

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

23 September 1987

EXAMINER HEARING

IN THE MATTER OF:

A case called by the Oil Conserva-	CASE
tion Division on its own motion to	9226
amend the special pool rules for	
for the West Lindrith Gallup-	
Dakota Oil Pool in Rio Arriba and	
Sandoval Counties, New Mexico.	

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division:	Jeff Taylor
	Attorney at Law
	Legal Counsel to the Division
	State Land Office Bldg.
	Santa Fe, New Mexico 87501

For the Applicant:

MR. CATANACH: Call next Case Number 9226, which is in the matter called by the Oil Conservation Division on its own motion to amend the special pool rules for the West Lindrith Gallup-Dakota Oil Pool in Rio Arriba and Sandoval Counties, New Mexico.

This case will be continued to the Commission docket set for October 15, 1987.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY
CERTIFY that the foregoing Transcript of Hearing before the
Oil 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

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 226,
heard by me on Sept 23 1907 :
David R. Catank, Examiner
Oil Conservation Division

NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARING

SANTA FE, NEW MEXICO

Hearing Date OCTOBER 15, 1987 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
Eric Koelling	READING & KILGUS	TULSA, OK
Donald Dwyer	Mesa, D.D. Company	Dallas, TX (re) Austin, TX
A.R. Gendreau	A.R. Gendreau	Agua, Ill.
Larry, Smith	Mesa Grande, Ltd	Tulsa, Okla
Ernie Busch	NMOC	B34cc
Jack Kai	KAI FIRMS	TUC, AZ
William J. Smith	Smith & Black, A.	Smith & Black
Frank L. Smith	San Eric & Prosser Co.	Dallas
Greg Wexler	Kai	TUCSON AZ
Bob Brethner	Koch Exploration Company	Wichita, KS
Strawman	Strawman	Tulsa, OK
Alan Eversand	Mesa Grande	Tulsa, OK
Frank	Mesa Grande	Tulsa, OK
Paul Hawkins	Amoco Production Co.	Dallas TX
Arthur	Hinkle Law Firm	Santa Fe
R. Winters	Boyer	Santa Fe

NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARINGSANTA FE, NEW MEXICOHearing Date OCTOBER 15, 1987 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
<i>George Broome</i> KENT LUND	George Broome Anso	Santa Fe Denver, Co
Victor L. Jon	OCD	Santa Fe
Ed Hartman	Manuel Guila	alt.
E. Sigala	SLO	SF
W. Perry Pearce	Montgomery & Andrews	SR

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

15 October 1987

COMMISSION HEARING

IN THE MATTER OF:

The hearing called by the Oil Con-
servation Division on its own motion CASE
to amend the special pool rules for 9226
the West Lindrith Gallup-Dakota Oil
Pool in Rio Arriba and Sandoval
Counties, New Mexico;
and
To amend the special pool rules for CASE
the Gavilan-Mancos Oil Pool in Rio 9227
Arriba County, New Mexico;
and
The hearing called by the Oil Con- CASE
servation Division on its own motion 9228
for an order abolishing and extend-
ing certain pools in Rio Arriba and
Sandoval Counties, New Mexico.

BEFORE: William J. LeMay, Chairman
Erling A. Brostuen, Commissioner
William R. Humphries, Commissioner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For Mesa Grande Ltd.
& Mesa Grande Resources
Inc. & Mallon Oil Com-
pany: Owen Lopez
Attorney at Law
HINKLE LAW FIRM
P. O. Box 2068
Santa Fe, New Mexico 87504

A P P E A R A N C E S CONT'D

For Mallon Oil Company:

Frank Douglass
Attorney at Law
SCOTT, DOUGLASS & LUTON
First City Bank Bldg.
Austin, Texas 78701

For BMG Drilling Corp.
& Dugan Production Co.
& Sun E & P CO.:

William F. Carr
Attorney at Law
CAMPBELL & BLACK P. A.
P. O. Box 2207
Santa Fe, New Mexico 87501

For Amoco Production Co.:

W. Perry Pearce
Attorney at Law
MONTGOMERY & ANDREWS
P. O. Box 2307
Santa Fe, New Mexico 87504
and
Kent J. Lund
Attorney at Law
Amoco Production Company
P. O. Box 800
Denver, Colorado 80201

For Koch Exploration:

Robert D. Buettner
General Counsel and Secretary
Koch Exploration Company
P. O. Box 2256
Wichita, Kansas 67201

1 MR. LEMAY: Case Number 9226.

2 In the matter called by the Oil
3 Conservation Division on its own motion to amend the special
4 pool rules for the West Lindrith Gallup-Dakota Oil Pool in
5 Rio Arriba and Sandoval Counties, New Mexico, as promulgated
6 by Division Order R-4314, to reconsider the well location
7 requirements poolwide, to restate the allowable in the pool
8 to reflect the daily oil allowable for a 160-acre unit in
9 the depth range of this pool to 382 barrels of oil per day,
10 as promulgated by Division General Rule 505, and to create a
11 buffer zone in those sections that adjoin the Gavilan-Mancos
12 Oil Pool to the east in Sections 1, 12, 13, 24, 25 and 36,
13 Townships 25 North, Range 3 West, Rio Arriba County, with
14 the additional provision which may be necessary and/or ad-
15 visable to protect correlative rights along the common
16 boundary of the two pools.

17 Said area is situated 10 to 20
18 miles west/northwest of Lindrith, New Mexico.

19 MR. TAYLOR: May it please the
20 Commission, I'm Jeff Taylor, Counsel for the Division.

21 We have one witness to present
22 in this case and we would like, I think, to move that Case
23 9226, 9227, and 9228 be consolidated for purposes of admis-
24 sion of testimony.

25 MR. LEMAY: Thank you, Mr. Tay-

1 lor.

2 Mr. Lopez.

3 MR. LOPEZ: Mr. Chairman, I am
4 appearing on behalf of Mesa Grande Resources, Inc., and Mesa
5 Grande, Limited; also appearing on behalf of Mallon in asso-
6 ciation with Mr. Douglass of Austin.

7 We would concur in Mr. Taylor's
8 recommendation that the two cases be consolidated.

9 We have three witnesses to ap-
10 pear in Cases 9226 and 9227.

11 While I'm on my feet, I might
12 suggest to the Commission that on behalf of the two Mesa
13 Grande clients I represent, that we would request Cases 9225
14 and 9236 be continued to the next regularly scheduled Com-
15 mission hearing in November.

16 MR. LEMAY: Thank you, Mr.
17 Lopez. I think we can deal with 9225 and 9226 at this time.

18
19 (REPORTER'S NOTE: At this time the hearing in Cases 9225
20 and 9236 was held.)

21

22 MR. LEMAY: Mr. Carr.

23 MR. CARR: May it please the
24 Commission, I at this time would like to enter an appearance
25 on behalf of Sun Exploration and Production Company, Benson-

1 Montin-Greer Drilling Corporation, and Dugan Production Cor-
2 poration in Cases 9226, 9227, and 9228.

3 I would state that we do not
4 intend to present a witness today. It was our understanding
5 following the meeting held with Division personnel in Farm-
6 ington on the 29th of September that the only case to be
7 considered would be the nomenclature case, Case 9228; there-
8 for nothing was done to prepare for the other two cases. It
9 was only this week that we discovered that the other cases
10 might in fact be heard.

11 We don't object to testimony
12 being presented today, but I should advise you that we will
13 request at the end of the case that the record remain open
14 until the November hearing so that we can have an opportu-
15 nity to respond.

16 MR. LEMAY: Thank you, Mr.
17 Carr.

18 At this time is there any ob-
19 jection to those three cases, 9226, 9227, and 9228, being
20 consolidated?

21 If not, we will consolidate
22 those cases for --

23 Yes, sir, Mr. Kendrick.

24 MR. KENDRICK: I'd like to ob-
25 ject to the consolidation if all the cases would be con-

1 tinued to November. We would like to get the nomenclature
2 case out of the way, 9228. 9228 should be heard first
3 because 9226 and 9227 refer to the buffer zone between the
4 two pools along a common line which does not exist at this
5 time.

6 So the cases are out of order
7 if the nomenclature is not heard first.

8 MR. LEMAY: Mr. Carr.

9 MR. CARR: I -- just for
10 clarification, we wouldn't have any objection to the
11 nomenclature case going forward and an order being entered
12 in that.

13 It is only the other two that
14 we were surprised by this and we do request continuance.

15 MR. LEMAY: Mr. Lopez.

16 MR. LOPEZ: We would concur
17 with Mr. Kendrick that it makes sense that 9228 proceed
18 first and we would have no objection that an order be en-
19 tered in the nomenclature case, either; however, I think
20 it's important to realize that if that is in fact the case,
21 that we believe that no wells should be allowed to be drill-
22 led in the buffer zone, which is the subject of the 9226 and
23 9227, until orders are entered in those cases.

24 We are prepared to go forward
25 with testimony in both Cases 9226 and 9227. We have no ob-

1 jection to the record being allowed to remain open until the
2 next regular scheduled Commission hearing; however, in the
3 spirit of fair play the Commission adheres to, we would like
4 the opportunity to be apprised prior to the next hearing as
5 to how our testimony today is received, and if we're not ap-
6 prised, then undoubtedly we will appear at the next hearing
7 and request that the record remain open until we have a
8 chance to respond to other evidence and testimony.

9 MR. LEMAY: As I understand
10 this, there is a problem with the order of cases. If we
11 heard the nomenclature case first, issued an order on it
12 first, is there any problem with -- with taking that order
13 into consideration in issuing orders in Cases 9227 and 9228?
14 I'm sorry, 92 -- get this right, 9226 and 9227.

15 Am I hearing a problem, Mr.
16 Kendricks, about hearing all three cases today but issuing a
17 nomenclature order first?

18 MR. KENDRICK: No, sir. If we
19 do not get the nomenclature case out of the way the other
20 two cases do not have any basis for being heard until there
21 is a common boundary, which does not exist until 9228 is
22 heard, and until the order is issued.

23 MR. TAYLOR: Mr. Chairman, if I
24 might clarify, we're only moving that the cases be consoli-
25 dated for purpose of the record. Normally the Commission

1 does issue the orders separately in any cases that are con-
2 solidated and it's solely up to the Commission as to whether
3 to issue an order in the nomenclature depending on the
4 evidence.

5 But we have no objection to --
6 to an issuance of that order and a continuance of 9226 and
7 9227.

8 MR. LEMAY: As I understand it,
9 we're trying to space the -- this area between the Gavilan
10 area and the West -- it would be the Mancos production and
11 Ojitos area.

12 To do this I think we'd have to
13 hear testimony from all pool owners and in doing so, it
14 would seem logical to -- not only to define pool boundaries,
15 but the buffer zone would seem to be contingent upon where
16 we place that pool boundary, and in trying to just look at
17 the -- the pool boundary by itself, I think we're ignoring
18 other factors that are present in the case.

19 Now correct me if I'm wrong,
20 but in trying to look at this whole area it seems like
21 accepting testimony concerning the area would influence the
22 orders on all three cases. Am I -- am I understanding that
23 correctly or not?

24 MR. KENDRICK: Mr. Commission-
25 er, for in excess of fifty years the Oil Commission has ex-

1 tended pools and over the period of years those pools have
2 abutted against each other without any problem of pool
3 rules. The pool rules for each pool continued in effect up
4 to the boundary of that pool, where they abutted, when they
5 abutted, based on the development of the pool.

6 This is nothing out of the
7 ordinary. It's been a common occurrence for fifty years, to
8 extend the pools and where they abut together, that
9 constitutes the common boundary.

10 MR. LEMAY: Well, as I see it,
11 Mr. Kendrick, you have two pools that are going together;
12 where there are wells between the boundaries of those cur-
13 rent pools, we have to place them in one pool and then
14 create boundaries. I have noticed in the past, it may have
15 been fifty years that this has gone on but there's been
16 fifty years, possibly, of pools butting up against pools
17 with different spacing and it seems to me that to do the
18 thing logically, that the whole area should be looked at and
19 not one particular problem independent of the others, but
20 I'd be willing to hear some comments on -- on that.

21 Mr. Pearce.

22 MR. PEARCE: Thank you, Mr.
23 Chairman.

24 If I may, initially I am W.
25 Perry Pearce from the Santa Fe law firm of Montgomery &

1 Andrews, appearing in this matter in association with Mr.
2 Kent Lund, an attorney for Amoco Production Company.

3 Amidst the confusion, let me
4 jump in and say what I think our position is and Kent will
5 hit me if I'm wrong.

6 Amoco has no objection to the
7 nomenclature part of this case proceeding, abolishing the
8 Ojito, expanding the West Lindrith as proposed in the
9 advertisement of Case 9228. I have not heard in the course
10 of getting ready for these matters, anybody suggesting any
11 other pool boundary. There's been a great deal of
12 discussion about the matters in Cases 9226 and 9227, but I
13 am not aware of a proposal for a different pool boundary
14 than expanding the West Lindrith to meet the current
15 Gavilan.

16 If that's the situation, then
17 it seems to me fully appropriate to go ahead and issue a
18 nomenclature order after today's hearing to close 9228.

19 If those cases are consolidated
20 for hearing, procedurally it seems to me necessary to
21 announce at the end of today's hearing that the record in
22 9228 is being closed, while 9226 and 9227 remain open,
23 because if you don't do that, I don't think you can issue an
24 order in 9228.

25 I guess in order to move the

1 thing along, if there is a party in the room who thinks that
2 the boundary should be moved to something other than the
3 current westerly boundary of the Gavilan, I'd like to hear
4 from them, and if they're in the room and feel that way,
5 then I certainly agree with you, Mr. Chairman, we need to
6 roll them all together. I was not aware of that position
7 and it seems to be appropriate to go ahead and get the no-
8 menclature out of the way.

9 MR. LEMAY: Thank you, Mr.
10 Pearce.

11 Yes, sir, Mr. Carr.

12 MR. CARR: I hate to continue
13 this. It looks like what happens whenever you let lawyers
14 talk.

15 We have, speaking on behalf of
16 Sun, we have no quarrel with the boundary as advertised. We
17 think it appropriate that that go forward.

18 As to the comment by Mr. Lopez
19 that at the end of this hearing and before the next hearing
20 they would -- they, you know, want some sort of a reaction
21 or response or ruling from the Commission to indicate as to
22 how their testimony was received.

23 I don't know how that can be
24 done. It's ruling on part of the case without all of it
25 before you and if you want to do that, and if that's import-

1 ant as a precondition to going forward with Mallon and Mesa
2 Grande's testimony, which we have no objection to going for-
3 ward today, if that's a condition precedent to it, we think,
4 perhaps, the whole thing should be continued, advertised,
5 and heard at one time so one side doesn't make a presenta-
6 tion, asking you to say did you like it or not, and the
7 other side doesn't run forward and ask you to pass on that.

8 It seems to me it's sort of un-
9 raveling if we take that approach.

10 We think it's appropriate to go
11 forward with the nomenclature case. We have no objection to
12 anyone presenting anything they want to about the buffer
13 zone. Sun doesn't feel a buffer zone is appropriate and
14 that there -- believes that the wells in that area, the pro-
15 ducing capabilities will show that it isn't. We want to
16 show you that in November, but I want you to know where we
17 stand on both issues.

18 MR. LEMAY: That's what I'm
19 trying to find out.

20 Is there anyone in the audience
21 that represents a client or is a party to these hearings
22 that objects to what has been proposed in Case 9228? In
23 other words, the abolishment of the Ojito Gallup-Dakota Pool
24 and the extension of the West Lindrith Gallup-Dakota Pool to
25 the boundary of the Gavilan Pool without considering buffer

1 zones at this time?

2 Yes, ma'am, Mrs. Little.

3 MRS. LITTLE: I object to the
4 -- I'm Sylvia Little, Curtis Little Oil and Gas, and I ob-
5 ject to restraining the drilling during the time this is
6 heard.

7 I am supposed to drill before
8 the first of November and I've had that on the list for a
9 long time and at this point I don't want to hold up my
10 drilling to wait for this further case.

11 I have three APD's right now
12 and --

13 MR. LEMAY: I understand your
14 situation. We were going to, of course, address that with
15 this hearing and who was it that requested at least in the
16 case where there is -- there are -- there are some drilling
17 commitments, who was it who objected to drilling going on?

18 Was it Mr. Lopez?

19 MR. LOPEZ: Yes, Mr. Chairman.
20 We concur in the observations made by the Chairman that the
21 three cases are inextricably interwoven.

22 Mr. Kendrick may be correct
23 that the Commission for fifty years has extended pool
24 boundaries, but this is an unusual circumstance, as the
25 Commission fully appreciates, because the Gavilan is not

1 producing under statewide allowables.

2 We feel that it may shed some
3 light if we're allowed to go forward with our testimony
4 today to show -- we have no objection, of course, to the
5 nomenclature case going forward as advertised.

6 The other two cases have been
7 advertised and we have three witnesses here today who are
8 prepared to give testimony in Cases 9226 and 27, which have
9 been properly advertised.

10 We believe that our evidence
11 will show that unless the buffer zone is created, that there
12 will be a clear, indisputable violation of correlative
13 rights unless something is done affect the production
14 between the two pools.

15 MR. LEMAY: Well, I understand
16 your position, Mr. Lopez. We weren't really presenting
17 arguments. We were at this point working on consolidating
18 the cases and I think we'll take a five minute recess. I
19 want to confer with my colleagues here unless someone else
20 has something.

21 MR. PEARCE: Mr. Chairman, may
22 I jump in before you do that --

23 MR. LEMAY: Go ahead, Mr.
24 Pearce.

25 MR. PEARCE: -- with one

1 observation?

As I understand Cases 9226 and 9227, there's a -- and I suppose it's 9226, there's a proposal to change the pool rules for the West Lindrith to have well location requirements changed from 330 feet to 790 feet. I am concerned if - if Mrs. Little or another party wants to drill before those cases are heard, I don't know what the locations of those wells are. If they are closer than 790 and the pool rules in the West Lindrith are changed to 790, I would expect some party to come in later for an allowable restriction on those locations, and I think I understand her problem; I don't know what to do about it, but I do want to alert the Commission to the fact that there are parties to this proceeding who favor the 790 setback rule and if wells are drilled between now and the hearing of these cases on a setback less than 790, I think we're going to have a problem.

Lopez.

1 in saving her lease and we're all in favor of drilling
2 wells, but I think that the Commission is facing a serious
3 problem with respect to a buffer zone between the two pools
4 and that needs to be addressed and put on the table so when
5 she does drill the well, she knows what she's dealing with.

6 MR. LEMAY: I think I
7 understand, Mr. Lopez. I think Mrs. Little understands the
8 situation that she could -- certainly we want her to
9 preserve her leases, that in the event there is encroachment
10 prior to the issuing of the rule, there could be an
11 allowable restriction. I mean that would be understandable.
12 I don't think we would ever issue an order that put a
13 contingency on -- on drilling in the area for people to
14 protect their correlative rights, however, so I think it's
15 well understood that anyone can bring a case before this
16 Commission requesting an allowable restriction for good
17 cause showing. There'd be no problem with that.

18 Is there anything else before
19 we take a five minute recess?

20 We'll recess for five minutes.

21

22 (Thereupon a recess was taken.)

23

24 MR. LEMAY: This meeting will
25 come back to order.

25 witnesses, all of that following the hearing, in time for

1 Procedurewise, we're going to
2 hear Case 9228 first and then we're going to consolidate
3 9226 and 9227 and hear those two cases separately.

4 I don't know if we understood
5 your request, Mr. Lopez. I -- I think it was misunderstood.
6 We cannot give you feeling of what the Commission will do on
7 any cases, naturally, after we hear them. I do understand
8 that Mr. Carr will be presenting a side -- a viewpoint in
9 these two cases without witnesses, so is it -- was it your
10 intention that that side should be made clear where --
11 where he's coming from, gentlemen?

12 MR. LOPEZ: No. If I misspoke
13 or was misunderstood, I did not expect the Commission to
14 give me any sense of how it was going to proceed. I thought
15 that, just in the spirit of fair play that you'd keep the
16 record open. It would be only right that the other inter-
17 ested parties in the two cases give us some reaction to how
18 our testimony is received, so if you do continue the cases,
19 then have more evidence at the next regularly scheduled Com-
20 mission hearing we'd be more prepared to continue our case
21 with evidence or rebut any objections to our proposal.

22 MR. LEMAY; Mr. Carr.

23 MR. CARR: We will let Mr.
24 Lopez know what our reaction is to it. We intend to call
25 witnesses, all of that following the hearing, in time for

1 the next hearing.

2 If something happens and Sun
3 should elect not to present any additional testimony, we
4 would advise him and advise you immediately.

5 On Monday when we found out
6 these were going, we started it in the mill at Sun and we
7 just couldn't get signals on it.

8 MR. LEMAY: I understand that,
9 Mr. Carr. Okay. I think we'll continue on, then, and call
10 Case Number 9228.

11
12 REPORTER'S NOTE: This concludes the preliminary discussion
13 concerning the hearings of Cases 9226, 9227, and 9228.

14

15

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25

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO
HEREBY CERTIFY 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

1 STATE OF NEW MEXICO
2 ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT
3 OIL CONSERVATION DIVISION
4 STATE LAND OFFICE BLDG.
5 SANTA FE, NEW MEXICO

6
7
8 19 November 1986

9 COMMISSION HEARING

10 IN THE MATTER OF:

11 The hearing called by the Oil Conser- CASE
12 vation Division on its own motion to 9226
13 amend the special pool rules for the
14 West Lindrith Gallup-Dakota Oil Pool
15 in Rio Arriba and Sandoval Counties,
16 New Mexico;

17 and
18 To amend the special pool rules for CASE
19 the Gavilan-Mancos Oil Pool in Rio 9227
20 Arriba County, New Mexico.

21
22 BEFORE: William J. Lemay, Chairman
23 Erling A. Brostuen, Commissioner
24 William R. Humphries, Commissioner

25
TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

A P P E A R A N C E S

For Sun E&P Co., Jerome P. W. Thomas Kellahin
McHugh, Dugan Production, Attorney at Law
and Benson-Montin-Greer: KELLAHIN, KELLAHIN & AUBREY
P. O. Box 2265
Santa Fe, New Mexico 87501

For Curtis Little Oil & Robert G. Stovall
Gas, Minel, Inc., Herbert Attorney at Law
Kai, T. H. McIlvain Oil & P. O. Box 129
Gas, Ed Hartman, New Mex- Farmington, New Mexico
ico & Arizona Land Company, 87499
et al:

For Amoco Production Co.: W. Perry Pearce
Attorney at Law
MONTGOMERY & ANDREWS P.A.
Paseo de Peralta
Santa Fe, New Mexico 87504

For Amoco Production: Kent J. Lund
Attorney at Law
Amoco Production Company
P. O. Box 800
Denver, Colorado 80201

For Mesa Grande Limited Owen M. Lopez
and Mesa Grande Reserves: Attorney at Law
HINKLE LAW FIRM
P. O. Box 2068
Santa Fe, New Mexico 87504

For Koch Exploration: Robert D. Buettner
General Counsel & Secretary
Koch Exploration Company
P. O. Box 2256
Wichita, Kansas 67201

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MR. LEMAY: Case Number 9226.

MR. TAYLOR: In the matter called by the Oil Conservation Division on its own motion to amend the special pool rules for the West Lindrith Gallup-Dakota Oil Pool in Rio Arriba and Sandoval Counties, New Mexico.

I believe, Mr. Commissioner, we -- that this case was heard in part at the last -- at the last hearing and that the Commission did put on its testimony.

MR. LEMAY: That's correct. 9228 was heard first and I think we combined that, though, Jeff, with 9226 and 9227.

MR. TAYLOR: Yeah, I think that --

MR. LEMAY: So if you'd like to read that Case 9227, we'll --

MR. TAYLOR: Okay.

MR. LEMAY: -- continue the consolidation to hear additional testimony.

MR. TAYLOR: Case 9227 is in the matter called by the Oil Conservation Division on its own motion to amend the special pool rules for the Gavilan-Mancos Oil Pool in Rio Arriba County, New Mexico.

1 I would just state, Mr.
2 Chairman, that I don't -- unless there is testimony by other
3 parties in this case, I don't think the Division has any
4 other testimony to add, unless it would be in response to
5 testimony from other parties.

6 MR. LEMAY: Okay, thank you. I
7 will now call for appearances in this case, or these
8 combination cases.

9 Mr. Kellahin?

10 MR. KELLAHIN: Mr. Chairman,
11 I'm Tom Kellahin of Santa Fe, New Mexico, appearing on
12 behalf of Sun Exploration and Production Company, and Dugan
13 Production Corporation.

14 MR. LEMAY: Thank you.
15 Additional appearances?

16 Mr. Stovall?

17 MR. STOVALL: Mr. Chairman, I
18 am Robert J. Stovall of Farmington, New Mexico, appearing on
19 behalf of Curtis Little Oil & Gas, Minel, Inc., Herbert Kai,
20 T. H. McIlvain Oil & Gas Properties, Ed Hartman, and New
21 Mexico Arizona -- New Mexico and Arizona Land Company.

22 MR. LEMAY: Thank you. Are
23 your clients all in agreement on this case?

24 MR. STOVALL: So far.

25 MR. LEMAY: Mr. Lopez?

1 MR. LOPEZ: Mr. Chairman, my
2 name is Owen Lopez with the Hinkle Law Firm in Santa Fe,
3 New Mexico.

4 I entered my appearance in the
5 original case and I assume this is a continuance of those
6 cases, on behalf of Mesa Grande Limited and Mesa Grande
7 Resources, Inc.

8 MR. LEMAY: Thank you. Mr.
9 Pearce?

10 MR. PEARCE: May it please the
11 Commission, I am W. Perry Pearce of the Santa Fe law firm of
12 Montgomery and Andrews, appearing in these consolidated
13 cases on behalf of Amoco Production Company, and I am
14 appearing in association with Mr. Kent Lund of Amoco's
15 Denver office.

16 MR. LEMAY: Thank you, Mr.
17 Pearce.

18 Welcome to New Mexico, Mr.
19 Lund.

20 MR. LUND: Thank you, Mr.
21 Chairman.

22 MR. LEMAY: As I recall, we
23 left off with the presentation of cases by Mr. -- of
24 exhibits and testimony by Mr. Lopez. I think we might
25 continue with Mr. Lopez if he has additional testimony at

1 this time or we can go on to --

2 MR. LOPEZ: Well, I think that
3 we established at the last hearing, Mr. Chairman, any
4 testimony we would have would be in rebuttal to any other
5 testimony.

6 MR. LEMAY: Fine. Thank you,
7 Mr. Lopez. I wanted to give you the opportunity to continue
8 if you had additional witnesses.

9 Mr. Pearce.

10 MR. PEARCE: Mr. Chairman, if I
11 may for clarification, at the -- my recollection is that at
12 the end of the last hearing on this matter Case 9228 was
13 taken under advisement and I am wondering if we have an or-
14 der on that case yet since it needs to be decided with the
15 two under consideration now.

16 MR. LEMAY: We have one that's
17 just signed now and I'll be happy to distribute that. Would
18 this be the proper time to take a break to distribute that
19 order to all of you, since it probably might affect these
20 proceedings?

21 MR. PEARCE: I would appreciate
22 it. I don't know about the others.

23 MR. LEMAY: Sure. Let's do
24 that. We'll take a fifteen minute break now and distribute
25 this signed order.

(Thereupon a recess was taken.)

MR. LEMAY: The hearing will be continued.

At this time we've called the consolidated cases. Mr. Lopez, I think, has indicated that he is through with his direct testimony but reserves the right of rebuttal and cross examination, of course.

Now we will hear, I think, maybe Mr. Kellahin. Are you ready to present your case, sir?

MR. KELLAHIN: Yes, Mr. Chairman. We're ready to go forward.

MR. LEMAY: Fine. Please continue.

MR. KELLAHIN: Mr. Chairman, I have some witnesses I need to have sworn. I would like to swear all three of my witnesses at this time.

MR. TAYLOR: If anybody else has any witnesses they propose to call --

MR. STOVALL: Mr. Chairman, I have a witness I'd also like to be sworn.

MR. TAYLOR: -- could we just have them all stand and be sworn?

(Witnesses sworn.)

MR. LEMAY: You may continue,
Mr. Kellahin.

MR. KELLAHIN: Thank you, Mr.
Chairman.

Mr. Chairman, we're going to
call as our first witness Mr. Ken Mueller. Mr. Mueller
spells his name M-U-E-L-L-E-R. You may be familiar with his
father, Bill Mueller from Phillips, who's testified here a
number of times.

Mr. Mueller is an engineer for
Sun. He is presenting a position for Sun with regards to
the buffer gas allowable that was suggested at the October
19th hearing, and pursuant to that proposal, Mr. Mueller has
made a study of and proposes to discuss with you in some de-
tail questions about whether if a buffer should be estab-
lished and if one is, what type of buffer it should be.

