oil dry hole in Section 30 of  
4 the adjoining township all indicate some higher risk and  
5 possibly indicates that these areas are not quite as good as  
6 the heart of the Lea Field.

7 Finally, we feel that trying to develop  
8 this Morrow gas and at this time on 160-acre tracts, would  
9 result in a lot more drilling being required and would lead  
10 to, basically, in our opinion, millions of dollars worth of  
11 unnecessary drilling, which would result in waste and would  
12 lead to wells to be drilled on too dense a development pat-  
13 tern; more than would be actually required to drain the gas.

14 Q Mr. Nearburg, with 320-acre spacing in  
15 this area outside the Lea Penn Pool, would it be possible  
16 for more than one well to be located on each of the spacing  
17 units?

18 A Yes. You can -- you could locate two or  
19 more wells on these spacing units.

20 Q Is this a prorated pool?

21 A No, it is not a prorated pool. Two wells  
22 on a 320-acre tract could be drilled and neither would have  
23 their allowable or their ability to produce restricted.

24 Q In your opinion would granting your ap-  
25 plication impair correlative rights of anyone in the area?

A No. We're -- we're trying to proceed in  
a responsible fashion in an area where there are two sets of  
equities.

1  
2 We don't want to have to drill an exces-  
3 sive number of wells or limit anyone else from not being  
4 able to develop on 160's if they desire.

5 We believe what we propose is the best  
6 way to protect correlative rights of all within the 320-acre  
7 spacing unit.

8 Q Now, I'd like to ask you a couple ques-  
9 tions about the well locations.

10 Are the proposed well locations standard  
11 locations for 160-acre spacing units?

12 A Yes. If these wells were drilled on 160-  
13 acre spacing units they would be in standard locations.

14 Q Are both of the locations such that they  
15 could be offset of offsetting operators at a point equidis-  
16 tant from the common leaseline?

17 A Yes.

18 Q What would the impact of a penalty on  
19 these wells due to their locations, what impact would that  
20 have on your plans to develop the area?

21 A It would -- it would be very destructive  
22 to our econmics, given the current gas market and the --  
23 just the over all situation in the gas market and the ex-  
24 ploration risks.

25 Q In your opinion will approval of these  
26 locations impair correlative rights of any operator?

27 A No, since, as we have previously discus-  
28 sed, they could be offset equidistant from the common lease-

1 line.

2 Q Would approval of these locations cause  
3 waste?

4 A No. One of the -- one of the factors in  
5 us being able to test some of these areas which have hereto-  
6 fore been considered a little bit -- or considered uneconom-  
7 ical, are the ability to re-enter these wells, and the eco-  
8 nomics associated with the re-entries.

9 Q Mr. Nearburg, were Exhibits One and Two  
10 prepared under your direction and supervision?

11 A Yes, sir, they were.

12 Q Are they accurate?

13 A Yes, they are.

14 MR. CARR: At this time, Mr.  
15 Stogner, we would offer into evidence Chama Exhibits One and  
16 Two.

17 MR. STOGNER: If no objections,  
18 these exhibits will be entered as evidence.

19 MR. CARR: And that concludes  
20 my direct examination of Mr. Nearburg.

21 MR. STOGNER: Ms. Aubrey, if  
22 you don't mind, I'd like to get a few things straightened up  
23 here before I turn the witness over to you.

24 CROSS EXAMINATION

25 BY MR. STOGNER:

1  
2 Q Mr. Nearburg, concerning the [Platt]  
3 Chama 1-L Federal Well --

4 A Yes, sir.

5 Q -- what was that well's previous name?

6 A The Shell 1-L Federal.

7 Q And when was that plugged and abandoned?

8 A If you'll allow me to refer to some of my  
9 documents here, can I pull a plugging report from my file --

10 Q Sure.

11 A -- to give you an exact date?

12 Q You might as well pull it for the Rett  
13 Federal No. 1, because I'm going to ask you the same ques-  
14 tion.

15 A Okay. The Shell Federal 1-L was -- the  
16 report submitted to the Oil and Gas Conservation Division is  
17 dated September -- is stamped as approved on March 9th,  
18 1967; however, the report indicates that the work was ac-  
19 tually -- the well was actually plugged August 5th, 1965.

20 Q And how about for the Rett Federal No. 1?  
21 What was the plugged and abandoned date on that?

22 A Okay. The plugged and abandoned date is  
23 July 14th, 1964.

24 Q Mr. Nearburg, you kept referring back to  
25 the Lea -- BTA Leach 8212 JVP Well No. 1?

A Yes, sir.

Q What's the location on that well?

A The Lynch, it's Lynch, L-Y-N-C-H.

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From records I have obtained the well is located 1980 from the south and east lines of Section 24, 20, 34.

Q And that is not on this?

A No, sir, we didn't locate that on here.

Q And when was that well spudded?

A That well was -- let's see. That well was spudded May 31st of 1984.

Q And is that well completed?

A Yes, sir, it is.

Q What zone?

A According to records filed with the Commission, it's completed from the -- it says Pennsylvanian, which I presume as being Morrow formation.

Q Does it show to be producing from the Lea Pennsylvanian Pool?

A Yes, it does.

Q Mr. Nearburg, what is the standard proration unit for a Devonian gas well in this area?

A To that, I really don't know, sir.

I don't -- I don't think the Devonian wells, I don't have the actual detail of production. Well, maybe I do, let's see.

Q I don't need production. I just want to know if it's dedicated 160 or 320.

A I just don't know because I don't know that the Devonian has ever made that much. I think they've

1  
2 pretty much been classified as oil wells, not gas wells, out  
3 of the Devonian.

4 If we were to be -- it's certainly our  
5 understanding of the production in the area.

6 Q But you've requested for this well to be  
7 an unorthodox gas well location to the Devonian, also,  
8 didn't you?

9 A That would be -- it's -- it's -- we have  
10 permitted it to the Morrow; however, we have considered  
11 amending the application to take it on down to the Devonian.

12 That would be for an oil test, however.

13 The crux of this is for 320-acre spacing  
14 for a Morrow gas well.

15 Q Are both locations, are they standard for  
16 a 40-acre oil well location if it was an oil well in the  
17 Devonian formation?

18 A It was drilled as a Devonian well origi-  
19 nally. I, without checking, I wouldn't be able to say  
20 whether it was standard on a 40-acre location.

21 Q If this for some reason, both of them  
22 completed out as Devonian gas wells, would they be unortho-  
23 dox for 320-acres proration units?

24 A Never thought about that. I guess it  
25 would be unorthodox by about 330 feet if it were a Devonian  
gas well.

26 In other words, it's 600 -- the 1-L,  
27 being 1650 from the north line would actually, to be stand-

1  
2 ard would need to be 1980 from the north line, so it would  
3 be nonstandard by the difference between 1980 and 1650.

4 Q Are there any Devonian oil or gas pools  
5 within this area?

6 A The -- the original development of the  
7 Marathon Lea Unit was as a Devonian oil field and they en-  
8 countered multiple pays in the -- not only the Devonian for  
9 oil, but also as they drilled through the Devonian they dis-  
10 covered what they referred to at the time as "bend" gas pro-  
11 duction, and also in a number of locations Bone Spring oil  
12 production, so it was dual produced and from a number of  
13 different zones throughout the history of the Marathon Lea  
14 Unit.

15 Q You don't know what the pool's name is in  
16 this area for the Devonian?

17 A I could probably --

18 Q Oh, I think our records will show that.

19 A I'm sure I could find it here if you  
20 wanted for me to take time to look here.

21 Q No, that would be all right.

22 You referred back to Special Rule 1042-A,  
23 which created -- I'm sorry -- which states that any pool  
24 created prior to 6-1-64 were spaced on 160-acre -- 160 ac-  
25 res, is that right?

26 A Yes, sir, that's correct.

27 Q Where does that rule appear? Is that in  
28 our general rules?

1  
2 So that's actually part of Rule 104-B of  
3 our general rules.

4 Thank you, Mr. Nearburg.

5 MR. STOGNER: Your witness, Ms.  
6 Aubrey.

7 MS. AUBREY: Thank you.

8 CROSS EXAMINATION

9 BY MS. AUBREY:

10 Q Mr. Nearburg, my name is Karen Aubrey and  
11 I'm representing BTA here today.

12 So that I understand your exhibit, let me  
13 have you look at your Exhibits One and Two.

14 A Okay.

15 Q Am I correct in understanding that the  
16 red outline on Exhibits One and Two show what you believe to  
be the present limits of the Lea Penn Pool?

17 A No. The red outline, according to our  
18 counsel, indicates the extension of the Lea Penn Pool which  
19 was granted subsequent to the completion of the BTA Lynch  
20 8212 JVP No. 1.

21 If you incorporate the blue outline and  
22 the red outline, you would have an outline of the southern  
23 portion of Lea Penn Pool, as I understand it currently ex-  
ists.

24 Q Mr. Nearburg, on December 19th, 1984, the  
25 Oil Conservation Commission extended the Lea Penn Gas Pool

1  
2 to include all of Section 24.

3 Let me show you what I've marked as BTA  
4 Exhibit Number Four. It's about a third of the way down the  
5 page, Mr. Nearburg.

6 A Okay.

7 Q I'm sorry, about two-thirds down the  
8 page.

9 A Okay. Okay.

10 Q Would you agree that that now puts the  
11 southern boundary of the Lea Penn Pool along the section  
12 line between Sections 24 and 25?

13 MR. CARR: We'd be glad to  
14 stipulate that if that is in fact what it is, we called and  
15 that's what we were told it is, but if it includes all of  
16 24, it certainly does.

17 A This -- this exhibit does have the west  
18 half typed in with an addition symbol, which is fine. I  
19 just --

20 MR. CARR: We were working off  
21 of the docket and also called to confirm that and that's  
22 where we picked up the east half, Mr. Stogner, but certainly  
23 the exhibits can be incorrect in that respect and there is  
24 nothing intended to mislead.

25 It was just to indicate there  
was a recent extension of the pool.

MR. STOGNER: For the record,  
I'm looking at the docket for December 19th, and I show only

1 the east half, also.

2 Would both of you clarify that and --

3 MR. CARR: I don't have any  
4 doubt that it includes the whole section, if Ms. Aubrey says  
5 so.

6 We just checked it against the  
7 docket and called to confirm that that was what had been  
8 done.

9 MS. AUBREY: Mr. Stogner, that  
10 was amended before the docket was called on the 19th and the  
11 exhibit I've given Mr. Nearburg, which I only have one copy  
12 of, was a formal order from your office.

13 MR. STOGNER: May I see that,  
14 Ms. Aubrey?

15 MS. AUBREY: You certainly may.

16 MR. STOGNER: We'll make ad-  
17 ministrative notice in this hearing for Case Number 8443 and  
18 its subsequent Order Number R-7763, which was of -- which  
19 was the application of the Oil Conservation Division to ex-  
20 tend, create, and subtract certain pools in Lea, Chaves, and  
21 Roosevelt Counties, New Mexico.

22 Q Let me have you look at your Exhibits One  
23 and Two again --

24 A Okay.

25 Q -- Mr. Nearburg.

On either of those exhibits do you show  
BTA acreage in Section 24?

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A No, we don't.

Q I believe you testified that you're aware that there is a BTA well in the southeast quarter of Section 24.

A That's correct.

Q Are you aware that there is also a BTA well which has been spudded in the southwest quarter of Section 24?

A Yes, I'm aware of that.

Q Now, I'd like to refer you down to Section 25.

Are you aware that BTA holds any acreage in Section 25?

A I have nothing in my possession that tells me what BTA's land position or their trades have been.

I can presume that as they obtained a farmout from Exxon on 240 acres in 24 that the 80 acres in the east half northeast quarter, which is also under that same Exxon lease, could very well be under farmout to BTA, but I don't have anything. BTA's not called me to tell me what their position is.

Q Again with regard to Section 25, do you know who owns the west half of the northeast quarter?

A Yes, Chama. I do, actually.

Q And the southeast quarter of Section 25, who does that belong to?

A We have it under lease.

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Q So with the exception of the north -- I'm sorry, the east half of the northeast quarter, Chama has ownership of the entire east half of Section 25?

A Yes, ma'am, that's correct, either Chama or Charles E. Nearburg, if you want to be specific.

Q Which puts you in an ownership position in all of Section 25 with the exception of the east half of the northeast quarter?

A Yes, ma'am, that's correct. The east half of the northeast quarter.

Q Mr. Nearburg, are you aware of how many wells have been completed in the Lea Penn Pool since the pool was designated in 1964?

A I could sit here and go through my records and count them up, but if you have a number I'd know whether I would probably agree with it.

Q Would you agree with me that it's approximately twenty?

A In the Morrow formation?

Q Yes, sir.

A Twenty Morrow wells in the Lea Penn Pool?

Q Well, maybe you'd better -- it might be better, sir, so your testimony is accurate, for you to count those.

A We'd be glad to stip --

Q Can you do that from your map?

A No, I cannot.

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MR. CARR: We'd be glad to stipulate that there are approximately twenty Morrow wells in there, subject to subsequent check. I --

A Yeah, I'm not interested in arguing with you. I just --

Q Thank you.

A There's been so many dual completed wells that it would be hard for me right offhand to say that there were twenty without checking exactly which was completed where.

Not all wells that were drilled in that pool were completed in the Morrow.

Q And the spacing has been 160 acres in the Lea Penn Pool for almost twenty years.

A To my understanding the reason it was on 160's is due to the time of creation of the pool, yes, ma'am.

Q Which was 1964, June, I believe, 1964 --

A Yes, ma'am.

Q -- approximately twenty years ago.

Mr. Nearburg, do you have an opinion as to whether or not the Lea Penn Pool constitutes a common source of supply?

A Not without an extensive detailed correlations and I would not be able to say that out of hand.

Q Mr. Nearburg, have you prepared for the Examiner any drainage calculations in order to justify

1  
2 limiting the Lea Penn 160-acre spacing to the present limits  
3 of the pool?

4 A No, we have not. We've based our case  
5 basically on the equities of what we feel the positions are  
6 in this area, and based on the fact that the Commission now  
7 spaces all new Morrow wells, or Pennsylvania aged gas wells  
8 on 320's.

9 Q Do you have an opinion, Mr. Nearburg, as  
10 to whether or not wells drilled in this formation will drain  
11 only 160 acres?

12 A In my opinion they'll drain 320.

13 Q Do you have any exhibits prepared for the  
14 Examiner to show that fact?

15 A No, ma'am.

16 Q Have you prepared any exhibits or do you  
17 have any proposed testimony on reservoir economics in con-  
18 nection with this reservoir?

19 A No.

20 Q As I understand the equities you're talk-  
21 ing about, Mr. Nearburg, they are that you acquired this ac-  
22 reage believing that it was spaced on 320's, is that cor-  
23 rect?

24 A Not believing that it was. At the time  
25 that we acquired it, it was.

Q And you believe that you no longer own  
this acreage, is that correct?

A No, I don't know where you got that.

1  
2 Q Have you made any sales of any interest  
3 in either one of these half sections to any --

4 A Yes, we have.

5 Q And on what did you base that sale?

6 A Well, our partners' understanding that  
7 the wells would be developed on 320's.

8 Q So that is a deal that's already been  
9 cut, is that right?

10 A Yes, ma'am, that's true.

11 Q And is that the equity you're talking  
12 about here today?

13 A No, the equity that we're talking about  
14 is that the Commission currently schedules all Morrow tests  
15 for 320-acre spacing.

16 Q At the time we acquired this acreage that  
17 was the spacing.

18 A We are not trying to say that BTA  
19 shouldn't be allowed to drill their Lynch No. 1 and No. 2  
20 wells on 160's.

21 Q We are saying that we should be allowed  
22 to develop our acreage on 320's.

23 Q Let's talk about BTA's acreage position  
24 for a moment in Section 25.

25 A If you will assume with me that BTA has a  
26 farmout from Exxon on the east half of the northeast quar-  
27 ter, 80 acre tract.

28 A Are we to be provided a copy of that

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farmout?

Q I don't have a copy of the --

A Okay, that's all right.

Q -- farmout for you, Mr. Nearburg.

A I'll take your word for it.

Q If you'll just assume it with me for the purposes of a few questions --

A Okay.

Q -- I won't be much longer with you.

A All right.

Q Assuming that they do have --

A Uh-huh.

Q -- a farmout on that 80-acre tract.

A Yes, ma'am.

Q You're clear with me which one we're talking about?

A Yes, ma'am.

Q Is it -- does it continue to be your testimony that by re-spacing on 320's you will not impair their correlative rights?

A No.

Q Are you saying that you will be impairing their correlative rights by re-spacing on 320's?

A No, we will not be impairing their correlative rights.

Q And how is that, sir?

A They will have the opportunity to drill

1  
2 on their own acreage or participate in drilling with us on  
3 the 320.

4 They can have half of one well or a quar-  
5 ter of two wells, you know, whichever they prefer to do.

6 Q Well, I --

7 A They have the opportunity which is the  
8 essence of the correlative right.

9 Q If the southeast quarter of Section 25  
10 remains spaced on 160's --

11 A Uh-huh.

12 Q -- BTA will then have 50 percent of a  
13 well on that acreage, right?

14 A Uh-huh. If they elected to drill it,  
15 yes.

16 Q If the east half of Section 25 is spaced  
17 on 320's --

18 A Uh-huh.

19 Q -- they will have 25 percent of that ac-  
20 reage, is that right?

21 A They would also have the -- that is cor-  
22 rect. They would also have the option, as we have discus-  
23 sed, of drilling two wells in the east half, which are non-  
24 prorated, and therefore they would have a quarter of two  
25 wells rather than just half of one.

Q Well, Mr. Nearburg, your testimony has  
been that a well to this formation in this area will only  
drain -- will drain 320 acres --

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A That's right.

Q -- one well. Why would they, then, as a prudent operator want to drill two?

A I don't think they'd want to.

Q So what they're going to end up with, if your application is granted, is 25 percent of a proration unit in the east half of Section 25.

A Well, BTA's already evidenced that they're willing to drill two wells to drain what 320 would, so I presume they might have the same desire to do so in 25, and they would have the opportunity to do that.

It's what they've done in 24, which is fine by me. I mean, I'm just saying, you know, that we're not impairing their correlative rights by what we ask.

Q And Chama owns --

A I can't help the fact that they've only got 80 and we've got 240. That's -- you know.

Q In the east half of Section 25.

A That's correct.

Q And the entire 320 in the west half of Section 25.

A Well, we have the entire 320 in the west half, yes, ma'am.

Q Both of which are within a mile of the limits, present limits of the Lea Penn Pool.

A As it exists now, yes, ma'am.

Q Is it your opinion, Mr. Nearburg, that

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the limits of the Lea Penn Pool follow the section line?

A           Would you state that again? I'm not sure

--

Q           Sure, I'd be glad to. Do you have an  
opinion as to the outer boundary of the Lea Penn Pool, of  
the common source of supply underlying the Lea Penn Pool?  
Does it follow the section line?

A           Are you asking about the boundary or are  
you asking me about where the reservoir goes?

Q           I'm asking where the reservoir goes, how  
far out?

A           I'll ask you the same thing. I don't  
know.

Q           It's not your opinion, though, that it  
follows the line between Sections 24 and 25.

A           Well, it's -- I don't have an opinion.  
I'd find it pretty unlikely.

Q           You testified, sir, that this is not a  
prorated pool.

In the event that it becomes a prorated  
pool and the pool is re-spaced on 320 acres --

A           Uh-huh.

Q           -- won't that give Chama an advantage  
over the 20 or so operators whose wells are spaced on 160's?

A           We may have to take a minute to explore  
this. Who are the 20 operators?

Q           Well, let's assume that there are 20 or

1  
2 so operators of the 20 wells located in the Lea Penn Pool.

3 A Well, Marathon is the operator of the Lea  
4 Unit, so I don't think there's 20 operators.

5 Q Well, can we start again and assume that  
6 there are more than one operators of wells based on a 160.

7 A Okay.

8 Q And there are a certain number of wells  
9 based on 160's even though your exhibits don't show us how  
10 many wells there are.

11 A Okay.

12 Q Won't re-spacing this acreage on 320's in  
13 the event of gas prorationing give Chama a windfall over  
14 those operators whose wells are spaced on 160's?

15 A I kind of doubt it, you know, they're  
16 going to be in for, you know, the wells on the Marathon Lea  
17 Unit have producing, as you've already stated, since the  
18 early sixties, so I doubt that they're going to, you know,  
19 especially being as they're more than a mile from our loca-  
20 tions, I doubt they're going to experience any drainage.

21 You know, it's likely to be strongly the  
22 other way around.

23 Q But they are going to have increased al-  
24 lowables, aren't they, the wells based on 320's?

25 A That I don't know.

Q Mr. Nearburg, can you give us any geolo-  
gic reasons to treat Section 25 any differently from Section

1  
2 24 in terms of spacing?

3 A I don't have any geologic reason prepared  
4 at the present time. I would just basically bow to the con-  
5 ventional wisdom of the Commission since 1964, which is a per-  
6 iod, as you referred to, of twenty plus years, wherein all  
7 wells drilled in the last twenty years, you know, have been  
8 spaced on 320's.

9 I presume, as that practice has not been  
10 changed, that there has been over time in this -- in this  
11 body numerous applications for Pennsylvanian wells and that  
12 320 acre spacing has shown to be an effective and un wasteful  
13 method of producing the gas, and I really feel that that  
14 fairly well speaks for itself.

15 Q But the wells in Section 24 are spaced on  
16 160's.

17 A Yes. We're not saying that they  
18 shouldn't be.

19 MS. AUBREY: I have no more  
20 questions.

21 RE CROSS EXAMINATION

22 BY MR. STOGNER:

23 Q Mr. Nearburg, you referred to that Mara-  
24 thon operator of the Lea Unit.

25 A Yes, sir.

Q Does that unit include the Pennsylvanian  
formation?

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A Yes, sir, I'm quite sure that it does.

MR. STOGNER: I have no further questions at this time.

Mr. Carr, did you have any questions?

MR. CARR: I have nothing further of Mr. Nearburg.

MR. STOGNER: Are there any other questions of this witness?

MS. AUBREY: I have no further questions, Mr. Examiner.

MR. STOGNER: If not, he may step down for the time being.

(Thereupon a discussion was had off the record.)

MR. STOGNER: Let's go back on the record.

Mr. Nearburg.

A Yes.

MR. STOGNER: In Exhibit Number One --

A Yes, sir.

MR. STOGNER: Somewhere you mentioned the Platt Chama 1-L Federal as being 1980 foot from the south and east lines of Section 24, and that was completed May 31st, 1984, in the Lea Pennsylvanian Pool.

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2           A           No, I think -- I think I was asked if I  
3 knew where the Lynch Well was located, the BTA Lynch Well  
4 was located, and I responded that it was 1980 -- I may have  
5 misstated the response.

6                       That is the location of the Lynch -- the  
7 BTA Lynch JVP Well No. 1.

8                       MR. STOGNER: Okay. Early in  
9 your testimony about Exhibit Number One you mentioned some-  
10 thing about a Platt Chama 1-L Federal Well and you kept re-  
11 ferring to that well several times.

12                      Do you not remember?

13           A           I was -- I probably was just saying this  
14 plat. I may have been referring to the map as a plat which  
15 showed the location of the Chama 1-L Federal. That may --

16                      MR. STOGNER: So there is a  
17 Chama 1-L Federal.

18           A           Yes, it's our re-entry of the Shell 1-L  
19 Federal, yes, sir.

20                      MR. STOGNER: Okay, that's the  
21 name of your well you're proposing to re-enter.

22           A           Yes, sir, that's correct.

23                      MR. STOGNER: Okay. Got that  
24 clarified.

25           A           I'm sorry to be --

                      MR. STOGNER: Mr. Carr, do you  
have any other questions?

                      MR. CARR: I have nothing fur

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ther on direct.

MR. STOGNER: Ms. Aubrey.

MS. AUBREY: Mr. Stogner, I have a motion to make.

We move that the Examiner dismiss the application to limit the Lea Penn Pool to its present pool limits and to increase the spacing outside the pool limits to 320 acres.

This witness has given the Examiner no testimony on which to base an alteration of spacing within a mile of the Lea Penn Pool. He has no drainage calculations; no reservoir economics; no studies of production; has given you no opinion on whether or not a well can drain 160 acres there or 320 acres.

He has talked to you about the equities of re-spacing this simply because it's an old pool and because of the Commission rules is spaced on 160.

The actual equity he's talking to you about, though, Mr. Examiner, is that he's sold this deal to his partners based on 320 acres being dedicated to this well.

He has not given you one shred of evidence on which to base a change in the rules now.

If Chama wishes to re-space the area within a mile of the limits of the Lea Penn Pool, then Chama has the burden of coming forward with a prima facie case of geological or engineering reasons to do so, not

1  
2 merely because they didn't read the rules and they've sold  
3 it based on 320's and would now like 320 acres dedicated to  
4 their well, notwithstanding the effect that his has on BTA's  
5 position in Section 25.

6 BTA has acquired 80 acres in  
7 the northwest quarter of Section -- the northeast quarter of  
8 Section 25. They acquired that acreage in reliance on the  
9 160-acre spacing and what Chama is asking you to do is to  
10 ignore BTA's correlative rights and to grant their applica-  
11 tion simply because of the equities of a deal that's already  
12 been cut.

13 I submit to you that they have  
14 given you no evidence. They have not submitted a prima  
15 facie case on which you can base any findings that the spac-  
16 ing should be changed.

17 Thank you.

18 MR. CARR: In response to Ms.  
19 Aubrey's closing statement, or statement with respect to her  
20 motion, I would hope she is not intentionally misstating the  
21 case when she states that the argument is that Chama didn't  
22 read the rules.

23 The fact is reading the rules  
24 at the time this venture was undertaken would have shown  
25 that the spacing was 320 acres.

The question here is one of  
correlative rights. The question here is one of an altera-  
tion of spacing. The alteration of the spacing is currently

1  
2 taking place since we step out from an existing pool, a pool  
3 that is spaced on 160-acre spacing or proration units be-  
4 cause in the early sixties an inappropriate spacing pattern  
5 was grandfathered in, and what is happening now is this is  
6 being extended in a fashion inconsisten with statewide rules  
7 for the Morrow formation.

8 We have come before you and we  
9 have given you our opinion, contrary to what Ms. Aubrey  
10 stated.

11 The testimony shows that corre-  
12 lative rights are being impaired; that a spacing pattern can  
13 result that will require excessive drilling, which will re-  
14 sult in waste, and that in so doing it will cause people to  
15 expend unnecessary funds, thereby affecting adversely their  
16 opportunity to produce their fair share of the reserves un-  
17 der their tract, thereby impairing their correlative rights.

18 We submit the motion should be  
19 denied.

20 MR. STOGNER: Ms. Aubrey, your  
21 motion is duly noted and on record; however, at this time  
22 I'm going to overrule it. We'll continue with the case and  
23 hear BTA's side.

24 MS. AUBREY: Mr. Examiner, may  
25 the record reflect that Mr. Zoller has already been sworn?

MR. STOGNER: The record will  
so show.

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MARVIN L. ZOLLER,

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

DIRECT EXAMINATION

BY MS. AUBREY:

Q State your name for the record, please.

A Marvin Zoller.

Q Mr. Zoller, what's your occupation?

A I'm a Chief Operations Geologist for BTA Oil Producers.

Q And have you testified previously before this Commission or one of its examiners and had your qualifications made a matter of record?

A Yes, I have.

MS. AUBREY: Mr. Examiner, are the witness' qualifications acceptable?

MR. STOGNER: If there are no objections his qualifications are so accepted.

Q Mr. Zoller, are you familiar with BTA's opposition to Chama's application to limit boundaries of the Lea Penn Pool today?

A Yes, ma'am.

Q Have you prepared certain exhibits for the consideration of the Examiner?

A Yes, ma'am.

1  
2 Q Let me refer you to your Exhibit Number  
3 One. Will you look at that and on that exhibit located for  
4 us the two BTA wells in the south half of Section 24?

5 A The completed gas well 1980 from the  
6 south and east quarter -- corner of Section 24 is the BTA  
7 No. 1 Lynch.

8 The red dot 1980 from the south and west  
9 lines of Section 24 is the BTA No. 2 Lynch, which is  
10 presently drilling at about 3600 feet.

11 Q When was the BTA Lynch No. 1 completed?

12 A August of '84.

13 Q And do you know when BTA acquired its ac-  
14 reage in Section 24?

15 A Oh, I think it would have had to been in  
16 the fall of '83, or very early '84. I'm not sure.

17 Q Let me refer you now to Section 25. Can  
18 you tell the Examiner what BTA's acreage position in the  
19 northeast quarter of Section 25 is?

20 A We have a farmout from Exxon on the east  
21 half of the northeast quarter of Section 25.

22 Q And are you aware, sir, of the ownership  
23 of the remainder of the east half of Section 25?

24 A Yes, ma'am.

25 Q Who owns that acreage?

26 A According to testimony here this morning,  
27 Chama owns everything that we don't own.

28 Q When you acquired the acreage in Section

1  
2 24 and the 80 acres in Section 25, what was your understand-  
3 ing of the spacing at that location?

4 A Well, we never thought there was anything  
5 except 160-acre spacing for the Lea Pennsylvanian Pool.

6 Q And was that based on the proximity of  
7 the acreage to the limits of the Lea Penn Pool?

8 A Yes, ma'am.

9 Q And are your wells in Section 24 drilled  
10 at standard locations for 160-acre spacing?

11 A Yes, sir.

12 Q Now referring you still to Exhibit Number  
13 One, I'd like to refer you to the west half of Section 25.

14 Your symbol there shows an abandoned oil  
15 well. Is that -- is that the same wellbore that Chama is  
16 seeking to re-enter here today?

17 A Yes, ma'am.

18 Q And can you -- you don't have the other  
19 Chama proposed re-entry shown on this exhibit, do you?

20 A No. At the bottom of the map you'll  
21 notice that this map only includes wells that penetrated the  
22 Morrow.

23 The well that they propose to re-enter in  
24 the southeast quarter of Section 23 went to 10,500 feet, I  
25 believe, which is above it.

Q Let me refer you now to Exhibit Two, Mr.  
Zoller. This is a cross section which goes from A to A'?

A Yes, ma'am.

1  
2 Q And A' is the well in the west half of  
3 Section 25 that Chama intends to re-enter, is that right?

4 A The -- yes, the well on the righthand  
5 side of the cross section is that well.

6 Q Now looking at Exhibit Two, Mr. Zoller,  
7 can you form an opinion as to whether or not the Lea Penn  
8 Pool constitutes a common source of supply?

