

STATE OF NEW MEXICO
 ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
 OIL CONSERVATION COMMISSION

| | |
|-------------------------------------------|-------------------|
| IN THE MATTER OF THE HEARING CALLED BY) | |
| THE OIL CONSERVATION COMMISSION FOR THE) | |
| PURPOSE OF CONSIDERING:) | |
|) | |
| APPLICATION OF NEARBURG EXPLORATION) | CASE NO. 12,622 |
| COMPANY, L.L.C., FOR TWO NONSTANDARD) | |
| GAS SPACING AND PRORATION UNITS,) | |
| LEA COUNTY, NEW MEXICO) | |
|) | |
| IN THE MATTER OF THE HEARING CALLED) | CASE NO. 12,908-A |
| BY THE OIL CONSERVATION DIVISION) | |
| FOR AN ORDER CREATING, CONTRACTING,) | |
| REDESIGNATING AND EXTENDING THE) | |
| VERTICAL AND HORIZONTAL LIMITS OF) | |
| CERTAIN POOLS, LEA COUNTY, NEW MEXICO) | |
| _____) | (Consolidated) |

REPORTER'S TRANSCRIPT OF PROCEEDINGS

COMMISSION HEARING (Volume I: Monday, October 21st, 2002)

BEFORE: LORI WROTENBERY, CHAIRMAN
 JAMI BAILEY, COMMISSIONER
 ROBERT LEE, COMMISSIONER

October 21st and 22nd, 2002
 Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Commission, LORI WROTENBERY, Chairman, on Monday, October 21st, 2002, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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A P P E A R A N C E S

FOR THE COMMISSION:

STEPHEN C. ROSS
Assistant General Counsel
Energy, Minerals and Natural Resources Department
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

FOR NEARBURG EXPLORATION COMPANY, L.L.C.; GREAT WESTERN
DRILLING COMPANY; CL&F RESOURCES, INC.; and OVERRIDING
ROYALTY INTEREST OWNERS WAYNE NEWKUMET, JAMES D. BROWN,
BRENT HILLIARD, WENDELL CREECH and DAVID ALDERKS:

HOLLAND & HART, L.L.P., and CAMPBELL & CARR
110 N. Guadalupe, Suite 1
P.O. Box 2208
Santa Fe, New Mexico 87504-2208
By: WILLIAM F. CARR

FOR RAPTOR NATURAL PIPELINE, L.L.C.:

MILLER, STRATVERT and TORGERSON, P.A.
150 Washington
Suite 300
Santa Fe, New Mexico 87501
By: J. SCOTT HALL

FOR REDROCK OPERATING, LTD., CO.:

KELLAHIN & KELLAHIN
117 N. Guadalupe
P.O. Box 2265
Santa Fe, New Mexico 87504-2265
By: W. THOMAS KELLAHIN

* * *

1 WHEREUPON, the following proceedings were had at
2 9:00 a.m.:

3 CHAIRMAN WROTENBERY: This is a special
4 Commission hearing. It's Monday, October 21st, 2002.
5 We're in Porter Hall in Santa Fe, New Mexico.

6 I'm Lori Wrotenbery, I serve as Chair of the Oil
7 Conservation Commission.

8 To my right is Commissioner Jami Bailey. She
9 represents Land Commissioner Ray Powell here.

10 And to my left is Commissioner Robert Lee, who is
11 the Secretary of the Energy, Minerals and Natural Resources
12 Department's designee on the Commission.

13 We also have to our far right Florene Davidson,
14 the Commission's secretary. And Florene, you can get us
15 started here, and then if you would like to excuse
16 yourself, that would be fine.

17 To Dr. Lee's left is Steve Ross, the Commission's
18 legal counsel.

19 And then Steve Brenner will be recording the
20 proceedings here for us today.

21 We have two cases for this special Commission
22 hearing. One is Case 12,622. This is the Application of
23 Nearburg Exploration Company, L.L.C., for two nonstandard
24 gas spacing and proration units in Lea County, New Mexico.
25 This case is being heard *de novo* by the Commission upon

1 Application of Nearburg Exploration Company.

2 We also have another case consolidated with Case
3 12,622, and that's Case 12,908-A, which is in the matter of
4 the hearing called by the Oil Conservation Division for an
5 order creating, contracting, redesignating and extending
6 the vertical and horizontal limits of certain pools in Lea
7 County, New Mexico.

8 The portion of that case that related to the East
9 Grama Ridge-Morrow Gas Pool and the Grama Ridge-Morrow Gas
10 Pool was severed from the rest of the case and reopened for
11 consideration here today.

12 And at this point I'll call for appearances.

13 MR. CARR: May it please the Commission, my name
14 is William F. Carr. I'm with the Santa Fe office of
15 Holland and Hart, L.L.P. We represent Nearburg Exploration
16 Company, L.L.C.; Great Western Drilling Company; CL&F
17 Resources, Inc.; and the following overriding royalty
18 interest owners: Wayne Newkumet, James D. Brown, Brent
19 Hilliard, Wendell Creech and David Alderks.

20 CHAIRMAN WROTENBERY: Thank you, Mr. Carr.

21 MR. HALL: Madame Chair, Commissioners, good
22 morning. Scott Hall of Miller, Stratvert and Torgerson,
23 Santa Fe, appearing on behalf of Raptor Natural Pipeline,
24 L.L.C.

25 CHAIRMAN WROTENBERY: Mr. Kellahin?

1 MR. KELLAHIN: Members of the Commission, my name
2 is Tom Kellahin. I'm an attorney with Kellahin and
3 Kellahin here in Santa Fe, and I represent Redrock
4 Operating, Ltd., Co. They spell it C-O-period.