I'll tell you very briefly, our
position is that Sun and Dugan Production Corporation are
opposed to the creation of a buffer gas allowable; however,
if the Commission decides that it wants to adopt one, we are
opposed to the proposal that Mr. Sweet and Mesa Grande gave
you on October 19th and we are going to suggest reasons why
we think that proposal is inequitable and Mr. Mueller will

1 have an alternative suggestion for you.

2 MR. LEMAY: Fine. Oh, you may
3 continue, Mr. Kellahin. I'm sorry.

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

8
9 DIRECT EXAMINATION

10 BY MR. KELLAHIN:

11 Q Mr. Mueller, for the record would you
12 please state your name and occupation?

13 A Kenneth Mueller. I'm District Reservoir
14 Engineering Manager for Sun Exploration and Production in
15 Denver, Colorado.

16 Q Mr. Mueller, we don't have the advantage
17 of a microphone in the hearing room today, so if you'll
18 speak up for us as best you can, we'll all try to hear what
19 you have to say.

20 Would you describe for the Commission
21 what has been your educational background?

22 A I graduated from Texas A & M in 1979 with
23 a Bachelor of Science in petroleum engineering.

24 Q Subsequent to graduation, Mr. Mueller,
25 have you been employed as a petroleum or reservoir engineer?

1 A Yes. Starting in May of 1979, I started
2 as a reservoir engineer with Sun in Midland, Texas.

3 In 1982 I was transferred to Dallas,
4 Texas with Sun. I worked there in their Reservoir Simula-
5 tion Department.

6 In May of 1986 I was transferred to our
7 Rocky Mountain District as District Reservoir Engineering
8 Manager with Sun.

9 Q Mr. Mueller, are you familiar with the
10 area that has been defined as a boundary by the Division or
11 the Commission between the West Lindrith Pool and the Gavi-
12 lan-Mancos Pool?

13 A Yes.

14 Q And are you familiar with the proposition
15 that a buffer gas allowable has been suggested for handling
16 the disparity in the allowables between the two pools?

17 A Yes, I am.

18 Q What were you asked by Sun Exploration
19 and Production Company to do with regards to that issue?

20 A I was asked to make a study of the area
21 and to see if there is a need for allowables.

22 Q What information have you studied in a
23 general way, Mr. Mueller?

24 A I've studied the production for the Gavi-
25 lan Field and the West Lindrith Field. I've studied it as

1 total production and on an average per well per month basis.

2 I've studied individual well production
3 within the buffer zone and wells near or around the buffer
4 zone area.

5 Q Would you describe generally what func-
6 tions you have performed for Sun Exploration and Production
7 Company as a reservoir petroleum engineer?

8 Generally what type of duties have you
9 performed?

10 A Most of it's reserve evaluations. Some
11 of it's reserve audits and things like that.

12 The economic evaluations of drilling pro-
13 posals, and economic evaluations of just other business.

14 MR. KELLAHIN: At this time,
15 Mr. Chairman, we tender Mr. Mueller as an expert reservoir
16 engineer.

17 MR. LEMAY: Mr. Mueller's qual-
18 ifications are acceptable.

19 Q Have you reached an opinion, Mr. Mueller,
20 as with regards to whether or not in your opinion there is a
21 need for a buffer gas allowable between the two pools?

22 A I see no need for a buffer zone.

23 Q What has caused you to reach that opin-
24 ion?

25 A From the producing characteristics of

1 both fields and wells within the proposed buffer zone, the
2 -- I guess you'd say the proposal for an allowable based on
3 top allowables would basically be ineffective in a buffer
4 zone.

5 Q In examining the production data avail-
6 able for the Gavilan-Mancos and the West Lindrith wells, do
7 you see a current need for any buffer allowable regardless
8 on how that allowable is calculated?

9 A No.

10 Q In your opinion have you had sufficient
11 data upon which to base your opinions?

12 A Yes.

13 Q Generally what is the source of the in-
14 formation available that you've studied?

15 A The general source for most of the pro-
16 duction data that I've studied has been Dwight's Energy Data
17 Base.

18 Q Is that a typical data base source that
19 engineers such as you utilize in your research and in your
20 studies?

21 A Yes. The production from -- for Dwight's
22 is taken from the reported state production.

23 Q Does the difference in the top gas allow-
24 able for the West Lindrith and the top gas allowable for the
25 Gavilan-Mancos in your opinion create a problem of correla-

1 tive rights?

2 A There is a major difference in the top
3 gas allowables between the two pools but I feel there is not
4 a problem with correlative rights.

5 Q Have you had an opportunity to examine
6 the proposal that Mr. Sweet presented on behalf of Mesa
7 Grande, Inc., with regards to a top gas allowable allocation
8 across the buffer zone?

9 A Yes, I have studied that proposal.

10 Q And what is your opinion of that propo-
11 sal?

12 A It is basically ineffectual.

13 Q In your opinion is that proposal by Mr.
14 Sweet equitable or inequitable?

15 A It's inequitable.

16 Q If the Commission should determine that
17 they want a buffer gas allowable between the two pools, do
18 you have a recommendation to the Commission for such an al-
19 lowable?

20 A Yes. I have developed a proposal.

21 Q Let me turn your attention now, Mr. Muel-
22 ler, to the package of Sun exhibits. The exhibit book, for
23 the record, is marked as Exhibit One. Each of the indivi-
24 dual pages in the exhibit book are numbered in consecutive
25 order.

1 If you'll turn to the first page, Mr.
2 Mueller, and identify and explain the purpose of that exhi-
3 bit.

4 A Okay, the first page is a map of where
5 the buffer zone area lies. It would be extending along the
6 east half of the sections in Range 3 West, and then it would
7 comprise approximately 505 acres of the west, westernmost
8 half of the sections in Range 2 West.

9 Q Is this an index map by which we can re-
10 fer back to well locations as those wells are discussed and
11 described in later exhibits?

12 A Yes.

13 Q All right, you've divided your exhibit
14 book into three sections and the next page introduces Sec-
15 tion 1. Before we get into Section 1 in detail, would you
16 describe generally what the purpose of this section is?

17 A The purpose of this section is to show
18 that a buffer zone is not needed.

19 Q Let's turn, then, to the -- turn to page
20 2, which is the first display after the yellow page and have
21 you begin describing your exhibit book.

22 A Okay. Page two is just a summary of the
23 current allowable situation for West Lindrith and the Gavi-
24 lan-Mancos.

25 West Lindrith is on 160-acre spacing and

1 the Gavilan-Mancos is on 640's.

2 The allowables for West Lindrith are 382
3 barrels of oil, limiting to a 2000 GOR, which yields 764 MCF
4 a day.

5 The allowables for the Gavilan-Mancos are
6 800 barrels of oil a day, limiting GOR of 600, which yields
7 a 480 MCF a day limiting allowable.

8 What I've done is in order to compare the
9 two allowables is based them on 640-acre parcels or tracts
10 so that you can be comparing apples to apples, and you can
11 see the West Lindrith for 640, that allowable is 1528 and
12 3,056 per day. The Gavilan is 800 and 480.

13 Q All right, sir, let's turn to page three
14 of the exhibit book and have you identify and describe this
15 exhibit.

16 A Okay. This is the average monthly pro-
17 duction for the Gavilan Field for the years '82 through June
18 of '87.

19 At the top I've drawn a line that is mar-
20 ked Gavilan Allowable. This is the top maximum allowable.
21 It is 936,000 barrels of oil per month. I calculated that
22 by taking 39 productive sections times the 800 barrels of
23 oil per day maximum allowable times 30 days per month.

24 There is a darker line towards the middle
25 of the graph. It's marked Gavilan Allowable, 562-million

1 cubic feet per month. How I calculated that was 480 MCF per
2 day times the 39 productive sections times the 30 days per
3 month.

4 Also on this graph is the oil production,
5 average monthly oil production in thousands of barrels per
6 month, and the average monthly gas production in million
7 cubic feet per month.

8 This graph clearly shows that the oil
9 rates are well below the top maximum oil allowables; gas
10 rates are well below the top maximum gas allowable.

11 Q All right, sir, let's turn to page 4 and
12 have you identify and explain this exhibit.

13 A This exhibit is the average production
14 per well per month. It is based on the previous exhibit and
15 the number of wells, the average number of wells in each
16 year, and what I've done here is I've taken the 800 barrels
17 of oil per day and drawn a top maximum allowable line of
18 24,000 barrels of oil per month based on a 30-day month.

19 I've also done the same for the gas,
20 which is just above -- just over 14-million cubic feet per
21 month.

22 Once again we can see that an average
23 well in the Gavilan Field is not capable of making its top
24 oil allowable and an average well is not capable of making
25 its top gas allowable.

1 Q All right, sir, let's turn to page 5 and
2 have you identify and describe this display.

3 A Okay. Actually the next two graphs are
4 similar graphs as what we've just gone through for Gavilan
5 but these are for the Lindrith Field.

6 Q Pages 5 and 6 are for the Lindrith Field?

7 A Yes.

8 Q All right, sir, start with 5. .

9 A Okay. This is the average monthly pro-
10 duction for the Lindrith Field, oil and gas. At the top of
11 the page I've marked what would be the top maximum allowable
12 of oil and the top maximum allowable for gas. That's calcu-
13 lated based on approximately 400 wells times the 382 barrels
14 of oil per day times thirty days per month yields just under
15 4.6-million barrels per month.

The gas allowable was calculated as approximately 400 wells times 764 MCF per day per well times thirty days per month and that yields just over 9-million cubic feet per month.

The actual gas and oil production is plotted there around about 100,000 barrels per month on the oil and about one BCF per month for the gas. Both these lines are well below the top maximum allowable for this field.

25 Q What's the conclusion you reach from an

1 examination of the data on this exhibit?

2 A The conclusion is that the Lindrith
3 Field, West Lindrith Field, is not capable of making its top
4 allowable.

5 Q Before you leave this display, at the
6 last hearing in October Commissioner Humphries was concerned
7 about the commingled Gallup and Dakota production in West
8 Lindrith.

9 A Yes.

10 Q Does your tabulation of average produc-
11 tion per month include commingled Gallup/Dakota production
12 in the Lindrith Field?

13 A Yes. This is what is reported into
14 Dwight's and that would include Dakota and Gallup produc-
15 tion. In fact, if you look at the years '77 through '79,
16 this is about the time that the Chacon Dakota Field was I
17 guess you'd call it disbanded, and moved into the West Lin-
18 drith Field and that increased some well count and oil and
19 gas rates during that time period.

20 Q Do you know what the principal producing
21 formation was in the Chacon Field?

22 A It was Dakota.

23 Q All right, sir, let's go to page 6 and
24 have you identify and describe this exhibit.

25 A Page 6 is average production per well per

1 month for the Lindrith Field. I've plotted the average
2 monthly gas per well and the average monthly oil per well.
3 I've also drawn on here what would be the maximum top allow-
4 able for a well in the West Lindrith and that's just over
5 11,000 barrels of oil per month, and almost 23-million cubic
6 feet of gas per month, and once again you can see from this
7 graph that an average well in the West Lindrith Field is not
8 capable of making its top allowable.

9 The -- basically, these four graphs serve
10 to prove that top allowables are not a good way of determin-
11 ing how to set a buffer zone.

12 The fields and the wells are incapable of
13 making a top allowable.

14 Q Let's turn to page 7 now, Mr. Mueller,
15 and have you identify and describe this exhibit.

16 A Okay. This is a comparison of the West
17 Lindrith Field to the Gavilan Field average production,
18 monthly production.

19 We have plotted on here the West Lindrith
20 gas production and the West Lindrith oil production and the
21 Gavilan oil production and the Gavilan gas production.

22 Total fieldwise we can see that the West
23 Lindrith gas production is almost six times what the Gavilan
24 gas production is but the West Lindrith production is real
25 close to what the Gavilan oil production is; in fact in 1986

1 Gavilan oil production did exceed West Lindrith oil produc-
2 tion.

3 The conclusion that could be inferred
4 from this graph is that with very little difference in the
5 oil production here in the last two years, that little or no
6 drainage is occurring.

7 The next graph --

8 Q That would be page 8, are we still on the
9 same page?

10 A Yes, page 8.

11 Q All right, sir, would you identify and
12 describe this display?

13 A This is the average production per well
14 per month for both the Lindrith and the Gavilan Field. It's
15 a comparison basically that can made as an average well in
16 both fields.

17 We can see that the Gavilan oil produc-
18 tion per well is well above the West Lindrith oil production
19 per well. The productivity of a Gavilan well is about five
20 times about what a West Lindrith well is.

21 The Gavilan gas curve and the West Lin-
22 drith gas curve, although the Gavilan gas curve is a little
23 bit above it, there's very little difference gas ratewise in
24 an average well (unclear) is necessary and definitely that a
25 top allowable calculation is not an effective way of buffer-

1 ing between these two pools.

2 Q Turn to exhibit page 9, Mr. Mueller, and
3 would you identify and describe this exhibit?

4 A This is the West Lindrith well capacity
5 distribution. We've broken these into four ranges from zero
6 barrels of oil a day up to 160 barrels of oil per day and
7 then 160+.

8 What it shows here is that most of your
9 West Lindrith wells are not capable of making a high oil
10 rate and that in fact over 50 percent of them are in the
11 zero to 20 barrel a day range.

12 We've done the same on the gas. It goes
13 from zero to 800 MCF a day and then an 800+ MCF a day range
14 and that only 4 percent of the wells in West Lindrith are
15 capable of making over a top allowable rate and that once
16 again most of your wells in West Lindrith are in the zero to
17 100 MCF a day range.

18 Q What conclusion do you draw from this
19 analysis?

20 A That there is -- most of the wells in
21 West Lindrith are low productivity wells and that there are
22 very few wells, it would be less than one percent, that are
23 capable of making a top oil allowable and less than, or
24 approximately four percent, that are capable of making a top
25 gas allowable.

1 Q In your overall analysis of this issue
2 what impact does that have?

3 A That means that we're dealing with very,
4 very few wells, or a very small percentage, that we're
5 trying to deal with in setting top allowables in a buffer
6 zone.

7 Q Turn to page 10, now, Mr. Mueller, would
8 you identify and describe this exhibit?

9 A This exhibit shows that I do not know how
10 to spell percent.

11 Q You can always blame that on clerical.

12 A Once again this is actually just a graph-
13 ical picture of the data presented on the previous exhibit.
14 It has the percentage of wells on the vertical scale in each
15 of the ranges for the oil rate. What I've done is just
16 plotted the data at the midpoint of the range.

17 It shows that very few, and basically
18 it's less than one percent, are capable of doing better than
19 160 barrels of oil a day and that well over 50 percent are
20 in the zero to 20 barrel of oil a day range.

21 Q Let's turn now to the similar display on
22 the gas rate on page 11 and have you identify that for us.

23 A This is your capacity distribution of the
24 gas rates from the previous tabulated data.

25 Once again I've plotted the percentage of

1 wells on the vertical axis and the horizontal axis is the
2 ranges in gas rates that we have broken them up to.

3 West Lindrith has a 764 MCF a day top al-
4 lowable on the gas, which this would show that four percent,
5 only four percent of the wells would be capable of making
6 that, with well over fifty percent of the wells in the zero
7 to 100 MCF a day range. It shows that West Lindrith has low
8 capacity wells.

9 Q Have you made a similar analysis of the
10 Gavilan well capacities?

11 A Yes.

12 Q Let's turn to page 12 and have you iden-
13 tify and describe that, the information you have obtained on
14 the Gavilan well capacity.

15 A Okay. I've taken the Gavilan wells and
16 broken them in ranges, the same ranges as in West -- West
17 Lindrith, from zero to 160 there are four ranges and then
18 160+, for the oil.

19 There would be four ranges from zero to
20 800 MCF a day for the gas and then 800 MCF a day plus for
21 gas.

22 We show the percent of the total wells in
23 a cumulative percent and we can see here that in Gavilan it
24 would be, which has a top allowable of 800 barrels of oil a
25 day, it would be well below less than 11 percent that are

1 capable of making that top allowable.

2 On the gas the top allowable is 480 MCF a
3 day and over there in the cumulative percent column you can
4 see that there would be approximately 36 percent of the
5 wells would actually be able to make a top allowable rate.

6 Q What is the source of the data for the
7 Gavilan well capacities?

8 A This was Dwight's data. It's 1987 data
9 and what we've done is picked out the highest producing re-
10 ported production for each well in 1987, so this is basical-
11 ly their current well capacity.

12 Q These represent all the wells in the Gav-
13 ilan-Mancos Pool?

14 A Yes.

15 Q When we look back at the Lindrith well
16 capacity, what was the source of information for the Lin-
17 drith capacity, as shown on exhibits ten and eleven?

18 A That once again was from Dwight's data
19 for what their current capacity is, which 1987 data was
20 used.

21 Q In that well count did you include the
22 historical production capacities of each of the wells from
23 inception of the pool? I'm trying to understand exactly
24 where you started with your study.

25 A No, these -- these six plots are 1987 da-

1 ta only.

2 Q All right, let's turn now to -- 12, let's
3 go to 13, now, and see how you've plotted the information
4 that you've depicted on page 12.

5 A Okay. On 13 we have once again the ver-
6 tical axis is percentage of the wells and then the oil rate
7 is midpoint of range, and we can see that Gavilan has a more
8 uniform or constant distribution of wells, indicating that
9 Gavilan has more higher capacity wells than what West Lin-
10 drith had.

11 Also, it shows that there would be less
12 than 11 percent of the wells that are capable of making a
13 top allowable oil rates.

14 Q All right, let's turn to the display on
15 page 14 that shows the gas capacity of the Gavilan wells.

16 A Okay. Once again here you can see that
17 the distribution of the wells is much more constant than
18 what we had seen in West Lindrith. The maximum top allow-
19 able for Gavilan is 480, which shows here that 36 percent of
20 the wells are capable of making that maximum gas allowable.
21 The more constant distribution shows that in general all the
22 wells in West Gavilan are higher capacity than the West Lin-
23 drith.

24 Q What use has this information been to you
25 in analyzing whether or not there ought to be a buffer al-

1 lowable between the two reservoirs or the two pools?

2 A Well, I've used these statistics to come
3 up with how many wells we'd actually be affecting by setting
4 a top allowable based on what each allowable is in -- in
5 each pool, and even if you use it -- there's only eleven
6 wells additional to be drilled in the buffer zone and you
7 could take this -- I mean the highest we've seen at any --
8 any well is going to be limited, the highest percentage num-
9 ber of wells is the 36 percent based on Gavilan's, well, gas
10 capacity, and with eleven wells and at 36 percent of that,
11 we're only -- in the buffer zone we're only talking that
12 we'll ever see three to four wells affected by setting a
13 buffer zone based on top allowables.

14 Q Turn to page 15 now, Mr. Mueller. Would
15 you identify and describe that exhibit?

16 A Okay. 15 was basically like the capacity
17 distributions for the West Lindrith previously shown, except
18 I went all the way back to 1970 to get a maximum capacity
19 for West Lindrith wells.

20 Q Would you describe for us what you mean
21 by "maximum capacity"?

22 A Maximum capacity is what the wells have
23 been -- have demonstrated they can do, and what that is is
24 each well was searched for its maximum gas production in a
25 month and its maximum oil production month.

1 Q You're talking about actual production as
2 opposed to looking at initial potentials for the wells?

3 A Right, what it -- the maximum month it
4 had ever reported production for.

5 Q And since 1970, making the tabulation in
6 that manner, what do you find?

7 A Okay. I've divided them up once again in
8 the same ranges as -- as before; four ranges in the zero to
9 160 barrels of oil a day and 160+. We can see that doing it
10 this way West Lindrith then has a more uniform distribution,
11 more like Gavilan does -- is showing now.

12 However, it also shows that it is still
13 less than 6 percent that have a capacity high enough to even
14 reach near top allowable for the oil.

15 I've done the same on the gas, divided it
16 in four ranges from zero to 800 and then an 800 MCF a day
17 plus, and on the percent of total here we can see that their
18 top allowable, being 764 MCF a day, that is still less than
19 10 percent of the West Lindrith wells that are -- would be
20 capable of making a top allowable rate.

21 So once again I'm just emphasizing the
22 fact that we're dealing with very few wells in setting a
23 buffer zone allowable based on top allowable rates.

24 Q Let's turn now, sir, to Section II, and
25 before we go through the individual pages of Section II,

1 would you generally describe for us what the purpose is of
2 this section?

3 A The basic purpose is that if a buffer
4 zone is to be created, that Sun has come up with a more
5 equitable way of determining what top allowable will be in
6 the buffer zone.

7 Q In reviewing the issue of a buffer zone,
8 would you describe for us what your concerns are having
9 studied Mr. Sweet's proposal, what your concerns are about
10 his proposal?

11 A His proposal basically has a high per-
12 centage increase in the Gavilan side of the buffer zone.
13 It's shown very clearly here on the next exhibit, that tak-
14 ing his proposal that was presented last month, and rather
15 than basing it on a per acre, I personally like to look at
16 it on 640-acre tracts or parcels rather than per acre. The
17 rates mean more to me this way.

18 Q All right, let's look at page 16. This
19 is your analysis of what occurs if the Commission were to
20 adopt the top gas allowable buffer allocation that Mr. Sweet
21 proposed?

22 Am I correct in understanding that's what
23 this does?

24 A Yes, this shows, like I say, rather than
25 on a per acre basis, on a 640.

1 Q You refer to that as an equal increment
2 proposal?

3 A Yes.

4 Q What do you mean by that?

5 A That's because he took the difference
6 between the West Lindrith top allowable and the Gavilan
7 allowable, took that difference and divided by 3, which
8 gives you equal increments, and he incremented each part of
9 the buffer zone by that increment, stepping it up from the
10 Gavilan area to the West Lindrith area.

11 Q If you do that can you show us on your
12 exhibit on page 16 what the percentage change is for each of
13 those areas as you step across the buffer?

14 A Yes. On the oil we see that he has a two
15 -- almost a 243 barrel a day increment and that percentage
16 change on the Gavilan side is a 30.3 percent change, which
17 gradually decreases to about a 19.9 percent change over in
18 West Lindrith.

19 The gas increment that he had proposed
20 was just under 859 MCF a day. Now this causes almost 179
21 percent change in allowables within the Gavilan area and
22 that percentage change decreases from 179 down to 39 in the
23 West Lindrith.

24 This is inequitable since Gavilan, with
25 the lower gas rates, should have such a high increment and a

1 high percentage change. Sun feels that most of that incre-
2 ment, most of that change should occur on the West Lindrith
3 side where the higher allowables are existing.

4 Q Have you reduced this analysis to the ac-
5 tual rates --

6 A Yes.

7 Q -- that would apply?

8 A Yes. At the bottom of the page, based on
9 spacing rather than on a per acre or a 640-acre tract, these
10 would be the rates or top allowables, I should say, for each
11 well.

12 On the Gavilan side we see it's 800 and
13 480. On the West Lindrith side each well would have a top
14 allowable of the 382 and the 764.

15 In the buffer zone what we see is on the
16 Gavilan side a well would actually have a top allowable
17 greater than the Gavilan area for oil and definitely on the
18 gas.

19 On the West Lindrith side we can see that
20 once again it dips down to 321 and 549 and then back up
21 again in the West Lindrith Pool.

22 Q So if we examine the allowables set on
23 the Gavilan side, within the Gavilan Pool itself when you
24 compare a Gavilan well to a Gavilan buffer well, there is
25 going to be a difference in the allowables.

1 A Yes. A Gavilan buffer well will actually
2 be producing about 2.8 times for a corresponding Gavilan
3 well would based on gas allowables.

4 Q All right, sir, let's turn now to page
5 17. Does this represent Sun's proposed buffer allowable if
6 the Commission adopts one?

7 A Yes. This is Sun's proposal. We call it
8 an equal percentage change proposal in contrast to the equal
9 increment change.

10 Looking at the percentage changes on
11 here, Sun proposes just having a straight 24.1 percent
12 change in the oil rates coming across from Gavilan to West
13 Lindrith. This results in increments that increase from 192
14 barrels of oil a day up to the highest increment of 296 bar-
15 rels of oil a day and that largest increment being within
16 West Lindrith.

17 On the gas we propose an 85.3 percent
18 percentage change; the actual increments, then, change from
19 409 MCF a day up to 1407, once again showing that the high-
20 est incremental change occurs in the West Lindrith side
21 where they have the higher gas allowables.

22 Q When you translate this to the actual
23 producing rates in the pools, have you given us the numbers?

24 A Yes. Based on spacing and actual per
25 well top allowable, then, in the Gavilan area would be the

1 800 and the 480 and over in West Lindrith we show it's 382
2 and 764, and in the Gavilan buffer under Sun's, we now have
3 a 783 barrel of oil a day and a 702 MCF a day top allowable.

4 On the West Lindrith side of the buffer
5 it would be a 308 barrel of oil a day top allowable and a
6 412 MCF a day top allowable.

7 You can see that here we're finally
8 actually taking an average well and the allowable in Gavilan
9 for the oil decreases, as it should, going from a high oil
10 per day to a lower oil per day, and then the gas, although
11 it shows going from 480 to 702, then to 412, 764, at least
12 we've cut down this large percentage increase that is being
13 suffered on the Gavilan side, where we already have some
14 problems with allowables.

15 Q Have you utilized the same location of
16 the buffer as was proposed by Mesa Grande in October? In
17 other words, the location of the buffer is at the same point
18 in the corresponding sections?

19 A Yes, it is. That's why the Gavilan
20 buffer area is labeled as a 505-acre is that's about the
21 average the area is and that is also why the West Lindrith
22 buffer area is labeled as 160-acre, because that would be
23 160-acre spacing in the West Lindrith area.

24 Q Have you made a compariso now of the
25 equal increment proposal and Sun's equal percentage proposal

1 on page 18?

2 A Yes.

3 Q All right, show us what you've done here.

4 A Okay, this graphically shows the
5 difference in the concepts of the two proposals. The first
6 proposal is basically the equal increments proposal and it's
7 800 -- it's a constant change of 859 MCF a day coming from
8 Gavilan, which would have zero change, to the Gavilan
9 buffer, West Lindrith buffer, and then into West Lindrith.

10 It is basically to the dashed line across
11 the middle at 859 MCF a day.

12 Sun's proposal, being the equal
13 percentage proposal, we show that our increments increase as
14 you go from Gavilan into the Gavilan buffer, then West
15 Lindrith buffer, and into West Lindrith.

16 This is to emphasis the fact that our
17 proposal is putting the larger incremental change on the
18 side with the higher gas allowables.

19 Q Let's turn to page 19 now, Mr. Mueller.
20 Would you identify and describe that exhibit?

21 A Okay. This exhibit is the percentage
22 change and this is -- once again is to serve as a demonstra-
23 tion of what we're proposing. Sun's proposal is shown as
24 the dashed line here because we are promoting a constanct
25 85.3 percent change across.

1 If you look at the first proposal presen-
2 ted last month, which are equal increments, as shown on the
3 previous graphs, their actual percentage changes range from
4 179 percentage change going from Gavilan into the Gavilan
5 buffer area. The percentage change then drops to 64 percent
6 going from the Gavilan buffer into the West Lindrith buffer,
7 and their percentage change drops again once you get to
8 going from West Lindrith buffer area into West Lindrith.

9 It's this large 879 percent change that
10 is in the Gavilan Pool that concerns Sun.

11 Q All right, sir, let's turn to page 20 and
12 have you identify and describe that display.

13 A This display is showing, based on what is
14 proposed under each proposal; we have equal increment pro-
15 posal graphs and equal percentage graphs, and these are the
16 rates that -- the actual gas allowable rates based on a 640-
17 acre tract that would be in effect for -- under our proposal
18 and the previous proposal.

19 It shows that the increments under Sun's
20 proposal grow as you go from Gavilan to West Lindrith, and
21 under the first proposal the increments once again are
22 equal.

23 This is a good comparison here in the
24 Gavilan and Gavilan buffer that we're trying to keep these a
25 little more consistent here and then have the higher incre-

1 ment change over in West Lindrith where you have the higher
2 gas allowables.

3 Q All right, sir, let's turn to page 21 and
4 have you identify and describe this display.

5 A Okay. These displays are for the oil
6 allowables of Sun's equal percentage change proposal and the
7 previously presented equal increments proposal and we can
8 see that the equal increments, they had 243 barrel a day
9 increments coming from Gavilan into West Lindrith.

10 Sun's proposal would be an increase from
11 192 barrel a day increment up to 296. But it basically
12 shows that oil allowablewise the two are real close.
13 There's not much difference incrementally.

14 At the bottom we're showing a percentage
15 change under the two proposals for the oil allowables and
16 the equal increments change once again shows a decrease in
17 percentage. In the Gavilan buffer it would be 30.3 percent
18 change and going from the West Lindrith buffer over into
19 West Lindrith Pool the change would only be 18.9.

20 Our proposal would just keep it at a
21 constant 24.1 percent change.

22 But once again, this graph is showing
23 that both proposals are real close on oil allowables.

24 Q And let's turn now to page 22, Mr.
25 Mueller, and have you identify and describe that exhibit.

1 A Okay. This is a graph once again based
2 on 640-acre parcels or tracts of the two proposals, the
3 equal increment change proposal and the equal percentage
4 proposal, and we can see that both increase going from Gavi-
5 lan to West Lindrith; Gavilan you're at 800 and over in West
6 Lindrith you'd be at 1528 per 640, but the exhibit really
7 serves to show that both buffer zone allowable proposals
8 cause very little change in the oil allowables.