9 A Well, as I understand the term common  
10 source of supply, the Lea Penn Field includes a number of  
11 sands, all the Morrow in age, which have been prorated as  
12 the Lea Penn Pool and no doubt contains many reservoirs.

13 Q Do you have an opinion, Mr. Zoller, as to  
14 whether or not the sand quality varies throughout the area  
15 shown on your cross section?

16 A It varies immensely from well to well,  
17 even on 160-acre spacing.

18 Q Can you explain that for me by referring  
19 to the exhibit?

20 A Well, if we start with the sand colored  
21 yellow on the BTA Well, which is the center well on the  
22 cross section, you will see that we have some 80 or 90 feet  
23 of sand, the top 30 feet of which we believe to be gas pro-  
24 ductive.

25 If you go to the Shell 1-L Federal, the  
same yellow sand body is nothing more than a few streaks of  
sand and mostly shale.

Moving down a little lower to the laven-

1  
2 der color in the Shell Well, you'll see that they tested up  
3 to 3-million cubic feet a day out of perforations in that  
4 zone. They never produced it. They plugged back and com-  
5 pleted from the Pennsylvanian -- or from the Bone Spring and  
6 at some time or other they plugged the well.

7 That same lavender zone in our well cer-  
8 tainly doesn't look like a reservoir. It's very thin bed-  
9 ded, mostly dirty, and tight where it is clean.

10 Moving on to the left to the Marathon No.  
11 11, the lavender zone is almost completely gone.

12 Moving up the hole in the left Marathon  
13 No. 11 the yellow zone, again. You'll see that Marathon  
14 completed that well first from the perforations marked one.

15 From this zone over a two year period it  
16 only made 215-million cubic feet of gas.

17 They then plugged it back to the two per-  
18 forated zones labeled two in that depth column.

19 From that zone it made nearly 6-billion  
20 cubic feet of gas.

21 They have recently cleaned it all out and  
22 perforated the two zones labeled three and from that they  
23 tell us it will flow one to one and a half million cubic  
24 feet a day but it has not been put on line yet.

25 So taking the yellow zone in the Marathon  
well it certainly looks like they've got considerable clean  
sand. The sonic log would indicate that they've got some  
porosity, but obviously they didn't have too much permeabil-

1  
2 ity or they'd have produced more than 215-million cubic feet  
3 of gas from sands that thick, all of which adds up to the  
4 fact that the sands are very erratic from well to well.

5 Q Let me refer you to the perforations mar-  
6 ked two on the Marathon Log.

7 A Uh-huh.

8 Q Do you find that zone present in the log  
9 of the BTA Well?

10 A Yes, ma'am, we not only did find it, we  
11 had slight gas shows when we drilled it.

12 Q Was it comparable to the zone in the Mar-  
13 athon Well?

14 A Well, I correlate them to be comparable.

15 Q Let me refer you back to Exhibit Number  
16 One, Mr. Zoller.

17 Will you look at that exhibit and tell us  
18 how many completions there have been in the Lea Penn Pool  
19 that are shown on Exhibit Number One?

20 A Yes, ma'am. Every gas well symbol on  
21 that map is or has been a Morrow completion at some time. I  
22 believe we counted twenty the other day.

23 We will follow in a minute with an exhi-  
24 bit which will have every one of those highlighted as to  
25 which are producing and which have produced in the past.

Q Can you look again at Exhibit Number one,  
Mr. Zoller, and tell me how many open locations based on  
160-acre spacing there are?

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2           A           Well, there would be two in the north  
3 half of 24. There would be one in the northeast quarter of  
4 Section 14. There would be one in the northwest quarter of  
5 Section 12. If I understand the boundaries exactly right,  
6 there would be two in Section 10, the northwest quarter and  
7 the southeast quarter.

8           Q           So we're clear, Mr. Zoller, can you look  
9 at Exhibit One and tell the Examiner what the boundaries of  
10 the Lea Penn Pool are now?

11           A           Well, except maybe a little bit -- I'm  
12 assuming that the south half of Section 3 at the north end  
13 of the map is in it; the east half of Section 9, all of Sec-  
14 tion 10, 11, 12, 13, 14, and now Section 24.

15           Q           Let's go to Exhibit Three, Mr. Zoller.

16                        Why don't you come around and put that up  
17 on the wall, Mr. Zoller.

18                        Let me refer you to Exhibit 3, Mr. Zol-  
19 ler, which is on the wall. It's a cross section showing  
20 Penn wells, is that correct?

21           A           Yes, ma'am.

22           Q           From B to B'.

23           A           Right.

24           Q           Would you go to the exhibit, Mr. Zoller,  
25 and show us on the exhibit how you can conclude that wells  
drilled in this area will drain 160 acres?

          A           Well, to start off, I think I would have  
to conclude probably most of the sands don't extend for 160

1 acres so they can only drain what's present.

2 First off, let me explain a little here  
3 about these Easter egg colors.

4 The top two colors, the flesh color and  
5 the pink, are mainly there for correlation purposes.

6 The green in the gamma ray down towards  
7 the bottom of the gamma ray appears on a number of wells.  
8 Again, that is there primarily for correlation purposes.  
9 It's a zone just above the Barnett Shale.

10 In between we have brown, gray, yellow,  
11 and lavender, all of which are attempts to correlate indivi-  
12 dual sands only and in some well or another each or all of  
13 those zones produce..

14 The map on the righthand side shows in  
15 solid lavender the wells that presently produce in the  
16 field. The wells that are circled in lavender are wells  
17 that have produced. Down at the south end there's one with  
18 a broken circle and that is the Shell 1-L Federal which did  
19 test gas and to my knowledge has never produced from the  
Penn, all of which is explained in the legend.

20 The well on the righthand end, the No. 10  
21 Well, is the same well that we looked at on the lefthand end  
of the cross section A-A', the Marathon No. 11.

22 As you can see, the Marathon No. 11 is  
23 producing from the two brown zones, three yellow zones.

24 We move to the next well, and oh, by the  
25 way, every one of these wells is a normal 160-acre offset

1  
2 except one case where there's two wells in the same 160, one  
3 of which is plugged and another well was drilled.

4 The second well produces from a gray  
5 zone, has perforations in a yellow zone and perforations in  
6 two lavender zones.

7 The next well, No. 8, all that's avail-  
8 able from my office or your Hobbs Office of the Commission,  
9 is the top and bottom perforations. If you take the top and  
10 bottom, I think it's pretty logical to conclude that it's  
11 perforated in a brown zone, a yellow zone, and possibly the  
12 gray zone in the middle.

13 Well No. 7 has a couple of feet in a  
14 brown zone, three zones in the gray, two in the yellow, and  
15 one below the TD of the log. I don't know, it's below the  
16 lavender, it may be lavender.

17 Well No. 6 is back up in a zone that I  
18 didn't even find any color for, plus the gray zone, plus the  
19 yellow zone there.

20 No. 5 we're back up in a brown zone,  
21 which we haven't seen for four or five wells here, and  
22 there's perforations in the lavender zone, which Marathon  
23 tells me, at least, they do not think they ever got any gas  
24 out of the perforations.

25 Well No. 4, again it's in the brown, it's  
back in the gray again.

Well No. 3, 2, and 1, are the only con-  
sistency in the entire cross section. They all produce from

1 what I correlated to be the gray zone. Part of this could  
2 be the Well No. 1 and 2 didn't go below the gray zone, so  
3 the last thing that they saw was the gray zone.

4 I think the cross section shows that from  
5 well to well on 160-acre spacing almost in every case the  
6 pay zone changes.

7 Q And based upon that, Mr. Zoller, can you  
8 conclude that 160-acre spacing is appropriate in this area?

9 A Not only appropriate, I think it's the  
10 only way we're going to get the gas out of there.

11 Q Let me refer you back to Exhibit Number  
12 One.

13 Do you have an opinion as to whether or  
14 not the Lea Penn Pool extends into Sections 23 and 25?

15 A I don't have a reason in the world to  
16 think that it doesn't.

17 Q Can you tell the Examiner what the effect  
18 would be of permitting Chama to re-space Sections 23 and 25  
19 on 320 acres? How would that affect BTA's acreage position  
20 in 25?

21 A Well, it's just as obvious that we put  
22 our deal together thinking 160 acres as it is that they put  
23 theirs together thinking 320, and it's going to cut us from  
24 a 50 percent interest in a well with a much better location  
25 than one in the southeast quarter, which we could have a 25  
percent interest and which --

Q Do you have --

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A -- by the way, we don't want.

Q Do you have an opinion as to how productive the acreage in the southeast quarter of Section 25 is?

A Only to the extent that the sand that we are presently producing from in our No. 1 Lynch, by everything we've got, should be wet, if present, in the southeast quarter of 25.

Q If you were able to drill a well in the east half of Section 25, can you tell me where you'd locate it?

A I've already recommended that it be located 660 from the north and east corner of Section 25.

Q And that would be on BTA's 80-acre tract in the east half of the northeast quarter?

A Yes, ma'am.

Q And were that to happen, BTA would have a 50 percent interest in that well.

A Yes, ma'am.

Q Do you have an opinion as to whether or not a well in the east half of the northeast quarter would likely be a better well than a well in the southeast quarter of Section 25?

A It is certainly my opinion that at this stage in the knowledge of the sands, that is the place to drill a well. It's the best place in the section to drill the well.

Q In the event that Section 25 is re-spaced

1 on 320 acres, will BTA's correlative rights be impaired?

2 A Yes, ma'am.

3 Q Can you explain that, please?

4 A At best we can end up with a 25 percent  
5 interest in a well which we have justification to expect a  
6 50 percent.

7 Q Do you see any geologic reason to change  
8 the spacing in Sections 23 and 25?

9 A Absolutely not.

10 Q Do you see any geologic reason, based on  
11 your exhibits and your testimony, to retain spacing in those  
12 two sections on 160 acres?

13 A Well, in our case it certainly affects  
14 our correlative rights, and I think it should be retained.

15 Q Can you tell the Examiner what dollar  
16 amount BTA has spent developing this acreage based on 160-  
17 acre spacing?

18 A Oh, from memory, I believe our first well  
19 cost, well, it's something like \$1,200,000, and we spudded  
20 the second one thinking the same thing.

21 Q And there is a potential for a third BTA  
22 well in Section 25.

23 A There was testimony earlier, Mr. Zoller,  
24 that this is not a prorated gas pool.

25 A Right.

Q Can you tell me first of all whether or  
not there are any pipelines in the area?

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A Yes, ma'am. I know there are two; however, we have been approached by a third company to talk about buying the gas from our No. 2 Well, so I have to assume that there is either a third one or he's got a trade-off with someone else.

Q And do you know, Mr. Zoller, how many operators there are of the wells in the Lea Penn Pool?

A No, ma'am, but it wouldn't be that hard to count. There's Greathouse, Estoril, NCRA, Moran, Grace, BTA, Marathon, and even if the Morrow is unitized, there were certainly other operators involved in the Marathon Unit besides the operator. I didn't count that.

Q So at least seven.

A That we can count.

Q In the event of a change in gas market, Mr. Zoller, do you have an opinion as to whether or not this is a pool which would likely be prorated?

A Well, if it were to change and we had a few more wells like the BTA No. 1 Lynch, I would think there's a good possibility it will be prorated.

Q And there are a number of operators.

A Yes.

Q And a number of pipelines in the area?

A Right.

Q And can you tell the Examiner what effect it would have on BTA's position with its wells spaced on 160's if the pool were prorated and Chame was successful in

1  
2 respacing Sections 25 and 23 on 320 acres?

3 A Certainly. They'd have a distinct advan-  
4 tage in selling a lot more gas than I personally think  
5 they're entitled to.

6 Q And why would that be, Mr. Zoller?

7 A Well, because they'd have proration based  
8 on 320 where we'd have proration based on 160.

9 Q And the number of acres goes into that  
10 formula, --

11 A Right.

12 Q -- is that what you're saying?

13 Let me finally refer you again to Section  
14 25, the east half.

15 Do you have an opinion as to whether or  
16 not if the application of Chama is granted, the effect of  
17 that will be contribute totally nonproductive acreage in the  
18 southeast quarter of Section 25 to its spacing unit?

19 A I have no reason to think it would be to-  
20 tally nonproductive. I can look clear on the west end of --  
21 edge of the field by the cross section that's on the wall,  
22 and there's certainly a well as low structurally as that,  
23 that did have a pay zone, all three of which produced from  
24 the same -- same zone.

25 Q Would contributing the southeast quarter  
of Section 25 to a proration unit dilute BTA's interest in a  
potential well in the northeast quarter?

A Well, I certainly think it would, if for

1  
2 no other reason, you can take the wells way out on the  
3 northwest edge of the field and most of them did not produce  
4 very much gas.

5 I see one here with 617-million; another  
6 one with a million-two; another one with 56-million; whereas  
7 wells back in the area where we've at produced 3, 4, 5, and  
8 6-billion.

9 MS. AUBREY: I have no more  
10 questions at this time.

11 MR. STOGNER: We're going to  
12 take a fifteen minute recess and we'll come back and resume.

13 MS. AUBREY: May I offer my Ex-  
14 hibits One through Three?

15 MR. STOGNER: Yes, I guess we  
16 should do that.

17 Do you wish to do that?

18 MS. AUBREY: Yes, I do, please.

19 MR. STOGNER: If no objection,  
20 Exhibits One through Three will be admitted into evidence.

21 At this time we'll now take a  
22 fifteen minute recess.

23 (Thereupon a recess was taken.)

24 MR. STOGNER: The hearing will  
25 now continue.

Mr. Carr, I guess it's your

1  
2 turn for cross examination.

3  
4 CROSS EXAMINATION

5 BY MR. CARR:

6 Q Mr. Zoller, if we could look at your Ex-  
7 hibit Number One for a minute, please.

8 How important is structure in getting a  
9 successful well in this area?

10 A Well, that is going to vary all over the  
11 field as to which sand you're talking about.

12 In this immediate area, if you'll refer  
13 to Exhibit Number Two, I stated that we had about 90 feet of  
14 sand in the zone colored yellow. We perforated, I believe,  
15 14 feet of it.

16 By the calculations we have the top 30  
17 feet is gas productive. We have about 20 feet there that  
18 according to exhibits that we've already presented to the  
19 Commission shows that the water saturation is going up very  
20 fast but the porosity is going down, so we can't say that  
21 it's gas or water productive.

22 And then the zone colored blue is very  
23 definitely water productive.

24 Right now it's our feeling that we've  
25 got, I believe, a maximum of 44 feet that can be gas produc-  
26 tive and below that we expect the yellow sand to be wet.

27 Q And so --

28 A Now, to talk about any other sand there,

1  
2 I remember specifically on the long cross section Number  
3 Three there is some water information relative to other  
4 sands.

5 Q And so I understand your testimony, as  
6 you move down structure, say, from the well in the southeast  
7 of 24 which you were just talking about --

8 A Yes, sir.

9 Q -- you get into a poor portion of the re-  
10 servoir because you're increasing the chance of water satu-  
11 ration.

12 A Well, I wouldn't say it's a poor portion,  
13 but we're taking a chance on reducing the gas column, yes,  
14 sir.

15 Q You have a poor or a less -- you've re-  
16 duced the chance by moving down structure.

17 A We've reduced the chance of a thick res-  
18 ervoir but no reason to think we've reduced the chance of a  
19 good reservoir.

20 Q So is structure an important factor in  
21 determining whether or not you have a good Morrow comple-  
22 tion?

23 A In some zones it seems to be; other zones  
24 is does not seem to be.

25 Q And in other zones it would be more de-  
pendent on just the quality of the sand stringers intercep-  
ted. Is that a fair statement?

A Yes.

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Q Okay. Now this Exhibit Number One is your interpretation of the Morrow structure in this area, is that correct?

A It's my interpretation of the structure as it appears at the top of the Morrow Clastics section shown on both cross sections and also shown as the mapped point.

Q And in preparing this you looked at the logs on the wells that penetrated the Morrow in the area.

A Yes, sir.

Q And so your placing of the 9500 foot contour as it goes across, oh, down to Section 36, what control did you have for actually placing that line at that point?

A Well, obviously, the control is nothing more than the control at the top of the structure where you have a lot of control, and going off the west flank you have control almost to -9500.

Going off the southwest you have a control point at 9560 on the Pennzoil dry hole in Section 35.

Obviously it's interpretation. It could be done mechanically and come out with a different picture.

Q And if a well is drilled in the northeast of 25, that might provide data that would cause it to be modified in some respect. Is that not true?

A Certainly.

Q All right. Now, as you have looked at these sands as they appeared in the logs, did you prepare

1 any Isopachous maps of any of the individual sand units?

2 A No, sir. I frankly don't think I'm cap-  
3 able or patient enough to accomplish that task.

4 Q Did you do any reservoir study well to  
5 well to determine whether or not the zone that appeared in  
6 the individual wells in fact was in communication well by  
7 well?

8 A No. I don't think I could because most  
9 wells are completed from more than one zone and if it is,  
10 there's very little chance you're going to prove anything  
11 for one zone.

12 Q So your maps show the presence of the  
13 sand bodies, that's what I --

14 A Yes.

15 Q Okay. Now to be sure I understood your  
16 testimony, you didn't testify, did you, that the southeast  
17 of 25 was nonproductive?

18 A No.

19 Q But you don't consider that as good a  
20 prospect as -- as the northeast. Is that a fair characteri-  
21 zation?

22 A Well, we all are sitting here trying to  
23 figure out a way to crowd just as close to the Lynch No. 1  
24 as we can because it's a fabulous well, and in our third  
25 well I'd like to do that.

On the other hand, if my map is right,  
it's going to be wet in the yellow zone, anyway.

1  
2 But all I've got to do is look over to  
3 the well you intend to re-enter, the Shell 1-L Federal tes-  
4 ted 3-million cubic feet a day, and I'd like to get up dip  
5 to that lavender sand.

6 Q Well, if thta's the case, if what we're  
7 trying to do is get as close to the Lynch No. 1 Well, why  
8 would a location 660 out of the northeast corner of 25 be a  
9 preferable location than, say, a location that's 660 or lo-  
10 cated in the northwest of the northeast of 25?

11 A I don't know that it will be that much  
12 preferable. There's two things involved.

13 One, we have the east half of the north-  
14 east and that's our lease.

15 Q Okay.

16 A Two, there's a fault over there with  
17 about 500 feet of throw, and if this map is off, I am bet-  
18 ting that it's going to be off in that that dip into that  
19 fault is going to be steeper than I've got it, and I think  
20 the northeast quarter of 25 will be higher than I've shown  
21 with this contour.

22 Q So this contour may not be correct as it  
23 crosses 25.

24 A That -- that goes for every contour on  
25 the map where it crosses any section.

Q If that contour is steeper than depicted  
as it crosses the northeast of 25, wouldn't that tend to  
mean that a location 660 out of the northeast corner would

1  
2 in fact be at a lower structural position than perhaps a  
3 well in the northwest of the northeast?

4 A I think the dip's deeper into the fault,  
5 and see if we can't imagine how easy it would be to draw the  
6 9200 foot contour even further south than I've got it drawn.

7 In other words, what I'm talking about,  
8 an echelon fold in which you have a steep flank on the east  
9 and a very gentle flank on the west.

10 Q What we've got here is a -- your testi-  
11 mony was to locate 660 out of the northeast corner of Sec-  
12 tion 25, but your testimony is that that contour may not be  
13 placed where it is and that in fact might not be structural-  
14 ly lower than the northwest of 25. Is that right?

15 A I'll accept that, yes.

16 Q All right. Now, I believe you testified  
17 that the -- whether or not you got a successful Morrow well  
18 is really dependent upon the quality of the sand inter-  
19 sected.

20 A That's right.

21 Q And it is your testimony that they will  
22 drain 160 acres, these wells will drain 160.

23 A Yes, I think they'll drain 160 acres.

24 Q Is it possible that some of these would  
25 drain more than 160?

A Certainly.

Q Now, isn't it true that the source of the  
dispute today between BTA and Chama is really the develop-

1 ment of the northeast quarter of Section 25?

2 A Well, the only thing that Chama is trying  
3 to do that we really care much about is as it relates to the  
4 northeast of 25.

5 Q And so that's the source of our dispute.

6 A Yes.

7 Q Now, the acreage in the northeast quarter  
8 of Section 25 is based on 160-acre spacing right now, is  
9 that correct?

10 A Acreage in the northeast of 25?

11 Q The spacing for the northeast of 25 is  
12 160 acres in the Morrow.

13 A Right now the northeast of 25 is not  
14 spaced at all, to my knowledge.

15 Q What would the rule -- what spacing rules  
16 would apply to that? Do you know?

17 A Well, it's within one mile of the limits  
18 of the Lea Pennsylvanian Field and it's my understanding  
19 that if you drilled a well within one mile of the present  
20 limits of the Lea Pennsylvanian Field, you have to drill it  
21 by the Lea Pennsylvanian rules.

22 Q And those pool boundaries were just ex-  
23 tended to include all of Section 24, is that correct?

24 A That's right, sir.

25 Q And prior to that extension, the pool  
boundaries only came down to the southern boundary of Sec-  
tion 13.

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A That's right, sir.

Q Prior to that extension wells in the north half of 25 would have been more than a mile from that pool boundary.

A Prior to the extension.

Q Yes, sir. Now, if we go to your Exhibit Number Three and we work back as you did, the 10, the 9, the number 8 wells, can you say from your study that the number 9 well and the number 10 well are producing from the same zone? And I'm talking primarily here about the yellow zone.

A The 9 and the 10?

Q Yes, sir, from the yellow zone?

A Well, number 9 well has some perforations in the yellow zone.

Q And number --

A As well as a number of others.

Q Doesn't the number 10 also have perforations in the yellow zone?

A Yes, sir.

Q Has there been anything in your study that would indicate that those zones are in communication?

A No. I haven't made a study to try to prove it and I don't think I could prove it if I did make one.

Q And if we look at the number 10 well, you have perforations, or there are perforations in the brown zone that's up in the Upper Morrow.

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A Yes, sir.

Q There are no corresponding perforations in the number 9 well in the brown.

A No, sir.

Q Nor in the number 8.

A No, sir.

Q In the number 8, I didn't understand your testimony. Do you know what zones were actually perforated or produced in the number 8 well?

A Only thing they've reported anywhere that I can find, and I ordered the records from the Hobbs office, was a top and bottom perforation.

That tells you that something in the brown has to be perforated. Something in the yellow has to be perforated, and possibly something in the gray is perforated.

Q I believe you concluded your testimony, or stated as part of your testimony on this exhibit, that 160-acre spacing was necessary to get the gas out of this area in the pool. Is that correct?

A I think the cross very vividly demonstrates that the sands have to be drilled on 160 acres because they obviously don't extend 320.

Q And all the sands that are depicted on Exhibit Three are within the present boundaries of the Lea Penn Pool.

A Yes, sir.

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Q And they're based -- and that's spaced on 160-acre spacing.

Now, the acreage outside the pool boundary, particularly the southeast quarter of Section 25, and I'm not trying to be -- work this point over again, I just want to be sure I understand your testimony, do you consider that as good a location or as good a prospect for a Morrow well as the northeast of 25?

A No, sir.

Q And is that because it is structurally at a lower position than the, say, northeast of that section?

A Primarily because it's a lower structural position and the sand that we're all interested in today is expected to be wet at that location.

Q Now, before you go sit down, look at the index map on Exhibit Number Three.

The solid blue wells are Morrow producers, is that correct?

A Producing today.

Q And the other wells that are just a circle not colored in, those are prior Morrow wells.

A Prior Morrow producers.

Q How many of those wells, do you know, were originally drilled as Devonian wells?

A No, I don't know. We can tell off this cross section about the ones that went through it, but everything there that's an oil well could have either been

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Devonian or Bone Spring, so that -- that alone won't tell.

Q Now, if I look at the wells that are not currently producing from the Morrow but are former Morrow producers, have you studied what zones they actually produced from?

A No, except for -- except for what's on that cross section or this cross section.

Q If we look at the ninth well and the eight well, which are both in the south half of Section 14, even there we're not able to tell if in fact they may have produced from the same zones, is that correct?

A These two?

Q Yes, sir.

A Well, the ninth well has perforations in the yellow zone. The eighth well has perforations in the yellow zone.

The ninth well has no perforations in the brown zone; the eighth well does.

The ninth well has perforations in the gray zone and the eighth well very well might. It's got 10 feet of clean sand.

Q If we go up into Section 11, moving up the cross section, the first well in Section 11, (not clearly audible), the southernmost well in Section 11 --

A Well number 6.

Q -- is well number 6. Are there any zones in well number 6 that also appear to have been produced in

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well number 7?

A Oh, yes.

Q I mean, I'm sorry, I --

A The yellow --

Q I'm sorry, I directed you to the wrong well.

Are there zones in well number 6 that also produced in well number 5, which is the next well in Section 11?

A No.

Q So the point is that even if we locate multiple wells in a unit, the test is whether or not we intersect the producing sand bodies.

A That's the story of every Morrow well that's ever been drilled in the industry.

Q Now if I look at, say, Section number 10, there have only been two Morrow wells in that section, is that correct?

A Right.

Q If I look at Section 11, there are currently only two Morrow wells in that section.

A Right.

Q The same would apply for 14. There are only two producing Morrow wells in that section.

A Yes, sir.

Q There's only one in 13.

A Yes, sir.

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Q There's only one currently in 24 with another being drilled.

A Yes, sir.

Q If you dedicated laydown units in all of those you could have -- you could dedicate 320 acres to each of those wells, could you not?

A You mean we want to disregard the fact that there's been three wells already plugged out in the same reservoir and redesignate 320?

Q My question is, we could right now dedicate 320 acres to each of the wells in Section 11, could we not?

A Yeah, we could plug out a few more wells and dedicate 640, too.

Q And those in Section 11 are currently wells producing that have not produced from the same -- from sand bodies that have not appeared in any other wells; south half of Section 11.

A These two wells?

Q Yes, sir.

A No, we didn't. We didn't talk about the other two that are on there.

Q You want to talk about the other wells? Is it your opinion that the same stringer would have been drained by 11 if -- by the number -- let's see --

A We were talking about 6 and 7.

Q Okay. Okay, let's look at well number 4.

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2           A           Well, weren't we talking about well num-  
3 ber 5 and 6.

4           Q           Yes.

5           A           And they didn't have the same zone.

6           Q           That's correct, and you stated we were  
7 only talking about two.

8                       I'd like to direct your attention to the  
9 -- to well number 4 and ask you if it's producing from the  
10 same stringer that was present in either the 5 or 6 well?

11          A           Well number 4 is producing from the gray  
12 and the brown.

13                       Well number 5 is producing from the brown  
14 and the lavender.

15                       Well number 6 is producing from the gray  
16 and the yellow and some zone that I didn't even color.

17          Q           What about number 3?

18          A           Well number 3 is producing from the gray  
19 only.

20          Q           I believe it was your testimony that we  
21 have no idea if they were even in communication with one an-  
22 other based on the information that you had.

23          A           I don't see any way to even generate that  
24 information.

25          Q           And so there is nothing here that would  
show the fact that we don't have that section spaced on 320-  
acre spacing in zones that haven't been produced in any  
other wells.

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A I can't quite see what we're trying to prove here, but let's take 5 and 6 again, and they're both in the south half of 11.

If you had a laydown section in the south half of Section 11, you've got one producer and one abandoned producer.

Q Yes, sir.

A The producer is producing from a zone I didn't color, plus the gray and the yellow.

The number 5, the abandoned well, did produce from the brown and the purple.

Q So they're producing from different stringers.

A So how can you drain the gas that was produced by section -- by well number 5 when the zones don't exist or weren't perforated and to reason to think they should be perforated in well number 6?

MR. CARR: I don't have any further questions.

MR. STOGNER: Ms. Aubrey, any redirect?

MS. AUBREY: Thank you.

CROSS EXAMINATION

BY MS. AUBREY:

Q Mr. Zoller, based on your study and on your exhibits, do you see any geologic reason to treat the

1 spacing in Section 24 and 25 differently?  
2

3 A No, ma'am.

4 Q Or in Section 24 and Section 23 differ-  
5 ently?

6 A No, ma'am.

7 Q Mr. Zoller, do you have an opinion as to  
8 whether or not 160-acre spacing within a mile of the Lea  
9 Penn Pool is inappropriate?

10 A I have an opinion that it is appropriate.

11 Q And that's based on your geological stud-  
12 ies, is it not?

13 A Yes, ma'am.

14 MS. AUBREY: I have no more  
15 questions, Mr. Examiner.

16 CROSS EXAMINATION

17 BY MR. STOGNER:

18 Q Mr. Zoller, what BTA is actually propos-  
19 ing is adopting 320-acre spacing rules outside the Lea Penn-  
20 sylvanian Gas Pool, is that right?

21 A What we're actually proposing is that we  
22 adopt -- we continue to have 160-acre spacing within one  
23 mile of the limits of Lea Pennsylvanian Pool.

24 Q That's essentially what I was asking.

25 A I was trying to get off of 320.

Q Thank you, Mr. Zoller.

If the 160-acre proration units were up-

1 held within a mile of the Lea Pennsylvanian Pool, does BTA  
2 have any objection with either one of the proposed Chama lo-  
3 cations or re-entries?

4 A Well, first off, if you adopt it within a  
5 mile, it affects both those locations.

6 Our feeling is that if they're both ap-  
7 proved, that they should be, if the field is every prorated,  
8 they should be penalized on the basis of their location.

9 Q If both wells were on 160-acre proration  
10 units?

11 A Well, if they're both on 160, they're  
12 both legal -- legal locations and we're playing all by the  
13 same rules. We don't object at all to they're 330 feet;  
doesn't bother me a bit.

14 Q Okay. We'll refer now to Exhibit Number  
15 Two.

16 In your opinion from the logs, the purple  
17 zones that are both -- that both show up in the BPL -- BTA,  
18 I'm sorry, Lynch Well No. 1 and the Shell Federal L No. 1,  
19 are they both the same sand stringer?

20 A I think they're the same aged sand and  
21 the thing is that everything that was clean in our well was  
also dense, and we have no gas shows drilling through them.

22 In other words, I don't think we have a  
23 chance of producing from the zone that made gas in the Shell  
24 1-L.

25 Q So you don't feel that the Lynch Well No.

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l's purple sand correlates with that in the Federal L No. 1?

A Oh, yes, I think it correlates. I just don't think it has any porosity in our well.

Q So you don't feel that the -- any production whatsoever that comes from the Federal L No. 1's purple zone would have any effect on the Lynch No. 1 zone?

A Not in the least. It may have an effect on what we do in the northeast of 25, but they're entitled to it.