5 CHAIRMAN WROTENBERY: Thank you, Mr. Kellahin.
6 Any other appearances?

7 Okay, gentlemen, I presume that you would like to
8 make opening statements --

9 MR. CARR: I would.

10 CHAIRMAN WROTENBERY: -- but I haven't heard from
11 you on that particular point. Is that correct?

12 MR. CARR: That's correct.

13 CHAIRMAN WROTENBERY: Mr. Carr, would you like to
14 start?

15 MR. CARR: Yes, ma'am.

16 May it please the Commission, as you listen to
17 the testimony today, at first this may sound like a
18 complicated case. But as the record develops, I think you
19 will find at the core it is very simple. There are only
20 two questions, in the final analysis, that you must decide.

21 The first question is whether or not Section 34
22 in the Morrow formation is one reservoir or two pools.
23 Should it be divided through the center of the section,
24 with the west half being the Grama Ridge-Morrow Pool and
25 the east half being the East Grama Ridge Pool?

1 The second question for you to decide is whether
2 or not there is an existing spacing unit that covers the
3 east half of Section 34.

4 The answers to those questions will, in fact,
5 dispose of every issue brought before you here today.

6 The evidence in this case is going to show that
7 the State oil and gas lease covering the north half of
8 Section 34 terminated in 1999. At the December, 1999, oil
9 and gas lease sale, that property was put up for bid. The
10 bid contained no stipulations, even though a portion of the
11 formations covered in the west half of the section are
12 committed to the Grama Ridge Gas Storage Unit.

13 Great Western Drilling was the successful bidder.
14 The lease was issued January 1, year 2000, and a portion of
15 that lease was sold to Nearburg and CL&F Resources.

16 In March of 2000, a well was drilled in the
17 northeast quarter of this section. It was drilled pursuant
18 to an approved APD, an APD approved by the OCD with an
19 acreage dedication plat that dedicated to the well the
20 north half of the section. It was drilled, completed, the
21 OCD authorized the transportation and production from this
22 well, and the production proceeds were shared by the owners
23 in the north half of the section.

24 In July Nearburg received a call from the OCD,
25 and they were advised that there was a problem with this

1 spacing unit, because Section 34 was divided in the center,
2 with the west half of the section being in the Grama Ridge-
3 Morrow Gas Pool, the east half being in the East Grama
4 Ridge Pool, and you couldn't have a spacing unit that
5 overlapped a pool boundary.

6 In response to this, Nearburg filed an
7 administrative application seeking the creation of two
8 nonstandard units, a 160-acre unit in the northeast quarter
9 to be dedicated to their well, and a 160-acre unit in the
10 southeast quarter to be dedicated to an old well that at
11 that time was owned by EOG.

12 There was an objection to this Application filed
13 by Redrock. Redrock, as the record will show, owns a 10-
14 percent overriding royalty interest in the south half of
15 the section. And because of the objection, this case came
16 for hearing.

17 There were two hearings, in June and July of
18 2001. And at the end of the July hearing the Nearburg well
19 was ordered shut in, and it stayed shut in to this day.

20 An order was entered in that case in May of this
21 year. And although the order denied the Application of
22 Nearburg for the two nonstandard units, we submit to you
23 that in the findings the OCD actually got it right and
24 pointed the way through this mess. It denied the two
25 nonstandard units.

1 But it found that all past and any future Morrow
2 gas production from the Nearburg Grama Ridge East "34"
3 State Number 1 well should be allocated to, one, either the
4 north half of Section 34 or the east half of Section 34.
5 But it observed that if the north half was to be dedicated,
6 this would depend on the necessary adjustment to the pool
7 boundaries to be sought through the Division's nomenclature
8 process.

9 Nearburg contacted the Division in Hobbs. They
10 asked, What is the Division's nomenclature process? And
11 they were told that was something that was done by the
12 Division. They asked if they needed to provide data, and
13 they were told no.

14 And on the August nomenclature hearing there were
15 the paragraphs that were severed and are before you today
16 that would, in effect, have moved the pool boundary from
17 the center of Section 34 over to the eastern boundary of
18 Section 34.

19 This, in fact, takes us to the central issue in
20 this case: Is the Morrow formation under 34 one well or is
21 it two -- I mean, one pool -- Is the Morrow under 34 one
22 pool or is it two?

23 And if it's one pool, the north half of this
24 section can be dedicated to the well, and the people who
25 paid for, found the prospect, drilled the well, will share

1 in production.

2 If the pool boundary is not moved because of a
3 fault that in 1979 was postulated through the center of
4 this section, then the east half will have to be dedicated.

5 And so that's the central question. And to get
6 to the bottom of that, you're going to have to look at
7 geological data and engineering information.

8 I'm afraid, however, that this hearing may drift
9 far beyond that, because I suspect we're going to hear lots
10 of what I would characterize as Nearburg-bashing, about
11 mistakes that were made as we move through this process.
12 And there are mistakes.

13 You know, it's said of lawyers that if they don't
14 have the law, they argue the facts. If they don't have the
15 facts, they argue the law. If they have neither the facts
16 nor the law, they just argue. And I think in a real sense
17 you're just going to hear people arguing, because there
18 have been mistakes.

19 If we had checked the Land Office records, we
20 would have discovered the storage unit was extending under
21 part of this lease. If we had checked the OCD records, we
22 would have known the pool was divided.

23 If the Land Office had issued the lease or the
24 bid with the stipulation noting it was in the Grama Ridge
25 Unit, it might have been different.

1 If the OCD had caught the change in the
2 overlapping pool boundary when the APD and acreage
3 dedication plat were approved, it might have been
4 different.

5 And even if Raptor had looked at the Land Office
6 records, they would have discovered that this east-half
7 unit that they're going to talk about was terminated in
8 1991. And we're going to hear all about that.