9 Q Let's turn now to Section III, Mr. Muel-
10 ler. Have you made a study to determine the actual impact
11 on existing wells at producing rates that might apply in the
12 buffer areas of the two pools?

13 A Yes.

14 Q Would you describe generally for the Com-
15 mission what the purpose is of Section III?

16 A The purpose of Section III, I guess is
17 two purposes. Once again the first purpose is to show that
18 no buffer is needed. The second purpose is to show that us-
19 ing top allowables, a buffer zone would basically be inef-
20 fective.

21 Q I don't propose to go through each of the
22 displays in this section, but would you commence with one of
23 those of your choice and let's discuss how you have tabu-
24 lated and presented the information in this section?

25 A Okay. In general, these are wells either

1 in the buffer zone area or adjacent to the buffer zone area.
2 With so little development on the West Lindrith side of the
3 buffer we had to use four wells that were actually adjacent
4 to it that have any sort of production history to them, and
5 one well actually would lie within the buffer area. That
6 would be the first five graphs.

7 On the Gavilan side we also show some
8 production history on the next five graphs of Gavilan wells
9 that are in the buffer area or near the buffer area.

10 Q All right, let's take the third display
11 in this section, which is page 25. It's the Fred Davis Well
12 No. 1.

13 A Yes.

14 Q This well is not in the West Lindrith
15 buffer zone but you've utilized it because it's representa-
16 tive of the West Lindrith wells?

17 A Yes. We've, like I say, once again, West
18 Lindrith, you know, is undeveloped in the buffer zone basic-
19 ally but if you assume that this well is directly offset in-
20 to the West Lindrith side of the buffer zone, the basic as-
21 sumption, using this comparison, would be that an average
22 West Lindrith well that would come in like this and behave
23 like this would not be effected by either the proposed oil
24 allowable that you see drawn on the graph or Sun's proposed
25 gas allowable that you see drawn on the graph there.

1 Q On each of these displays in this section
2 when you say "proposed oil allowable" or "proposed gas al-
3 lowable", it is Sun's proposal that you've identified?

4 A Yes. I've identified Sun's proposal be-
5 cause it's actually a lower allowable than what was proposed
6 previously, such that if Sun's proposed allowable would not
7 affect these wells, then certainly the previously proposed
8 formula would not affect these wells.

9 Q When we go to the first page in this sec-
10 tion, which would be page 23 --

11 A Yes.

12 Q -- and look at the NZ Well No. 2 --

13 A Yes, this is the only well that -- of the
14 five that I studied on the West Lindrith side, that could
15 possibly see some sort of curtailment under Sun's proposed
16 gas allowable.

17 Our proposed oil allowable is shown up
18 there just under the 10,000 barrels per month, and Sun's
19 proposed gas allowable for the West Lindrith side of the
20 buffer is shown there at near 15-million cubic feet a month,
21 and you can see that the NZ-2 gas production is in that
22 range and may experience some curtailment.

23 Q Let's turn now to the last five pages and
24 turn to page 29, which is the display on the Mesa Grande
25 Brown Well.

1 Of the wells that you examined in the
2 Gavilan-Mancos side of the boundary, is this the only well
3 that you saw that would be curtailed?

4 A Yes. This is the only well under Sun's
5 proposal on the Gavilan side of the buffer that would be af-
6 fected by Sun's proposed oil and gas allowables. Once
7 again, I've drawn the proposed oil allowable by Sun, which
8 is just over 20,000 barrels per month, and Sun's proposed
9 gas allowable, which is just over 20-million cubic feet of
10 gas per month, and we can see that the last couple of months
11 there for the Brown Well have been above Sun's proposed al-
12 lowable.

13 Sun's proposed allowable, as I've
14 mentioned previously, is lower than the previous proposal;
15 that under the previous proposal, that is the equal incre-
16 ment proposal, this well would not be affected. Its gas al-
17 lowable would be over 30-million cubic feet a month and you
18 can see this -- this well will be unaffected by that propo-
19 sal.

20 Q Let me turn that around. Under Mesa
21 Grande's proposed buffer gas top allowable, is this the only
22 well in the buffer that would benefit by the increase in
23 allowable?

24 A Yes.

25 Q Let's look at exhibit number -- page

1 number 30 on the Loddy Well and have you describe what
2 occurs with regards to the Sun proposed allowable if place
3 on that well.

4 A On the Loddy Well?

5 Q Yes, sir.

6 A Sun's proposed gas allowable, proposed
7 oil allowable are, once again, the darkened lines there, and
8 the Loddy Well gas or oil does not reach either of those
9 maximum allowable lines, and therefor this well would
10 experience no curtailment due to top allowable.

11 Q Having gone through this analysis in
12 Section III, what is your ultimate conclusion with regards
13 to the equities of Sun's proposed buffer gas allowable?

14 A Well, we feel that Sun's allowable is at
15 least more equitable than the previously proposed allowable
16 and that it at least affects some wells and the previous
17 proposal would affect none of these wells that are here and
18 if we're going to set up a buffer to protect correlative
19 rights, it seems like we ought to be affecting something.

20 Q Does Sun concur in the utilization of
21 this short section on the township line as being the pool
22 boundary for administrative purposes between Gavilan-Mancos
23 and the West Lindrith Pool?

24 A Will you repeat that?

25 Q Yes, sir. We're looking at the boundary

1 line that the Commission has established in this recent
2 order as being the boundary between the pools. Does that
3 serve as a convenient place to have a boundary for
4 administrative purposes?

5 A Yes.

6 Q From an engineering point of view that
7 does not represent the actual boundaries of the reservoir,
8 does it?

9 A No, sir.

10 Q You may have wells on either side of that
11 line that may act like wells on the other side of the pool?

12 A Yes.

13 Q At this point, though, if that line is
14 used as a basis upon which to set a buffer gas allowable, do
15 you believe that represents a convenient place to set such a
16 line and boundary?

17 A Yes, that would be the most convenient
18 place to set it.

19 Q Have you provided in your exhibit book a
20 summary of your opinions?

21 A Yes. The last two pages are the summary
22 of what each section -- the purpose of each section, what I
23 feel each section clearly shows.

24 Q Would you summarize now for us, Mr.
25 Mueller, what is your ultimate conclusion about the

1 development and risks involved in trying to establish a
2 buffer allowable at all for the two pools?

3 A In summary, like I said, the whole first
4 section proves to me that buffering is not really necessary;
5 that based on the statistical analysis that I've done, only
6 three to four wells on the twenty total that would end up in
7 the buffer zone, assuming complete development, would ever
8 be affected by setting these top allowables.

9 As was shown in Section II, if we're
10 going to have to set a buffer in there, that Sun's proposal
11 is more equitable and would at least show some effect from
12 buffer.

13 MR. KELLAHIN: This concludes
14 my direct examination of Mr. Mueller, Mr. Chairman. We
15 would move the introduction of Exhibit Number One.

16 MR. LEMAY: Without objection
17 Exhibit One will be admitted into evidence.

18 Cross examination Mr. Mueller?
19 Mr. Pearce?

20 MR. PEARCE: Thank you, Mr.
21 Chairman.

22
23 CROSS EXAMINATION

24 BY MR. PEARCE:

25 Q Mr. Mueller, I'm Perry Pearce and I'm ap-

1 pearing in this matter on behalf of Amoco Production Company
2 and I've just got one or two real brief -- in your exhibit I
3 don't notice any differentiation in production in the West
4 Lindrith between Mancos and Dakota. Was there any?

5 A No.

6 Q Okay, do you have any information of what
7 percentage of oil or gas production in the West Lindrith can
8 be attributed to the Dakota zone as opposed to the Mancos?

9 A From previous hearings, and all, and just
10 what I have been told, I haven't personally studied a per-
11 centage number to arrive at it, but I've been told it's in
12 the range of 50 to 70 percent.

13 Q Of both oil and gas?

14 A That I would not venture to guess. Like
15 I say, I have not personally made a study. Previous testi-
16 mony in front of this Commission and from talking with
17 others who have worked in the area, I wouldn't know if
18 they're basing that on oil or gas.

19 Q Okay. Thank you.

20 MR. PEARCE: I don't have any-
21 thing further, Mr. Chairman.

22 MR. LEMAY: Thank you, Mr.
23 Pearce.

24 Any questions?

25 MR. LOPEZ: Okay, Mr. Chairman,

1 I'll do my best. I feel somewhat at a disadvantage since
2 Sun has had our proposal for a month or so and I thought I
3 understood at our last hearing that Sun would make its exhi-
4 bits and the thrust of its testimony available to us well in
5 advance of this hearing.

6 MR. LEMAY: Would a short re-
7 cess help you at all to gather some (inaudible)?

8 MR. LOPEZ: Yes, I think a five
9 or ten minute recess would be fine.

10 MR. LEMAY: Why don't we take a
11 ten minute recess and convene back then.

12
13 (Therupon a recess was taken.)
14

15 MR. LEMAY: We shall resume the
16 hearing with Mr. Lopez on cross examination of Mr. Mueller.

17 MR. LOPEZ: I think I can be
18 mercifully brief, Mr. Chairman, since ten minutes probably
19 wouldn't have done me any better than all day.

20
21 CROSS EXAMINATION

22 BY MR. LOPEZ:

23 Q Mr. Mueller, I think at the -- towards
24 the end of your testimony you stated that the existing
25 boundary line between the westernmost boundary of the Gavi-

1 lan-Mancos and the easternmost of the West Lindrith was in
2 your opinion principally a boundary of administrative con-
3 venience, is that correct?

4 A Yes.

5 Q And in your opinion I think you stated
6 that it did not represent the geologic boundary between the
7 two pools.

8 A (Inaudible to the reporter.)

9 Q Well, I do think that in your opinion it
10 did not represent the geologic boundary between the pools.
11 I believe you testified to that.

12 A Yes.

13 Q Now, it's true, isn't it, that the wells
14 that are located and drilled in the West Lindrith Pool are
15 subject to the standard statewide gas/oil ratios and
16 allowables?

17 A Yes, they're subject to the 2000 GOR.

18 Q And isn't it true, and what much of this
19 controversy has been about, that the wells over in the
20 Gavilan-Mancos are now subject to special pool rules which
21 have reduced the gas/oil ratios and allowables as a result?

22 A Yes.

23 Q And it's true that Sun supported that --
24 the special pool rules that so affected the producing rates
25 of Gavilan, isn't that so?

1 A Yes.

2 Q Okay. So now we have a difference of the
3 allowable structures between the two pools. Isn't it true
4 that under the current spacing rules for West Lindrith that
5 one well can be drilled on 160 acres and therefor you could
6 have four producing wells within a section?

7 A Yes.

8 Q And that in Gavilan the rules are now on
9 a 640-acre spacing and subject to probably controversy in
10 cases that may be addressed after this case today, that only
11 one well under the new rules could be drilled on the stand-
12 ard 640-acre spacing?

13 A Yes. You can have an option to drill a
14 second well.

15 Q With an option to drill a second well.
16 So -- and isn't it also true that with respect to the set-
17 back from section lines the wells in Gavilan-Mancos must be
18 set back farther from the boundary line than wells that
19 could be drilled in the West Lindrith under present rules?

20 A I believe that's correct, yeah.

21 Q So, am I to understand your testimony and
22 that it's your opinion that there's no problem with respect
23 to the correlative rights of operators on both sides of this
24 boundary that has been drawn for administrative convenience
25 purposes and doesn't represent the geologic boundary between

1 the two pools, yet in West Lindrith you can have four wells
2 per section along the boundary line producing at
3 unrestricted statewide allowables and closer to the boundary
4 line, and in Gavilan you have only two wells with a greater
5 setback that are restricted in their producing rates?

6 How would you explain that?

7 A Basically because none of the wells, if
8 you go by the statistics and the averages, are capable of
9 making those top allowables anyway.

10 Q Well, I think you stated that there are
11 virtually little or very few development wells along the
12 zone, buffer zone in the West Lindrith.

13 A Yes.

14 Q And there are some on the Gavilan-Mancos
15 side. Isn't it true that on the Gavilan-Mancos side some of
16 those existing wells not only are restricted in their pro-
17 duction rates by virtue of the special pool rules, which you
18 supported, --

19 A Yes.

20 Q -- but are located on less than standard
21 spacing units, 185-acre spacing units, for example, and
22 therefor are further reduced in their producing capabilities
23 because they do not measure up to the special pool rules?

24 A I know of only one well that's actually
25 on at 100 -- that is actually allotted the 185 proration

1 unit.

2 Q I think, if I understood you -- your
3 testimony this morning, that you said that your average over
4 in Gavilan-Mancos was the standard 505.

5 A Yes, that's --

6 Q Did I get that --

7 A Yes, because that's the average. There
8 are -- there's two areas that that would be different.

9 Q But isn't it true that along the buffer
10 zone in Gavilan we have actual instances of where there's
11 320-acre spacing units?

12 A Yes.

13 Q And so along the buffer zone in the
14 Gavilan we only -- we have a spacing unit of 185, one of
15 320, one of 505, but in fact we don't have any average
16 spacing units and therefor wells in the buffer zone in
17 Gavilan, isn't that so, based on 640.

18 A Well, I would say that the 505 is the
19 effective Gavilan buffer area because, as you have pointed
20 out, that if you have two wells in that 505, one experiences
21 a cut in any proposed allowable.

22 Q But it's true that you can offset the
23 Gavilan wells with four wells on a 640 in West Lindrith, in
24 an area where there's been very little development.

25 A Well, assuming the spacing is 160, yes,

1 there could be up to four wells on a section.

2 Q Are you aware that there exists a buffer
3 zone along the eastern boundary of the Gavilan-Mancos be-
4 tween the West Puerto Chiquito and the Gavilan-Mancos Pool?

5 A Yes.

6 Q And didn't Sun support that buffer zone
7 and the rules that were adopted in connection with it?

8 A Yes.

9 Q And isn't it true that along the eastern
10 buffer zone of the Gavilan-Mancos we have in effect rules
11 that allow, not only with respect to spacing, but distance
12 from the boundary line and with respect to producing rates
13 under allowables that are exactly the same rules in place?

14 A I don't believe I understand the ques-
15 tion.

16 Q Well, isn't it true that we have come up
17 with a formula whereby the wells in the West Puerto Chiquito
18 are produced in very equitable ratios to the wells that pro-
19 duce in Gavilan despite the fact that -- the fact that
20 they're allowed to produce at exactly the same rates under
21 the same spacing conditions?

22 A I believe that's the way (not clearly un-
23 derstood) to be designed, yes.

24 Q And how would you distinguish, then, the
25 need and benefit to be derived from the buffer zone on the

1 eastern flank of the Gavilan-Mancos Pool when by your own
2 testimony you say that the western boundary doesn't neces-
3 sarily or maybe in your opinion doesn't -- need not repre-
4 sent the geological boundary, yet you're willing to go ahead
5 and allow four wells in West Lindrith to produce and no re-
6 striction, and only two wells in Gavilan under restriction?

7 A Well, as far as I can see, there's not
8 going to be many wells in West Lindrith that can beat two
9 Gavilan wells, anyway.

10 Q Isn't it true that Sun owns acreage on
11 both sides of the western boundary line, the imaginary or
12 administrative boundary line (unclear)?

13 A I believe we may have picked up some to
14 the west of the boundary.

15 Q One final question. Isn't it true that
16 your formula that Sun proposes for West Lindrith would have
17 a greater adverse effect on the West Lindrith wells than
18 that that has been -- is being proposed by Mesa Grande?

19 A Yes, our top allowable on the West
20 Lindrith side of the buffer is (not clearly heard.)

21 MR. LOPEZ: No further
22 questions.

23 MR. LEMAY: Thank you, Mr.
24 Lopez.

25 Mr. Stovall?

1 MR. STOVALL: Yes, I have just
2 a couple of questions, Mr. Chairman.

3

4

CROSS EXAMINATION

5

BY MR. STOVALL:

6

Q First, I'm in kind of a situation here
7 where I -- maybe I'm doing Mr. Kellahin's redirect, but I'll
8 go ahead and ask you the question anyway. Mr. Lopez raised
9 the issue of the Gavilan - West Puerto Chiquito boundary.
10 Do you have knowledge and familiarity with the engineering
11 and the studies that have gone on in the Gavilan area?

12

A I have never participated in that Gavilan
13 study committee, technical committee.

14

Q Have you discussed it with anybody to the
15 extent that you feel comfortable in talking about the reser-
16 voir characteristics or (unclear)?

17

A I feel pretty comfortable with it, yes.

18

Q Would you say that the Gavilan - West
19 Puerto Chiquito boundary has similar geological producing
20 characteristics to the Gavilan - West Lindrith boundary? I
21 mean are you comparing apples and oranges or are they alike?
22 Do you know?

23

A Well, in some respects they are probably
24 alike and I feel that in some respects we're probably deal-
25 ing with a different issue here, also.

1 Q In what respect would you say they're
2 alike?

3 A Well, it's what was going on, you were
4 dealing with different allowables, of course, along that
5 boundary, and you set a way of covering that for the effects
6 of a gravity drainage and to protect a gas injection pro-
7 ject.

8 They're alike in that they're both Mancos
9 but on one over there what you're protecting is a true ef-
10 fort from somebody to come up with some additional recovery.
11 It's different on the West Puerto Chiquito side and that --
12 that basic difference is a basic difference, anyway, than
13 what you're saying here.

14 This buffer in here is, or supposedly
15 buffer in here, is step rating allowables, which I have
16 shown, very few of these wells are even affected by these
17 top allowables.

18 Q All right. Now I understand that Sun's
19 position is basically in opposition to a buffer zone, but
20 looking at Sun's proposal for a buffer zone based on a equal
21 percentage rather than an equal increment, as Mr. Lopez has
22 pointed out, Gavilan operates under what we call restricted
23 producing rates, is that not correct?

24 A Yes.

25	Q	Less than would be statewide allowable
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1 for 640-acre production units.

2 A That's what I assumed what you meant,
3 yes.

4 Q Okay. The -- and is it your opinion and
5 belief that the basic reason for this case even being
6 presented and the problem which Mesa Grande in particular is
7 referring to, is because those allowables are restrictive?

8 A I believe that's what the case is here,
9 yes.

10 Q Okay, and you've also, I believe I heard
11 you testify earlier, that in making your percentage proposal
12 made no allowance for the fact that West Lindrith Pool
13 includes production from the Dakota formation, is that
14 correct?

15 A That is correct.

16 Q And in your proposal has the effect, the
17 purpose of your proposal is to lessen the impact of the
18 buffer zone with respect to the correlative rights of
19 operators with in the Gavilan-Mancos Pool, is that not
20 correct?

21 A Yes.

22 Q And what you do when you do that is shift
23 the greater portion of that burden to the operators within
24 the West Lindrith Pool, is that not correct?

25 A Well, I think I've shown that it's a

1 little more equitable also on the West Lindrith side.

2 It's definitely more equitable on the
3 Gavilan side.

4 Q You say more equitable on the West Lin-
5 drith side, you're basing more equitable on the West Lin-
6 drith side vis-a-vis Gavilan, not vis-a-vis -- not West Lin-
7 drith operators vis-a-vis the other West Lindrith operators
8 of that buffer zone --

9 A Yes.

10 Q -- is that not true?

11 A Yes.

12 MR. STOVALL: I have no further
13 questions of the witness.

14 MR. LEMAY: Thank you, Mr.
15 Stovall.

16 Additional questions of the
17 witness?

18 MR. LOPEZ: Mr. Chairman, if I
19 might have just one more question --

20 MR. LEMAY: Mr. Lopez.

21 MR. LOPEZ: -- following up on
22 Mr. Stovall's here.

23

24

25

RECROSS EXAMINATION

BY MR. LOPEZ:

Q If and when the restrictions in the Gavilan-Mancos are lifted, isn't it true, Mr. Mueller, that the Mesa Grande proposal is more flexible and could accommodate administratively the lifting of the restrictions in Gavilan-Mancos, whereas, Sun's proposed formula could not?

A Are you asking if Mesa Grande's proposal is more flexible?

Q Yes, administratively than would be Sun's.

A No.

QUESTIONS BY MR. LEMAY:

Q Mr. Mueller, I have one question. Assuming -- your testimony seemed to be that any formula, incremental or percentagewise, is not going to really materially affect the wells that are currently drilled in the buffer zone. You gave a couple exceptions but by and large that was, as I understood the thrust of your testimony, and you also mentioned that Sun owns acreage on both sides.

Assuming that the Commission felt that a

1 buffer zone allowable should be addressed, would that
2 allowable in the buffer zone affect Sun's decision to drill
3 a well in the buffer zone, but because it seems like we're
4 also addressing expectation with new wells as well as what
5 is in that buffer zone today?

6 A I don't think it would affect Sun's deci-
7 sion as much because we've shown that top allowables don't
8 mean anything. You have to do a well evaluation, you know,
9 judge it from offsets and things like that, which we've
10 shown those offsets aren't top allowables, but I believe
11 they are economical wells.

12 Q But isn't it true that in this area, that
13 you can drill a top allowable well next to a marginal well
14 and and vice versa, so there is the possibility of drilling
15 a good well in that buffer zone which could be curtailed.
16 I'm assuming that would be a possibility, just because
17 that's the nature of -- of our business, and I wondered if
18 that allowable would have any effect, material effect, on
19 Sun's decision to drill in the buffer zone.

20 A If we drilled a top allowable well or --

21 Q Well, if you contemplated drilling, is
22 the allowable a factor you would consider in contemplating
23 drilling in the buffer zone?

24 A Sun feels that this top allowable situa-
25 tion would not affect our decision on drilling a well in the

1 buffer zone area.

2 Q Thank you.

3 MR. LEMAY: Additional ques-
4 tions or some redirect, Mr. Kellahin?

5 MR. KELLAHIN: No, sir.

6 MR. LEMAY: If not, the witness
7 may be excused.

8 Do you have additional witnes-
9 ses, Mr. Kellahin?

10 MR. KELLAHIN: Yes, sir. I'd
11 like to call Mr. John Roe.

12

13

14

JOHN ROE,

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

17

18

DIRECT EXAMINATION

19 BY MR. KELLAHIN:

20 Q Mr. Roe, for the record would you please
21 state your name and occupation?

22 A My name is John Roe and I'm the Engineer-
23 ing Manager for Dugan Production Corporation.

24 Q Mr. Roe, you'll have to speak up. We
25 don't have a microphone today.

1 Have you previously testified as a petro-
2 leum engineer before the Oil Conservation Commission?

3 A Yes, I have.

4 Q And are you familiar with the production
5 in the Gavilan-Mancos as well as the West Lindrith Pools?

6 A Yes.

7 Q And does Mr. Dugan, or Dugan Production
8 Corporation, have an acreage position in the Gavilan-Mancos
9 Pool and the buffer area that's the subject of this hearing?

10 A Yes, sir.

11 MR. KELLAHIN: We tender Mr.
12 Roe as an expert petroleum engineer.

13 MR. LEMAY: His qualifications
14 are accepted.

15 Q Mr. Roe, you have -- I have placed before
16 you what is marked as Dugan Exhibit Number One. Does this
17 represent Dugan Production Corporation -- Company's posi-
18 tion, as well as your own personal opinion, with regards to
19 the buffer issue?

20 A Yes. The letter that I have dated Novem-
21 ber 17th represents Dugan Production's position.

22 Q I won't ask you to read the letter, Mr.
23 Roe, but I would ask you to summarize, first of all, what
24 your position is with regards to the necessity as you see it
25 for a buffer -- top allowable buffer gas allocation across

1 this area.

2 A Primarily, Dugan Production has acreage
3 in both -- in what would be involved in the buffer zone on
4 the Gavilan Pool side and we also have acreage within and
5 adjacent to what would be the established, or what we're
6 considering as a buffer zone on the West Lindrith side.

7 We have looked at the production statis-
8 tics in both the Gavilan-Mancos Pool and the West Lindrith
9 Gallup-Dakota Pool. We've made an effort to -- there's --
10 there's no way to look at every well in West Lindrith Pool
11 in the time we -- we did, other than looking at it on a per
12 well average and looking at many of the wells that are of
13 specific interest on an individual basis.

14 We found very few wells on the West Lin-
15 drith side that even approach producing at rates that equate
16 to what is the top allowable for the West lindrith Gallup-
17 Dakota Pool.

18 Q When you compare the actual production
19 between West Lindrith and Gavilan-Mancos, what is your opin-
20 ion about any producing advantage towards one pool or the
21 other?

22 A As with reference to a graph that Mr.
23 Mueller had, which would be page 8 in his exhibit book,
24 which presents this information better than I'm probably
25 going to be able to say it, but primarily, the wells within

1 the Gavilan-Mancos Pool are quite a bit higher productivity
2 on a per well basis.

3 Now, again, there are wells within the
4 Gavilan-Mancos Pool that are not as good as other wells,
5 just like in West Lindrith there are a few good wells that
6 really stand out.

7 But from the standpoint that the total
8 pool production is approximately, currently approximately
9 what the total pool production for West Lindrith is, and from
10 the standpoint that on an overall average the wells within
11 Gavilan are of a much higher productive nature, based on
12 their actual production performance, if any drainage is
13 occurring, it's likely occurring from the direction of West
14 Lindrith into Gavilan, primarily because of the higher
15 pressure sink that we're able to create with the higher
16 rates of production.

17 Q Do you believe that will continue to
18 exist notwithstanding the fact that there is the opportunity
19 for four wells to be drilled in a section on the West
20 Lindrith side as opposed to one or two on the Gavilan-Mancos
21 side?

22 A I feel that because of the -- the fact
23 that we have wells with higher productivity in Gavilan
24 indicates to me that that portion of the reservoir is -- is
25 more highly fractured, which is what I feel to be the

1 primary factor in having a -- or of a well's productivity.
2 So the greater the fracturing, the higher your productivity
3 and the average higher production rate per well in Gavilan
4 definitely infers the Mancos interval in Gavilan is of a
5 much more -- it's more highly affected by the natural frac-
6 turing than the acreage in West Lindrith, and so you could
7 drill many, many wells in West Lindrith; in fact, several of
8 the operators, Conoco, Cotton, I think Atlantic Richfield,
9 has actually gone in and infilled many of their 160-acre
10 patterns and have not actually established an increased rate
11 of production for that pattern. The per well average actu-
12 ally decreased. And so I -- I think no matter what you do,
13 even drilling on forties in West Lindrith, you will not be
14 able to establish a production rate that would compete with
15 the production rates that exist in Gavilan.

16 Q Do you have an opinion, Mr. Roe, as to
17 whether or not Mesa Grande's proposed top gas allowable buf-
18 fer allocation is one that's fair and equitable?

19 A It -- from, simply from the standpoint
20 that it does not allow a similar percentage increase rela-
21 tive to the neighbors; no matter where you're at, whether
22 you're in West Lindrith, the West Lindrith buffer zone, the
23 Gavilan buffer zone, relative to the neighbors on each side
24 of you, your allowable should be in a relative manner to
25 each, each of your neighbors, and so from the standpoint

1 that you go from Gavilan into the Gavilan buffer zone, you
2 have 179 percent increase in top allowable; then you go from
3 the Gavilan buffer zone into the West Lindrith buffer zone,
4 that percentage is -- is much lower, and so the acreage that
5 exists between the Gavilan buffer zone and Gavilan will then
6 be basically somewhat at a noncompetitive position with re-
7 spect to what the West Lindrith buffer zone with respect to
8 West Lindrith.

9 Q Let's talk about the issue of the com-
10 mingled production in the Dakota and Gallup in the West
11 Lindrith Pool. That is obviously an issue in however you
12 analyze the West Lindrith production. Do you have an opin-
13 ion or a suggestion or comments on how to make an allocation
14 of production in that pool between those two formations?

15 A I have studied that issue in great detail
16 prior to have the original Gavilan Pool rules hearing in
17 early 1984, because at that time we were looking at how sig-
18 nificant would the production be in the Dakota versus the
19 Mancos within the Gavilan Pool area, and at that time I -- I
20 really dug into what is the Dakota versus what is the Mancos
21 in the West Lindrith Gallup-Dakota Pool.

22 Prior to having the West Lindrith Gallup-
23 Dakota Pool established, there was some testing of the Da-
24 kota formation. There was some individual completions in
25 the Gallup formation, and after the pool was established, I

1 don't remember the exact time frame. I have it if it's
2 necessary, but Conoco did quite a bit of additional testing
3 to establish what -- how significant is the Dakota. In the
4 better part of the West Lindrith Gallup-Dakota Pool, based
5 on Conoco's test data that it's my understanding they did
6 present to the Commission and should be available in Commis-
7 sion records, that something in the range of 70 percent of
8 the total production, gas and oil, could be attributed to
9 the Dakota. The Dakota, based on log analysis and actual
10 tests in the main part with the West Lindrith Gallup-Dakota
11 Pool, is the primary producing interval.