Q Has BTA staked a location in the northeast quarter of 25?

A They haven't, but it's my understanding that they might do so today.

Q If not today, then how soon?

A Hopefully by Monday.

Q What zone do you hopefully to correlate in the northeast quarter of Section 25 with your Lynch No. 1 Well, the yellow zone or the purple, or the gray, or --

A Well, right at this stage, I would say that our number one shot in the northeast of 25 would be the purple zone and probably our number two shot would be the brown zone.

Q If the 160-acre proration units were done away with immediately outside the Lea Pennsylvanian Pool, what type of penalization should both wells that Chama proposed to drill have them?

A I assume it would be based on the percen-

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tage of how far they crowded the line. I don't know what the New Mexico procedure is.

Q But you feel they should --

A I don't think -- you don't have a procedure, as far as I know, that's called an actual productive acreage procedure, at least nothing that I've ever been involved in.

Q But you feel they should be penalized some way.

A Sure, if the field is every prorated. Of course, if it's not prorated, they won't ever be penalized any.

MR. STOGNER: I have no further questions of this witness.

Are there any other questions of Mr. Zoller?

MS. AUBREY: I have no questions.

MR. STOGNER: Before we get to the closing statements, is there any redirect of either witness?

Mr. Carr? Is that a yes or no?

MR. CARR: That's a no.

MR. STOGNER: Thank you, sir.

I guess at this time we're ready for closing statements.

MS. AUBREY: Mr. Stogner, be-

1 fore I make --

2 MR. STOGNER: Ms. Aubrey, we'll  
3 go with you.

4 MS. AUBREY: -- my closing  
5 statement, I'd like to renew my motion to dismiss.

6 MR. CARR: I would renew my re-  
7 sponse to the renewed motion.

8 MR. STOGNER: I'll renew my  
9 overruling.

10 And we'll now have closing  
11 statements.

12 Ms. Aubrey, you may go first.

13 Mr. Carr, you may go last.

14 MS. AUBREY: Thank you, Mr.  
15 Stogner.

16 Chama comes here today asking  
17 you to change the rules with regard to the spacing within a  
18 mile of the Lea Penn Pool.

19 And Chama comes in here with  
20 two landmen and no geologic testimony to support that re-  
21 quest.

22 The request that they're making  
23 is based on their own economics and not reservoir economics  
24 but the economics of the deal that they've put together on  
25 this acreage.

That testimony does not make a  
prima facie case for the changing of the spacing, and BTA's

1 testimony has shown clearly that based on geology, retaining  
2 160-acre spacing within a mile of the pool limits is not  
3 only appropriate but necessary.

4                   The only geologic testimony  
5 you've heard today, Mr. Stogner, clearly shows that a well  
6 will drain 160 acres in this area; that the sands are erra-  
7 tic; that you cannot drain 320 acres with one well in this  
8 area. And that is the testimony you have before you upon  
9 which to make your decision.

10                   The only decision you can make  
11 based on the testimony that's been presented to you, is that  
12 the spacing is correct and that it should be retained and  
13 should remain 160 acres within a mile of the pool limits.

14                   MR. STOGNER: Thank you, Ms.  
15 Aubrey.

16                   Mr. Carr?

17                   MR. CARR: May it please the  
18 Examiner, the thrust of the problem today is that we have  
19 160-acre spacing units in an old pool in the Morrow forma-  
20 tion in an area where statewide rules other -- except for  
21 these old pools, would require development on 320-acre spac-  
22 ing.

23                   Had this pool not been created  
24 in 1961 it would be developed on 320 acres today. In fact,  
25 we submit, that's what is being done.

                  If you look at the geologic  
presentation of BTA, you will see as you look at the index

1 map on their Exhibit Number Three that the wells are basic-  
2 ally producing from zones which do not correlate.

3 If we look at Exhibit Number  
4 Eleven, there are two wells completed in the Morrow. With  
5 laydown units they have one well for each 320 acres. If you  
6 look at the south half of the section, the Morrow well in  
7 the south half of Section 11 is producing from Morrow  
8 stringers that have not been produced in the south half of  
9 that section.

10 You may move right down there  
11 across the trace on their index map and you will see section  
12 by section that what we have is the fact of 320-acre spac-  
13 ing.

14 We submit the evidence pre-  
15 sented by BTA supports the argument that the spacing that is  
16 appropriate for the area is not 160 acres. That's a histor-  
17 ical fluke.

18 What in fact is the proper  
19 spacing for this area is 320 acres.

20 The testimony presented by BTA  
21 was that some stringers drain more than 160 acres; some  
22 drain less. Since it's not a prorated area, all we're pro-  
23 posing is a system whereby an operator wouldn't be required  
24 to drill unnecessary wells if that isn't warranted by the  
25 evidence obtained from the drilling that offsets it, and the  
evidence is still in the developing stage, as Mr. Zoller  
testified.

1  
2 When the -- when a well is  
3 drilled in Section 25 additional data will be obtained that  
4 can change the contours and can, in fact, change the outlook  
5 for the area.

6 If you -- Ms. Aubrey stated  
7 that the evidence presented was that a well would not drain  
8 320 acres. We submit that the only time that statement was  
9 made was by Ms. Aubrey herself.

10 We think that when we look at  
11 correlative rights we're talking about an opportunity to  
12 produce without waste our fair share of the reserves. Re-  
13 lief from 160-acre requirements are necessary if in fact you  
14 are to give us that chance to produce without waste.

15 If we are to develop the area,  
16 we would have to go, under present rules, on 160-acre spac-  
17 ing, drill wells that we submit will not be necessary, that  
18 would be wasteful, and therefore to produce the gas in these  
19 tracts we'd be locked into a wasteful situation, which is  
20 contrary to your statutory directive.

21 As to the well locations, BTA  
22 doesn't have an objection to them if they're on 300 -- if  
23 they're on 160-acre tracts, for they'd be at a standard set-  
24 back of 660 acres.

25 I think you should keep in mind  
that you're not required to impose a penalty on a well just  
because it's at an unorthodox location unless there is some  
advantage unless -- being gained by virtue of that location;

1  
2 unless there is drainage which cannot be offset by counter-  
3 drainage.

4 We submit that it would be in-  
5 consistent with this Commission's statutory directive to not  
6 approve those locations and then to, once they're approved  
7 -- or to impose a penalty once they are approved, because  
8 there would be in the same Morrow sand, if in fact it is in  
9 communication, an opportunity for the offsetting operator to  
10 drill a well in that sand body equidistant from the common  
11 lease line between the two.

12 We submit that the locations  
13 should be approved and a penalty is inappropriate, and that  
14 the only way you can carry out your statutory directive in  
15 this area is to recognize the de facto 320-acre Morrow spac-  
16 ing that exists in this pool and not require wasteful drill-  
17 ing outside the present pool boundaries.

18 MR. STOGNER: Thank you, Mr.  
19 Carr.

20 Mr. Carr, Ms. Aubrey, would you  
21 please submit to me a rough draft of an order for both  
22 Cases 8446 and 8447 within ten days? Would that be suffi-  
23 cient?

24 Is there anything further in  
25 either of these cases?

26 If not, both cases will be  
27 taken under advisement pending the ten days when I will have  
28 received, hopefully, the rough drafts.

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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 Conservation 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 CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case Nos. 8446 & 8447 heard by me on 3 January 1985.

Michael Estep, Examiner  
Oil Conservation Division

NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARING

SANTA FE, NEW MEXICO

Hearing Date JUNE 12, 1985 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
Paul W. Raychell Karen Quinby Bob Huber	El Paso Natural Gas Kellahan + Kellahan Byram	El Paso, TX Santa Fe Santa Fe
MARVIN ZOLLER	BTA Oil Producer	MIDLAND, TX.
Mark K. Nearburg	Chama Petr. Co.	Dallas
William L. Egan	Temple and Black	Santa Fe
Dan Turner	Cons. Engr	Santa Fe
David Boyer	NMOCS	Santa Fe
Louis MARZULLO	CHAMA PETR. CO.	MIDLAND, TX.
Michael Stogner	NMOCC	Santa Fe
Charles E. Nearburg	Chama Petroleum	Dallas, TX



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
State Land Office Building  
Santa Fe, New Mexico

12 June 1985

COMMISSION HEARING

IN THE MATTER OF:

Application of Chama Petroleum Com-      CASE  
pany to limit the Lea-Pennsylvanian      8447  
Gas Pool Rules, Lea County, New  
Mexico.

BEFORE: Richard L. Stamets, Chairman  
Ed Kelley, Commissioner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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Attorney at Law  
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P. O. Box 2265  
Santa Fe, New Mexico 87501

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MR. STAMETS: We'll call next Case 8447, being the application of Chama Petroleum Company to limit the Lea-Pennsylvanian Gas Pool Rules, Lea County, New Mexico.

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9

MR. CARR: May it please the Commission, my name is William F. Carr with the law firm Campbell and Black, P. A., appearing on behalf of Chama Petroleum Company.

10

I have four witnesses.

11

12

MR. STAMETS: Other appearances?

13

14

15

MS. AUBREY: May it please the Commission, Karen Aubrey, Kellahin and Kellahin, representing BTA Oil Producers.

16

I have one witness.

17

18

MR. STAMETS: Any other appearances?

19

20

21

I'd like to have all of those who will be witnesses in this case stand and be sworn at this time.

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23

(Witnesses sworn.)

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MR. CARR: At this time I'd call Mark Nearburg.

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MARK NEARBURG,

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

DIRECT EXAMINATION

BY MR. CARR:

Q Would you state your full name and place  
of residence?

A Mark Nearburg, Dallas, Texas.

Q Mr. Nearburg, by whom are you employed  
and in what capacity?

A Chama Petroleum Company, landman.

Q Have you previously testified before this  
Commission and had your credentials as a landman accepted  
and made a matter of record?

A Yes.

Q Are you familiar with the application  
filed in this case on behalf of Chama?

A Yes.

Q Are you familiar with what Chama seeks in  
this matter?

A Yes.

MR. CARR: Are the witness'  
qualifications acceptable?

1 MR. STAMETS: They are.

2 Q Mr. Nearburg, would you state briefly  
3 what Chama seeks in this case?

4 A Chama seeks an order limiting the rules  
5 governing the Lea-Pennsylvanian Gas Pool to the present pool  
6 boundaries.

7 Q Would you please refer to what has been  
8 marked for identification as Chama Exhibit Number One,  
9 identify this, and review what it shows?

10 A Exhibit Number One shows -- is a general  
11 land map of the area.

12 The acreage shaded in yellow is Chama ac-  
13 reage.

14 The acreage in green is the Lea-Penn  
15 Pool; acreage in red is the West Lynch Morrow Pool, Lea-Penn  
16 Morrow.

17 Berry North Morrow is shaded in blue in  
18 the lower right.

19 Q When was the Lea-Penn Morrow Pool  
20 created?

21 A The Lea-Penn Pool was created November  
22 1st, 1961.

23 Q And when were the South Lynch and the  
24 Berry North Morrow Pools created?

25 A The West Lynch Morrow and the Berry North

1 Morrow were both created effective February 1st, 1981.

2 Q Now the acreage shaded in yellow, I be-  
3 lieve you indicated was Chama acreage?

4 A Yes.

5 Q When did Chama start acquiring its inter-  
6 est in this area?

7 A Chama began its first lease acquisition  
8 in June of 1983 and it has continued through the present.

9 Q And at the time you started acquiring ac-  
10 reage in this area, what were the Lea-Pennsylvanian Pool  
11 boundaries?

12 A The southernmost extent of the pool boun-  
13 daries at that time in 1983 was the south section line of  
14 Section 13 and the southeast -- south line of the southeast  
15 quarter of Section 14.

16 Q And so what was the spacing at the time  
17 you acquired the land shaded in yellow for those lands?

18 A The spacing at that time with the leases  
19 we had was 320-acre spacing.

20 Q And when was the Lea-Pennsylvanian Gas  
21 Pool extended?

22 A The pool was extended in December, 1984.

23 Q Has there been recent drilling activity  
24 in this area?

25 A Yes, there has.

1                   Beginning last year in late May or early  
2 June BTA spudded their No. 1 Well in the northwest southeast  
3 quarter of Section 24.

4                   On December 28th, 1984, Chama commenced  
5 re-entry of the 1-L in the southeast quarter northwest quar-  
6 ter of Section 25.

7                   I don't know the exact spud date of BTA's  
8 No. 2 Well, but I think it was in late 1984, early 1985.

9                   Q           And that's located in Section 24?

10                  A           And that's in Section 24 in the northeast  
11 quarter southwest quarter.

12                  And on June 8th, 1985, Chama began drill-  
13 ling a new hole in the southeast quarter southeast quarter  
14 of Section 23.

15                  Q           Are all of these wells indicated on Exhi-  
16 bit Number One?

17                  A           Yes.

18                  Q           Does Chama have any further drilling  
19 plans in the immediate area?

20                  A           Yes. We would like to develop the north-  
21 east quarter of Section 25; however, on I believe it was  
22 February 27th of this year we had a forced pooling hearing  
23 on which there has been no order.

24                  Q           At the time of that pooling hearing did  
25 BTA also appear with a parallel pooling application seeking

1 an order pooling those lands?

2 A Yes, they did.

3 Q And designating them operator of the  
4 well?

5 A Yes.

6 Q What are the spacing requirements and  
7 well location requirements for the Lea-Pennsylvanian Gas  
8 Pool?

9 A The Lea-Pennsylvanian Gas Pool is spaced  
10 on 160-acre units with no well located closer than 330 feet  
11 to the inner quarter quarter boundary, or 660 feet from the  
12 outer boundary.

13 Q Are these spacing requirements the result  
14 of special pool rules?

15 A No. The only reason that the pool is on  
16 this spacing is because it was created prior to June 1st,  
17 1964.

18 Q So they're spaced this way under state-  
19 wide rules?

20 A Yes.

21 Q When did Chama Petroleum Company discover  
22 that the acreage that they were proposing to develop needed  
23 to be developed on 160-acre spacing?

24 A In June or July of 1984 we submitted Form  
25 C-101 and 102 to the Hobbs District Office and we were in-

1 formed by them that the pool would probably be extended in  
2 such a manner that our re-entry of the 1-L would be within  
3 the one mile buffer zone of the extended pool limits.

4 In asking the Commission how we should  
5 proceed, they suggested that we have a hearing to limit the  
6 pool rules, put our acreage on 320 and BTA would not object  
7 to that.

8 That was per the Hobbs Commission Office.

9 Q And then that matter did come on for  
10 hearing?

11 A That matter came on for hearing earlier  
12 this year. We do not -- or we did have an order in that  
13 hearing. That's why we're here today.

14 Q And the Commission denied -- the Examiner  
15 denied your application.

16 A Right.

17 Q And you've appealed it.

18 A Yes.

19 Q Would you just summarize why Chama is  
20 seeking to limit the pool rules to the present pool bound-  
21 ary?

22 A Basically there are -- the main reason is  
23 that the only reason the Lea-Penn Pool is on 160-acre spac-  
24 ing is because it was created prior to June 1st, 1964,  
25 created in 1961.

1                    Additionally, the 320-acre units for the  
2 Morrow formation are standard now and have been for over 20  
3 years. Also, 320-acre spacing is a standard statewide spac-  
4 ing for the Morrow wells.

5                    Additionally, we feel that development on  
6 the 160-acre tracts would result in much higher drilling re-  
7 quirements, obviously, in terms of dollars and capital ex-  
8 penditure; the drilling would be unnecessary and it would  
9 result in waste, and would leave the wells drilled on too  
10 dense a pattern for the initial development.

11                    Q                    Could you just explain to the Commission  
12 what the actual impact in terms of dollars would be if, in  
13 fact, Chama is required to develop their acreage on a 160-  
14 acre spacing pattern?

15                    A                    With Chama's acreage position in the  
16 area, if we were forced to develop on 160 acres, it would,  
17 of course, double our drilling budget to the tune of about  
18 \$8,000,000.

19                    Q                    Is this a prorated pool?

20                    A                    No, never has been.

21                    Q                    To your knowledge is there anything that  
22 would prevent the drilling of more than one well on any 320-  
23 acre unit?

24                    A                    No.

25                    Q                    In your opinion will granting this appli-

1 cation impair correlative rights?

2 A No. We feel that if the application is  
3 not granted in Chama's favor that Chama's correlative rights  
4 will be impaired, because we will lose the opportunity to  
5 develop this acreage without the waste of having to drill  
6 unnecessary wells.

7 Q Mr. Nearburg, was Exhibit Number One pre-  
8 pared by you or under your direction and supervision?

9 A Yes.

10 MR. CARR: At this time we  
11 would offer into evidence Chama Exhibit Number One.

12 MR. STAMETS: Without objection  
13 it will be admitted.

14 MR. CARR: That concludes my  
15 examination of this witness?

16 MR. STAMETS: Are there ques-  
17 tions of Mr. Nearburg?

18 MS. AUBREY: Yes, Mr. Stamets.

19

20 CROSS EXAMINATION

21 BY MS. AUBREY:

22 Q Mr. Nearburg, I know that you are await-  
23 ing the birth of a child and I will try to go through this  
24 quickly with you.

25 Mr. Nearburg, do you have your Exhibit

1 One in front of you?

2 A Yes.

3 Q Okay. When did Chama acquire an interest  
4 in the acreage that is dedicated to the Chama 1-L in Section  
5 25?

6 A That was the first acreage we acquired.  
7 That was in June of 1983.

8 Q And when did Chama acquire its acreage in  
9 the southeast quarter of the southeast quarter of Section  
10 23?

11 A That was acquired by farmout. Negotia-  
12 tions began in, I believe, May of '84, early -- April to May  
13 of '84, and the farmout was finalized in November of '84.

14 Q And when did Chama acquire its acreage in  
15 Section 26?

16 A In Section 26, that acreage was acquired  
17 in late April, 1984. I think the date of the agreement is  
18 May 3rd, 1984.

19 Q Do you hold the acreage in Section 25 un-  
20 der a Federal lease?

21 A Part of it we do and part is under farm-  
22 out, but the farmout is based on a Federal lease, also.

23 Q And how many acres does that lease cover?

24 A That would be -- which one? The one that  
25 we hold?

1 Q The one that you hold in the --

2 A It covers --

3 Q -- north half of 25?

4 A It covers all of the north half with the  
5 exception of the east half northeast quarter, 240 acres.

6 Q And do you hold the acreage in Section 23  
7 under a Federal lease?

8 A That's a combination of KGS leases, sim-  
9 ultaneous leases, and farmouts on Federal leases.

10 Q Can you tell me what effect, if any, the  
11 Commission's decision to continue the established spacing on  
12 160 acres will have on your leases?

13 A And you're asking what effect the deci-  
14 sion will have on the leases?

15 Q Yes, I am.

16 A That's really -- it's unclear to me what  
17 you're asking me, because I need a little more specific --

18 Q Okay, Mr. Nearburg, will you lose your  
19 leases if you do not develop -- if you do not drill two  
20 wells under each of those leases?

21 A No, we will not lose the leases.

22 Q As I understand it from our last hearing,  
23 Chama has sold an interest, which is still unspecified, in  
24 the acreage in, I believe, Section 25 and possibly Section  
25 23, to some partners, is that correct?

1           A           It sold to working interest owners as is  
2 standard.

3           Q           Okay, and is it correct that at the time  
4 you sold the deal Chama believed that the acreage was based  
5 on 320's?

6           A           No, that's not correct.

7                        What happened is when we purchased the  
8 acreage and we started our acreage acquisition, we believed  
9 that the acreage was on 320-acre spacing, which at that time  
10 it was.

11                       By the time we sold the prospect covering  
12 the 1-L, BTA drilled their well, we knew that we were in the  
13 160-acre situation, and that was presented to all the inves-  
14 tors; they had full knowledge of it.

15           Q           So at the time -- your testimony is that  
16 at the time you sold the deal, you knew that spacing was 160  
17 acres because you were within a mile of the Lea-Penn Pool?

18           A           That's right.

19           Q           You testified a few minutes ago about a  
20 well which you have begun in the southeast quarter of the  
21 southeast quarter of Section 23.

22           A           Yes.

23           Q           To what depth will that well be drilled?

24           A           The Morrow formation.

25           Q           The same formation as -- the same forma-

1 tion that we're talking about in connection with the Lea-  
2 Penn Pool?

3 A Well, yes.

4 Q And how many acreas do you propose to de-  
5 dicate to that well?

6 A That depends on what the Commission  
7 rules.

8 Q Is it located at a standard location for  
9 a 320-acre spacing unit?

10 A No, it is standard for a 160-acre.

11 Q Have you applied for or obtained permis-  
12 sion from the Oil Conservation Division for an unorthodox  
13 location for that well?

14 A Yes, we have applied for that in the past  
15 but I'm unclear as to the status of that request. I don't  
16 think we've had an order on it.

17 Q Do you know when that hearing was held,  
18 Mr. Nearburg?

19 A No, ma'am. May I refer to Bill?

20 MR. CARR: I don't remember  
21 when it was.

22 A I think it was in late '84 or very early  
23 1985.

24 Q So you've drilled or begun drilling that  
25 well at a standard location for a 160, is that correct?

1           A           We put the well where it is based on geo-  
2   logy.

3                       MR. CARR: Karen, if my recol-  
4   lection is correct, there was an application to approve un-  
5   orthodox locations. That was Case 8446.

6                       It was consolidated for hearing  
7   with the original case for limiting the pool rules.

8                       Then an order was entered in  
9   this case, denying the application limiting the pool rules.

10                      No action was taken on the  
11   other case inasmuch as on 160 they were standard locations  
12   and no order has to date been entered.

13                      MS. AUBREY: That would be  
14   under Case 8447, then?

15                      MR. CARR: Yes. It was early  
16   this year.

17           Q           Let me ask you some questions now about  
18   the Chama 1-L.

19           A           Uh-huh.

20           Q           Have you re-entered that well?

21           A           Yes, we have.

22           Q           When did you begin work on that well?

23           A           December 28th, 1984. That's within a  
24   day. I think that's close.

25           Q           Have you recompleted that well?

- 1           A           Yes, we have.
- 2           Q           In what formation?
- 3           A           In the Morrow formation.
- 4           Q           Are you now producing that well?
- 5           A           Yes, we are.
- 6           Q           Do you have logs for that well which  
7 you'll have available for us today at the hearing?
- 8           A           I don't know. We can get them. They're  
9 next door.
- 10          Q           And do you know, Mr. Nearburg, what kind  
11 of production you've achieved from the Chama 1-L?
- 12          A           Well, it has just been on line so it con-  
13 tinues to improve its production, but when it went on line  
14 on a 10/64ths choke it was producing right at 800,000 cubic  
15 feet of gas per day with about 35 barrels of condensate and  
16 we had some load water for treatment the first few days but  
17 that's dropped off to two or three barrels, so we think the  
18 water production will decrease to virtually nothing.
- 19          Q           Do you know from what footage depth  
20 you're producing that well?
- 21          A           No, I don't.
- 22          Q           Do you know what --
- 23          A           It is in the Morrow but I don't know the  
24 exact perforated depth.
- 25          Q           Do you know whether or not your geologist

1 you have here today knows -- knows that?

2 A Yes, he does.

3 Q Okay. How many acres are dedicated to  
4 the Chama 1-L?

5 A 160 acres at the present time.

6 Q Do you have an application pending before  
7 the Oil Conservation Division to change that?

8 A I assume that's what we're here to do to-  
9 day.

10 Q Specifically directed to the Chama 1-L?

11 A No. We're limiting the Lea-Penn Pool's  
12 boundaries.

13 Q When did you formulate your plans for ac-  
14 quiring the acreage in Section 25?

15 A Well, that would have to have been in  
16 1982.

17 Q And at that time do you know what the  
18 limits of the Lea-Penn Pool were?

19 A Yes. As I previously testified, the  
20 southern limits in Sections 13 and 14.

21 Q Has Chama drilled any well in the Lea-  
22 Penn Pool with the exception of the well located in the  
23 southeast quarter of the southeast quarter of Section 23?

24 A Yes. We re-entered the 1-L and we are  
25 drilling the well in Section 23, and we have substantial ac-

1 reage left to develop.

2 Q Well, you have re-entered the old Shell  
3 well which is in Section 25.

4 A Yes.

5 Q And you are now drilling a well in Sec-  
6 tion 23?

7 A Yes. We also have an application to  
8 drill a well in the northeast quarter of 25.

9 Q Yes, we'll get to that in just a second.  
10 Can you tell me what depth you presently  
11 are in the well in Section 23?

12 A I don't know the present depth.

13 Q The well is presently drilling? Is has  
14 not been completed?

15 A That's right.

16 Q To date, Mr. Nearburg, how much money has  
17 Cnama Petroleum spent in developing acreage in the Lea-Penn  
18 Pool?

19 A By development I assume you're not  
20 talking about lease acquisition cost, only drilling costs.

21 Q Only drilling costs, Mr. Nearburg.

22 A I would have to look at the final figures  
23 on the 1-L re-entry and our AFE on the well we've just begun  
24 is \$1.2 to \$1.3-million.

25 So close to \$2-million, \$2.5-million.

1 Q In your opinion have you spent roughly a  
2 million dollars re-entering that old Shell Well?

3 A Well, that's a very -- I really don't  
4 know the exact figure so I don't want to represent anything,  
5 but the new wells are very expensive.

6 Q Let's talk now about the east half of the  
7 northeast quarter of Section 25.

8 Both BTA and Chama have filed applica-  
9 tions for compulsory pooling with different well locations  
10 on that acreage, is that correct?

11 And those applications, as far as we  
12 know, have not been acted on.

13 A That's correct.

14 Q That would have been the February 27th  
15 hearing.

16 A Right.

17 Q Is your proposed location in the north --  
18 I'm sorry, the east half of the northeast quarter of Section  
19 25 --

20 A Our proposed location is in the west half  
21 northeast quarter.

22 Q Is that at a standard location for 160-  
23 acre spacing?

24 A Yes, it is.

25 Q I believe you testified that if the Com-

1 mission retains the established spacing in the Lea-Penn Pool  
2 that Chama would be required to double its drilling budget,  
3 is that correct?

4 A Absolutely.

5 Q Is there anything that requires you to  
6 drill two wells instead of one well?

7 A At the present time there is.

8 Q And what is that, sir?

9 A The 160-acre spacing, when you look at  
10 the rest of New Mexico.

11 Q Assuming the wells were spaced on 160 ac-  
12 res, is there anything that would require you to drill a  
13 well in each of those spacing units?

14 A Well, you have to earn the acreage. You  
15 can't let it expire, so you have to drill it.

16 Q And your leases are on 320 acres -- I'm  
17 sorry, 240 acres in Section 25, is that right?

18 A In Section 25; also 320-acres in the  
19 south half.

20 Q Is that a separate lease in the south  
21 half?

22 A Yes, it is.

23 Q When did you acquire that lease?

24 A May 3rd, 1984.

25 Now, which lease are you -- yeah, the

1 south half --

2 Q I'm sorry, Mr. Nearburg, south half of  
3 Section --

4 A Yes.

5 Q -- 25. That would have been May, '84?

6 A May 3rd, 1984.

7 Q Were you aware of the existence of the  
8 Lea-Penn Pool when you acquired your acreage in Section 23,  
9 26, and 25?

10 A Yes, because we became aware of the prob-  
11 lem with the acreage in Section 25.

12 It would be hard to pinpoint exactly what  
13 acreage we had when, you know, when we learned of the spac-  
14 ing. The acreage acquisition has been a continual on-going  
15 process.

16 Q Now, as I understand it, you want to  
17 limit the 160-acre spacing to the present pool boundaries.

18 A That is correct.

19 Q And that would be the line that runs  
20 along the south section line of Section 24 and 25 --

21 A That's right.

22 Q -- and the east line between Section 24  
23 and 23 -- I'm sorry, the west line.

24 A Right, west line of Section 24.

25 Q In the event that the Commission limits

1 the pool boundaries to those locations, what effect is that  
2 going to have on Chama's acreage? Will you still be within  
3 a mile of the Lea-Penn Pool?

4 A Well, we would, obviously, we'd be right  
5 next to the Lea-Penn Pool, so we would be within a mile of  
6 it.

7 Q Mr. Nearburg, do you intend to put on a  
8 geologist today to produce some geologic testimony for the  
9 Commission to justify limiting these boundaries?

10 A Yes, we do.

11 Q Now you testified that granting your ap-  
12 plication will not affect BTA's correlative rights.

13 A That's correct.

14 Q Isn't it a fact, Mr. Nearburg, that  
15 granting the application will dilute BTA's interest in the  
16 east half of the northeast quarter of Section 25 and give  
17 them only 20 percent of a well drilled in that acreage as  
18 opposed to 50 percent?

19 A Well, if it was on 320 acres that's cor-  
20 rect.

21 Q So it will affect their correlative  
22 rights to some extent.

23 A Well, I'd like to defer that to Mr. Nut-  
24 ter, as far as --

25 Q You don't -- you don't want to answer

1 that question?

2 A I'm not sure the way it's asked I can an-  
3 swer it. If you'd like to rephrase it, I'd like -- I'll  
4 try.

5 Q When did you become --

6 A I don't understand what correlative right  
7 is being impaired.

8 Q When did you become aware of BTA's activ-  
9 ity in this area?

10 A At the time, I believe, that we filed our  
11 C-101's and C-102's. It was either when we received the  
12 Hobbs Commission montly report on locations and we noticed  
13 where the well was staked, or it was shortly thereafter at  
14 about the same time when we applied, sent our C-101's and C-  
15 102's to the Hobbs Office.

16 MS. AUBREY: I have no more  
17 questions, Mr. Stamets.

18

19

CROSS EXAMINATION

20 BY MR. STAMETS:

21 Q Mr. Nearburg, if I understand your appli-  
22 cation correctly, you're not necessarily just seeking to  
23 limit the boundaries of the pool, in fact not limit the  
24 boundaries of the pool at all, limit the application of the  
25 pool rules to the defining boundaries.

1           A           That's correct.   Elimination of the buf-  
2   fer zone.

3           Q           Okay.   Now, looking at the pool, if we  
4   did that it appears as though there'd be a couple of orphan  
5   160-acre tracts in Section 10 in the northwest quarter that  
6   would be left out and in Section 14 the southwest quarter  
7   would be left out.

8                        Would you suggest that if we did go along  
9   with your request that we square off the pool by including  
10  those two quarter sections?

11          A           Yes, that would not bother me at all. I  
12  have no objection to that.

13                       MR. STAMETS:   Any other ques-  
14  tions of this witness?

15                       MR. CARR:   No further questions  
16  and we'd ask that Mr. Nearburg be excused.   He may have to  
17  leave Santa Fe. We're not sure yet.