9 But the real questions for you are going to be
10 geological and engineering in character. And the
11 geological information that we're going to present is going
12 to show you that not only is there no fault running through
13 this section, the very people who said there was a fault in
14 1979 six months later drilled a well across the fault and
15 found they were in pressure communication.

16 We're going to show you that we have a small
17 marine deposit that runs across the north half of the
18 section.

19 And then we're going to put on engineering
20 testimony that shows you there is pressure communication
21 across the section, and we're going to put on volumetric
22 information which fits the recoverable which -- the
23 reserves into the pod which falls in the north part of this
24 section.

25 And so that is what we're going to ask you to

1 look at in deciding the first question: Is this one pool
2 or is it two?

3 But then there's a second issue. Redrock talks
4 about a historic east-half unit, and on that issue I will
5 submit to you that again the Oil Conservation Division,
6 when they heard this, they got it right.

7 And what they found as to the existence of an
8 east-half unit was that the well in the southeast quarter
9 originally had dedicated to it the east half of the
10 section. But they found that the well last produced in
11 1991, that the communitization agreement was terminated by
12 the State Land Office, effective March 31, 1991. And then
13 they say, this 320-acre unit ceased to exist when the well
14 stopped producing and the communitization agreement
15 terminated.

16 We submit they got it right. When you look at
17 the Rules, the OCD defines an existing spacing unit as a
18 spacing unit on which there is a producing well. This well
19 has not produced since 1991. That's the second thing that
20 the Division, we believe, got right and we will ask you to
21 find again.

22 You know, this is not just a fight between
23 Redrock and Nearburg. They're the royalty interest owners
24 involved who originally generated the prospect and brought
25 it to Great Western Drilling. If a north-half unit is

1 approved, they will share and receive their full royalty
2 interest. If an east-half unit is approved, the record
3 will show their interest will be cut in half.

4 And so at the end we're going to ask you to move
5 the pool boundary, to recognize that there is no spacing
6 unit, and permit us to dedicate the north half. And if we
7 dedicate the north half, those who developed the prospect
8 and drilled the well will share in production proceeds. We
9 will share it among those who found this and who own the
10 properties under which the reserves are located.

11 But Redrock comes along, and they want something
12 else. They want the southeast quarter dedicated to the
13 well. It's sort of like the story of the little red hen.
14 They want to come along after it's all done, after we have
15 found the prospect, drilled it and proven it, and now they
16 want to come to the table and share. They, as the evidence
17 will show, bring nothing with them, for the acreage they
18 want to dedicate really does not contribute significant
19 reserves to the well.

20 And those are the questions before you. And we
21 believe at the end the record will be clear that the
22 boundaries should be moved and that Nearburg should be
23 allowed to go forward and turn the well back on, on a
24 spacing unit like the one it originally attempted to
25 dedicate to the well.

1 CHAIRMAN WROTENBERY: Thank you, Mr. Carr.

2 Mr. Kellahin?

3 MR. KELLAHIN: Madame Chairman, you're going to
4 find that Mr. Carr and I disagree on many things today.
5 We're going to disagree on the issues, and we're going to
6 disagree on what are key, essential issues to decide.

7 The one thing that we can agree on is that
8 Nearburg has made a big mess. We're not going to dwell on
9 that, it's going to be there in front of you. You can see
10 how they got into this.

11 And then we're going to tell you what the key
12 parts of this case are that you need to decide. Mr. Carr
13 didn't tell you any of it.

14 When you look at why we're here, we represent an
15 overriding royalty owner in the south half of Section 34.
16 Back in 1997 and 1998 they retained a 10-percent overriding
17 royalty in the south half. That override, if the spacing
18 unit is the east half of Section 35, will entitle them to a
19 5-percent interest in the Nearburg well.

20 Nearburg made this mistake in November of the
21 year 2000. Until then, Section 34 was treated as a
22 collective Morrow reservoir. It was not vertically
23 subdivided. The entire section was the Morrow.

24 The east half of that section was separated off
25 and identified by a different name. That was called the

1 East Grama Ridge. The west half of that section was in the
2 gas storage unit.

3 So when I talk about the west half of that
4 section, I'm talking about the pool in which the gas
5 storage operates their wells.

6 And historically, then, it's been divided only
7 vertically in segregating the half-sections. But when you
8 look at the layers, the Commission up to now has always
9 treated this as a single package for regulatory purposes.
10 We don't subdivide the Morrow into its subsections, we
11 don't take the middle Morrow and take it and subdivide it
12 further.

13 You're going to be asked by Nearburg to take that
14 Morrow and subdivide it into a single stringer, and to then
15 dedicate the well to production from that stringer. The
16 stringer they want to carve out they call the GRE sand.
17 And when you look at the type logs and the cross-sections,
18 you're going to find that they've taken the Morrow,
19 subdivided it into the upper Morrow and the lower Morrow,
20 and just at the base of the lower Morrow they have a little
21 Morrow stringer that they call the GRE sand. It's about 10
22 feet below the base. And that's the little stringer they
23 say is productive in this well. And they've produced over
24 a BCF of gas out of that well.

25 The two critical things that they need to satisfy

1 you of are that you must subdivide the Morrow, carve out a
2 tiny piece and allow them to dedicate that to the well.

3 In order to do that, you're going to have to
4 ignore the fact that historically we've assigned 320 acres
5 to the Morrow. That was the historic distribution.

6 The first well in the east half was the Llano
7 well, in the southeast quarter. That well made over 4 BCF
8 of gas out of the lower B Morrow. It was shared with the
9 owners, historically, in the northeast quarter section.
10 That well has been abandoned after 20 years of production,
11 and it's not produced, I think, in the last ten years.

12 But the issue is, do we now create the
13 opportunity for Nearburg and others to find infill wells
14 under Rule 104 and now carve out individual stringers?