12 Q Where is the main part of the producing
13 Gallup -- producing Dakota area in the West Lindrith Pool?
14 How far away is that from the boundary with Gavilan-Mancos
15 Pool?

16 A It would be in the western edge of Range
17 3 West and Range 4 West, in that area. It's five to six,
18 seven, eight miles, depend on whether you go to the edge or
19 go to the center.

20 The West Lindrith Gallup-Dakota Pool is a
21 very large pool and covers a very large area, so it's very
22 difficult to say yes, 70 percent of the production is coming
23 from the Dakota everywhere. In fact, there has been a well
24 drilled recently in the row of sections that is adjacent to
25 what would be a buffer zone. It would be in the easternmost

1 row of sections. It would be ARCO's Gardner 13 Well No. 1.
2 This particular well is located in the southwst quarter of
3 Section 13 of 25 North, 3 West.

4 Dugan Production has an interest in that
5 well and we followed that well very closely. Based on
6 ARCO's experience in -- in West Lindrith, their primary ob-
7 jective in that well was the Dakota. Their initial comple-
8 tion plans had nothing to do with the Mancos. They were
9 hoping that the Dakota would be their major completion and
10 for the first six months that that well produced the produc-
11 tion was solely from the Dakota.

12 The well was first placed on production
13 in December of 1986 and during May of 1987, after having
14 produced for six months, the Dakota was averaging three bar-
15 rels of oil a day with an average GOR of 2279. During May
16 ARCO temporarily abandoned the Dakota perforations, com-
17 pleted the Mancos formation, and in the four months that I
18 have production data, the Mancos average during September,
19 after having produced for a full four months, was 30 barrels
20 of oil per day up to 9536 GOR.

21 Now there are other wells within this row
22 of sections that we have this kind of information on that --
23 that to me it's really not important how important is the
24 Dakota to West Lindrith, because we're talking about a pool
25 that the Dakota generally is more significant than we find

1 in Gavilan. The wells that we have individual test informa-
2 tion on in what would be close to the buffer zone but on the
3 West Lindrith side, says that the Dakota is just like it is
4 in Gavilan. The times we've tested the Dakota in Gavilan it
5 has been a very low rate oil reservoir, in the range of 5 to
6 6 barrels of oil per day and a gas/oil ratio similar to what
7 we -- I just mentioned with the ARCO Gardner Well.

8 Based on log analysis the Dakotas look
9 very similar in the completions that we've actually got in-
10 formation on, and I do have other information, other than
11 the ARCO well, it's just not quite as at my fingertips but
12 we could present that.

13 Q Let me ask you about the issue of compar-
14 ing the way the Division or Commission has established rules
15 between West Puerto Chiquito Mancos and Gavilan Mancos, and
16 contrast or compare the similarities and dissimilarities
17 that occur between West Lindrith and Gavilan-Mancos.

18 First of all, on the issue of a top gas
19 buffer allowable, is such a concept, is that concept in
20 place between the West Puerto Chiquito Mancos and the Gavi-
21 lan Mancos?

22 A Initially there was a disparity in the
23 top allowables that existed between West Puerto Chiquito and
24 Gavilan; however, through some of the hearings, and I don't
25 remember which one, but the operator of the Canada Ojitos
Unit requested that the allowable in the Canada Ojitos Unit,

1 or West Puerto Chiquito Pool, be made equal to both oil and
2 top allowable gas to what exists in Gavilan, and that is the
3 current status of the allowables, is there is no buffer zone
4 with respect to gas or oil between Gavilan and West Puerto
5 Chiquito.

6 Q When we look at West Lindrith and Gav-
7 ilan-Mancos, if you address the buffer allowable issue, what
8 is your position with regards to well locations on each side
9 of that boundary line?

10 A Are -- are you referring to the distance
11 from the outer line?

12 Q The distance from the outer boundary,
13 yes, sir.

14 A The Gavilan is -- is being developed with
15 a required distance from the outer boundary of 790 feet.

16 Northeast Ojito has that requirement of
17 790 from the outer boundary. It's being developed on 160-
18 acre spacing, and with reference to the map that's attached
19 to my letter, you can see the proximity of the Northeast
20 Ojito Pool. It's the pool outlined in green.

21 The Gavilan I did not highlight its boun-
22 dary, but it's -- it is indicated there with the fairly
23 wide, heavy dotted boundary line.

24 And those two pools have 790 and general-
25 ly pools that have spacing of 160 acres, the statewide gas

1 spacing, uses the 790 feet. The only times we've run into
2 the 330 foot, which exists in West Lindrith was when you
3 were anticipating 40-acre development.

4 So we feel, in order for Gavilan and
5 Northeast Ojito, should there be additional development in
6 that area, it would be important that that development,
7 future development, in West Lindrith be done in a manner
8 that is compatible with the offsetting wells in Gavilan or
9 Northeast Ojito.

10 Q In conclusion, Mr. Roe, do you see an im-
11 mediate need for the Commission to adopt a top gas allowable
12 buffer allocation simply because at the current time there
13 represents a difference between the top gas allowable that's
14 allowed in West Lindrith as opposed to that allowed in Gavi-
15 lan-Mancos?

16 A No. I see no reason. In fact, this
17 whole issue of -- of what is the top allowable for West Lin-
18 drith is -- has, I think, become rather blown out of propor-
19 tion. As we've indicated with Sun's testimony, most of the
20 wells in West Lindrith have never been, and again we resear-
21 ched back to the early time of production. The pool was
22 discovered in 1959, so we have gone back trying to not be
23 guilty of just looking at later production and a mature
24 field. There really haven't been many wells that were able
25 to have a top allowable, so the top allowable in West Lin-

1 drith is really higher than, and has been higher, than we've
2 ever needed.

3 Q Based upon your review of the records of
4 the Commission, can you tell us which, if any, of the wells
5 on the West Lindrith side of the current boundary were per-
6 mitted pursuant to Gavilan-Mancos spacing dedications? Were
7 there any?

8 A Yes. There -- because the Gavilan-Mancos
9 Pool rules require that initial development be -- or that
10 any well within a mile of its boundary be developed accor-
11 ding to the Gavilan-Mancos Pool rules, the Gardner Well in
12 the southwest quarter of Section 13 of 25, 3, and a Reading
13 & Bates well in the northeast quarter of Section 24 of 25
14 North, 3 West, were both drilled with the 320-acre Gavilan-
15 Mancos spacing unit established or set out for that drill-
16 ling.

17 Would that -- would that --

18 Q Yes, sir. Do you have an opinion as to
19 whether or not the occurrence of drainage across the pool
20 boundary is an issue better resolved on a case-by-case,
21 well-by-well issue between those operators across the pool
22 boundary or whether or not it is better for the Commission
23 at this time to try to establish some generic allocation of
24 rules between the two pools?

25 A Right, right now, with the data that we

1 have, looking at roughly 8 wells that are in the West
2 Lindrith side of -- or in or adjacent to the West Lindrith
3 side of the buffer zone, and looking at some of the wells
4 along the eastern edge, or the western edge of Gavilan, it
5 does not appear to me that we need to change the allowables
6 for the existing development. It -- in the event that an
7 anomolous well is drilled and completed on either side, I
8 think that it would be appropriate that that issue is dealt
9 with at that time, yes.

10 Q In response to the hearing today, do you
11 have any other further comments or opinions you wanted to
12 express on the buffer issue that's before the Commission
13 today?

14 A I -- I can't think of any additional.

15 MR. KELLAHIN: That concludes
16 my direct examination of Mr. Roe.

17 MR. LEMAY: Thank you, Mr.
18 Kellahin.

19 Cross examination. Mr. Pearce?

20 MR. PEARCE: No questions, Mr.
21 Commissioner, thank you.

22 MR. LEMAY: Mr. Lopez?

23 MR. LOPEZ: Yes.

24

25

CROSS EXAMINATION

BY MR. LOPEZ:

Q Mr. Roe, if I understood your testimony correctly, you favor a buffer zone between the two pools, the Gavilan and the West Lindrith, solely for the purposes of setback requirements for well location (inaudible to the reporter.)

A Well, I don't think I said exactly that, but that summarizes my feeling, yes. I think my statement, if it wasn't, I meant it to be, is that right now pooling with the top allowables in the manner that we're talking about, is going to have very little effect on any of the wells we're talking about. The fact that it will establish two allowables in two pools, I think probably there is some contradiction to what the -- the rules and regulations of the Oil Conservation Commission allows. In other words, I'm not really sure that we can have two allowables in -- in a pool, but with the wells we have, I don't see a need to change the allowables because the wells we're dealing with are not of a quality that they are capable of producing the top allowable.

Q All our problems would be removed, wouldn't they, if the Commission removed the restrictions in the Gavilan-Mancos?

1 A Well, you've been involved with this case
2 as long as --

3 MR. LEMAY: I don't think we'll
4 entertain a collateral attack on our ruling.

5 A Well, I had an answer.

6 Q Well, moving along, do you agree with Mr.
7 Mueller's testimony that there is very little development
8 along the proposed buffer zone in West Lindrith?

9 A That is correct. In fact, of -- I coun-
10 ted of the 12 spacing units that would be in the West Lin-
11 drith side of the buffer zone, as we're talking about it
12 now, there is developmetn in only 4 of those spacing units.

13 The -- on the Gavilan side of the buffer
14 zone, identifying spacing units is not quite as easy,
15 because the Commission has on its own motion established
16 four of the rows of sections, they've set up nonstandard
17 units, which are approximately 505 acres per spacing unit.
18 Of those four, two of them have been established with
19 production; one of them has a well planned for drilling; and
20 one is -- is -- has, to my knowledge, no plans to drill yet.

21 So of the four 505's, two of them are
22 developed and two of them are undeveloped.

23 There is an additional two sections that
24 are nonstandard 187-acre sections, and of those one of them
25 is developed. So there's a higher density of development on

1 Gavilan side than there is at West Lindrith, yes.

2 Q So in point of fact, we don't know what
3 those wells are going to look like until they're drilled, do
4 we?

5 A That -- that's exactly right and that's
6 why we feel probably the data that we have now, which does
7 surround this area, does give us a suggestion that we're not
8 going to have Gavilan quality wells in this general area,
9 and that's established by wells on Gavilan side plus wells
10 on the West Lindrith side.

11 Q Well, do you agree with Mr. Mueller that
12 the boundary that we're living with is one for administra-
13 tive convenience only and doesn't necessarily represent the
14 geological boundary?

15 A I -- that general statement, I need to
16 qualify just a little bit there.

17 I will acknowledge that somewhere West
18 Lindrith and Gavilan will have to -- one of two things is
19 going to have to happen. Either we're going to have allow
20 the two pools to adjoin each other or we're going to have to
21 abolish one pool and make one massive, large pool.

22 Now, from one of the questions Mr. Kella-
23 hin asked early, I don't think it's appropriate to abolish
24 West Lindrith, one, because I think it would be impractical.
25 The very first case we had today dealt with royalty owner

1 notice and I would -- I personally would not want the task
2 of identifying and notifying everybody that needed notice to
3 change the pool rules on either Gavilan or West Lindrith.
4 So it to me is an impractical thing to do anything other
5 than allow the two pools to abut up against each other.

6 Now, when you allow a pool spaced on 640
7 acres to adjoin a pool spaced on 160 acres, you're going to
8 have problems at that meeting no matter where that boundary
9 is drawn. We, we being Sun and Dugan Production, and I
10 think I can speak for Sun in this matter, agree that a place
11 we already have a problem dealing with sections because of
12 the survey, the short sections, the small sections, roughly
13 190 acres per section, that exists on the west edge of Gavi-
14 lan, is a convenient place for this to happen.

15 I am unaware of any pressure data that
16 would tell me that that is a geologic end to Gavilan and in
17 other words, there's no information that I'm aware of that
18 tells me the reservoir stops at the range line.

19 So if we acknowledge the pools have to
20 abut, then we might as well do it at a place that we have a
21 problem to start with, and that is the -- the acreage prob-
22 lem.

23 Q Is what I hear you saying is that you
24 recognize that wherever it's going to abut, it's going to
25 create a problem but we're not going to address the problem

1 because we're not going to put a buffer zone so we can equa-
2 lize the treatment on both sides of this imaginary boundary,
3 much along the lines that we've been discussing, and the
4 line of cross that I put to Mr. Mueller about there being
5 four wells on one side of an imaginary boundary and only two
6 on the other side?

7 A If your question was did I say all that,
8 no, I did not.

9 Q Okay. I think you stated that in your
10 study of the West Lindrith you said that in the center part
11 of West Lindrith, that you stated was 6 or 7 or 8 miles away
12 from this boundary we're discussing, that the primary pro-
13 duction was in the Dakota.

14 A The Dakota is much -- yes, the majority
15 of what from the testing we have access to -- now I might
16 note that since the pool was established there really has
17 been very little testing selectively because once the pool
18 was established as one common pool, there was no real need
19 and nobody wanted to spend the extra money to test.

20 Q And then I think you addressed the ARCO
21 well and indicated that it initially produced from the
22 Dakota and then that was plugged off and now it's producing
23 solely from the Mancos, and that well is near the buffer
24 zone, I believe.

25 A Yes.

1 Q And would this suggest to you that this
2 well is performing more like a Gavilan-Mancos well than a
3 West Lindrith well?

4 A Based upon the production information we
5 have, which is all we've got right now, or all I have access
6 to, and as a working interest owner in a well I would like
7 to think that that's all that exists, we -- we can say that
8 the productive character of the -- this well is similar to
9 Gavilan, but we can go even further into West Lindrith and
10 find wells, specifically in Section 32 of 25, 3, drilled by
11 Joseph Poole, or Hixon Development in Sections 33 or 34 of
12 25, 3, that produced over 1000 barrels day, which that's a
13 Gavilan type well, also.

14 So we're dealing with the kind of reser-
15 voir that the kind of well you get is going to be influenced
16 by the fracturing that you see in the reservoir, and we can
17 definitely say that the fracturing tendency, that the frac-
18 tured nature of the reservoir deteriorates as you move to
19 the west. That's evidenced by the fact that Conoco tested
20 in their main part that the Dakota is much more productive
21 than the Mancos, or what they call Gallup.

22 It's evidenced, you know, I just listed
23 the ARCO well. Curtis Little in -- in their well in the
24 northeast quarter of Section 1 tested the Dakota, and it's
25 my understanding, at least based upon a report on file with

1 the Commission that during August after testing only the Da-
2 kota, the Dakota at that location in Section 1 of 25, 3, was
3 temporarily abandoned because it was uneconomic, and that, I
4 mean, that basically came off of their form.

5 So what we know about the Dakota in this
6 area is that it's not that productive. It's more similar to
7 what we see in Gavilan.

8 Q So that might suggest, might it not, that
9 we would in this undeveloped buffer zone on the eastern
10 flank of the West Lindrith be more likely, hopefully for
11 everyone's benefit, to encounter wells more like those in
12 Gavilan due to the fracture system?

13 A It's possible, yes. In other words, as I
14 said, I -- there's really nothing magic that happens at the
15 range line that tells us Gavilan ends. We've just picked
16 that because it is a place we have to deal with a spacing
17 problem that we have no control over.

18 Q And doesn't this suggest to you that the
19 situation here on the western boundary of Gavilan is no dif-
20 ferent and naturally identical to that that it experiences
21 on its eastern flank where it adjoins the Canada Ojitos, and
22 where you stated that you didn't think it was a buffer zone
23 but I think the administrative record is clear there does
24 exist a buffer zone between the two pools. The only differ-
25 ence between that area and the area on the western flank is

1 that the spacing, setback requirements, and producing rules
2 between -- in the buffer zone on the eastern flank are iden-
3 tical between the West Puerto Chiquito and the Gavilan-Man-
4 cos.

5 MR. KELLAHIN: I'm going to ob-
6 ject to the question, Mr. Chairman. I think it's unintelli-
7 gible. I don't know what the question is to the witness. I
8 don't think it's fair.

9 MR. LEMAY: It's a little com-
10 plicated. You might just ask it a little more simply.

11 Q What is your understanding as to the
12 existence of a buffer zone between West Puerto Chiquito and
13 the Gavilan-Mancos Pool?

14 A Okay, I, unless I'm grossly misinformed,
15 the special pool rules in West Puerto Chiquito do have the
16 words "buffer zone" as part of them, but what happens in the
17 buffer zone in West Puerto Chiquito and Gavilan has nothing
18 to do with allowables unless you're closer to the range line
19 than 1650 feet or 2310 feet, I don't remember which, but
20 then if you have your well located closer to range -- the
21 meeting of Range 2 and Range 1, then you cannot produce more
22 than 50 percent of the 640-acre top allowable. And that's
23 the only restriction of production, but that top allowable
24 for 640 acres in West Puerto Chiquito is 800 barrels a day
25 and the limiting GOR in West Puerto Chiquito is 600, just

1 like exists in Gavilan.

2 Now the only other thing, there is also
3 probably the words "buffer zone" in Gavilan, also, but all
4 that says is that in the east half of the sections that butt
5 up against the meeting of Range 1 and 2 West is you can only
6 drill one well in that east half and it also has the similar
7 allowable restriction if you were closer to that line than,
8 like I say, I don't remember the number, it's either 1650 or
9 2310.

10 But there is no disparity in allowables
11 between West Lindrith and Gavilan -- between West Puerto
12 Chiquito and Gavilan. Now if you want to deal with that is-
13 sue, the allowable in West Puerto Chiquito was reduced to
14 match -- it came from a higher level of around 1200 barrels
15 of oil per day per 640, in order to prevent an interference
16 problem, which is probably of greater concern on the eastern
17 edge because I mentioned earlier, as you move west the pro-
18 ductivity nature -- the fractured nature of the reservoir
19 diminishes, so the concern of interference between pools is
20 much greater and we have actually demonstrated that inter-
21 ference with pressure pulse testing, and again, a large part
22 of that interference data was presented in earlier hearings
23 that dealt with West Puerto Chiquito.

24 So I don't really see that what exists on
25 the eastern edge of Gavilan is the same problem that exists

1 on the western edge of Gavilan, but if we want to solve it
2 in the same manner, we could reduce the allowables in West
3 Lindrith just like we did in West Puerto Chiquito, such that
4 what's happening in Gavilan, and don't misunderstand me,
5 Gavilan, the reason the allowable is low is not because we
6 have a magic handle on what the allowable should be. It's
7 that we think there's some serious things going on in the
8 reservoir. There is not a common agreement of what is hap-
9 pening and we wanted the extra time to arrive at an optimum
10 method to produced Gavilan. It's a reservoir that has high
11 productivity. There's been demonstrated a lot of hydrocar-
12 bons in that general area that may not be recovered if we
13 produce it at a higher rate.

14 So it's true, Gavilan is restricted, but
15 it's for a good reason.

16 Q Well, I think you've answered my question
17 which was does there exist a buffer zone between Gavilan-
18 Mancos and West Puerto Chiquito, whether it's a 1650 setback
19 or 2310 setback, as you indicated, and isn't it true that
20 any well drilled on either side of that eastern boundary has
21 the same requirements with respect to producing
22 characteristics and location?

23 A Yes, that is. That is true.

24 Q And so that solves the problem for that
25 side of the -- of the pool, correct?

1 A That's correct.

2 Q We don't have a similar solution unless
3 we adopt the ones suggested by Mesa Grande or Sun's for the
4 western boundary, do we?

5 A Well, the big difference is in West Puer-
6 to Chiquito and Gavilan we have wells that -- in the eastern
7 edge of Gavilan, that are top allowable. There's -- there's
8 a well in West Puerto Chiquito produced 50,000 barrels a day
9 based on pressure measurements.

10 There are wells in the eastern edge of
11 the Gavilan and in the center of Gavilan that have produced
12 over 1000 barrels a day. We don't have that quality of
13 wells that we're dealing with as we move westerly in Gavilan
14 and into West Lindrith and we're dealing with wells that
15 won't produce even close to what the top allowables are.

16 Q Well, yeah, we're -- the point is,
17 though, if the wells on both sides of the western boundary
18 of the Gavilan-Mancos Pool have identical producing charac-
19 teristics, whether they produce 1000 barrels a day or
20 whether they produce 200 barrels a day, and the fact that
21 the wells in West Lindrith can exist four to a section where
22 in Gavilan they can only exist two to a section, and where
23 in Gavilan they're already restricted on their production
24 rates, where in West Lindrith they are not, where in Gavilan
25 they have greater setback requirements than they do in West

1 Lindrith, how can you say that in a situation like that
2 there wouldn't be a great effect on correlative rights with-
3 out some sort of buffer zones formula solution?

4 A Well, with respect to the setback, we ag-
5 ree they should be the same.

6 With respect to the protection of corre-
7 lative rights, I think we -- the Commission needs to deal
8 with that issue such that correlative rights can be protec-
9 ted.

10 I think our position is, and again, if we
11 drill a well in the buffer zone and find that it winds up to
12 be of a nature that it will drain the offsetting acreage in
13 Gavilan, in other words, one well on a 640 or two wells on a
14 640, which is allowed under the pool rules, or two wells in
15 the 505, that is allowed under the pool rules, if two wells
16 in Gavilan will not effectively protect themselves from
17 drainage that exists from four wells in West Lindrith, which
18 the study I've done I feel that Gavilan's wells have the
19 ability to protect themselves from drainage, because -- not
20 because there's that great a wells on the western edge of
21 Gavilan, but the wells on the eastern edge of West Lindrith
22 aren't that good.

23 Q Well, we don't have any wells in the buf-
24 fer zone, do we, so we don't know what we're talking about
25 here.

1 A Well, we do have some wells in the buffer
2 zone and the information we looked at tells us that the --
3 this part of the reservoir is going to be similar to the
4 wells that are adjacent to the buffer zone that we have
5 looked at, and so you're right and this true no matter where
6 you're at, until you drill your well, you're not going to
7 really know, and in this kind of a reservoir that's really
8 true, moreso than normal.

9 Q And you would rather do this on a case-
10 by-case ad hoc basis without having any rules of the game
11 established for an area that is undeveloped so operators in
12 West Lindrith can go ahead and risk their resources in
13 trying to develop wells in the so-called buffer zone, and
14 then after they've got a good well, then be shut back with-
15 out knowing what the rules of the game are going in.

16 A Well, Mr. Lopez, I, probably more than
17 anybody, would not want that, and we, the last two years
18 we've spent in Gavilan dealing with just that issue.

19 I'd say that anybody that drills a well
20 in the West Lindrith side right now with allowables unaffec-
21 ted, in other words, ought to be aware that if they wind up
22 with a well that is exceptionally good, that they're going
23 to probably have to have some sort of arrangement either
24 with offset operators in Gavilan that is done cooperatively
25 or we will have to come to the Commission and ask them to

1 help.

2 Now, I would hope that there's nobody
3 here or in West Lindrith that is unaware of that potential
4 problem. All as we're saying is that for you to change an
5 allowable in a manner that really is not going to be effective
6 on any of the wells, or very few of the wells, that it
7 affects right now, it just doesn't make sense that we would
8 change it and there's no basic effect. Our primary reason
9 for changing it is in anticipation that we might get a good
10 well.

11 The people in the West Lindrith side are
12 very adamantly opposed to a buffer zone, and I understand
13 that, but people in Gavilan would love to produce the reservoir
14 at higher rate and I'm one of those people if I felt
15 that there wouldn't be damage to Gavilan as a result of
16 that, and maybe someday we'll make that determination and
17 Gavilan's allowable will be restored and there won't be a
18 problem, but for right now I don't see that we have the information
19 that's necessary to tell us that we've got to
20 change the pool rules and then if we do change it and,
21 again, both Sun and Dugan Production support or have supported
22 an allowable if the Commission recognizes the need to
23 set up a buffer zone with the belief that that will aid in
24 protection of correlative rights.

25 Q And the suggested formula that Sun and

1 Dugan support in the event of a buffer zone would have a
2 greater adverse effect on the production of West Lindrith,
3 wouldn't it?

4 A No, it won't.

5 Q Could we turn to Sun's exhibit, I think
6 it's on page 20. It's page 20 and if I understand this ex-
7 hibit correctly, this equal increment bar is according to
8 the formula suggested by Mesa Grande at the original hearing
9 on this case.

10 A Yes, yeah, he has both cases presented
11 there.

12 Q And then the equal percentage is that
13 produced by Sun, as recommended by Sun.

14 A Yes, that is.

15 Q And so if I understood this exhibit cor-
16 rectly, according to the equal increment formula, both the
17 Gavilan buffer and the West Lindrith buffer would be allowed
18 to produce at greater allowables than would the Sun proposal
19 because the Sun bars are shorter than the Mesa bars.

20 A Well, Mr. Lopez, I misunderstood you. I
21 thought you said would the production be affected.

22 You are right, the allowables will be af-
23 fected greater -- there is as much difference in allowables,
24 but I might also point you to page 6 and page 8 of Sun's
25 exhibit and the primary purpose of this exhibit was to show

1 that on a per well basis even Sun's allowable, which has the
2 greater effect, still doesn't affect anything and on a per
3 well basis in Section 3 Mr. Mueller had individual wells
4 that he tried to point this out, that there really aren't
5 very many wells that are affected by the top allowable, and
6 that's primarily our position. You're changing something in
7 a manner that's -- the only time it's going to affect an
8 operator is if the Gavilan operator wants to drill a second
9 well, he probably isn't going to have all the allowable he'd
10 like to have.

11 Q These exhibits on pages 6 and 7 didn't
12 include any wells in the buffer zone in West Lindrith, did
13 they, except the Section 1 well, the Section 1 well --

14 A Well, bearing in mind that the buffer
15 zone in West Lindrith, there -- yeah, that's right.

16 Q Okay.

17 A But again I'd make reference to Section 3
18 that does include wells in the buffer zone and adjacent to
19 the buffer zone, and so even though they weren't included in
20 these two pages, they are included in Section 3 on roughly
21 ten different graphs.

22 Q Do you support 460-acre spacing in the
23 West Lindrith in the buffer zone?

24 A Yes, I do. Well, --

25 Q Okay.

1 A -- let me qualify that just a bit. The
2 fact that it's in West Lindrith, I support the 160-acre
3 spacing. I have really not any information to tell me that
4 160 acres is the proper spacing for that area.

5 Q Then you have no opinion.

6 A No, I have an opinion. I -- it's in West
7 Lindrith and we support that being the boundary and because
8 of that reason we support the 160-acre spacing, but I have
9 no engineering information to tell me 160 acres is the pro-
10 per spacing, and it's my thought that the operators may find
11 that they don't need two wells per half section to develop
12 that acreage, but that is something the individual operators
13 of that acreage, and that does include Dugan Production,
14 will have to sort out for themselves.

15 Q Now, turning to the first full paragraph
16 on page two of your Exhibit One, maybe I can get you to give
17 me the answer that I couldn't get across to Mr. Mueller.

18 Your second full sentence there says,
19 "This would result in adjusting the allowable in each area,
20 moving from one pool, into each buffer zone, and into the
21 adjoining pool by a factor of 1.8534, rather than a constant
22 volume of 429.34 MCFD + 121.33 BOPD for each 320 acre tract
23 of land," comparing your -- or Sun's proposal to Mesa's.

24 Isn't it true that if, in the event the
25 restriction allowables in the Gavilan are lifted, that a

1 great deal of administrative ease would result by adopting
2 the Mesa proposal rather than the Sun proposal because ours
3 is based on a constant rather than on a percentage factor?

4 A Well, I don't agree with that. I think
5 it depends on what it's easier for you to do. If it's eas-
6 ier for you to have, yes, Mesa Grande's formula and the for-
7 mula that describes that, and that formula is outlined --
8 I'll find the page -- but Sun, I believe, did have a formula
9 that would be useful in computing what the allowables should
10 be under their proposal and it's true their formula requires
11 a different mathematical operation, but that's simply all it
12 is, and I do think that my calculator will handle Sun's pro-
13 posal.

14 Q Will the 1.85 factor work if Gavilan is
15 restored to statewide allowables?

16 A If Gavilan is restored to the statewide
17 allowables, we -- I don't know. I'd be happy to go through
18 that calculation and see, but I think it will, yes.

19 MR. LOPEZ: No further ques-
20 tions.

21 MR. LEMAY: Mr. Stovall, any
22 questions of the witness?

23 MR. STOVALL: Well, I've been
24 waiting for a long time to cross examine Mr. Roe, and I
25 can't pass it up, Mr. Chairman. I will try not to make

1 closing arguments in my cross examination, however, Mr.
2 Chairman.

3 MR. LEMAY: Please don't. We
4 have time set aside for that.

5
6 CROSS EXAMINATION

7 BY MR. STOVALL:

8 Q I'd like to deal, Mr. Roe, quickly with
9 one issue that Mr. Lopez has brought up a number of times
10 with you and Mr. Mueller, with respects to the characteris-
11 tics of the boundary between Gavilan and West Puerto Chi-
12 quito and the characteristics of the boundary between Gavi-
13 lan and West Lindrith. Are they similar? Do you have simi-
14 lar problems with regard to the boundaries in the two sides
15 of Gavilan?