18                       MR. STAMETS:   He is excused and  
19  we wish you good luck.

20                       MR. NEARBURG:   Thank you.

21                       MR. CARR:   At this time I'd  
22  call Louis Mazzullo.

23

24

25

1                                    LOUIS J. MAZZULLO,  
2 being called as a witness and being duly sworn upon his  
3 oath, testified as follows, to-wit:

4

5                                    DIRECT EXAMINATION

6 BY MR. CARR:

7                    Q                Would you state your full name and place  
8 of residence?

9                    A                My name is Louis Mazzullo and I reside in  
10 Midland, Texas.

11                   Q                Mr. Mazzullo, by whom are you employed  
12 and in what capacity?

13                   A                I'm employed as a geological consultant  
14 by Chama Petroleum Company in Dallas.

15                   Q                Would you summarize your educational  
16 background for the Commission, please?

17                   A                I have a Bachelor's degree in geology and  
18 a Master's degree in the geophysical sciences from the Uni-  
19 versity of Chicago.

20                   Q                And when did you obtain your Master's in  
21 geology?

22                   A                Master's was obtained in 1976.

23                   Q                Would you review your work experience  
24 since graduation?

25                   A                Since graduation I worked as an explora-

1 tion geologist for various companies beginning in the uran-  
2 ium industry as a sedimentary uranium exploration geologist.

3 I worked in that capacity for five years  
4 in sedimentary environments, mapping, subsurface mapping and  
5 defining of -- of uranium reservoirs.

6 I then moved to Midland where I was em-  
7 ployed by Superior Oil Company for a short time as an ex-  
8 ploration geologist in the Permian Basin and in 19 -- early  
9 1982 I went into business as a geological consultant, where  
10 I've been ever since.

11 Q Have you performed any particular studies  
12 of the Morrow formation?

13 A I have done an extensive regional study  
14 of the Morrow formation for the GeoMap Company, wherein I  
15 mapped the entire Lea and Eddy County depositional extent of  
16 the Morrow as part of a large scale engineering study that  
17 they brokered.

18 I've also published numerous papers on  
19 mapping the Morrow, published in the AAPG, American Associa-  
20 tion of Petroleum Geologists Southwest Section transactions  
21 and West Texas Geological Society, and I've presented the  
22 same type of papers to various professional organizations.

23 Q Are you familiar with the application  
24 filed in this case on behalf of Chama?

25 A I am.

1 Q Are you familiar with the subject area?

2 A Yes, I am.

3 MR. CARR: We offer Mr. Mazzul-  
4 lo as an expert witness in petroleum geology.

5 MR. STAMETS: He is considered  
6 qualified.

7 Q Mr. Mazzullo, have you prepared certain  
8 exhibits for introduction in this case?

9 A I have three exhibits.

10 Q Would you refer to what's been marked as  
11 Chama Exhibit Number Two, identify this, and review what it  
12 shows?

13 A Exhibit Number Two is a structure map  
14 drawn on the top of the Morrow Clastic section. Wells which  
15 produce from the Morrow formation are indicated in yellow.

16 The fault that we see bounding the east  
17 part of the Lea-Pennsylvanian Field was defined by old Mara-  
18 thon seismic data to which we had access.

19 The Morrow is primarily a stratigraphic  
20 clay but it is structurally enhanced to a great extent and  
21 this map shows that a major anticlinal trend exists across  
22 the Lea-Pennsylvanian Field into the area of Chama's acreage  
23 around the 1-L Federal and southward beyond those locations.

24 Q What do the yellow spot indicate?

25 A Again, the yellow spots indicate all

1 wells which are producing or have produced from the Morrow  
2 formation.

3 Q When was this exhibit originally pre-  
4 pared?

5 A This exhibit was originally prepared in  
6 late 1983 and subsequently updated in last month, May of  
7 1985, with the inclusion of BTA's new well data.

8 Q Would you now refer to what has been mar-  
9 ked as Chama Exhibit Number Three and identify this, please?

10 A Chama Exhibit Number Three is a log,  
11 sonic log section, through the U. S. Smelting and Refining  
12 Federal No. 2 Well in the southwest quarter of Section 11.

13 It is a Lea-Pennsylvanian Field well and  
14 this is a log section which merely -- which merely indexes  
15 two major productive horizons which we will be showing here  
16 on subsequent Isopach maps.

17 I reference Zone No. 7, which is colored  
18 in green, and Zone No. 11, which is colored in blue.

19 Q Is Zone No. 11 what is also referred to  
20 as in the Middle Morrow?

21 A Yes. Zone No. 11 will be referred -- is  
22 in what we refer to as the Middle Morrow productive unit,  
23 the middle -- it is part of a Middle Morrow horizon which  
24 accounts for over two-thirds of production in the Lea-Penn-  
25 sylvanian Field.

1           Q           Are there other producing horizons that  
2 you might have mapped?

3           A           Yes, there are several different produc-  
4 tive horizons that could have been mapped.

5                       We chose these two as representative of  
6 the best reservoir zones in the area.

7           Q           But Exhibit Number Three is not intended  
8 to show that these are the only zones that would be capable  
9 of production.

10          A           Not by any means.

11          Q           Would you now go to Chama Exhibit Number  
12 Four, identify that, and explain what it shows?

13          A           Exhibit Number Four is a gross sandstone  
14 Isopach map of the aforementioned Zone No. 7, which we've  
15 just seen on the log section.

16                       All the wells that are highlighted in  
17 yellow pay from this particular horizon, from this particu-  
18 lar genetic unit, that is this particular pay reservoir  
19 unit.

20                       I have shown in publication and through  
21 numerous studies that I've done on behalf of Chama Petroleum  
22 and other clients, that the Morrow -- that the Morrow can be  
23 mapped on this basis and that individual genetic units, that  
24 is individual pay sand units, can be mapped and shown in  
25 this example to extend across the Lea-Pennsylvanian Field

1 and southward into the 1-L Federal area and beyond.

2 This is a major Lower Morrow pay horizon.

3 Q Would you now go to Exhibit Number Five  
4 and review that, please?

5 A Exhibit Number Five is the Isopach map  
6 drawn in a similar fashion to the Zone 7 map but this time  
7 for Zone No. 11, which is also captioned on Exhibit Number  
8 Three.

9 Zone No. 11 is part -- is included within  
10 an interval in the Middle Morrow which accounts of over two-  
11 thirds of production in the Lea-Pennsylvanian Field, as we  
12 will show in subsequent testimony.

13 This map also shows this zone can be map-  
14 ped across the Lea-Pennsylvanian Field and southward out of  
15 the area of -- the immediate area of the Lea-Pennsylvanian  
16 Field, including Chama's acreage.

17 Q Now, Mr. Mazzullo, what general conclu-  
18 sions can you reach from your study of the Morrow in this  
19 general area?

20 A The study of the Morrow in this general  
21 area, I could conclude that there are major productive hori-  
22 zons in the Morrow which extend from one end of the Lea-  
23 Pennsylvanian Field to the other and, in fact, which extend  
24 from end of the structure that we saw in Exhibit Number Two,  
25 clear down southward beyond the limits of the Lea-Pennsyl-

1 vanian Field.

2 Q I believe you testified that the reser-  
3 voir was basically stratigraphic.

4 A That's right.

5 Q And what part does structure play?

6 A Structure plays a part in localizing --  
7 localizing hydrocarbon accumulation within the stratigraphic  
8 units as they develop.

9 Q Do you have anything else to add to your  
10 testimony?

11 A I have nothing else further than that.

12 Q Were Exhibits Two through Five prepared  
13 by you?

14 A They were.

15 MR. CARR: At this time, Mr.  
16 Stamets, we would offer into evidence Chama Exhibits Two  
17 through Five.

18 MR. STAMETS: Without objec-  
19 tion, these exhibits will be admitted.

20 MR. CARR: That concludes my  
21 direct of Mr. Mazzullo.

22 MR. STAMETS: Any questions of  
23 this witness?

24 MS. AUBREY: Thank you, Mr.  
25 Stamets.

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CROSS EXAMINATION

BY MS. AUBREY:

Q Let me refer you to your Exhibit Number Three, Mr. Mazzullo.

Can you tell me where the perforations are in this well?

A The gross perforated intervals are indicated by the yellow bar. The exact perforated intervals I do not know exactly, but I know that they include Zones No. 11 and 7, but if I -- I could get that information for you, if you need it.

Q Is this well presently producing?

A To the best of my knowledge, I believe it is, but I'd have to defer to Mr. Haas' testimony.

Q Do you know from which zone this well produced?

A Again, I -- it's producing from that gross perforated interval, but I can't say. All I know is that each of those two major zones were perforated.

Q Do you know, and I'm not trying to trap you now, I'll ask the next witness if you don't, I'm just trying to find out, do you know whether or not this well produced from both zones or the green zone or the --

A I would suspect they -- it produced from

1 both zones, or else they probably would have squeezed the  
2 zones off that weren't productive.

3 Q Mr. Mazzullo, does your green colored  
4 zone on Exhibit Number Three, that correlates to Zone No. 7,  
5 is that right?

6 A Zone No. 7, right.

7 Q And the blue colored zone on Number Three  
8 correlates to the Zone --

9 A Zone No. 11.

10 Q -- No. 11.

11 And can you tell me again, Mr. Mazzullo,  
12 where this well is located in Section 11?

13 A This well is located 760 feet from the  
14 south line of the section and 20 -- 2080 feet from the west  
15 line of the section, Section 11.

16 Q Mr. Mazzullo, I believe you testified on  
17 -- in February on -- in connection with the forced pooling  
18 cases that were -- were heard between Chama and BTA, is that  
19 right?

20 A That's right.

21 Q And at that time do you recall which pay  
22 zones you identified as the productive zones in this well?

23 A I didn't address that issue in this par-  
24 ticular well.

25 Q But it's your present opinion that the

1 well shown on Exhibit Number Three is producing from both  
2 your Zone 7 and your Zone 11.

3 A To the best of my knowledge.

4 Q Did you perform a log analysis, Mr. Maz-  
5 zullo?

6 A Of this particular well?

7 Q Yes, sir.

8 A No, I haven't but that might come up in  
9 subsequent testimony.

10 Q So you're not testifying from a log ana-  
11 lysis you have performed?

12 A No.

13 Q Let me have you look now at your Exhibit  
14 Number Five.

15 A Okay.

16 Q I believe you testified that this was  
17 originally prepared in 1982, 1983?

18 A 1983; late 1983.

19 Q And is this essentially the same Isopach  
20 which you produced for the Examiner in February of 1985 at  
21 the hearing which was held on the forced pooling case?

22 A It's been revised as of last month be-  
23 cause at that time I may not have had one or both of the BTA  
24 wells. So there have been revisions made to it.

25 Q Do you know what revisions have been made

1 other than the addition of the BTA wells?

2 A There may have been some revisions made  
3 in the actual contouring based upon those wells.

4  
5 (REPORTER'S NOTE: At this time Mr. Charles Roybal  
6 arrived and replaced Ms. Lunderman as Counsel for  
7 the Commission.)

8  
9 Q On Exhibit Number Five you have indicated  
10 certain numbers of feet of pay beside the well symbol, is  
11 that correct?

12 A That's not feet of pay. That's gross  
13 feet of -- feet of gross sandstone.

14 Q So this is a gross Isopach, then.

15 A Uh-huh.

16 Q Was the Isopach submitted to the Commis-  
17 sion in February a gross Isopach or a net Isopach?

18 A Oh, I may have -- I may have submitted a  
19 net Isopach. I don't remember.

20 There are two different ways you can map  
21 it. It depends on -- when you map sedimentary features like  
22 this you can map it in several different ways and I may have  
23 presented another way before. I don't recall.

24 Q Well, would you describe how you mapped  
25 it this time?

1           A           This is a feet of gross sand from the  
2 base of -- from the top of the marker horizon to the base of  
3 another marker horizon; in this case gross feet of what I  
4 consider to be sandstone based upon log character and sample  
5 analysis.

6           Q           Let me hand you a copy of what I've mar-  
7 ked as BTA Exhibit Number One, and I'm sorry, I'm rather  
8 short of these copies. This is a photocopy of your Exhibit  
9 Number Five from Cases 8478 and 8505.

10                    Do you recognize that exhibit, Mr. Maz-  
11 zullo?

12           A           Yes, I do. I do.

13           Q           Okay. That is the exhibit which you pre-  
14 pared for the last hearing, or I think it was the last hear-  
15 ing in this matter, the one in February.

16           A           Okay.

17                    MR. CARR: That's right.

18           Q           I notice that your Exhibit Number Five  
19 today does not -- I'm sorry, extends down into an area which  
20 is not shown on your Exhibit Number Five from the last hear-  
21 ing.

22           A           That is true.

23           Q           Why is that?

24           A           I may have prepared this exhibit for --  
25 when I originally prepared this exhibit it may have been for

1 use in a prospectus for someone to deal, and we don't just  
2 commonly show everything.

3 Q You're referring to what I've marked as  
4 BTA Number One, then?

5 A BTA Number One,

6 Q May have been part of a prospectus --

7 A That's right.

8 Q -- to sell a deal? Would that have been  
9 the prospectus to sell the deal that Mr. Nearburg testified  
10 about this morning?

11 A I don't recall.

12 Q Can you go -- I'm sorry, Mr. Mazzullo, to  
13 take you back over this, but can you tell me again whether  
14 or not BTA Number One is a net Isopach or a gross Isopach?

15 A BTA Number One appears to be almost the  
16 same map as I'm presenting here today, a gross Isopach map.

17 Q On BTA Number One in the southeast quar-  
18 ter of Section 24 we have the BTA Lynch No. 1 Well. Can you  
19 locate that on your map?

20 A Yes, I do.

21 Q And you show 53 feet of gross sands, is  
22 that your testimony?

23 A Those are gross sands.

24 Q Okay. Where did you obtain that number?

25 A I obtained that number from correlating

1 well by well across the Lea-Pennsylvanian Field.

2 I think I know what you're leading at, 53  
3 feet of gross sand is in connection with a particular gene-  
4 tic unit that I have chosen to map.

5 It might differ from what BTA might map.  
6 I think they may map it as 90-some odd feet of sand, but the  
7 particular interval, the particular sand package that I'm  
8 looking at relative to all other wells around there is 53  
9 feet thick in that particular well.

10 Q So I understand you, is it your testimony  
11 that the genetic unit which you have selected --

12 A Uh-huh.

13 Q -- that sand thickness is the productive  
14 interval in the BTA No. 1?

15 A In that particular -- in this particular  
16 well, the well was perforated within the 53 feet that por-  
17 tray over here.

18 Q So it is your testimony that that parti-  
19 cular 53-foot gross interval is the productive interval in  
20 the BTA Lynch No. 1.

21 A That's right.

22 Q And where did you get that information?

23 A I got that information from -- from  
24 scouting information that was provided to me.

25 Q Have you reviewed any logs, cross sec-

1 tions, or anything from the BTA No. 1 Well?

2 A I've looked at logs. I've looked cross  
3 sections, correlated those logs with other logs in the area.

4 Q Have you performed a log analysis on that  
5 well?

6 A I am not qualified to perform log ana-  
7 lyses.

8 Q All right, let's move over to the west to  
9 the BTA No. 2. Can you locate that on the -- on the --

10 A Yes, I can.

11 Q -- exhibit in front of you? Okay. Now,  
12 on your new Exhibit Number Five you show 36 feet. Again  
13 that would be 36 feet of gross sand?

14 A That's true.

15 Q And on the Isopach prepared for the hear-  
16 ing back in February you do not show anything.

17 A These data were not available to me at  
18 the time.

19 Q What data did you review to obtain your  
20 number of 36 feet?

21 A I was provided with logs, I believe, by  
22 BTA.

23 Q Let's move on up into Section 13.

24 A Uh-huh.

25 Q The well in the southwest quarter.

1           A           Uh-huh.

2           Q           You show 13 feet?

3           A           That's right.

4           Q           Now is that 13 feet of gross sand?

5           A           That's right.

6           Q           And do you know, or can you testify as to  
7 whether or not that 13-foot interval that you've identified  
8 is the productive zone in that zone?

9           A           I -- it does not appear to be perforated  
10 across that zone, so I would say that it's not productive.

11          Q           And how did that correlate, perhaps you  
12 can explain this to me, how does that correlate with the 53  
13 feet of gross sand in the BTA No. 1?

14          A           In what way do you mean, how does that  
15 correlate?

16          Q           That's what I'm trying to figure out.  
17 You're not sure that is the productive interval, is that  
18 correct?

19          A           It does not -- it was not perforated in  
20 that well.

21          Q           Okay. Does it constitute the same gene-  
22 tic unit, and I'm referring to the 13 feet in the well in  
23 the southwest quarter of Section 13, is that the same gene-  
24 tic unit as the 53 feet which you have mapped in the BTA No.  
25 1?

- 1           A           That's what I'm saying on the document,  
2 on the map.
- 3           Q           That's what I'm trying to understand, Mr.  
4 Mazzullo.
- 5           A           Yes, exactly.
- 6           Q           Okay. Let's move on up to Section 13 to  
7 the well in the northwest quarter where you have 10 feet --
- 8           A           Uh-huh.
- 9           Q           -- mapped. Is it your testimony that  
10 that 10-foot interval is the same genetic unit as the BTA  
11 No. 1 Well?
- 12          A           That's what I'm saying.
- 13          Q           Did that well produce or was it perfor-  
14 ated in the interval which you have mapped?
- 15          A           I don't know whether -- I can't recall  
16 whether it was perforated but it does not produce if it was  
17 ever perforated, but it was not productive from that parti-  
18 cular horizon.
- 19          Q           Is that well currently producing, Mr.  
20 Mazzullo?
- 21          A           I believe that well has been shut in in  
22 the Morrow and is producing up hole, to the best of my know-  
23 ledge.
- 24          Q           Do you know whether or not it did ever  
25 produce in the Morrow?

1           A           Yes, it did produce in the Morrow.

2           Q           But you don't know whether or not it was  
3 from the sands that you have mapped?

4           A           From the reports, the completion reports  
5 that were available to me, it was -- it was not productive  
6 from that horizon.

7           Q           So what you're saying is that, just so I  
8 can understand this, is that you've mapped a gross sand in  
9 the well in the northwest quarter of 13 --

10          A           Uh-huh.

11          Q           -- which is not the productive zone in  
12 that well.

13          A           That's right.

14          Q           Which is the same genetic unit as the  
15 unit that you have mapped for the BTA No. 1.

16          A           That's what I'm saying.

17          Q           Which is in fact producing in that well.

18          A           That's what I'm saying.

19          Q           So we have that -- that sand is produc-  
20 tive in the BTA No. 1 --

21          A           Uh-huh.

22          Q           -- and not productive in the well in the  
23 northwest quarter of Section 13.

24          A           That's right.

25          Q           And to go back to the well in the south-

1 west quarter, that is -- the interval which you have mapped  
2 is a nonproductive interval in that well.

3 A To the best of my knowledge.

4 Q But it is, in your opinion, the same  
5 genetic unit as the interval you've mapped in the BTA No. 1  
6 Well.

7 A Yes.

8 Q Okay. Let me move on up here to Zone --  
9 I'm sorry, to Section 11, to the well in the northwest quar-  
10 ter.

11 A Okay.

12 Q Okay, you show that, and you have BTA Ex-  
13 hibit Number One, which is the old Isopach in front of you,  
14 I believe you show that as productive from Zone 11 on your  
15 former exhibit.

16 A That's right.

17 Q Is that -- is that --

18 A Not from Zone -- yeah, that's right.

19 Q Does that continue to be your opinion?

20 A That's still my opinion, as I've pre-  
21 sented on our Exhibit Number Five.

22 Q And that is the well for which we have  
23 the log, is that correct?

24 A No, that's not the one. It's the one  
25 marked 16.

- 1 Q Okay. Now, you have 25 feet of gross  
2 sand --
- 3 A Uh-huh.
- 4 Q -- for that well?
- 5 A That's right.
- 6 Q Is that the same sand unit as the sand  
7 which you have mapped in the BTA No. 1?
- 8 A As far as I can tell, yes, it is.
- 9 Q Is that zone productive in that well?
- 10 A Yes, it appears to be.
- 11 Q The next well down, the one in the south-  
12 west quarter of Section 11 --
- 13 A Uh-huh.
- 14 Q -- you show 15 feet of gross sand. Is  
15 that the zone which you have mapped in the southwest quarter  
16 of Section 11 the productive zone in that well?
- 17 A That's one of several productive zones in  
18 that well.
- 19 Q You have that, I believe, colored in red  
20 on your BTA Exhibit Number One, indicating that it produced  
21 from your Zone No. 11?
- 22 A That's right.
- 23 Q Is it your opinion that it also produces  
24 from other zones?
- 25 A It's my opinion that it also produces

1 from at least Zone No. 7 in addition to Zone No. 11 and it  
2 does produce from other smaller zones.

3 Q And you have not colored those on the  
4 log, is that correct?

5 A Colored what on the log?

6 Q I'm sorry, I don't want to confuse you.  
7 I'm taking you back to your Exhibit Number Three, which is  
8 your log.

9 A Uh-huh.

10 Q Okay. You've only colored in two produc-  
11 tive zones.

12 A I colored in the two zones that I -- that  
13 I show on the Isopach maps.

14 Q And you have -- you believe, though, so  
15 that I can understand your testimony, that there are other  
16 productive zones in that well?

17 A As far as I -- as far as I can tell,  
18 there were other zones besides Zones 7 and 11 which were  
19 perforated, along with Zones 7 and 11.

20 Q And where would those be?

21 A I can't tell you offhand, but the infor-  
22 mation is readily available next door.

23 Q Let's go down now, Mr. Mazzullo, and look  
24 at Section 25.

25 A On which map?

- 1 Q On either of your Exhibit Five.
- 2 A Okay.
- 3 Q I'm going to refer you specifically to  
4 the Chama 1-L.
- 5 A Uh-huh.
- 6 Q You show 19 feet of gross sand.
- 7 A That's correct.
- 8 Q Is that interval the same genetic unit as  
9 the productive interval in the BTA well?
- 10 A It is.
- 11 Q B -- I'm sorry, the BTA No. 1?
- 12 A According to my correlations it is.
- 13 Q Is that interval in the Chama 1-L produc-  
14 tive in that well?
- 15 A No, it's not. We're not producing from  
16 it right now.
- 17 Q Is the well perforated in that interval?
- 18 A Not right at the moment.
- 19 Q Has it ever been perforated in that in-  
20 terval?
- 21 A No, it's never been perforated.
- 22 Q Let me refer you now to your -- your new  
23 Isopach.
- 24 Do you have an opinion as to whether or  
25 not the 19 feet of gross sand which you've mapped in the

1 Chama 1-L is the same interval as the 36 feet of gross sand  
2 you've mapped in the Lynch No. 2?

3 A It appears by my correlation that they  
4 are the same genetic unit.

5 Q Do you know whether or not that unit,  
6 that genetic unit is productive in the Lynch No. 2?

7 A I don't have that information. I don't  
8 have any completion information on that well.

9 Q Mr. Mazzulo, would you look at your new  
10 Isopach, Number Five, Exhibit Five, and select for me a well  
11 which is productive in the same genetic unit as the BTA No.  
12 1, which you have mapped on here?

13 Do you understand the question? Was that  
14 a little vague?

15 A I think I've already explained that all  
16 the yellow highlighted wells on this map are productive from  
17 that horizon.

18 Q Okay, I'm sorry, Mr. Mazzullo, I missed  
19 that.

20 And you, referring you to Section 14,  
21 it's your opinion that the well in the northwest quarter,  
22 with 20 feet of gross sand, is productive from the same gen-  
23 etic unit as the BTA No. 1, then.

24 A That's my belief based on my correlation.

25 Q Let me take you on down here to the well

1 in Section 6, it looks like.

2 A Uh-huh.

3 Q Which is new to this exhibit. You have  
4 that colored in yellow. Are you saying that well is produc-  
5 ing from the same gross sand?

6 A That's what I'm saying.

7 Q And you found 12 feet of gross sand?

8 A Uh-huh, yes.

9 Q Do you have any opinion about net pay in  
10 that well?

11 A About net pay?

12 Q Uh-huh.

13 A No, I don't.

14 Q I notice that that depth, the 12 feet, is  
15 significantly -- or I won't use the word, I will simply say  
16 is less, to save Mr. Carr an objection, is less than the  
17 number of feet of gross sands as you go farther north.

18 A In that particular well.

19 Q In that particular well. You show 53 in  
20 the BTA No. 1.

21 A I show 10 and I show 9 in these.

22 Q Well, what I want to do is bring you back  
23 to what you said about your exhibit, which is that these  
24 wells which are colored yellow --

25 A Uh-huh.

1           Q           -- in your opinion are the same genetic  
2 unit as the BTA No. 1.

3           A           That's right.

4           Q           Okay. So up here we have 53 feet. We  
5 have 20 feet. We have 16 feet. We have 25 feet.

6           A           Uh-huh.

7           Q           And we have 12 feet in the well in Sec-  
8 tion 6.

9           A           That's right.

10          Q           Do you have an opinion, Mr. Mazzullo, as  
11 to whether or not these sands are continuous throughout the  
12 area following up from the well in Section 6 through the BTA  
13 No. 1 to the well you colored in Section 14 and up into Sec-  
14 tion 11?

15          A           The red lines indicate that I believe the  
16 trend to exist and follow through into the Lea-Penn Field  
17 from the well marked 12 feet. It's not -- it's not uncommon  
18 in this area, based upon my regional work that I described  
19 previously, that that should happen.

20          Q           And that red line goes through the Chama  
21 1-L. It appears to from my copy here.

22          A           The red line merely outlines the -- the  
23 trend of the major sand body. It's not intended to imply  
24 anything other than that.

25          Q           So you are not implying that this exhibit

1 shows that that sand body is present or productive in the  
2 Chama 1-L?

3 A I'm not implying that at all.

4 Q In fact, that -- that sand is not  
5 presently producing or has not produced in the Chama well.

6 A It's never been tested.

7 Q Let me take you on up now to Sections 13  
8 -- 24, 13, and 12 following -- running north.

9 A Uh-huh.

10 Q Your red line goes past the well in the  
11 southwest quarter of 13.

12 A Uh-huh.

13 Q Past the well in the southeast quarter,  
14 up past the well in the southeast quarter of 12.

15 A Uh-huh.

16 Q Is the sand that you're referring to,  
17 which I'm assuming is the one you have mapped as 53 feet in  
18 the BTA No. 1, is that present in any of those wells?

19 A Yes, it is. I've indicated that the net  
20 sand thickness, the gross sand thickness in those wells.

21 Q Is it productive in any of those?

22 A As far as I know it has never been pro-  
23 duced from those zones. Whether or not it's productive is  
24 another question.

25 Q Do you know whether or not the well in

1 the southeast quarter of Section 13 is presently producing?

2 A Producing from what?

3 Q From anything?

4 A I believe it's producing from either the  
5 Devonian or the Bone Spring formation. It's an oil well  
6 now.

7 Q Do you know whether or not it has ever  
8 been productive of gas in the Pennsylvanian?

9 A I believe it is, but that's on another  
10 exhibit that's forthcoming; that information is on an exhi-  
11 bit elsewhere.

12 Q You don't have that presently in front of  
13 you?

14 A Oh, wait a minute, the structure map. It  
15 should be on the structure map.

16 Yes, it had been productive at one time  
17 from a horizon other than Zone 11, or horizons other than  
18 Zone 11.

19 Q In the Pennsylvanian, is that right?

20 A From the Morrow.

21 Q Okay, and Zone 11 is what we're talking  
22 about as being present in the BTA No. 1.

23 A That's right.

24 Q So it's not -- it's not -- was not pro-  
25 ductive of gas in the same zone as the BTA No. 1.

- 1           A           As far as I can tell, it wasn't.
- 2           Q           Even though your red line runs through  
3 it.
- 4           A           The red line is not meant to imply pro-  
5 ductive trend. It's meant to isolate and to show the trend  
6 of the thickest part of the sand unit.
- 7           Q           Let me have you look now at your Exhibit  
8 Number Two, Mr. Mazzullo, which is the structure map.
- 9           A           Okay.
- 10          Q           Okay? And that is, as I understand your  
11 previous testimony, of your Zone 11.
- 12          A           No. This is a structure map on top of  
13 the Morrow Clastic Zone --
- 14          Q           Okay.
- 15          A           -- which is indexed in Exhibit Number  
16 Three.
- 17          Q           So the yellow dots are all Morrow?
- 18          A           Those are Morrow wells productive of any  
19 --
- 20          Q           Okay.
- 21          A           -- Morrow horizon.
- 22          Q           In Section 11, looking at your Exhibit  
23 Number Two, you show four Morrow wells?
- 24          A           That's right.
- 25          Q           And in Section Number 12 you show three

1 Morrow wells?

2 A Uh-huh. That's right. These, again, are  
3 wells that either are presently producing or -- and/or had  
4 produced at one time and are now either plugged or producing  
5 from another horizon.

6 Q But at one time or another they --

7 A One time or another they are productive  
8 from the Morrow.

9 Q In Section 13 you show four Morrow  
10 wells?

11 A Uh-huh.

12 Q In Section 24, the two BTA wells, Nos. 1  
13 and 2.

14 A That's correct.

15 Q And you show the Chama 1-L as a Morrow  
16 producer in Section 25.

17 A That's right.

18 Q I believe you testified, Mr. Mazzullo,  
19 that structure is not as important here as stratigraphy?

20 A Structure is secondary. You need the  
21 stratigraphic trap to provide a structural -- or to provide  
22 the reservoir so that structure can isolate the hydrocar-  
23 bons, or could contribute the hydrocarbons.

24 Without the -- without the stratigraphic  
25 trap you have nothing to structure.

1 Q You've added another well here, a well in  
2 Section 5 at the bottom?

3 A Yes.

4 Q That was not on your Isopach, was it?

5 A I believe the -- yes, it was. There.

6 Q Okay, you show that colored as a Morrow  
7 producer --

8 A That's right.

9 Q -- on your Exhibit Number Two.

10 A Right.

11 Q Okay, and it's not colored in on your Ex-  
12 hibit Number Five.

13 A It's not productive from that particular  
14 horizon --

15 Q Okay, what --

16 A -- nor is it productive from the other  
17 horizon.

18 Q What horizon is it productive from?

19 A I don't know offhand. I'd have to check  
20 the completion reports.

21 But it is productive from somewhere in  
22 the Morrow.

23 Q Is it presently a Morrow producer?

24 A Yes, that one is. Yes, it is.

25 Q Do you have any production figures on

1 that well?

