

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

14 July 1988

COMMISSION HEARING

IN THE MATTER OF:

Application of Phillips Petroleum Company for a non-standard gas pro-
ration unit and unorthodox gas well
location, Lea County, New Mexico, and

CASE
9331

Application of Phillips Petroleum Company for compulsory pooling and
amend Division Administrative Order
NSP-1470 (L), Lea County, New Mexico,
and

9429

Application of Mobil Exploration and
Producing U.S. Inc. as agent for Mobil
Producing Texas and New Mexico, Inc.
for compulsory pooling, Lea County, New
Mexico.

9430

BEFORE: William J. Lemay, Chairman
Erling Brostuen, Commissioner
William M. Humphries, Commissioner

TRANSCRIPT OF HEARING

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1 MR. LEMAY: The hearing will
2 reconvene.

3 We'll continue this afternoon
4 with Cases 9331, 9429 and 9430.

5 MR. STOVALL: Application --
6 or Case 9331, the application of Phillips Petroleum Company
7 for a nonstandard gas proration unit and unorthodox gas
8 well location, Lea County, New Mexico.

9 Case 9429, application of
10 Phillips Petroleum company for compulsory pooling and amend
11 Division Administrative Order NSP-1470-L, or in the alter-
12 native to rescind Administrative Order NSP-1470-L, rededi-
13 cate acreage to form a standard 320 gas spacing and prora-
14 tion unit, and for an order pooling all mineral interests
15 therein, Lea County, New Mexico.

16 And Case 9430, application of
17 Mobil Exploration & Producing U. S. Inc. as agent for Mobil
18 Producing Texas & New Mexico Inc. for compulsory pooling,
19 or in the alternative either (1) to rescind Division Admin-
20 istrative Order NSP-1470-L, rededicate acreage to form a
21 standard 320 acre gas spacing and proration unit, and for
22 an order pooling all mineral interests therein, or (2) for
23 a nonstandard gas proration unit, Lea County, New Mexico.

24 MR. LEMAY: For the purposes
25 of this hearing all three cases will be consolidated unless

1 there is objection.

2 Are there appearances in
3 these cases?

4 MR. KELLAHIN: Mr. Chairman,
5 I'm Tom Kellahin of the Santa Fe law firm of Kellahin,
6 Kellahin and Aubrey, appearing on behalf of Phillips
7 Petroleum Company.

8 MR. CARR: May it please the
9 Commission, my name is William F. Carr, with the law firm
10 Campbell & Black, P. A., of Santa Fe. I'm appearing today
11 on behalf of ARCO Oil & Gas Company and Sun Exploration and
12 Production Company. I have one witness.

13 MR. PEARCE: May it please
14 the Commission, I am W. Perry Pearce of the law firm Mont-
15 gomery & Andrews. I appear in this matter on behalf of
16 Mobil Exploration and Producing U.S. as agent for Mobil
17 Producing Texas & New Mexico.

18 I have three witnesses who
19 need to be sworn.

20 MR. LOSEE: Mr. Chairman, I'm
21 A. J. Losee of Losee and Carson, Artesia, New Mexico. I
22 have with me Mr. George Hunker of Hunker and Fedric.
23 Roswell. We're both appearing on behalf of T. H. McElvain
24 and C. W. Trainer.

25 We've got four witnesses.

1 MR. LEMAY: Mr. Kellahin, how
2 many witnesses?

3 MR. KELLAHIN: Two, sir.

4 MR. LEMAY: The witnesses
5 will stand and raise your right hands.

6
7 (Witnesses sworn.)

8
9 You may be seated.

10 In terms of taking -- we have
11 proponents and opponents, it looks like we have three
12 points of view in this case. Do you want to discuss just
13 a little bit how you want to do this thing?

14 Mr. Kellahin?

15 MR. KELLAHIN: Mr. Chairman,
16 as the original applicant before the Division for a non-
17 standard spacing unit, we certainly have no objection to
18 having Phillips make its presentation first, followed by
19 whichever other party desires to (unclear). I think we
20 have the burden with regards to going forward in this mat-
21 ter and will be happy to be first.

22 MR. LEMAY; Fine. Is there
23 any objection to Phillips taking the lead in this?

24 MR. CARR: No, sir.

25 MR. LEMAY: Do you want to

1 fight about the second and third point or is there any --
2 just in order?

3 Mr. Carr, Pearce, Losee,
4 Hunker?

5 MR. CARR: I would suggest
6 that my testimony is very short and it is possible we would
7 not call a witness, and we probably should go after the
8 applicants in this case, being Phillips and Mobil.

9 MR. LEMAY: You'll be after
10 Phillips and then -- or after Mobil?

11 MR. CARR: Or maybe at the
12 very end.

13 MR. LEMAY: At the very end,
14 okay.

15 MR. CARR: Or maybe not at
16 all.

17 MR. LEMAY: Fine, we'll pro-
18 ceed and you can make that decision.

19 Does Mobil want to be second
20 on this, then?

21 MR. PEARCE: We'll take
22 second place, Mr. Chairman, we are one of the applicants.

23 MR. LOSEE: Mr. Chairman,
24 we're Respondents so we'll follow the pack.

25 MR. LEMAY: Do you have

1 opening statements in this case?

2 MR. KELLAHIN: Yes, sir, I'd
3 like to make an opening statement when it's appropriate.

4 MR. LEMAY: We'll start with
5 opening statements.

6 Mr. Kellahin.

7 MR. KELLAHIN: Gentlemen,
8 we've put on this display board what will be Phillips Ex-
9 hibit Number One and for illustration I'd like to use it
10 for moment and refresh your recollections about how we got
11 here and tell you where Phillips proposes to go and what
12 its position is.

13 On this display you're look-
14 ing at a portion of an Atoka reservoir in southeastern New
15 Mexico. We're dealing with the South Shoe Bar Atoka Pool.

16 The technical testimony from
17 our engineer and geologist will show you that this Atoka
18 reservoir is elongated, and it's a shape running generally
19 from northwest to southeast, elongated cigar-shaped reser-
20 voir producing out of the Atoka formation.

21 Specifically, the section in
22 question is Section 22, which is outlined in yellow. This
23 portion of the reservoir on the southeast side of the re-
24 servoir involves four principal wells that we're discussing
25 and you'll hear the witnesses talk about.

1 One of the first wells, and
2 obviously one of the most important wells, is the McElvain
3 Well in Section 22. That well was originally drilled by
4 Humble back in 1953 as an oil well. I believe it was a
5 Devonian test.

6 Mr. McIlvain and Mr. Trainer,
7 and we will use those names interchangeably, I will attempt
8 to consistently refer to the McElvain well as McIlvain
9 well, but this is the well in which Mr. Trainer and Mr.
10 McElvain have their interest, along with a number of other
11 parties.

12 The Humble Well in '53, then,
13 was abandoned, I believe, and it was not until 1985, late
14 1985, that the McElvain group elected to re-enter that
15 wellbore and to recomplete it in the Atoka formation. The
16 entire section is a State of New Mexico oil and gas multi-
17 ple leases and within that section, then, one lease con-
18 sists not only of the northeast quarter but the west half
19 of the northwest quarter.

20 When the well was recompleted
21 as an Atoka well through an administrative order, Mr. Sta-
22 mets, then Director, without any hearing but with no objec-
23 tion, approved a 240-acre nonstandard spacing unit for the
24 McIlvain Well.

25 Thereafter, in December of

1 '87, Sun drills an offset well to the north in Section 15,
2 dedicates the south half of it, and that is also a signifi-
3 cant Atoka producer and this is the Sun well at this loca-
4 tion.

5 There are to two other wells
6 in this area of the pool that we will discuss to no great
7 extent. There's the HNG well in Section 14 and then
8 there's an ARCO well over here in 23.

9 Principally what has happened
10 is in response then to the administrative order issued by
11 Mr. Stamets, this 240-acre nonstandard unit was carved out.
12 Phillips in this year, and I believe it was March of '88,
13 filed and obtained a hearing before the Division Examiner
14 to request the development of its acreage which is this
15 80-acre tract, the west half of the northwest quarter. It
16 was Phillips' engineering the geologic point of view and
17 it's their testimony today that their acreage is being
18 drained; that this entire section or a substantial portion
19 of this section is in this same Atoka reservoir, and that
20 their correlative rights are being violated because they're
21 subject to drainage and they need to either participate in
22 a spacing unit or drill another well and participate in
23 that well.

24 Their plan of operation was
25 then to take the Phillips acreage and combine it with the

1 Amerada Hess acreage, the north half of the southwest
2 quarter, to form then, and requested the formation of a 160
3 acre nonstandard spacing unit with a well located at an
4 unorthodox location. That request came to a hearing before
5 Examiner Catanach on March 16th and again on April 13th,
6 and as a result of Division Order R-8644, entered on April
7 27th, 1988, that application was denied.

8 At the time of this hearing
9 before the Examiner, the only party to appear and oppose
10 the application was the interest of ARCO. After the Exa-
11 miner order was entered, Phillips raises for consideration
12 for you today various combinations of potential solutions.

13 First and foremost it's re-
14 quest by a de novo process is to again consider, and we
15 request your approval at this time, of the original non-
16 standard spacing and proration unit, 160 acres.

17 As an alternative remedy, we
18 have pled that you withdraw the 80-acres in the west half
19 of the northwest quarter now dedicated to the McElvain
20 well, take that acreage out, allow the formation by forced
21 pooling of the west half of that section, so that Phillips
22 as operator can drill a well on the west half.

23 As an adjunct to that appli-
24 cation, Mobil has done the reverse to accomplish the pool-
25 ing of the east half and they seek then the formation of

1 the east half to pool their interest in the McIlvain well.

2 And so to have all the op-
3 tions available to the Commission for consideration, we
4 filed in the third alternative the other consideration and
5 that is to lay the proration units down and to put the
6 Phillips' 80-acre tract in with the McElvain interest and
7 let's let us participate then in the producing well by
8 paying some equitable share of those costs and sharing in
9 future production.

10 That would then free up the
11 south half for a standard spacing unit.

12 It is our position and our
13 proof that this section, unless it's further developed, is
14 going to be drained and depleted by a single well, the
15 McIlvain well, and not only does it drain the 240 acres
16 dedicated to it, not only will it drain the Phillips acre-
17 age, it will drain the entire section. The further proof
18 from our engineer is that this section will support the
19 drilling of two wells and can justify three wells.

20 We leave then with you how to
21 puzzle us through to a solution. The original request for
22 a nonstandard unit was predicated on the existence of that
23 240-acre nonstandard unit there already. If you seek to
24 terminate it or to reform it, it is our position that's
25 within your rights to do so. We believe you can do that,

1 you can reform a spacing unit in order to protect correla-
2 tive rights. It's our position that the reformation of
3 that spacing unit is now necessary based upon additional
4 evidence and information and data that was not then avail-
5 able to or known by the Division when they approved the
6 nonstandard unit.

7 We believe the new informa-
8 tion shows that this reservoir is highly communicated.
9 Pressure information will demonstrate that to you and we
10 believe that in order to protect the correlative rights of
11 all the parties in Section 22 we either need to approve the
12 Phillips' application or in fact reform the spacing units
13 so that we can get more wells in that spacing unit.

14 MR. LEMAY: Thank you, Mr.
15 Kellahin. Additional opening statements.

16 If there are none, we'll con-
17 tinue with Mr. Kellahin.

18 MR. LOSEE: I'm sorry, I was
19 waiting for Mr. Pearce --

20 MR. LEMAY; Excuse me, Mr.
21 Losee.

22 MR. LOSEE: -- to speak and I
23 apologize. It thought he was thinking about the question.

24 MR. LEMAY: He declined an
25 opening statement. You may proceed with yours.

1 MR. LOSEE: Yes, a very short
2 one here.

3 On behalf of the Respondents,
4 back in 1985 they made application to the Commission under
5 its existing rules for administrative approval of one, the
6 unorthodox location, which was occasioned by the fact that
7 the well was originally drilled as an oil well properly
8 spaced. The Commission rules then provided, and still do
9 today, that you can obtain administrative approval for that
10 kind of location for a gas well, which was done in this
11 case.

12 Secondly, the rules also
13 provide for administrative approval of nonstandard units.
14 In each case notice was given by certified mail to Phil-
15 lips, to Sun, and to Mobil of this application. No objec-
16 tion was entered by any of them.

17 The order was entered by this
18 Commission under the same rules that exist today. Based
19 upon that order McElvain and Trainer re-entered this well.
20 They obtained what is an excellent Abo well. It's produced
21 about 4-billion cubic feet of gas, slightly over that, to
22 date, and based upon Phillips' engineering study and
23 graphs, it will produce pretty close to another 4-billion
24 cubic feet.

25 Did I say --

1 MR. LEMAY: It's Atoka, not
2 Abo, I think.

3 Q Okay, I'm sorry, I meant Atoka.

4 Since entering that hole and
5 completing that well. the development has run to the north-
6 west. There have been four other wells spaced on it. The
7 risk of that re-entry was taken by McIlvain and Trainer
8 based upon this order of the Commission. They have spent
9 something like \$600,000 to this date. It is a good well
10 and it has encouraged the development of the rest of the
11 area in the South Shoe Bar Field.

12 At this time to change the
13 spacing unit in favor of companies who had leases in this
14 area for fifty years and never developed it, to deprive the
15 people of the success of their -- the risk they took drill-
16 ing this well, is a destruction of their correlative
17 rights, not only of the working interest owners in this
18 well, but the State of New Mexico, who has a lease with
19 McIlvain for a sixth royalty and all of the surrounding
20 leases held by all of the other companies are 1/8th royal-
21 ty.

22 The State will lose royalty,
23 which we will show.

24 We, contrary to Mr. Kella-
25 hin's assertion, we do not believe there is anything known

1 about the Atoka reservoir today, the Pennsylvanian, than
2 there was at the time the order was entered back in 1985.

3 The North Vacuum produces out
4 of the same and they probably tie right together and it
5 stretches on to that boundary. Geologically there is no
6 difference, there's no difference in the drainage of the
7 Morrow, or the Atoka, than there was then.

8 We think it's mandatory that
9 the sanctity of the Commission's order be upheld so that
10 the spacing unit is not changed and these people deprived
11 of a portion of their success. If there is drainage we
12 think Phillips ought to be permitted to drill a well and
13 they can show you up in the northwest northwest corner, and
14 if Mobil wishes to drill a well in the southeast, there is
15 no objection by the Respondents. The objection is to de-
16 stroy the spacing unit that was created by the valid order
17 of this Commission under the same rules that still exist.

18 MR. LEMAY: Thank you, Mr.
19 Losee.

20 Additional opening comments?

21 If not, you may continue.

22 Mr. Kellahin?

23 MR. KELLAHIN: Mr. Chairman,
24 we would like to call our geologic expert as our first wit-
25 ness. His name is Rick Halle, he pronounces the E on the

1 end of his name, and it's spelled H-A-L-L-E.

2

3

R. E. (RICK) HALLE,

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

6

7

DIRECT EXAMINATION

8

BY MR. KELLAHIN:

9

Q Mr. Halle, would you please state your
10 name and occupation?

11

A My name is Rick Halle. I'm a geologist
12 employed by Phillips Petroleum Company in Odessa, Texas.

13

Q Mr. Halle, we don't have benefit of a
14 microphone in the auditorium today so you're soft-spoken
15 and you'll have to speak up as best you can.

16

Would you summarize for the Commission
17 what is your educational background as a geologist?

18

A I have a Bachelor's degree from the
19 University of Minnesota and also a Master's degree from the
20 same school.

21

Q In what years, sir?

22

A '72 for the Bachelor's and '81 for the
23 Master's.

24

Q Would you summarize for the Commission
25 what has been your employment experience as a petroleum

1 geologist?

2 A I was employed by Phillips Petroleum in
3 1974; worked as a minerals geologist in coal and lignite
4 until 1984 and from that date forward I've worked as a
5 petroleum geologist.

6 Q Would you describe what has been your
7 specific involvement with regards to studying the geology
8 in the South Shoe Bar Atoka Gas Pool?

9 A I studied this area since the end of
10 1986 and have proposed several wells, including this one in
11 this area and worked it through.

12 Q Did you testify and qualify as an
13 expert geologist before the Division Examiner when they
14 heard the original application of this case in March of
15 this year?

16 A Yes, sir, I did.

17 MR. KELLAHIN: We tender Mr.
18 Halle as an expert petroleum geologist.

19 MR. LEMAY: His qualifica-
20 tions are acceptable.

21 Q Mr. Halle, would you take a moment and
22 identify what we have passed out and marked as Phillips
23 Exhibit Number One?

24 A This is our location map to give you a
25 feeling for the area we're interested in. The wells

1 spotted on it are deep wells that penetrate the Strawn
2 formation and deeper, generally 11,000 feet or deeper. The
3 names of the wells are posted on there. Also indicated is
4 Phillips' acreage position marked by the stippled pattern,
5 and in the area around the proposed well is also indicated
6 the other deep right leaseholders.

7 Q Have you participated and been invol-
8 ved with discussions among the other operators within
9 Section 22 about the development of that section?

10 A Yes, we've talked with -- through
11 several meetings and phone conversations, with all of the
12 offset leaseholders.

13 Q What is your understanding of the
14 ability of Phillips to obtain a voluntary resolution with
15 all those operators on the formation on a voluntary basis
16 of further development in Section 22?

17 A I believe everyone wants to continue
18 development of this prolific gas field but we're having
19 problems coming up with the appropriate proration units.

20 Q Is it correct to say that you cannot
21 get unanimous agreement for the formation on a voluntary
22 basis for a west half oriented 320-acre spacing unit?

23 A Yes, sir, that would be correct.

24 Q And is the corollary also true that you
25 have not been able to form on a voluntary basis a north

1 half proration unit consisting of 320 acres?

2 A Yes, sir, that's also correct.

3 Q And have you been able to obtain un-
4 animous voluntary agreement with Amerada Hess and Phillips
5 for the formation of this nonstandard proration unit?

6 A Yes, we have. We have a farmout agree-
7 ment from Amerada Hess and we obtained Commission approval
8 for this location and we want to drill that well and they
9 will farmout to us.

10 Q On your further geologic displays you
11 identify and discuss certain key wells for us, Mr. Halle.
12 Would you look on this display and show us which are the
13 key wells to remember?

14 A The closest offset to our proposed
15 location would be the Sun E & P Shoe Bar State Com in the
16 south half of Section 15. This well is completed in the
17 same sand that we will talk about today in December of '87
18 and is on production at this time.

19 The other key well would be the McEl-
20 vain New Mexico State "AC" Well, which is completed in the
21 end of '85 and have been a very prolific well from this
22 same sand.

23 Q Let's turn now, sir, to a discussion of
24 the structure within this area. Have you prepared a
25 structure map?

1 A Yes, sir, Exhibit Two is a structure
2 map on the top of the Morrow limestone, which sits imme-
3 diately underneath the pay sand. The structure of the base
4 of the sand would be very similar to the structure on the
5 Morrow limestone.

6 The main things to notice on here is
7 that the structure in the area of the field is very simple,
8 just a monoclinal dip off to the northeast between the
9 Vacuum structure, North Vacuum structure, and the Shoe Bar
10 structure off to the northeast. There are no wet wells;
11 there's no oil, gas, water contacts in this field we don't
12 feel that structure has a great deal of bearing on this
13 field.

14 Q When we look specifically within Sec-
15 tion 22, Mr. Halle, and look at the structure map, do we
16 see -- describe for us what geologically you see within
17 Section 22 based upon the structure.

18 A Very simple structure of a monoclinal
19 dip and our proposed location would be on very similar
20 structure to the McElvain well and the recently drilled
21 Trainer Betty State No. 1 Well in Section 16.

22 Q What is the range of structural dis-
23 placement, if you will, as you move from south to the
24 northeast corner of Section 22

25 A This is a -- this map is based on 100

1 foot contours so we have maybe 200 feet dip across this
2 section.

3 Q Can you as a geologist form any useful
4 geologic opinions based upon a structure analysis in --
5 within Section 22?

6 A No, sir, I don't -- I don't believe the
7 present structure has any bearing on this sand reservoir at
8 all.

9 Q Have you studied and are you familiar
10 with any seismic information available with regards to
11 development or interpretation of the structure within
12 Section 22?

13 A We have two seismic lines in the area
14 and have constructed synthetics of a couple of key wells.
15 Primarily we've looked up in the North Vacuum Area and we
16 can't resolve the sand on seismic modeling.

17 Q Is that seismic information useful to
18 you in determining the thickness and the location of the
19 Atoka Sands?

20 A No, sir.

21 Q Does it show you enough structural
22 information to tell you whether structure plays an import-
23 ant part of the development of Section 22?

24 A I don't believe it gives you any reso-
25 lution in Section 22 on sand beds.

1 Q How then have you attempted to analyze
2 the geology for locating wells and determining the shape
3 and thickness of the Atoka reservoir within Section 22?

4 A We've looked at all the well logs in
5 this area, correlated the Atoka sand, and isopached those
6 thicknesses.

7 Q In constructing your cross section did
8 you use a structural cross section?

9 A No, sir, I used a stratigraphic cross
10 section.

11 Q And why did you do that?

12 A Because structure didn't seem to have a
13 lot of bearing on the field and so we were looking at a
14 stratigraphic interval.

15 Q I believe everyone has a copy of
16 Exhibit Number Three, which is the cross section. Do you
17 have one, Mr. Halle?

18 A Yes, Exhibit Number Three is a strati-
19 graphic cross section. The --

20 Q Just a minute, let me get mine opened
21 up here.

22 Do you have a portion of a display on
23 Exhibit Number Three, Mr. Halle, which shows us the
24 location of the wells on the cross section?

25 A The lower center portion on this cross

1 section is an index map which shows the wells which have
2 been put on the cross section.

3 Q Why have you chosen these particular
4 wells to put on the cross section?

5 A These wells penetrate the thicker sands
6 and show some of the edge sands on either end; show the
7 relationship of sand in the different wells and the range
8 of thickness, how they correlate.

9 Q Have you included in your cross section
10 the McElvain well and the Sun well?

11 A Yes, I have, on the right side, the
12 east side. The second well from the right is the McIlvain
13 well and the third well from the right is the Sun well in
14 Section 15.

15 Q What are your conclusions after you
16 analyzed the information you put on the stratigraphic cross
17 section?

18 A That the pay sands in the North Vacuum
19 Atoka Morrow Field is the same sand as the pay in the Sun
20 and the McElvain wells; that this sand body is continuous
21 from one field to the other and should be present at our
22 location.

23 Q What causes you to believe that there
24 is sufficient continuity of the sand in the Atoka reservoir
25 to give you continuity of the reservoir throughout Section

1 22?