16 A Well --

17 Q Have you established by evidence and
18 knowledge, engineering knowledge, and existence of a similar
19 problem across the boundaries?

20 A Yes. We have actual pressure measure-
21 ments and a great deal more information to say that West
22 Puerto Chiquito and Gavilan are in fact connected and what
23 happens on one side beyond any doubt will have an affect on
24 what's on the other side. We -- we don't have similar
25 reservoir characteristics on both sides of the reservoir,

25 Recognizing that there was a problem in

1 the Gavilan - West Puerto Chiquito boundary, the solution
2 adopted there was a change in the pool rules throughout the
3 entire West Puerto Chiquito Pool to conform to the pool
4 rules in the Gavilan Pool, is that not correct?

5 A Yes.

6 Q In other words, the rules within West
7 Puerto Chiquito are the same throughout the pool. They
8 don't vary depending on your location in the pool.

9 A That is correct. Well, with the excep-
10 tion of the buffer zone.

11 Q The pool rules -- the pool rules are uni-
12 form for the most part.

13 A Well, the only difference is the spacing
14 requirement if you drill in the western -- if you drill
15 close -- there is a difference in location requirement in
16 what is identified as a buffer zone.

17 Q Okay. In -- in Gavilan, I think that
18 we've heard that the problem is largely a result of the re-
19 duction in allowable from what would be the statewide allow-
20 able and you are familiar with the Gavilan situation, are
21 you not?

22 A Yes.

23 Q What is basically, looking at the Commis-
24 sion's reason for being, that is the prevention of waste,
25 protection of correlative rights, what is the reason fore

1 the reduced allowable, in your opinion, in Gavilan?

2 A Well, I was actually a party to the ap-
3 plication that -- as were you, that resulted in the allow-
4 able reduction, and the reason we asked for it is -- is we
5 felt that we needed some time to resolve to ourselves what
6 was the best way to produce Gavilan, being cognizant of the
7 fact that we had established that it was communicated with
8 -- and this isn't totally agreed to by everybody, either --
9 but some of us felt that we were in pressure communication
10 with a long established pressure maintenance project, and
11 the operational practices in the West Puerto Chiquito Pool
12 were to be in a manner that we didn't just flow the wells
13 all that they'll go, the production -- and Dugan Production
14 has an interest in West Puerto Chiquito, so I have a good
15 handle on that information. We were trying to operate West
16 Puerto Chiquito in a manner with -- that we felt would maxi-
17 mize ultimate recoveries.

18 Q Is that prevention of waste, then, or is
19 that the primary concern --

20 A That was --

21 Q -- in the West Puerto Chiquito production
22 mechanism and the imposition of restrictions in Gavilan.

23 A Right.

24 Q And you've identified a change in the
25 producing mechanism of the reservoir across Gavilan to the

1 western edge in the West Lindrith, is that correct?

2 A No, not producing mechanism.

3 Q Well, perhaps I used the wrong engine-
4 ering term. In the -- in the nature of the reservoir?

5 A All right, its ability to produce, yes.
6 We, as we move westerly for West Puerto Chiquito, the wells
7 that we've seen do get -- appear to be less and less influ-
8 enced by natural fracturing as you move from West Puerto
9 Chiquito into West Lindrith.

10 Q If there were to be a buffer zone or some
11 adjustment of allowables established in let's call it a buf-
12 fer zone for lack of a better term, would you recommend --
13 and considering that West Lindrith is a Gallup-Dakota Pool,
14 would you recommend testing on each well developed in the
15 buffer zone to determine how that buffer allowable should be
16 applied?

17 A Well, working for a company that we have
18 a very strong emphasis on controlling costs, I probably
19 would lean towards -- primarily because, one, I don't think
20 the Dakota in this area is -- is of any significance -- I
21 would lean towards putting the well on production and if ac-
22 tual performance demonstrates that it's a better well than
23 necessary, then if testing is the only way to resolve the
24 difference, then, yes, I think testing should be required,
25 but to cause that as a requirement up front, I'm opposed to

1 that, I think, because that would greatly increase the costs
2 and the data we have right now says that may not be neces-
3 sary.

4 MR. STOVALL: I have no further
5 questions of the witness.

6 MR. LEMAY: Thank you, Mr.
7 Stovall.

8 Any additional questions of the
9 witness?

10 MR. HUMPHRIES: I might ask a
11 few.

12 MR. LEMAY: Yes, sir.

13
14 QUESTIONS BY MR. HUMPHRIES:

15 Q Mr. Roe, I apologize, I'm never sure who
16 I want to ask a question to. It's usually whoever's there
17 when I finally figure out what I want to ask.

18 Do I understand you right then to say
19 that as far as you're concerned the (unclear) of Sun's for-
20 mula would increase production allowables -- or the applica-
21 tion of Sun's formula would increase -- excuse me, not Sun's
22 formula, Mesa Grande's formula -- would increase production
23 for the Gavilan-Mancos wells in the buffer zone if it was
24 applied?

25 A Yes, sir, it would definitely result in

1 an increase in the top allowable of a well in Gavilan-Mancos
2 buffer zone, in other words, and it would be a number that
3 would be higher than you would compute using Sun's formula.

4 Q Okay. Did you understand you right to
5 say you do not see a geologic boundary near or in the buffer
6 zone?

7 A I -- I mean to say that we don't have the
8 information that tells us that such a boundary exists. We,
9 I think probably one of the best ways to make that determin-
10 ation would be with a pressure test of some sort and as Mr.
11 Lopez pointed out, there really aren't a lot of wells there
12 yet.

13 Now there are some wells that we could --
14 could test, but we don't have any information geologically
15 that tells us there is something that happens at that point.

16 Q Well, I was happy to hear Mr. Lopez say
17 that the buffer zone solved the problem between West Puerto
18 Chiquito and Gavilan Mancos but I don't know if that would
19 be permanent in its nature or just temporary in his ques-
20 tion, but let me go on to --

21 A Well, let me comment on that because when
22 he asked me about that, there is no buffer zone with respect
23 to allowables.

24 Q I understand, but I also think he was not
25 being (unclear).

1 MR. LOPEZ: I admit I over-
2 stated my case.

3 Q Although I wish you were correct, the way
4 I understand it, the question about the buffer between West
5 Puerto Chiquito and Gavilan-Mancos has been a difference in
6 A, B, and C zones of a Mancos characteristic known as the
7 Niobrara. Is that right? And the argument as to which side
8 of a buffer zone West Puerto Chiquito produces from and Gav-
9 ilan-Mancos produces from.

10 A Well, it's true that issue has been
11 raised and I and Mr. Greer were neither one very successful
12 in dealing with that.

13 It is not my belief that that is the
14 problem, no. I think that there's definitely -- that is the
15 position of one side.

16 Q Okay. I could not recall any entity in
17 the discussion of a so-called barrier between West Puerto
18 Chiquito and Gavilan-Mancos although readily everyone admit-
19 ted there seemed to be some kind of similarities indicating
20 that the Dakota was involved in there.

21 A The Dakota, no. The Dakota would -- now
22 are we talking West Puerto Chiquito?

23 Q Yes.

24 A Yeah, the Dakota has never really been an
25 issue in that --

1 Q Okay.

2 A -- side.

3 Q Okay, then as we started to talk about
4 Gavilan-Mancos, we started to talk about if the pool, Gavi-
5 lan-Mancos was behaving in a certain way, some things did
6 not appear to be clear at the west side of Gavilan-Mancos,
7 nor the east side, but the east side seems to more identi-
8 fied than the west side, so in trying to deal with that,
9 then we started talking about something that might be hap-
10 pening out there at the boundary between Range 2 and 3 West,
11 even though that's a geographic not a geologic boundary, we
12 started to talk about some things that were happening out
13 there.

14 Now I've understood two different things
15 from certain people's testimony, but I think you were the
16 most clear about it. You seem to think that the Dakota pro-
17 duction somehow or another transcends Range 2 and 3 West un-
18 der the Gavilan-Mancos, but is more predominant farther west
19 from Range 2 and 3 and increases as you get closer to Range
20 4, and you used a figure that some 70 percent of the gas and
21 oil was from the Dakota.

22 So is the production at Range 1 and 2
23 boundary more or less Dakota production than it is Gallup or
24 Mancos production?

25 A Dugan Production is -- it's no better and

7 There is a proposal within the Canada
8 Ojitos Unit to look at developing the Dakota with the idea
9 that that would supplement gas reserves some day in the fut-
10 ure, but the Dakota that we see -- that Dugan Production has
11 been involved with production testing along the eastern edge
12 of Gavilan, has been very poor. In no cases has it been
13 much better than what we see in the ARCO Gardner 13-1 Well.
14 In specific places we've tested the Dakota, we've tested it
15 as far north as Dugan Production's Tapacitos 4, which is in
16 the southeast quarter of Section 36 of 26, 2, and we've tes-
17 ted the Dakota separately as far south in a well that we
18 were serving as -- or as agent for Jerome P. McHugh in the
19 Boynton Lola 1 or 2 in 24 North, 2 West.

23 Within Gavilan there are only two Dakota
24 wells that are completed as separate completions, and that's
25 a well operated by Reading & Bates and a well operated by

1 Mesa Grande Resources.

2 Those two wells show that the Dakota for-
3 mation is totally different in that it's basically what we
4 normally think a Basin Dakota pool.

5 The other places we've tested the Dakota
6 it's more like what we see down in what used to be the Cha-
7 con Dakota. It is an oil reservoir and that's what resulted
8 in the Gavilan-Mancos -- or Gavilan-Greenhorn-Graneros-Dako-
9 ta Pool being established, is predominantly we're dealing
10 with a very marginal, low rate oil well in the Dakota in the
11 times we've tested it, and again I mentioned the two Dugan
12 and McHugh tests, the BMG test in Range 1 West of 26 North,
13 the ARCO well in Range 3 West of 25 North. So the times
14 we've seen it, the Dakota is -- appears to be uniformly mar-
15 ginal in this area, where in West Lindrith the Dakota is a
16 significant part of the total productive interval.

17 Q So at the west end, east end of West Lin-
18 drith, then, are we talking about something, say, the anom-
19 aly of a well that behaved like a Gavilan-Mancos Well? Let
20 me ask you, did you say, or I understood you to say and I
21 wrote it down, "We will not see Gavilan-Mancos quality wells
22 in the buffer zone"?

23 A That's my feeling, yes, sir.

24 Q So if we saw one, it was an anomaly, may-
25 be it would not be unfair to treat it differently.

1 A Yes, sir.

Q I have the feeling that we're talking about maybe not a geographic boundary, since -- I mean a geologic boundary, since nature does not necessarily go along with political and administrative decisions, and sometimes the lines get a little blurry, but it appears to me that the production interval that we're the most interested in or the production zone that we're the most interested in in the Gavilan-Mancos appears to be playing out somewhere near the boundary of Range 1 and Range 2, and the production zones that we seem to be the most interested in as the major contributors in West Lindrith, seem to be playing out at the east end of Range 3.

14 A Yes, that -- I think that's right.

15 Q Excuse me, I said Range 1 and 2. I
16 should have said Range 2 and 3.

17 A Yeah, that's correct.

18 Q As we get to the end of -- the west end
19 of Range 2, we seem to find less and less of the Gavilan-
20 Mancos production ability, at least, demonstrated.

21 | A That is correct.

22 Q Not that the potential is not there, but
23 the ability seems to not be demonstrated.

24 A As -- as uniformly throughout the pool,
25 yes, sir, that's correct. As I mentioned, there are a

1 couple wells in West Lindrith that have been good, but they
2 are truly anomalous and they're further in Range 3 West. I
3 mentioned the Hixon well and Joseph Gould wells, but those
4 wells truly are anomalous.

5 MR. HUMPHRIES: This is not a
6 question to Mr. Roe but I guess it's a statement to you, Mr.
7 Chairman.

8 It strikes me that an industry
9 that really seems to abhor regulation brings a lot of things
10 to this Commission to pass regulation on, but in this case
11 it seems to me that maybe there is no need for regulation.

12 A Yes, sir, I think that's our position.

13 MR. HUMPHRIES: Thank you, I
14 have nothing further.

15
16 QUESTIONS BY MR. BROSTUEN:

17 Q The only question I would have for Mr.
18 Roe, you've mentioned about that if a well of -- let's say
19 an exceptional well were drilled in a buffer zone that at
20 that point in time the Commission could perhaps take -- take
21 that matter and determine an allowable for that well.

22 Do you think that -- that the industry,
23 or your company, for example, facing that possibility is
24 going to put a damper on your -- on your enthusiasm to drill
25 a well in that buffer zone with the possibility that at some

1 point in time the Commission would come in and restrict the
2 production of your well?

3 A Well, I will say that under the existing
4 allowables in Gavilan, Dugan Production has plans to drill
5 two wells. We had a forced pooling hearing on those two
6 just -- just very recently.

7 I know yesterday we heard Mesa Grande has
8 plans to drill and had a forced pooling on Section 14 of
9 25, 2.

10 The allowable that exists in Gavilan has
11 not totally prohibited drilling. It has definitely reduced
12 enthusiasm to go out and drill but Reading & Bates just com-
13 pleted a well that is in the West Lindrith side of the buf-
14 fer zone. They did that with the understanding that they
15 were going to have an allowable assigned to them that
16 equates -- that is Gavilan. Their spacing unit was, I be-
17 lieve, the east half of that section and it was a Gavilan-
18 Mancos spacing unit.

19 Now, what we're talking about is so -- so
20 we do see drilling activity going on with the allowable that
21 is in place in Gavilan.

22 If, either under our formula or under the
23 formula that Mesa Grande supports, either formula will re-
24 sult in a higher allowable being established for the buffer
25 zone in Gavilan, it will, both formulas result in a lower

1 allowable in West Lindrith, than exists under West Lindrith
2 state rules, but you've got to bear in mind we're going from
3 something that based on gas there's a disparity of about
4 seven times what is in place in Gavilan versus what is in
5 place in West Lindrith, and so somehow we've -- if you're
6 going to set up a buffer zone that goes from roughly a mil-
7 lion and a half a day to 400 or a half a million a day,
8 you've got to do it in a -- the million and a half is not
9 right, it's -- on a 640-acre basis it would be about 3-mil-
10 lion, so if you go from a half million to 3-million on a
11 640-acre area under consideration, all we're asking the Com-
12 mission, that if you feel that there is this need to provide
13 a transition, that you do it in a manner that percentagewise
14 you go from Gavilan to Gavilan buffer in the same percent
15 increase that you go from the buffer in Gavilan to the buf-
16 fer in West Lindrith and that percent increase is the same
17 from West Lindrith to unrestricted West Lindrith, rather
18 than allowing going from Gavilan unrestricted to a fairly
19 large jump, 180 percent, roughly, between unrestricted
20 Gavilan and Gavilan buffer.

21 But that's really all we're asking is we
22 -- I think I got lost.

23 MR. BROSTUEN: Thank you.

24 MR. LEMAY: I have a quick one.

25

1
2 QUESTIONS BY MR. LEMAY:

3 Q You addressed a possible, very early in
4 your testimony, pressure sink. Do you have any information
5 to go into that? Is there a pressure differential between
6 the West Lindrith and the Gavilan fields, in the buffer
7 zone, especially?

8 A Well, I mentioned that knowing more about
9 the pressure in Gavilan than I do about the pressure in West
10 Lindrith.

11 Dugan Production has just recently
12 completed a well in West Lindrith, it's our Hurt No. 5 in
13 Section 14 of 25, 3.

14 We've been involved with several wells
15 that Hixon has drilled in Section -- or Township 25 North,
16 Range 3 West, and based upon no actual pressure measurements
17 but what I feel to be the pressure from what we observed the
18 fluid levels to be during the completion process, I feel the
19 pressure in West Lindrith is up in the range of 16/1700
20 pounds, and that's just a guess.

21 But what we see in the wells tells me
22 it probably is in that range and I would expect this part of
23 the West Lindrith Pool to be less affected by production in
24 West Lindrith because it's out towards the edge of West
25 Lindrith. It's more removed from the center of production.

1 Now, as you may be aware, part of the or-
2 der that was issued for Gavilan required three measurements
3 of pressure. One in June of this year, and at that time the
4 pressure that was measured in the Gavilan-Mancos Pool ranged
5 -- and the numbers I'm going to give you are at a subsea
6 datum of a +370, or that's above sea level, it's +370 above
7 sea level, which is the pressure datum that a lot of people
8 are using in Gavilan.

9 The pressures that we measured ranged be-
10 tween right at 1100 pounds with the maximum being up in
11 around 1250 pounds. I have the exact numbers that I could
12 provide. They are on file with the Commission. But that
13 was in June.

14 We are measuring pressure in that reser-
15 voir again today and based upon what I know about the reser-
16 voir, I would expect the pressure in Gavilan to be in the
17 900 to 1000 pound range now, which is more than 50 percent
18 pressure depleted, and so knowing what I know about -- know
19 plus anticipate in Gavilan, and knowing what I know about
20 the recent completions we've been involved in with West Lin-
21 drith, I think the pressure is higher in the West Lindrith
22 side than it is in Gavilan, and because of that, and that's
23 basically what's behind the problem on the eastern edge of
24 Gavilan, is we cause a pressure sink and Mr. Greer gets all
25 upset because he's over there trying to keep the pressure

1 high, and fluid goes towards the point of lower pressure.
2 To the fluid, that's downhill.

3 MR. LEMAY: Additional
4 questions of the witness?

5 If not, he may be excused and
6 we'll break for lunch returning at 2:00.

7

8 (Thereupon the noon recess was taken.)

9

10 MR. LEMAY: The meeting will
11 come to order.

12 We'll resume -- Mr. Kellahin,
13 are you completed with your witnesses?

14 MR. KELLAHIN: Yes, Mr.
15 Chairman, thank you.

16 MR. LEMAY: Okay, Mr. Stovall?

17 MR. STOVALL: Call Mr. Al
18 Kendrick.

19

20 A. R. KENDRICK,

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

23

24

25

DIRECT EXAMINATION

BY MR. STOVALL:

Q Mr. Kendrick, would you please state your name and place of residence?

A A. R. Kendrick, Aztec, New Mexico.

Q And what is your interest in this matter?

A I'm an employed consultant and represent

--

Q By whom?

A -- Minel, Incorporated; T. H. McIlvain Oil & Gas Properties; Curtis J. Little Oil & Gas; New Mexico & Arizona Land Company; and Herbert Kai.

Q Are you familiar with the questions before the Commission in Cases 9226 and 9227 and do you have knowledge upon which you're testifying?

A I think so.

Q Have you ever testified before the Commission and had your credentials accepted?

A Yes, sir.

MR. STOVALL: I'd offer the witness as an expert witness in this case.

MR. LEMAY: He is so qualified.

Q Mr. Kendrick, the first thing I would ask you to do, you have a copy of and you are familiar with the testimony presented by Mesa Grande Resources at a previous

1 session of this case --

2 A Yes, sir.

3 Q -- is that correct?

4 A Right.

5 Q I'd ask you to turn first to Mesa Gran-
6 de's Exhibit Number B-2 and then to your exhibit which we'll
7 identify as Exhibit Number One. For the information of
8 those observing, it's the uncolored exhibit on the left side
9 of the board up there; that's an enlargement.

10 Would you please tell the Commissioners
11 what that is?

12 A The handout is a slightly corrected own-
13 ership plat for ownership of part of the acreage in the
14 column of sections along the east side of Township 25 North,
15 Range 3 West, that being Sections 1, 12, 13, 24, 25, and 36.

16 Q And what you've identified there is only
17 the ownership as it varies from Mesa Grande's Exhibit Number
18 B-2, is that correct?

19 A I think so.

20 Q Otherwise, to the best of your knowledge,
21 the Mesa Grande exhibit with respect to ownership is sub-
22 stantially correct.

23 A The one part that is omitted in this ex-
24 hibit is in the north half of the north half of Section 1
25 and the southwest of the northwest of Section 1. That tract

1 dence?

2 A Yes. I think it is reasonable. There is
3 no way to have the surface boundaries to exactly follow the
4 reservoir conditions for the separation of the producing
5 characteristics of the reservoir.

6 Q The characteristics of the reservoir, are
7 they sufficiently different to justify two separate pools?

8 A Yes, sir.

9 Q And do you agree with the statements that
10 were made this morning that the administratively most appro-
11 priate location for that boundary is at the township line
12 where it has been established?

13 A Yes.

14 Q I'd ask you now to turn to Mesa Grande's
15 Exhibit C-2. You -- again you are familiar with this exhi-
16 bit and you previously heard Mr. Emmendorfer's testimony
17 with respect to that exhibit?

18 A Yes, sir.

19 Q I believe Mr. Emmendorfer testified to
20 the effect that there is a correlation between the logs as
21 found in the Mesa Grande Brown No. 1 Well and the Reading &
22 Bates Greenlee Federal No. 41-24, is that correct?

23 A I think so.

24 Q What significance would you attach to
25 that correlation (unclear)?

1 A These two wells are in very similar posi-
2 tions in the rservoir and would be expected to be as nearly
3 alike as we would find in the reservoir.

4 Q Mr. Emmendorfer testified that the bound-
5 ary was not clearly defined between the pools. He said it's
6 sort of an area of transition, I believe, and there's been
7 other testimony to that effect?

8 Are you saying that these are within that
9 area of transition?

10 A I think that both of these wells are pro-
11 bably on the West Lindrith side of the transition but the
12 administrative ease of handling the pool separation at the
13 township lines should override the difference in the --
14 minor differences in these two pools.

15 Q Mr. Kendrick, based upon the testimony
16 you've heard in this case, the exhibits you've looked at,
17 and your independent knowledge of the reservoir characteris-
18 tics in this area, do you have -- do you see or do you know
19 of any reason why a buffer zone should be established, par-
20 ticularly with regard to production in West Lindrith?

21 A I see no reason for a buffer zone to be
22 established. There is no evidence of drainage. The char-
23 acter of the wells do not differ sufficiently to encourage
24 me to recommend the buffer zone.

25 Q I'd ask you turn to your exhibit, we'll

1 call it Exhibit Number Two, which would be the center exhibit
2 bit on the board there. Would you identify those exhibits
3 please, or that exhibit, excuse me?

4 A This exhibit has some colored-in portions
5 of prorations in the Gavilan Pool that abut or nearly
6 abut the pool boundary. The different colors do not reflect
7 different ownerships, merely different proration units.
8 This exhibit is designed to show that the proration units
9 established by the Oil Conservation Division's case and Order
10 R-7407-C created units in Sections 5 and 6 that's
11 colored pink; and units in Sections 7 and 8 that's colored
12 blue; the unit in Sections 17 and 18 colored in yellow; and
13 unit down in Section 31 and the west half of 32 that's
14 colored in darker green.

15 The unit in Section 19 that's colored
16 purple and the unit in Section 30 that's colored pink are
17 187 acres, approximately, created by Order 8268 on the application
18 of Jerome P. McHugh.

19 Adjacent to each of these nonstandard
20 proration units there are 320-acre proration units that have
21 been established by the development of the pool.

22 If a buffer zone is generated in this
23 area, the administration of assigning allowables to this
24 hodge-podge of proration units is going to be a problem that
25 I don't think ought to be applied to the Commission staff.

1 Q Have you indicated on this exhibit a --
2 where that buffer zone would be in relation to those prora-
3 tion units?

4 A Yes. It's the cross checked area along
5 the township line.

6 Q How many different types, and when I say
7 "types" I'm referring to the sizes of proration units, would
8 exist just within the Gavilan-Mancos Pool if the buffer zone
9 were established as -- as proposed?

10 A I would identify them as the 505-acre
11 drill tracts, of which there are four; the two 187-acre
12 drill tracts; one 320-acre drill tract that is entirely in
13 the buffer zone; and two 320-acre drill tracts that are
14 halfway in the buffer zone.

15 Q When you say it would create an admini-
16 strative burden for the Commission, do you have any know-
17 ledge or experience upon which you base that statement?

18 A Yes, sir, after 24-1/2 years I understand
19 problems before the staff.

20 Q 24-1/2 years of --

21 A Of working in the Aztec office of the Oil
22 Conservation Division.

23 Q And in that capacity were you directly
24 concerned with allowables that had forced other allowables
25 --

1 A Yes, sir.

2 Q -- determination of allowables?

3 Do you have -- I think we've heard testi-
4 mony this morning that the restricted allowable in the Gav-
5 ilan-Mancos Pool is the source of the concern among the Gav-
6 ilan-Mancos owners who wish for a buffer zone.

7 Do you know why that restricted allowable
8 was established?

9 A I'm not certain but I think that the re-
10 stricted allowable was based on the Commission's feelings
11 that waste was being generated and that the restriction was
12 to attempt to prohibit waste or any further waste than would
13 be necessary.

14 Q What sort of waste are they concerned
15 with, do you think?

16 A Waste of reservoir energy by producing in
17 excess of a most efficient rate.

18 Q Do any conditions exist within the West
19 Lindrith Pool as it has been redefined by the order that was
20 given to us this morning that would indicate that those same
21 conditions exist in the West Lindrith Pool?

22 A No, sir, not to our knowledge.

23 Q Are you aware of any engineering or geo-
24 logical reasons why anything -- why rules and methods of
25 production in the Gavilan-Mancos Pool should have any bear-

1 ing upon the manner in which the West Lindrith Pool is pro-
2 duced on allowables or producing rates?

3 A No, sir.

4 Q There was some discussion this morning
5 regarding the setback for wells and some description of per-
6 haps increasing the setback in the West Lindrith wells with-
7 in this so-called buffer zone to, I believe, 790 feet from
8 the existing rule 330 feet? Is that correct? Do you remem-
9 ber hearing that?

10 A Yes, sir, I heard something to that re-
11 gard.

12 Q Is there any reason to the best of your
13 knowledge that such a setback would be necessary?

14 A No, sir. In fact, I would recommend
15 against that, based on the present development of the wells
16 along the common pool boundary.

17 Q And why do you make that recommendation?

18 A The wells located in Sections 5, 8, and
19 17 are all at least 3200 feet from the township line. If we
20 caused further setback on the west side of the line, this
21 would cause these wells to be separated any -- even further
22 back.

23 If a well were to drain a circular pat-
24 tern so that it drained 640-acres square, that is the wells
25 being drilled in the centers of 640-acre drill tracts, it

1 would have to drain 1005 acres to properly drain the reser-
2 voir, so that all the areas of the reservoir would be
3 drained.

4 If we take the 3208 feet from the town-
5 ship line, which is the well in Section 5, and is the clos-
6 est to that line, and apply it to drain to a 45-degree north
7 and south to insure similar drainage on an even pattern,
8 that well would have to drain 1484 acres to properly drain
9 its share of the reservoir.

10 Q I'd ask you now to turn to what we'll
11 call Exhibit Number Three, which is the exhibit which is on
12 the right side of the board as we posted, and would you
13 identify that for the Commission, please?

14 A This is a similar plat to the one shown
15 on Exhibit Two.

16 The drill tracts colored in yellow are
17 160-acre drill tracts that have wells staked or drilled on
18 them, which would be added to the Northeast Ojito Pool,
19 which is a 160-acre spaced pool.

20 The two wells in 26 North, 2 West, or
21 the, excuse me, the two spots colored green and blue ident-
22 ify two 640-acre proration units that were brought to hear-
23 ing on November the 4th for forced pooling as possible wells
24 in the Gavilan Pool.

25 In Township 25 North, Range 2 West, the

1 pink unit and the orange unit are two existing units that
2 have been assigned to wells currently drilling and would be
3 in the Gavilan-Mancos Pool.

4 Down to the south are three wells that
5 were completed back in the first half of the year along in
6 March, April, or May, that are spaced on 320-acre drill
7 tracts. They're within a mile of the Gavilan Pool boundary
8 but for some reason have not been brought within the pool
9 boundary.

10 In the lower righthand corner there are
11 two 40-acre drill tracts also within a mile of the Gavilan-
12 Mancos Pool, which would cause them to fall under the
13 existing pool rules of being within a mile. One of those is
14 listed in the oil proration schedule as a wildcat well
15 currently shut-in, and I was unable to find the other one
16 listed in the schedule; however, completions have been
17 reported on both of those wells.

18 Q And again is it correct that the proposed
19 buffer zone is indicated by the cross marking there
20 (unclear) point?

21 A Yes. The buffer zone is identified on
22 that exhibit similarly to the others but these drill tracts
23 show that there is no proposed continuity of the buffer zone
24 to extend north or south to intercept places where this
25 pools would abut in any manner.

1 Q Can you see any reasonable justification
2 for establishing a buffer zone where it's proposed as indi-
3 cated on your Exhibit Number Three?

4 A None whatsoever.

5 Q Now you've -- so far you've testified
6 that you believe there is no basis for the creation of a
7 buffer zone or any sort of special allowables within what we
8 call the buffer zone. Do you have any opinion, were there
9 to be a buffer zone established, as to which method would be
10 preferable, be it Sun's proposal or Mesa Grande's proposal,
11 as far as a buffer zone?