15 You remember a couple years ago we came back
16 before you with an infill proposition for the Morrow so
17 that you could have a second well. Has the time come where
18 we're going to subdivide these and single out a single
19 stringer?

20 But in order to make that work, Nearburg has to
21 demonstrate to you that that stringer doesn't extend into
22 the southwest quarter -- I'm sorry, into the southeast
23 quarter. Mr. Stogner found that it did and denied their
24 Application.

25 The other thing that they have to do is to

1 demonstrate that there is no fault that separates the half
2 section.

3 Let me take Mr. Carr's exhibit that fell on the
4 floor, and let's see if we can put this back together.

5 Nearburg's divided Section 34, north half, south
6 half. The Nearburg well is up here in the northeast
7 quarter.

8 Down here in the southeast quarter is what we
9 call the Llano "34" Number 1 well, this well.

10 The gas storage well that will be discussed, the
11 most immediate one in Section 34, is the Number 2 well over
12 there. That's the Number 2 well.

13 The deposition and the geologic organization of
14 the Morrow is a north-south-trending system, except when
15 you get to Nearburg's interpretation of the GRE sand.
16 Instead of having a north-south orientation, they take that
17 sand and they twist it, they twist it to the wells. And
18 they do that so that they can argue that that sand doesn't
19 extend down into the southeast quarter of the section.

20 If they succeed in doing that, their reservoir
21 also extends over into the northwest quarter of the
22 section, and now they're up against the fault problem that
23 Mr. Carr mentioned. They're going to have to argue that
24 this fault that runs like that is not there. Their pod is
25 going to be shaped this way. And when Dr. Lee looks at the

1 material balance calculations he will recognize that the
2 engineer for Nearburg, in order to make the numbers
3 balance, has got to include the GRE reservoir that's on the
4 other side of the fault.

5 So that's why they want the fault to disappear,
6 and that's why they want you believe that the orientation
7 is inconsistent with regional deposition.

8 What they want you not to know is that there is a
9 mud log, there is a mud log on the Llano well in 34. It's
10 the Number 1 well. There's a mud log that they want to
11 ignore, because if you ignore it, then you don't have to
12 draw the Morrow GRE sand the way it should be drawn, which
13 is to extend it in this fashion and pick up this well.

14 So we're going to spend a lot of time looking at
15 that mud log. It's in our exhibit book as B-9, I believe,
16 and you'll be able to see that and make your own conclusion
17 about why they've chosen not to include that in their
18 interpretation.

19 So they kind of do a whole bunch of things.
20 Principally, they have to convince you the orientation is
21 different than what it ought to be, they have to get you to
22 ignore the mud log, and they have to make the fault go
23 away.

24 This case really looks a lot like a case we did
25 back in December. You may remember the Sapient case. Mr.

1 Carr just argued my case for me in that case, and I'm going
2 to argue his in this case. We've just flipped sides.
3 Similar problem, same type of thing.

4 But what we're doing here is dealing with an
5 operator who fails to check at the time they get their APD
6 and commence drilling their wells to know what's going on
7 in Section 34.

8 Nearburg did not check to see what spacing wells
9 were in the section, did not even know about the gas
10 storage unit, did not check any of these wells, and just
11 proceeded to get an APD approved.

12 Unfortunately, the Hobbs Office of the Division
13 approved the APD. They didn't do Nearburg's homework for
14 them, didn't catch it, didn't recognize that the proposal
15 subdivided the section so that it conflicted with two
16 pools.

17 That boundary has historical significance to you
18 because it wasn't just put there arbitrarily. For years
19 the Commission has recognized the north-south based upon
20 Llano's earlier work and what we believe is still the
21 current interpretation that they're fault-separated.

22 The idea was to have a regulatory trigger to
23 protect the storage unit from any other Morrow development
24 around it, so that if you looked and found that part of
25 your spacing unit was subject to the Grama Ridge-Morrow

1 Pool and looked at those special pool rules, which are very
2 specific about this, you'll know that you're about to
3 dedicate part of a spacing unit that's already included in
4 a gas storage unit.

5 And if you look at the gas storage well down in
6 the southwest quarter of the section and look at its
7 dedication, it's a west-half dedication. Between producing
8 and injection, that spacing unit is still there. And while
9 the spacing unit on the west side may have gone away, you
10 at least need to make inquiry about what you have available
11 for yourself.

12 So rather than do that they say, We're going to
13 file for a nonstandard unit of 160 acres. And that's where
14 they go.

15 They complete the well in June of year 2000.
16 They wait until January, some seven months later, to file
17 for the NSP's, and then they continue to produce the well
18 until June of year 2001, at which time Mr. Stogner shut
19 them in. During that period of time they produced over a
20 BCF of gas.

21 We think that you ought to do what the Commission
22 historically does. And even if you only want to look at
23 the GRE sand, that GRE sand in the Morrow in the Nearburg
24 well is draining the southeast quarter, and we are
25 contributing in our way. We're not taking advantage of

1 them. I wish they'd come to see us before they did it, but
2 they did it, and we're entitled to share in that.

3 You orient spacing units to provide the maximum
4 opportunity for those owners to share in that production,
5 and you don't create the unusual solution of a precedent by
6 carving out 160 acres, as Nearburg suggests that you
7 should.

8 There was Land Office involvement. You'll see
9 the correspondence shows that Nearburg went back to the
10 Land Office, tried to work out waivers for the nonstandard
11 proration unit.

12 When you get down and look at the punch line the
13 Land Office simply said, We don't have any objection to the
14 nonstandard unit if everyone else agrees. Well, everyone
15 else doesn't agree.

16 If there's a dispute, the Land Office letter says
17 -- it's the December 11th, year 2001, letter -- they simply
18 say, We believe -- that's the Land Office -- that all these
19 issues should be resolved by the Division.