2 A On that particular well?

3 Q Yes, sir.

4 A I believe it's produced in excess of  
5 166,000 MCF of gas as of 1-85.

6 Q Do you know how old a well it is?

7 A It was completed, I believe, in early  
8 1981; about -- just prior to the establishment of the Berry  
9 North Pool.

10 Q Let me ask you some -- just briefly, Mr.  
11 Mazzullo, you said you'd mapped, you've prepared exhibits  
12 and mapped two productive horizons, your 7 and 11?

13 A That's correct.

14 Q Do you have an opinion as to how many  
15 productive horizons you put in there?

16 A Oh, you could map, I don't -- I can't  
17 give you an exact number, but when you're dealing with --  
18 with sandstone reservoirs of this type that were deposited  
19 under the conditions that they were deposited, I've mapped  
20 up to 22 different horizons, depending on how you break out  
21 your genetic units.

22 Q Would that be 22 in one well or 22 over  
23 this area?

24 A 22 over the area.

25 Q And are those -- do you know whether or

1 not those 22 horizons are present in every well?

2 A In every well? No, they're not present  
3 in every well.

4 MS. AUBREY: I have no more  
5 questions of this witness.

6

7

CROSS EXAMINATION

8

BY MR. STAMETS:

9 Q Mr. Mazzullo, on Exhibits numbered Four  
10 and Five, the two Isopach maps, the well in Section 25 has a  
11 blue triangle around it. What's the significance?

12 A Oh, yes, that, I can explain that. That  
13 was just to call attention to Chama's No. 1-L Federal, just  
14 to give a quick idea of where Chama's acreage was.

15 Q Okay. Now, the -- what was the deposi-  
16 tional environment in the Morrow in this area?

17 A The depositional environments varied ver-  
18 tically through the section. They range anywhere from flu-  
19 vial, stream-deposited type sands to marginal marine or  
20 trans -- what's considered transitional marine environments,  
21 estuaries, possibly small deltas, and there are some sand-  
22 stones towards the top of the reservoir section that were  
23 deposited in shallow marine environments.

24 Q Okay. Was that the type of environment  
25 which promotes continuity of reservoirs or discontinuity of

1 reservoirs?

2           A           Generally in the Morrow the best reser-  
3 voirs are developed, the best continuous reservoirs are de-  
4 veloped in the transitional marine environment, and that's  
5 typical whether you're in Eddy County or in Lea County, and  
6 the sands that I have indicated here are transitional marine  
7 sands.

8           Q           But you've indicated that there are other  
9 sands productive as well, and they might be --

10          A           That's right.

11          Q           -- from one of these other --

12          A           They might be, you know, from one of  
13 these other types of environments.

14          Q           Okay. Also on these two exhibits you've  
15 put some thick sections. Let's take Exhibit Number Five.  
16 You've put a thick section in Section 23 in the east half.

17          A           That's right.

18          Q           And what is that based on?

19          A           That's based upon the fact that I see a  
20 trend coming in from northwest of that part of Section 23  
21 and a trend coming in from the east. I believe there to be  
22 a confluence of two different trends at that point, and  
23 through my experience in mapping these types of environ-  
24 ments, this type of confluence usually results in this type  
25 of depositional build-up.

1 Q Now, on Exhibit Number Four you've shown  
2 a series of highs that runs down from Section 14 on down to  
3 Sections 35 and 36.

4 A Uh-huh.

5 Q Again, I'm curious about what you based  
6 those on.

7 A Okay. I based that on the presumed depo-  
8 sitional environment that I -- that I see from running de-  
9 tailed sample evaluations vertically in well -- separate  
10 wellbores and then comparing lithologies across the field.

11 I believe this to be a type of distribu-  
12 tary channel system that's in a marginal marine environment,  
13 perhaps a deltaic environment, and I based those trends on  
14 the Isopach character, the thickness of the sands, and on  
15 the sample descriptions.

16 Q Back on Exhibit Number Five, I believe  
17 you indicated that that Middle Morrow section in the area,  
18 and if I understood -- let me clarify this.

19 You said it accounted for two-thirds of  
20 the production in the pool, and I presume you're only talk-  
21 ing about the Lea-Pennsylvanian Pool and not any of the  
22 others.

23 A That's correct. I said that Zone 11 is  
24 part of the Middle Morrow interval that produces over two-  
25 thirds of the gas in the Lea-Penn Field.

1 Q So there are other zones in the Middle  
2 Morrow besides 11.

3 A Yes, but they are not as substantial as  
4 Zone 11. Zone 11 is a major thick sand unit in that area.

5 MR. STAMETS: Are there other  
6 questions of the witness?

7 He may be excused.

8 Let's take about a fifteen min-  
9 ute recess.

10

11 (Thereupon a recess was taken.)

12

13 MR. STAMETS: The hearing will  
14 come to order.

15 Mr. Carr?

16 MR. CARR: We'll call now Mr.  
17 Robert Haas, H-A-A-S.

18

19 ROBERT W. HAAS,  
20 being called as a witness and being duly sworn upon his  
21 oath, testified as follows, to-wit:

22

23 DIRECT EXAMINATION

24 BY MR. CARR:

25 Q Will you state your full name and place

1 of residence, please?

2 A Robert W. Haas, Lancaster, Texas, office  
3 in downtown Dallas, Texas.

4 Q Mr. Haas, by whom are you employed?

5 A Haas Petroleum Engineering Services.

6 Q And by whom are you employed in this  
7 case?

8 A Chama Petroleum Company.

9 Q And are you -- have you been employed as  
10 a petroleum engineer?

11 A Yes, I have.

12 Q And you do consulting work as a petroleum  
13 engineer?

14 A Yes. We -- I consult with a partner un-  
15 der the name Badgewell and Haas.

16 Q And how do you spell that first name?

17 A B-A-D-G-E-W-E-L-L.

18 Q Have you previously testified before this  
19 Commission?

20 A No, I have not.

21 Q Would you summarize for the Commission  
22 your educational background, please?

23 A I attended the University of Texas at  
24 Austin and received a Bachelor of Science, an engineering  
25 science degree in 1971, and did two years of graduate work

1 at Texas A & M University in ocean engineering, Master's  
2 program.

3 Q And following your formal education,  
4 would you summarize for the Commission your work experience?

5 A Went to work for Amoco Production Company  
6 in Levelland, Texas; spent a year in that area office doing  
7 production engineering work in the Levelland Unit Waterflood  
8 Project.

9 Was transferred to Houston, Texas, where  
10 I performed a reservoir engineering study on a field in West  
11 Texas.

12 Was transferred to New Orleans and spent  
13 three years in off-shore operations and reservoir engineer-  
14 ing groups.

15 Left Amoco and went to work as a consul-  
16 tant with James A. Lewis Engineering in Dallas for one year,  
17 at which time I went into the consulting business on my own  
18 and have been consulting for the last five years.

19 Q Do you belong to any professional asso-  
20 ciations?

21 A Society of Petroleum Engineers.

22 Q Mr. Haas, have you been qualified as an  
23 expert witness in petroleum engineering in other jurisdic-  
24 tions?

25 A In the State of Texas.

1           Q           Have you testified before the Railroad  
2 Commission?

3           A           Yes, I have.

4           Q           Are you familiar with what Chama is seek-  
5 ing in this case?

6           A           Yes, I am.

7           Q           Are you familiar with the subject area?

8           A           Yes.

9                           MR. CARR: We tender Mr. Haas  
10 as an expert witness in petroleum engineering.

11                           MR. STAMETS: He is considered  
12 qualified.

13           Q           Mr. Haas, would you state what Chama  
14 asked you to do?

15           A           They asked me to look at the Lea-Penn  
16 Field in Lea County, New Mexico, and perform a gas reserve  
17 analysis and depletion study of the wells in that field.

18           Q           And when were you contacted by Chama and  
19 asked to make this study?

20           A           Oh, approximately three or four weeks  
21 ago.

22           Q           In studying the Lea-Penn Pool, what data  
23 or information did you review?

24           A           Oh, I reviewed production and pressure  
25 data that was obtained from public sources and the available

1 scout ticket information, State completion, recompletion  
2 filings and log information that was provided to me.

3 Q Did you review drill stem tests?

4 A Not the tests themselves; the reports on  
5 the scout tickets of the drill stem tests.

6 Q Would you just explain to the Commission  
7 how you approached your study?

8 A Most of the wells in the study area were  
9 the wells that are depleted in the Morrow section. A few of  
10 the wells still produce at low rates.

11 We looked at the production and tied that  
12 back to volumetric calculations by performing log analysis  
13 and to back compute drainage area for each of the wells, and  
14 I also used the pressure data to see if there was indica-  
15 tions of wells that had come on later in the life of the  
16 reservoir experiencing lower pressures or partially depleted  
17 sands.

18 Q Mr. Haas, what conclusions did you reach  
19 concerning drainage in the Lea-Penn Pool?

20 A We determined that the drainage area was  
21 241 acres on the commercially successful wells.

22 Q And is this an average or a maximum fig-  
23 ure or a minimum figure?

24 A Yes. It's an average figure and since it  
25 was based on the actual production from the production to

1 that individual well, and we did find evidence of lower  
2 pressures in some of the offset wells, it probably is a low  
3 number because if that production had been attributed to the  
4 original wells that were drilled, the drainage areas would  
5 have been somewhat larger.

6 Q You're saying that the drainage area  
7 would have been larger if you had had wells that had not al-  
8 so -- were in zones that were depleted?

9 A It was my conclusion that since there  
10 were offset wells that exhibited lower than original pres-  
11 sures, production that subsequently came from those wells  
12 might have been reduced in the other wells contributing to a  
13 larger drainage area.

14 Q Did you determine how much gas in place  
15 would actually be required to make a commercially successful  
16 well in this area?

17 A Yes. We assumed that it would take 1.8  
18 BCF of gas to make a commercially successful well.

19 Q And how did you reach this 1.8 BCF fig-  
20 ure?

21 A I assumed the well cost of about \$1.5-  
22 million and assumed a net revenue lease of 80 percent, and  
23 assumed a \$3.00 gas price and the requirement that a 2-1/2  
24 return on investment was minimally acceptable.

25 Q Are these standards which are acceptable

1 in the industry and in line with what other industry --

2 A I believe they are.

3 Q -- people would rely on?

4 A Yes.

5 Q And then you took this 1.8 BCF figure and  
6 you compared it to the wells in the Lea-Penn Pool.

7 A Yes, I did.

8 Q How many of those wells, using this fig-  
9 ure, were capable of commercial production?

10 A I studied 18 wells and 7 of the wells ex-  
11 ceeded the 1.8 BCF.

12 Q Do you have any opinion as to why so few  
13 of these wells were in fact commercial successes?

14 A Well, some of them were drilled into  
15 small reservoirs that had limited porosity and permeability.

16 Others indicated from the early drill  
17 stem test information that they had experienced some pres-  
18 sure depletion.

19 Q Would you identify what has been marked  
20 Chama Exhibit Number Six, please?

21 A This is our report that we were retained  
22 by Chama Petroleum Engineering -- I mean Chama Petroleum  
23 Company to perform, addressed to William F. Carr, dated June  
24 6, 1985.

25 Q And does this set forth your conclusions

1 that you reached based on your study?

2 A Yes, it does.

3 Q Mr. Haas, what did you recommend Chama do  
4 in terms of further development in the area?

5 A I recommend, based on our conclusions,  
6 that future step out drilling in the Lea-Penn Field area be  
7 done on -- initially on 320-acre spacing units to prevent  
8 waste.

9 Q In your opinion would drilling on 160-ac-  
10 re units result in drilling unnecessary wells?

11 A It appears that it has in the past, yes.

12 Q Was Exhibit Number Six prepared by you?

13 A Yes, it was.

14 MR. CARR: At this time, Mr.  
15 Stamets, we would offer into evidence Chama Exhibit Number  
16 Six.

17 MR. STAMETS: Without objection  
18 it will be admitted.

19 MR. CARR: That concludes my  
20 direct examination of Mr. Haas.

21 MR. STAMETS: Are there ques-  
22 tions of this witness?

23 MS. AUBREY: Thank you, sir.  
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CROSS EXAMINATION

BY MS. AUBREY:

Q Mr. Haas, you've assumed that in order to be a commercially successful well, a well must produce 1.8 BCF, is that correct?

A That's correct.

Q And at what point in time is that assumption made?

A Based on today.

Q Based on today's economics?

A Yes.

Q Are you saying that wells which in the past produced less than 1.8 BCF were commercially unsuccessful at the time they were drilled and completed?

A No.

Q So the 18 wells which you believe are capable of commercial production are wells which would be capable of commercial production if they were drilled today at today's cost.

A I'm sorry, can you restate that?

Q Sure. I believe you said, and correct me if I'm wrong, that there are only 18 wells in the Lea-Penn Pool which are capable of commercial production. Did I get that wrong, Mr. Haas?

1           A           I said that 7 out of the 11, based on  
2 this economic assumption at today's criteria, would be  
3 commercial.

4           Q           I'm sorry, you looked at 18 wells.

5           A           Yes.

6           Q           So out of those 18 wells we have 7 which  
7 would be capable of commercial production if they were drill-  
8 led today.

9           A           Yes.

10          Q           Which 7 wells are those?

11          A           Those would be the Lea Unit Wells 3, 6,  
12 10, 11, and the National Co-op Refinery Nos. 1 and 2 and the  
13 Southwestern Natural Gas No. 2.

14                   MR. CARR: Those are set out on  
15 the first three lines of page 3 of Exhibit Six.

16                   MS. AUBREY: Thank you, Mr.  
17 Carr.

18          Q           Mr. Haas, do you have before you any  
19 drilling and completing information on those wells so that  
20 we can tell the Commission how old they are?

21          A           I did not bring that study information  
22 with me.

23          Q           On the 11 wells that you've concluded are  
24 not capable of commercial production, do you have any data  
25 which you can refer to to tell the Commission when those

1 wells were drilled and completed?

2 A No, but I think the data is available  
3 next door.

4 Q How many wells are there, Mr. Haas, with-  
5 in the Lea-Penn Pool?

6 Let me limit that for you, completed in  
7 the Morrow.

8 A Completed to the Morrow? I believe there  
9 are 18 wells that are in the Lea-Penn Unit, if you're not  
10 including any of the recent wells by Chama or BTA.

11 Q So which wells did you exclude from your  
12 study?

13 A I looked at -- I have a base map here I  
14 can refer to. We looked at the Greathouse, et al, Federal  
15 Nos. 1 and 2; Estoril Union Fed 1 and 1-A.

16 Q What section are those in, please?

17 A Sections 3, 9, 10.

18 Then in Section 11 the National Co-op Re-  
19 fining Federals 1 and 2; Marathon Lea Unit 4 and 6.

20 Q So you looked at all four wells in 11?

21 A Yes.

22 Q Okay.

23 A Marathon Lea Units 5, 7, and 8 in Section  
24 12.

25 Q Okay.



1 Federal was drilled in 1980.

2 Q And you were able to perform drainage  
3 calculations on that well?

4 A Yes.

5 Q But you've performed no drainage calcula-  
6 tions for any of the wells in Section 24 or 25.

7 A Of most interest in that particular well  
8 was the fact that the drill stem test of the Morrow had re-  
9 ported a low initial pressure.

10 Q And that was the Grace Petroleum Well?

11 A Yes.

12 Q Now you concluded, I believe, in Exhibit  
13 Number Six that future step out drilling in the Lea-Penn  
14 Pool be initially done on 320 acres, is that right?

15 A Yes.

16 Q I notice that you've used the word "ini-  
17 tially" there. Is that limiting your conclusion to suggest  
18 something other than it should always be on 320-acre spac-  
19 ing?

20 A As I look back at the data here I see in  
21 situations where you have low reserve wells that would not  
22 be economic today, some wells that have indicated drainage  
23 that were drilled late in the life of the reservoir, and be-  
24 lieve on today's economics that initially going in with 320  
25 acres would be the prudent thing to do.

1                   At that time you would have more data to  
2 examine the character of the sands in the reservoirs on step  
3 out drilling and could make a better determination of future  
4 spacing.

5                   Q           At what time?

6                   A           Once additional data is collected.

7                   Q           Can you give that to me in terms of  
8 years?

9                   A           No, I think it would have to be on an  
10 examination of the new data as it comes in.

11                  Q           And by future step out drilling I assume  
12 you mean wells which have not yet been drilled, is that cor-  
13 rect?

14                   I just want to be sure we're talking  
15 about the same thing. I'm just reading your report here  
16 which says "future step out" --

17                  A           My comments are strictly related as to  
18 reservoir engineering. I'm not sure of the complications of  
19 any current spacing conditions.

20                   But, yes, I would say that wells that  
21 have been drilled now are as they've been drilled and that  
22 future drilling should be on 320 acres.

23                  Q           Have you looked at any data for the BTA  
24 Lynch No. 1?

25                  A           Yes. The log was provided to me and I

1 glanced at the log.

2 Q Do you have an opinion as to whether or  
3 not that is a commercially -- I'm sorry, a well capable of  
4 commercial production?

5 A I've only seen the log section and have  
6 not seen any test information from the well. The log sec-  
7 tion in comparison to the wells to the north looks very com-  
8 mercial.

9 Q Have you examined any data on the BTA  
10 Lynch No. 2?

11 A The log section was provided to me but I  
12 have not even really looked at that log.

13 Q So you -- do you have an opinion then --

14 A I don't have an opinion on No. 2.

15 Q Do you have an opinion as to whether the  
16 Chama 1-L is a commercial well?

17 A I really -- I have not examined that log.

18 Q In the examination, whatever examination  
19 you've done of the BTA Lynch No. 1, in your opinion to me  
20 that it's a commercial well, have you taken into considera-  
21 tion that it's spaced on 160?

22 A No.

23 Q Are you aware that it is?

24 A Yes.

25 Q Have you made an examination, and I just

1 want to suggest a couple of sections to you, of the wells in  
2 Section 13 and 11, as to whether or not at the time those  
3 wells were drilled and completed they were commercially --  
4 they were capable of commercial production?

5 A No, I have not taken an historic look at  
6 economics.

7 Q Do you know which of the wells in Section  
8 13 are currently producing?

9 A Not without referring to my notes.

10 Q Do you know which of the wells in Section  
11 11 are currently producing?

12 A No. As I recall, there were very few  
13 wells left producing in the unit as a whole.

14 Q Do you mean very few in absolute numbers  
15 or very few in terms of the number of wells which have been  
16 historically drilled in the section?

17 A Total drilled.

18 Q Now, you testified, I believe, that in  
19 your opinion wells in the Lea-Penn Pool drain an average of  
20 241 acres, is that correct?

21 A The commercially successful wells.

22 Q The commercially successful wells, and  
23 that would be the 7 that you have identified.

24 A Yes.

25 Q What is the average, and as we discussed

1 before, those are commercially successful wells based on to-  
2 day's economics?

3 A Yes.

4 Q What is the average of the other 11?

5 A I did not compute an average but it's  
6 significantly smaller.

7 Q Can you give me some idea of how much  
8 smaller?

9 A A rough average would be 120, maybe, maybe  
10 half, 120 to 150.

11 Q Less than 160 acres?

12 A It may be very close to 160 but it could  
13 be less.

14 Q And I believe you also testified that you  
15 have not made at this time an examination of either of the  
16 BTA wells in Section 24 or the Chama well in Section 25.

17 A No, I don't have enough data to determine  
18 drainage radiuses.

19 Q And the most recently drilled well before  
20 those three wells was, I believe you stated, drilled in  
21 1980?

22 A Yes. Well, I said that's the one that I  
23 can recall.

24 Q Okay. In creating this average of 241  
25 acres, Mr. Haas, can you tell me what your high number was

1 and what your low number was?

2 A They ranged from 117 acres to 420-some-  
3 thing acres.

4 Q Do you recall for the Commission now  
5 which well drained 100 -- of commercially, the wells capable  
6 of commercial production, which one drained 117 acres?

7 A I have some notes I could refer to.

8 Q That would be great.

9 A The Southwest Natural Gas No. 2 drained  
10 117.

11 MR. STAMETS: What's the loca-  
12 tion of that well?

13 A That would be towards the center section  
14 of Section 14; probably be in the southeast corner of the  
15 northwest section of 14.

16 MR. STAMETS: Thank you.

17 A And then the Lea Unit No. 11 was on the  
18 other end of the spectrum at 423 acres and that is in the --  
19 the southernmost well in Section 13 on this map.

20 MR. STAMETS: 400 and how many  
21 acres?

22 A 23.

23 Q Okay, if you have your notes in front of  
24 you, maybe we can just go through these 7 wells and --

25 A Certainly.

1 Q -- locate them on the map for the Commis-  
2 sion --

3 A Yes.

4 Q -- and talk about the acreage each of  
5 them drained.

6 A Certainly. The National Co-op Refining  
7 No. 1 calculated 209.

8 Q And where is that located?

9 A That would be -- that would be in the  
10 southwest corner of the north -- excuse me, southeast corner  
11 of the northwest section of 11.

12 MR. STAMETS: That's where  
13 again?

14 A In Section 11, in the southeast corner of  
15 the northwest corner.

16 MR. STAMETS: The acres now?

17 A 209.

18 MR. STAMETS: 209. It might be  
19 helpful if we'd start out with the section and the quarter  
20 quarter and then the drainage.

21 A Okay, I'll be glad to.

22 The next well is the Southwestern Natural  
23 Gas No. 2 and we just posted that one at 117 acres.

24 Q That's in Section 14, is that right?

25 A Yes, that was the first well that we

1 We've done No. 11.

2 The Lea Unit No. 3, which is just in Sec-  
3 tion 13, is just northeast of that 11 well we just posted,  
4 and that is 211 acres.

5 Q So just north of the well which your cal-  
6 culations show drainage 423, the next one up is --

7 A Yes.

8 Q -- 213 or 211?

9 A 211.

10 In Section 10, no, excuse me, Lea Unit  
11 No. 10, which is also in Section 13, and it is northwest of  
12 the No. 3 Well that we just posted, and it had 148 acres.

13 Q And that again is a well capable in your  
14 opinion of commercial production?

15 A Yes, it produced about 5 BCF.

16 The Lea Unit No. 6, that's in Section 11,  
17 and is in the southeast northwest, 293 acres.

18 Q I'm sorry, I lost that location while you  
19 were talking.

20 A Okay, in the southeast northwest of Sec-  
21 tion 11.

22 Q Okay.

23 MR. STAMETS: I mis-plotted  
24 that 209 --

25 Q Yeah, I've got 209 --

1 MR. STAMETS: -- in Section 11.  
2 Would you tell me where that well is again?

3 A The --

4 MR. STAMETS: There was a 209  
5 that you mentioned --

6 A Okay.

7 MR. STAMETS: -- and I have it  
8 plotted with the southeast of the northwest.

9 A Okay, that would be northwest of No. 6,  
10 in the southeast northwest.

11 MR. STAMETS: Okay, and the --

12 MR. CARR: Mr. Stamets, I  
13 thought this was going to be easier than it' turned out to  
14 be and what I have is, I have a copy of his notes --

15 A The notes here.

16 MR. CARR: -- here and that  
17 might be the simplest way to handle this, to have all of it  
18 before you, and I don't mind, it's marked as Six-A, and I'll  
19 be happy to offer that, if that's easier to work with, it's  
20 really just --

21 MS. AUBREY: Mr. Stamets, we  
22 only have two more wells to go. Possibly the witness could  
23 locate those last two wells for us.

24 MR. STAMETS: These don't have  
25 a section, township, and range on them --

1 MR. CARR: Okay. All right,  
2 I'm sorry, then. I --  
3 MR. STAMETS: We're still lost  
4 on two wells, one --  
5 MR. CARR: -- thought it might  
6 help there.  
7 MR. STAMETS: -- in the north-  
8 west quarter. You gave me two different figures here, 293  
9 and 209.  
10 A May I approach you and show you the map?  
11 MR. STAMETS: Yes.  
12 MS. AUBREY: I'm going to come  
13 around and look, too, if I can find it.  
14 A If we may, why don't we just start with  
15 the first one and we'll be coordinated on that.  
16 The No. 1 National Co-op Refining I show  
17 as this well.  
18 MR. STAMETS: Okay, that's the  
19 one that's southeast of the northwest of 11.  
20 A Yes. Southwest Natural Gas No. 2 I show  
21 in Section 14 with 117.  
22 MR. STAMETS: Okay.  
23 A The Lea No. 11 in Section 13 with 423.  
24 Lea Unit No. 3, 211.  
25 MR. STAMETS: Okay.

1           A           Lea Unit No. 10 in Section 13, 148.

2                       Lea Unit No. 6 in Section 11, 293.

3                               MR. STAMETS: Okay, that's the  
4 one that's in the northwest of the southeast.

5           A           And the last one is National Co-op Refin-  
6 ing No. 2 in Section 11, and the acreage is 288.

7                               MR. STAMETS: And that's in the  
8 southeast of the southwest.

9           Q           Thank you, Mr. Haas.

10          A           Yes. If it would help I could explain  
11 Six-A, the exhibit.

12                               MR. STAMETS: It probably  
13 would.

14          A           This is our reservoir data sheet calcu-  
15 lated on each of the Morrow completions in the commercially  
16 successful --

17                               We performed log analysis on these wells,  
18 looked at the pressure gradient to come up with a pressure  
19 for each well, and cumulated the reservoir data.

20                               Then on these wells which are either de-  
21 pleted or very close to depletion, posted the reserves at  
22 the bottom and from the log calculations and calculations of  
23 the recoveries, were then able to back calculate the produc-  
24 tive acres, that first item under the reserve subtopic.

25          Q           And you've done that for each of these.

1 That would be for each of the 7 wells that we've talked  
2 about?

3 A Yes.

4 Q Do you have an exhibit which shows these  
5 calculations for the other 11 wells?

6 A No, I have those calculations back with  
7 the study papers.

8 Q These are estimates, aren't they, Mr.  
9 Haas?

10 A Oh, yes. Lot of assumptions go into this  
11 type of analysis.

12 Q Who performed the log analysis that you  
13 testified about in deriving these numbers?

14 A I did.

15 MS. AUBREY: May I have a mo-  
16 ment?

17 MR. STAMETS: Certainly.

18 Q I may have asked you this question, but  
19 do you have any cumulative production figures?

20 A I posted the cumulative production as of  
21 January '85 on these data sheets for the 7 successful wells.

22 Q That would be in your Exhibit Number Six-  
23 A?

24 A Yes. It would be at the bottom, gas re-  
25 serve recoverable is the cumulative production for those

1 wells as of January, 1985.

2 Q All right, Mr. Haas, I'd like you to look  
3 at Section 14. Do you have an exhibit in front of you that  
4 has the wells on it?

5 A Yes.

6 Q Okay, the well in the northwest quarter,  
7 which I believe is the Southwestern Natural Gas No. 2. I  
8 believe that well calculated 117 feet drainage.

9 A Yes.

10 Q And we have cumulative production of  
11 about 2.3 billion.

12 A Yes.

13 Q And then the well in Section 13, which I  
14 believe is the Lea Unit No. 3 in the southeast quarter of  
15 the section.

16 A Yes.

17 Q And for that you've calculated 211 --

18 A Yes.

19 Q -- feet -- I'm sorry --

20 A Acres.

21 Q -- acres, and approximately 3 billion.

22 A Yes.

23 Q Can you correlate those numbers for me?  
24 Can you correlate those two wells for me?

25 A How do you mean?

1           Q           We have almost a difference of 100 acres  
2 in drainage.

3           A           The recovery factors are identical. The  
4 difference in productive acres stems from a larger net pay  
5 thickness and smaller reserves in the No. 2 Southwestern  
6 Natural Gas Well.

7                       Both those factors contributed to a smal-  
8 ler drainage calculation.

9           Q           Recovery from those two wells is essen-  
10 tially similar, isn't it?

11          A           Yes.

12          Q           Are you assuming any particular shape for  
13 this number of acres that these wells are draining?

14          A           No. The acres are just acres.

15          Q           I was just confused that you referred to  
16 the word "radius" in your exhibit. You're not -- you're not  
17 assuming a circular drainage pattern?

18          A           No, I'm sorry. I should not have used  
19 that term.

20          Q           Mr. Haas, do you have enough information  
21 about the BTA No. 1, including the assumption that the well  
22 is spaced on 160-acre spacing unit, to give us some sort of  
23 opinion about how many acres that well will drain?

24          A           No. The only -- the methods used in the  
25 report were to know the reserves in the older wells and back

1 calculate a drainage radius, and the only other method I  
2 know of would be to examine pressure build-up information  
3 which I do not have.

4 Q Did you examine any BTA data in preparing  
5 your Exhibit Six or preparing your testimony today?

6 A I glanced at those logs.

7 Q Anything beyond the logs?

8 A Did not do any log analysis or review any  
9 other information.

10 Q With regard to the 11 wells which you've  
11 described as not capable of commercial production, have you  
12 reviewed the production data in terms of volumes produced  
13 from those wells to date?

14 A Yes. We ordered the production data from  
15 Dwight's and were provided production decline curves from  
16 Chama.

17 Q For all the wells in the Lea-Penn Unit?

18 A The 18 studied.

19 Q Let me refer you to the well in the  
20 southwest quarter of Section 12. I believe that is not one  
21 of your 7 commercial producers, is that right?

22 A I believe you're right. The Marathon Lea  
23 Unit No. 7?

24 Q That's correct.

25 A No, it is not.

1           Q           Now, I'm sorry, No. 5, the No. 5, south-  
2 west quarter of Section 11.

3           A           I have it in the southeast.

4           Q           Mr. Haas, it is the 7.

5           A           The 7.

6           Q           Yes.

7           A           Yes. No, I did not have it listed as one  
8 of the commercially successful wells.

9           Q           If that well in fact was drilled in 1962  
10 and in fact produced 1.3 billion, do you have an opinion as  
11 to whether or not that's a commercial well?

12          A           Was it a commercial well? I do not. I  
13 think I previously testified I did not take an historical  
14 look at the commercial success of the older wells.

15          Q           Your cutoff point, as I recall, was 1.8.

16          A           Yes.

17          Q           And you cannot form an opinion for the  
18 Commission today about a well drilled 23 years ago, which  
19 produced 1.3, and tell the Commission whether or not that  
20 was a commercial well?

21          A           Not with the information I have.

22          Q           Did you take any production besides gas  
23 into consideration in coming to your opinion? Did you con-  
24 sider condensate?

25          A           The calculation of economic well was bas-

1 ically very simple and I assumed that the condensate would  
2 offset operating costs, as a basic assumption.