12 A I personally don't like either one of
13 those. If a buffer zone needs to be applied, I think the
14 entire buffer zone should be applied within the Gavilan Pool
15 because this is the Gavilan Pool problem that's coming up,
16 not a West Lindrith Pool problem.

17 Q And do I understand you to say that with
18 respect to Case 9227, which concerns the Gavilan -- amend-
19 ment to the Gavilan-Mancos Oil Pool, you wouldn't have any
20 particular objection as a representative of people operating
21 in West Lindrith, to any modification of the allowable or
22 other such buffer zone rules within the Gavilan-Mancos Pool,
23 is that correct?

24 A That is correct.

25 Q And is it your opinion that with respect

1 to Case 9226 regarding a buffer zone within the West Lin-
2 drith Pool, that there is no justification for that pool and
3 that there should -- or for that buffer zone, and that there
4 is no reason why the West Lindrith Pool rules should be af-
5 fected by situations in Gavilan?

6 A I see no reason to apply a buffer zone in
7 the West Lindrith Pool.

8 MR. STOVALL: I have no further
9 questions.

10 MR. LEMAY: Thank you, Mr. Sto-
11 vall.

12 Cross examination of the wit-
13 ness?

14 MR. PEARCE: No questions, Mr.
15 Chairman.

16 MR. LOPEZ: No questions.

17 MR. LEMAY: Additional ques-
18 tions of the witness.

19 MR. BROSTUEN: I have a few,
20 perhaps several questions.

21
22 QUESTIONS BY MR. BROSTUEN:

23 Q Referring to your Exhibit Three, I be-
24 lieve it is --

25 A Yes, sir.

1 Q -- you were mentioning that the two drill-
2 ling and spacing units, 40-acre units in Section 24, Town-
3 ship 24 North, Range 2 West, those wells have been drilled
4 -- are you saying those two locations have been drilled? Is
5 that correct?

6 A Yes, sir, those have been drilled a num-
7 ber of years ago and were properly qualified as wildcat
8 wells at the time they were drilled.

9 Q At that time.

10 A Yes, sir.

11 Q In the -- in Section 8 and 9, the same
12 township and range, that are colored pink and purple, have
13 those been drilled?

14 A Yes, sir, and those are -- all three of
15 those wells in 6 and 8 and 9, are all carried in the oil
16 proration schedule as Gavilan-Mancos Pool wells.

17 Q Thank you very much, that's all I have.

18 MR. KELLAHIN: Mr. Chairman, if
19 I may?

20 MR. LEMAY: Mr. Kellahin, yes.

21

22 CROSS EXAMINATION

23 BY MR. KELLAHIN:

24 Q Mr. Kendrick, when we continue to look at
25 Exhibit Number Three, am I correct in understanding that the

1 wells colored in Sections 6, 8, and 9 in 24, 2, were drilled
2 as extensions to the Gavilan-Mancos Pool, I believe in an-
3 swer to Mr. Brostuen's question?

4 A Yes, sir, and they were completed in
5 March and April of 1987 before the new 640-acre pool rules
6 were issued.

7 Q Do you know whether or not these wells
8 are on the OCD Aztec office processing to be included in ex-
9 tensions of the Gavilan-Mancos Pool at the hearing on Decem-
10 ber 16th?

11 A No, sir.

12 Q Based upon your experience as an employee
13 of the Oil Conservation Division over the years, Mr. Ken-
14 drick, what was the practice of the Oil Conservation Divi-
15 sion with regards to expansions of pool boundaries? How did
16 that occur when wells were drilled outside that boundary?

17 A If a well were within a mile or was
18 thought to be in the same pool, the Commission staff assem-
19 bled a case before the Commission and proposed the expansion
20 of pools that encompassed those proration units that were
21 developed outside the pool.

22 Q Based upon your experience, were you ever
23 involved in situations where we had two separate pools of
24 varying spacing units that were converging or growing to-
25 gether so that wells between those two pools were within a

1 mile of either pool rule?

2 A Yes, sir.

3 Q What was the Commission's practice in
4 handling those type of wells in determining which wells to
5 put those wells in?

6 A To study the reservoir characteristics of
7 the individual well and to determine which pool that it pro-
8 perly belonged in.

9 Q You alluded to Mr. Emmendorfer's two-well
10 cross section, I believe it was, that showed the Mesa Grande
11 Brown Well and the Brown Lee Well which is in the West Lin-
12 drith, Brown well in Gavilar-Mancos, have you made any type
13 of similar engineering study of the -- of either of those
14 wells to determine which pool those wells ought to be in?

15 A No, sir.

16 Q Do you know whether or not there were any
17 interference tests run between those two wells?

18 A No, sir.

19 Q Based upon your experience before the Di-
20 vision, Mr. Kendrick, are you aware of any situation where
21 the Division has utilized different allowables within the
22 boundaries of the same pool?

23 A No, sir.

24 Q Are you aware of any situation where the
25 Division has utilized a gas allowable buffer proposal in es-

1 tablishing gas allowable rates between two pools that are
2 contiguous?

3 A No, sir.

4 Q Have you made any type of engineering
5 study or evaluation to determine where the producing char-
6 acteristics between the Gavilan and West Lindrith alter in
7 such a way that you could draw a boundary between the two
8 pools based upon that engineering study?

9 A I made a cursory examination of Mr. Em-
10 mendorfer's exhibit and it's my interpretation of the struc-
11 ture map that where the contour lines change in density,
12 where you have contour lines close together and they start
13 widening apart, or where you have contour lines that have
14 curves in them, you're generating complex curvature. This
15 throws additional stresses into a contour reservoir and
16 causes fracturing or crusting.

17 On this Exhibit C-1 presented by Mesa
18 Grande, if one would look at Sections 4, 5, 8 and 9, in
19 Township 25 North, Range 2 West, you'd find that the contour
20 lines to the west are widely spaced and along the section
21 corner of those four sections you'll find that abruptly
22 those contour lines grow close together.

23 This means that the formation is being
24 bent at that point and therefor conducive to fracturing.

25 If one would look along the township line

1 where their proposed buffer zone is, the contour lines are
2 curved but they are at very uniform widths, are separated in
3 very uniform positions and therefor there is curve in the
4 formation but it is at the same slope so it appears to me to
5 be a single flexing of the formation instead of a complex
6 flexing or trying to bend it two ways, and therefor I can
7 see that if this exhibit is reasonably correct, there will
8 not be severe fracturing along that township line.

9 Q Other than a cursory examination of Mr.
10 Emmendorfer's map, have you attempted to confirm that with
11 any type of engineering study?

12 A No, sir.

13 MR. KELLAHIN: No further ques-
14 tions.

15 MR. LEMAY: Thank you, Mr. Kel-
16 lahin.

17 MR. LOPEZ: Mr. Chairman, if I
18 might follow up on Mr. Kellahin for a --

19 MR. LEMAY: Yes, Mr. Lopez.

20

21 CROSS EXAMINATION

22 BY MR. LOPEZ:

23 Q Mr. Kendrick, is it your opinion, there-
24 for, just based on your last answer, that all the acreage in
25 the buffer zone is more properly part of the West Lindrith

1 Pool rather than the Gavilan?

2 A No, sir, not necessarily. In Sections 8
3 and 17, for instance, there is a difference in the density
4 of contour lines and the curvature, and in the northeast
5 quarter of Section 5, or the north half of Section 5 and 6,
6 there is curvature and a change in density of the -- of the
7 contour lines, so I would anticipate more complex fracturing
8 in the north half of Sections 5 and 6; more complex frac-
9 turing in the east half of 8; and in Section 17, all of 17;
10 the north half of Section 20. As you go further to the east
11 you find curvature and changing in density both, and I would
12 anticipate a lot more severe fracturing to the east.

13 But to the west the formations seem to be
14 -- or the contour lines seem to be at very uniform positions
15 and therefor there would be lesser fracturing, in my opin-
16 ion.

17 MR. LEMAY; Any more, Mr. Lo-
18 pez?

19
20 QUESTIONS BY MR. LEMAY:

21 Q Mr. Kendrick, will you speculate with me
22 just a minute? Assuming, is it fair to assume that we have
23 one common source of supply within the fractured Mancos
24 throughout the area?

25 A Yes, the supply is common but the produc-

1 ing characteristics of the wells vary widely in groups of
2 wells. I'm not talking about a good well in a pool and a
3 bad well in a pool. That occurs in every pool, there are
4 some good wells and some bad wells, but here there would be
5 groups of wells that would produce at substantially higher
6 rates than other groups of wells that seem to be geographi-
7 cally grouped.

8 Q Is it fair to assume, or is it practical
9 to say that you can segregate this common source of supply
10 based on definitions of pools as we -- as we define them, or
11 are we talking about gradational variations that -- that
12 tend to defy limits that we'd set down to define pools?

13 A I wouldn't consider the variations here
14 gradational. I think the gradation is very short but the
15 change in producing characteristics of the wells is
16 substantial over short lateral distance, to move from one
17 group to another group. So I think it would be fair to
18 separate those as a reasonable barrier or separation between
19 the two pools for administrative purposes.

20 Q The big division is for administration,
21 as I understand the testimony here today, and that would be
22 -- is that your testimony, that the reason for division is
23 more administrative purposes than characteristics of the
24 reservoir, the two sides of the line?

25 A No, sir. The administrative purposes

1 would be along this common boundary to select a place for
2 administrative purposes, but the producing characteristics
3 of the wells do vary very widely but they do so pretty sud-
4 denly and in groups of wells and not just in occasional
5 wells.

6 Q In looking at this area, and I emphasize
7 area because you were stating down here that your history
8 with the Commission has been that within a mile of produc-
9 tion that -- that there's a well that is taken into that
10 field, if it falls within a mile of production and produces
11 from the same reservoir that there is production.

12 A Yes, sir.

13 Q But in this case is this unique enough
14 because we have 640-acre spacing to keep this ratio, and I'm
15 assuming 40-acre spacing would be an average step out from
16 an oil pool, within a mile of 40-acre spacing. If we have
17 640-acre spacing do you think it's fair to say a well within
18 four miles of 1640-acre spacing could be included in that
19 pool?

20 A No, sir.

21 Q Why, with the ratio I just explained on
22 40 acres? Why would you take a different position on that?

23 A Too often the reservoir characteristics
24 change as abruptly as they do here, they change within a
25 mile, so that in a four mile spread you could be out of the

1 pool and into a separate pool and out again before you get
2 four miles out, and as I experienced in such formations as
3 in the Pictured Cliffs formations where we currently iden-
4 tify about 10 or 12 different pools, the pressure differen-
5 tial within a half mile would identify a well as belonging
6 into one pool or another pool because of the pools having
7 different pressures within those pools. But a four mile
8 step may put you beyond the next pool.

9 Q Could a one mile step, then, if we're
10 talking about 640-acre spacing with abrupt changes of reser-
11 voir characteristics, could -- could a mile, which would be
12 a normal addition to a pool, would that be maybe even a
13 wildcat in the sense that it could define different charac-
14 teristics?

15 A That would be learned at the time a well
16 is drilled, but it's possible that it would happen, and
17 these wells on the south part of my Exhibit Three might
18 still well be classified as wildcat wells, but the pool
19 rules says that any well within a mile of the pool shall be
20 treated as a pool well.

21 Q That's -- that's the concept I was -- I
22 asked you to speculate with me on, that concept with your
23 testimony that these pools as you see them and as we attempt
24 to define them, is an after the fact analysis, which in it-
25 self would probably defy the administrative orders that we

1 tend to come up with because that tends to be an operational
2 analysis, and then it seems like we try and redefine that
3 operational analysis in terms of characteristics of the
4 reservoir kind of after the fact, and I'm wondering which --
5 what we're really doing in here, looking at an operational
6 analysis between fields, a different philosophy in develop-
7 ment, and then trying to get the size to fit in somehow, or
8 whether we are really looking at characteristics of the
9 reservoir where we can define fields after the fact based on
10 some of the fracturing or some of the deliverability of the
11 wells.

12 A It is entirely possible, and I will admit
13 that it has happened, that wells were placed in the wrong
14 pool because of a lack of proper information, and over the
15 years some of the pools have been reduced in size and the
16 wells transferred to other pools after sufficient informa-
17 tion was developed to show that the wells had been improper-
18 ly placed within those pools.

19 Q But where we have a situation, again
20 let's speculate here, you're coming down here where you're
21 not defined by either Gavilan or the West Lindrith, you de-
22 cide to drill a well. Would you allocate 40 acres to that
23 well, 160, or 320, or would you drill the well, try and de-
24 cide on what characteristics it had, and then try and get
25 together your proration unit based on those characteristics?

1 A The experience that I've had was that the
2 majority, the vast majority of wells drilled within a mile
3 of a pool would properly belong in that pool if they're com-
4 pleted in the same formation.

5 The exceptions are a very small percent-
6 age of those wells, especially in the San Juan Basin.

7 Q But in this pool we're talking about
8 fractured Mancos. We're really talking about fractured Man-
9 cos throughout the area, so if you're drilling a well close
10 to two fractured Mancos reservoirs and you have the option
11 of 640, 160, or 40, do you make a practical decision to al-
12 locate 40, 160, 640 to that well prior to drilling or what,
13 what do you do in a case like that?

14 A Well, I think that the operator should
15 apply his best knowledge and proceed in that direction and
16 discuss it with the Division staff as to why he is applying
17 to drill a well and dedicate it to a particular pool where
18 the three options are available, and not -- not necessarily
19 be nailed down to the fact that because it's within one mile
20 of one pool it couldn't also be within a mile of another
21 pool, and therefor he should have the option to go either
22 way, based on his best information.

23 If his information is wrong, then move
24 the well to the other pool.

25 Q And then another operator comes in before

1 we spaced the area and offsets with a different interpreta-
2 tion of the area, we'll say he thinks maybe 40 acres might
3 be the appropriate spacing and maybe that's all the acreage
4 he can get together, and drills a well. So you have 40 ac-
5 res offsetting 160, or offsetting 320 or 640.

6 I guess my -- my question, ultimate ques-
7 tion is, would it be helpful to the industry if we spaced
8 the east side of the San Juan Basin Mancos according to a
9 formula that could be determined prior to drilling?

10 A I don't think so because the possibility
11 of having to go back and redo the same amount of work by
12 assigning a different acreage and developing other pools
13 would still have to happen, so --

14 Q Well, I wasn't thinking in terms of re-
15 doing what's already been done, but in terms of addressing
16 those proration units that have not been drilled so an oper-
17 ator would have an idea prior to drilling a well what would
18 be a minimum spacing example, maybe a minimum 160-acre spac-
19 ing, or something on areas on the east side of the San Juan
20 Basin where, one, Mancos production was anticipated, frac-
21 tured Mancos, and two, there -- there's a number of spacing
22 units that could apply to that particular location in the
23 undrilled portion of this tract.

24 A I think it ought to be on an individual
25 well basis and apply the best information we have at that

1 time and not establish a policy for the half of the Basin.

2 Q Thank you. That's all the questions I
3 have.

4 MR. STOVALL: Mr. Chairman, I
5 still have one technical matter I'd like to take care of;
6 oversight on my part.

7

8 REDIRECT EXAMINATION

9 BY MR. STOVALL:

10 Q Mr. Kendrick, were Exhibits One, Two, and
11 Three prepared by you and are you knowledgeable of their
12 accuracy?

13 A They were prepared by me and I think
14 they're correct.

15 MR. STOVALL: I'd like to offer
16 Exhibits One, Two, and Three into evidence.

17 MR. LEMAY: The exhibits will
18 be admitted without objection.

19 Additional questions of the
20 witness?

21 If not, he may be excused.

22 Are there -- any additional
23 witnesses, Mr. Stovall?

24 MR. STOVALL: I do not.

25 MR. LEMAY: Anyone else wish to

1 present any testimony in this case?

2 Yes, Mr. Pearce.

3

4

BILL HAWKINS,

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

7

8

DIRECT EXAMINATION

9 BY MR. LUND:

10 Q Will you please state your name and busi-
11 ness address?

12 A Bill Hawkins. I work for Amoco Produc-
13 tion Company in Denver, Colorado.

14 Q In what capacity are you employed?

15 A I'm a Senior Petroleum Engineering Asso-
16 ciate, currently assigned to proration and unitization
17 duties throughout our Denver Region.

18 Q And you've never testified as an expert
19 before this Commission, have you?

20 A No, I have not.

21 Q All right, would you please quickly state
22 your educational background from college on and work exper-
23 ience and (unclear)?

24 A I graduated from Texas Tech University in
25 1972 with a BS in petroleum engineering; graduated with a

1 Master of Engineering in 1974 and started work with Amoco
2 Production Company.

3 I worked as a petroleum engineer, doing
4 both reservoir engineering and production operations in our
5 New Orleans Region from 1974 through 1983. For the last
6 three years of that period I was the Division Reservoiring
7 Supervisor for at one time the Offshore Division and at
8 another time for the Onshore Division.

9 I was transferred to London and I was the
10 Regional Engineering Supervisor for our Amoco Europe and
11 West Africa Region, handling fields in the North Africa
12 Offshore, and also, excuse me, West Africa and the North Sea
13 off of the UK and the Netherlands.

14 I've been in Denver since 1985, for one
15 year as the Division Operations Engineering Supervisor for
16 the Northern Division, and for the last year and a half in
17 my present capacity as a Proration and Unitization Engineer.

18 Q Is the area that we've been talking about
19 today as part of these two dockets within the area of your
20 responsibility?

21 A Yes, it is.

22 Q Have you prepared an exhibit to help with
23 your testimony?

24 A Yes, I have.

25 MR. LUND: We would offer Mr.

1 Hawkins as an expert at this time.

2 MR. LEMAY Mr. Hawkins qualifi
3 cations are acceptable. Please continue.

4 Q Would you please turn to Exhibit Number
5 One, identify it, and explain its significance?

6 A Exhibit Number One is a plat of the West
7 Lindrith - Northeast Ojito area. Northeast Ojito is shown
8 in the upper righthand corner, Sections 25, 26, 35 and 36,
9 of Range 3 West, Township 26 North.

10 Within the Northeast Ojito Pool we show
11 with a dashed line the 790-foot setback requirements in the
12 pool rules.

13 Immediately to the south of the Northeast
14 Ojito area is the expanded West Lindrith area and we show
15 with the solid line what the current West Lindrith setbacks
16 are of 330 feet from the pool boundaries.

17 The dashed/dotted line that we show with-
18 in the West Lindrith expanded area is Amoco's recommended
19 buffer setback of 790 feet, such that it would be equivalent
20 to the 790 setback immediately north of the boundary of West
21 Lindrith.

22 We would, in fact, support a 790-foot
23 setback along the Gavilan - West Lindrith border. It's not
24 shown on this map, or we didn't show the 790 feet, but we
25 would support it for the same reasons that it would be equi-

1 valent setbacks on both sides of the adjoining pools.

2 In addition, we show on the -- on the
3 upper lefthand portion of the map some sections that would
4 come within one mile of pools that have established pool
5 rules and setbacks and we would propose that, for instance,
6 in Section 34, the buffer or setback -- excuse me, not
7 buffer but the setback requirements should be 330 feet where
8 it is adjacent to a 330-foot setback in West Lindrith, but
9 it should be 790 feet where it is adjacent to the Northeast
10 Ojito Pool that has a 790-foot setback.

11 So this exhibit is designed to express
12 Amoco's desire to keep an equivalent setback on either side
13 of the pool boundary for Northeast Ojito and we would support
14 that same position for West Lindrith and Gavilan.

15 Q Why do you think that that's fair?

16 A Well, it at least keeps a well at the
17 same distance from the boundary, such that if the wells were
18 able to produce under identical pressures and rock and fluid
19 characteristics, the (unclear) boundary between the two
20 wells would be on the boundary line and it would eliminate
21 any potential for correlative rights violation.

22 Q What about existing wells in that area?

23 A We would propose that any well that is
24 currently drilled be grandfathered in as an exception to
25 this setback.

1 Q Okay. Was Exhibit One prepared by you or
2 under your supervision and control?

3 A Yes, it was.

4 MR. LUND: We'd offer that into
5 evidence, Mr. Chairman.

6 MR. LEMAY: Without objection
7 Exhibit One will be admitted in evidence.

8 MR. LUND: Very quickly we've
9 gone past the setback requirements. We agree with Mr. Roe
10 and obviously disagree with Mr. Kendrick and we'd like to
11 talk real quickly about the buffer.

12 MR. LEMAY: That will be fine.

13 Q Mr. Hawkins, just in general, what is
14 your opinion about the discussions you've heard today about
15 the buffer, particularly about its impact on the West Lin-
16 drith?

17 A We've listened to all the testimony today
18 concerning the need for buffer allowables and there's been
19 quite a bit of testimony that the Dakota production is non-
20 quantifiable. Some people believe it to be relatively in-
21 significant. Amoco believes it to be significant in some
22 areas and since this is a sparsely developed area along West
23 Lindrith's border, it could be significant in those unde-
24 veloped tracts.

25 We have done some selective testing on

1 the Amoco Production No. 15 Well up in Section 25 that indi-
2 cates the Dakota can produce up to a million cubic feet a
3 day.

4 There's also been some testing on the --

5 MR. LEMAY: I'm sorry, that was
6 the 15 Amoco?

7 A Yeah, it's up in Section 25, Range 3
8 West, Township 26 North, in the Northeast Ojito Pool. That
9 well is located approximately a mile from the West Lindrith
10 border and we feel like that is close enough that you may
11 find significant Dakota production within the undeveloped
12 areas of that West Lindrith Pool.

13 MR. LEMAY: Would you identify
14 that well again?

15 A It is the well that's shown in Section
16 25. It's in the southeast southeast portion of Section 25.
17 It's identified as Jicarilla Apache 15 Amoco Production Com-
18 pany.

19 In addition to that we have looked at
20 some selective tests that were done on the Amoco Well No. 8
21 in Section 35 of Northeast Ojito. The Dakota zone in that
22 well produced with a gas/oil ratio of 9500 cubic feet per
23 barrel, whereas the Mancos, or Gallup zone, produced with a
24 gas/oil ratio of 1151, so it does indicate that although the
25 volume may be relatively small, the impact on the GOR that a

1 commingled well would have could be significant; that the
2 Dakota does contribute in this area and it, although it may
3 bae variable througout an individual well, it appears that
4 within one mile of a very good Dakota production well, you
5 know, you'll maybe have some wells that aren't quite as good
6 but there may be another good Dakota contribution well with-
7 in another mile of that.

8 Because the Dakota is a -- can be a
9 significant contributor, we don't feel that any restriction
10 on West Lindrith allowables would be appropriate, because
11 you would be restricting the Dakota production as well as
12 the Gallup production.

13 In addition to that, we don't believe
14 that there is any need to restrict the West Lindrith
15 production in any event. We've heard testimony today that
16 there is a significant pressure differential between the
17 Gavilan Pool and the West Lindrith Pool, which would
18 indicate that reserves or fluids would probably migrate, or
19 is probably migrating towards the Gavilan Pool.

20 To cause any further restriction on West
21 Lindrith would certainly seem inequitable to us and
22 therefore we would not recommend that there be any
23 restriction placed on the West Lindrith allowables.

24 Q There've been a couple questions about
25 how a ruling by the Commission might impact on future drill-

1 ling plans. What is your opinion about that factor?

2 A I think if we -- if the Commission were
3 to restrict allowables on the West Lindrith Pool along the
4 buffer area that any -- any drilling prospects that were
5 evaluated by Amoco or any other company would certainly have
6 to take that restricted allowable into account; would have
7 to re-evaluate the economics for investing in that area, and
8 compare that to their other opportunities that they might
9 have for -- with the limited funds that we're operating un-
10 der, at least today and today's economic environment, and I
11 would say that it would certainly impact the relative posi-
12 tion or relative priority of these prospects as opposed to
13 other prospects that may exist for a company to invest.

14 Q So if a buffer were to be imposed by the
15 Commission, what would your recommendation be?

16 A Well, Amoco certainly feels that there is
17 no reason to restrict the allowable production out of the
18 West Lindrith Field. We believe that if a buffer were to be
19 designated here and some tiered allowables put in, that it
20 should be in the Gavilan portion of the field or in the Gav-
21 ilan Field along the western edge.

22 MR. LUND: Nothing further and
23 we tender Mr. Hawkins for cross examination.

24 MR. LEMAY: Thank you, Mr.
25 Lund.

CROSS EXAMINATION

BY MR. LOPEZ:

Q Mr. Hawkins, I think you just stated that you relied on testimony for (unclear) questions. On -- on what evidence do you base your opinion that there is a pressure differential between the Gavilan-Mancos and the West Lindrith across the buffer zone we've been discussing here today?

A I have not performed an engineering study although I have seen pressure data that has been published for the Gavilan area and I am basing my opinion that if the testimony we've heard today is correct, that there is a pressure differential of approximately 500 pounds is what I think was stated. 1500 to 1000, that there would certainly be migration of fluids towards the Gavilan area.

Q On -- on what basis was the evidence that you were relying, that there's going to be this pressure differential, on what was it based, do you know?

A It seems to me that he based it on some fluid levels in the West Lindrith area.

Q You don't know what part of the West Lindrith area?

A Said in wells that hey had drilled.

Q You stated that you believed that the

1 setback requirements as you recommended would solve any cor-
2 relative rights problems between the two pools, the Gavilan
3 Pool and the West Lindrith Pool.

4 A Yes.

5 MR. LUND: Objection. I think
6 that is characterizing his testimony.

7 MR. LEMAY: Well, I think Mr.
8 Lopez can rephrase the question.

9 MR. LOPEZ: Well, I think the
10 witness has answered it.

11 A Well, I agree that wells that can produce
12 under the same flow characteristics, the same rock proper-
13 ties and fluid properties that are located equidistant from
14 a well would not have any particular correlative right dam-
15 age.

16 Q Isn't it in fact the case that we have
17 twice the number of wells being able to be drilled in the
18 West Lindrith area than we do in the Gavilan area and that
19 the Gavilan area is suffering from production rate restric-
20 tion?

21 A I understand there is a production rate
22 restriction under the Gavilan area. I don't necessarily be-
23 lieve that there are any wells today that are causing any
24 kind of a correlative right problem. I also believe there's
25 opportunity for operators to drill additional wells without

1 increasing rate if they so desire to protect their correla-
2 tive rights.

3 Q Doesn't that -- isn't that partly depen-
4 dent on the economics of the situation as to whether a well
5 could be drilled under restricted allowables?

6 A Sure.

7 Q Do you see any correlative rights prob-
8 lems where there is a restriction on one side of a boundary
9 line, assuming there's no geological difference across the
10 buffer zone and one side of the boundary suffers restricted
11 allowables and restricted spacing?

12 A I think the correlative right problem
13 would exist when the wells are drilled, if they can -- can-
14 not achieve their allowable there's an opportunity to drill
15 another well to try to increase that. Until that point the
16 allowable really is not causing a restriction or anyl poten-
17 tial loss of correlative rights.

18 Q And if I understand you correctly, you
19 would agree with Mr. Roe that Amoco would prefer that the
20 rules of the game be developed on a case-by-case basis
21 rather than on the basis with some wells being drilled and
22 being severely curtailed and in fact right across the buffer
23 zone in the West Lindrith they are excellent wells, rather
24 than knowing the rules of the game going into it?

25 A No, I wouldn't say that at all. I think

1 Amoco's position is that there is no need to have a buffer
2 or restricted allowable in West Lindrith, and that if there
3 is a need for a buffer in any -- for any reason, it should
4 simply be on the west Gavilan side of the boundary.

5 MR. LOPEZ: No further ques-
6 tions.

7 MR. LEMAY: Mr. Kellahin.

8

9

CROSS EXAMINATION

10 BY MR. KELLAHIN:

11 Q Mr. Hawkins, were you involved in repre-
12 senting your company when the Division created the Northeast
13 Ojito Pool?

14 A No, sir, I was not but I have reviewed
15 the records on that.

16 Q Do you recall in reviewing the records
17 that at that time, using your Exhibit One as a display, that
18 Sections 1 and 2 were at that time in the Ojito Gallup-Dako-
19 ta Pool spaced on 40 acres?

20 A That's correct.

21 Q And Amoco created the northeast Ojito us-
22 ing Sections 25, 26, 35 and 36?

23 A That's correct.

24 Q And at the time that pool was created
25 Amoco had drilled some wells along the southern tier of Sec-

1 MR. LUND: Objection; I think
2 that's --

3 Q Was that not true?

4 MR. LUND: I object to the form
5 of the question. It mischaracterisd the --

6 MR. LEMAY: I think you can re-
7 phrase the question, I think, Mr. Kellahin.

8 Q In reviewing the records, did you examine
9 any geologic information that was presented at that hearing?

10 A I believe our testimony at that time
11 indicated that the producing characteristics in the
12 Northeast Ojito indicated that there was the presence of
13 fracturing, whereby our wells could drain 160 acres, and
14 that would be the appropriate spacing.