2 A The persistent appearance of the sand
3 in this area, this trend we've mapped.

4 Q All right, have you attempted to map
5 the location and thickness of the Atoka sand?

6 A Yes, sir, Exhibit Four is a map of the
7 same sand that is colored and outlined on the cross sec-
8 tion. This is a regional map and it's essentially a gross
9 sand map based on gamma ray cutoff, 60 API, which is the
10 standard cutoff that I use.

11 Q All right, let's talk about the gamma
12 ray cutoff values that you as a geologist use. If you have
13 100 percent API cutoff, what is that telling you?

14 A 100 API units would indicate a shale,
15 very radioactive.

16 Q And when you're looking for Atoka sand
17 production we back off that 100 percent number and get into
18 what percent or what value range to show you Atoka sand-
19 stone development?

20 A The value range, many of these sands,
21 their lowest gamma ray value would 20 or 30 API units but
22 60 API units is a good cutoff to indicate the thickness of
23 the sands.

24 Q And have you mapped that location of
25 that sand reservoir using that cutoff?

1 A Yes, I have.

2 Q All right, show us what you conclude
3 from mapping the Atoka sand on Exhibit Number Four.

4 A I conclude that the sand body that we
5 are discussing today is a long, narrow, linear sand, about
6 7,500 feet across in the North Vacuum Field and using that
7 same width, which I see no reason to change, in the South
8 Shoe Bar Area, this would be a reasonable interpretation of
9 the thickness of sands you could expect.

10 Q When we look specifically in Section
11 22, what do you conclude as a geologist with regards to the
12 thickness and the location of the Atoka Sand within that
13 section?

14 A The thickest sand would be in the north
15 half of the section and that's where we proposed our loca-
16 tion.

17 Q How important to you as a geologist in
18 picking a location is the thickness of the reservoir within
19 Section 22?

20 If you think back to the cross section
21 a little bit, you see the variation in the thickness of the
22 sand change very rapidly. We would prefer to stay in the
23 thicker part of the sand. I expect they're stacked sand
24 bodies, and you can penetrate thicker sand; you're probably
25 penetrating more sand bodies and have a better chance of

1 draining the whole reservoir available to you.

2 Q The Phillips 80-acre tract in the
3 northwest -- in the north half of the northwest quarter of
4 22 is not now currently participating in any of the pro-
5 ducing wells, is it?

6 A No, sir, it is not.

7 Q Do you see any geologic reason or event
8 that would preclude the Phillips acreage from being drained
9 by the Sun acreage to the north?

10 A No, sir.

11 Q Do you see any geologic event or infor-
12 mation to cause you to believe that the McIlvain well is
13 not capable of draining the Phillips acreage?

14 A No, sir.

15 Q There's nothing geologically to tell
16 you that they're separated.

17 A No.

18 Q In fact, the geology shows you they're
19 continuous.

20 A Yes.

21 Q And connected.

22 A Yes.

23 Q When we look at the orientation of
24 possible spacing units for dedication of potentially pro-
25 ductive acreage to a well, have you made an examination

1 like that?

2 A Yes, sir.

3 Q That's normally called a Phi-H map, is
4 it not?

5 A The Phi-H map is the map that is a com-
6 posite of porosity and thickness, so if you have an inter-
7 val in your sand bed that is more highly porous than an-
8 other, it gives it more emphasis, and I have constructed a
9 map of that type and it mimics this map very closely.

10 Q All right. Specifically tell us what
11 you mean when your Phi-H map mimics the isopach thickness
12 map.

13 A It means that the gross sand in the pay
14 sand, the Phi-H, the best part of the pay sand is -- is
15 indeed consistent. You don't have big variations in the
16 reservoir and that this is a good regional guide to where
17 you would want to drill to find this reservoir.

18 Q In terms of the relationship between the
19 zero contour line on the Phi-H map and the zero contour
20 line on the isopach, how do they compare?

21 A The zero contour line on the Phi-H map
22 would trace a line inside the zero isopach on the gross
23 sand map.

24 Q Have you provided the Phi-H map and your
25 geologic analysis to Mr. Mueller, the reservoir engineer

1 for Phillips for his analysis and and reservoir study?

2 A Yes, I have.

3 Q Do you have a geologic opinion to ex-
4 press to the Commission with regards to how they ought to
5 treat the further development of Section 22?

6 A Yes, sir, I do.

7 Q And what is that opinion?

8 A It's my opinion that the first logical
9 step-out to trace the outline of this sand would be here in
10 the thickest part of the sand, would be the best location,
11 comparing the reservoir the best.

12 Q In terms of dedication of acreage to a
13 well at that location, what is your recommendation as a
14 geologist as to what acreage ought to be dedicated?

15 A We -- we are limited there because of
16 availability of acreage and our proposal has been to dedi-
17 cate 160 acres that lay in this area, and that should in-
18 clude most of the productive acreage, not all the produc-
19 tive acreage, left in Section 22.

20 MR. KELLAHIN: That concludes
21 my examination of Mr. Halle. We move the introduction of
22 his Exhibits One through Four.

23 MR. LEMAY: Exhibits One
24 through Four into the record.

25 Questions of the witness,

1 cross examination.

2

3

CROSS EXAMINATION

4 BY MR. CARR:

5 Q Just one question. Mr. Halle, do you
6 have an opinion as to whether or not the northwest quarter
7 of Section 22 is being drained by the McElvain well?

8 A Yes, sir, I do.

9 Q And what is that opinion?

10 A That it is.

11 MR. CARR: That's all I have.

12 MR. LEMAY: Questions of the
13 witness?

14

15

CROSS EXAMINATION

16 BY MR. PEARCE:

17 Q Mr. Halle, briefly, if I may, I'm Perry
18 Pearce for Mobil at this proceeding, do you have available
19 through your -- perhaps I can ask Mr. Kellahin, will the
20 next witness have any pressure information?

21 MR. KELLAHIN; Our engineering
22 witness will discuss pressures.

23 MR. PEARCE: All right, fine.

24 Thank you.

25 Q You mentioned during your direct testi-

1 mony that you had two seismic lines that you had relied
2 upon. Where were those lines?

3

4 A We have the northwest/southeast line
5 that runs through here, that comes down into Section 22,
6 and we also have the north/south line which is about on the
7 east edge of this map, and we haven't relied on them, so we
8 haven't used them to (unclear) any structure. This is
9 purely based on --

10 Q I apologize. I thought you were telling
11 us that you had relied upon those in constructing an ear-
12 lier exhibit.

13 A No, I'm sorry. No, we haven't.

14 Q You -- you indicated, I believe, that
15 the Phi-H line was inside the zero line shown on Exhibit
16 Number Four, the gross sand, is that correct?

17 A That's correct.

18 Q Could you step down and show us about
19 where you recall that line being?

20 A I can do it from here. I can't be very
21 specific, I don't have the map with me, but it would be,
22 say, several hundred feet inside that line. We have a very
23 little bit of Phi-H in the ARCO well in Section 23, and
24 then (unclear) there's a little bit in the HNG well, also.

25 Q Okay. On what basis did you draw the

1 gross sand zero line shown on that exhibit? What informa-
2 tion did you use in constructing that?

3 A These control points. This width, and
4 these control points in the South Shoe Bar Field.

5 Q Any zero gross sand control line in the
6 southeastern section of the area shown on that map?

7 A No, sir, there are no zeros. There are
8 two thin wells.

9 Q No well control to the south of Section
10 22?

11 A No, not that I -- on the bigger map,
12 which I don't -- I don't have here, let me pull it out,
13 there are some zero points considerably further south. Is
14 that a point?

15 MR. KELLAHIN: Which exhibit
16 number are you referring to?

17 A Referring to Exhibit Number Four. Refer
18 to the points on the southeast edge of the -- of the map,
19 which would be 17 South, 36 East, Section 31; 18 South, 35
20 East, Section 2 and Section 4. There's no Basal Atoka sand
21 present in these wells.

22 Q Mr. Halle, you've indicated that you see
23 no geological evidence that the McElvain well is not drain-
24 ing the Phillips acreage, is that correct?

25 A That's correct.

1 Q Upon what do you base the conclusion
2 that a well is therefore needed in the Phillips acreage to
3 adequately drain those reserves?

4 A To protect our leasehold rights.

5 Q It's not needed to drain the reserves,
6 it's needed to protect your lease rights.

7 A We either need into Mr. McElvain's well
8 or we need to (unclear) one.

9 Q I understand that one or the other --

10 A Yes.

11 Q -- is necessary.

12 A Yes.

13 Q And my question is, is a well on the
14 Phillips acreage necessary to drain those reserves?

15 A That -- that would be speculative. It
16 might be better than a well anywhere else in the section
17 because it has the thicker sand.

18 MR. PEARCE: I don't think I
19 have anything further. Thank you, Mr. Chairman.

20 MR. LEMAY: Mr. Losee, any
21 questions?

22

23 CROSS EXAMINATION

24 BY MR. LOSEE:

25 Q Mr. Halle, I believe you testified that

1 the pay zone in this South Shoe Bar was identical or simi-
2 lar to the pay zone in the Atoka in the North Vacuum.

3 Would you point out on your isopach
4 there where the North Vacuum is?

5 A I believe Mr. Trainer's Betty State Well
6 is the southeasternmost well in the North Vacuum Atoka -
7 Morrow Field, and the new Marathon well and (unclear) well.

8 Q Okay, now, to the northwest on your map,
9 was that the early development of the North Vacuum?

10 A This well here, this Texaco --

11 Q Yes.

12 A -- well, was the first, first well in
13 that sand.

14 Q When was that drilled?

15 A '78, I'm guessing. I'm sorry, I can't
16 answer that.

17 Q Well, to reach the conclusion you did in
18 answer to Mr. Kellahin's question, you have studied the
19 wells, I take it, in the phase, similar phase on the North
20 Vacuum in the Atoka?

21 A Yes.

22 Q Are the sections substantially the same?
23 Are they producing in the pay section?

24 A Yes, it's a correlative sand. It's a
25 similar-looking sand.

1 Q And it's generally continuous throughout
2 the Vacuum, North Vacuum Field, I take it.

3 A It's extent is limited. We have a zero
4 point here and a zero point here, and thin sands around the
5 thicker sand.

6 Q But the section actually is continuous
7 throughout that field, is it not?

8 A The sand thickness?

9 Q Yes.

10 A Yes, I assume that these contours would
11 represent a reasonable --

12 Q All right, isn't that similar to the
13 situation in the South Vacuum?

14 A South Shoe Bar?

15 Q South Shoe Bar, excuse me.

16 A Yes, that -- that's my interpretation,
17 that you'll have a massive sand like this in -- in the
18 South Shoe Bar Area.

19 Q Now, is the drainage area in the Vacuum
20 Pool, North Vacuum Pool, has that been good over the years?

21 A I would defer to Mr. Mueller here.

22 Q Okay. Do you know what spacing units
23 have been developed in the North Vacuum?

24 A 320 acres, sir.

25 Q Is the permeability good in those wells?

1 A Yes, it is.

2 Q Is it similar permeability to what
3 you've found in the South Shoe Bar?

4

5 A Again, I probably should refer to Mr.
6 Mueller.

7 Q You looked at the logs, didn't you?

8 A Yes.

9 Q And that field was developed many years
10 before the administrative order entered in 1985 on the
11 McIlvain "AC" Well, wasn't it?

12 A Yes, it was.

13 Q No further questions.

14 MR. LEMAY: Additional ques-
15 tions of the witness?

16 Mr. Kellahin?

17

18 REDIRECT EXAMINATION

19 BY MR. KELLAHIN:

20 Q Two follow-up areas, Mr. Halle.

21 First of all, in response to Mr. Pearce
22 you said you did not rely on the two seismic lines and the
23 data from those seismic lines in making your geologic eval-
24 uation of this area. Why not?

25 A We didn't -- we didn't feel we could

1 isopach sand from it. The seismic data could be useful for
2 mapping the structure in the Morrow limestone. We did not
3 use it. We have enough well control. It's not necessary.

4 Q The key in the development, then, is
5 mapping the thickness on an isopach using a stratigraphic
6 analysis of the sand thickness and continuity.

7 A Yes.

8 Q And structure is not important to you?

9 A That's correct.

10 Q All right. Let me go back to Mr.
11 Losee's discussions with you as to what the status was of
12 the generally known information among geologists in the
13 fall of 1985. Let me show you, sir, what has been taken
14 from the Commission files from a Marathon case. It's
15 Exhibit Number Seven in Case 9222.

16 Are you familiar with that display, Mr.
17 Halle?

18 A Yes, sir, I've seen this display before.

19 Q In October of 1985 am I correct in
20 saying that it was generally believed that the southern
21 extension of the North Vacuum Pool was going to terminate
22 with this well here in the southwest quarter of Section
23 16?

24 MR. LOSEE: Mr. Chairman,

25 MR. LEMAY: Mr. Losee.

1 MR. LOSEE: If the witness is
2 testifying from his own knowledge, I have no problem. If
3 he's going to use a map to introduce, I'd kind of like to
4 interrogate the Marathon geologist who prepared it, Mr.
5 Carlson, who introduced this map.

6 What's generally known is
7 fine, but I believe the question needs to be not relying
8 upon that map to establish what you knew of what was done
9 out there.

10 MR. LEMAY: Maybe Mr. Kellahin
11 can rephrase the question in terms of the witness' own
12 knowledge.

13 MR. KELLAHIN: I believe if
14 that's an objection it's premature, Mr. Chairman, I'm not
15 yet even there.

16 MR. LEMAY: Okay, well, let's
17 see where you're going.

18 Q What was the general status of informa-
19 tion and what did you specifically know as a geologist in
20 October of 1985, about then, what was available for -- for
21 geologic purposes in terms of an interpretation of the
22 southeastern extension of the North Vacuum Pool?

23 A I see in '85 these -- these two wells
24 had not been drilled yet.

25 Q Well, you've got to tell me, when you

1 say "these", which -- what you're talking about.

2 A Okay, I'm sorry. The Marathon well in
3 Section 17, the Trainer Betty State Well in Section 16, the
4 Sun well in Section 15, had not been drilled yet and this
5 well, this location in the northwest of Section 17 had been
6 proposed to working interest owners several times from '83
7 to '85 and they never -- it wasn't drilled.

8 So at that time this was a separate
9 area. No one had stepped out and carried that field to the
10 southeast, and the confirmation of the Sun well had not
11 been drilled; Mr. McElvain's well was a very good producer,
12 a very good IP but it was a thin sand.

13 The HNG well in Section 14 was also
14 quite thin and a poor producer, and it wasn't until '86 -
15 '87 when Marathon proposed and got working interest approval
16 in Section 17, that this field began to extend south-
17 east and became obvious that the two fields were not to-
18 gether.

19 Q Phillips has an acreage position in both
20 16 and 17 on this display, don't they?

21 A Yes.

22 MR. KELLAHIN: No further
23 questions.

24 MR. LEMAY: I think in terms
25 of Mr. Losee's objection, we accept this testimony as an

1 expert testifying to his own experience in the area.

2 MR. LOSEE: Fine.

3 MR. KELLAHIN: And for the re-
4 cord, Mr. Chairman, although I showed him the exhibit, we
5 have not shown it to the Commission and I have stopped
6 short of trying to ask this witness about Mr. Carlson's
7 work.

8 MR. LEMAY: Fine.

9 MR. KELLAHIN: We'll withdraw
10 that.

11 MR. LOSEE: And I'll withdraw
12 my objection.

13 MR. LEMAY: Additional ques-
14 tions of the witness? I have one.

15
16 QUESTIONS BY MR. LEMAY:

17 Q Mr. Halle, if you were going to honor
18 those -- those tight points where you show the sand termin-
19 ating, specifically the well in Section 23 and the well in
20 Section 14, could you not take that sand trend and make the
21 axis go a little bit further south rather than terminate
22 the trend; extend it but include all of Section 22 in pro-
23 ductive sand?

24 A This is my interpretation of this sand.
25 I've stopped it here basically because of this relationship

1 I see here; looking at other sands that correlate with this
2 in a more regional area, they seem to be a consistent
3 width.

4 Q I guess my question then would be is
5 there any evidence to show that there is nonproductive
6 acreage in Section 22?

7 A There's no conclusive evidence either
8 way.

9 Q Thank you.

10 MR. LEMAY; Additional ques-
11 tions? If not, the witness may be excused.

12 Call your next witness, Mr.
13 Kellahin.

14 MR. KELLAHIN: Thank you.

15 Mr. Chairman, at this time
16 we'll call Mr. Bill Mueller. Mr. Mueller spells his last
17 name M-U-E-L-L-E-R.

18
19 WILLIAM J. MUELLER,
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. KELLAHIN:

25 Q Mr. Mueller, will you please state

1 your name and occupation, sir?

2 A My name is Bill Mueller. I'm a Reser-
3 voir Engineering Supervisor for Phillips Petroleum Company
4 in the Permian Basin region of Odessa, Texas. This region
5 comprises two major areas, what they call the north area
6 and the south area and I'm the supervisor over the north
7 area, which handles southeast New Mexico.

8 Q Mr. Mueller, for the record would you
9 summarize your educational background and employment exper-
10 ience as a petroleum engineer?

11 A I have a Bachelor of Science in engine-
12 ering degree from Washington University in 1953; went to
13 work immediately for Phillips Petroleum Company, and I've
14 completed 35 years of service on June 22nd of last month.

15 I worked for Phillips Petroleum Company
16 8 years in Big Spring, Texas; about 3 years in Hobbs, New
17 Mexico, and in 1965 I transferred -- they closed the two
18 district offices at that time and I transferred to Odessa,
19 Texas, as a Reservoir Engineering Supervisor in a staff
20 position, and since that time that's where I have been in
21 my position.

22 Q Mr. Mueller, do your duties include ana-
23 lysis and reservoir study and supervising engineers for
24 Phillips under your control to analyze production in south-
25 eastern New Mexico?

1 A That's right. I have six reservoir
2 engineers under my supervision.

3 Q Have you and your staff analyzed the
4 South Shoe Bar Atoka Gas Pool and the North Vacuum Pool?

5
6 A Yes, sir.

7 Q And have you previously testified before
8 the Oil Conservation Division and Commission as an expert
9 reservoir engineer?

10 A Yes, sir.

11 MR. KELLAHIN: We tender Mr.
12 Mueller as an expert reservoir engineer.

13 MR. LEMAY: His qualifications
14 are acceptable.

15 Q Mr. Mueller, let me direct your atten-
16 tion, sir, to Exhibit Number Five, just as a point of
17 illustration, and have you identify, sir, what the problem
18 is.

19 A Okay. Exhibit Number Five shows
20 outlined in red the 160-acre nonstandard proration unit in
21 the South Shoe Bar Atoka-Morrow Gas Field that Phillips
22 Petroleum Company is requesting approval of.

23 This unit comprises the west half of the
24 northwest quarter and the north half of the southwest quar-
25 ter. Phillips also requests an approval of this nonstandard

1 unit, that the unit be assigned a 50 percent acreage pen-
2 alty factor, a ratable take determination by the gas pur-
3 chaser at the time the well is connected.

4 It is also requested that this nonstand-
5 ard unit of 160 acres be assigned to an unorthodox loca-
6 tion located in Unit D of Section 22, 660 from the north
7 and 660 from the west.

8 Also shown on Exhibit Number Five in
9 green are the current producing wells in this area. As an
10 example, in the northeast quarter of Section 22 is the
11 McIlvain well colored in green and its unorthodox location
12 and nonstandard unit comprising the 240 acres in the north
13 half of Section 22; the Sun Shoe Bar Well, located in Unit
14 M of Section 15, it's full 320-acre assignment is the south
15 half of Section 15; the C. W. Trainer operated Betty State
16 No. 1 in the west half of Section 16, with a standup unit
17 and 320 acres assigned to it; and the proposed C. W. Train-
18 er Betty State No. 2, with an east half assignment in Sec-
19 tion 16.

20 Q With regards to this case, Mr. Mueller,
21 what do you as a reservoir engineer see as the problem?

22 A As regards to this case the main problem
23 is the nonstandard unit and unorthodox location of the
24 McIlvain well, with reference to the productive acreage
25 that is now developed in this area.

1 Q How is that a problem?

2 A Because it leaves Phillips' 80 acres
3 dangling out on the end and we need to somehow have this
4 acreage become incorporated into a well or drill a well on
5 this acreage.

6

7 Q What has your reservoir study showed you
8 in terms of the ability of the McElvain well to produce all
9 the Atoka reserves within Section 22?

10 A Very well, it could. Yes, the McElvain
11 well is a high productivity well, even though it has a
12 small amount of net pay sand and is capable of draining a
13 considerable area.

14 Q Do you have an opinion as to whether or
15 not Section 22 and a reservoir underlying 22 will support
16 the drilling of more than one well?

17 A Yes. There are sufficient reserves in
18 the productive acreage of the Shoe Bar (not clearly under-
19 stood) to support the drilling of one or two more wells.

20 Q One or two more wells?

21 A Yes.

22 Q So there is enough reservoir reserves to
23 support maybe three wells in the section?

24 A Definitely.

25 Q All right. What happens if the Phillips

1 acreage is not dedicated to a producing well, whether it's
2 the McIlvain well or it's own well in the west half?

3 A The reserves under that acreage will be
4 drained from it.

5 Q How did we get into this situation, Mr.
6 Mueller?

7 A We got in this situation by not knowing
8 the full extent of the North Vacuum Atoka - Morrow Field
9 until the Marathon well, which was drilled in, I believe,
10 early of '87.

11 That Marathon well in State 17, it came
12 in with 40 feet of sand, a depleted pressure of about half
13 the original area, started kicking the sand development to
14 the southeast. It was this well here. At that time people
15 were thinking only the North Vacuum in this area and this
16 well here come in with 40 feet of sand. It was then people
17 started looking, connecting these two, the McElvain well
18 down here and the Marathon well up here.

19 Q At the time the Division approved the
20 240-acre nonstandard proration unit in October of '85 for
21 the McElvain well, what was the status of engineering
22 information known about the ability of a well such as the
23 McElvain well to drain and develop 320 acres?

24 A None, I would say, because the McElvain
25 re-entry was a re-entry of an Exxon plugged and abandoned

1 Devonian oil well that had actually DST'd the Atoka sand
2 and I believe had a million or so open flow on the DST, but
3 Exxon then perforated the sand, acidized it, and most Exxon
4 could get out of it was like, I believe, 449 MCF a day.
5 They subsequently plugged the well, so that, you know,
6 McIlvain's re-entry in that well took a high risk, I'd say.

7 Q Was there any engineering information
8 available to an engineer to an engineer such as you in
9 October of '85 from which you could determine that that
10 well could be justified on a 240-acre nonstandard prora-
11 tion and spacing unit?