3 Q So you assigned no value to the conden-  
4 sate production from these wells.

5 A Right.

6 Q Are you aware of the condensate produc-  
7 tion from the Lea-Penn Pool in terms of barrels? Do you  
8 know how much that is?

9 A I don't recall the numbers offhand. That  
10 information was available to me in the study.

11 Q If a well in fact produced 158,000  
12 barrels of oil, would you consider that only -- it's only  
13 value is offsetting operating costs?

14 A Depend on how -- how many months of  
15 production, workovers, that type of thing.

16 Q Not part of your calculations. So that  
17 would be part of your economic calculations.

18 A It was not.

19 Q If you assigned a higher value to the  
20 condensate production, would an economic or commercial, as  
21 you called it, well then drop, would the number drop from  
22 1.8 billion to something else?

23 A It could.

24 MS. AUBREY: I have no more  
25 questions.

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## CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Haas, looking at Section 11.

A Yes.

Q You have three wells in there and that's all been drilled on 160 acres. You've got three wells that you would consider commercial.

A If that had been drilled on 320 acres, would as much gas have been recovered from that particular section?

A I'll answer as much of that question as I can. It's hard to say, but I do in a section of the report point out, if you'll excuse me a minute to find it, if you'll look on page two, the section under Study?

Q Uh-huh.

A The third paragraph.

Q Okay.

A In the middle of that paragraph, the sentence starting "The Marathon No. 4 Lea Unit --"

Q Okay.

A "-- well was drilled in 1969 and had initial shut-in tubind pressure of 823 psi."

A That is in comparison with an average of 4500 psi for the rest of the wells that were to be drilled,

1 and that includes all 18 that were initially drilled.

2 So I think that based on that informa-  
3 tion, that the No. 4 did encounter some sand members that  
4 were being drained and I have to assume it was from these  
5 three wells that are in a very tight density, in close prox-  
6 imity to the No. 4 Well.

7 Q Is the Marathon Lea Unit No. 4 the fourth  
8 well on that section?

9 A Yes, it was drilled in 1969 and I know at  
10 least two of those wells were drilled in 1961 or 62.

11 Q Okay, and I believe on conclusion number  
12 one you indicated that there were three wells which showed  
13 three -- one, two, three -- yes, three wells which showed  
14 depleted Morrow sands, and we've already talked about the  
15 Marathon Lea Unit No. 4.

16 What are the locations of the other two  
17 wells?

18 A Okay. Reading on in that same paragraph,  
19 the other wells -- the other wells are in Section 14, the  
20 Southwestern Natural Gas No. 1 Aztec Well was drilled in  
21 1969. It had an initial shut-in tubing pressure of 1526  
22 psi.

23 Q Okay.

24 A And the Grace Petroleum No. 1 Whitten  
25 Federal was drilled in 1980, 1980, and the drill stem test

1 of the Morrow recorded 4104 psi and initial shut-in tubing  
2 pressure of 2312.

3 The other bottom hole pressures that I  
4 had that were taken from drill stem tests on wells drilled  
5 early in the unit life were up around 6700 to 6900.

6 Q What's the location of that Grace Well?

7 A Both those wells are in close proximity.

8 Q But the other well is just --

9 A Due east.

10 Q -- due east, so we've got two wells on  
11 80-acre spacing.

12 A Yes.

13 Q And the first one of those was drilled in  
14 1969 and the second one was in 1983.

15 A Yes, sir.

16 Q Okay.

17 A One other thing I might point out is some  
18 of the drainage patterns, for instance, the No. 11 Well, 423  
19 acres, if you just assumed a radial pattern, you could come  
20 in here and several of the wells that are the better wells  
21 and in close proximity, those drainage patterns would over-  
22 lap significantly. So.

23 Q Did you not detect any other wells that  
24 indicated drainage besides those three?

25 A Most of the other wells had been drilled

1 in 1961 or 62 and therefore initial pressures were early in  
2 the life of the reservoir.

3 Q And you don't --

4 A There may have been one or two other  
5 wells, I don't recall, that were drilled late in the life of  
6 the reservoir. These three were the only ones that I found  
7 that indicated depletion.

8 MR. STAMETS: Any other ques-  
9 tions of this witness?

10 Mr. Carr?

11

12 REDIRECT EXAMINATION

13 BY MR. CARR:

14 Q Mr. Haas, was Exhibit Six-A prepared by  
15 you?

16 A Yes.

17 Q Those are your work sheets for the 7 com-  
18 mercially successful wells?

19 A Yes.

20 Q These show your calculations based on as-  
21 sumptions that you made for the wells depicted on each of  
22 these sheets?

23 A That's correct.

24 MR. CARR: At this time I'd of-  
25 fer into evidence Exhibit Six-A.

1 MR. STAMETS: It will be admit-  
2 ted.

3 Any other questions of this  
4 witness?

5 MS. AUBREY: I have no ques-  
6 tions.

7 MR. STAMETS: He may be ex-  
8 cused.

9 MR. CARR: And I would request  
10 that he also be excused from the rest of the hearing, if  
11 that's all right.

12 MR. STAMETS: Any objection?

13 MS. AUBREY: No objection.

14 MR. STAMETS: He may be ex-  
15 cused.

16 MR. CARR: Could I have just  
17 one second and then I'll --

18  
19 DANIEL S. NUTTER,  
20 being called as a witness and being duly sworn upon his  
21 oath, testified as follows, to-wit:

22  
23 DIRECT EXAMINATION

24 BY MR. CARR:

25 Q Would you state your full name and place

1 of residence?

2 A Dan Nutter, Santa Fe, New Mexico.

3 Q Mr. Nutter, by whom are you employed and  
4 in what capacity?

5 A I'm a consulting petroleum engineer in  
6 Santa Fe, and am employed by Chama Petroleum Corporation in  
7 this particular case.

8 Q Mr. Nutter, have you previously testified  
9 before this Commission and had your credentials as a  
10 petroleum engineer accepted and made a matter of record?

11 A I have.

12 Q Are you familiar with the application of  
13 Chama in this case?

14 A I am.

15 Q Are you familiar with the subject area?

16 A I am.

17 MR. CARR: Are the witness'  
18 qualifications acceptable?

19 MR. STAMETS: Yes.

20 Q Have you prepared certain exhibits for  
21 introduction in this case?

22 A Yes, I have.

23 Q Would you please refer to what has been  
24 marked as Exhibit Number Seven and review this for the  
25 Commission, please?

1           A           Yes.   Exhibit Number Seven is a tabula-  
2           tion of the status of the Morrow gas pools in southeast New  
3           Mexico.

4                        It shows the pool's name, the number of  
5           wells, and the spacing that is attributed to that -- that  
6           particular pool.

7                        The data is from the Engineering Commit-  
8           tee Annual Report, and all of the pools that are listed with  
9           the name "Morrow" in their suffix and are producing -- and  
10          were producing in the 1984 book are shown here.

11                      Also, there are certain of the older  
12          Pennsylvanian pools that I am aware are producing from the  
13          Morrow that are included here; however, I caution you that  
14          this probably does not include all of the pools that have  
15          the suffix Pennsylvanian and are producing from the Morrow,  
16          because I didn't go and look at the logs of the wells to see  
17          what section of the Pennsylvanian they were producing from.

18                      So there are a few on here that are pro-  
19          ducing from the Morrow but are designated as being Penn, but  
20          as I say, I caution you that this is not a complete of all  
21          the Penn pools.

22                      It is a complete list of the Morrow  
23          wells.

24                      Now, if we look at page one we see there  
25          the Atoka Penn, and it has an asterisk on it, which I'll ex-

1 plain later.

2 That is a Penn pool that is producing  
3 from the Morrow.

4 Further down, the Buffalo Valley Penn  
5 Pool is a Morrow gas pool. It also has an asterisk.

6 And the Bell Lake Morrow South Pool in  
7 the middle of the page has a double asterisk, which I'll get  
8 to in a moment.

9 All of the pools on page one of this ex-  
10 hibit are producing on 320-acre spacing.

11 We go to the second page and the first  
12 one that's different than the -- than the norm would be the  
13 Catclaw Draw Morrow Gas Pool, which has 640-acre spacing but  
14 infill drilling has been authorized.

15 So I'll remind you at this time that  
16 these counts of wells are from the book and I believe that  
17 those are counts of proration units and not actual wells.

18 So if you have infill drilling on a pro-  
19 ration unit it would count as a one rather than two.

20 So I believe that where you've got in-  
21 fills, these numbers may be low as far as the wells are con-  
22 cerned but they would be the number of proration units.

23 Now we've got the Sinta Roja Morrow Gas  
24 Pool, 640 acres.

25 We've got the Dagger Draw Morrow Gas Pool

1 with two units and 640 acres and the Dos Hermanos Morrow  
2 with two units and 640 acres.

3 Page three, we have the Indian Basin Mor-  
4 row with 11 units and 640 acres.

5 We have the Lea-Penn, which is the pool  
6 we're concerned with, has six producing wells according to  
7 the 1984 statistical report and is on 160-acre spacing.

8 Page four indicates that the McMillan  
9 Morrow is on 640-acre spacing and that's the only one that  
10 deviates from the norm; all the rest being 320-acre pools.

11 Page five, we have the Osudo Morrow North  
12 with 10 wells at 640; the Rock Tank Lower and the Rock Tank  
13 Upper having 3 wells and 4 wells, respectively, being at  
14 640-acre spacing.

15 Page six, we have the White City Penn,  
16 which is one of those Pennsylvanian pools that produces from  
17 the Morrow, and it's got 38 wells, 38 units in it, it's 640-  
18 acre spacing but infill drilling has been authorized.

19 Now page seven, we'll get to an explana-  
20 tion of what those asterisks are.

21 The pools that show a single asterisk are  
22 those pools which special pool rules, including spacing  
23 units, have been adopted after hearing, with the spacing  
24 based on evidence presented at the hearing.

25 Now this includes some of the older Mor-

1 row gas pools that were created prior to 19 -- June the 1st  
2 of 1964, and the applicants came in to the Commission -- it  
3 was the Commission in those days -- and asked for 320-acre  
4 spacing or 640-acre spacing, and they presented evidence  
5 showing the drainage of the reservoir to justify the 320-  
6 acre or 640-acre spacing.

7 But all of those with the single asterisk  
8 have geological and engineering data in the files to indi-  
9 cate that the drainage was calculated by the Commission to  
10 warrant 320-acre spacing.

11 Now the ones with the double asterisks  
12 are those old pools that were created prior to 6-1-64 but  
13 which, remain on 160-acre spacing when the statewide rule  
14 was changed by Division Order R-2707.

15 Now, as the Commission is aware, for many  
16 of these cases where those old pools were left on 160-acre  
17 spacing, it has been the practice to adopt the findings that  
18 were in R-2707 for pools in which the operator asked that  
19 the Commission change the spacing for the old pool from 160  
20 up to 320, and in the absence of objection, the change from  
21 160 to 320 was more or less automatic, and the applicant  
22 didn't even have to appear at the hearing.

23 This has been done many times and the  
24 double asterisks throughout this exhibit indicate those  
25 pools where no appearance was made but that the pool changed

1 from 160 to 320.

2                   The triple asterisk indicates those pools  
3 where the application of the spacing rules in the pool is  
4 limited to the pool boundaries but not beyond.

5                   Now the normal, of course, in the Commis-  
6 sion's policy, is the Commission's policy that the pool  
7 rules extend for the pool boundaries plus one mile around  
8 the pool.

9                   These pools with triple asterisks are the  
10 pools in which those spacing rules do not go beyond the  
11 boundary of the pool. They do not include the 100 -- the  
12 one mile area.

13                   Now the summary here shows that of the  
14 bulk of the wells, there's 1041 wells or units listed on  
15 this exhibit, 6 of them in one pool are on 160-acre spacing.  
16 This constitutes just slightly more than 1/2 of 1 percent.

17                   933, the bulk of them, are on 320-acre  
18 spacing for 89.62 percent and 102 have 640-acre spacing, or  
19 9.8 percent.

20                   Q            Would you now go to Chama Exhibit Number  
21 Eight and identify this, please?

22                   A            Okay. Chama Exhibit Number Eight is a  
23 copy from Byram's book. These -- this is the order which is  
24 Order No. 6197, R-6197, which limited the effect of the  
25 spacing rules for the Lusk Morrow Pool to the boundaries of

1 that pool.

2 Now here we had a 640-acre pool and the  
3 operators that were outside of the pool wanted to develop  
4 their acreage on less than 640 acres, so they came in and  
5 asked the Commission to limit the effect of those pool rules  
6 to the pool boundaries and not beyond the pool boundaries.

7 Finding No. 6 says no operator in the  
8 Lusk Morrow Gas Pool, nor within one mile thereof, objected  
9 to the applicant's proposal, so it was approved.

10 The pool has since been developed on its  
11 640-acre spacing and the surrounding acreage has been devel-  
12 oped on 320.

13 This order allowed the parties owning the  
14 acreage just outside the pool to develop their acreage on  
15 320's rather than 640's.

16 Q Would you now review Exhibit Number Nine?

17 A Exhibit Number Nine is an order, being  
18 No. R-5829, which relates to one of the pools that has the  
19 triple asterisk on it in Exhibit Number Seven, where the  
20 McMillan Morrow Gas Pool was a 640-acre spaced pool. The  
21 operator outside the pool wanted to develop his acreage on  
22 less than 640 acres and he came in and convinced the Commis-  
23 sion, as in Finding No. 4, that the productive limits of the  
24 McMillan Morrow Gas Pool had been defined by the wells drill-  
25 led within and immediately outside the presently defined

1 boundaries.

2                   So he was saying there, we've got this  
3 pool and it only extends to the boundaries and there is no  
4 reason why the pool rules should extend beyond the bound-  
5 aries.

6                   So Order No. R-5829 limited the effect of  
7 the 640-acre spacing to the pool boundaries and they're de-  
8 fined in the order, and allowed the operators outside the  
9 pool to develop on 320.

10                   Now both of those exhibits allowed opera-  
11 tors to develop their acreage on a spacing pattern that was  
12 less than the pattern prescribed. Those were both 640-acre  
13 pools and were permitted to develop outside the pool on 320.

14                   Q            Would you now to go Exhibit Number Ten  
15 and review this?

16                   A            Exhibit Number Ten is a copy of Division  
17 Order R-5621. It was entered January 17th, 1978, for the  
18 Shugart Pennsylvanian Pool.

19                   Now that pool has been changed. The name  
20 is now the Shugart Morrow Pool.

21                   At the time that this order, at the time  
22 that the order was entered, the boundaries of the pool were  
23 greater than the acreage that's described here in this or-  
24 der. These boundaries right here, the south half of Section  
25 26, the east half of Section 27, and the northeast quarter

1 of Section 34, were the original boundaries when the pool  
2 was created, and those boundaries remained the same for a  
3 long time; however, there had been some extensions -- I'll  
4 take it back, there hadn't been.

5 This was the pool boundary at the time  
6 that the order was entered. So this limited the application  
7 of the pool rules to the boundary and the opposite of those  
8 previous two exhibits.

9 Those previous two exhibits were 640.  
10 They wanted to develop on less than that.

11 Here we had one of the old pools that was  
12 160-acre spacing and had not been changed by Order No. R-  
13 2707 when the statewide rules were changed, and it was con-  
14 tinued to be developed on 160, but the operators just out-  
15 side that pool wanted to develop their lands on 320, so it's  
16 just the opposite of the previous. Here they wanted to go  
17 to a larger spacing pattern.

18 And again we've got that phrase in there,  
19 the operator of all wells in the pool waived objection to  
20 limiting the application of the present 160-acre spacing  
21 rules to the wells inside the pool.

22 Since then that pool has been expanded  
23 considerably. There were a total of 640 acres in the pool,  
24 which are the 640 acres defined in order number one of this  
25 order, being two half sections and -- no, it would be -- it

1 would be 700 acres, I guess, be more than 640 acres.

2                   But the pool has been expanded. There's  
3 now over 4000 acres in the pool, so the change in the des-  
4 cription, or the limitation of the applicability of the pool  
5 rules has permitted the development to go around the pool.  
6 The entire area that is described in Order No. R-5621 as  
7 being where those 160-acre pool rules are limited to, is  
8 completely surrounded except on one little 160-acre site by  
9 the new pool as it's been expanded.

10                   So we've got a core of 160-acre develop-  
11 ment in the heart of the pool; all the rest of the pool is  
12 on 320.

13                   Q           Now, Mr. Nutter, based on your review of  
14 Morrow development in southeast New Mexico, what conclusions  
15 can you reach?

16                   A           Well, the only conclusion that I can  
17 reach is that any time that you've got -- you don't have un-  
18 iform spacing anywhere. There's exceptions of spacing rules  
19 all over the state and there's going to be times when spac-  
20 ing patterns of two different sizes come up against each  
21 other, and it's either going to be inside of a pool, it's  
22 going to be outside of a pool, or it's going to be right at  
23 the boundary of a pool, and the general thing has been to  
24 try to cover the step outs by making pool rules applicable  
25 for a mile outside.

1                   But here we've got pools, we saw on one  
2 exhibit that you've got a pool to the southwest of this Lea-  
3 Penn which is on 320-acre spacing. We've got a pool to the  
4 immediate south of it which is on 320-acre spacing. This  
5 development could just as well proceed from the south and  
6 come north and we'd have the same problem of 320-acre spac-  
7 ing abutting against 160-acre spacing as to have it occur-  
8 ring just immediately south of the border of the pool right  
9 now.

10                   So my conclusion is that it really  
11 doesn't make much difference whether we start far away and  
12 work towards the pool with a different spacing pattern, or  
13 whether you start near the pool and work away.

14                   It's inevitably going to happen when you  
15 have two different spacing patterns in a county if there's  
16 any continuous development, and the time to face it is when  
17 the problem comes up, and I think the problem is here right  
18 now.

19                   Q               Mr. Nutter, were you present when Mr.  
20 Haas testified?

21                   A               Yes, I was.

22                   Q               Did you hear Mr. Haas testify that only 7  
23 of 18 wells based on his calculations were commercial suc-  
24 cesses?

25                   A               Yes.

1           Q           Do you have any opinion as to if that's  
2 true why so many of the wells were drilled?

3           A           Oh, sure. Economics have changed a lot.  
4 I don't know if it would take a billion and a half cubic  
5 feet or 1.8 billion, I think he said, to drill a well and  
6 make a commercial well of it back in 1961 or 62.

7                   The price of gas was a tenth of what it  
8 is today, but -- or less, maybe a 20th, but drilling costs  
9 were much less, also.

10                   I've always figured that a well in this  
11 footage range under today's economic conditions would have  
12 to produce about a billion and a half. He used a billion --  
13 1.8.

14                   But the reason why these wells were drill-  
15 led was because this was the Lea Devonian Oil Pool and this  
16 was our deepest oil pool at the time this pool was discov-  
17 ered, this was the first oil pool in New Mexico that went to  
18 160-acre oil well spacing, and many of these wells were dual  
19 completions.

20                   So it was cheap to complete them, so even  
21 if they didn't make big reserves, they were profitable be-  
22 cause all they had to do was punch some holes in the casing  
23 and make dual completions up the annulus.

24           Q           Were Exhibits Seven through Ten compiled  
25 under your direction and supervision?

1           A           Yes, they were.

2           Q           Who was the examiner in each of the  
3 hearings that resulted in Orders Eight, Nine, and Ten?

4           A           I didn't notice.

5           Q           I thought I'd beat somebody else to that.

6           A           I didn't notice.

7           Q           Who was it?

8           A           Dan Nutter.

9                       MR. CARR:    At this time we'd  
10 offer Exhibits Seven through Ten.

11                      MR. STAMETS:   These exhibits  
12 will be admitted.

13                      MR. CARR:    That concludes my  
14 direct examination of Mr. Nutter.

15                      MS. AUBREY:    And with Mr.  
16 Carr's clarification in the last question, I have no ques-  
17 tions of Mr. Nutter.

18                      MR. STAMETS:    We will take a  
19 recess till 1:15.

20

21                               (Thereupon the noon recess was taken.)

22

23                      MR. STAMETS:    Mr. Carr, I pre-  
24 sume that that last witness completed your --

25                      MR. CARR:    That concludes our

1 case.

2 MR. STAMETS: Ms. Aubrey.

3 MS. AUBREY: I have one wit-  
4 ness, Mr. Commissioner.

5

6

MARVIN L. ZOLLER,

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

9

10

DIRECT EXAMINATION

11 BY MS. AUBREY:

12

Q Would you state your name, place of  
13 employment, and occupation for the record?

14

A Marvin Zoller. I'm Chief Operations  
15 Geologist for BTA Oil Producers of Midland, Texas.

16

Q Have you testified previously before this  
17 Commission and had your qualifications as a geologist made a  
18 matter of record?

19

A Yes, ma'am.

20

Q Are you familiar with Chama's application  
21 which we are hearing today and BTA's opposition to that  
22 application?

23

A Yes.

24

MS. AUBREY: Are the witness'  
25 qualifications acceptable?

1 MR. STAMETS: They are.

2 Q Mr. Zoller, will you explain for the Com-  
3 mission what BTA's acreage position in Section 24 and 25  
4 are?

5 A We obtained a farmout from Exxon on the  
6 southeast quarter of Section 24 and one-half of the south-  
7 west quarter of Section 24, and 80 acres in the northeast  
8 quarter of Section 25.

9 Q When did you acquire that acreage?

10 A Oh, it would have been late 1983 or early  
11 1984.

12 Q Have you drilled any wells on the acreage  
13 which you acquired in Section 24?

14 A We drilled 100 percent well in the north-  
15 east quarter of the southwest quarter -- northwest quarter  
16 of the southeast quarter of Section 24, BTA's No. 1 Lynch.

17 We have drilled a 50 percent well in the  
18 northeast of the southwest of Section 24.

19 And we have not yet drilled a well in  
20 Section 25.

21 Q Have you filed an application for compul-  
22 sory pooling in connection with the proposed well in Section  
23 25?

24 A Yes, ma'am.

25 Q There's been no opposition, as far as you

1 know on that forced pooling application.

2 A No.

3 Q You have not commenced that well?

4 A No.

5 Q Mr. Zoller, can you explain for the Com-  
6 mission in BTA's viewpoint how the granting of Chama's ap-  
7 plication to limit the 160-acre spacing in the Lea-Penn Pool  
8 to the pool boundary will affect BTA's correlative rights?

9 A In the northeast quarter of Section 25 we  
10 only own 80 acres and they own 80 acres.

11 If that were made into a 320-acre unit we  
12 would only own a fourth of a well instead of one-half of a  
13 well and even you solved it by drilling two wells, you'd  
14 take twice the risk in order to end up where you were.

15 Q On what spacing has BTA developed its ac-  
16 reage in Section 24 and proposes to develop its acreage in  
17 Section 25?

18 A 160-acre spacing.

19 Q Mr. Zoller, you've prepared certain exhi-  
20 bits for the consideration of the Commission today?

21 A Yes, ma'am.

22 Q Let me have you look at what we've marked  
23 as your Exhibit Number Two. Can you explain what that exhi-  
24 bit shows?

25 MR. STAMETS: Do you have a

1 copy for us?

2 MS. AUBREY: Oh, I'm sorry.

3 MR. STAMETS: Mine starts with

4 Three here.

5

6 (Thereupon a discussion was had off the record.)

7

8 A Exhibit Number Two shows by each well an  
9 A, B, C, D, and E legend.

10 A is the total depth.

11 B is the completion date.

12 The C is the perforated interval followed  
13 by whatever formation that happened to have been.

14 D is either that is abandoned today or  
15 the cum production, no, the daily production during Septem-  
16 ber of 1984.

17 And the thing we'll be primarily inter-  
18 ested in, E, is the cumulative production for each well from  
19 the Morrow through October, 1984.

20 Now beside almost every well you will  
21 find either a red or a yellow number. We will see cross  
22 sections that will have the logs numbered, one of them of  
23 ten wells shown in red; another cross section by the nine  
24 wells shown with the number in yellow.

25 Q Mr. Zoller, you heard the testimony ear-

1 lier today by Mr. Haas in support of BTA's application,  
2 specifically about the number of economical wells there are  
3 in the area we're talking about.

4 Does the information contained on your  
5 Exhibit Number Two permit you to draw any different conclu-  
6 sion about the number of economical wells in the area?

7 A Well, I can't here draw any different  
8 conclusions because, as he so stated, it depends so much on  
9 when the wells were drilled and what the price of the com-  
10 modity was at the time and what the drilling costs were.

11 I'm sure you could come up with a dozen  
12 other interpretations of the same data.

13 Q Does your Exhibit Number Two, your pro-  
14 duction map, include as well as natural gas production of  
15 condensates --

16 A Yes, ma'am.

17 Q -- from the wells in the area?

18 A I think on -- following each one of the  
19 gas figures you'll see a 17 MBO, for instance. That's  
20 thousands of barrels of oil which should have been conden-  
21 sate, but it is a condensate figure.

22 Q Does that, in your opinion does that con-  
23 densate have a value?

24 A Well, there are wells there that have  
25 produced as much as 158,000 barrels of condensate and in

1 1961 that surely must have been worth somewhere around  
2 \$3.00 a barrel. That's 450,000 or 500,000 barrels of con-  
3 densate. Surely it would have paid more than operation  
4 costs.

5 By the way, if we considered about \$27.00  
6 a barrel today, I think it would be much more than operation  
7 costs.

8 Q Does Exhibit Number Two also indicate  
9 which of the wells in the Lea-Penn Unit have been plugged  
10 and abandoned?

11 A It does with the slightly longer --  
12 slightly longer slash through the center of the well from  
13 the upper right to the lower left. We will see several ex-  
14 hibits later that will highlight much better than that does,  
15 and also in the -- under D in the data train you will see  
16 that it says abandoned on it, if it has any.

17 Q And does this exhibit illustrate all the  
18 wells which have been drilled to the Morrow in the Lea-Penn  
19 zone?

20 A Yes, ma'am.

21 Q Let me have you look now at Exhibit Num-  
22 ber Three, the structure map. Can you review that for the  
23 Commission?

24 A This is a structure map contoured on the  
25 top of the Morrow Clastics. Actually, it, except in the

1 case of one or two sands, it has very little meaning. Most  
2 of the sands are pure stratigraphic traps filled with gas.

3                   There are a couple of sands which, if you  
4 move down dip far enough, you will find a bottom water, not  
5 to imply it's a water drive, it's just sand is not full of  
6 gas.

7                   Other than that, the cross -- the map  
8 shows in purple a cross section A-A'; a long red line is  
9 cross section B-B'; the long yellow line is cross section C-  
10 C'; and hardly visible down in the south part of Section 24,  
11 the little two-well cross section between the latest two BTA  
12 wells, which is cross section D-D', shown by the red line,  
13 also.

14                   Q            You heard the testimony this morning from  
15 Chama's geologist with regard to the structure map which he  
16 had prepared. You've had an opportunity to compare your  
17 structure map with his. Do you have any comments on the  
18 differences?

19                   A            I've seen his map. In fact, I've had a  
20 copy of it for two or three months. I think there probably  
21 are points on there that we might disagree by as much as 50  
22 feet, but in many cases we agree to the foot, and I have no  
23 squabble with his map.

24                   Q            In your opinion is structure as important  
25 as stratigraphy in determining the limits of the Lea-Penn

1 Field and the continuity of the sands?

2 A No, ma'am.

3 Q Let's turn now to what's marked as Exhi-  
4 bit Number Five, to the cross section A to A'.

5 Would you like to put that up on the  
6 wall, Mr. Zoller?

7 MS. AUBREY: Mr. Stamets, be-  
8 fore we go into Exhibit Number Five, in the Commission's  
9 packet there's an exhibit marked Four, which we have only  
10 one copy of.

11 What that exhibit consists of  
12 are the logs which will be shown on all the cross sections  
13 that we're going to be discussing, cut out so that they can  
14 be individually correlated.

15 You have a packet there marked  
16 Exhibit Four which contains sections of all the logs on the  
17 cross sections.

18 MR. STAMETS: Okay.

19 Q Mr. Zoller, would you look at Exhibit  
20 Number Five which you now have up on the wall? Can you lo-  
21 cate this cross section on the section map for the Commis-  
22 sion?

23 A A to A' shown by the red line here with A  
24 being north, A' being the south.

25 Q Okay, and the three wells which are shown

1 on this cross section include the Chama, what is now the  
2 Chama L No. 1, is that correct?

3 A Yes, ma'am. It's the well on the right  
4 side of the cross section.

5 Q Okay, it shows on the cross section as  
6 the Shell Federal Well No. 1?

7 A Right.

8 Q Okay. The BTA Lynch No. 1.

9 A It's the center log.

10 Q And that is the BTA well in the southeast  
11 of 24.

12 A The No. 1 Lynch.

13 Q Okay, and the last well is which one?

14 A It's the Marathon No. 11, which is the  
15 southernmost well in the Marathon's Lea-Penn Unit.

16 Q Can you tell the Commission what the var-  
17 ious colors on that cross section mean?

18 A This top flesh color and the pink color  
19 are primarily there just for correlation purposes to guide  
20 the eye.

21 This is the top of the Morrow. Most of  
22 this is limestone, base of the Atoka, top of the Morrow.

23 The thing that becomes important down  
24 close to where we call the top of the Morrow Clastics, at  
25 this point, and from there down the pay zones are sand.

1 Above there in the wells where we have detailed information,  
2 there are a few wells perforated, in most cases they are  
3 limestones, not sands.

4                   Down at the bottom you see a green, an  
5 orange, a pink, those again are there for correlation pur-  
6 poses, just to be sure that we can get this interval tied  
7 down to something we can talk about.

8                   In between there are brown, yellow, pur-  
9 ple zones, and even one or two zones that aren't colored  
10 anything, and that is the sands and that's the pay zone.

11                Q           Let me refer you to the center well, the  
12 Lynch No. 1. Can you look at the exhibit and tell the Com-  
13 mission what the productive zone in that well is?

14                A           In the center, the depth track of each  
15 log, if it's a producer it has a zone marked red. That is  
16 the perforated interval.

17                   On the righthand side of the log, this  
18 being a sonic log, this is the porosity colored in red,  
19 which we believe to be -- have gas in it.

20                   This lower porosity, according to all in-  
21 formation we have, was wet.

22                   But we perforated the top 14 feet of  
23 about a 30-foot zone in that well.

24                Q           Now on the copy of the exhibit which you  
25 have there on the wall, there are some red numbers to the

1 right of each log. Would you explain what those are?

2 A These are the Isopach figures from Mr.  
3 Mazzullo's Isopach map which were told this morning was a  
4 gross Isopach map. That's all those are, the figures right  
5 straight off his map and put opposite the sand he called it  
6 Zone 11, I believe. As far as I can tell Zone 11 is the  
7 same thing that we will see all day that's marked yellow on  
8 my copy.