15 Q The spacing and the rules were
16 established because of the location of the wellbores in
17 proximity to fractures and therefor the prpducing capacities
18 of the wells was the basis for setting the allowable
19 restriction as opposed to a geological reason?

20 MR. LUND: Objection. I think
21 that that mischaracterizes what happened also.

22 A I think what we're saying is that the
23 presence of fracturing there, or the producing
24 characteristics indicated the presence of fracturing and
25 that that was a different producing mechanism than what was

1 deemed to be present in Ojito and it was also probably a
2 different geological regime that caused that producing char-
3 acteristic.

4 Q The geologic cross sections that ran from
5 the Northeast Ojito down to the Ojito at that time did not
6 show any significant geologic feature that would have geo-
7 logically separated the Northeast Ojito from the Ojito, is
8 that not correct?

9 A I believe that's right.

10 MR. KELLAHIN: No further ques-
11 tions.

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

14 If not, the witness may be ex-
15 cused.

16 One quick one there.

17
18 QUESTIONS BY MR. LEMAY:

19 Q In that discussion back and forth between
20 Mr. Kellahin and you, a restricted allowable in the south
21 tier of wells there in 35 and 36, Mr. Hawkins, could that be
22 considered a buffer zone because of restricted allowable, or
23 not?

24 A I think we could consider that an inter-
25 nal buffer zone along Northeast Ojito, and as you're aware,

1 we have submitted an application to lift that restriction
2 because we feel that the expansion of West Lindrith is going
3 to provide for 160-acre allowable and spacing immediately
4 adjacent to us and so therefor that -- there should be no
5 internal buffer within Northeast Ojito any more.

6 Q The reason being, though, you're lifting
7 it is because you have 160's versus 160's rather than 160
8 versus 40?

9 A That's correct.

10 Q Thank you.

11 MR. LEMAY: Additional ques-
12 tions?

13 MR. KELLAHIN: May I follow up
14 with a question in response to what you asked?

15 MR. LEMAY: Fine. Go ahead,
16 Mr. Kellahin.

17

18 RECROSS EXAMINATION

19 BY MR. KELLAHIN:

20 Q Have you examined any of the wells, Mr.
21 Hawkins, in Sections 1 and 2 to determine whether they
22 demonstrate a producing capacity that would allow them to
23 produce the top 160-acre gas allowable?

24 A I have not examined those two, the NZ and
25 the NZ-2 Well, which are very close to our Northeast Ojito

1 in great detail. I have seen that the NZ-2 Well is a good
2 well. I'm not sure what kind of top rate that well is cap-
3 able of producing at.

4 MR. KELLAHIN; Mr. Chairman, I
5 think it might be useful to consideration of the current
6 case if you took administrative notice of and reviewed Case
7 8822, which is the situation by which the Division created
8 the Northeast Ojito Pool. We would contend that it's very
9 much like what's going on between West Lindrith and Gavilan
10 Pools.

11 MR. LUND: Mr. Chairman, I have
12 to make one point about the prior case. Amoco in no way re-
13 treated on its geologic interpretation in its request for
14 160 spacing in that case and by virtue of a compromise on
15 the disputed issue we reached an agreement on how we were
16 going to be proceeding and we in no way retreat from our
17 technical basis, as Mr. Hawkins stated, and that should be
18 clear in the record and I believe the official record in the
19 file will demonstrate it.

20 MR. LEMAY: Fine, we'll take
21 note of that, Mr. Lund.

22 MR. LUND: Thank you.

23 THE REPORTER: Mr. Lund, did
24 you ask that your Exhibit One be admitted?

25 MR. LUND: I think I did but if

1 I didn't --

2 MR. LEMAY: Without -- if I
3 didn't, without objection Exhibit One will be admitted.

4 MR. LUND: Thank you.

5 MR. LEMAY: Additional ques-
6 tions?

7 If not, the witness may be ex-
8 cused.

9 MR. LEMAY: Are there any addi-
10 tional witnesses in this case, testimony?

11 Any statements that anyone
12 would like to read in the record at this time before closing
13 arguments?

14 MR. LOPEZ: Well, I have a
15 couple of rebuttal witnesses.

16 MR. LEMAY: Fine. I didn't
17 know you -- go ahead.

18 We can -- let's take a ten
19 minute recess.

20

21 (Thereupon a recess was taken.)

22

23 MR. LEMAY: The meeting will
24 come to order.

25 Mr. Lopez, you may proceed.

MR. LOPEZ: Our first witness has two exhibits.

KATHLEEN MICHAEL,
being recalled as a witness and being previously sworn and
remaining under oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. LOPEZ:

Q Would you please state your name and
where you reside?

A My name is Kathleen Michael and I reside
in Tulsa, Oklahoma.

Q Did you testify in the first day of hearing in this case?

A Yes, I did.

Q And were your qualifications as an expert
land person accepted as a matter of record?

A Yes.

Q I'd ask you if --

MR. LOPEZ: Is the witness qualified?

MR. LEMAY: I'd ask you if we
swore in your two witnesses. Did we do that?

MR. LOPEZ: Well, I think

1 they're still under oath.

2 MR. LEMAY: Are they still un-
3 der oath? Okay, we'll take note that they're still under
4 oath from the last time they testified.

5 You may proceed.

6 MR. LOPEZ: I'd call to the
7 Commission's attention we handed out a booklet last time
8 that had exhibits listed A through E in different numberings
9 depending on how many fell under that division.

10 We've taken or labeled all our
11 exhibits we plan to introduce here today in rebuttal as Ex-
12 hibits F-1 through F-6, I think.

13 Q I now would ask you to refer to what's
14 been marked as Exhibit F-1 and ask you to identify it.

15 A Exhibit F-1 is a revised land plat and
16 for the most part the revisions fall in placement of certain
17 aspects. We've removed the wells to make the land part of
18 it a little clearer.

19 Also in yellow is highlighted the acreage
20 of Mesa Grande Resources, which falls within the proposed
21 buffer zone and highlighted in blue is the acreage of Sun
22 and Dugan, which falls within the proposed buffer zone.

23 Q Okay. I'd now ask you to refer to what's
24 been marked as Exhibit F-2 and ask you to identify it.

25 A Exhibit F-2 is the same land plat which

1 shows again in yellow the acreage of Mesa Grande not only in
2 the buffer zone but in all of the acreage on the plat and
3 all the lands covered on the plat, and by the same token,
4 the acreage Sun, not only within the proposed buffer zone
5 but within the entire area covered by all the lands covered
6 by the plat.

7 Q Okay. Were Exhibits F-1 and F-2 prepared
8 by you or under your supervision?

9 A Yes, they were.

10 MR. LOPEZ: I would move the
11 introduction of Mesa Grande's Exhibits F-1 and F-2.

12 MR. LEMAY: Without objection
13 the exhibits will be admitted into evidence.

14 Q Does that conclude your testimony?

15 A It does.

16 MR. LEMAY: Are there any ques-
17 tions of the witness?

18 If not, the witness may be ex-
19 cused. Thank you.

20 MR. LOPEZ: I'd like to call
21 Mr. Emmendorfer.

22
23 ALAN P. EMMENDORFER,
24 being recalled as a witness and being previously sworn and
25 remaining under oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. LOPEZ:

Q Will you please state your name and where you reside?

A I'm Alan P. Emmendorfer and I live in Broken Arrow, Oklahoma.

Q Do you understand that you remain under oath?

A Yes.

Q You did testify in the first hearing in these cases and had your qualifications as a geologist accepted as a matter of record?

A Yes, I did.

MR. LOPEZ: Is Mr. Emmendorfer considered qualified?

MR. LEMAY: His qualifications are accepted.

Q The -- I'd refer you now to what's been marked Exhibit F-3 and ask you to explain that exhibit.

A Mr. Chairman, F -- Exhibit F-3 is a little explanation as to the following next two exhibits, to show how I arrived at some calculations -- some numbers through a calculation process.

If we take a well, and assuming it's pro-

1 ration unit being a 40-acre, 160-acre, 320, or whatever, and
2 we reduce that to a 160-acre drainage radius, or 160-acre
3 proration unit well and the way it is a 320 well, also, if
4 that drainage radius extends into the next section line or
5 into the next proration unit, a portion of that drainage
6 radius is without the proration unit that it was assigned
7 to, and compensatory drainage is understood that one well on
8 one side of a proration unit may overlap into the next pro-
9 ration unit and that -- that well's drainage radius may
10 overlap into the other, but hopefully, they will be fairly
11 close in their drainage.

12 What I've shown here is a way of
13 calculating the acreage within that drainage radius that
14 actually overlaps into an adjoining proration unit. It is a
15 -- I hate to use the word simple mathematical calculation --
16 deriving probably was not simple but following it is -- is
17 fairly simple when you're using the calculator. That
18 portion of the drainage radius that crosses that proration
19 unit defines a segment of a circle and the area of that
20 segment can be calculated using the formula that I have
21 listed down here.

22 It's strictly to tell us how many acres
23 of a drainage radius assigned to that well occurs outside of
24 its proration unit.

25 Q And did you use this formula in

1 calculating the segments in -- under various scenarios and
2 in this connection I refer you to Exhibits F-4A and F-4B?

3 A Yes, I did. Before I get into exactly
4 what these exhibits show, I'd like to refer you back to Mesa
5 Grande's exhibits from last month; particularly to B-3.

6 We've heard that there are a lot of
7 different proration units that are affected within the
8 buffer zone area. The West Lindrith is on 160 and, as we
9 can see in Exhibit B-3, we have 505's, 320's, and 187-acre
10 drainage radiuses set up by the different proration units
11 that are in existence within the Gavilan-Mancos portion of
12 that buffer zone.

13 So, what I did was I applied the drainage
14 radius calculation for drainage overlap to several different
15 scenarios.

16 If we look at F-4A, I took first the West
17 Lindrith Pool, the 160-acre drainage radius with the current
18 setback of 330 feet from the line and it calculates out that
19 41 acres of that 160-acre drainage radius occurs within the
20 Gavilan-Mancos portion of the buffer zone.

21 If I take the West Lindrith Pool at 160-
22 acre draiange radius and set it back at a 790 setback, this
23 reduces the overlap to 33 acres projecting into the Gavilan-
24 Mancos Pool.

25 Within the Gavilan-Mancos we have 640-

1
2 acre spacing on any new wells that are drilled in the area;
3 however, in the buffer zone it's already been established
4 that we're going to have two additional type of wells drilled;
5 either 187-acre proration unit, which has already been
6 drilled in Section 30, the Sun Full Sail No. 4, and there's
7 an open space in Section 19. Both of these are in 25 North,
8 2 West.

9 With the 790 setback the Gavilan-Mancos
10 lives by, that drainage overlap is 41 acres.

11 Sections 5, 6, 8, 7, 17, 18, and 31, 32
12 are 505-acre proration units. We're allowed to drill a
13 second well on that proration unit and divide the produc-
14 tion. That would account for a 252-acre drainage area for a
15 second well drilled within that proration unit.

16 With the 790 setback, the overlap of
17 drainage is 57 acres.

18 Now if I can refer you to Exhibit F-4B,
19 Mr. Chairman, this is a graphical presentation of this same
20 tabular data on the drainage overlap. I won't go into it in
21 too much detail but the hypothetical well in Section 7, 25
22 North, 2 West, would be a 252-acre drainage radius. I al-
23 ready noted that it's drainage overlap into the West Lin-
24 drith would be 57 acres.

25 Section 19, that well would be on 187-

1 acre proration unit. It's drainage overlap is 41 acres into
2 the West Lindrith.

3 Down in Section 25 of 25 North, 3 West,
4 we have a hypothetical well within the West Lindrith, set-
5 back 230 feet from the line and it shows that its drainage
6 radius extends into the Gavilan-Mancos Field by 41 acres.

7 And then in Section 13 I've shown two
8 160-acre drainage radiuses setback 790 from the line and, as
9 I noted earlier, that scenario gives 33 acres of drainage
10 overlap into the Gavilan-Mancos.

11 At first look one could say, well, gee,
12 the Gavilan-Mancos is enjoying something over the West Lin-
13 drith because they have 57 acres overlap into the West Lin-
14 drith and a 41 acre one, depending on if it's a 252-acre
15 drainage radius or 178 -- 187-acre drainage radius; however,
16 we would only be allowed to drill one well. In Section 13
17 they're allowed to drill two wells in the eastern half with-
18 in the buffer zone of the West Lindrith and each of those
19 only has a 33-acre overlap, but combining those two, that's
20 66-acre overlap into the Gavilan-Mancos; 66 acres versus 57
21 acres or 66 acres versus 41 acres; however, if there was no
22 buffer zone rules and we were at 330-acre setback, which is
23 the case as it stands now, West Lindrith would have two
24 wells at 41 acres each or 84 -- 82 acres versus 57 or 41
25 within the Gavilan-Mancos.

1 And I might just add one more point that
2 -- I think I mentioned it before but I want to point out
3 again that the way this development is to date, we're only
4 allowed to drill one -- one extra well within that 505 or
5 within that 187, so there is going to be two wells versus
6 one across the lines.

7 Q I now refer you to what's been marked
8 Exhibit F-5 and ask you to identify and explain this.

9 A Exhibit F-5 is a structure and production
10 map of an expanded area east and west of the buffer zone
11 area. I used the same structural datum mapping that I did
12 in my previous structure map of a month ago, only enlarged
13 the scale of the sections and I also included production
14 data for these wells.

15 The structure is based again on the top
16 of the Niobrara A zone and it shows the structural
17 configuration within the area, and as I've testified
18 earlier, I don't -- do not see a strict geological boundary
19 between the two pools, Gavilan-Mancos and the West Lindrith
20 from this structure map.

21 I have included on each of the wells that
22 we have production data some production figures. The first
23 number would be the initial potential, the initial potential
24 as reported to the State, and then the numbers below that
25 would be the cumulative oil and the cumulative gas produced

1 from these wells up to 10-1-87.

2 Q Would you like to point out what has oc-
3 curred with any individual wells shown on this map and indi-
4 cate where they're located?

5 A Yes. Mr. Chairman, the Gavilan-Mancos
6 produces only from the Mancos formation and the West Lin-
7 drith Gallup-Dakota is allowed to produce commingled Gallup
8 and Dakota; however, that is not the case in all wells. I
9 would like to point out the ARCO Gardner Federal 13-1 in the
10 southwest of Section 13, 25 North, 3 West. Mr. Roe talked
11 about this a little earlier today. I've listed both the
12 Gallup and the Dakota IP's. The G would be the Gallup and D
13 the Dakota, and also their production.

14 If we look now at the Dakota production
15 we see the well produced 860 barrels of oil, 2337 MCF of gas
16 strictly from the Dakota. The Dakota zone was plugged in
17 May of '87; recompleted only in the Gallup or Mancos inter-
18 val and has produced to date over 4000 barrels of oil and
19 24,509 MCF.

20 Okay, likewise, we can look in the south-
21 east of Section 23 of 25 North, 3 West, ARCO's ARCO Hill 23-
22 2, and it's in the southeast of Section 23, the same case
23 existed as with ARCO's Gardner Federal Well where the Dakota
24 produced about 600 barrels of oil. The Dakota zone was plug-
25 ged in May of '87. The well was subsequently recompleted

1 within the Gallup or Mancos interval only. It is currently
2 producing from the Mancos interval.

3 We also heard a little bit of testimony
4 about a well in Section 1 where the Dakota has been plugged
5 off. I just heard about that yesterday myself and I'm sorry
6 I haven't had time to verify that or to find out exactly
7 which well that is, but one of the wells in Section 1 is
8 producing only from the Mancos portion of the West Lindrith
9 Gavilan -- or Gallup-Dakota Field.

10 So in effect there are some of these West
11 Lindrith wells, one of them -- one proration unit offset of
12 the proposed buffer zone that is producing strictly out of
13 the Mancos interval.

14 I would also like to point out some of
15 the productive capabilities of some of the West Lindrith
16 Gallup-Dakota wells.

17 In particular, some of the latest wells
18 that have been drilled, Hixon has been very successful in
19 developing the West Lindrith Field. I don't know if -- how
20 they can attribute all their production, if it's placing
21 your wells in the proper area or completing them properly,
22 or both, or what, but the Bill Geiger No. 1 in the northwest
23 of Section 34, 25 North, 3 West, had an IP of 612 barrels of
24 oil per day and 657 MCF of gas per day. If that well was
25 allowed and it could produce what its IP is, it would be al-

1 lowable restricted based on the West Lindrith Gallup-Dakota
2 statewide rules.

3 Likewise, in the northwest of Section 35,
4 25 North, 3 West, Hixon (unclear) No. 1-5 had an IP of 5 --
5 520 barrels of oil and 460 MCF of gas. Again that produc-
6 tive capacity is greater than the allowable, the statewide
7 allowable for the West Lindrith Field.

8 There are several other wells that we
9 could look at that have those high productive wells.

10 ARCO has one, I'll just briefly mention
11 the location. It is in the southwest of Section 27, 25
12 North, 3 West, 420 barrels of oil per day.

13 The other thing that I would like to
14 point out from the production map is offsetting wells, their
15 productive capability, and this has been alluded to by both
16 yourself and other people that have testified today, that
17 you can have a very high productive well right adjacent to
18 the next proration unit, the well does not produce signifi-
19 cant quantities to be commercial or to pay out a well or
20 marginally be commercial.

21 Completion practices and/or location of
22 the wells have a lot to do with this. I just again wanted
23 to point out that certain wells are excellent producers off-
24 set by poor wells.

25 Q Did you hear Mr. Humphries statement to-

1 day that -- or at least his suggestion that maybe the indus-
2 try was inviting too much regulation and that perhaps Mesa
3 Grande motivation here was to benefit itself along the buf-
4 fer zone where no one else was benefitted?

5 A Yes, I did hear that.

6 Q I would like to refer you to Sun's exhi-
7 bit 30, on page 30 --

8 A Yes.

9 Q -- and 31, and ask you to explain, if you
10 will, whether or not you think this accurately reflects the
11 effect that Mesa Grande's proposal here for the buffer zone
12 allowables is clearly understood, and in this connection I
13 would also advise the Commission to also refer back to our
14 Exhibit B-3 that we've been referring to so you'll notice
15 where these wells are situated on the map.

16 A Mr. Chairman, the way I understand Sun's
17 exhibit, they were based on allowables based on a 640-acre
18 proration unit in the Gavilan-Mancos, which is all well and
19 good for any wells that are based on 640 acres.

20 If you'll look back at Exhibit B-3 you'll
21 notice that Sun's Loddy Well in Section 20, Sun's Full Sail
22 No. 3 in Section 29, both of 25 North, 2 West, are in fact
23 320-acre proration units, so when we look at their pages 30
24 and 31 in exhibit -- Sun's Exhibit Number One, we have to
25 adjust their proposed gas allowable line and their proposed

1 oil allowable line. As stated, they base this on a 640-acre
2 proration unit. These are 320-acre proration units. What
3 we would have to do is divide that gas allowable by -- by
4 half. In so doing, if we moved that proposed gas allowable
5 line down to approximately 7000 MCF per month, it's noted,
6 then, that the Loddy Well would be allowable restricted in
7 that its productive capabilities would not be realized be-
8 cause of Gavilan-Mancos rules.

9 Q I'd now refer you to the Full Sail Well
10 and ask you if you would do the same exercise based on that.

11 A Yes. In the Full Sail No. 3 Well on page
12 31, the example is exactly the same. That is a 320-acre
13 drainage or proration unit and again we would have to divide
14 both the proposed oil allowable and the proposed gas allow-
15 able by 2 and that again would be approximately 7000 MCF per
16 month, and if we dropped that proposed gas allowable line
17 down to where it should be, we would also note that the Full
18 Sail No. 3 Well would be allowable restricted.

19 So to answer your question, Owen, Mesa
20 Grande is not the only one that would be affected by our
21 proposal. The Full Sail 3 and the Loddy No. 1 of Sun's
22 would also be affected considerably.

23 Q All right. If I understood your testi-
24 mony, along the Gavilan-Mancos West Lindrith border line
25 within the Gavilan-Mancos Pool, there don't exist any 640-

1 acre proration units, do there?

2 A No, no, there is not, and that's why --
3 that way when you look at Sun's exhibits, you have to take
4 that into account, that 640 acres does not realistically ap-
5 ply to the Gavilan-Mancos side of the buffer zone.

6 Q I -- you -- did you hear Mr. Brostuen's
7 line of questioning this morning with respect to the effect
8 of not coming up with a solution might have on additional
9 drilling by industry, and in this connection can you explain
10 some of the problems Mesa Grande foresees if some solution
11 isn't adopted with respect to its drilling program along --
12 on its acreage along the buffer zone?

13 A Yes. Mesa Grande has some undeveloped
14 acreage along the buffer zone, specifically in Section 19,
15 25 North, 2 West, and which is a portion of a 187-acre pro-
16 ration unit, and then the Brown Well and the Marauder Well
17 are part of 505-acre proration units and at the operator's
18 discretion could drill a second well and divide that produc-
19 tion, having 252-acre allowables.

20 Well, in section -- in the 505-acre pro-
21 ration unit which the Brown Well is in, that well is allow-
22 able restricted in its production.

23 The West Lindrith people could drill, and
24 will probably drill sometime in the future, two wells in the
25 east half of Section 13. Without a buffer zone they could

1 put it at 303 -- the 330 acres -- excuse me, 330 feet from
2 the boundary and what we have proposed is 720 -- 290 feet
3 from the boundary.

4 Mesa Grande could drill a second well
5 within that 505 proration unit; however, with the Brown Well
6 already producing the allowable for the proration unit, we
7 wouldn't be allowed to produce that other well or we'd have
8 to cut the capacity of both of them, and economically, that
9 doesn't make a lot of sense to drill a well and to have it
10 sitting there because the other well on the proration unit
11 is producing at the allowable is an economic waste of the
12 company's money or producing it at a lower rate so both
13 wells can produce, is not a very effective means of invest-
14 ing money, yet the West Lindrith operators are able to off-
15 set within 330 or 790 feet from our proration unit where we
16 have a well sitting there well over a half a mile, close to
17 three-quarters of a mile away from that proration unit, and
18 don't -- I don't believe that that is an equitable situa-
19 tion.

20 We could go up to the Marauder Well in
21 Section 8, also on a 505-acre proration unit. That well is
22 not restricted by allowables yet but it's within 100 MCF of
23 its allowable restriction; therefor, if I was to propose a
24 second well in that 505 to offset two wells that would be
25 drilled in Section 12 of 25, 3, that well would have a maxi-

1 mum productive rate of 100 MCF a day, which figures out with
2 poolwide GOR's of the Gavilan-Mancos right now, at about 30
3 barrels a day.

4 Some people may be able to live with
5 those kind of economics but I don't think Mesa Grande can.

6 Q So is it your opinion that unless a
7 buffer zone and a realistic formula is adopted that Mesa
8 Grande cannot effectively protect itself against drainage
9 from probably wells that will be drilled on the West
10 Lindrith side of the line --

11 A That is correct.

12 Q -- under the current rules and proposed
13 rules.

14 A Yes.

15 Q I'd now like you to refer to what's been
16 marked Exhibit F-6 and ask you to explain this.

17 A Mr. Chairman, before you unfold F-6 and
18 cover up F-5, I would like you -- I would like to point out
19 to you that the Exhibit F-5 has the cross sectional trace of
20 this next exhibit on it and it is, in fact, an expanded
21 cross section of the one that I produced last month.

22 Q Last month you included the Reading &
23 Bates well and the Brown well.

24 A That's correct.

25 Q Now we're taking the two wells in the

1 east and west of it.

2 A As I said, Mr. Chairman, I expanded this
3 cross section to include to the east the Jerome P. McHugh
4 Janet No. 3 and I'm sorry, that should not be Sun Explora-
5 tion well, and to the west, the ARCO Gardner No. 13-1.

6 This is a stratigraphic cross section, as
7 the previous one was, to show the geological tops. The Com-
8 mission ordered pool boundaries and their vertical limits
9 and the perforated intervals within these wells and any pro-
10 duction data that I could -- could come up with.

11 I am sorry this isn't real current. At
12 the time that the -- I had to get this from my draftsman, I
13 had not yet got Sun's Septemer production and so production
14 on this cross section is the August data and will not match
15 the production data on Exhibit F-6.

16 I would like to point out again the -- on
17 the west side of this cross section, the ARCO well and I
18 would like to say that the Dakota interval, which I pointed
19 out earlier, was treated and has produced approximately 900
20 barrels of oil, subsequently plugged off and recompleted in
21 the Mancos interval and we were to correlate across to see
22 that the perforated intervals within all these wells are
23 very similar.

24 Q In your study of these logs that are
25 shown on this exhibit, and analysis, do you see any geologi-

1 cal distinction between the ARCO well, the Gardner, and the
2 Sun Janet No. 3, or for that matter, between or among any of
3 these?

4 A No, I don't. There is structure log --
5 electric log characteristics of all these wells, not only on
6 this cross section but all in the Gavilan-Mancos area and
7 into the West Lindrith, they are very similar and there
8 doesn't seem to be any difference to me.

9 Q In your analysis of the other wells shown
10 on Mesa Grande's F-5, and some of which you discussed, the
11 Hixon wells and what have you, do you find those wells per-
12 form in a manner characteristic of the wells in the western
13 part of the Gavilan-Mancos Pool?

14 A Very much so. I think it indicates the
15 amount of fracturing present.

16 Q So would you disagree with Mr. Kendrick
17 that by happenchance (sic) the Commission's decision to
18 place the pool boundaries along the township line happily
19 corresponds with the geological distinction?

20 MR. KELLAHIN: Mr. Chairman,
21 I'm going to object to this geologic witness talking about
22 well performance and the capacities of wells to produce un-
23 til he's qualified in that field.

24 MR. LEMAY: He's qualified as
25 an expert. I don't understand your objection.

1 MR. KELLAHIN: He's qualified
2 as a geologic expert.

3 MR. LEMAY: Correct, yes.

4 MR. KELLAHIN: Right, and he's
5 making a comparison now about the quality of production of
6 wells in the various areas.

7 MR. LEMAY: Oh, Mr. Kellahin, I
8 think a geologist can talk about production.

9 Q This exhibit does, in fact, reflect the
10 reported initial potentials of the wells as you've been able
11 to ascertain them?

12 A Yes, they are.

13 Q I think Mr. Kellahin interrrupted my last
14 question which was do you, in fact, disagree with Mr. Ken-
15 drick's statement that the administrative boundary line
16 along a township line happens to correspond with the geolo-
17 gical separation of the two pools?

18 A No, I do not.

19 MR. STOVALL: I object to that.
20 I don't believe he exactly and accurately reflects Mr. Ken-
21 drick's testimony and I object to the question.

22 MR. LEMAY: Okay. Mr. Lopez,
23 why don't you just ask him what he thinks about the geology
24 and the boundary line?

25 Q Do you think that there is exists a geo-

1 logic boundary or separation between the wells in Township
2 25 North, Range 2 West, and the wells in 25 North, 3 West?

3 A No, I do not, and I did testify to that
4 last month, that I do not see any good geological basis for
5 putting that -- those pool boundaries at that common point.

6 Q Do you see a third geological distinction
7 on the -- outside the eastern boundary of the Gavilan-Mancos
8 separating it from the West Puerto Chiquito?

9 A I -- I feel there is a good geological
10 boundary; however, it does not approximate where the admin-
11 istrative boundary currently exists.

12 Q Were Exhibits F-1 through F-6 prepared by
13 you or under your supervision?

14 A F-3.

15 Q Oh, F-3 through F-6, sorry.

16 A Yes, they were.

17 MR. LOPEZ: I would introduce
18 Mesa Grande's Exhibits F-3 through F-6.

19 MR. LEMAY: Without an objec-
20 tion they will be admitted into evidence.

21 Cross examination of Mr. Emmen-
22 dorfer?

23 MR. KELLAHIN: Just a few ques-
24 tions, Mr. Chairman.

25 MR. LEMAY: Okay. First Mr.

1 Kellahin, then Mr. Stovall.

2

3

CROSS EXAMINATION

4

BY MR. KELLAHIN:

5

Q Mr. Emmendorfer, let me refer you to F-5,

6

the structure map. The production information that you

7

have placed adjacent to each of the wells, the first number

8

on top is the initial potential for the well?

9

A That is correct.

10

Q To what use in your analysis of this is-

11

sue have you made of the initial potentials of the wells?

12

A Could you repeat that, please?

13

Q Yes, sir. You've drawn our attention to

14

the fact that you put the initial potential information ad-

15

jaacent to each of the wells and I asked you in making your

16

analysis what, if any, use you have made of comparisons of

17

initial potentials among or between wells.

18

A Well, I didn't -- I don't believe I com-

19

pared any of these wells, their initial potential to their

20

production here today. I just wanted to show what the re-

21

ported potential production of each of these wells were.

22

Q Correct me if I'm wrong. Was not the in-

23

ference made by a comparison of the initial potentials for

24

certain wells in the Lindrith to show their similarity in

25

initial potentials to wells in the Gavilan? Were you trying

1 to draw that comparison?