12 A No. Am I answering that? I guess I got
13 the question. Is it was there engineering data available?

14 Q Yes, sir, and there was not.

15 A There was not.

16 Q Let's turn, sir, to Exhibit Number Six.

17 A Okay. Exhibit Number Six in conjunction
18 with Exhibit Number Seven, is a tabulation of the annual
19 shut-in pressure surveys required by the New Mexico Oil
20 Conservation Commission on dry gas -- or gas wells in the
21 State of New Mexico.

22 This exhibit is primarily to show the
23 excellent communication throughout the North Vacuum Atoka -
24 Morrow and its connection to the South Shoe Bar Atoka -
25 Morrow Gas Field, such that the productive, all the produc

1 tive acreage in both of these fields is being depleted by
2 the current production out there.

3 In other words, you have to be partici-
4 pating in a well or you're suffering drainage at this time.

5 Our particular attention is drawn to the
6 Exhibit Six. You can see that in 1973 --

7 Q You'll have to speak up, Bill, it's
8 hard to hear you.

9 A I'm sorry. On Exhibit Number Six, in
10 1973 Texaco completed the DK State Com No. 1 in Unit F of
11 Section 8. That's this well, in Section 18, I'm sorry.

12 Q You want you Section 8 or 18?

13 A Section 18. This is the first well,
14 the Texaco DK State, and it came in in 1973 with a shut-in
15 tubing pressure of 4856 pounds.

16 The next development in this pool did
17 not occur until 1977, which was four years, excuse me,
18 three years later in 1976, Mobil completed the UU Com No.
19 1 in Unit F of Section 7. That's this well, one full mile
20 north. At that time the Mobil well came in with a shut-in
21 tubing pressure of 4300 pounds or some 500 pounds less than
22 this well came in at three years earlier and right at about
23 the same pressure this well had now declined to in 1976.

24 One year later, in 1977, Marathon com-
25 pleted in Unit G of Section 7, this well, and it came in at

1 a shut-in tubing pressure of approximately 3600 pounds,
2 again right in line with where these two wells had declined
3 to.

4 In that same year Mobil completed the
5 State NN Com No. 1 in Unit L of Section 8 and here again we
6 see 3300 initial pressure in that well such that in plot-
7 ting this shut-in tubing pressure for these four wells
8 versus time, you can see that they all lay in essentially
9 the same straight line, such that every subsequent well has
10 already suffered drainage by the previous well's comple-
11 tion.

12 And this shows that the current depleted
13 shut-in tubing pressure in these four wells is around 1500
14 pounds in 1987, as reported by these operators.

15 Q Have you made a similar analysis of the
16 pressure information when we move to the Shoe Bar Atoka on
17 the south?

18 A Yes. In Exhibit Number Eight, along
19 with Exhibit Number Nine, you see we have the Enron, or HNG
20 Well in Unit L, which was completed in 1984, way over there
21 in Unit L of Section 14, and it reported initial shut-in
22 pressure shut-in pressure of 3500 pounds. It was produced
23 until 1986 at which time its pressure had declined to about
24 2500, as reported when McElvain recompleted the State AC in
25 Unit H down here. Now McElvain initially reported a

1 shut-in tubing pressure of 4400 but within one year their
2 pressure had declined to 2190, such that right now in 1987
3 the shut-in pressures for the McElvain well here and the
4 Enron well is very close to the shut-in pressures for the
5 North Vacuum Atoka - Morrow wells.

6 Q If you took the initial reported shut-in
7 pressure from the McElvain well in '86 and accepted that as
8 being correct, what would that relationship of that pres-
9 sure to the North Vacuum cause you or lead you as a reser-
10 voir engineer to believe?

11 A There was possibly separation at that
12 time but then subsequent rapid decline showed that they're
13 not in communication.

14 Q Do we have plotted the pressure informa-
15 tion on the Sun well in Section 15?

16 A The only -- I have made some, it's un-
17 tabulated.

18 Q Okay, we'll come to that in a minute,
19 then.

20 A Right.

21 Q Let's go now, sir, to Exhibit Number Ten
22 and look at the production information on the McElvain
23 well.

24 A Exhibit Number Ten shows the production
25 history of the McElvain well which was completed and

1 initial production reported in February of '86. It has
2 produced consistently between 5 and 6-million a day. It
3 has cumed, to April 1st of this year, 4.2-billion cubic
4 feet of -- billion cubic feet of gas and 49,497 barrels of
5 oil, condensate, and I believe the well is currently is
6 currently producing 5.5-million a day at about 700 pounds
7 flowing tubing pressure.

8 Q All right, sir, turn to Exhibit Number
9 Eleven now and identify and describe that information.

10 A Exhibit Number Eleven is a tabulation of
11 the monthly condensate in barrels and the monthly gas vol-
12 umes for the McElvain well and it shows the cum production
13 through March of 1988 is a little over 4-billion cubic feet
14 of gas.

15 Q Have you prepared a decline curve analy-
16 sis for the McElvain well?

17 A Yes, we have. As Exhibit Number Twelve
18 we plot the engineering data of shut-in pressure, bottom
19 hole pressure, over Z and we obtain a straight line, which
20 gives a good indication of the recoverable reserves indi-
21 cated at that time by a well's performance, and you can see
22 we have three pressure points here on the McElvain well. I
23 think initially there are 400-to-1, a 2800-to-1 one year
24 later and then the latest one they report here of 2200 in
25 the '87 annual.

1 These three points line up well when
2 plotted versus their cum and indicate that the McElvain
3 well at that time when this exhibit was prepared in March,
4 would anticipate a recovery of about 7.6-billion cubic
5 feet.

6 I reviewed the good productivity and
7 communication throughout the sands. With the Sun well now
8 coming on production, with the Marathon well, I think,
9 coming on production later in last month, and the Betty
10 State in April, the remaining reserves will now be reduced,
11 probably, to in the neighborhood of 2 to 3-billion cubic
12 feet, rather than the .36 indicated here.

13 Q Based upon your reservoir study, have
14 you also made an analysis of what the allocation will be of
15 remaining recoverable reserves if the orientation of the
16 spacing units are such that you have a west half and an
17 east half unit, and we now have the existence of the Phil-
18 lips well as you propose it.

19 A Yes.

20 Q Have you analyzed that?

21 A Yes.

22 Q And what do your numbers show you?

23 A My numbers show that -- it shows me that
24 with the west half forced pooling and a well in the west
25 half, and a well only in the east half, the McElvain well,

1 McElvain will recover about 2-billion and the well in the
2 west half will recover 2.2-billion.

3 Q Are those sufficient recoverable reserve
4 volumes to justify and support two wells in the section?

5 A Yes.

6 Q When we turn to Exhibit Number Thirteen,
7 Mr. Mueller, would you identify and describe that informa-
8 tion?

9 A Exhibit Number Thirteen shows there's
10 excellent pressure communication throughout this whole sand
11 lens.

12 It shows that the Texaco DK State No. 1
13 in Unit F of Section 18 reported in 1987 a shut-in tubing
14 pressure of 1590 pounds; that the Marathon Oil Company new
15 completion here in Section 17, had an initial shut-in pres-
16 sure of 1672 pounds; that the C. W. Trainer Betty State No.
17 1 here, this well had not produced at all up to that time.

18 The C. W. Trainer Betty State No. 1,
19 which had not produced up to this time, but in March of '88
20 had a shut-in tubing pressure of 1585.

21 You'll see that the Sun well located
22 over here in the end of Section 15 had an initial shut-in
23 tubing pressure of 1910, and we see that the McElvain well
24 in Unit H had a 2203 shut-in tubing pressure reported in
25 1987, such as all these shut-in tubing pressures are very

1 close together.

2 Q What's your conclusion as a reservoir
3 engineer?

4 A That they're all eaten out of the same
5 pie.

6 Q Let's go back and discuss specifically
7 your first recommendation, which is the formation of a
8 160-acre nonstandard spacing and proration unit --

9 A Yes, sir.

10 Q -- in 22 with the approval of an unor-
11 thodox well location?

12 A Right. You mentioned in your opening
13 comments that you had a recommendation with regards to what
14 allowable to assign to that well so as not to violate the
15 correlative rights of the other operators in the pool.

16 A Right.

17 Q Tell us how you propose to establish an
18 allowable for the well if that nonstandard unit is approved
19 with the well as you propose to locate it.

20 A This currently being a nonprorated field
21 there is essentially no (unclear) allowable; however, all
22 common gatherers of gas in the State of New Mexico are re-
23 quired by state statutes to take ratably and in Exhibit
24 Number Fourteen I show that in Sections 70-2-1 through
25 70-2-36, which are known as the Oil and Gas Act of the

1 State of New Mexico, under 70-2-19, common purchasers,
2 paragraph E states that "Any common purchaser taking gas
3 produced for gas wells ... from a common source of supply
4 shall take ratably under such rules, regulations and or-
5 ders, concerning quantity, as may be <determined> by the
6 Division... The Division, in <determining> such rules,
7 regulations and orders, may consider" the deliverability of
8 gas, pressure of gas, or "acreage attributable to the
9 well"...

10 That's the common purchaser out there
11 who is taking gas from Phillips Petroleum Company with a 50
12 percent acreage factor, to take ratably, should only take
13 half as much gas from our well as it would take from a well
14 of equal deliverability with a 320 acre assignment.

15 Q Has the Commission previously ever
16 adopted this as a solution for a nonstandard proration unit
17 --

18 A Yes, sir, they have.

19 Q -- in a nonprorated pool?

20 A Yes, sir, they have.

21 Q Do you have a reference for the Commis-
22 sion to consider on that topic?

23 A Yes. Exhibit Number Fifteen is the
24 Application of Pan American Petroleum Company for an unor-
25 thodox gas well location in Lea County, New Mexico.

1 This well was completed in the Ranger
2 Lake Devonian Gas Pool at that time, which was a nonpro-
3 rated pool. The Commission, because Pan Am wanted to drill
4 990 feet from the north rather than the 1980 from your end
5 unit boundary, the Commission restricted the acreage as-
6 signed to this well to two 160 acres rather than the normal
7 320.

8 Q Do you have an opinion as a reservoir
9 engineer, Mr. Mueller, with experience before this Commis-
10 sion, as to whether or not your proposed allowable will be
11 in the best interests of conservation and the protection of
12 correlative rights?

13 A Yes, sir.

14 Q And what is that opinion?

15 A It will.

16 Q Let's consider now the other alternative
17 of compulsory pooling for the west half of Section 22.
18 Have you studied that as an alternative?

19 A Yes.

20 Q All right, let's, for illustration
21 purposes, let's go to Exhibit Number Sixteen and have you
22 show us who the operators would be involved in such an
23 orientation.

24 A Okay. On Section -- Exhibit Number
25 Sixteen I show outlined in red the west half of Section 22

1 and forced pool proration unit comprising 320 acres. I
2 show that the standard location for that 320 acres would be
3 in either Unit E or F, or anywhere in between those two.
4 The least risk location would of course be the one 1980
5 from the north and 1980 from the west, or Unit F; however,
6 the lawyers think I should not be drilling on McElvain's
7 acreage if we have a forced pooling.

8 Q Have you participated in discussions
9 with all the working interest owners in the west half of 22
10 to see if you can resolve on a voluntary basis the parti-
11 cipation in a well for the west half?

12 A In a forced pool west half?

13 Q No, sir, on a voluntary basis.

14 A Yes.

15 Q Have you participated in those discus-
16 sions with all those operators --

17 A Yes.

18 Q -- and working interest owners?

19 A Right.

20 Q And have -- has Phillips been able to
21 resolve on a voluntary basis in the absence of forced
22 pooling, the formation of a west half spacing unit?

23 A No, we haven't.

24 Q Do you have an opinion as to whether
25 further voluntary efforts will be helpful in order to

1 resolve that matter?

2 A They will not be.

3 Q We need a Commission decision, don't we?

4 Have you circulated among all those
5 interest owners an AFE for the drilling and completion of
6 the Phillips well?

7 A Yes, sir, I have and that is shown as
8 Exhibit Number Seventeen, where we anticipate a drilled and
9 completed well cost of \$743,000.

10 Q In the event the Commission orders the
11 compulsory pooling of the west half of the section, do you
12 have an opinion, Mr. Mueller, as to whether this expendi-
13 ture is a fair and reasonable estimate of well costs?

14 A Yes, I do, and it is.

15 Q What's your basis for comparison?

16 A My basis for comparison is that the
17 estimate submitted by C. W. Trainer for the Betty State No.
18 1, I think, was \$780,000 and he completed that well for
19 around \$690,000, so I think we're all very close here.

20 Q The Betty State Trainer Well is in the
21 east half -- I'm sorry, the west half of 16?

22 A Yes, sir, and we're a 50 percent partner
23 in that.

24 Q All right. Have you received any ob-
25 jection from any of the proposed working interest owners as

1 to your estimated costs?

2 A No, sir.

3 Q Do you have a recommendation to the
4 Commission in the event of a west half forced pooling what
5 should be the overhead charges on a monthly basis for a
6 drilling well rate and a producing well rate?

7 A Phillips' standard drilling well rate is
8 \$6,130 a month for drilling and after completion the
9 producing well rate is \$613 per month.

10 Q Do you have a recommendation to the
11 Examiner as to what a risk factor penalty ought to be
12 against any party that after the election period fails to
13 tender their fair share of the cost of the well?

14 A Yes. I think it -- rather than -- there
15 has to be some type of penalty otherwise nobody would put
16 their money up front; they'd wait till the well paid out
17 and just come in on a free ride, so we would recommend at
18 least a 200 percent penalty; that's the return of the well
19 costs plus 100 percent additional.

20 Q All right. In the vocabulary of the
21 Commission that's return of your money and 100 percent
22 penalty.

23 A Right.

24 Q Why have you not sought the maximum 200
25 percent risk factor penalty for this well, Mr. Mueller?

1 A All our data indicates this to be good
2 productive acreage. We think there is not a high risk
3 associated at this time.

4 Q The risk associated with it is the
5 extent that the west half has already been depleted by
6 other wells?

7 A That's right.

8 Q Have you also considered recommendations
9 with regards to the forced pooling of the north half of
10 Section 22?

11 A Yes, sir, I have.

12 Q Is that shown on Exhibit Number Eighteen
13 as to what the orientation will be and what the participa-
14 tion is?

15 A Yes, sir, it does. It shows that out-
16 lined in red would be the force pooled north half proration
17 unit of Section 22, which would show the Phillips acreage
18 joining in the proration unit for the McElvain well located
19 there in the southeast of the northeast corner.

20 It also shows outlined in green the cur-
21 rent McElvain acreage at 240 acres.

22 So McElvain would have a 75 percent
23 working interest and Phillips would have a 25.

24 Q Do you have a recommendation to the
25 Commission if they adopt this alternative as their proposed

1 solution for the problem, what the compensation should be
2 by Phillips to the McElvain/Trainer owners for participa-
3 tion in the completed well?

4 A We think it should be 1/4th of their
5 recompletion costs but not to exceed 1/4th the cost of a
6 new well, however, if you approach that --

7 Q And do you have a recommendation as to
8 when Phillips would commence participation in the produc-
9 tion?

10 A We would recommend it commence with our
11 application to force pool the north half at the hearing in
12 late May, I believe, or early June.

13 Q What's the basis upon which you have
14 concluded that contribution of a quarter percent of the re-
15 completion cost for the McElvain well in the Atoka is fair
16 and equitable?

17 A Because at this point McElvain has re-
18 covered the 4-billion cubic feet, and some of that gas has
19 already come from under the Phillips acreage, so we feel
20 that productive acreage in Section 22 has already, you
21 know, contributed to the McElvain income that he has, and
22 that we should be assessed no greater penalty than that.

23 Q In terms of sharing in future production
24 have you made an attempt to estimate what remains to be the
25 remaining production from the McElvain well?

1 A Yes. I'd say that we forecasted it with
2 no other wells in this section, they should recover about
3 3.6-billion cubic feet more.

4 Q Based upon that forecast, Mr. Mueller,
5 will the sharing of remaining future production with Phil-
6 lips on a three quarters/one quarter ratio still allow all
7 parties to share equitably in the remaining future produc-
8 tion?

9 A Yes.

10 Q Do you believe in your opinion that is
11 fair and reasonable and does not violate the correlative
12 rights of any of the participants?

13 A Yes.

14 Q Do you have a recommendation to the
15 Commission as to what would be a reasonable election period
16 for Phillips to tender its share of the cost of recomple-
17 tion in order to participate, then, in future production on
18 a voluntary basis?

19 A I would say 60 to 90 days.

20 Q In the event Phillips elects not to
21 tender its share of those costs, do you have a recommenda-
22 tion to the Commission as to what the penalty factor ought
23 to be against Phillips' interest?

24 A Yeah, we should not participate in pro-
25 duction until we tender that cost if it's not incurred

1 within 60 to 90 days.

2 Q Let me direct your attention, Mr.
3 Mueller simply to identify for us the balance of the
4 exhibits.

5 We have marked correspondence and
6 notifications Exhibits Nineteen through Twenty-eight.

7 A Yes, sir.

8 Q Is this correspondence with which you
9 are familiar?

10 A Yes, I am. This is correspondence by
11 our land people in Odessa to all the operators in Section
12 22, to have a meeting relative to the decision in develop-
13 ing Section 22 following the Commission's denial of our
14 application in March, is what the letter dated June the 8th
15 was.

16 Q That's Exhibit Nineteen?

17 A Yes. And Exhibit Twenty is the same
18 letter to Mobil?

19 A Same -- same letter to Mobil.

20 Exhibit Twenty-one is the same letter to
21 ARCO.

22 Exhibit Twenty-two is the same letter to
23 McElvain Oil and gas property.

24 Q When we get to Exhibit Twenty-three,
25 what is that?

1 A Exhibit Twenty-three is the attendance
2 list at that meeting that was held June the 15th in Phil-
3 lips' offices in Odessa, Texas.

4 All operators were present except
5 McElvain.

6 Q Did you subsequently have meetings with
7 Mr. McElvain or Mr. Trainer or their representatives con-
8 cerning the operations and developments of Section 22?

9 A We had a meeting with Mr. C. W. Trainer.

10 Q As a result of all these meetings, Mr.
11 Mueller, was Phillips able to resolve on a voluntary basis
12 the further development of Section 22?

13 A No, sir.

14 Q What's Exhibit Twenty-four?

15 A Exhibit Twenty-four is our transmission
16 of the AFE to the west half unit owners for the force
17 pooled well in Unit NN.

18 Q Exhibit Twenty-four went to ARCO?

19 A Right.

20 Q Twenty-five is to Mr. Trainer?

21 A Yes.

22 Q Twenty-six is to Mr. McElvain?

23 A Right.

24 Q Twenty-seven is to Amerada Hess.

25 A Yes.

1 MR. KELLAHIN: Then, Mr.
2 Chairman, after that Exhibit Twenty-eight is the notices
3 that my office sent for the purposes of the hearing.

4 We would at this time, Mr.
5 Chairman, move the introduction of Exhibits Five through
6 Twenty-eight.

7 MR. LEMAY: Without objection
8 those exhibits will be entered into the record.

9 MR. KELLAHIN: May I have just
10 a moment?

11 Mr. Chairman, we pass the
12 witness.

13 MR. LEMAY: Thank you, Mr.
14 Kellahin. Mr. Carr.

15
16 CROSS EXAMINATION

17 BY MR. CARR:

18 Q Mr. Mueller, your first proposal is the
19 approval of the previously proposed nonstandard proration
20 unit comprised of 160 acres.

21 A That is right; that is our first pro-
22 posal.

23 Q And it's your recommendation that pro-
24 duction from a well on that unit would be restricted to 50
25 percent of the deliverability of a comparable well?

1 A Of a comparable well in the pool, yes,
2 on 320 acres.

3 Q And who would administer that or deter-
4 mine what 50 percent of -- what that 50 percent --

5 A The pipeline company because they're
6 forced by state law to take ratably.

7 Q Is there one purchaser in the pool at
8 this time?

9 A No, there's one purchaser in this area.
10 No, excuse me, there's not. There's even multiple pur-
11 chasers in this area.

12 Q And so there would be perhaps a differ-
13 ent purchaser connected to this new well than the one that
14 would be connected to a comparable well with similar de-
15 liverability (unclear)?

16 A That's true.

17 Q Wouldn't it make more sense to restrict
18 the production based on the individual well's deliverabil-
19 ity, just to 50 percent of that deliverability, instead of
20 tying it to some other well that might or might not have a
21 comparable deliverability figure?

22 A I don't believe so. I think the penalty
23 just -- it would be restricted to a well of comparable de-
24 liverability on 320 acres would be sufficient.

25 Q Now, your penalty restriction is keyed

1 to the well's deliverability, not the actual volume it's
2 going to be authorized to produce, isn't that correct?

3 A Please state that again.

4 Q Well, let's suppose it is keyed to the
5 Sun E & P well immediately to the north in the south half
6 of Section 15, and that they have comparable deliverabili-
7 ties.

8 A Yes.

9 Q And your well on a nonstandard proration
10 unit would be entitled to produce 50 percent of what the
11 Sun well to the north would be able to produce.

12 A That is true.

13 Q But what if, in fact, your purchasers
14 are only taking 50 percent of deliverability that month?
15 Would you in fact have any restriction at all?

16 A If my purchaser or their purchaser was
17 only taking --

18 Q If the market is down and they're only
19 taking 50 percent of the gas produced, by tying it to de-
20 liverability you don't have a penalty at all. You produce
21 the same.

22 A Well, but if the market is down, my
23 market is down, too, isn't it? Is that what you're saying?
24 But in tying it to deliverability the converse is true.
25 Suppose my well is twice as good as the Sun well, then I

1 would be -- if I'd had deliverability I could produce as
2 much as they could produce and I only have 160 acres.

3 Or if our well was three times better, I
4 could be able to produce in excess of what the Sun well
5 produces on 320 acres, if you tie it to deliverability.

6 Q Don't you think it would, if we're going
7 to start imposing penalties, that it would be more appro-
8 priate simply to prorated this pool?

9 A I think so. I think that's where we
10 would end up.

11 Q Thank you, that's all.

12 MR. LEMAY: Thank you, Mr.
13 Carr.

14 Additional questions?

15 MR. PEARCE: Yes.

16 MR. LEMAY: Mr. Pearce.

17

18 CROSS EXAMINATION

19 BY MR. PEARCE:

20 Q Mr. Mueller, during your testimony you
21 indicated that you believe Section 22 would justify at
22 least one and possibly two additional wells, is that
23 correct?

24 A Yes.

25 Q Could you give me an idea of assumptions

1 or information which underlies that opinion, that the
2 section might justify two additional wells?