9 Q Okay, so those -- Mr. Mazzullo's Zone 11  
10 is your yellow zone.

11 A As far as I can determine, that's right.

12 Q Have you been able to determine what his  
13 Zone 7 is in terms of the colors that you have used on your  
14 logs?

15 A I only looked at that one log. I think,  
16 I'd rather look at his log later. We'll have to look at it  
17 in relation to another cross section.

18 The one log he showed us is on cross sec-  
19 tion B-B', and I'll have to get the B-B' to be able to an-  
20 swer that.

21 Q Okay. Can you, first of all, compare the  
22 numbers from Mr. Mazzullo's Isopach which are put on your  
23 cross section with the log information on the cross section,  
24 and tell us whether or not you have an opinion as to the  
25 accuracy of those numbers?

1           A           Well, now that I know that Mr. Mazzullo  
2 had a gross Isopach, in order for him to get 53 feet he had  
3 to have taken that 53 feet of sand and ignored that 35 feet  
4 of sand.

5           Q           Your log shows roughly 90 feet, is that  
6 correct?

7           A           We've got a total of about 90 feet of  
8 sand in that well.

9                       In the well that they re-entered, it  
10 looks to me like the only place he can get 19 feet is to go  
11 to that interval that I've just marked in red and if you do  
12 that, you're including 19 feet of sand that is completely  
13 left out over here in the BTA Well.

14          Q           So the record is clear, Mr. Zoller,  
15 you've marked a yellow zone below the 9500-foot mark, is  
16 that correct?

17          A           Right.

18          Q           Okay. And going over to the Lea Unit No.  
19 11, would you correlate his 13 feet of sand with the infor-  
20 mation shown on your cross section.

21          A           I cannot determine how you can get 13  
22 feet of sand out of that and 19 feet out of that.

23          Q           You're comparing for the record --

24          A           Comparing the Marathon No. 11 with the  
25 Chama No. 1-L.

1           Q           Now, I may have asked you this, but let  
2 me ask you again, what is the productive zone as shown on  
3 your cross section in the Lynch No. 1 Well?

4           A           Productive zone is the yellow, the upper-  
5 most part of the yellow zone.

6           Q           Let's move over, then, to the Chama well,  
7 the Federal "L" No. 1 and can you tell what the productive  
8 zone in that well is?

9           A           Well, we haven't been given that figure;  
10 however, the purple sand at the time Shell drilled this well  
11 flowed at 3.49 million cubic feet of gas per day, plugged  
12 back and completed from the Bone Spring, and eventually  
13 plugged and was never produced.

14                   I can only assume Chama completed for 800  
15 MCF a day from what I've got colored as the purple now.

16           Q           That well, the Chama Federal "L" No. 1  
17 was not completed in the equivalent of your yellow zone, is  
18 that correct?

19           A           No, ma'am. In fact, the sand that  
20 they've got in the lower part of the yellow is down dip of  
21 what we believe to be wet in our well, so I don't think it  
22 will ever be completed.

23           Q           Let's look at the last log on the cross  
24 section, the Lea Unit No. 11. Can you tell whether or not  
25 that well was productive in the same zone as your Lynch No.

1 1?

2 A You'll notice the top part of the yellow  
3 sand there is a Number 1. They completed that well there at  
4 first. The well made over 17-million cubic feet of gas a  
5 day. Two years later it had only made 215-million cubic  
6 feet of gas total.

7 They plugged it back and perforated the  
8 top two intervals marked in red, rather thin intervals.  
9 From that interval it made nearly 6-billion cubic feet of  
10 gas.

11 In the fall of 1984 they came back,  
12 cleaned the well out, and perforated the bottom two inter-  
13 vals, marked Number 3, and have told me that at that time  
14 the well was capable of producing 1 to 1-1/2 cubic feet a  
15 day but at that time they had not been able to sell the gas.

16 Q Do you have an opinion as to whether or  
17 not the yellow zone shown in the Lea Unit No. 11 correlates  
18 with the yellow zone shown in the Lynch No. 1?

19 A It correlates to be the same age sand but  
20 I don't have any opinion that the two are connected, or at  
21 least connected through porosity and permeability.

22 Q The Lea Unit No. 11 was productive in the  
23 brown zone?

24 A Yes, in fact that's where it made nearly  
25 all of the gas (not understood).

1           Q           Was that zone productive in the Lynch No.  
2 1?

3           A           It isn't but we did have shows, these  
4 little streaks of porosity that I show out on the right here  
5 in the brown and the gray zone. We had gas shows in all of  
6 those and I do think that they will be productive.

7           Q           Based on the information shown on your  
8 cross section A to A', do you have an opinion as to whether  
9 or not through that line of cross section the sands are  
10 continuous or discontinuous?

11          A           Very much discontinuous.

12          Q           And how many productive zones do you  
13 identify in these three wells, potentially productive zones?

14          A           Two in the brown, and the yellow, there's  
15 three in that zone, in that well, the No. 11.

16                    We believe the brown and the gray will  
17 produce in our No. 1 Lynch, the yellow already does.

18                    I'm assuming that the purple already does  
19 in the Chama No. 1-L.

20                    As far as I can tell that's all because  
21 we had no shows in the purple zone in our well, even though  
22 we are structurally high to them, and the purple zone is  
23 shaled out in the Marathon and so we've got at least five.

24          Q           Let's move for the moment to your cross  
25 section which is B-B', on to Exhibit Number Six.

1 All right, you have Exhibit Number Six up  
2 on the wall. Can you locate the direction of this cross  
3 section for the Commission?

4 A It's the one on the location plat that's  
5 shown with the red line through all the wells either colored  
6 purple or circled in purple.

7 You'll notice at the top of the cross  
8 section there's a 1, 2, 3, right straight across for 10  
9 wells. Those same numbers are shown in red over on the lo-  
10 cation plat so we can go back and forth between the two.

11 Q Those are not the actual well numbers but  
12 are --

13 A Oh, no.

14 Q -- numbered as they are numbered on the  
15 cross section --

16 A The way they are on the cross section.

17 Q Okay. Why don't we begin, Mr. Zoller, so  
18 we don't forget to do this with comparing the Mazzullo log,  
19 which was Chama Exhibit Number Three, with your cross sec-  
20 tion B-B'?

21 A Well, it seems to me that what we were  
22 doing on what he was calling Zone Number 11 on the Isopach  
23 turns out to be Zone Number 7 on this Exhibit Three that  
24 we're --

25 Q So can you correlate his green zone to

1 your log?

2 A Yes. His green zone is now the zone I've  
3 got colored still yellow here right below 13,000 feet.

4 Q Okay, and the zone he calls 11, which is  
5 colored blue on his log, what color is that on --

6 A Well, that's up in what I've got colored  
7 the gray zone.

8 Q Do you have an opinion that those are two  
9 distinctly different zones?

10 A I've got this thing colored like an Eas-  
11 ter egg out here. I still believe the correlations, and if  
12 my correlations are right, then I can't agree with Exhibit  
13 Three.

14 Q Where would you like to begin, Mr. Zol-  
15 ler, in talking about Exhibit Number Six?

16 A Well, it seems to me that the main thing  
17 that Exhibit Six shows is still the main thing that every  
18 other cross section shows, and that is as you go across the  
19 field, even those drilled three and four to a section, the  
20 pay zone is vastly different in almost every well.

21 The thing that seems to be different  
22 about the Lea-Penn Field, as I see it, is there's a vast  
23 number of sands to choose from. You may miss the one you  
24 went after, and we have some very firsthand experience at  
25 that, but you can find something else, and I think most of

1 the operators have been pretty successful at that.

2 We could go through every well but I  
3 think it would be kind of boring.

4 Up in the north end of the field you can  
5 see that the gray zone is a pretty consistent zone. It's  
6 the only consistent zone in that end and about the best  
7 consistent zone there is in the whole field.

8 But just to point out a direct example  
9 here, Well No. 4 produces from the brown and gray -- yeah,  
10 brown and gray. You move directly west of it, Well No. 3  
11 produces from the gray but not the brown.

12 You move directly to the east of it and  
13 it produces from the brown but not gray.

14 It's that way throughout the field. You  
15 can just play every kind of game you want to but the exhibit  
16 speaks for itself, that we're talking about awfully, awfully  
17 erratic sands.

18 Even in such cases where I've got them  
19 colored, you'll see in many cases the sands are awfully  
20 thin-bedded or dirty and in a lot of cases the sands are  
21 real thick and clean but they're tight, they need porosity.

22 We've got very firsthand knowledge of  
23 that (not understood).

24 Q There are numbers in red on the copy of  
25 Exhibit Six on the wall. Are those once again numbers taken

1 from Chama's geologist's Isopach map?

2 A These numbers about the center of the  
3 cross section are taken direct from Mr. Mazzulo's map.

4 This NDE means it was not deep enough and  
5 the last log has nothing because his map didn't -- that I  
6 had at the time, did not extend, but it likewise is not deep  
7 enough.

8 There's another number at the bottom.  
9 That is the cum figure up into October of last of last year  
10 of gas and condensate for every well on the cross section.

11 Q Are you able to correlate the numbers  
12 from the Isopach with the information shown, that you pre-  
13 pared, that's shown on Exhibit Six?

14 A Well, the only -- well, I can't correlate  
15 the numbers. I mean it just will almost stretch your mind  
16 as to how you can get 16 feet out of this sand right here in  
17 yellow in the yellow in the No. 6 Well and go over here and  
18 get 18 feet out of all this shaley, dirty stuff in Well No.  
19 4.

20 I think the most gross error on this one  
21 is once again on his map this 25 feet that's shown on Well  
22 No. 3, is shown to be a Zone 11 and therefore my yellow zone  
23 if you believe the correlation when the well actually pro-  
24 duces from the gray zone.

25 Q So the well is not perforated in Mr. Maz-

1 zullo's Zone 11 or your yellow zone.

2 A Right.

3 Q Let's go over to the righthand side of  
4 the cross section and compare Wells No. 9 and 10 with the  
5 feet of gross sand which Mr. Mazzullo shows on his exhibit  
6 which you placed on here and your logs.

7 A Well, remember, Well No. 10 is the Mara-  
8 thon No. 11 and it's common to three cross sections. We  
9 built this thing kind of like a lean-to house. Every time  
10 we came to a hearing we built one more cross section.

11 So B-B' ends up at Well No. 11. C-C' end  
12 up at Well No. 11. A-A' started out at Well No. 11.

13 So again I couldn't there and I can't  
14 here see how you can get 13 feet of gross sand out of that  
15 well.

16 On the other hand, I go right next door  
17 to it and here's the Grace No. 1 Whitten which has produced  
18 more oil -- more gas than the well it replaced and yet the  
19 Whitten has 3 feet of sand and the well it replaced, Well  
20 No. 8, has 12 feet of sand.

21 Now, I see no corollary between the  
22 amount of yellow and the amount of production, but that's  
23 because the thing we're really interested in is where do we  
24 have porous and permeable sands and we don't have anything  
25 that tells us that.

1                   Even here, nearly every log we've got is a  
2 sonic log. Occasionally we've got a neutron log, and frank-  
3 ly, both are pretty sorry logs for what we're trying to do.

4                   The sonic log was the popular log to run  
5 in the sixties. I think it's a very sorry log, really.  
6 It's also run a lot today because if you've got any kind of  
7 hole problems it's a lot safer to run it in the holes than  
8 it is to run a deep density neutron which is a better log.

9                   Q           In fact, you ran a sonic log on your  
10 Lynch No. 1, is that right?

11                  A           We didn't, not really. You know, we've  
12 got a neutron log on it. I don't think there's anybody in  
13 the room that doesn't know that a neutron log in a gas  
14 reservoir is about as useless as anything you run. The very  
15 thing you're trying to do, the gas defeats it.

16                  We are dealing with pretty sorry informa-  
17 tion on the right side of the log which is the porosity  
18 side.

19                  Q           In terms of identifying the productive  
20 sands from well to well, what conclusion can you draw from  
21 that, from Exhibit Number Six?

22                  A           Well, I'm perfectly happy with identi-  
23 fying the sands just as I have with all the different colors  
24 on them. That's the reason I colored up a copy of all the  
25 cross sections and cut them all apart so that anybody who

1 wants to can just sit there and slide those logs all day but  
2 I don't believe they're going to change anything I've done  
3 any more than a few feet.

4 Q Do you find that the sands are continuous  
5 from well to well based for the most part on 160-acre  
6 tracts?

7 A Not as porous, clean, permeable sands.  
8 The zone may be continuous but if it doesn't have permeab-  
9 ility and pressure, it doesn't matter. We're not trying to  
10 produce gross sand. We're trying to produce gas and oil,  
11 and we have nothing that really tells us that except produc-  
12 tion data and you can see in numerous cases, we have six  
13 perforated intervals in Well No. 7. We have not the fog-  
14 giest idea where the gas is coming from in there.

15 You can sit there and look and say, well,  
16 that's a cleaner sand, that must be it, but we know that  
17 that's not necessarily true.

18 Q Can you look over, then, at Well No. 8,  
19 the next well over, in which the same colored sands that you  
20 have colored are present, and draw any conclusions about  
21 that well?

22 A Well No. 8 is the only well in the field  
23 that all I could find was a top perforation and a bottom  
24 perforation. That says that the brown sand has to have a  
25 perforation in it and the yellow sand has to have a perfora-

1 tion in it. I colored it this way because it looks like  
2 there is some clean, gray sand that may be perforated. In  
3 every other case I found exact perforations that the opera-  
4 tor said he perforated in the well.

5 On the other hand, Well No. 8 has a big,  
6 thick purple zone with not a perforation in it. The well  
7 has been abandoned, yet the offset wells produced from the  
8 purple zone.

9 Now, I think that tells us that either  
10 there wasn't any gas there or the operator didn't think  
11 there was and it doesn't cost that much to perforate. If  
12 he'd thought there was I believe he'd have tried that.

13 Q Let's move on to the next cross section,  
14 Mr. Zoller, C-C'.

15 On Exhibit Number Seven Mr. Zoller, would  
16 you locate the line of cross section for the Commission?

17 A Again it's the one highlighted in red and  
18 has the red numbers down the cross section, top to bottom,  
19 the numbers again being the same numbers that are across the  
20 top of the cross section and not the well numbers.

21 Q And once again that, that cross section  
22 ends with the Marathon No. 11?

23 A Ends with the Marathon No. 11 again.

24 Q Okay. The red numbers on that exhibit  
25 also review what you have previously discussed, the Isopach

1 map which Mr. Mazzullo has prepared, is that correct?

2           A           That's true, but it needs a little expla-  
3 nation.

4                        On the map I had at the time, I don't  
5 know about the one he presented this morning, the Marathon  
6 No. 8, Well No. 2, did not have a figure on it and I didn't  
7 want to interpret what figure he was trying to contour.

8                        On down to Well No. 6, which is the Lea  
9 Unit No. 9, he did not have a figure on the map. He had it  
10 contoured as 16 feet.

11                       Well No. 8 he did not have a figure on  
12 the map. It had it contoured as 18 feet and I believe his  
13 well -- his map today does have 20 feet, so it's not that  
14 far off.

15           Q           Once again, Mr. Zoller, looking at your  
16 cross section, are you able to correlate the continuity of  
17 productive sands from well to well through the line of cross  
18 section?

19           A           I correlated zones of sand throughout the  
20 cross section but I cannot correlate productive sands from  
21 one well to the next in almost every case.

22                        We can go through it well by well, Ms.  
23 Aubrey, but it's obvious that Well No. 8 produces from the  
24 gray sand; Well No. 7 has a little perforation in the gray  
25 but the thickest sand there is the purple.

1                   The next location over, Well No. 6, per-  
2 perforated a bunch of little, old sand zones up here in the  
3 brown and the gray and maybe even in the yellow below it.  
4 It only made 64-million cubic feet of gas.

5                   Well No. 5 is in the gray, the purple,  
6 and maybe even the green. I think maybe that's the only  
7 well in the whole field that perforated clear down in this  
8 green section. But, obviously, you see that the section  
9 cleaned up and they're probably clean sand.

10                  In Well No. 4 a little bit of brown, a  
11 little bit of green, nothing else.

12                  Well No. 3 is a dry hole.

13                  Well No. 2, oh, it's got a little up here  
14 in a zone that I didn't even color. It's got a little in  
15 the brown, a little in the gray.

16                  And Well No. 1 was a dry hole in the Mor-  
17 row and completed from the Bone Spring.

18                  Q            Let's go to Exhibit Number Eight now, Mr.  
19 Zoller, which is a D to D' cross section.

20                  D to D' shows two wells, the Lynch No. 1  
21 and the Lynch No. 2.

22                  A            Yes, ma'am.

23                  Q            Can you correlate the productive sands in  
24 those two wells?

25                  A            I can correlate the sands but the thing

1 is the great, big, beautiful sand we found in the Lynch No.  
2 1, which flowed over 6-million cubic feet of gas a day and  
3 660 barrels of condensate, has 25 MCF a day in the Well No.  
4 2.

5 Again it's the yellow sand; we did per-  
6 forate it and we, oh, I think at one time had about 100 MCF  
7 a day, 25 MCF a day, so we plugged back and perforated some  
8 sands above it.

9 Q Those wells are located on adjoining 160-  
10 acre spacing units, is that correct?

11 A 1320 feet apart.

12 Again a question mark on the No. 2 is be-  
13 cause the well had not been drilled at the time Mr. Mazzullo  
14 made his map. He had it contoured as 48. I think in to-  
15 day's map he, I believe I'm right, he has 36, and either fi-  
16 gure is acceptable as far as thickness is --

17 Q And what about the 53 figure shown next  
18 to the Lynch No. 1?

19 A Again it has to be the top portion --  
20 see, we've got a little 3-foot shaley streak down, 2/3rds of  
21 the way down, and for reasons I don't know, he chose to put  
22 53 feet, the top 53, and not the bottom 36 feet.

23 Q The Lynch 1 and 2, which are shown on Ex-  
24 hibit Number 8, D-D', are the southernmost of the wells in  
25 the Lea-Penn Pool, with the exception of the Chama recomple-

1 tion of the old Shell well.

2 A Yes, ma'am.

3 Q And are located on adjoining 160's.

4 A Yes, ma'am.

5 Q Can you conclude from the information on  
6 your exhibit whether or not the productive sand in the Lynch  
7 No. 1 Well extends into the Lynch No. 2 Well?

8 A It extends, but obviously, not as what  
9 you would consider a productive sand if it won't make but 25  
10 MCF a day.

11 Q And these two wells are at the southern-  
12 most limit of the Lea-Penn Pool as it's now defined.

13 A Right.

14 Q You heard Mr. Haas testify this morning  
15 that in his opinion as one stepped out from the boundary to  
16 the Lea-Penn Pool, 320-acre spacing is appropriate or cor-  
17 rect.

18 Can you compare that opinion of his with  
19 the information that you have derived from the drilling of  
20 the Lynch No. 1 and No. 2?

21 A I don't know how you can call it appro-  
22 priate when we go through well after well that's on 160-acre  
23 spacing and determine that they've got different pay zones.  
24 How -- which end of the 320 are you going to drill on and  
25 who's to say you won't have to drill on both ends to get the

1 gas?

2 That's a matter you don't -- you don't  
3 know until after you've drilled the wells and then after  
4 that it's a little too late to worry about economics.

5 Q Do you have an opinion as a geologist,  
6 Mr. Zoller, as to whether or not it is appropriate and cor-  
7 rect to retain 160-acre spacing within a one-mile of the  
8 limits of the Lea-Penn Pool?

9 A Well, one, I think the exhibits show that  
10 it's broken.

11 Two, we entered into everything we did  
12 here knowing that we were going to do this on 160-acre spac-  
13 ing. We abided by the rules that this Commission determined  
14 and we hear things today that they've gone to 640, we've got  
15 them on 320, we've got them on 160. Now I'm no more con-  
16 vinced that the Commission that made 640 was right than I am  
17 the Commission that made 160.

18 I think it's obvious by what the situa-  
19 tion is that what's right is what's right for that area.

20 I'm familiar with Morrow gas rules that  
21 go clear to 1440. I think it was rather ridiculous but you  
22 just can't go out without looking at all the information and  
23 determine what the right rules are going to be, because, ob-  
24 viously, here we will show many cases where you would have  
25 lost -- left an awful lot of gas in the ground if you hadn't

1 drilled it on 160 acres.

2 Q Mr. Zoller, let's see if we can do this,  
3 that, as you're aware, Chama has asked for 320-acre spacing  
4 outside the present limits of the Lea-Penn Pool, and what I  
5 would like you to do now with the cross sections that you  
6 have going around the room, is to first of all refer to your  
7 location plat, identify the section, and the three or four  
8 wells in the section, and then create for the Commission  
9 either a standup or a laydown 320 and compare the amount of  
10 production that would not have been recovered had the wells  
11 -- the spacing been based on 320 acres.

12 A All right.

13 Q Start with any cross section you like,  
14 sir.

15 A Well, it looks to me like the three sec-  
16 tions we've got to deal with in order to prove anything out  
17 of this is Sections 11, 12, and 13.

18 Section 11 has four Morrow wells. Sec-  
19 tion 12 has three, and Section 13 has three.

20 So, since I'm standing on this side of  
21 the room, let's take Section 11 first and we're talking  
22 about -- well, let's don't. It's the wrong cross section.

23 Let's take Section 12 first, and we're  
24 talking about Wells No. 2, 4, and 5.

25 Wells No. 2 and 4 are on the east side of

1 the section; Well No. 5 is on the west side.

2 So let's assume that we're going to di-  
3 vide the section north/south and see what would happen.

4 Well No. 2 made a million -- a billion  
5 and a half.

6 Well No. 4 made 245 MCF.

7 Well No. 5 made 1,325,000 plus 54,000  
8 barrels of oil.

9 Now, obviously, if you had drilled Well  
10 No. 4 and 5 you'd have left a bunch of gas in the ground  
11 because Well No. 2 made a million and a half plus 85,000  
12 barrels -- a billion and a half, plus 85,000 barrels of con-  
13 densate.

14 Q And that would be assuming 320-acre spac-  
15 ing, two wells on the section.

16 A Right, and you could divide that, since  
17 there's only three -- well, if you divide it the other way,  
18 you would only drill either Well No. 4 or Well No. 5.

19 If you drilled Well No. 4 you'd have got  
20 245; you'd have left out Well No. 5, you'd have left 13, 26,  
21 a million -- billion-326,000 plus 54,000 barrels of conden-  
22 sate.

23 While we're here we might as well look at  
24 Section 13, which is Wells 6, 7, 8, and 9.

25 Wells 6 and 8 on the east side of the

1 section, one of them made 6.8, that's all it made; the other  
2 made 3-billion.

3 Wells Nos. 7 and 9, one of them made 5-  
4 billion; the other made 6-billion. One of them made 158,000  
5 barrels of condensate and the other made 107.

6 If you'd of drilled Well No. 6, you'd  
7 have got 64-million, you would have only drilled either 7 or  
8 8, instead of 7 or 9, and you'd have left 5 or 6-billion  
9 cubic feet of gas in the ground.

10 So it's obvious that on 160-acre spacing  
11 you've got an awfully erratic deposition of sands and accum-  
12 ulation of gases.

13 If we go to this cross section B-B',  
14 Wells Nos. 3, 4, 5, and 6, all in Section 11 on standard  
15 160-acre spacing.

16 Well No. 3 made 2.7-billion with 85,000  
17 barrels of condensate.

18 Well No. 4 only made 719-million plus  
19 7000.

20 Well No. 5 made 4.4-billion plus 98,000  
21 barrels.

22 Well No. 6 made 4425 MMCF, 141,000 bar-  
23 rels of condensate.

24 So obviously you can sit here and divide  
25 the section north and south or east and west, and when you

1 take those figures plus the erratic sands, you're going to  
2 leave a lot of gas there.

3 Q Mr. Zoller, Chama presented an Isopach  
4 map through its geologist this morning. Let me see if I can  
5 find a copy of that and put it in front of you.

6 I hand you Chama Exhibit Four to today's  
7 hearing and I should be able to find for you --

8 A That's it.

9 Q -- the Isopach map from the February  
10 hearing, which has been introduced here today as BTA Number  
11 One.

12 A This is Zone 7. Let's have Zone 11 from  
13 this morning.

14 Q You put Chama Exhibit Five and BTA Exhi-  
15 bit Number One up on the wall.

16 A Yes, ma'am.

17 Q Would you compare those and comment on  
18 them?

19 A Well, essentially the same map except one  
20 of them covers more area than the other. Exhibit Five this  
21 morning (not understood.)

22 I've done some scratching on Exhibit Num-  
23 ber One that I thought I might need some information out of.

24 Number One, here in the northwest quarter  
25 of Section 11 is the well I referred to that he gave 25 feet



1 go to BTA Exhibit Number One and show you better.

2                   The wells that are colored red, of which  
3 there are four of them, supposedly produced from what I call  
4 the yellow sand and what he's calling the Zone 11. I take  
5 exception to one.

6                   The southeast quarter of Section 14 there  
7 are two wells. One is the Southern Production No. 1 which  
8 has been plugged out and replaced with the Grace Whitten No.  
9 1. He gives the Southern Production 12 feet; he gave the  
10 Whitten 3 feet. The Southern Production did produce from  
11 the zone and the Whitten is still producing from the zone  
12 and neither one of them colored red -- yeah, red on this  
13 map.

14                   However, the southwest quarter of Section  
15 13 there's the Marathon No. 11. It not only -- it has pro-  
16 duced from two different sets of perforations, capable of  
17 producing from a third set of perforations. It has produced  
18 from the zone that he's called 11 and I colored yellow, and  
19 it's not colored red.

20                   I just don't know what the map is sup-  
21 posed to be telling us. It doesn't tell me anything.

22                   Q           Mr. Zoller, the last hearing that you  
23 testified in in this matter you testified that you had not  
24 made an Isopach and could not make an Isopach. Can you ex-  
25 plain that, please?

1           A           Yes, ma'am. I think to make an Isopach  
2 map or any other map, you have to put some meaningful fi-  
3 gures down on the map. It ought to either be clean sand or  
4 it ought to be porous sand. It ought to be porous sand  
5 that's got gas in it or even porous sand that's got water in  
6 it, but they should be meaningful figures and when you get  
7 through you should contour those points and see what you can  
8 come up with in the way of a distributary pattern.

9                       I said then that I was incapable of Iso-  
10 paching these sands and I'll state again, I am incapable of  
11 Isopaching these sands, and I think everybody else is, too.

12           Q           Do you have an opinion as to the accuracy  
13 of the feet of -- the gross feet of sand that's shown on the  
14 Isopach when you compare it to the other information that  
15 you have?

16           A           There are wells up there that I can go to  
17 the left side of the log, which is the gamma ray, and essen-  
18 tially tells you where the clean sands are.

19                       There are wells up there that I can count  
20 the clean sand on the gamma ray side of the log and approach  
21 his figures, sometimes exactly.

22                       There are other wells up there that I can  
23 count all day and I can't come up with his figure and I  
24 couldn't come up with one of my own. There's just too much  
25 shale and if it isn't shaley, you look at the other side of

1 the log and it's tight.

2 The only thing that matters is where have  
3 you got clean, porous sand with gas in it. No one has come  
4 close to that yet.

5 Q Mr. Zoller, the numbers that you have  
6 written on the bottom of the logs on the cross sections that  
7 are on the wall, are those the cumulative production numbers  
8 from BTA's Exhibit Number Two?

9 A That's cumulative production straight off  
10 that exhibit, through October of last year.

11 Q Mr. Zoller, do you have an opinion as to  
12 whether or not the Lea-Penn Pool constitutes a common source  
13 of supply?

14 A As I understand the term common source of  
15 supply, it does constitute a common source of supply.

16 Q And do you have an opinion, sir, as to  
17 whether or not the boundary of the Lea-Penn Pool follows the  
18 section line between Sections 24 and 25 and Sections 24 and  
19 23?

20 A I have no reason in the world to think it  
21 follows any section line.

22 Q Do you have an opinion as to whether or  
23 not the BTA Nos. 1 and 2 are completed in the Lea-Penn Pool?

24 A Well, under the term common source of  
25 supply, both wells are completed there and one's a good well

1 and one's not very good.

2 Q And moving south to the 160 south of the  
3 Lynch No. 1, do you have an opinion as to whether that pro-  
4 posed location is within the Lea-Penn Pool?

5 A The northeast quarter of Section 25? I  
6 don't have any reason in the world to think it is. If I  
7 didn't think so, I wouldn't have recommended the well.

8 By the way, at this time, I think I  
9 should state, though, that I do not expect the northeast  
10 quarter of Section 25 to produce from what I'm calling the  
11 yellow sand and Mr. Mazzullo's calling the Zone 11.

12 Q Do you expect it to produce from a sand  
13 which may be present in your well, in your Lynch Well No. 1,  
14 but which is not productive in that well?

15 A Since I can't make an Isopach, I'll come  
16 about as close to guessing as you can come.

17 It is my belief that the northwest --  
18 northeast quarter of Section 25 will produce either from the  
19 purple sand or the brown sand, but not the yellow sand. I  
20 expect the yellow sand to be wet if it's present.

21 Q And the purple and brown sands are not  
22 productive in the Lynch No. 1.

23 A The purple cannot produce in the Lynch No.  
24 1. The brown is of this where we had shows up the hole.  
25 Two of those shows were found in what's colored the brown

1 sand and I expect it to produce from them.

2 Q And what does that tell you in terms of  
3 an opinion about the continuity of the sands in the Lea-  
4 Penn Pool?

5 A I think it changes every 160 acres and  
6 maybe every 80 acres.

7 Q Will BTA's correlative rights be protec-  
8 ted by retaining 160-acre spacing within a mile of the Lea-  
9 Penn Pool, even if that pool steps out due to additional in-  
10 formation and future production?

11 A Yes, ma'am.

12 Q Mr. Zoller, you prepared Exhibits Numbers  
13 Two through Eight.

14 A Yes, ma'am.

15 MS. AUBREY: Mr. Commissioner,  
16 I offer Exhibits Numbers Two through Eight.

17 MR. STAMETS: These exhibits  
18 will be admitted.

19 What happened to Exhibit Number  
20 One?

21 MS. AUBREY: Exhibit Number  
22 one, Mr. Stamets, is the Chama Isopach map from the February  
23 27th hearing, forced pooling hearing, and we have marked it  
24 as BTA's Exhibit Number One.

25 MR. STAMETS: And you've made

1 no changes on that exhibit except to put the Exhibit One  
2 stamp on it?