2 A That comparison could be drawn, yes.

3 Q Have you attempted to draw a comparison
4 between the actual producing rates of those wells in West
5 Lindrith with those in Gavilan?

6 A On a highly scientific basis, no.

7 Q Well, let's look at an unscientific basis
8 for a moment on Section 34 in the Hixon B Geiger Well No. 1?

9 A Yes.

10 Q You show an initial potential of 612 bar-
11 rels of oil per day?

12 A Uh-huh.

13 Q Are you aware on October 22nd of this
14 year the current producing rate for that well was 95 barrels
15 of oil per day?

16 A No, I'm not.

17 Q In Section 27 to the north on the ARCO
18 (unclear) No. 1 Well, the initial potential on that well is
19 420 barrels of oil per day?

20 A Uh-huh.

21 Q Are you aware that after two years of
22 production the current production on a daily oil rate is
23 about 25 barrels a day now?

24 A I -- I guess that's probably correct.
25 You probably have better sources than I do.

1 Q You've talked about the potential for
2 drainage between the two pools in response to one of Mr.
3 Lopez' later questions. Is -- is your opinion based upon
4 drainage, is that conditioned upon your earlier exhibits
5 that show your hypothetical drainage radiuses on some of
6 these displays?

7 A No, it is not.

8 Q Have you attempted to use the hypotheti-
9 cal drainage radiuses in reaching your conclusions about the
10 potential for drainage across the pool boundary?

11 A I don't know if I concluded any potential
12 for drainage across the boundary.

13 Q In looking at the drainage circles that
14 you've placed on Exhibit F-4B, when you described for the
15 acreage in Section 25 and 30 a 160-acre drainage radius, is
16 that simply a reference to the amount of surface acreage
17 that's either in Section 25 or Section 30?

18 A Not exactly.

19 Q All right, if you look at the 41 acres
20 that are shaded in yellow --

21 A Yes.

22 Q Have you simply planimetered the amount
23 of acreage contained within that circle that's on the east
24 side of that boundary line?

25 A No, I used a mathematical calculation,

1 which is more precise than planimetering.

2 Q Does the hypothetical drainage radius
3 include any actual geologic or engineering information
4 about the actual drainage that could be hypothecated for
5 this pool?

6 A I don't believe I understand your
7 question. Would you repeat that, please?

8 Q Certainly. I want to know if in
9 determining this drainage radius what assumptions the
10 hypothetical takes. Have you assumed a homogeneous
11 reservoir of uniform thickness having the same reservoir
12 characteristics contained within the circle?

13 A No, what I did was simplify the case
14 where you have drainage to a wellbore from a rectangular
15 proration unit and there is quite a few ways that we could
16 hypothesize that drainage occurs.

17 The most simple, and a way that most
18 governmental agencies look at drainage calculations, they
19 use the circular method.

20 Q And the circular method used by the
21 Bureau of Land Management is one that assumes a homogeneous
22 reservoir of a constant, uniform thickness of the same
23 reservoir characteristics.

24 A I can't say. I've never worked in the (
25 unclear).

1 Q Have you taken into consideration in the
2 drainage calculation the effect that production will have
3 from the Full Sail No. 4 Well that's within that drainage
4 circle?

5 A Again I did not look at actual drainage
6 between any well. It's just a hypothetical case of acre per
7 acre drainage approach, different size proration units.

8 Q If the hypothesis includes the existence
9 of the Sun Full Sail No. 4 Well, will that change the shape
10 of the drainage from a circle to some other shape?

11 A It could possibly. Both of those wells
12 would be competing against each other and that is the idea
13 of compensatory drainage.

14 Q How useful is this hypothetical radial
15 drainage calculation to us in discussing the fractured pro-
16 duction from wells in the Gavilan-Mancos when compared to
17 the West Lindrith?

18 A There has been testimony at previous
19 hearings that the fracture direction is multidirectional,
20 not one orientation. So I think it's still a circular
21 drainage radius probably until proven otherwise, an easily
22 visual method of determining drainage overlap.

23 Q Thank you.

24 MR. LEMAY: Mr. Stovall?

25 MR. STOVALL: Oh, Mr. Kellahin

1 did such a fine job I'll send him a check and pass the cross
2 examination.

3 MR. LEMAY: Additional ques-
4 tions of the witness?

5
6 QUESTIONS BY MR. LEMAY:

7 Q I have one I'd like to explore with you
8 just a little bit, Mr. Emmendorfer.

9 A Okay.

10 Q Assuming that -- that your Exhibits F-3
11 and F-4B were less diagrammatic as to or less applicable to
12 drainage and more of an encroachment, and as I understand
13 the position of Mesa Grande, or at least the testimony, that
14 your -- there's some inequity you feel because on the West
15 Lindrith side you can put two wells against one because you
16 have 160's versus roughly 320's; that if that situation
17 could be equalized to some extent by adjusting the setback
18 on the West Lindrith side to accommodate equal encroachment
19 on both sides.

20 A Encroachment, possibly. I think what you
21 would have to also deal with is the allowable situation.
22 Again, this is simple -- simplified diagram and maybe en-
23 croachment might be one way of looking at it, but we saw in
24 the testimony last -- last month with the disparities of the
25 allowables per MCF and barrels of oil per acre, that if in-

1 deed both sides of this line were able to produce at an
2 equitable or equal rate, then there -- I don't think there
3 would be a problem. I think the setback would take care of
4 that, but since there is a great disparity within the allow-
5 ables on a per acre basis, this encroachment idea does not
6 cover all of it.

7 Q But there again, assuming that all wells
8 in an area are below the allowable limits so the allowable
9 adjustment will not take place, if you're talking about
10 drainage or if you're talking about encroachment, either
11 one, would that tend to provide more equity, more protection
12 of correlative rights by adjusting acreage encroachment on
13 each side of the line separating the pools?

14 A Well, I don't think so. I see the prob-
15 lem not as what a particular well is capable of producing,
16 more of the -- the allowables on a per acre basis, tht's
17 where the equity needs to be addressed.

18 It is reflected sometimes in the amount
19 of production of a particular well but on a per acre basis
20 in a proration unit, and with the allowables, that is where
21 the disparity, as I see it, comes into play.

22 MR. LEMAY: I have no further
23 questions. Is there anything else? Redirect? If not, the
24 witness may be excused.

25 Is there anything further in

1 Cases 9226/9227?

2 How about statements in the
3 case? Would anyone in the audience like to make a statement
4 in the case that hasn't been examined?

5 Well, at this point let's wrap
6 it up with some concluding remarks. We'll reverse the order
7 of final statements, I think, and we'll start with Mr. Sto-
8 vall, then Mr. Kellahin, let's see, where do you come into
9 that, Perry?

10 MR. PEARCE: Wherever you put
11 me.

12 MR. LEMAY: Well, let's do it
13 Stovall, Pearce, Kellahin, and Owen, in that order.

14 MR. STOVALL: Maybe I'll stand,
15 I do better pacing.

16 Mr. Kendrick testified and as
17 my appearance indicates, I'm representing interest owners an
18 operators exclusively within the West Lindrith area of the
19 pool, or excuse me, within the West Lindrith Pool area of
20 this -- of this reservoir, and help, we want out. This sit-
21 uation, it's a correlative rights issue. It's a question of
22 the equal right as defined in the statute, the right of each
23 property owner to produce its just and equitable share of
24 the oil or gas or both in the pool.

25 Right now we're talking about

1 two separate pools. We're talking about the West Lindrith
2 Pool and we're talking about the Gavilan Pool. The problem
3 really arises in the Gavilan Pool. The problem arises in
4 the Gavilan Pool in that it has got a unique, unusual pro-
5 ducing mechanism within the reservoir, the fractured system
6 from which a large portion of the production comes.

7 I think the Commission certain-
8 ly knows more about the Gavilan Pool than I do. You've
9 spent a lot of time listening to it. The Gavilan problem,
10 the Gavilan operators, at least Mesa Grande, is now trying
11 to extend the Gavilan problem into the West Lindrith Pool
12 and there's no reason to do so, no basis in fact, no basis
13 in law.

14 Based on the definition of cor-
15 relative rights in the statute and upon the Commission's
16 mandate to protect correlative rights, there is no legal
17 reason to adjust the allowable within the West Lindrith Pool
18 because of reasons that exist outside the West Lindrith
19 Pool.

20 Even if you could create a jus-
21 tifiable reason for adjusting that allowable, there's no
22 reason to. There's no demonstrated reason to. This Commis-
23 sion can only enter an order based upon findings of facts,
24 evidence to support that finding. We've heard a lot of tes-
25 timony in this case; you've heard even more than I have.

1 The only proponents of the buffer zone are the Commission
2 witness, who spent a small amount of time, and primarily,
3 Mesa Grande Resources. They were on last month and they've
4 put on more evidence today.

5 None of the evidence that they
6 have put on supports the need for a buffer zone. They have
7 not demonstrated any harm to anybody from conditions that
8 exist in the reservoir that would justify a buffer zone to
9 protect operators in two separate pools.

10 You've heard substantial evi-
11 dence from other equally well qualified technical people
12 telling you that there is no evidence of the sort of prob-
13 lems, the sort of communication, the sort of interference
14 that has been found to exist in parts of Gavilan. There's
15 no pressure testing indicating that what happens in Gavilan
16 or West Lindrith affects the other pool. There's no evi-
17 dence of drainage of any kind. The producing rates of the
18 wells don't indicate a problem, and quite simply, if it
19 ain't broke, let's not fix it.

20 Gavilan may have a problem.
21 Gavilan apparently does have a problem. They've spent two
22 and a half years and untold thousands of dollars and many
23 hours of Commission time trying to determine what is the
24 best way to produce that pool. As often happens in a situa-
25 tion like that, there has been a compromise solution

1 reached; not everybody is happy with it.

2 Operators in Gavilan are unhap-
3 py because their production has been restricted down from
4 what it would be under a statewide allowable. The Commis-
5 sion made findings sufficient to support that. They're now
6 saying, okay, we've had to suffer restriction, let's take
7 that restriction and move it off over into another pool,
8 even though we have no sound engineering or geological
9 reasons for doing so.

10 What happens if you create a
11 buffer zone to the concept of correlative rights? You now
12 have West Lindrith Pool operators, a limited number of West
13 Lindrith Pool operators, who are no longer allowed to pro-
14 duce their ratable share of oil and gas in a reservoir. You
15 now have Gavilan operators who are allowed to produce more
16 than their ratable share of oil and gas in the reservoir.
17 That's contrary to the concept of the protection of correla-
18 tive rights.

19 Now there is some question
20 raised, I think, as to where the boundary should be between
21 West Lindrith and Gavilan. I think the evidence is general-
22 ly supportive of the idea that there's sufficient difference
23 in the reservoir characteristics between Gavilan and West
24 Lindrith to justify the existence of two pools. Exactly
25 where that boundary should be is unclear and I think the

1 Commission understands that it is kind of a gray area, and
2 administrative simplicity, perhaps, is a very good reason
3 for choosing the boundary at the township line. If in fact
4 there is a problem between West Lindrith and Gallup, (sic)
5 then perhaps it's with the boundary.

6 Now I don't advocate a change
7 of the boundary. I think it's a very logical and well sup-
8 ported location for the boundary. I think it should remain
9 as is.

10 Mr. Kendrick testified as to
11 the administrative burden of administering the buffer zone.
12 While that is not reason enough in itself not to create a
13 zone, a buffer zone, given the lack of any demonstrated need
14 for the buffer zone, that's certainly additional reason not
15 to take on a burden that's unnecessary for the protection of
16 anyone.

17 Mr. Kendrick also indicated
18 that there is no real, logical basis for the establishment
19 of a buffer zone as proposed. There are wells outside of
20 the buffer zone but within the same sort of reservoir situa-
21 tion that don't need a -- that are included in the buffer
22 zone protection and may need that protection.

23 They've simply taken a township
24 section line about a half mile on either side, essentially,
25 and said, this is where we propose to do it. It's not even

1 limited to the -- to the boundary between the two pools.
2 The Gavilan Pool does not extend the entire length of the
3 West Lindrith Pool.

4 Northeast Ojito abuts up
5 against what has been classified as some Gavilan wells.
6 There's no buffer zone proposal created there.

7 To the south we don't even know
8 for sure which pools some wells are in, although they've
9 been identified as Gavilan wells. Perhaps they belong in
10 West Lindrith. I don't know; I wouldn't propose to say.

11 From the standpoint of the
12 operators of West Lindrith there is simply no reason at all
13 to grant the relief requested in the application in Case
14 9226. There's no engineering or geological basis and there
15 are sound engineering, geological, and legal arguments for
16 not doing so.

17 The people I'm representing to-
18 day own substantial acreage along that buffer zone area.
19 They would like to be able to go in and develop that buffer
20 zone -- their property, and I shouldn't say buffer zone any
21 more. They would like to be able to go in and develop their
22 property. They would like the Commission to issue an order
23 telling them that they can do so under the rules of the pool
24 in which they are located. Now if we discover later on that
25 there's some need for adjustment, that's a new case. That's

1 not even a matter in evidence today.

2 We would ask that the Commis-
3 sion enter an expedited order denying the relief requested
4 in Case 9226. Quite frankly, we don't care what happens in
5 9227. Gavilan needs to deal with its problems within its
6 own pool and if an adjusted allowable is what they need to
7 do, then that's fine, but we believe that in 9226 the Com-
8 mission has no basis for entering an order which affects the
9 allowable or changes the setback within the pool and to do
10 so would be contrary to all of the evidence that has been
11 presented in this case.

12 Thank you.

13 MR. LEMAY: Thank you, Mr. Sto-
14 vall.

15 Mr. Pearce and/or Mr. Lund.

16 MR. PEARCE: Thank you, Mr.
17 Chairman, I'll try to be brief about Amoco's position in
18 this matter.

19 Amoco appears supporting a 790
20 setback on common boundaries lines between West Lindrith,
21 Northeast Ojito, and Gavilan-Mancos wherever those common
22 boundaries might appear. Presently the Northeast Ojito and
23 the Gavilan have 790 setbacks. Where the Northeast Ojito,
24 in which Amoco has all the interest bumped up against the
25 recently expanded West Lindrith, we think the 790 setback is

1 the appropriate spacing for wells drilled in the future. We
2 propose a grandfathering of any well that has already been
3 drilled closer than 790 at full allowable. We think Amoco
4 and the other companies who have drilled wells under differ-
5 ent spacing rules have invested money and should be allowed
6 to recover those sums with unrestricted allowables on those
7 wells.

8 Amoco opposes the imposition of
9 a buffer restriction on West Lindrith production. We think
10 there are four reasons why such an allowable restriction is
11 inappropriate.

12 First of all, and I suppose
13 primarily, as we have discussed, the West Lindrith wells in
14 large part are commingled with Dakota production. We've
15 heard conflicting evidence from different wells about how
16 substantial that Dakota production is, but we know that
17 close to this area there is substantial Dakota production.
18 We don't think an allowable restriction on the West Lin-
19 drith, which had the effect of penalizing Dakota production
20 is in any way justified. We also think that the recovery of
21 any West Lindrith well is presently being penalized to some
22 extent because we believe that the GOR in the West Lindrith
23 and -- excuse me, in the Dakota zone may be higher and that
24 has the affect of already reducing that production.

25 Second, we heard testimony to-

1 day that there may be a pressure sink in operation causing
2 flow from the West Lindrith to the Gavilan already. To im-
3 pose a further production restriction on those West Lindrith
4 properties only exacerbates that problem and causes a more
5 extensive drainage across that line.

6 We don't think that's appro-
7 priate.

8 Third, we have very little evi-
9 dence because of the limited development in the proposed
10 buffer zones. We don't know. If everybody has been talking
11 about well, maybe if we drill a well somewhere and maybe if
12 we get some level of production, maybe we'll have a problem.
13 I don't think maybes are an appropriate rule-making basis
14 for this body.

15 Fourth, we heard extended tes-
16 timony in the past about a fracture system being the predom-
17 inant production mechanism in the Gavilan. I expressed no
18 opinion on that at that time, at this time, but if that is
19 correct and if, as we've heard today, that fracture system
20 is less prevalent in the West Lindrith than it is in the
21 Gavilan, then once again any allowable restriction in the
22 West Lindrith will further penalize those wells unjustifi-
23 ably. We don't think that's appropriate.

24 We are concerned because of
25 testimony we've heard today that Sun's presentation based

1 upon averaging of well capabilities when we're confronted
2 with a situation when well capabilities vary so widely, mis-
3 ses the mark substantially. The way wells vary out here, we
4 don't believe averaging is any appropriate basis to make
5 predictions and I'm afraid we are not going to know what
6 wells out there will do until they're drilled and I don't
7 think that it is appropriate in the absence of that know-
8 ledge to put restrictions on those wells at this time.

9 Finally, Mr. Chairman, if the
10 Commission decides that a buffer zone of some kind is appro-
11 priate, there is a precedent in the Northeast Ojito Gallup-
12 Dakota Pool to the northwest of the Gavilan. A buffer zone
13 is in fact in place in that pool at this time. It was put
14 there largely because of different size spacing units; how-
15 ever, all of that buffer is in one pool. The parties did
16 not request, the Division did not find, that it was neces-
17 sary to have a buffer operate on both sides of a common pool
18 boundary in order to protect rights. We do not think that
19 is necessary or appropriate at this time. We believe that
20 if the Gavilan operators think some adjustment to allowables
21 between these pools is necessary, that all that adjustment
22 should be made on the Gavilan side of that boundary and that
23 the West Lindrith operators should be allowed to proceed and
24 develop their acreage.

25 Thank you.

1 MR. LEMAY: Thank you, Mr.
2 Pearce.

3 Mr. Kellahin.

4 MR. KELLAHIN: Thank you, Mr.
5 Chairman. Gentlemen of the Commission. I would like to be-
6 gin with the point that Mr. Pearce concluded with and that
7 is what precedent the buffer gas allowable established in
8 the Northeast Ojito has and what usefulness that might
9 present for us in resolving the issue between Gavilan and
10 Lindrith.

11 I would do just the opposite of
12 what Mr. Pearce has suggested. If you recall in the North-
13 east Ojito, that was a pool spaced on 160 acres in which it
14 had a higher gas allowable than the pool immediately to the
15 south spaced on 40's. The pool with the 40-acre spacing,
16 that allowable wasn't increased; conversely, it was the well
17 with the larger spacing with the higher allowable, and
18 that's the key, the higher allowable was reduced.

19 In the Gavilan area and West
20 Lindrith we have the West Lindrith with the higher allow-
21 able. It's an artificial, hypothetical, gas allowable;
22 why not reduce that?

23 Why? Because we have spent
24 hours before this Commission trying to prevent waste and
25 protect correlative rights in Gavilan and you have found

1 that Gavilan needed protection with restrictive rates.

2 Why use the artificial reason-
3 ing of a higher gas allowable in Lindrith as an excuse to
4 now bump up the gas allowable in Gavilan that you've spent
5 so much time controlling? It seems to gut the very under-
6 lying pinnings upon which Gavilan reduces -- production
7 rates were reduced.

8 How did we get here? Well, my
9 understanding and recollection is the Gavilan line got to
10 the township line first. When you look at the spacing in
11 that pool they were at the short tier of sections first with
12 the exception of Section 1 up near Northeast Ojito.

13 What has happened? By adminis-
14 trative act a significant portion of that no man's land
15 where it wasn't spaced, West Lindrith was jumped over.

16 When West Lindrith was moved
17 over to this common line, I believe the West Lindrith side
18 of that line ought to bear the burden of coming forward to
19 the Commission and proving that wells drilled within a mile
20 of that line on their side do not disrupt all the work
21 that's been done in Gavilan. I don't think that's unfair.
22 The wells in that buffer side on Gavilan -- on West Lindrith
23 now were permitted and drilled under Gavilan rules. They
24 have notice of that fact now. It's always easier to go from
25 wide spacing down to smaller spacing but if we don't control

1 what happens on the Lindrith side now, you'll lose control
2 of it. You'll lose all flexibility and all options to do
3 what you would like to do.

4 At the very least I would sug-
5 gest, and I concur with Mr. Lopez, that there ought to be at
6 least a very minimum distance of pool well locations along
7 that property line. 790 I think is a useful number; how-
8 ever, I suggest to you that within a mile on the Lindrith
9 side, within a mile, a mile and a half, or two miles, we
10 need to establish a procedure whereby if companies want to
11 drill on the Lindrith side in proximity to the Gavilan boun-
12 dary, that they're required to come before the Commission
13 and prove that their well once drilled and completed will
14 not adversely impact the drainage problems we have in Gavi-
15 lan. Put the burden on the applicant to come forward and
16 see that he justifies a higher gas allowable. Don't simply
17 give it to him now.

18 The evidence of Sun has shown
19 you there's no reason to do it.

20 I'm opposed to grandfathering
21 the wells in Lindrith. I think that ignores the problem.
22 There is a difficult problem to resolve in Section 1 with
23 the Minel wells in relationship in Northeast Ojito. I'm re-
24 luctant to grandfather those. I think without a particular
25 hearing with regards to the drainage influence among those

21 I'm very much concerned about
22 creating two gas allowables within the same pool, whether
23 you do it in Lindrith or whether you do it in Gavilan. I
24 think that's a serious, serious problem and unless you have
25 substantial evidence that drainage is occurring across the

1 boundary line between the two pools, I would urge you not to
2 take that action. I think it's very difficult to defend es-
3 tablishing different gas allowables within the same pool and
4 that's what will occur.

5 Within Gavilan internally
6 you're going to have an area in which the allowable is
7 higher than immediately offsetting Gavilan wells in admit-
8 tedly the same pool. That's a disparity that I think is not
9 warranted.

10 The question was whether or not
11 there is an economic incentive to do this. Do we need that
12 to encourage development in either Lindrith or in Gavilan?
13 Is there a reason to do it? The testimony has been there is
14 no reason to do it. The docket yesterday at the examiner
15 had a case on it for Mesa Grande. They were seeking a pool-
16 ing order for Section 14 in Gavilan. Under the restrictions
17 we are operating now they're willing to spend money and
18 drill wells.

19 Look at the development that's
20 going on in West Lindrith. It's not an impediment. They
21 are finding wells in there that are not capable of producing
22 high gas rates and they're drilling them anyway. I believe
23 that there's not a sufficient economic justification to
24 cause you to adopt a buffer gas allowable.

25 If you decide to do one, we be-

1 lieve that as fatally defective as it may be, the one pro-
2 posed to you by Sun is certainly more equitable. It's a
3 gradual percentage adjustment as we cross between the pools
4 and perhaps that works. We think it's significantly better
5 than the one Mr. Sweet proposes where the bumping of the in-
6 crements of volume, the disparity in going within Gavilan
7 from one level to another that's a change of 178 percent is
8 too great and not warranted.

9 We believe that you can write a
10 special pool rule order for West Lindrith that preserves
11 correlative rights, protects Gavilan, and allows the opera-
12 tors in West Lindrith to have fair and reasonable notice of
13 what they do when they begin to drill a well in proximity to
14 the adjoining pool.

15 We believe that that order can
16 be written without the use of a top gas allowable buffer al-
17 location. We don't believe that's warranted.

18 If you would like me to, I
19 would be happy to submit a draft order on this case.

20 Thank you.

21 MR. LEMAY: Thank you, Mr. Kel-
22 lahin.

23 Mr. Lopez.

24 MR. LOPEZ: Thank you, Mr.
25 Chairman. I'm sure, in fact I'm confident that the problem

1 that we're addressing here today is not one of Mesa Grande's
2 creation but is one of our opposition's creation.

3 We have consistently since the
4 outset resisted the imposition of restricted allowables in
5 Gavilan and we continue to think that the current special
6 pool rules are insane and we would hope that we would be
7 able to persuade the Commission to see the problem a little
8 differently come next spring.

9 The problem and it is incon-
10 ceivable to me that the Commission won't tackle it, the
11 problem seems to be so clear and so obvious, is one that my
12 counterparts seem to be refusing to address. There is no --
13 the Commission is clearly charged with the duty of preven-
14 ting waste and protecting correlative rights. I think the
15 facts before you are indisputable; that under the existing
16 scheme of things there is no question that the correlative
17 rights violation will come into question. We have several
18 basis for that conclusion.

19 The first, we have the setback
20 requirement and I must say that it is reassuring that al-
21 though all the opposition has suggested there's no need for
22 any buffer zone, they're all willing to agree that except
23 for the fact that we do need a buffer zone, at least for the
24 purposes of setback. There doesn't seem to be any question
25 with respect to the setback.

1 The second problem that you are
2 clearly confronted with is the difference in spacing rules
3 between the two pools. We have 160's on one side and a
4 hodge-podge but presumably 640's on the other, with the par-
5 ticular sections we're concerned with being of 505 makeup.

6 The most serious problem is the
7 one of the difference in allowable structures. We have been
8 curtailed to a 600-to-1 ratio in Gavilan whereas West Lin-
9 drith continues to produce at 2000-to-1 ratios. That gives
10 them in the West Lindrith a decided advantage. If we were
11 not so restricted in Gavilan, nothing would give me greater
12 pleasure than not to have the problem with us and let West
13 Lindrith continue to produce as they wish, but that's not
14 our problem We're having to deal with a problem of fair-
15 ness, of equality, of treating royalty owners, leasehold
16 owners, working interest owners on both sides of this imagi-
17 nary boundary as equally as possible under the existing cir-
18 cumstances. It's a problem that I think you must and have
19 to address.

20 The suggestion has been made
21 quite erroneously that Mesa Grande is motivated by its own
22 self-interest with respect to the Brown Well. Well, this is
23 one of those situations where we find ourselves rather naked
24 because we came to the Commission originally in this hearing
25 after meetings in Farmington where it seemed to be a

1 consensus developing among all attending those meetings, and
2 I think you will know as well as I do, and a suggestion was
3 made that somebody should come up with a suggestion to solve
4 the problem, and that was a bona fide effort that we made in
5 the first day of these hearings.

6 All of a sudden everybody had
7 run for cover. It is clear from the testimony of Mr.
8 Emmendorfer that the wells in Section 8, 17, 20, and 29, all
9 will be benefitted and two of those are Sun's wells and two
10 of those are our wells, if there is some formula adopted as
11 we have suggested or even as Sun has suggested.

12 The problem, however, becomes
13 the one that Mr. Emmendorfer also tried to explain. The
14 existing wells in our 505-acre units that border the
15 boundary line already are being restricted on production and
16 what madness it would be to go and drill a second well at
17 our option on that when it wouldn't be able to be produced
18 at all or we'd have to further curtail the producing well
19 and produce presumable the newly drilled well at
20 tremendously curtailed rates.

21 This in comparison to the
22 ability of the West Lindrith operators to drill right along
23 the border line and produce at much higher allowables. The
24 clear violation of correlative rights is so transparent it
25 defies explanation.

1 Mr. Pearce has suggested on be-
2 half of Amoco several reasons why the buffer zone and the
3 formula suggested with respect to adjusting allowables
4 should not be adopted.

5 One is that the West Lindrith
6 is allowed to commingle its Dakota production with its Man-
7 cos production. I think an examination of the wells on both
8 sides of the buffer zone will indicate to the Commission
9 that the supposed contribution of the Dakota is not a
10 problem at all. The problem is the fact that there does not
11 exist, as clearly demonstrated by the cross section, any
12 geological distinction between the wells in the tier of sec-
13 tions in both pools adjoining the boundary line and the Da-
14 kota production on either side of that very boundary line
15 we're discussing is not of significant note.

16 There has been a suggestion
17 made here today that in fact the -- there's a pressure sink
18 for the benefit of the Gavilan and if the Gavilan is going
19 to do anything, it's going to drain West Lindrith.

20 I would suggest to the Commis-
21 sion that a clear and accurate review of the record will
22 show that any such suggestion is based on flimsy or nonexis-
23 tent evidence. In point of fact, we have no idea what the
24 difference between the pressures on the West Lindrith side
25 of the border are and those in Gavilan. We do have good

1 pressure information in Gavilan. We have virtually no pres-
2 sure information in West Lindrith and there's no dispute
3 that there's been almost no development along the West Lin-
4 drith portion of the common border.

5 There has been a suggestion
6 with respect to my or our argument that unless the situation
7 is corrected that there will be a chilling effect on any
8 economic development clearly that Mesa Grande would envision
9 and undertaking on its acreage in the Gavilan because there
10 was a case where we were seeking to drill a well before the
11 Division yesterday. It is clear with all these wells that
12 are being proposed to be drilled are on 640-acre spacing
13 where they have the maximum benefit of the restricted allow-
14 ables in the Gavilan and that none of these wells are simi-
15 lar or comparable to the problems we're addressing along the
16 buffer zone in the Gavilan.

17 The final point I would like to
18 make is not that it's so transparently clear that there does
19 exist a serious correlative rights problem, one of Sun's and
20 McHugh's making because of their successful exercise in per-
21 suading the Commission that their view of the producing
22 characteristics of the Gavilan, at least so far, are more
23 meritorious than those that we have been promoting, but
24 there is the suggestion that we can wait and not have any
25 rules to play with but address the problems on a case-by-

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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