20 The Division has resolved it before the Examiner.
21 We're asking you to do the same thing, and to require the
22 dedication of the east-half to the well, which is the
23 logical solution. There's no reason to change the pool
24 boundaries.

25 Nearburg simply needs to account for the mistake,

1 pay us our share and let this thing go on.

2 Thank you.

3 CHAIRMAN WROTENBERY: Thank you, Mr. Kellahin.

4 Mr. Hall?

5 MR. HALL: Madame Chair, Commissioners, I
6 anticipated that you would like to have some explanation of
7 the role of the gas storage facility in the context of this
8 dispute, and if you will allow me some latitude, what I
9 would like to do is make some extended comments and go
10 through my exhibits and try to place that all into context
11 for you. I have no witnesses, but if you will allow me to
12 do that, I believe I can do that in 20 minutes or so.

13 CHAIRMAN WROTENBERY: Would you like to do that
14 now or --

15 MR. HALL: Yes, if I might.

16 CHAIRMAN WROTENBERY: Okay, that sounds fine.

17 MR. HALL: Madame Chairman, Commissioners, my
18 first involvement with the Grama Ridge-Morrow gas storage
19 facility began well over two years ago when I was contacted
20 by LG&E Natural Pipeline, L.L.C. -- it's Louisville Gas and
21 Electric -- to help them prepare this facility for
22 divestiture of the facility as a FERC-certificated gas
23 storage and transportation facility. And it had a number
24 of legal defects, and that's why they came to me.

25 When I first looked at the nature of this

1 facility, conceptually it was difficult to understand
2 legally. It is unique, because it possesses the attributes
3 of both a traditional production unit as well as a gas
4 storage facility.

5 I think if we can run through the exhibits, I can
6 give you the history. That will help explain that to you.

7 If you will turn to Exhibit 2, that is an order
8 from 1964. It's Order R-2792, and that's the Division's
9 first order -- the Commission, rather -- it's their first
10 order approving of this -- what was originally an
11 exploration unit at the time.

12 If you will turn now to our Exhibit 5, that is
13 Order Number R-4473, issued in 1973. And it was at that
14 point in history that the operators of the unit, then
15 Llano, sought to convert the facility to a gas storage
16 facility.

17 Exhibit 6 is the order, also issued in 1973,
18 authorizing gas injection operations, and that is Order
19 R-4491.

20 Now, how does an operator go about converting a
21 production unit to a gas storage unit? It wasn't easy, and
22 when we delved into this problem it took us a long time to
23 understand what had happened. Some of the history and the
24 background of the unit was not perfectly clear to either
25 myself or the State Land Office.

1 This is what we found.

2 In 1973, a presumption was made about the
3 remaining recoverable reserves in the reservoir, based on
4 conventional decline-curve estimates, and the unit
5 operators simply bought those reserves in the ground, paid
6 royalties on them to the state and the federal government
7 at the time. Those reserves were kept in the ground to act
8 as pad gas to bring the reservoir pressure up to about 2500
9 pounds of p.s.i., to help get storage and withdrawal
10 operations underway.

11 COMMISSIONER LEE: Cushion gas.

12 MR. HALL: Pardon me?

13 COMMISSIONER LEE: Cushion gas.

14 MR. HALL: Cushion gas.

15 Something else is unique about this unit. It
16 involves two units that co-exist side by side, a federal
17 unit and a state unit. And if you will turn to Exhibit 4,
18 that is the unit agreement for the facility insofar as
19 federal units are concerned.

20 And you will note the very first page, the title
21 block there, the unitized formation is defined there and
22 throughout as the entirety of the Morrow formation.

23 If you will turn to Exhibit 3 -- substantially
24 thicker, it's in three parts -- Exhibit 3-A is the original
25 state unit agreement that was entered into to convert the

1 facility to gas storage. If you will turn to page 3 of
2 Exhibit 3-A, there is the definition of the unitized
3 formation for purposes of the state unit. And the vertical
4 extent of the unitized formation under state lands is
5 somewhat more limited, based on log picks, as you'll see
6 there in the highlighted language. Interesting concept
7 that they did that.

8 But like I say, review these unit agreements,
9 you'll see that the unit has attributes of both a gas
10 production unit and a gas storage unit.

11 With respect to the gas storage unit, we have
12 determined that is in the nature of a surface easement
13 interest. In other words, the unit operator has the right
14 to use the pore volume in the rock for storage purposes.
15 And for that reason, the basis of payment for fees for
16 injection, storage and withdrawal are made on the basis of
17 surface ownership.

18 If you will turn to Exhibit 1, page 2, you see
19 our map exhibits there. Page 2, it's labeled Exhibit C;
20 it's taken from the most recent amendment to the unit
21 agreement. That exhibit reflects surface ownership. And
22 as I said, that is the basis for establishing payment to
23 the various surface interest owners for unit gas storage
24 operations.

25 Now, it's also a production unit. Where liquids

1 or volumes of gas, other than storage gas, are withdrawn,
2 or if enriched gas -- enhancement gas, it's called -- are
3 produced, then royalties must be paid according to the oil
4 and gas lease ownership interest.

5 And so those interests are reflected on also
6 Exhibit 1, the first page. It's a unit map showing oil and
7 gas leases. And this is based on an Exhibit B to the unit
8 agreement that further defines those royalty interest
9 owners and the working interest owners for purposes of
10 allocation of that production.

11 So I think you're beginning to understand that,
12 yes, it is gas storage; but it is also production, all in
13 one package.

14 I think the relevance of those two attributes of
15 the facility will become clear to you in a moment here.

16 In the course of preparing this asset for this
17 divestiture, three problems arose. There are two federal
18 oil and gas leases in Sections 4 that were terminated by
19 the Bureau of Land Management. The BLM issued new leases.