3 A Okay, that was based on a reservoir
4 forecast that we made assuming that this well encountered
5 the pay it encountered and assuming that, as brought out by
6 our geologist, the lack of control here, as I'm sure Mobil
7 would possibly drill a well here and the assumption of
8 about a 2-to-3-million a day well in this area; that those
9 three wells would all recover about 1-1/2 to 2-billion
10 cubic feet.

11 Q Clearly enough to pay out those wells?

12 A Yes.

13 Q And meet Phillips' normal return on
14 investment?

15 A Yes, sir.

16 Q Do you believe two additional wells are
17 necessary to drain Section 22?

18 A No, sir.

19 Q Do you believe one additional well is
20 necessary to drain Section 22?

21 A I think to get the maximum recovery ad-
22 ditional development is desirable, yes.

23 Q All right, sir. I'd like to have you
24 look at what you marked as Exhibit Number Fifteen. That is
25 the order of the Commission in the previous case and it

1 appears to me to be an order approving. Have you looked a
2 the record of that proceeding? I can't tell from this
3 order what the Commission did.

4 A Okay. Yes. The Commission said that
5 because Pan Am at that time wanted to drill a well 990
6 from the north and east and dedicate the whole 320 acres in
7 the east half of the section to that well, they imposed an
8 acreage factor on the Pan Am unorthodox location.

9 Q Well, I certainly agree that the order-
10 ing portion says that no more than 260 acres shall be dedi-
11 cated to the well.

12 A Right.

13 Q Was this well in a prorated pool?

14 A No.

15 Q Well, if it was in a nonprorated pool,
16 what affect did this order have on the amount of gas that
17 that well was able to produce?

18 A Because the common, in this pool there
19 was only one common gas purchaser and that common gas pur-
20 chaser then took proportionately from the Pan Am well and
21 their acreage against the Phillips wells and their acreage.

22 Q I'd like for you, if you would, please,
23 to look at your Exhibit Number Eight with me for a moment.

24 The red line which is the well in Unit 8
25 of Section 22, as I understand it, is the McElvain well?

1 A That is right.

2 Q And that well came on at above 4400
3 pounds?

4 A That data is shown on -- attached to
5 Exhibit. It shows the initial shut-in pressure reported by
6 the actual (unclear) was 4430.

7 Q Okay. And then in a subsequent exhibit,
8 Exhibit Number Ten, your exhibit shows that during the year
9 1986 the McElvain "AC" State No. 1 Well produced 1.5 BCF
10 and 21,759 barrels of oil, is that correct?

11 A That is correct, sir.

12 Q Now I understood you to testify when you
13 were looking at this that because the pressures in 1987 be-
14 tween these two wells in the Shoe Bar and the wells re-
15 flected on your Exhibit Number Six were similar, that you
16 believed all of those wells were in effective pressure com-
17 munication, is that --

18 A That's right. The pressure data in 1987
19 indicates all the wells are in communication.

20 Their initial pressure data from the
21 McElvain Well back in '86 was substantially higher than
22 would have been anticipated had the -- would not have
23 caused you to participate and would possibly not all be
24 communicated at that time.

25 Now, the initial McElvain pressure looks

1 abnormal for some reason or other, because subsequent pres-
2 sure in that well has shown a drastic drop-off at 44.

3 In other words, as you can see, he came
4 on at 4430 initial shut-in tubing pressure right now, and
5 he's down to 2190 and he's produced 3-billion cubic feet.

6 Q It is the coincidence of -- I apologize.
7 I apologize, that's not my question.

8 It is the fact that pressures at 1987
9 levels were all very close to each other, which leads you
10 to the conclusion that all of those wells are in pressure
11 communication.

12 A I would like to state that the 1987
13 pressure data for the North Vacuum Atoka - Morrow older
14 development wells and the 1987 shut-in pressure data for
15 the McElvain Well in the Shoe Bar South Field were similar
16 and then all of a sudden three new wells are drilled be-
17 tween those two pools and those pressures are identical to
18 what is -- to what the McElvain well has now declined to
19 and to what the North Vacuum Atoka - Morrow has declined
20 to. They're all in the 1500 to 2000 pound range.

21 Q I guess, Mr. Mueller, I might as well go
22 ahead and ask my real question. I don't understand how
23 producing the McElvain well during the year 1986 got it
24 effectively pressure communicated with the North Vacuum
25 Field, which I think is what --

1 A I think what you're saying is that the
2 McElvain well did not come in at the pressure that the
3 North Vacuum Atoka - Morrow was at in 1986.

4 Q That -- I believe that's what your
5 exhibit shows, yes, sir.

6 A That's right.

7 Q That would lead -- lead me to the con-
8 clusion that it was not in effective pressure communication
9 with the North Vacuum.

10 A On that one piece of data, yes.

11 Q Did I understand you to say, and this
12 was a hearing question, that you believe the present
13 flowing tubing pressure in the McElvain well is about 700
14 pounds?

15 A Yes, sir.

16 Q Do you have data which indicates that to
17 you?

18 A Mr. C. W. Trainer, I think, furnished
19 that to me yesterday, day before yesterday.

20 MR. PEARCE: I have nothing
21 further, Mr Chairman.

22 MR. LEMAY: Fine. Mr. Losee?

23

24 CROSS EXAMINATION

25 BY MR. LOSEE:

1 Q Mr. Mueller, is not the Sun well located
2 in Section 15 closer to the Phillips acreage in the west
3 half northwest than your proposed location and the McElvain
4 well?

5 A Yes, sir, it is.

6 Q Isn't it more likely that that well is
7 draining the Phillips acreage than the McElvain well?

8 A Yeah, since the Sun well came on it will
9 contribute substantially to the Phillips acreage drainage.
10 Up until the Sun well came on the McElvain well was.

11 Q But from this point forward there will
12 be more drainage from the Sun well.

13 A Only if the Sun well produces at a high-
14 er rate than the McElvain well. If the McElvain well
15 continues to produce at a rate double what the Sun well is,
16 the -- I don't know how the drainage would do. You'd have
17 to into a detailed study to --

18 Q Mr. Mueller, Phillips has three applica-
19 tions before this Commission, if I'm correct.

20 A That's right.

21 Q At one time Phillips asked for an
22 80-acre location of the west half northwest in its original
23 Examiner hearing. Has that been abandoned?

24 A That was abandoned at the original
25 Examiner hearing, that we withdrew our application for the

1 80-acre.

2 Q Now, which of these three applications
3 would Phillips prefer that the Commission approve?

4 A The initial one, the 160-acre nonstand-
5 ard unit with the unorthodox location in Unit D.

6 Q And that consists of the west half
7 northwest and the north half of the southwest.

8 A Yes, sir.

9 Q Would you explain why?

10 A Because our reservoir forecasting shows
11 that by obtaining the Amerada Hess farmout of the north
12 half, and that Phillips would be the 100 percent working
13 interest owner in that well, it would net Phillips a
14 greater rate of return than any other operator, because
15 that let's us have 80 acres in this productive section as
16 against the -- I mean, excuse me, let's us have 160 acres
17 as against 80.

18 Q Is also not that a location that you can
19 make an orthodox location in the northwest northwest -- or
20 an unorthodox, in a thicker section of the sand?

21 A It would have a higher productivity
22 probably than a well in Unit E or F, yes.

23 Q Now, one of your other proposed applica-
24 tions is to space the west half of the section.

25 A Yes, sir.

1 Q Would you explain to me how you recon-
2 cile that application with your Mr. Halle's map which shows
3 no pay sand in the south 80-acres of that unit?

4 A The only way I can reconcile that be-
5 cause with the denial of my 160-acre application I had the
6 feeling that I have to go for 320 and there's no require-
7 ment by the Commission that acreage be productive to be in
8 a gas proration unit.

9 Q Do you think that would contribute
10 anything to your well, a west half well?

11 A Geology, the current geology by our
12 geologist, it would appear it would not.

13 Q You would expect an allowable that would
14 be prorated for that 80-acres, would you not?

15 A Yes, sir, I certainly would.

16 Q Even though it, in your geologist's
17 opinion, would contribute no gas.

18 A That's right, because you know, like I
19 say, productive acreage is not in the allowable formula of
20 the Commission.

21 Q Where is that formula?

22 A No, I want normal -- the formula?

23 Q Yes, for allowable.

24 A It just says 320 acres, and any assigned
25 acreage is -- is normally used in the allocation of the

1 allowable.

2 Q Surface acres.

3 A Right, surface acres.

4 Q A third request is that you be pooled
5 into a north half spacing unit.

6 A Yes, sir.

7 Q When do you expect to start participa-
8 tion in production if the Commission would approve that
9 kind of order?

10 A We think we should begin participating
11 in that production the date of our application for that
12 forced pooling and I believe that was late May. I don't
13 have the exact -- well, it's probably in Mr. Kellahin's
14 last exhibit. June 21st, 1988? Yes, was our request. It's
15 Exhibit Number Twenty-eight. It's our request to Mr. Lemay
16 to set for hearing the nonstandard forced pooling of the
17 west half and an alternate of the north half. So we anti-
18 cipate that the order would permit us to participate in
19 production from that date forward.

20 Q Mr. Mueller, I'm trying to reconcile
21 that statement with the application that Phillips filed
22 with the Commission. Have you ever seen a copy of the
23 application?

24 A That Phillips filed with this Commis-
25 sion?

1 Q Yes.

2 A Yes, I have it here.

3 Q For the north half spacing unit.

4 A Yes, sir.

5 Q Yes, sir.

6 A Could you turn to page 4 and paragraph

7 7 refers to the application for the north half of the sec-

8 tion --

9 A Yes.

10 Q -- to be force pooled. Would you turn

11 over to sub-part 7-E for that application and read it,

12 please, sir, into the record?

13 A 6. To participate in the subject well

14 from the date of first production from the well by paying

15 its proportionate share of the actual original costs of the

16 drilling, completing, and equipping the well.

17 Q That sounds to me like Phillips would

18 like to participate in that 4 BCF that that well's already

19 produced.

20 A We would like to but we don't think we

21 would.

22 Q Okay, you don't feel like that would be

23 quite fair, do you?

24 A No, I don't.

25 Q But if the Commission were to approve a

1 north half spacing unit, I think you have said that that
2 would -- and your testimony was that would produce 3.6 BCF
3 of gas.

4 A That is our estimate based on a P/z
5 curve. That's without the Sun well producing. Now with
6 the Sun well producing that reserves may be reduced to like
7 3-billion.

8 Q About 3-billion.

9 A Uh-huh.

10 Q And you know from conversations with
11 Mr. Trainer at the meeting in Midland that a fourth of the
12 costs of completing his well were about \$125,000?

13 A At the meeting with Mr. Trainer in
14 Midland, or Odessa, that day --

15 Q Okay.

16 A He said he did not remember the exact
17 well costs but he estimated between 4 and 6.

18 Q Okay, and so at 400 \$125,000 would be a
19 quarter of the cost and at 600, \$150,000.

20 A That's right, sir.

21 Q Okay. And you would have by virtue of
22 the payment of between 125 and 150,000, you would have a
23 quarter of 3 BCF of gas (unclear).

24 A Yes, sir.

25 Q At \$1.50 per MCF wouldn't that be

1 pretty close to about 1.2-million?

2 A Very close.

3 Q That would be a 10-to-1 recovery on
4 your money, would it not? Or 8-to-10 times your money?

5 A NTR, yeah.

6 Q Do you think with your decline curve
7 you could go to the bank and borrow that 125 or 150,000?

8 A I think so.

9 Q Don't you think it would be fairer for
10 Phillips to pay to McElvain and Trainer the market value of
11 the reserves you would be receiving?

12 A No, sir.

13 Q Without any risk.

14 A No, sir, we're not -- we're not buying
15 reserves, because a part of the reserves being produced by
16 the McElvain well are my reserves.

17 We're not out purchasing reserves. We
18 could do that without having acreage in this proration
19 unit.

20 Q Mr. Mueller, would you be surprised to
21 learn that State Lease B-2264, which covers the west half
22 northwest is owned by Phillips; also covers the 240-acres
23 that's in McElvain's tract, and that Phillips actually
24 owned the whole north half at one time?

25 A Yeah, I'd be surprised. Well, no, I

1 don't -- no, I wouldn't be surprised, knowing --

2 Q We're going to offer the lease into
3 evidence a little bit later.

4 A Okay.

5 Q But what my question really is,
6 Phillips had all this at one time and they now want to let
7 somebody else take the risk, which you said was a high
8 risk --

9 MR. KELLAHIN: Objection,
10 that's argumentative, Mr. Chairman.

11 MR. LEMAY: Well, let's see
12 where he's going.

13 I'm not sure how the question
14 will end up being phrased.

15 MR. LOSEE: Well, it's argu-
16 mentative, Mr. Chairman, in fairness to Mr. Kellahin.

17 Q I guess my question has to do with
18 equity and correlative rights, in which Phillips seeks by
19 that request a forced pooling action (unclear(to get an 8
20 or 10 times return on its money from someone who took by
21 Phillips' own statement, a high risk in re-entering the
22 well and extending this (not clearly understood). Is that
23 what Phillips actually seeks?

24 A No. Phillips actually wants the 160
25 acres. The forced pooling into your well is our third

1 choice and our poorest choice.

2 Q And that's really because Phillips
3 doesn't think that's fair to the people who took the risk,
4 is that not true?

5 A I can't answer that.

6 Q Well, do you think it's fair, not what
7 Phillips thinks.

8 A I think it's fair if I don't get the
9 other two. If I don't get either the first one or two,
10 I've got to get three.

11 In other words, I don't -- I'm fin-
12 ished.

13 Q Mr. Mueller, I believe you testified on
14 direct examination that at one time you thought there was a
15 separation between the South Shoe Bar and the North Vacuum
16 Atoka.

17 A I said that back in '85 that probably
18 was anticipated, yes. I think even the Commission must
19 have thought so since they called them separate fields. It
20 wasn't until, really, the Marathon development here in '87
21 with the State Com 17 that you can see these start balloon-
22 ing together.

23 Q Now that's your opinion. Who else
24 sought -- expressed that opinion?

25 A Who else should?

1 Q Who else did?

2 A I don't -- I don't follow -- you mean
3 in just general conversation --

4 Q Well, who else -- did anyone else ex-
5 press the opinion to you that the acreage down in Section
6 22 was in or was not in the same pool as the North Vacuum?

7 A I can't recall. I -- the operators
8 being on Section 22 probably brought some of that out,
9 yeah, that they thought they were all together. The pres-
10 sure communication was showing them together.

11 Q Well, I -- maybe I'm confusing you with
12 my question. You said that you thought at one time there
13 was a separation between the South Shoe Bar and the North
14 Vacuum, totally, and my question was did anyone express
15 that opinion to you prior to 1985?

16 A I'm not sure I evaluated this in 1985.

17 Q Well, at any --

18 A Did I? It wasn't until the, like I
19 say, the development of the Marathon well here coming into
20 low pressure and the Sun well here, both in '87 and '88,
21 that you can see the two starting to grow together.

22 Q Okay. But as far as any knowledge you
23 had about the drainage area of the Atoka, it was the same
24 in 1984 in the area of the North Vacuum as it is today.
25 They're both good communication,

1 A Yeah, North Vacuum Atoka - Morrow is in
2 good communication between wells, yes.

3 Q And the same is true of the South Shoe
4 Bar.

5 A Yes.

6 Q And you didn't tell me it was learned
7 by the McElvain well about that drainage area. It was
8 known in the North Vacuum. Both of them are good drainage
9 areas.

10 A Yes.

11 Q Now, you said Humble had -- took a
12 drill stem test in this Atoka when they drilled in the New
13 Mexico "AC" State in 1953.

14 A Yes, sir, I believe that's right.

15 Q What did you say that DST was, or do
16 you remember?

17 A Well, I was thinking it was like a
18 million or so, but I have the file here if you want me to
19 look it up.

20 Q I think it's closer to 12.

21 You were working for Phillips in '85
22 when McElvain got this administrative order?

23 A Yes, sir.

24 Q Were you aware of his application?

25 A I can't recall right now that I was. I

1 know a copy of the application came to our office and it
2 was signed in by our secretary and we did not execute a
3 waiver and we are unable to locate the original applica-
4 tion in our files.

5 Q You didn't offer any objection, did
6 you?

7 A No, sir, we did not object.

8 Q Did you evaluate the application at
9 that time?

10 A I can't recall that I did or did not.
11 I -- that's three years ago and I don't remember it in
12 particular because I think had I evaluated it, we would
13 have done something with the waiver. That's --

14 Q Would you have signed it and sent it
15 back?

16 A In all probability.

17 Q You want a second -- Phillips want a
18 second look?

19 From an engineering standpoint what
20 have you learned about the drainage pattern of the Atoka in
21 this area since that -- you received that waiver?

22 A We found out that the drainage pattern
23 is much greater than anticipated. We found out that these
24 four wells essentially depleted about one-half the reserves
25 in this whole area, were produced up in these four wells.

1 Q But if you had studied the North Vacuum
2 at the time, wouldn't you have realized that the drainage
3 between those wells was also very good?

4 A No, you wouldn't because you were still
5 closing contours here at that time. You knew that they had
6 good productivity but you didn't start to visualize that
7 this field had to be bigger until you started seeing these
8 cums going over 10-billion here and pressures holding up.

9 Q But the Vacuum, North Vacuum Atoka had
10 been in for ten years. the oldest well was in 75 --

11 A Yes, sir, '73, I think.

12 Q Did you ever look at the drainage
13 pattern in those wells? Did you ever study those prior to
14 this hearing?

15 A Well, I -- I don't understand what you
16 mean by drainage pattern. I mean, I don't think --

17 Q Did you ever reach any opinion as to
18 whether they were draining a great, large area or not prior
19 to this hearing?

20 A My experience with Morrow Atoka is they
21 will drain large areas if they have high productivity.

22 Q And you didn't find out anything new by
23 the McElvain or the Marathon wells about 00

24 A The Marathon, yes, that told me that,
25 boy, this baby's got lots of sand and it's already been

1 depleted way on down.

2 Q But as far as the drainage, the Atoka-
3 Morrow --

4 A Can do that, yeah.

5 Q -- generally has a large --

6 A Right.

7 Q -- good communication.

8 A Yes. Right.

9 Q And my question is, what did you learn
10 by the McElvain well and the Marathon well as far as the
11 drainage pattern in the Atoka - Morrow?

12 A They're both good producers and they
13 both have high productivity and high drainage areas.

14 Q But that's frequently found --

15 A I already knew that before, yeah,
16 that's correct.

17 Q That's frequently found in the Atoka -
18 Morrow.

19 A Yes, sir.

20 Q So that really there was nothing new
21 that was learned -- has been learned since that application
22 was approved.

23 A That's right.

24 Q Thank you. That's all.

25 MR. LEMAY: Additional ques-

1 tions of the witness?

2 Mr. Brostuen.

3

4 QUESTIONS BY MR. BROSTUEN:

5 Q Mr. Mueller, I have a question just for
6 clarification. I made this just little bit earlier. When
7 you were discussing your Exhibits Six, Seven, Eight and
8 Nine, I believe, you made -- I understood you to say that
9 initially the two pools were not in communication but now
10 they are in communication --

11 A No, I --

12 Q -- is that correct?

13 A What I meant to say, if I said that,
14 that was a misnomer (sic). I said that the initial data
15 from the McElvain well indicated there was a potential
16 existence of two separate sand bodies. It did not say they
17 were separate; it said the initial pressure data, that
18 McElvain well coming in 4400, was a little abnormal and it
19 would not have immediately led you to believe that the two
20 pools were in communication at that time.

21 You could not take the McElvain well
22 initial data and prove that it's in communication with the
23 North Vacuum Atoka - Morrow.

24 Q To what would you attribute the in-
25 crease in production in a well in Section -- Unit L in

1 Section 14 from 1985 to 1986 and back to 2190, approxi-
2 mately what it was in 1985, two years later?

3 A This is, excuse me, what exhibit?

4 Q On your Exhibit Eight, excuse me.

5 A Exhibit Eight? The well in Unit L?

6 Q That's correct.

7 A It shows a bottom hole shut-in tubing
8 pressure decline to 21 and it increased to 27?

9 Q From 2204 --2204 to 2700 and back down
10 to 2195.

11 A What the Commission requires from annu-
12 al shut-in tubing pressures is at least a 24-hour shut-in
13 and this is normally ample, valuable, good data for high
14 productivity wells. In four producing wells, wells that
15 probably produce less than 2 to 3-million a day, 24 hours
16 is not ample to reach a good, static, shut-in pressure, and
17 that's why when you have a well like this that only pro-
18 duces in the neighborhood of, like 200 MCF a day, it just
19 did not stabilize as shut-in tubing pressure.

20 Q Okay, thank you, very much.

21

22 QUESTIONS BY MR. LEMAY:

23 Q Mr. Mueller, you've mentioned -- let's
24 take the Sun well as a drainage factor, assuming that,
25 which I think you said, that reduces the remaining recover-

1 able reserves for the McElvain at 3 BCF, did you say?

2 A Yes, I said it, right.

3 Q That was assuming no other wells were
4 drilled?

5 A Right. The 3 BCF assumes no wells in
6 Section 22 but it does assume the Sun well continues to
7 produce at 3 to 5-million a day.

8 Q Did you testify, I think, that these
9 wells had high productivity, high permeability?

10 A Yes.

11 Q So with two wells in Section 22, do you
12 take that 3 BCF and divide it in half, giving 1-1/2 BCF to
13 each well?

14 A No, because, you see, because of the
15 excellent communication, the more straws that you put in
16 here, you'll also -- all the productive acreage will
17 contribute. In other words, there's no fence boundary at
18 these section lines.

19 Q So something in excess of the remaining
20 reserves if you drilled another well.

21 A That's right.

22 Q Any idea how much in excess?

23 A The second well in Section 22, our
24 reservoiring engineering forecast shows about another
25 2.2-billion for it and about 2.4-billion for the McElvain

1 for a total of, like, 4.5-billion would then be produced
2 out of Section 22.

3 Q 2.4 out of McElvain and yours would be
4 2.2 BCF.

5 A Yes.

6 Q Well, that's assuming that no third
7 well would be drilled by Mobil to protect their rights if
8 you got 160-acre spacing unit?

9 A If I -- if Mobil well is capable of
10 producing 3-million a day, then the McElvain reserves would
11 drop to more like 2.1, and Mobil would get around 2.

12 Q So your scenario in terms of the
13 McElvain well remaining reserves is 2.1 with three wells in
14 Section 22; 2.4 BCF with two wells in Section 22; and 3
15 BCF with no additional development in Section 22?