3 I don't think we want to accept  
4 that in this case but we will --

5 MR. ZOLLER: Mr. Commissioner,  
6 we do need to point out that if it is accepted or whether it  
7 is or not, that on this exhibit I have put Zone 11, Zone 11,  
8 former Zone 11, I've put a lot of lease -- well names, lease  
9 names, and well numbers, so there have been additions added  
10 here by me but the map itself hasn't been changed.

11 MR. STAMETS: We will definite-  
12 ly accept that in this case, then.

13 MR. ZOLLER: Thank you.

14 MS. AUBREY: I tender the wit-  
15 ness for cross examination.

16 MR. STAMETS: Mr. Carr, I'm  
17 going to preempt you and ask Mr. Zoller a few questions.

18

19 CROSS EXAMINATION

20 BY MR. STAMETS:

21 Q Mr. Zoller, you've got two wells there,  
22 the two Lynch wells, and they're really on 40-acre spacing.

23 Does it appear as though you might be  
24 able to drill a well on every 40 acres in this pool and get  
25 a different Morrow completion?

1           A           Well, the implication is certainly there.  
2 I would hope we don't come to that, but when you see what  
3 happened to us and you're as right as you can be, it's the  
4 same as 40-acre spacing.

5           Q           On 160-acre spacing, then, you would  
6 still have the option if you chose to, if you felt it was of  
7 economic benefit, you could go in and drill a second well on  
8 that 160 or a third well or a fourth well.

9           A           Well, here's the way I personally look at  
10 that. If you take the structure map, and we've got the  
11 lease in the southeast quarter of Section 24. Now we've got  
12 the thickest, porous, best porosity, of any sand -- any well  
13 in that field in this sand or any other sand, I believe.

14                       Now there's absolutely no doubt in my  
15 mind that that well is going to make a lot of money whether  
16 it drains one acre more than 160 or not. In fact I don't  
17 really think it will have to drain 160 to make money.

18                       But I wouldn't even want to move diago-  
19 nally across, a diagonal 40, and take that same risk again,  
20 because you're -- you're cutting your odds pretty thin when  
21 you start thinking that it's going to change in every direc-  
22 tion as much as it changed when we moved one location west.

23                       Now the reason we moved it where we did  
24 for the No. 2 Well, we knew that we had a water problem in  
25 the No. 1 Well in the good sand and we wanted to stay just

1 as high on structure as we could stay, and I believe we came  
2 in 17 feet lower, but you know, 17 feet wasn't what ruined  
3 us. We got the sand, we didn't have any holes in the rock.

4 So structure was not what hurt us.

5 Q If -- if later you came back and you  
6 studied the geology and you decided that there was a differ-  
7 ent channel that lay 1320 feet to the east of your Lynch No.  
8 1 Well, you'd have the ability to go in there and take the  
9 risk to drill that well or not.

10 A If the reward looked like it was great  
11 enough, I'm sure somebody will take the risk. That's the  
12 whole story of risk.

13 Q Now, if you look at these cross sections  
14 in your exhibits, are we really looking at anything signifi-  
15 cantly different from most other Morrow pools in the south-  
16 east part of New Mexico?

17 A I was in Roswell for two years back when  
18 the Morrow boom first started. I was associated with the  
19 Morrow in New Mexico for 17 years after that when I was  
20 still with Union Oil Company. We were very active in the  
21 play.

22 I have seen studies of a number of Morrow  
23 fields but nowhere near all of them.

24 I would like to sit here and tell you  
25 that they are more erratic here than they were in the fields

1 that I'm familiar with. I know there were some developed on  
2 320 or maybe even 640. Maybe I've been wrong. Maybe they  
3 were just erratic and we didn't have the control to say so.

4 But I do say this, the thing that's bet-  
5 ter here than any field that I've studied in the Morrow is  
6 that you have such a multitude of choices.

7 Now, you know, I've (not understood)  
8 these things, the productive ones in the gray and the brown,  
9 the yellow, the purple, the green, that's five, and one  
10 that's not colored is six, but in each of those there might  
11 be two or three perforated intervals.

12 So you're looking at 20 -- 20 possibili-  
13 ties before you drill a well, and I am personally not fami-  
14 liar with another Morrow field which has that opportunity.

15 Q If the Lea-Pennsylvanian Pool were  
16 extended to include the north half of Section 25 and the  
17 special rules or pool rules were then limited to the  
18 Division boundary of that pool, would BTA continue to have  
19 an objection to the application in this case?

20 A I think I can say without a doubt from  
21 anybody at BTA, as long as we get to drill our acreage,  
22 which is one more location in the northeast of 25, on 160-  
23 acre spacing, and no one is allowed to come in on the south  
24 or west sides and get twice the allowable, be allowed to  
25 produce twice the gas because they have 320-acre spacing, I

1 really don't think we care what anybody does, but we hesi-  
2 tate to want to drill on 160-acre spacing, take the same  
3 risk as everyone else, and then see someone else come in and  
4 be allowed to produce twice as much gas.

5 Now, one more thing I --

6 Q Let me follow up on that, if I might. I  
7 find that last qualification somewhat difficult to come to  
8 grips with in light of your testimony that wells in this  
9 area aren't going to drain more than 160 acres.

10 If that were the case, then how could you  
11 be damaged by an offset well producing more gas?

12 A Well, number one, I have not said that  
13 they won't drain more than 160 acres. There's no doubt in  
14 my mind if there is enough permeability and porosity, a well  
15 will drain 320.

16 The problem is that a lot of the sands  
17 done't extend 320 acres.

18 Again, to qualify what I said before, if  
19 somebody drills the south half of 25 and gets a completely  
20 different pay zone than what we've got, we don't care what  
21 they do. We consider it to be none of our business.

22 But if they do get the same zone, then I  
23 think until we know that the zones are separated by some-  
24 thing we can't see betweenw wellbores, I don't think they  
25 should be allowed to drill and produce twice as much gas as

1 we're allowed to produce.

2 Q I would point out one thing here, Mr.  
3 Zoller, now assuming for a moment that we did something  
4 along the lines of such as that.

5 A Yes, sir.

6 Q Both the Oil Conservation Division and  
7 any interested operator have an opportunity to look at com-  
8 pletion of any well outside the boundary of the Lea-Penn  
9 Pool and have the opportunity to say, well, that should or  
10 should not be the Lea-Pennsylvanian Pool, and seek an order  
11 extending the Lea-Pennsylvanian Pool which would then bring  
12 the subject well in under 160-acre spacing.

13 A I see what you mean.

14 Q Now, would that option then allay your  
15 final concerns in this matter?

16 A I can foresee a circumstance where they  
17 could drill in the south half of 25, complete from some zone  
18 of the common source of supply that was different from one  
19 we're from and we wouldn't care whether that's 320 or not.

20 Q And I also understand from your testimony  
21 that you're convinced that the north half of Section 25 is a  
22 legitimate part of the Lea-Pennsylvanian Pool.

23 A I don't have a reason in the world to  
24 think that it isn't.

25 I don't have any reason to think the

1 south half isn't but I won't drill under it, and I don't  
2 want any interest in it, either.

3 Q Okay.

4 MR. STAMETS: Are there other  
5 questions of this witness?

6 MR. CARR: Yes.

7 MR. STAMETS: Mr. Carr.

8

9

CROSS EXAMINATION

10 BY MR. CARR:

11 Q Mr. Zoller, and I'll try not to just re-  
12 peat what we've talked about all day, but let me be sure  
13 that I understand that BTA, it is my understanding that BTA  
14 has the east half of the northeast quarter of Section 25.

15 A That's right.

16 Q And that is the only acreage that you  
17 have in this area that is outside of the Lea-Pennsylvanian  
18 Pool.

19 A That's right, sir.

20 Q And that is the only other development  
21 that you now have planned in this area.

22 A Yes, sir.

23 Q And you made your plans in this area  
24 relying on the fact that you could develop that acreage on  
25 160-acre spacing.

1           A           Yes, sir.

2           Q           Now you've talked about the Lynch No. 1  
3 and No. 2 and you probably testified to this and I just  
4 missed it, but one was a very good well, and I believe  
5 that's the Lynch No. 1?

6           A           That's right.

7           Q           What did the Lynch No. 2 produce?

8           A           The last test I had on Lynch No. 2, it's  
9 making 260 MCF a day plus 16 barrels of condensate plus 13  
10 barrels of water with a tubing pressure of 231.

11          Q           Now if we look at your Exhibit Number  
12 Two, if I can find it, and I think the easiest way to iden-  
13 tify these wells is probably by the colored numbers beside  
14 them.

15          A           Uh-huh, all right, sir.

16          Q           If we go to the well that has the yellow  
17 2 beside it --

18          A           Yes, sir.

19          Q           -- that well was originally drilled to  
20 the Devonian, was it not?

21          A           The No. 2, which is the Marathon No. 8?  
22 It wasn't, no.

23          Q           And the Morrow is at a depth of 14,693?

24          A           The well with number 2 beside it, which  
25 is the Marathon No. 8, -- with a yellow 2, you mean?

1 Q With a yellow 2 in Section 12.

2 A The data train right northeast of it

3 there says -- oh, I'm sorry, I'm looking at the perfora-

4 tions. You're right. You're right, I'm sorry.

5 Q That was a Devonian well.

6 A Devonian test, completed from the Morrow.

7 Q Okay, and the same thing would apply to

8 the well that's got the yellow number 4 above it.

9 A Yes, sir.

10 Q And also to the number 5.

11 A Yes, sir.

12 Q And to the number 6.

13 A Yes, sir.

14 Q And to the number 7.

15 A Yes, sir.

16 Q And to the number 8.

17 A Yes, sir.

18 Q And to the number 9.

19 A Yes, sir.

20 Q If we go on the red side, the number 3.

21 A Okay.

22 Q Also the number 4.

23 A Right.

24 Q Also the number 5.

25 A Right.

1 Q Also the number 8.

2 A Right.

3 Q And the number 9.

4 A Right.

5 Q So that the Devonian was obviously a fac-  
6 tor in drilling each of those wells.

7 A Yes, sir. It failed in a number of them  
8 but it was a factor.

9 Q Okay. Now looking at what would be an  
10 economic well in this area, you looked at only Morrow  
11 production. You didn't look at Devonian, did you?

12 A No, no.

13 Q Now when you put together a cross sec-  
14 tion, what you're looking at is you're correlating the total  
15 sand interval. Is that correct?

16 A Well, in this case I picked five, six,  
17 seven zones that I tried to correlate that I could carry all  
18 over the field.

19 Q Okay, and so we look at the yellow and go  
20 well by well, what's you're doing is looking at feet of  
21 sand, is that right?

22 A Yes, sir, just looking at zones, regard-  
23 less of what's in that zone. In many cases the yellow is  
24 nothing in the world except sandy shale but it's still  
25 colored yellow. Yes, sir.

1 Q Do you know what Mr. Mazzullo meant when  
2 he said "genetic unit"?

3 A Oh, yeah. We can -- you can call these  
4 genetic units if you want to.

5 Q You sure you're talking about the same  
6 thing?

7 A No, but it's satisfactory.

8 Q I gather from your answer to Mr. Stamets'  
9 question that it is your opinion this is not a typical Mor-  
10 row sand?

11 A What do you mean by typical Morrow sand?  
12 The development --

13 Q I mean to the sand, the pay zone with a  
14 number of sand stringers in it.

15 A Right.

16 MR. STAMETS: I think I referred  
17 to a typical Morrow pool.

18 MR. CARR: Oh, I'm sorry, then  
19 my term is wrong, not Mr. Stamets'.

20 Q A typical Morrow pool that is where you  
21 have a pay zone but you had these stringers within that that  
22 appear and disappear. Is this -- this is not the typical  
23 one that you encounter in your experience.

24 A It's not typical for ones I have encoun-  
25 tered in my experience and I'm probably talking about, oh,

1 ten to fifteen, and what did the list have on it, dozens and  
2 dozens.

3 Q But in your experience there were more  
4 pay stringers in this one --

5 A Yeah.

6 Q -- than what you'd experienced before.

7 A Yes.

8 Q I'm not after any industry-wide descrip-  
9 tion.

10 A You're not getting any, either.

11 Q Well, I just wanted to be sure.

12 I think you've looked at section -- a  
13 number of sections and said, you know, if we had developed  
14 in the pool on either 3-- on 320's, we would have situations  
15 where we would have, well, if we look at, say, Section 12,  
16 on that one there are three wells.

17 A Yes, sir.

18 Q No matter how you cut that, either with  
19 standup or laydown 320's, you'd have one unit, spacing unit,  
20 would have two wells in it.

21 You'd either have two in the east half or  
22 two in the south half.

23 A Oh, yeah, that's right. Yes, sir.

24 Q You'd also have one on 320, if you could  
25 have a 320 in the east half or a 320 in the north half.

- 1           A           How do we do -- how do we -- oh.
- 2           Q           Well, if you --
- 3           A           East half, west half, north half, south  
4 half, you still have 320.
- 5           Q           But if you had divided this with laydown  
6 units, you'd have the north half of 12 with one well in it.
- 7           A           Right.
- 8           Q           Or if you did it with standups, you'd  
9 have a west half unit with one well in it.
- 10          A           That's right.
- 11          Q           Now, talking about the reserves that  
12 would be lost if you only had the two wells, you were assum-  
13 ing that there was no connection between any of these zones,  
14 is that correct?
- 15          A           You'd have to go to each cross section to  
16 see which -- what each of these wells is producing from --
- 17          Q           But for the purpose --
- 18          A           -- and if they were both in the yellow  
19 sand, as an example, they might have drained, as you're  
20 trying to imply --
- 21          Q           Uh-huh.
- 22          A           -- but on the other hand they might not  
23 have, either.
- 24          Q           But you were assuming that they -- that  
25 had not occurred, that they hadn't drained.

1           A           Well, I didn't go into the details to  
2 find out. We could cover this room up one more time with  
3 paper trying to decide which wells produce from which color  
4 sand.

5           Q           I hope we don't.

6           A           Believe me, I do too.

7           Q           And I'm not the guy that colors, but you  
8 were assuming, you were saying you would lose these reserves  
9 if there wasn't the -- there were not communication. Is  
10 that a yes?

11          A           That is a yes, but I will happy to go  
12 through it sand by sand.

13          Q           You're also assuming that you weren't en-  
14 counterering a zone that would have suffered any pressure dep-  
15 letion.

16          A           The pressure question doesn't bother me,  
17 Mr. Carr. If a man waits ten years to drill his well and he  
18 finds out his pressure depleted, that's his own fault. I'm  
19 not going to suffer for him.

20                      Should have gone in there and drilled it  
21 sooner.

22          Q           But you were assuming that hadn't hap-  
23 pened.

24          A           I hadn't really made any assumption at  
25 all.

1           Q           All right. All right. Now, if Section  
2 12 had been developed on 320-acre spacing, are you aware of  
3 anything that would have precluded the drilling of an addi-  
4 tional well, or the third well in that section?

5           A           No, I don't know of anything, reason why  
6 you couldn't.

7                       I don't see any case here where anybody  
8 did it.

9                       I see one case where Southwest plugged a  
10 well out and Grace came in and drilled another well on the  
11 same 300 -- on 160 acres, and by the way, has already made  
12 more gas than Southwest made before they plugged it.

13           Q           Now, Mr. Zoller, in the northeast quarter  
14 of Section 25, what is your proposed well location?

15           A           We've still got it right where we agreed  
16 to put it when we were squabbling two months ago and you  
17 folks wanted it in the northwest of the northeast and we had  
18 it in the northeast of the northeast.

19           Q           So you're 660 off the line between Sec-  
20 tions 25 and 24.

21           A           We always have been there. We just moved  
22 it over your 80 acres instead of ours.

23           Q           And you're concerned about drainage from  
24 a well in the south half of that section?

25           A           Not until I see they get the same thing

1 there.

2 Q But you're concerned that might occur?

3 A Yes, sir, it could.

4 Q I think you were saying that if a well  
5 was, say, drilled in the -- on the south half unit in Sec-  
6 tion 25 that it would get a double allowable.

7 A If it, well, it would be allowed to pro-  
8 duce twice as much gas if it was on 320-acre spacing as we  
9 would on 160, provided the field was prorated, but it  
10 doesn't matter to me whether the field is prorated or not.

11 We don't want somebody sitting down there  
12 just because you draw an imaginary line across the section  
13 and see him produce twice as much gas you're allowed to.

14 Q So you're not concerned with proration-  
15 ing?

16 A I've said it every way I know, Mr. Carr.  
17 As long as we get to do what we want to do and as long as  
18 you don't get the opportunity to drain us, we don't care  
19 what happens to the south half of 25.

20 Q And yet your well in the northeast of 25  
21 is as far from the south half as you can be at a standard  
22 location, isn't it?

23 A That's true, but I don't know what the  
24 shape of that sand body is. I know one thing, it's not  
25 round, like everybody wants to make these drainage radiuses.

1 MR. CARR: I have nothing  
2 further.

3 MR. STAMETS: Are there any  
4 other questions of this witness?

5 He may be excused.

6 Does anybody have any closing  
7 arguments?

8 MS. AUBREY: Thank you, Mr.  
9 Stamets.

10 BTA is coming once again oppos-  
11 ing Chama's request to change the spacing in the Lea -- in  
12 the outer limits of the Lea-Penn Pool.

13 Once again Chama has failed to  
14 show by geologic or engineering data that there is any jus-  
15 tification for changing the spacing within a mile of the  
16 pool limits.

17 Once again we see from BTA's  
18 geology that the sands in the Lea-Penn Pool and the sands in  
19 the extended Lea-Penn Pool are discontinuous, erratic, and  
20 homogeneous.

21 We can see from BTA's geology  
22 that the same sands are not productive in adjoining wells,  
23 even wells that adjoin one another on 160-acre tracts.

24 Chama has offered to you no  
25 justification for changing the spacing that has been in

1 existence for twenty-one years other than some suggestion  
2 that 320-acre spacing would benefit them or their partners  
3 in the term of whatever business deal it was that they made  
4 in the acquisition of their acreage.

5                   Once again BTA has shown that  
6 BTA read the rules. BTA knew what the area was spaced on.  
7 BTA acquired its acreage, drilled its wells, and spent its  
8 money in reliance on the rules as they're written, and with  
9 an understanding of what those rules meant.

10                   BTA's geology supports the  
11 spacing of wells on 160 acres.

12                   Chama's geology does not sup-  
13 port spacing wells on 320 acres.

14                   The testimony from BTA's wit-  
15 ness has been, and to my recollection the only testimony  
16 presented to you today has been, that the Lea-Penn Pool con-  
17 stitutes a common source of supply; that the limits of that  
18 pool don't end at the section line; that there is nothing  
19 geologically different about Section 25 from Section 24;  
20 that from a geological point of view there is no reason to  
21 spaced wells in Section 24 on 160's and wells in Section 25  
22 on 320 acres.

23                   It is clear from both BTA and  
24 Chama's geologists that we have a number of potentially pro-  
25 ductive horizons here. Mr. Mazzullo's testimony was up to

1 twenty-two. I believe that Mr. Zoller said ten or fifteen.

2                   Whichever number you choose,  
3 looking at the cross sections you can see that they are  
4 numerous and they are not consistent from well to well.

5                   We know from Mr. Haas that one  
6 of the best wells in the area by his own calculations has a  
7 drainage radius or a drainage area of 117 acres. It's clear  
8 that well cannot drain 320 acres and there has been nothing  
9 shown you by the applicant to sustain his burden of proof  
10 that there is technical justification for altering either  
11 the spacing in the Lea-Penn or the Commission's rules pro-  
12 viding for a one-mile buffer zone around the Lea-Penn Pool.

13                   Based on the evidence before  
14 you, it is BTA's position that the Commission must deny the  
15 application and retain the spacing within a mile of the pool  
16 on 160 acres.

17                   Thank you.

18                   MR. CARR: May it please the  
19 Commission, what Chama is seeking here today is an order  
20 that would limit the pool rules to the Lea-Pennsylvanian Gas  
21 Pool to the present pool boundary.

22                   We're not talking about subse-  
23 quent extensions. We're talking about stopping 160-acre de-  
24 velopment where it is.

25                   It's been stated that we're on-

1 ly here because of a deal that we cut and how it would bene-  
2 fit our partners. This is simply not true.

3 We're here because our review  
4 shows that development, if it is required on 160, could lead  
5 to wasteful practices, the drilling of unnecessary wells,  
6 the impairment of correlative rights, and the waste of hy-  
7 drocarbons, economic and physical waste.

8 The thrust of this problem is  
9 we have an old pool, a pool created June, 1964, or before  
10 June of 1964, and therefore it is spaced on 160-acre spacing  
11 instead of on 320-acre spacing.

12 There is, as we showed with our  
13 Exhibit One, other development in the area on 320-acre  
14 units.

15 Now Chama acquired this acreage  
16 at a time when the spacing in most of this acreage was 320  
17 acres for Pennsylvanian wells, for Morrow wells.

18 Like BTA they read the rules.  
19 Like BTA they were acting in good faith. When they started  
20 to develop the acreage they were advised by the Hobbs Office  
21 that because of recent development in the Lea-Penn Pool and  
22 the extensions which would come thereform, that they would  
23 have to come before the Commission and get the problem re-  
24 solved, and that's what they did. And when they came on for  
25 hearing in January of this year, it was at that time they

1 learned of the extent of the opposition to this by BTA.

2 BTA has come before you here  
3 today and has said that their real concern is the northeast  
4 quarter of Section 25. That's where they have 80 acres.  
5 They're concerned that if that's developed on 320, they'll  
6 have a 25 percent interest in that spacing unit instead of  
7 the 50 percent interest they would have if they were parti-  
8 cipating in a well that was dedicated to 160 acres; i.e.,  
9 the northeast quarter.

10 If it would help resolve this  
11 dispute, Chama is here today prepared to stipulate that in  
12 addition to avoiding those other odd 160's and changing that  
13 line you could enter an order that would take in the entire  
14 east half of Section 25. That would mean the northeast  
15 quarter could be developed on 160 acres. It would mean that  
16 the spacing rules for the southeast quarter of that section  
17 would be 160 and they could drill at a standard location  
18 down there, and we submit that that's the appropriate way to  
19 go, not a north half unit, because there is a well already  
20 drilled and completed, the well off in the east -- the west  
21 half of Section 25.

22 We're simply going to agree  
23 that that is a way the matter can be resolved. BTA is in a  
24 position to develop all of its acreage, the only acreage it  
25 has in the area, on 160's and then we could go forward and

1 continue to develop on 320-acre spacing.

2 Mr. Stamets is concerned here  
3 about a common source of supply. What do we have here? We  
4 have a Morrow pool. If we look at our Exhibit One, we can  
5 see the Lea-Pennsylvanian Pool. If we move south we see  
6 Chama's acreage and we come down and we can see the Berry  
7 North Morrow Pool on 320-acre spacing.

8 If we go to our Exhibit Number  
9 Five, the Isopach of the 11th Morrow zone, and we take a  
10 look at it and compare them one to the other, you can see  
11 that this zone as mapped extends down into Section 6 and we  
12 in fact have the same Morrow zone. We have a common source  
13 of supply. We have part of it on 320; we have part of it on  
14 160. It isn't as if we could stand here and pretend like  
15 we're going to be pure in the abstract and only have one  
16 spacing. We already have a problem. We have one common  
17 source of supply and two spacing patterns.

18 We submit the question isn't  
19 whether or not part should be on one or the other, because  
20 we already crossed that; we've got both spacings.

21 The question is where should the  
22 line be drawn. We submit you can draw the line and you can  
23 take in the northwest of Section 10. You can draw it and  
24 you can take in the southwest of Section 14, and as far as  
25 Chama is concerned, you can draw that line and you can take

1 in the east half of Section 25, and we submit when you do  
2 that there is no longer a dispute before you, at least not  
3 based on the kinds of arguments that have been presented to  
4 you here today.

5                   We've had a lot of testimony.  
6 We've had Mr. Zeller admit that he's really not competent to  
7 do an Isopachous map of these zones, and I'm not trying to  
8 cast any aspersion or doubt on his qualifications as a geo-  
9 logist because I have none, but we also have a geologist who  
10 has published, who has worked on this and who has Isopached  
11 this, and we submit we have competent testimony before you  
12 that has only been challenged by someone who has said  
13 they're not capable of doing this themselves.

14                   We submit what we have here is  
15 a common source of supply. We have competent data which  
16 shows you it's already spaced on two different spacing pat-  
17 terns, and all we're asking you to do is to let us come in  
18 and develop our acreage on 320 so that we're not up front  
19 locked into development on 160, so that if subsequent data  
20 requires 160 development down here, we can do it but that  
21 we're not required to walk in blind.

22                   We have examples within the  
23 Lea-Penn Pool itself up in Section 13, where we have three  
24 wells -- up in Section 12, I mean, where we have three  
25 wells. No matter how you cut that section if you were on  
320's, you'd have one of those -- you'd have one of those

1 developed with only one well on that tract.

2 Now if you also look at this  
3 and see what might happen, you know, this -- the -- the very  
4 north pool could be developed, I suppose, with units in 36.  
5 That would be 320 and then we could step out and move up  
6 into 25 and eventually close that gap, but the smart thing  
7 to do is not to let arbitrary spacing rules dictate how this  
8 is developed, but to, when the question comes before you,  
9 enter a decision which will solve the problem and I submit  
10 we have proposed by adding the east half to the Lea-Penn  
11 Pool, the east half of 25, we have given you a way to do  
12 that.

13 Now, Mrs. Aubrey, Miss Aubrey,  
14 Ms. Aubrey -- sorry-- is a hard individual to convince you  
15 have presented any evidence of merit.

16 We have presented evidence that  
17 shows that a commercial well, as we interpret them, the  
18 average drainage in the Lea-Penn Pool was 241 acres, and it  
19 would have been larger except certain zones have been  
20 drained and there were porosity and permeability problems,  
21 and this is a result of a reserve and a depletion study that  
22 we had a consulting engineer prepare which is in the record  
23 as Exhibit Number Six.

24 Miss, Ms., Mrs. Aubrey was cor-  
25 rect when she stated that one of the wells that was a com-

1 commercial success had only 117 acres. You can be sure that we  
2 don't just base decisions on the worst case. We also have  
3 wells in there that drained, based on these calculations,  
4 420 acres.

5 So we submit that we have shown  
6 you that this drainage alone would justify, at least in cer-  
7 tain cases, development of 320 acres, and in those cases,  
8 160-acre development impairs correlative rights and causes  
9 waste.

10 There are questions about what  
11 is an economic well. We have stated you need 1,800,000 MCF  
12 of gas, 1.8 BCF of gas to have a commercial well, and that  
13 this isn't generally available based on 160 spacing.

14 Now, Mr. Zoller admitted that  
15 -- or stated that you could use other figures to determine  
16 what was commercial, but he didn't do it, and in this record  
17 the only thing you have are the figures that you need 1.8  
18 BCF to have a commercial well, and again we admit that  
19 that's subject to interpretation but we also submit that it  
20 is a sound, technical presentation that you can look to in  
21 making the determination of what's economic in this area and  
22 what is not.

23 We have a lot of data on econo-  
24 mics and some conclusions drawn by BTA but they're also  
25 looking at wells by and large that were originally completed

1 in the Devonian and those were factors, we submit, that lead  
2 to the drilling of these wells in the first instance and it  
3 wasn't just the economics of the Morrow that resulted in the  
4 development which you see in the Lea-Penn Pool.

5 We think we have a better  
6 chance for an economic well with wider spacing and we're  
7 asking you to let us do that.

8 We submit that 160-acre spacing  
9 results in waste.

10 We think that because waste is  
11 an integral part of the definition of correlative rights, if  
12 you require us to go out and drill unnecessary wells, you're  
13 also impairing our opportunity to produce our share of re-  
14 serves from the acreage which we own.

15 The Morrow, according to some  
16 of the information we've had on the Lea-Penn Pool may be  
17 pretty sorry for development on 320-acre units. We submit  
18 that it isn't that atypical a situation and that if this is,  
19 the area in which we own acreage, is not a typical Morrow  
20 formation and is suitable for 320 development, then perhaps  
21 the Division should take a look at all Morrow development in  
22 southeastern New Mexico.

23 In summary, our position is  
24 that there is only one way you can prevent waste and protect  
25 correlative rights; that you can provide for orderly devel-

1 opment of this area, and the way for you to do that is to  
2 grant the application of Chama and we submit that in so  
3 doing we have no objection, in fact would endorse, including  
4 the east half of 25 within that acreage that would included  
5 within the Lea-Penn Pool rules.

6 MR. STAMETS: Mr. Carr, I don't  
7 understand Chama's objection to including the north half of  
8 Section 25 in the pool.

9 MR. CARR: Well, Mr. Stamets,  
10 we already have a well, the Chama No. 1-L, in the east half.  
11 I'm sorry, in the west half.

12 If I understood Mr. Zoller's  
13 concern, he was concerned there might, you know, might be in  
14 the same zone. At least we know what we've got here.

15 It does seem to me that by  
16 going with an east half situation the Chama 1-L can have de-  
17 dicated to it what -- what is existing there; that he would  
18 then be free to go ahead and develop the east half on 160's,  
19 one being in the north where they have a well they propose  
20 660. We also are proposing a well and interested in oper-  
21 ating that tract if we can get an order in the case that's  
22 been here for awhile.

23 MR. STAMETS: And yet there  
24 would not really be any particular problem with the north  
25 half being in the Lea-Penn Pool and then Chama drilling a

1 south half dedicated 320 at any place they want in the south  
2 half and they have to drill down there in any event.

3 MR. CARR: Mr. Stamets, I can't  
4 tell you. I'm just guessing, but there are two leases in 25  
5 and it may be communitization of the west half would hold  
6 the acreage in the south. That's all I can tell you.

7 MR. STAMETS: Okay, let's see  
8 if the Commission can decide this before you all leave.

9  
10 (There followed a Commission discussion off the record.)

11  
12 MR. STAMETS: The Commission  
13 will enter an order in this case which will extend the Lea-  
14 Pennsylvanian Pool to include the northeast quarter of Sec-  
15 tion 9, the northwest quarter of Section 10, the southwest  
16 quarter of Section 14, and the north half of Section 25, all  
17 in Township 20 South, Range 34 East.

18 The findings in this case will  
19 include the fact that at some point those pools which are  
20 not on statewide 320-acres will abut against the pools which  
21 are on 320, and that some mechanism has to be -- has to deal  
22 with this issue.

23 The finding will also indicate  
24 that the Oil Conservation Division has the ability to place  
25 wells which are subsequently completed within a mile of the



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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 Conservation 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 CSR