20 Had the same problem with state leases in
21 Sections 33 and 34. They were canceled for failure to pay
22 delay rentals, and new leases were issued to Yates
23 Petroleum and Great Western. Great Western's lease was
24 subsequently assigned to Nearburg.

25 In the meantime, Nearburg had drilled its well in

1 the northeast quarter of Section 34, and they attempted to
2 dedicate the north half of Section 34 to the well. And its
3 C-102 even received the typical ministerial approval from
4 the Division's Hobbs Office. You can see that, our Exhibit
5 8 shows that their C-102, C-101, were approved in February
6 of 2000.

7 It's about the time I entered the scene here.

8 We contacted the BLM and alerted them to the
9 problem that we thought that their leases were held by the
10 unit. They agreed with us, they rescinded the issuance of
11 the new federal oil and gas leases and reinstated the ones
12 they had previously canceled. They did that fairly
13 quickly.

14 We took the same argument to the State Land
15 Office. But of course, with the well in place the
16 toothpaste was already out of the tube, and it was
17 difficult to put it back in. Dealing with the state lease
18 problem was a little bit more problematic.

19 It was our view at the time that the state lease
20 was amended to conform with the terms of the unit
21 agreement, and they were perpetuated by unit operations.

22 And the reason we say that, if you will look at
23 Exhibit 3-A, pages 10 and 11, we have highlighted language
24 in the unit agreement that says just that.

25 In addition, it was our view that all operators

1 in the area were charged with actual notice of the
2 existence of the unit. The county records are replete with
3 instruments of record referring to the unit, although I
4 will say the unit agreement then was not of record in the
5 county.

6 But if you will look at our Exhibit 9, that is a
7 photostatic copy of the State Land Office Tract Book Index,
8 and it clearly shows a reference to the unit agreement in
9 the upper right-hand corner there.

10 Given that, if you'll refer to Exhibit 10, that
11 is a copy of Section 19-10-31. That's one of the State
12 Land Office statutes, and it says in essence that any
13 instrument filed of record at the State Land Office puts
14 everyone on notice as if it had been recorded in the
15 county. So legally, all operators were on notice of the
16 existence of the unit.

17 Ultimately, LG&E worked out its problems with
18 Yates and acquired the Yates state oil and gas lease. But
19 the existence of the Nearburg well still presented
20 complications.

21 In the meantime, Conoco acquired in a stock
22 transaction all of the assets of LG&E Natural Pipeline,
23 L.L.C. Conoco changed the name of the company to Raptor.
24 And I wish to note that Raptor Natural Pipeline is not an
25 Enron special-purpose entity, no relation at all.

1 We continued to work with the State Land Office
2 to resolve the problem with the Nearburg well and
3 cancellation of the state leases without having to resort
4 to litigation, and the Land Office exhibited what I thought
5 was tremendous patience and good faith in negotiating with
6 us.

7 That led to the negotiations for the second
8 amendment to the unit agreement, and that is found at
9 Exhibit 3-C. It was approved just this year.

10 If you care to go through that on pages 1 and 2,
11 we and the State Land Office took pains to try to explain
12 the basis of the dispute precipitated by the lease
13 cancellation in the Nearburg well and how it was resolved.

14 And we also attempted to explain, again in the
15 nature of the unit there, at paragraph 9 of the second
16 amendment, it explains that the Commissioner and Raptor
17 agree that the unit agreement is unique and that among
18 other things it conveys to the unit operator the right to
19 inject, withdraw and store extraneous gas. And that's
20 described as in the nature of an easement that exists
21 independently of the oil and gas leases that were initially
22 unitized under the unit agreement.

23 Nevertheless, concerns that the Nearburg well was
24 still in communication with the unit persisted, and we
25 worked with Nearburg to try to get an understanding of what

1 the problems were out there.

2 If you will refer to our Exhibit 7, that is a
3 copy of Order Number 7582. It was issued in 1984. And
4 that order demonstrates that issues of transboundary
5 communication have been an ongoing concern for some time.

6 If you'll refer to page 2 of that order, Finding
7 Number 6 of that establishes that the boundaries of the
8 Grama Ridge storage reservoir cannot be precisely
9 determined. And I think that's true today.

10 Raptor was concerned that the potential existed
11 for additional Morrow well completions within the unit area
12 and the surrounding vicinity, and that led both LG&E and
13 subsequently Raptor to apply to the Division for special
14 relief.

15 In Case Number 12,588 and 12,441, if you'll refer
16 to Exhibit 13, that case led to the issuance by the
17 Division of Order Number R-11,611 this last year. That
18 order established special project rules for the unit. And
19 as you review that order, you will see that the special
20 project rules call for drilling and completion protocols
21 within an established project area which is coterminous
22 with the unit area.

23 The order prohibits completions within the
24 unitized formation. Special project rules allow Morrow
25 penetrations, but subject to advance notification and

1 certain casing and cementing requirements.

2 If you'll refer to Exhibit 14, these are a
3 graphic depiction of the way the special project rules are
4 to work for completions within, above and below the
5 unitized formation. But it's important to know that
6 special project rules continue to allow completions within
7 the Morrow formation, but not within the unitized
8 formation.

9 By the time these special project rules had been
10 adopted by the Division, Raptor had concluded that, based
11 on the data then available to it, that the Nearburg well
12 did not appear to be in communication with the gas storage
13 unit.

14 However it has always been, and continues to be,
15 Raptor's concern that the possibility of actual
16 communication cannot be precluded with absolute certainty.
17 And in fact, if you will refer back to Exhibit 13 on page
18 3, Finding 9, that's the order for special project rules.
19 That is what the Division found, that the possibility of
20 actual communication cannot be precluded with absolute
21 certainty.