16 That's correct, that's right. That's
17 what our reservoir engineering forecast is showing right
18 now.

19 Q Thank you, very much.

20 MR. LEMAY: Additional ques-
21 tions of the witness?

22 Mr. Kellahin.

23

24 REDIRECT EXAMINATION

25 BY MR. KELLAHIN:

1 Q Point of clarification, Mr. Mueller.
2 Mr. Losee was asking you questions concerning the informa-
3 tion available in 1985 and whether or not the information
4 derived from the McElvain well caused you to learn anything
5 different than you might otherwise know about Atoka pro-
6 ducers.

7 Let me be very specific with you.

8 In 1985 when we have a McElvain well of
9 12 feet of thickness in the Atoka sand, and you see an ini-
10 tial shut-in or 4400 pounds, and at that time we do not
11 have a Sun well and we do not have the well in 16 and we do
12 not have the well in 17, do you have information from which
13 you can conclude at that time that the McElvain well is
14 going to be a typical Morrow Atoka producer that's going to
15 be able to drain 320 acres?

16 A Only from its IP would indicate you
17 could drain a good area.

18 Q Do you know at that point with that
19 information without the subsequent data that this well in
20 fact is going to drain and produce and deplete the Phillips
21 80-acre tract --

22 A No, sir.

23 Q -- in the northwest --

24 A If there's additional data by the Sun
25 well to show the sand development in that direction.

1 Q And do we have that additional data
2 now?

3 A Yes, we do.

4 Q And what does it tell you?

5 A It tells me that my acreage is produc-
6 tive and is being drained and depleted by the current pro-
7 ducers in that field.

8 Q And could you have known that in
9 October of '85 should you have made a reservoir study then?

10 A No, sir.

11 MR. KELLAHIN: No further
12 questions.

13 MR. LEMAY: Additional ques-
14 tions?

15 Mr. Losee.

16

17 RECROSS EXAMINATION

18 BY MR. LOSEE:

19 Q My question had to do with not what you
20 learned from the drilling of the McElvain well, but what
21 you knew at the time the order was entered prior to the
22 drilling of the well about the Atoka and the Morrow.

23 A I know that the Atoka - Morrow is
24 normally a high producing --

25 Q Good communication reservoir.

1 A Good communication, right.

2 Q And that was confirmed by all the wells
3 that were drilled in the South Shoe Bar.

4 A That's right.

5 Q And that was the same condition exist-
6 ing in the North vacuum.

7 A Well, excuse me, when you say by all
8 the wells drilled in the South Shoe Bar, at that time there
9 was only one, I think, the Enron well, and it was a very
10 poor well.

11 As a matter of fact it's only producing
12 like 200 MCF a day, I believe, since completion.

13 Q But the Atoka - Morrow is generally a
14 a good producer and you knew that prior to the entry of
15 that order.

16 A Yes, sir.

17 Q Thank you.

18 MR. LEMAY: Additional ques-
19 tions?

20 If not, the witness may be
21 excused and let's take a fifteen minute break.

22

23 (Thereupon a recess was taken.)

24

25 MR. LEMAY: Mr. Pearce. Your

1 turn now.

2 MR. PEARCE: At this time I
3 would like to call Mr. Dick McCann to the witness stand,
4 please.

5
6 DICK McCANN,
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 MR. PEARCE:

12 Q Sir, for the record would you please
13 state your name and your employer?

14 A My name is Richard G. McCann. I'm em-
15 ployed by Mobil Exploration and Producing, U. S., Inc.,
16 which is an agent for Mobil Producing Texas and New Mexico,
17 Inc..

18 Q Mr. McCann, have you testified before
19 the New Mexico Oil Conservation Commission previously?

20 A No, sir, I have not.

21 Q All right, would you please review for
22 us briefly your educational and work experience?

23 A I graduated with a Bachelor of Science
24 in Russian and Spanish from Texas A & M in 1969.

25 After five years in the United States

1 Army Military Intelligence, I went to law school at Loyola
2 University in New Orleans, graduated and passed the
3 Louisiana Bar in 1980.

4 I then went to work for The Superior
5 Oil Company as a landman in their Gulf Coast/Texas
6 Division, worked there for five years.

7 In 1985, February, Superior was bought
8 out and Mobil transferred me to Midland, Texas, where I
9 worked as a landman for three years.

10 During that time I took and passed the
11 Texas Bar and I've been working in Lea County, southern
12 part of Lea County, New Mexico, and Andrews County, Texas,
13 for the last six months.

14 Q Mr. McCann, are you familiar with the
15 land matters relating to the application that Mobil has
16 filed today?

17 A I am.

18 MR. PEARCE: Mr. Chairman, I
19 would tender Mr. McCann as an expert in the field of petro-
20 leum land matters.

21 MR. LEMAY: His qualifica-
22 tions are acceptable.

23 Q Mr. McCann, if you'd turn, please,
24 quickly to what we have marked as Mobil Exhibit Number One
25 to this proceeding and could you describe for the Commis-

1 sioners what that exhibit reflects?

2 A This represents to the best of Mobil's
3 knowledge from a research of our records the leasehold
4 rights position from the base of the Abo down and all wells
5 which penetrated below the base of the Abo in Section 22,
6 Township 17 South, Range 35 East, Lea County.

7 Q And it is your understanding that the
8 spacing in the Atoka formation in this area requires 320
9 acres to be dedicated to a well?

10 A Normally that is the case as I know it.

11 Q All right, let's turn, if you would,
12 please, to Exhibit Number Two, and would you please de-
13 scribe for the Commission what that exhibit is?

14 A This is a letter which I wrote to T. H.
15 McElvain Oil and Gas Properties and Mr. C. W. Trainer, re-
16 questing that Mobil be allowed to voluntarily form an east
17 half proration unit for the participation in the Mobil
18 State "AC" No. 1 Well.

19 Q Did you receive a reply to that letter?

20 A Not yet.

21 Q Let's look at Exhibit Three, please, if
22 you would. Please tell us what that is.

23 A This is correspondence which I wrote
24 to Amerada Hess and ARCO Oil & Gas, February 19th, 1988,
25 requesting their participation in the south half proration

1 unit for the drilling of an Atoka - Morrow test.

2 Q All right.

3 A I provided an information copy of an
4 Authority for Expenditure, which was then circulating for
5 approval.

6 Q All right. As a response to that
7 letter, let's please look at what we've marked as Exhibit
8 Number Four.

9 A Yes, sir.

10 Q What is that exhibit?

11 A This was -- after I had -- on April 6th
12 I had furnished to both Amerada and ARCO a formal copy of
13 the AFE that I had previously furnished. This was Amer-
14 ada's response telling me thanks, but no thanks.

15 Q And what action did you --

16 A Amerada, I'm sorry, I said ARCO. I
17 meant Amerada.

18 Q And what action did you take in re-
19 sponse to Amerada Hess declining to participate in a south
20 half drilling and spacing unit?

21 A I then wrote ARCO and requested that
22 they consider the original request in light of ARCO's -- of
23 Amerada's rejection and that we would now be 2/3rds-1/3rd
24 partners instead of the previously requested 50 percent/25
25 percent/25 percent.

1 Q Have you received a response to that
2 letter?

3 A No, sir, I have not, although I did get
4 a telephonic reply that they -- I would not be receiving a
5 reply until the Commission decided this matter.

6 Q All right, sir. I would ask you to
7 address what we've marked as Exhibit Number Six to this
8 proceeding. Could you describe that for us, please?

9 A When I received word that Phillips'
10 original application had been denied by the Commission, I
11 requested that Amerada reconsider our original proposal and
12 that they give us a decision one way or another according-
13 ly.

14 Q Once again, did you receive a reply to
15 that correspondence?

16 A No, sir, I have not.

17 Q I would ask you to review what we have
18 marked as Exhibit Number Seven to this proceeding. Would
19 you describe that for us?

20 A This was a letter written by Matthew E.
21 Sweeney, who's the Environmental and Regulatory Manager for
22 the Midland Division of Mobil, notifying Mr. McElvain Oil
23 and Gas Properties of -- in fact, notifying all ownership,
24 owners in the section of our intent to ask for an east half
25 proration unit.

1 Q All right, sir, and attached to that
2 letter I see return receipts from ARCO Oil and Gas Corpor-
3 ation, T. H. McElvain Oil and Gas Properties, C. W. Train-
4 er, Phillips Petroleum, and Amerada Hess, is that correct?

5 A Yes, sir.

6 MR. PEARCE: At this time,
7 Mr. Chairman, I would tender what we have marked as Mobil
8 Exhibits One through Seven.

9 MR. LEMAY: One through Seven
10 into the record without objection.

11 MR. PEARCE: Mr. Chairman, I
12 think this is an appropriate time for me to admit a mistake
13 I made.

14 In the application which we
15 filed with the Division in this matter, if you look at the
16 alternative requesting an east half spacing and proration
17 unit, the application states that Mobil seeks to be named
18 the operator of the east half well. That is not correct.
19 We do not propose to have Mobil substituted for McElvain
20 and I apologize to the Commission for that error, and I
21 thank opposing counsel for pointing that out to me in a
22 gentlemanly manner.

23 MR. LEMAY: Let the record
24 reflect that.

25 Q Mr. McCann, do you have anything

1 further at this time?

2 A I -- not -- the documents pretty well
3 say it all.

4 Q Thank you. The summary of the docu-
5 ments that we have discussed is that Mobil has been unable
6 to reach voluntary agreement with other parties to form a
7 spacing and proration unit?

8 A That's true.

9 Q Thank you.

10 MR. PEARCE: I have nothing
11 further for the witness, Mr. Chairman.

12 MR. LEMAY: Additional ques-
13 tions of the witness? Any questions of the witness?

14 Mr. Kellahin?

15

16 CROSS EXAMINATION

17 BY MR. KELLAHIN:

18 Q Mr. McCann, do -- does Mobil take the
19 position with regards to the formation of a north half/
20 south half orientation to the spacing unit?

21 A We're requested it as alternative re-
22 lief, I've believe.

23 Q What is your first preference?

24 A That we be allowed to participate in
25 the east half proration unit with the well as it is cur-

1 rently drilled, I believe.

2 Q Do you have a position concerning the
3 approval of a nonstandard proration unit for Phillips
4 utilizing the west half of the northwest quarter and the
5 north half of the southwest quarter?

6 A Well, one of our alternative reliefs was
7 that if yours is granted we certainly would want the same
8 relief. It's certainly low on our list of priorities.

9 MR. KELLAHIN: No further
10 questions.

11 MR. LEMAY: Additional ques-
12 tions of the witness. Mr. Losee?

13 MR. LOSEE: No questions.

14 MR. LEMAY: Any additional
15 questions?

16 If not, the witness may be
17 excused.

18 MR. PEARCE; Thank you. At
19 this time, Mr. Chairman, I would like to call Patrick
20 Whelan to the stand.

21
22 PATRICK WHELAN,
23 being called as a witness and being duly sworn upon his
24 oath, testified as follows, to-wit:

25

1 DIRECT EXAMINATION

2 BY MR. PEARCE:

3 Q For the record, sir, would you please
4 state your name and your employer?5 A My name is Patrick Whelan. My employer
6 is Mobil Oil, MPTNM, southeast New Mexico and Texas.7 Q Mr. Whelan, have you testified before
8 the New Mexico Oil Conservation Commission or one of its
9 Division examiners previously?

10 A Yes, I have.

11 Q And at that time were your qualifica-
12 tions as a petroleum geologist accepted and made a matter
13 of record?

14 A Yes, they were.

15 Q Are you familiar with the applications
16 which Mobil Exploration and Producing, U. S., as agent for
17 Mobil Producing Texas and New Mexico, Inc., filed in this
18 matter?

19 A Yes, I am.

20 MR. PEARCE: Mr. Chairman, I
21 would tender the witness as an expert in the field of
22 petroleum geology.23 MR. LEMAY: His qualifications
24 are acceptable.

25 Q At this time, Mr. Whelan, I would like

1 for you to direct your attention to what we marked as
2 Mobil's Exhibit Number to this proceeding.

3 It would be easier, perhaps,
4 if we could borrow the backside of this board.

5 Q What is Exhibit Number Eight?

6 A Exhibit Number Eight is an Atoka net
7 feet isopach map illustrating the Vacuum North Field and
8 the associated wells, as well as the Shoe Bar South Field.

9 What I've done is to contour it on 10-
10 foot contours, although the first two are zero, the next
11 one is 5, to accommodate the (unclear) well to the south.

12 I've also colored this in yellow to
13 indicate where there is yellow there is sand present.

14 To start off with, we don't have any
15 major, major disagreements with Phillips map, but we do
16 disagree with the fact that it comes directly across the
17 north half of Section 22. We feel primarily there are two
18 separate pods important in this matter, the Vacuum North
19 and the South Shoe Bar. Based on our estimates we hope to
20 prove that there is a separate one down here.

21 Also on here for illustration as I go
22 along, I have seismic data that I'm going to be showing
23 you. I have, on the Vacuum North Field I have Line 1.
24 Going through the South Shoe Bar I have Line 2.

25 I will also show a cross section begin-

1 ning on the southern part of Section 22, continuing north,
2 through Mr. McElvain's well, the Sun well, into the Vacuum
3 North Field.

4 Again what we are trying to demonstrate
5 is that these sands are generally continuous throughout
6 this area but based on our pressure data from Mr.
7 McElvain's well, when he first produced it in 1986, the
8 pressure was approximately 4400 pounds.

9 At that time the pressure in the field
10 was down to about 1700 pounds. Based on that, we felt that
11 you had two, separate entities, sand entities, and that is
12 what our contours attempt to represent, that you have a
13 South Shoe Bar entity here and the Vacuum North here.

14 In doing this map, also, this way, we
15 have tried to accommodate the reserves that have been pro-
16 duced and the reserves that are left to be produced.

17 This size roughly accommodates what has
18 been produced and left to be produced in Vacuum North
19 Field.

20 Based on the pressure data, we feel that
21 even though the sands are continuous, which is what every-
22 one has agreed on so far and we do, too, we feel there is a
23 permeability barrier in here of some sort separating South
24 Shoe Bar, Mr. McElvain's well, from the Vacuum North Field,
25 making them two separate fields completely.

1 We also drew in another one in here,
2 that's a third one, based on Sun's initial pressure data,
3 shut-in pressure data, which is about 2200 pounds. That
4 was comparing it to about 1700 pounds in the Vacuum North
5 Field. We felt that disparity in pressure of another
6 possible pod here.

7 So we feel they're in basically two,
8 basically two separate, distinct pods here, possibly a
9 third one out here, and there may be some communication in
10 here.

11 Q At this time, Mr. Whelan, I'd like you,
12 please, to direct your attention to what we have marked as
13 Mobil Exhibit Number Nine. Mr. Whelan, would you please
14 describe for us what's reflected on Exhibit Number Nine?

15 A Exhibit Number Nine is a seismic line,
16 Line 2, going through the South Shoe Bar area from north-
17 east at shot point 75, moving southwest to shot point 100.

18 What we have here is a line that was
19 shot by -- originally by Superior. We have designated the
20 important formations of interest, Strawn at the top, the
21 Atoka and Morrow lime beneath.

22 Illustrating also the McElvain well, ap-
23 proximately shot point 8 in 3-84. We have identified what
24 we consider a sand channel and that the sand channel is a
25 continuation of this main system to the northwest.

1 It's been illustrated by Phillips on
2 their structure map that structure doesn't impact this area
3 that much. We feel that the Vacuum structure at that time
4 was controlling deposition during the Pennsylvanian.

5 It's evident on this seismic line when
6 you look at the southern part of it you see a rather
7 prominent anticlinal structure. We feel that was probably
8 present at that time and was controlling drainage.

9 We have an anomaly that represents that
10 channel here between approximately 85 and 95, most
11 prominent between about 87 and 95. We feel that anomaly
12 represents an Atoka sand channel. That channel would have
13 been a continuation of this system but, as I said, based on
14 pressure data there has to be a separation of this from
15 that. We're assuming that permeability barrier.

16 We also see above it a certain amount of
17 drape over this channel. We think we've got some differ-
18 ential compaction in here, which the formations that were
19 deposited later would have been draped over this. We think
20 we see that today.

21 Also beneath it down at the top of the
22 Morrow, there's slight depression there, indicating what
23 we think is probably something that closely approximates
24 the paleogeography of that time which would have been help-
25 ing control deposition.

1 So based on this seismic line feel that
2 on the southeast corner of this section is represented an
3 Atoka Sand channel that justifies us to ask for a stand-up
4 320 because where Mr. McElvain's well is located, is actu-
5 ally closer to this sand channel than anywhere else out
6 here and we are the ones probably being most heavily
7 affected.

8 Q All right, Mr. Whelan, I think most of
9 the paper rattling is done that I caused. Why don't you go
10 ahead and describe Exhibit Number Ten for us.

11 A Exhibit Number Ten is a cross section
12 which closely approximates Phillips' cross section. On the
13 map it begins on the southern half of Section 22, crosses
14 the acreage of McElvain's well, then back up into the North
15 Vacuum Atoka Field.

16 What we have done, as what Phillips has
17 done, is to hang it on a marker that tries to approximate
18 what the channel would look like at that time. In this
19 case we hung it on top of the Strawn.

20 This is the Vacuum North Atoka Field
21 here, beginning with the Marathon well, just recently com-
22 pleted late last year, moving north to again the Marathon
23 well in Section 7, the Mobil well in Section 7, to the
24 Shell well in Section 1 in 17, 34.

25 We feel this is -- hanging it this way

1 again as Phillips does, that we are revealing a channel.

2 Moving south we illustrate the Sun well
3 and again the McElvain well with approximately 5 feet of
4 pay in it.

5 And our -- just illustration of what we
6 feel the sand pod looks like.

7 I've drawn the McElvain well sand
8 continuing to the north adjacent to the Sun well. When we
9 originally had this, there's been information indicating
10 there may have been some pressure drops in the Sun well
11 relating to production in the McElvain well. We feel
12 that's certainly a possibility based on this sand isopach
13 here, that there is some communication between their well
14 and our well, but we do feel that the majority of the
15 channel is in the south half of Section 22 and that we are
16 probably being most heavily drained.

17 Q Mr. Whelan, on that exhibit you show the
18 sand body pinching out between the Marathon and Sun wells.
19 Could you tell me on what basis?

20 A Based on pressure data from the Sun well
21 late last year the initial shut-in pressures for that well,
22 which is in Section 15, were 2200 pounds. At that time the
23 pressures within the Vacuum North Field were 1700 pounds.
24 It's our opinion that the two formation pressures indicated
25 two different sand bodies.

1 We've drawn this interpretation here and
2 this tries to accommodate that here. Again there may --
3 there is continuous sand throughout this area and may be
4 some communication but we feel that they are basically
5 separate bodies.

6 Q Once again, looking at your display,
7 Exhibit Number Ten, you show a pinchout or different sands
8 between the Sun Oil Company well and the McElvain well.
9 Could you address that for us, please?

10 A Based on this -- where we hung this
11 well, if you look at this it appears as though McElvain's
12 very thin sand of only 5 feet, Sun's well, 26 feet, approx-
13 imately, net feet of sand, again, we have continuous sand
14 throughout this area. There may be some communication in
15 between them, I'm not sure.

16 But we feel the main body of the channel
17 is moving southeast.

18 Q All right, Mr. Whelan, you've indicated
19 that in your opinion the seismic display which we marked as
20 Exhibit Nine to this proceeding, showed a sand channel
21 which you discussed for us.

22 Do you have an exhibit of similar Atoka
23 sand channels which have similar seismic signatures?

24 A I have another seismic line, Line 1,
25 which transects the Vacuum North Field here from the north-

1 east to southwest.

2 Q All right, Mr. Whelan, Exhibit Eleven,
3 please.

4 A Exhibit Eleven, as I said, is seismic
5 line 1. In the northeast is shot point section 75 (sic).
6 Moving southwest to shot point 100.

7 On that map I've drawn, if you would
8 look at that map, also, on the north end of the sand
9 channel, which we all agree on, is the Mobil well, the NN
10 Well. It has 10 feet of pay.

11 On the south end is the Texaco DK Well.
12 It has 15 feet of pay.

13 To the north of this seismic line you
14 have thicker sands. I've mapped it up to 85 feet thick in
15 the Mobil well, the UU; in the Marathon well, 56 feet; and
16 to the southeast of that line you have sands thickening up
17 to 50 feet.

18 We feel, therefore, there's a strong
19 indication that the channel is transecting through here and
20 that the deepest part of the channel ought to be approxi-
21 mately 85 to 90 on the seismic section. We feel we have
22 that response here. I've identified the different horizons
23 again and in yellow I've put the sand channel here.

24 We feel that this seismic is jiving with
25 the geology that we're seeing there and that we're seeing

1 the deeper part of the channel in the middle. Where it
2 thins to the east, you get normal resolution of seismic.
3 Where it thins to the west, you get normal resolution of
4 seismic.

5 Again, noticing to the west you're
6 seeing a very high positive area, this is that Vacuum
7 structure that I addressed before on this line. The Vacuum
8 structure was controlling deposition at that time, with the
9 thicker part of the channel being up in front of it.

10 Q You can return to your seat at this
11 time, please, sir.

12 A Okay.

13 Q To summarize, Mr. Whelan, on the basis
14 of the cross section which you constructed and the seismic
15 data which you have reviewed, do you have an opinion upon
16 whether or not there are recoverable reserves in the south-
17 east quarter of Section 22?

18 A I believe there are.

19 Q Do you believe that those reserves are
20 presently being drained by the McElvain well?

21 A Yes, I do.

22 Q Based upon your isopach, cross section,
23 seismic data, is it your opinion that the majority of
24 McElvain production is probably coming off the Mobil
25 acreage?

1 A I believe that, yes.

2 Q Do you have an opinion upon whether or
3 not all of Section 22 probably underlain by Atoka sand?

4 A It appears as though it's all underlain
5 by sands.

6 MR. PEARCE: Mr. Chairman, at
7 this time I would move the admission of Exhibits Eight,
8 Nine, Ten and Eleven.

9 MR. LEMAY: The exhibits will
10 be admitted into the record without objection.

11 MR. PEARCE: I have nothing
12 further of the witness at this time, Mr. Chairman.

13 MR. LEMAY: Thank you, Mr.
14 Pearce.

15 Cross examination, Mr. Kella-
16 hin?

17 MR. KELLAHIN: Just a few
18 questions, Mr. Chairman.

19
20 CROSS EXAMINATION

21 BY MR. KELLAHIN:

22 Q On your isopach map, Mr. Whelan, what
23 did you use for your various cutoff values?

24 A I used approximately 50 API units.

25 Q Mr. Halle used 60 API units, I believe,

1 in his contouring of the Isopach. What is your opinion
2 about using 60 versus 50?