22 Now, in the subsequent order, Exhibit 15 --
23 that's Order 11,768 in the Nearburg Application case --
24 page 4 of that, Finding Paragraph 9 makes reference to
25 Paragraphs 8 and 9 of the previous order, the special

1 project rules order, and it says that there is no
2 communication.

3 But it's our construction of this finding that
4 because it refers to Paragraphs 8 and 9 of the prior order,
5 that communication is not precluded as an absolute
6 certainty, based on currently available data.

7 If you will turn to Exhibit 12, that is the
8 recently approved plan of operations for the Grama Ridge-
9 Morrow Unit. I commend it to you for your reading. It
10 provides a good historic overview of the unit.

11 And this plan of operation was drafted in
12 conjunction with the State Land Office to do a number of
13 things. It helped us clarify and memorialize the operation
14 of the unit agreement, because frankly, when we looked at
15 the historic documents behind the unit agreement, it was
16 difficult for both parties to understand.

17 Plan of operation, we think, provides a roadmap
18 going forward for the unit operator and the State. The
19 plan of operation also establishes a baseline inventory of
20 both MCF volumes and MMBTU volumes in storage. They are
21 expressed in Exhibit 12 on page 4. As of December 31st,
22 there were approximately 8 billion in storage, 10 billion
23 MMBTU in storage.

24 During the course of creating the plan of
25 operations, we had determined that baseline values for both

1 MCF and MMBTU volumes were necessary in order to establish
2 bases for one of the injection withdrawal fees for payment
3 to the surface interest owners, and then, two, payment for
4 production proceeds for any indigenous gas, liquids and
5 enrichment gas under the oil and gas leases to the royalty
6 interest owners.

7 Now, why is this relevant to this proceeding at
8 all?

9 The reason I think it is, is that the Unit
10 operator must report gas injection to the Division and the
11 New Mexico Taxation and Revenue Department on the State's
12 C-131-A forms, and that has been done.

13 In addition, the unit operator, Raptor, has been
14 advised by both Taxation and Revenue and the Division that
15 it must also report gas volumes on C-115 production
16 reporting forms, and it is doing that as well. It must do
17 that on a well-by-well basis and proration unit basis.

18 In this regard, if you would turn to the Nearburg
19 exhibit notebook and refer to their Exhibit 9, that is a
20 letter from the Holland and Hart firm, Nearburg's counsel,
21 to the Division, dated January 8th, 2001. Page 7 under
22 that tab is the C-102 acreage dedication plat for the Grama
23 Ridge-Morrow Unit Well Number 2. And you will see that
24 that C-102 plat, dated 1979, establishes a west-half
25 proration unit for that well, that that well is used for

1 both injection and withdrawal activities.

2 And having the C-102 approved and in place
3 presumes that there is an established OGAR number for the
4 well. It's been in place, like I say, since 1979. And it
5 would appear to us that the pre-existing west-half
6 proration unit in Section 34 presents an administrative
7 obstacle to the establishment of a north-half unit for
8 Nearburg's well that this Commission will somehow have to
9 reconcile.

10 As the operator of that proration unit, in
11 addition to the unit, I think you can see how Raptor's
12 interests are affected. Right now it appears to be
13 affected in an administrative sense, but still I believe
14 it's an issue that we needed to call to your attention,
15 something that the Commission will need to deal with.

16 Madame Chairman, that concludes my exhibits. I'd
17 be glad to stand for questions.

18 And we'd move the admission of Exhibits 1 through
19 15. They are all documents of public record.

20 CHAIRMAN WROTENBERY: Any objection to the --

21 MR. CARR: No objection.

22 CHAIRMAN WROTENBERY: -- admission of Exhibits --

23 MR. CARR: No objection.

24 CHAIRMAN WROTENBERY: -- 1 through 15?

25 Then Raptor Exhibits 1 through 15 are admitted

1 into the record.

2 I've got some questions if you --

3 COMMISSIONER BAILEY: I don't have any.

4 CHAIRMAN WROTENBERY: Mr. Hall, could you talk a
5 little bit about the boundaries of the gas storage unit?
6 Based on the information that you've provided here, it
7 appears that the unit encompasses all of Section 34.

8 MR. HALL: Yes, that's correct.

9 CHAIRMAN WROTENBERY: It's not just the west
10 half, it's all of Section 34.

11 MR. HALL: That's correct.

12 CHAIRMAN WROTENBERY: So that unit actually
13 crosses the boundary line between the Grama Ridge and the
14 East Grama Ridge --

15 MR. HALL: That's correct.

16 CHAIRMAN WROTENBERY: -- Pools?

17 I'm trying to sort through in my own mind how --
18 what would happen if, say, the unit were to propose to put
19 a well in the east half of Section 34? It appears to me
20 that the unit has been considered something distinct from
21 either of the two pools in practice, but could you talk to
22 me a little bit about the relationship between the unit and
23 the two pools in the Morrow in that area?

24 MR. HALL: Yes, I'd be glad to do that. I think
25 there's no question that the unit operator has a contract-

1 based right to put a well in what is now the East Grama
2 Ridge-Morrow Pool, should it choose to do so.

3 I think what you'll find if you look through
4 these historic orders, pool orders and the orders approving
5 the unit, you'll see that there are a consistent number of
6 findings that establish that the exact boundaries of the
7 gas storage vessel are indeterminate, can't be precisely
8 determined. And that concern still exists today.

9 Just so you know, when we had originally proposed
10 the special project rules for the unit, there was
11 sufficient concern about the extent, the areal extent, the
12 actual storage reservoir, that LG&E and Raptor had proposed
13 creating a buffer zone around what is now the current unit.
14 The buffer zone would consist of each 320-acre-bounding
15 proration unit. There was enough concern about drainage
16 that they thought that was appropriate.