3 A I don't think it makes a great deal of
4 difference. It just -- it's a subjective thing for the ex-
5 plorationist looking at it.

6 Q In terms of defining the size of the
7 area mapped with the isopach, which value will give you a
8 wider spread to your reservoir?

9 A Probably 60 will give you a wider spread
10 of data.

11 Q I believe you said you didn't have any
12 basic disagreement with Mr. Halle's presentation of his
13 geologic information, but you did highlight for us some
14 differences of interpretation.

15 A Uh-huh.

16 Q You've integrated some seismic data.
17 The seismic information utilized, will that tell you any-
18 thing more than information by which to map the structure?

19 A It -- it tells us, it gives us a strong
20 indication based on structure that we see there where the
21 sands exist.

22 We can determine the channel geometries
23 from the seismic.

24 Q In integrating the seismic and the
25 structural interpretation with the isopach, how did that

1 affect the isopach and the way it's displayed?

2 A It -- certainly I used the seismic in
3 constructing my isopach.

4 Q Does it change the shape and orientation
5 and the thickness on the values demonstrated in the iso-
6 pach?

7 A It doesn't change the orientation.
8 Values may change a little bit.

9 Q When we look internally within portions
10 of Sections 22 and, looking to the north, in Section 15 --

11 A Uh-huh.

12 Q -- you've interpreted what I'll charac-
13 terize as three separate pods.

14 A Yes.

15 Q I believe you used that phrase also.

16 A I used that phrase.

17 Q And the basis for doing so was the pres-
18 sure information that you analyzed from the Sun well and
19 the McElvain well.

20 A That's correct.

21 Q There was no other information utilized
22 by -- in relation to the North Vacuum pressure.

23 A Yes.

24 Q Using those three pieces of pressure
25 puzzles, there was nothing else utilized by you to infer

1 the three pods.

2 A I used the seismic in infer the pod to
3 the south and I've interpreted the one to the south -- to
4 the north without it based on pressure data and geological
5 reasons.

6 Q And the pressure information we have is
7 the initial pressure in the McElvain well is about 4400
8 pounds.

9 A Correct.

10 Q And the subsequent Sun well comes in at
11 some 2200 pounds less.

12 A That's correct.

13 Q And from that you've concluded they are
14 in separate pods?

15 A When the Sun well came in they were both
16 about 2200 pounds but the sands in the Sun well didn't
17 exhibit the same performance for their thickness as the
18 McElvain well. We concluded that there was a good chance
19 they're in separate reservoirs.

20 Q Can you conclude based upon your geolo-
21 gic interpretation that the south half of Section 22 would
22 support the drilling of its own well?

23 A I believe it would, yes.

24 MR. KELLAHIN: Thank you.

25 MR. LEMAY: Additional ques-

1 tions?

2 Mr. Losee?

3

4

CROSS EXAMINATION

5 BY MR. LOSEE:

6 Q Mr. Whelan, just so I'm clear, and I'm
7 sure you've testified to it, when were these seismic lines
8 run?

9 A 19 -- they were originally shot by The
10 Superior Oil Company in 1982.

11 Q And they were available to Mobil in 1985
12 when Mr. McElvain and Mr. Trainer applied for the adminis-
13 trative approval of this unorthodox location and for the
14 nonstandard unit, were they not?

15 A That is correct.

16 Q So the evaluation, the seismic data was
17 available at that time.

18 A Uh-huh.

19 Q Were you working for Mobil then?

20 A I came to work for Mobil in 1985, yes.

21 Q Do you recall, were you in southeast New
22 Mexico at that time?

23 A At that time I was working as the Re-
24 gional Geologist and exploration for the entire Permian
25 Basin.

1 Q Were you aware of the application by Mr.
2 McElvain?

3 A Not at that time, no.

4 Q Did anybody bring it to your attention?

5 A No.

6 Q If you had it at this time would you
7 have objected to the location?

8 A I would have sought legal counsel.

9 I would have probably asked the Land
10 Department, to be honest, just what we should do, if it was
11 made aware to me.

12 Q If I look at your Exhibit Eight, it
13 appears to me that the highest structure is actually in the
14 center of the southeast quarter of Section 22 on your pod,
15 is that correct?

16 A You mean the pod itself being the
17 highest?

18 Q Yes.

19 A Yes. I was calling that a drape over
20 the sand pod.

21 Q And as far as that kind of location for
22 (inaudible to reporter).

23 A Yes.

24 Q And I'm sure you would call it a
25 (unclear)?

1 A Yes.

2 Q Would that not be a location in the area
3 of the center of the southeast quarter the best location
4 for a well?

5 A That would be correct.

6 Q And that would be true regardless of
7 whether you had a south half or an east half proration
8 unit, would it not?

9 A That is true.

10 Q Now Mobil has three alternative appli-
11 cations before the Commission, the east half, a south half,
12 and the southeast south half southwest 240 acres.

13 A That is correct.

14 Q And which of those applications would
15 Mobil prefer the Commission enter?

16 A We'd prefer the east half first.

17 Q Would you explain why?

18 A Economically it's our best alternative.

19 Q Explain --

20 A It would be a lot cheaper --

21 Q Explain that to me.

22 A It would be a lot more inexpensive for
23 us to get into your well because of the cost involved than
24 for us to drill a wildcat.

25 Q Okay. What would you propose that Mobil

1 do as far as paying its share?

2 A I would have to defer that. I've done
3 the science and I'm not going to get into the particulars.

4 Q Have you calculated the reserves that
5 you think might be obtained on these the east half basis?

6 A Our engineer has and he'd probably be
7 better equipped to answer that.

8 Q Well, do you know what it is?

9 A Approximate. Based on what has been
10 brought up in the hearing and based on our estimates, about
11 4 BCF would be left to be recovered from this.

12 Q And with an east half spacing unit,
13 Mobil Oil would have -- be able to acquire two 2 BCF of
14 that 4, would they not?

15 A That's correct.

16 Q By paying what, the cost of -- half of
17 the cost of that re-entry?

18 A Anticipated so, yes.

19 Q At \$1.50 an MCF a BCF would produce
20 what, about \$3-million?

21 A About \$3-million.

22 Q And half would be 400 - \$600,000 cost
23 and would cost Mobil \$2-to-300,000?

24 A That's correct.

25 Q About a 20-to-1 return on their money.

1 A At least.

2 Q No risk, either.

3 A A nice investment.

4 Q Did Mobil consider that when it didn't
5 respond to McElvain's request for an unorthodox location?

6 Q When Mobil originally was aware, and I
7 believe they were aware, of that application, it was our
8 intent at that time to see what that well would prove up in
9 terms of reserves. Based on that scenario we intended to
10 drill one ourselves in the south half.

11 Q And as a matter of fact, the first
12 letter that your landman introduced, the earliest date, was
13 to request a south half spacing unit.

14 A That is correct.

15 Q And the only reason you're not in favor
16 of a south half spacing unit is you could get in proven
17 reserves and make 10 return -- 10 times the return on your
18 money?

19 A We believe based on the geology that
20 we're the ones being most heavily affected by your well and
21 that would be our first choice, yes.

22 Q Well, the best location, though, in the
23 whole section, based on your geology, is the southeast
24 quarter, is it not?

25 A That would be correct.

1 Q Is there some reason you don't want to
2 drill at that location?

3 A We've had a tough time trying to form
4 that 320-acre unit, as was illustrated by the letters that
5 Mr. McCann addressed.

6 Q Are you having a tough time forming an
7 east half unit?

8 A That's why we're here.

9 Q Mobil did get Trainer's request --
10 notice and signed a receipt and returned it back in 1985
11 that this is (not clearly understood).

12 A I believe so. I wasn't working at the
13 time. I'll trust you.

14 MR. LOSEE: Nothing further.

15 MR. LEMAY: Additional ques-
16 tions of the witness?

17 MR. PEARCE: If I may get back
18 into this very briefly, Mr. Chairman, I apologize.

19

20 REDIRECT EXAMINATION

21 BY MR. PEARCE:

22 Q I'm going to hand the witness what has
23 previously been identified and admitted into this record as
24 Mobil Exhibit Number Two, which is a letter dated June
25 23rd, 1988, from Mobil to McElvain Oil and Gas Properties

1 and C. W. Trainer.

2 I would ask the witness to please refer
3 to paragraph number 3 at the bottom of that letter with
4 regard to Mr. Losee's question about what Mobil proposes to
5 do with regard to participating in the well and sharing.

6 Could you read that paragraph into the
7 record, please, sir?

8 A Yes. Mobil would pay to McElvain an
9 amount equal to 50 percent of the actual cost to complete
10 the New Mexico "AC" State Well No. 1, plus interest at 12
11 percent from the date of completion but will participate
12 for its 50 percent share of costs of operation and revenues
13 generated from the well's production from July 1st, 1988,
14 forward.

15 Q Thank you.

16 MR. PEARCE; I have nothing
17 further at this time.

18 MR. LOSEE: I have one more
19 question. I thought that's what I was asking him, Mr.
20 Pearce.

21

22 RECROSS EXAMINATION

23 BY MR. LOSEE:

24 Q 50 percent would cost 2-300,000 plus 12%
25 interest, and I didn't figure that --

1 A That's right.

2 Q -- but you would acquire half of
3 4-billion cubic feet of gas, is that correct?

4 A That's correct.

5 Q Don't you think it would be fair for
6 Mobil to consider paying McElvain fair market value for
7 that 2 BCF of gas (not clearly understood.)?

8 A I think I'm going to defer to the
9 Commission for fairness here.

10 Q I'm just asking you personally. They'll
11 get an opportunity (unclear).

12 A I feel that Mobil is being most heavily
13 drained here by your well. I feel we are in the thicker
14 pod. I feel it's fair, what we're asking right here.

15 Q Why did you initially ask for a south
16 half proration unit then back in February when you wrote
17 the other (unclear)?

18 A Why did we?

19 Q Yes.

20 A Because we had the intent of drilling a
21 well.

22 Q In the south half.

23 A In the south half.

24 Q Thank you.

25

CROSS EXAMINATION

BY MR. LEMAY:

Q Mr. Whelan, wouldn't Mobil prefer like Phillips to share in production from the date of discovery?

A I think we would love to but I think Mobil's interested in fairness, too.

MR. LEMAY: Additional questions of the witness?

He may be excused.

Call your next witness.

MR. PEARCE: Thank you, Mr. Chairman. At this time I would call Mr. Mark Moshell.

MARK MOSHELL,

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

DIRECT EXAMINATION

BY MR. PEARCE:

Q Thank you, sir, for the record would you please state your name and your employer?

A My name is Mark Moshell. I'm employed by Mobil Exploration and Production, U. S., Inc.

Q Could you spell your last name for us, please, Mr. Moshell.

1 A M-O-S-H-E-L-L. Moshell.

2 Q And what are your duties for Mobil,
3 Mr. Moshell?

4 A I'm a reservoir engineer.

5 Q Have you previously testified before the
6 New Mexico Oil Conservation Commission and had your creden-
7 tials as a petroleum engineer made a matter of record?

8 A No, sir.

9 Q Would you please briefly summarize for
10 us your educational and work experience?

11 A Yes, sir. I have a Bachelor of Science
12 degree from Auburn University in 1975.

13 Since that time I have been employed in
14 the oil industry as a drilling engineer, a production
15 engineer, a reservoir engineer, and various supervisory
16 capacities for Exxon Company USA, Diamond Shamrock, myself,
17 and Mobil.

18 Q Mr. Moshell, are you familiar with the
19 application filed by Mobil in this proceeding today?

20 A Yes, sir.

21 MR. PEARCE: Mr. Chairman, at
22 this time I would tender Mr. Moshell as an expert in the
23 field of petroleum engineering.

24 MR. LEMAY: He is so
25 qualified.

1 Q Mr. Moshell, let's begin with what we
2 have marked as Mobil Exhibit Number Twelve to this pro-
3 ceeding. Could you tell us what that is?

4 A This is a 4-page exhibit which consists
5 of the sheet one, which is a summary stating the legal
6 description of the proposed well, the Mobil ownership of
7 .5, which was estimated at the time of preparation, and a
8 total estimated completed cost of \$828,000.

9 The remaining three pages are simply
10 details of the cost estimate consisting of, in this order,
11 drilling costs, completion costs, and surface and related
12 equipment costs.

13 Q Total drilling costs show to be
14 \$603,000, is that correct?

15 A Yes, sir.

16 Q Total completion costs, 160.

17 A Yes, sir.

18 Q And total surface equipment costs of
19 \$65,000. Is that what those figures are?

20 A Correct.

21 Q Mr. Moshell, do you have an opinion on
22 the appropriate risk penalty which the Commission should
23 assign to allow Mobil to collect, if Mobil is granted a
24 proration unit in the total south half or a portion of the
25 south half of Section 22?

1 A Yes, sir.

2 Q And what is that opinion?

3 A That Mobil is entitled to return of its
4 investment plus 200 percent due to the high risk nature of
5 this project.

6 Q Could you outline for us some of the
7 risks that you see that enter into that analysis, please?

8 A Yes, sir, there's always a mechanical
9 risk of drilling a well and not being able to physically
10 attempt a completion. In these sands such as the Atoka
11 there's a possibility that there will be either, one, no
12 sand present at the drilling location; or, two, that there
13 will be uneconomic thickness of sand present; or that there
14 will be insufficient porosity developed in the sand found;
15 or that sand with porosity but insufficient permeability to
16 support economic production will be found.

17 Q Thank you, sir. Do you have an opinion
18 on the appropriate overhead and administrative costs which
19 should be allowed to Mobil in the drilling of the well in
20 the south half of Section 22 during drilling and operation
21 of this well?

22 A Yes, sir.

23 Q What figures do you believe are appro-
24 priate?

25 A During drilling, \$6100 per month, and

1 during production, \$610 per month.

2 Q And do you believe that those figures
3 are generally in line with other figures used in this
4 vicinity for wells of similar depth characteristics?

5 A Yes, sir.

6 Q Do you have anything further to discuss
7 with us, Mr. Moshell?

8 A No, sir.

9 MR. PEARCE: Mr. Commissioner,
10 I would like to move the admission of Mobil Exhibit Number
11 Twelve to this proceeding.

12 MR. LEMAY: Without objection
13 Exhibit Twelve will go into the record.

14 MR. PEARCE: And I'll pass the
15 witness.

16 MR. LEMAY: Mr. Kellahin?

17

18 CROSS EXAMINATION

19 BY MR. KELLAHIN:

20 Q Mr. Moshell, have you done any reserve
21 calculations for Section 22?

22 A Yes, sir.

23 Q And what do they show you, sir?

24 A Well, it depends upon the assumed poro-
25 sity average throughout the entire pay area.

1 Q What have you assumed?

2 A Between 8 and 10 percent is reasonable
3 for an average porosity.

4 Q What did you assume for a size and
5 shape of the reservoir?

6 A Well, I have had several options pre-
7 sented to me by your company and by Mobil's geologist.

8 4 BCF remaining to be produced is cer-
9 tainly a minimum from the McElvain well, as demonstrated by
10 the P/z and that is pressure over z versus cumulative pro-
11 duction, and that is supported by the isopachs both pre-
12 sented by Phillips and by Mobil.

13 Q Have you made any drainage calculations
14 in your reservoir study?

15 A Yes, sir.

16 Q And what have you concluded?

17 A That the McElvain well is definitely
18 draining more than the 240 acres currently assigned to it
19 and that most probably the acreage to the south of the
20 McElvain well is experiencing the heaviest drainage to
21 date.

22 Q Did you make an attempt to allocate the
23 total original reserves in place to the McElvain original
24 240-acre nonstandard spacing unit?

25 A I'm not sure I understand the question

1 and I'll attempt to --

2 Q Well, don't answer it unless you under-
3 stand it.

4 When you're looking at 4 BCF remaining
5 reserves and you've looked at Mr. Mueller's P/z decline
6 curve and he gets 7.6 total BCF, what did you use for total
7 recovery, recoverable gas from the section? What did you
8 get?

9 A I can agree that there's a minimum re-
10 coverable gas based on the pressure data. 7.6 BCF is a
11 minimum.

12 Q When you analyze either the Mobil or the
13 Phillips geologic information, it gives you the Phi-H map
14 or whatever map you engineers use to determine the size,
15 shape, and orientation of the reservoir, have you
16 determined how much of that gas is attributable to the
17 McElvain 240 acres?

18 A Yes, sir, and a minimum would be 5 feet
19 average over the entire 240 acres, which results in about
20 1.2 BCF.

21 Now --

22 Q 1.2 BCF is what? Is that original gas
23 in place or is that recoverable gas?

24 A That's original gas in place. Obvious-
25 ly, the -- one of the following is occurring, that it is

1 not only 5 feet or that it is both larger than 5 feet and
2 draining a much larger area than 240 acres.

3 Q I want to understand what you -- can you
4 assign a recoverable factor to the acreage underlying the
5 240-acre nonstandard unit?

6 A Can I assign a recovery factor?

7 Q Yes, sir, we've got 1.2 BCF in place
8 underneath the McElvain 240-acre nonstandard unit.

9 A I said that's a minimum. If only 5 feet
10 of pay is present throughout that.

11 Q How much of that can I attribute to
12 ultimate recovery? What's going to be your --

13 A 100 percent of that has been drained
14 plus considerably in excess of 1.2 BCF.

15 Q So when Mr. Losee talks about the value
16 of the remaining 4 BCF of gas that's going to be produced
17 out of the McElvain well, it's going to be gas coming from
18 other than McElvain's tract?

19 A At least a large portion of it is, yes.

20 MR. KELLAHIN; Nothing fur-
21 ther.

22 MR. LEMAY: Additional ques-
23 tions of the witness?

24 Mr. Losee.

25

CROSS EXAMINATION

BY MR. LOSEE:

Q You're assuming in response to calculations of 1.2, Mr. Moshell, that it's 5 feet throughout the 240 acres, are you not?

A Yes, sir, as I stipulated, that's my minimum estimate.

Q Now, how many feet are in the Sun well that's in Section 15 right north of it?

A Somewhere in the 24 to 28 feet range.

Q Wouldn't that indicate to you that there's more than 5 feet in the north part of the McElvain spacing unit?

A That's most probable.

Q Thank you. That's all.

MR. LEMAY: Additional questions?

If not, the witness may be excused.

MR. PEARCE: Nothing further, Mr. Chairman.

MR. LEMAY: Thank you, Mr. Pearce.

Mr. Losee.

1 JACK L. AHLEN,
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. LOSEE:

7 Q Would you state your name, residence,
8 and occupation?

9 A My name is Jack Ahlen. I live in
10 Roswell, New Mexico, address 2600 North Kentucky Avenue. I
11 work in the Petroleum Building, Suite 533. I'm a consult-
12 ing geologist.

13 Q Have you previously testified before
14 this Commission and had your qualifications accepted as a
15 petroleum geologist?

16 A Yes, sir.

17 MR. LOSEE: We tender Mr.
18 Ahlen as a petroleum geologist expert.

19 MR. LEMAY: His qualifications
20 are acceptable.

21 Q Behind you on the board and I think it
22 would be better if you went to it if you have some pointer.
23 Please refer to Exhibit One, which is the exhibit on the
24 left side and explain what is shown by that map.

25 A This is a structure contour map on the

1 top of the Morrow lime in the vicinity of the North Vacuum
2 and South Shoe Bar Fields.

3 It shows regional dip to the northeast
4 through the area of interest. It is very similar to the
5 exhibit that has been previously presented by Phillips.

6 Q What's the trapping mechanism in this
7 South Shoe Bar and North Vacuum Field?

8 A Trapping mechanism is a stratigraphic
9 trap, a sand which is totally encased in shale.

10 Q Does structure have a great deal to do
11 with the completion of producing wells in the fields?

12 A Structure has no influence in locating
13 this stratigraphic trap.

14 Q You saw Phillips' map, structure map,
15 earlier. Do you -- does your map differ from the Phillips
16 map in any particular manner?

17 A In no particular way, no significant
18 manner.

19 Q Mobil did not have a structure map, did
20 they?

21 A That is correct.

22 Q Okay. Would you please turn to what's
23 been marked as Exhibit Two, the one on the right, your
24 left, my right. Explain what is shown by that map.

25 A This is an isopach map of the producing

1 Atoka Sand. It shows the geometry of the producing sand
2 body. The maximum thickness is 100 feet in Section 7 in
3 the North Vacuum Atoka Pool and it diminishes to a very
4 small thickness in the south -- to the southeast in the
5 South Shoe Bar Pool.

6 Q How did you -- what was the basis for
7 the preparation of that isopach?

8 A I used all of the electric logs that
9 have been run on wells that have penetrated that particu-
10 lar reservoir. I looked at the electric logs, investigat-
11 ed the gamma ray log, the caliper log, the neutron density
12 log if it was run, the resistivity logs, as well as one of
13 the wells had a microlog.

14 Q Did you review the isopach prepared by
15 Phillips and introduced earlier in this case. I forgot the
16 number.

17 A Yes, sir, I did review their map.

18 Q Is your isopach similar to that of
19 Phillips?

20 A Yes, it is. It is very similar.

21 Q Is there any differences, significant
22 differences?

23 A In one instance there is a significant
24 difference of about 50 percent of the value and that is in
25 the McElvain well.

1 Q Okay, please explain.

2 A The McElvain well, located in Section
3 22, I have attributed 6 feet to that well on the basis of
4 the microlog versus the 12 feet that was assigned by Phil-
5 lips and I understand that Phillips utilized the gamma ray
6 only in determining thickness of the sand.

7 Q Now, Mobil prepared and submitted an
8 Isopach, which I think was Exhibit Eight. Does your map
9 conform to the -- your isopach conform to the Mobil iso-
10 pach?

11 A It more closely, it conforms to the
12 Mobil isopach, yes, sir.

13 Q Okay. What is the difference between
14 the two?

15 A Mobil or the Phillips?

16 Q Well, your isopach that you have pre-
17 pared and that of Mobil. How does it compare with the
18 Mobil isopach? (Not understood.)

19 A My exhibit compares quite favorably ex-
20 cept that I do not show as many pods, separate pods, as
21 Mobil does. I showed the sand as a single -- single unit,
22 a single continuous reservoir.

23 Q Okay, so you do not have the pod that
24 Mobil has to the southeast.

25 A That is correct.

1 Their interpretation is based, in addi-
2 tion to the subsurface data they used seismic information
3 that was available to them.

4 Q Now, Administrative Order 1470, which
5 was entered by the Commission in 1985 and approved the
6 McElvain unorthodox location and nonstandard unit, was en-
7 tered on October 4, 1985.

8 My question is do you know or have you
9 heard of any change in geological conditions that have oc-
10 curred in this area of the South Shoe Bar Field or the
11 North Vacuum since this order was entered?

12 A I have not heard of no significant geo-
13 logic changes other than the addition of control that veri-
14 fied Mr. Trainer and Mr. McElvain's interpretation of the
15 area.

16 MR. LOSEE: I move the intro-
17 duction of Exhibits One and Two.

18 MR. LEMAY: One and Two into
19 the record without objection.

20 MR. LOSEE: That's all of Mr.
21 Ahlen at this time.

22 MR. LEMAY: Cross examination?

23 MR. KELLAHIN: Yes, sir.

24 MR. LEMAY: Are you through?

25 MR. LOSEE: Yes.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Ahlen, when you look at the log on the McElvain well and you say on the microlog you get 6 feet of thickness that you used on your isopach.

A Yes, sir.

Q Do you have a copy of that log so that you could give us the actual footage depths that make up that 6 feet?

A Yes, sir. This is a microlog of the Humble Oil and Refining Company State "AC" No. 1 Well, located in Section 22 of 17, 35. The -- there are three runs on the microlog beginning April 17th of '53 and ending August 24th of '53.

Q Okay, starting from the shallowest depth, then, on the log, take me down deeper and tell me how you picked the 6 feet. Give me the top and the bottom of each of those points where you picked -- is this one continuous 6-foot interval?

A No, it's actually two.

Q All right.

A I picked the -- the sand in question that has been completed is at an approximate depth of 12,000 feet.

Q That's the top of the sand pick at

1 12,000 feet?

2 A No, it's the middle of the sand pick.

3 Q All right, so I go above and below that
4 by 3 feet and then I have that interval that you picked?

5 A Approximately, yes, sir.

6 Q What have you used for a common value?

7 A On a micro, the microlog is very suscep-
8 tible to the presence of mudcakes and when mudcake is pre-
9 sent, it shows a very distinct and diagnostic deviation
10 from background. You -- may I show you on the log, rather
11 than describe it?

12 Q Well, my question is did you use a simi-
13 lar method of analysis that Mr. Halle used to have a cutoff
14 value?

15 A No, sir, I told you that previously.

16 Q All right. What was the perforated in-
17 terval? What's the footage? Where did you start your per-
18 forations and stop your perforations?

19 A I do not have that information at hand.

20 Q It's not shown on the log?

21 A It's not shown on this microlog, no.
22 this is --

23 Q Am I correct in understanding that
24 McElvain perforated a 10-foot interval?

25 A I do not know. We have a later -- a

1 later witness that will testify to the actual perforated
2 interval.

3 Q Did you work on the geology for this
4 well, Mr. Ahlen?

5 A Prior to the inception of the well, you
6 mean, the re-entry?

7 Q Well, prior to the re-entry did you work
8 on that?

9 A I did not.

10 Q When did you become involved in the
11 study of the geology for this area?

12 A I did original work in this area in '77
13 for a prospect of my own, but for this particular case I
14 was engaged approximately three weeks ago.

15 MR. KELLAHIN: No further
16 questions.

17 MR. LEMAY: Additional ques-
18 tions of the witness.

19 Mr. Pearce.

20 MR. PEARCE: If I may.

21

22 CROSS EXAMINATION

23 BY MR. PEARCE:

24 Q Mr. Ahlen, looking at your Exhibit Num-
25 ber Two, the zero line on the isopach --

1 A Yes, sir.

2 Q -- what information went into your in-
3 terpretation of data for your drawing that line in the
4 north half of the section? What makes you conclude that
5 the south half of Section 22 does not have the sand?

6 A There is no direct evidence, no wells
7 have been drilled in the south half of 22, obviously, nor
8 has a well been drilled within two miles of the south half,
9 so I drew that in by virtue of previous experience with
10 Atoka sands.

11 Q Thank you.

12 MR. PEARCE: Nothing further,
13 Mr. Chairman.

14 MR. LEMAY: Additional ques-
15 tions?

16 You may be excused.

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

21
22 DIRECT EXAMINATION

23 BY MR. LOSEE:

24 Q Would you state your name and residence,
25 please?

1 A Hoyt Gene Lee, 1306 Meadow Lane, Ros-
2 well, New Mexico.

3 Q What is your occupation?

4 A Independent well site consultant.

5 Q You do not have degree in either pet-
6 roleum engineering or geology.

7 A That is correct.

8 Q You did attend college in one of those
9 fields. Would you explain which one and what college?

10 A Yes, at New -- I attended New Mexico
11 State University from 1972 to 1976 and studied engineering.

12 Q Since your graduation from college what
13 has been your occupation?

14 A As an employee of the Ard Drilling Com-
15 pany from floor hand position through driller, toolpusher,
16 and rig manager positions.

17 Q Okay, after -- how long were you with
18 Ard?

19 A Six years.

20 Q After that what was your occupation?
21 Were you employed?

22 A I was employed by Mesa Petroleum as a
23 drilling and completion engineer.

24 Q After that?

25 A After that for Yates Petroleum for 3-1/2

1 years and after that independently for various operators
2 throughout southeast New Mexico.

3 Q Okay. Did you do any work for McElvain-
4 Trainer on the AC State No. 1 Well?

5 A Yes, I did.

6 Q When did you first become acquainted
7 with that well or first do any work on it?

8 A The first work that was done on it oc-
9 curred in the early part of '85. I was contacted by Mr. C.
10 W. Trainer about the possibility of re-entry on a well
11 located in Section 22 that was originally drilled by Humble
12 in 1953 and then plugged and abandoned.

13 Q Okay, what records did you look at ini-
14 tially?

15 A I copied all of the OCD files and all of
16 the available scout tickets.

17 Q Did you have logs available to you?

18 A I contacted Exxon and their scout pro-
19 vided the logs and mud log and all the available well files
20 on this well after a search through their archives.

21 Q Did those records indicate to you what
22 -- the depth to which the well was originally drilled?

23 A Yes, it did. The well was originally
24 drilled to the Devonian, 13,500 feet depth in Section 22 at
25 an orthodox location.

- 1 Q For an oil well.
- 2 A For an oil well..
- 3 Q Did they obtain any production in the
- 4 Devonian?
- 5 A No, they did not.
- 6 Q What other efforts, if any, did they
- 7 make to complete the well?
- 8 A A completion attempt in the interval
- 9 11,990 to 12,010, with 80 shots. They acidized it with
- 10 2500 gallons of acid and obtained a maximum flow rate of
- 11 464 MCF with a tubing pressure of 60 pounds.
- 12 Q Had they run a drill stem test on this
- 13 interval while they were drilling the well back then?
- 14 A Yes, they did.
- 15 Q Okay, what were the results of that
- 16 test, or tests?
- 17 A There were two attempts to test this
- 18 zone. The first test was invalid due to packer failure.
- 19 The second test had a valid test with a
- 20 flowing rate at the surface of 13-million cubic feet per
- 21 day and a shut-in pressure of 6310 pounds.
- 22 Q When they perforated the well at the
- 23 intervals you've recently -- you've just recited, were they
- 24 perforating through one string of pipe or two strings?
- 25 A No, they were perforating through two

1 strings of heavy pipe. They were perforating through
2 7-5/8ths 39-pound N-80 casing set at 12,101, and also a
3 string of 5-1/2 23-pound N-80 set at 12,180 feet.

4 MR. LEMAY: Excuse me, Mr.
5 Losee, is this witness to be qualified as an expert in this
6 general --

7 MR. LOSEE: All he -- he's not
8 -- he's testifying to what the records show that he took
9 form Humble's --

10 MR. LEMAY: I didn't receive
11 any request for qualification. I --

12 MR. LOSEE: No, I'm really not
13 asking him to testify as an expert. He's had lots of ex-
14 perience, which I think -- in the area which I think he's
15 talking about but it's not formal.

16 He's telling (not understood)
17 what the records show here, isn't that correct?

18 A Yes, this is the facts as reported to
19 the State.

20 Q Yes. Did you have anything to do with
21 the effort of McElvain's to -- and Trainer to re-enter this
22 well?

23 A Yes, I did.

24 Q When did a certain person commence -- or
25 when did you first work on that effort to re-enter that

1 well?

2 A As I said, in the early part of '85 Mr.
3 Trainer contacted me to research this well and it was
4 co-owned at that time by Mr. Trainer and Moose Trobaugh,
5 and before a prospect, an investor could be put together on
6 the deal, Mr. Trobaugh died and then the lease expired.

7 After that, on July 1st, 1985, Trainer
8 and McElvain bought this 240-acre lease and then put to-
9 gether the deal for the re-entry.

10 Q Okay, would you explain what they en-
11 countered when they re-entered the well?

12 A Upon re-entering the well the 5-1/2 had
13 been cut off and I had to splice the 5-1/2 together and it
14 was successfully spliced and tested.

15 We encountered numerous tubing strings
16 and packers that had been cemented in the hole, which we
17 had to fish out and then when we got down to the productive
18 -- they also tried another productive zone at 9570 to 9590.
19 We circulated up 34 of the 40 bullets that were perforated
20 in that -- in that interval, and then we cleaned it on out
21 to 12,050 feet.

22 At that time the casing had all been
23 tested and a (not understood) hole was established. I con-
24 tacted Geo-Vann for a high performance perforating system to
25 effectively penetrate both strings of pipe for this comple-

1 tion. Upon going over the data with their engineers we
2 devised a 4-inch tubing conveyed gun capable of handling
3 5-inch casing gun charges and this is the system that we
4 ran in the well and perforated with.

5 Q What was the -- what happened when you
6 perforated, dropped the bar in the hole?

7 A At that, when we dropped the bar, we had
8 gas to surface in 20 seconds at a rate of 12-million cubic
9 feet per day on a half inch choke with 2000 pounds of flow-
10 ing tubing pressure.

11 Q Mr. Lee, take two minutes and explain
12 what you do when you perforate using the Van tool method.

13 A Using the Van tool system the perforat-
14 ing gun is correlated across the desired perforated inter-
15 val with a gamma ray. A packer is set isolating the annu-
16 lus between the casing and tubing.

17 The tubing is entirely dry at this -- at
18 this point, creating no back pressure on the formation. A
19 bar is dropped which detonates the firing head on the guns
20 that shoots the perforations in the casing and the differ-
21 ential between the reservoir pressure and the tubing pres-
22 sure creates a surge and cleans up the perforations very
23 well.

24 Q Did you, when the well was completed,
25 what was the bottom hole pressure on that well at that

1 time?

2 A When we completed this well and ran the
3 bottom hole pressure test on it, the bottom hole pressure
4 was 5469 pounds.

5 Q So from the time Humble had drilled the
6 well and had found a 6310 pound pressure, bottom hole pres-
7 sure, your 5469, that pressure had declined by approximate-
8 ly 50 pounds, bottom hole?

9 A Yes, There had been approximately 850
10 pounds of depletion from the test from 1953 until we com-
11 pleted in 1986.

12 MR. LOSEE: At this time I
13 would ask the Commission to take administrative notice of
14 the records in the State Land Office with respect to the
15 ownership of the oil and gas leases in Section 22, the
16 lessees and actually the ownership of these tracts, for the
17 purpose of reflecting the correlative rights. I have a set
18 of leases.

19 MR. LEMAY: Fine, we shall
20 take administrative notice of them.

21 Q Mr. Lee, have you prior to this hearing
22 examined the leases that exist in the State Land Office,
23 the information?

24 A Yes, I have.

25 MR. LOSEE: With the Commis-

1 sion's permission I'd like to ask him the questions rather
2 than make statements.

3 MR. LEMAY: That's fine.

4 Q Mr. Lee, would you go to the west half
5 northwest quarter and explain who is the lessee of record,
6 what was the date of the lease, and what is the royalty of
7 it?

8 A In the west half of the northwest
9 quarter of Section 22, Phillips Petroleum is the lessee,
10 Lease No. B-2264, date of issue, 12-2-1933, with a 1/8th
11 royalty.

12 Q Now go to the McElvain lease, which is
13 the -- in Section 22 is the west half northwest and north-
14 east quarter.

15 A Right. The east half of the northwest
16 quarter and northeast quarter Lease, V-1520, T. H.
17 McElvain, Jr., issued 7-1-85, 1/6th royalty.

18 Q Then go to the south half and recite the
19 same thing for each of those leases, Mr. Lee.

20 A In the southeast quarter of Section 22,
21 Mobil as lessee, Lease B-2735, dated of issue, 4-10-1934,
22 1/8th royalty.

23 The north half of the southwest quarter,
24 Amerada as lessee, Lease B-1040, date of issue 7-11-1932,
25 1/8th royalty.

1 The south --

2 Q And that -- excuse me, go ahead.

3 A The south half shows ARCO as lessee,
4 Lease B-1585, issued 1-5 of 1983, also 1/8th royalty.

5 Q Okay, what you are reciting is the
6 present lessees --

7 A That is correct.

8 Q -- of the original lease. Is that
9 correct?

10 A Yes, that's correct.

11 Q Why don't you look at that Phillips'
12 lease, B-2264, and tell me whether or not it covers the
13 lands that are in McElvain's spacing unit for the AC Well?

14 A When the lease was originally issued, it
15 encompassed the entire north half of Section 22.

16 Q Okay.

17 MR. LOSEE: I have nothing
18 further of this witness.

19 MR. LEMAY: Any questions of
20 the witness?

21 MR. CARR: No questions.

22

23 CROSS EXAMINATION

24 BY MR. PEARCE;

25 Q Very briefly, Mr. Lee, if I may, you've

1 indicated earlier in your testimony that the report shows
2 that the initial pressure in the Atoka, I believe, was 6310
3 pounds, is that correct?

4 A Yes, sir, that is correct.

5 Q How was that pressure measured, gauge or
6 dead weight, or do you know?

7 A That was measured with a Amerada bomb
8 bottom hole pressure from Halliburton test tools.

9 Q The same question with regard to the
10 McElvain pressure that you took the 5469?

11 A Repeat that, please.

12 Q I understand McElvain measured the
13 pressure in the Atoka at 5469 in 1986.

14 A Yes, that --

15 Q How was that pressure taken?

16 A The same, same way.

17 MR. PEARCE: Nothing further,
18 Mr. Chairman. Thank you.

19 MR. LEMAY: Additional ques-
20 tions of the witness?

21 If there are none, he may be
22 excused.

23 Call your next witness.

24 MR. LOSEE: That's all of Mr.
25 Lee.

1 MR. LEMAY: Who are your
2 witnesses, the next two? You have two more?

3 MR. LOSEE: I think just one.

4 MR. LEMAY: Just one? Okay.

5 I had some questions I wanted
6 to ask and I didn't know who was going to be on.

7

8 THOMAS E. HICKEY,
9 being called as a witness and being duly sworn upon his
10 oath, testified as follows, to-wit:

11

12 DIRECT EXAMINATION

13 BY MR. LOSEE:

14 Q Would you state your name and residence,
15 please?

16 A Thomas E. Hickey, 624 Gomez Road, Santa
17 Fe, New Mexico.

18 Q What is your profession?

19 A I'm a tax accountant. I'm currently
20 comptroller for T. H. McElvain Oil and Gas Properties.

21 Q Do you have a degree in accounting and
22 if so from where?

23 A I have a Bachelor of Business Adminis-
24 tration from the University of New Mexico, concentration in
25 accounting, 1968.

1 Q Since your graduation from school, what
2 has been your positions?

3 A I worked for Peat, Marwick & Mitchell
4 for 4-1/2 years. I was Senior Tax Specialist.

5 Then I worked for private practice for
6 a little over 2 years, and the last 14 years I've been the
7 comptroller for McElvain Oil & Gas.

8 Q Would you please refer to what has been
9 marked as Respondents Exhibit Number Three and which is a
10 3-section exhibit, and turn to the first page and explain
11 to the Commission what is shown by this exhibit?

12 A This exhibit shows the various costs
13 involved in the New Mexico AC State No. 1 Well.

14 The first column is the expenses of
15 surveying and installing the two different pipelines that
16 are used to market the gas.

17 The second column is the equipment that
18 has been added to the well since the initial workover.

19 The third column is the actual workover
20 expenses themselves.

21 And the fourth column is the lease oper-
22 ating expenses during the 2+ years of operation of the
23 well.

24 Q I'm going to repeat probably what you
25 said, trying to find exhibits.

1 Over in your lefthand column you've got
2 pipelines.

3 A Right.

4 Q Did McElvain incur some costs in laying
5 pipelines?

6 A Yes, we did.

7 Q All right, and that's evidenced by that?

8 A That is correct.

9 Q Now what is your total expenditure of
10 all these tabulations?

11 A From the initial work on the well
12 beginning in November of 1985 through the billings for
13 lease operating expenses through the end of May, 1988,
14 \$622,091.44.

15 Q Okay. Please turn to page two of this
16 Exhibit Three and explain what is shown by these
17 calculations, or numbers.

18 A All right. This is not a production
19 history, it is a sales history from the well.

20 The first column shows the amount of gas
21 sold using a 15.025 pressure base. It shows the cumulative
22 sales from the well through May of 1988 of 4.329 BCF.

23 There have been 51,000+ barrels of con-
24 densate sold. That's the second column.

25 The third column shows the gross reve

1 nues from the wells during this period. Total is
2 \$8.683-million.

3 The fourth column shows the actual State
4 royalty paid to the State of New Mexico on this well
5 through May of 1988 is \$1.447-million.

6 Since the McElvain acreage is subject to
7 a 1/6th royalty, where the Phillips and Mobil acreage is
8 subject to a 1/8th royalty, the fifth column shows what the
9 State royalty would be if there was a 1/8th royalty.

10 And the sixth column shows what the dif-
11 ference is.

12 The seventh column shows the loss in
13 State royalty to the State if Phillips would be awarded the
14 forced pooling for their 80 acres for a north half unit,
15 showing a loss to the State of over \$90,000, just from the
16 date of first production till the end of May.

17 And the final column shows what the loss
18 in State royalty to the State of New Mexico would be if
19 Mobil were awarded an east half forced pooling. That would
20 be a loss to the State of over \$180,000 just to date.

21 Q Turn to page three of your exhibit and
22 explain what is shown by that exhibit.

23 A Page three is an attempt to show the
24 potential past and future loss to the State and windfall to
25 Phillips or Mobil should there be forced pooling of either

1 the north half or the east half.

2 For this we had to use various scenar-
3 ios.

4 We chose 4 BCF of remaining reserves. I
5 believe the Phillips engineer said we had 3.6 BCF remain-
6 ing but with the Sun well probably only (unclear) that we
7 could still get.

8 The engineer from Mobil generously gave
9 us at least 4 BCF remaining so we did use 4, and we used
10 commensurate condensate values, commensurate to the cur-
11 rent level of condensate being produced.

12 The top half shows what the -- what the
13 figures would be if forced pooling were given back to ini-
14 tial production

15 The bottom half of the page shows what
16 the consequences would be if it were to go from the various
17 forced pooling initiatives

18 Q Okay. You've used three gas prices.

19 A We used \$1.50 per MMBTU, \$2.00 per MMBTU
20 and \$3.00 per MMBTU.

21 Q In preparing this that's as far as from
22 production this date to deplete the well, is that correct?

23 A Well, we have --

24 Q (unclear) those values. You've assigned
25 actual values at this point.

1 A All right. The top line of the first
2 tree scenarios shows the total actual production to date
3 and the actual average figures to date are about \$1.83 per
4 MCF.

5 Q Okay.

6 A Is the average so far, and for the con-
7 densate the average has been \$15.01 per barrel to date.

8 Q If you'll turn to page 4 of your exhi-
9 bit, which I take it is a summary.

10 A Page 4 is a summary of the \$2.00 sce-
11 nario and if the State were to award a north half forced
12 pooling, then the loss to the State in State royalties from
13 inception to the depletion of the reserves in the well,
14 using the 4 BCF estimate, would be about \$186,000+.

15 If the forced pooling were to go only
16 from June, 1988, onwards, the loss to the State would only
17 be \$96,000 in State royalty; however, the windfall to Phil-
18 lips would be \$4.3-million from inception and from -- if
19 the forced pooling were only effective in June of this
20 year; as they plead, it would be \$2.1-million to Phillips.

21 The figures are exactly double that, of
22 course, for Mobil because Mobil would have 160 acres of a
23 320-acre proration unit, so if the east half forced pooling
24 occurred the loss to the State retroactive will be \$373,000
25 and from June of '88 onwards the loss would be \$192,000 in

1 State royalties, but the windfall to Mobil would be either
2 #8.6-million or \$4.3-million, depending on whether it would
3 be retroactive to March of '86 or beginning of June of '88.

4 MR. LOSEE: No further ques-
5 tions.

6 MR. LEMAY: Additional ques-
7 tions of the witness? Cross examination, Mr. Kellahin.

8

9 CROSS EXAMINATION

10 BY MR. KELLAHIN:

11 Q Mr. Hickey, when you look at the last
12 page of your exhibit and we get Current to Depletion, do
13 you see that entry, sir?

14 A Yes, sir.

15 Q Current starting from what time?

16 A June of '88.

17 Q Depletion is projected to be after what
18 additional volume of hydrocarbons is produced?

19 A 4 BCF. It's a summary of the \$2.00
20 scenario from page 3, Mr. Kellahin.

21 Q And the 4 BCF comes from what source,
22 Mr. Hickey?

23 A We prepared this using the Phillips
24 estimate and subtracting the production that had come to
25 date.

1 Q Do you have a pocket calculator, Mr.
2 Hickey?

3 A Not with me, sir.

4 Q The total gross proceeds derived from
5 the well when we look at page 2, we can add up the \$769,000
6 number for the oil and the almost \$8-million for gas, and
7 we get a total of \$8.6-million?

8 A That is correct, sir.

9 Q And the total completed well costs,
10 pipelines and equipment, is \$622,000, approximately?

11 A That includes operating expenses, yes,
12 sir.

13 Q And if I divide 622 into 8.2-million am
14 I correct in understanding that's almost 14 times the
15 return on the original investment?

16 A Less the million and a half State
17 royalties and less over \$1-million in State taxes, yes.

18 It has been a good investment for the
19 McElvains and Mr. Trainer, yes, sir.

20 Q And Mr. Moshell from Mobil told us
21 awhile ago that underlying the McElvain tract were 1.2 BCF
22 of gas?

23 A He said at least that, yes, that's what
24 he said.

25 Q That was a minimum number, wasn't it?

1 What has been reported to you as the
2 current total production in gas from the well to date?

3 A Well, through May of 1988, 4.3 BCF.

4 Q 3-1/2 times the original producible gas
5 underneath that spacing unit, isn't it?

6 A Those are your words.

7 Q Well, I don't know. If the numerator
8 is 1.2 BCF and the denominator is 4.3 BCF, --

9 A I think you have them reversed mathe-
10 matically.

11 Q All right.

12 A But if you choose to use 1.2 BCF, if
13 you choose to use 1.2 BCF, yes, sir.

14 MR. KELLAHIN: No further
15 questions.

16 MR. LEMAY: Are there
17 questions of the witness?

18 MR. PEARCE: Very briefly, if
19 I may, Mr. Chairman.

20 MR. LEMAY: Mr. Pearce.

21

22 CROSS EXAMINATION

23 BY MR. PEARCE:

24 Q Mr. Hickey, I'm a lawyer and I deal
25 more with words than with numbers, and I'd like for you to

1 turn to the last page of your exhibit with me, please, and
2 I notice you've used some -- used the word "windfall" for
3 those two righthand columns, if Phillips or Mobil is allow-
4 ed into the present McElvain well.

5 A Yes, sir.

6 Q Could you tell me the assumption under-
7 lying your use of the word "windfall"?

8 A We are dealing with more or less of a
9 known factor now; the McElvains and Mr. Trainer were not.
10 They took the risk.

11 If you get force pooled into this well
12 with us, I think we could call it a windfall to either you
13 or to Phillips, yes, sir.

14 Q Would you call it a windfall if Mr.
15 McElvain re-entered a well and produced Mobil's reserves?

16 A Your geology shows that. Phillips'
17 geology shows something else.

18 Q And if my geology was correct, under
19 your use of the word "windfall", would you call that a
20 windfall?

21 A You've held the lease for 55 years
22 without drilling. I'm not sure that I would call that a
23 windfall that Mr. McElvain and Mr. Trainer developed this
24 well within a few months of the time they obtained their
25 lease.

1 Q Because Mobil held the lease for 55
2 years, Mr. McElvain has a right to produce their reserves?
3 Is that a summary of what you said, sir?

4 A I didn't say that at all. I said that
5 Mobil had the opportunity for 55 years to develop their own
6 reserves and to take reserves out from under the 240 acres
7 that Mr. McElvain and Mr. Trainer wound up with.

8 MR. PEARCE: I don't think I
9 have anything further. Thank you, Mr. Chairman.

10 MR. LEMAY: Additional
11 questions for the witness?

12 MR. CARR: Just -- I have
13 one.

14 MR. LEMAY: Mr. Carr.

15

16 CROSS EXAMINATION

17 BY MR. CARR:

18 Q Has Mr. McElvain taken any pressure
19 data to confirm the 4 BCF figure that you've used?

20 A I'm not an engineer.

21 Q Are you going to be calling an engineer
22 that might be able to answer that?

23 MR. LOSEE: No, I believe
24 not. We have --

25 (Thereupon a discussion was had off the record.)

1 QUESTIONS BY MR. LEMAY:

2 Q I have a question, Mr. Hickey, only
3 from a point of view of an operator.

4 I don't know if you can even answer
5 this, but have you looked into the assumption that if Mobil
6 and Phillips are allowed to develop their tract in some
7 form or fashion, that those 4 BCF remaining reserves to the
8 McElvain well will be reduced by some percentage, I assume?

9 A I believe the Phillips engineer testi-
10 fied to two different scenarios to that, sir, yes.

11 Q Well, would you agree with the Phillips
12 engineer's scenario, then, as far as remaining reserves to
13 McElvain with one additional well in Section 22 and two
14 additional wells in Section 22?

15 A I'm not an engineer but I suspect his
16 figures are in the right direction, yes, sir.

17 Q Then in terms of your preferences, and
18 I don't even know if you can express the intent of the
19 McElvains, but would they prefer to have three wells in
20 Section 22 with two unorthodox -- two unorthodox spacing
21 units being developed?

22 A Well, two free wells?

23 Q Well, you'd have three wells and then
24 you --

25 A Oh, I thought you said two free wells.

1 Q No, no free wells.

2 A Although I'm sure they're thinking in
3 terms of two different free wells.

4 Q We're looking in terms of developing
5 Section 22.

6 A Yes.

7 Q The Commission must make the decision
8 concerning spacing in that section. Right now there's one
9 well. I'm assuming that there will either be two wells or
10 three wells in Section 22 and McElvain, do they have a
11 position as to whether they would like two wells in Sec-
12 tion 22 with some forced pooling into your well, or three
13 wells, another Strawn -- in the reservoir, so to speak,
14 with -- without any forced pooling in Section 22, at least
15 as far as McElvain is concerned.

16 A I don't know what the opinion is. Ob-
17 viously the fewer wells the more it would be to our advan-
18 tage, but whether that's equitable or not --

19 FROM AUDIENCE: I want three.

20 MR. LEMAY: You want three?

21 FROM AUDIENCE: You bet. Let
22 them get their own well.

23 A It has been shown here that our well
24 has been draining other people's acreage, and so we cer-
25 tainly shouldn't be adverse to other people getting a

1 chance to drill their wells to prove up what they say is
2 under their acreage.

3 (Thereupon comments were made at random
4 off the record.)

5 Q Is Mr. McElvain, to your knowledge, and
6 Mr. Trainer, in agreement in this area?

7 Do you get along with C. W. and is it
8 okay to speak for him?

9 A Well, I may get along with C. W. better
10 than Mr. McElvain does.

11 Q I have no further questions. You may be
12 excused.

13 MR. LEMAY: Mr. Carr.

14 MR. CARR: At this time Sun
15 would like to call Greg Cielinski, C-I-E-L-I-N-S-K-I.

16
17 GREGORY D. CIELINSKI,
18 being called as a witness and being duly sworn upon his
19 oath, testified as follows, to-wit:

20

21 DIRECT EXAMINATION

22 BY MR. CARR:

23 Q Will you state your full name for the
24 record, please?

25 A Gregory D. Cielinski.

1 Q Mr. Cielinski, where do you reside?

2 A In Midland, Texas.

3 Q By whom are you employed?

4 A Sun Exploration and Production Company.

5 Q And in what capacity?

6 A I'm a reservoir engineer.

7 Q Have you previously testified before
8 the Oil Conservation Commission?

9 A No, I have not.

10 Q Will you briefly summarize your educa-
11 tional background?

12 A I received a Bachelor of Science degree
13 in petroleum engineering in 1983 from Colorado School of
14 Mines.

15 Q And following graduation where did you
16 go to work?

17 A I went to work in Dallas for Sun as a
18 reservoir simulation engineer.

19 Q And have you worked for Sun since that
20 time?

21 A Yes, I have.

22 Q Are you familiar with the applications
23 that have been filed in this case and the subject area?

24 A Yes, I am.

25 MR. CARR: We would tender

1 Mr. Cielinski as an expert witness --

2 MR. LEMAY: His
3 qualifications are accepted.

4 MR. CARR; -- in reservoir
5 engineering.

6 Q Will you briefly state what Sun seeks
7 by appearing in this case?

8 A Sun seeks to form a 320-acre standard
9 laydown proration unit in the north half of Section 3 -- of
10 Section 22, I'm sorry.

11 Q And would you state what Sun's interest
12 is in coming in and recommending that?

13 A Sun operates a well to the north, to
14 the north of that section.

15 Q Will you refer to what has been marked
16 as Exhibit Number One and go to the first page of that
17 exhibit and first of all identify what that is and review
18 the information contained on the exhibit.

19 A This is a pressure history in the imme-
20 diate vicinity of the McElvain well, the subject well, in
21 the Shoe Bar Atoka Field, and it shows cumulative volumes
22 produced in the reservoir and static pressures and some
23 shut-in tubing pressures in -- during the time since devel-
24 opment of that reservoir.

25 The first well in this area was the

1 Shoe Bar 14 State Com No. 1 drilled in November of '84 and
2 it showed a static bottom hole pressure of 5806 psi.

3 In January of 1986 the New Mexico AC
4 State No. 1, McElvain's well, was drilled. At that time
5 the reservoir cum was 132-million cubic feet and the statis
6 bottom hole pressure had dropped somewhat, 5469, indicating
7 a little bit of drainage.

8 Sun came in and drilled the Shoe Bar
9 State Com No. 1 in December of '87 and at that time the
10 reservoir cum was 30 -- or 3.6 BCF and the static bottom
11 hole pressure had dropped all the way to 2879, less than
12 half the initial pressure of the reservoir in that area,
13 indicating severe drainage on our lease.

14 And at that time the shut-in tubing
15 pressure was a little over 2000 psi.

16 Then in February our well still had not
17 produced. The reservoir cum had gone up to 4.14 BCF and
18 our tubing pressure had fallen about 170 psi to 1923, indi-
19 cating drainage from McElvain's well.

20 And then further, in April of '88,
21 still on our well, we ran a bottom hole pressure, statis
22 bottom hole pressure with a bomb and that showed as the
23 reservoir cum had increased to 4.32 BCF, the bottom hole
24 pressure had fallen about 3 -- 300 psi from when we first
25 completed our well even though we had not produced it at

1 all, indicating severe drainage from the McElvain well.

2 Q All right, will you go to the second
3 page of Exhibit Number One and first identify this and then
4 review the information contained on this exhibit? Mr.
5 Cielinski, you might even want to refer to the isopach map
6 on the wall and indicate the location of the wells that
7 were drilled that would affect (not clearly understood.)

8 A This is Texaco's New Mexico DK State
9 Com Well No. 1 and this is a P/z versus cum gas plot. The
10 original four points there were prior to additional wells
11 drilled.

12 Q The points on the left.

13 A This well is this well here, this
14 Texaco Well. This well right here in Section 18 is the
15 subject well on that P/z plot, and at the time the first
16 four points were all from one well, and then two wells, one
17 right here and one right here were drilled where it's indi-
18 cated on the plot.

19 Q Now, can you identify those wells by
20 name, the new wells that were drilled?

21 A I don't know the names offhand.

22 Q Can you give the section number in
23 which they are located?

24 A Yes. One of them is in Section 7, I
25 believe that's a Marathon well, the UU, I guess, and the

1 other one is in Section 8 and I believe that's the Mobil
2 well.

3 Q And how close are they to the Texaco
4 well that is a P/z curve --

5 A They're a little over a mile away.

6 Q All right. Would you like to go back
7 to the stand?

8 What does this curve show you?

9 A Okay. This curve shows that prior to
10 the drilling of those two wells this well would have cumed
11 57 BCF as shown on the next page. The P/z plot should show
12 a straight line, as it does, prior to drilling those two
13 wells, but once those two wells were drilled, really a
14 textbook case of severe pressure depletion from these other
15 two wells comes in and shows that these two wells were
16 producing reserves that those -- that the first well would
17 originally have produced.

18 Q Now are these wells in the same reser-
19 voir as the subject wells we've been talking about today?

20 A Yes, they are.

21 Q All right, would you go to the next
22 page of this exhibit and review the calculations?

23 A Okay. A look at the calculations show
24 that prior to drilling those two wells the cum gas from
25 that one well would have been 57 BCF and that results in a

1 drainage acreage of 1776 acres.

2 And then after those two wells were
3 drilled, the ultimate recovery from this well is expected
4 to be 13.7 BCF, indicating a drainage area of 427 acres.

5 So those two wells took some of the
6 reserves from that one well.

7 Q Now what does this tell you about this
8 reservoir as a whole?

9 A It tells me that it will drain quite a
10 bit in this area, 1770 acres.

11 Q Now would you go to the next page in
12 this exhibit, which is an isopach map that you have placed
13 some interpretation on.

14 First of all, explain what the base map
15 is.

16 A Okay, the base map is a net pay map
17 drawn by our geologist and I've taken some reserve calcula-
18 tions and superimposed them with drainage areas on this map
19 as shown by the shading areas.

20 Q Now how does this map compare in
21 Section 22 to the isopach map presented by Mr. McElvain?

22 A Geologically they're very similar.

23 Q All right. Now what have you done with
24 this map?

25 A Okay, I've taken -- I've calculated re-

1 serves from the two wells, HNG well in Section 14 there and
2 the McElvains well in Section 22, and superimposed those
3 reserves using a recovery factor on this map to show -- to
4 indicate the drainage area of those two wells.

5 Q Now you do -- have cut off these drain-
6 age areas on section lines. Is that in fact your interpre-
7 tation of --

8 A No, that's just an approximation. In
9 reality there would be a transition zone and it is just
10 approximate.

11 Q All right, and what does this tell you
12 about -- about the wells that are depicted on this map?

13 A Well, specifically that McElvain's well
14 clearly drains quite a bit more than 320 acres and it will
15 -- it will indeed drain the entire north half of Section
16 22.

17 Q Mr. Cielinski, the data that you used
18 for the McElvain well was obtained at what point in time?

19 Is this prior to the time that you
20 drilled your well to the north?

21 A Yeah, the data is off of a P/z plot
22 showing two (not understood). It's the same one that Phil-
23 lips presented and it comes up with -- I used reserves
24 from it for the 7.4 BCF but it is prior to any other wells
25 being drilled in the field, or prior to Sun's, but I be-

1 believe that HNG's well was already there.

2 Q Okay. How would that fact, the date of
3 this information affect what you've depicted on this par-
4 ticular map?

5 A It would decrease that drainage area
6 slightly but I don't believe much because if you look at
7 the pressure history on the first page, our well came in at
8 such a low pressure relative to McElvain's well that they
9 clearly had drained quite a bit of our acreage already, so
10 I wouldn't expect that our well would have taken any of
11 their reserves away, due to that wide difference in pres-
12 sure.

13 Q Now are the remaining pages in this
14 exhibit the calculations you used in --

15 A Yes, they are.

16 Q -- making that drainage area?

17 A Yes, they are.

18 Q What conclusion have you reached from
19 your review of this area?

20 A I believe I'd say we'd reached three
21 different conclusions. One is that McElvain's well will
22 drain more than 320 acres and two is that any well drilled
23 in the west half of the northwest quarter of Section 22
24 would represent waste of financial resources.

25 And three, if a well were drilled

1 there, it would significantly drain Sun's reserves even
2 further.

3 Q Was Exhibit One prepared by you?

4 A Yes, it was.

5 MR. CARR: At this time we
6 would offer into evidence Sun Exhibit Number One.

7 MR. LEMAY: Without objec-
8 tion Exhibit One goes into the record.

9 MR. CARR: That concludes my
10 direct examination of Mr. Cielinski.

11 MR. LEMAY: Thank you, Mr.
12 Carr.

13 Mr. Kellahin?

14

15 CROSS EXAMINATION

16 BY MR. KELLAHIN:

17 Q Mr. Cielinski, would you turn to that
18 portion of your display that has this isopach on it where
19 you've shown the drainage radiuses? (sic)

20 A Yes.

21 Q What is -- that's it. Those are
22 isopach lines?

23 A Yes, they are.

24 Q And they were prepared by whom?

25 A By our geologist.

1 Q Which geologist?

2 A Shelly Main.

3 Q The isopach was prepared using what
4 type of methodology for a cutoff on the values for the
5 isopach?

6 A I wouldn't know the answer to that.
7 Our geologist would.

8 Q You told us that isopach was very
9 similar to the one Mr. Ahlen had in Exhibit Number Two?

10 A That's my opinion. I'm not a geolo-
11 gist. They appeared similar to me.

12 Q Well, I'm not either, but look at Sec-
13 tion 14 and 23. Mr. Ahlen has closed his contour line on
14 the isopach in honor of the 4 feet on the ARCO well, hasn't
15 he?

16 A Yes, he has.

17 Q And what happens on her isopach? It
18 continues on through Sections 13 and 24, doesn't it?

19 A Yeah, well, I was speaking more in the
20 area of relevance to McElvain's well. I don't really con-
21 sider that area (not understood).

22 Q Doesn't it call into question the rele-
23 vance of this isopach when it in fact extends beyond the
24 control of the contours?

25 A I don't believe that. I don't know

1 what control was out here when that map was constructed.

2 As I said, I didn't construct it.

3 Q If we look at the shaded area that has
4 the diagonal lines that run from northwest to southeast,
5 that is the area that you have attributable -- attributed
6 to the McElvain drainage area for their well?

7 A That's correct.

8 Q And when we see the overlap in that
9 drainage area between that well and the Sun well, it fol-
10 lows the section line.

11 A Mr. Carr pointed that out, and we
12 pointed it out that that's an arbitrary or somewhat of an
13 approximation. It's not -- I'm not pointing that there's
14 border along that section and that their drainage is that
15 and we're draining just what's north of it. It's just an
16 approximation.

17 Q Okay. When we look at the McElvain
18 well in 22 and we follow the lined area to the east, we get
19 to a point where the line stops in Section 23. What caused
20 it to stop there?

21 A Well, basically all I did was take the
22 total reserves and superimpose them over an area. The
23 boundaries of that area are not, you know, meant to be ex-
24 actly where I've drawn them. It just shows an approximate
25 drainage area, which is clearly greater than 320 acres.

1 Q That area contained within the diagon-
2 al line, represents the volume of gas that we've got to
3 apply to the McElvain well.

4 A The recoverable amount of gas that it
5 would -- that it would appear to be able to drain.

6 Q Now the size, we know the size and to
7 determine the shape you rely on the geologist to tell you
8 the shape.

9 A Well, the geologist and the fact that
10 the well's got to be somewhere centrally located. It's not
11 going to drain, you know, things way out on one side and
12 not on the other side, so --

13 Q In deciding the shape you rely upon the
14 isopachs.

15 A Yes, and geometry.

16 Q But there's no question in your mind
17 that you have done the correct calculation in terms of the
18 size of the reservoir that's attributable to the gas pro-
19 duced or producible from the McElvain well.

20 A No, not within reasonable engineering
21 accuracy.

22 Q We've got the right size and now we're
23 worried about the shape, and you have matched that size to
24 the shape that that your geologist has given you.

25 A This is correct.

1 Q Have you attempted to match that size
2 with the shape for any of the other geologic displays?

3 A No, I have not.

4 Q Do you realize that the shape of a
5 reservoir that you've put in here causes your drainage
6 radius to extend through and include the ARCO dry hole in
7 Section 23?

8 A Yes, I do, but there's -- there's, you
9 know, clearly not much net pay there, only a couple feet.

10 MR. KELLAHIN: No further
11 questions.

12 MR. LEMAY: Additional
13 questions of the witness?

14 MR. LOSEE: Yes.

15 MR. LEMAY: Yes, sir, Mr.
16 Losee.

17

18 CROSS EXAMINATION

19 BY MR. LOSEE:

20 Q Is the Sun well closer to the Phillips
21 acreage in the west half northwest than the McElvain well?

22 A Yes, it is.

23 Q And at this point is Sun actually
24 draining more gas out of Phillips than McElvain is?

25 A No, I don't believe so.

1 Q Well, why not?

2 A Well, McElvain's well has been produc-
3 ing for two years and Sun's well just came on production
4 real recently, in the last couple months and if you refer
5 to the first page, clearly the pressure has dropped; when
6 our well was completed the pressure was less than half of
7 what the initial well was.

8 That indicates that at our well's loca-
9 tion significant gas lines had already had to have been
10 depleted indicating it must be by McElvain, since it's the
11 prolific producer in the area.

12 Q But that doesn't tell me about the west
13 half northwest, the Phillips acreage --

14 A Well, they're in -- they're in the same
15 general direction and I would expect similar tendencies be-
16 tween the two areas.

17 Q But you're in closer proximity to their
18 acreage than the McElvain well is.

19 A That's correct.

20 Q When was the McElvain well completed?

21 A I believe it shows on the first page,
22 in January of 1986 is when that pressure was obtained.

23 Q When was the Sun well completed?

24 A In December of 1987.

25 Q Nearly two years later before Sun

1 drilled it's well, at least two years? Is there some
2 reason why they waited for that 2-year period?

3 A I wouldn't know the reason.

4 Q Wasn't the delay in drilling one of the
5 factors that permitted the drainage to occur?

6 A Yes, it would be.

7 Q And, actually, if Sun had gone in and
8 drilled that well at the same time as McElvain, there would
9 have been counter-drainage, would there not?

10 A You'd have to define counter-drainage
11 for me.

12 Q Well, you would have balanced the
13 drainage out between the two wells or maybe it would add
14 more to the Sun well because it had thicker pay.

15 A If -- if the rates were similar, I
16 would agree with that.

17 MR. LOSEE: I think that's
18 all.

19 MR. LEMAY: Additional ques-
20 tions of the witness?

21 MR. CARR: I just have one.

22 MR. LEMAY: Yes, sir, Mr.
23 Carr.

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REDIRECT EXAMINATION

BY MR. CARR:

Q Are you familiar, Mr. Cielinski, with producing rates at this time from the Sun well as contrasted with the McElvain well?

A Yes, I am.

Q And what are they?

A The McElvain well is producing around 5-million cubic feet of gas a day and the Sun well is about 3-million cubic feet a day.

MR. CARR: That's all I have.

QUESTIONS BY MR. LEMAY:

Q I have a question, Mr. Cielinski, concerning the -- I understand Sun's position is they would prefer 320 acres, two 320-acre units to the south to balance your 320-acre unit.

A Correct.

Q In the event of an alternative curse, the Commission chose to grant three wells in Section 22, would Sun be satisfied with some restriction to the allowable on those three wells in 22, either based on deliverability or based on prorationing of the pool.

A In my opinion it would be a -- we would not object strongly to a well with an 80-acre proration

1 unit in the west half of the northwest quarter drilled by
2 Phillips. So, yes, we do believe that allowables of the
3 two wells combined should not exceed the allowable of Sun's
4 well.

5 Q Well, I wasn't so much -- I don't think
6 there's been a proposal to grant a pay acre unit initially.
7 Phillips had that and dropped it at the first hearing but
8 what's been presented here is two 160-acre units, I think
9 240 and then smaller units than 320 but three wells down
10 there and some way to balance that advantage over wells
11 that had (not clearly audible.)

12 A Well, I feel my own personal opinion is
13 that any 160-acre unit would -- would include nonproductive
14 acreage and therefore really would not be equitable and
15 would not protect Sun's correlative rights.

16 However, we do feel that if a well is
17 drilled there the important thing is that it does have a
18 reduced allowable, some form of penalty.

19 MR. LEMAY: Additional ques-
20 tions of the witness?

21 If not, he may be excused.

22 Considering the hour, we'd
23 prefer to have closing arguments, written closing arguments
24 or have you got some quick ones, five minutes?

25 Is that fine with all of you?

1 Are there any statements in
2 this case?

3 Are there any additional
4 witnesses or any positions to be stated?

5 If not, we'll leave the re-
6 cord open for closing arguments for seven days and take the
7 case under advisement.

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9 (Hearing concluded.)

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C E R T I F I C A T E

I, SALLY W. BOYD, C. S. R. DO HEREBY
CERTIFY that the foregoing Transcript of Hearing before the
Oil Conservation Division (Commission) 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