17 The operator met with the other operators of the
18 adjoining proration units in Midland two years ago to
19 discuss that, and there was quite a bit of opposition. The
20 issue of drainage was discussed. Based on what we heard,
21 we were satisfied that it was probably safe to limit the
22 special project rules and the unit project area to be
23 coterminous with the unit agreement as well. But again,
24 concerns for the actual boundaries of the reservoir are
25 uncertain.

1 CHAIRMAN WROTENBERY: Thank you.

2 Do you have a question?

3 COMMISSIONER LEE: What's the -- injection or
4 withdrawing?

5 MR. HALL: That will be shown in Exhibit 12,
6 there is some historic documentation --

7 COMMISSIONER LEE: Just give me a number.

8 MR. HALL: -- of that. I don't know, I can't
9 tell you. I can tell you that the reservoir pressures
10 swing from between 2500 to 8000 pounds. It is cyclical.
11 It depends on the market, Dr. Lee.

12 COMMISSIONER LEE: 2500 to 800 pounds?

13 MR. HALL: 8000.

14 COMMISSIONER LEE: 8000 pounds.

15 MR. HALL: I certainly would be glad to get those
16 figures for you and provide them after the --

17 COMMISSIONER LEE: I just don't want you to
18 mislead the Commission. In storage field, you don't have a
19 boundary. Storage field, you're probably only using the
20 working gas. It's nothing to do with the cushion gas.

21 MR. HALL: That's correct.

22 COMMISSIONER LEE: The cushion go and coming.
23 You probably use very little of the reservoir, I don't
24 know. Your deliverability of your well apparently is good,
25 otherwise you don't use that as storage. But your boundary

1 is not an actual boundary.

2 But if they produce on your cushion gas, that
3 will really hurt your deliverability. That's -- I
4 understand it.

5 But you are saying your boundary is all over the
6 place, I have a doubt about that.

7 CHAIRMAN WROTENBERY: Okay. Mr. Carr, did you
8 have anything you wanted to add --

9 MR. CARR: Well, I'd just --

10 CHAIRMAN WROTENBERY: -- on the question of
11 the --

12 MR. CARR: -- state that Mr. Hall has advanced a
13 legal argument to you here today based on documents from
14 the public record.

15 I would note that the C-102 that he pointed you
16 to, which is contained in our exhibits as Tab 9, if you
17 look at that it says, Type of consolidation. And it says,
18 Unit agreement. And that is because at that time the unit
19 boundary was adjusted.

20 I believe that we can respond to this comfortably
21 with public record, the documents in the public record, and
22 would like to do so following the hearing, because the
23 information we have is that the well located 1980 from the
24 south line and 660 from the west line of Section 34, prior
25 to the time the unit boundary was changed, had, in fact,

1 dedicated to it the south half.

2 We submit that what you have here is a form that
3 was filed to acknowledge an adjustment in the unit
4 boundary, and we think we can respond, but we can't
5 certainly do it here today, having not had this argument
6 advanced prior to this time. But we would request an
7 opportunity to do so.

8 CHAIRMAN WROTENBERY: I'm sorry, I'm having a
9 little trouble following you. How is the unit boundary
10 changed?

11 MR. CARR: If you look at the C-102, and up above
12 it says, Have all the owners been consolidated by
13 communitization agreement or otherwise? And the answer is
14 yes. Type of consolidation is the unit agreement. We
15 believe that this C-102 is actually a reflection of what
16 was going on in adjusting the boundaries of the unit
17 agreement.

18 We also have information that shows that -- when
19 the Llano well in the south half was actually a producing
20 well, it was then, and had dedicated to it a south-half
21 unit. We've got to go through this and lay it out in
22 chronological order, not just taking one document out of
23 context, which we believe, in fact, reflects an adjustment
24 in unit boundary, and we'd like a chance to do that.

25 CHAIRMAN WROTENBERY: Okay. I'd also note at the

1 bottom of that plat it says, Amended plat submitted due to
2 OCD Order R-5995 contracting pool limits and changing --

3 MR. CARR: Right.

4 CHAIRMAN WROTENBERY: -- pool rules to --

5 MR. CARR: Yeah.

6 CHAIRMAN WROTENBERY: -- 320-acre --

7 MR. CARR: Yeah.

8 CHAIRMAN WROTENBERY: -- spacing.

9 MR. CARR: We'll have to take a look at all of
10 that. But we have documents here from the State Land
11 Office. I can't pull them together for you right now, but
12 we'd request an opportunity to respond.

13 CHAIRMAN WROTENBERY: That would be fine, and
14 then we'll give everybody a chance to reply to the
15 information you submit.

16 MR. HALL: If I might briefly respond to --

17 MR. KELLAHIN: I'd like to have a chance to fix
18 that for you.

19 CHAIRMAN WROTENBERY: Can you fix it now?

20 MR. KELLAHIN: Yes, ma'am.

21 CHAIRMAN WROTENBERY: Okay.

22 MR. KELLAHIN: If you turn to the Redrock
23 prehearing statement, on page 5 we narrate this for you,
24 and we attach a sequence of orders. And if you start at
25 the top of page 5, we're now looking at the prehearing

1 statement that's before the exhibit sets.

2 CHAIRMAN WROTENBERY: Okay.

3 MR. KELLAHIN: And if you start with 17, you're
4 going to see some of the orders that dealt with the gas
5 storage unit.

6 And then you're going to find under our Exhibit
7 Tab 4 -- 5, under paragraph 17, the order that's referred
8 to in the C-102 you just looked at.

9 What happened here is, the Division had a hearing
10 and determined that there was two faults, that there was a
11 western fault and that there was an eastern fault that
12 bisected Section 34 and split it as I've identified for you
13 on Mr. Carr's map.

14 By doing that, then, they had the parties
15 reorient the spacing units, and the east half of the
16 section then got dedicated to the Llano "34" 1 well, and
17 the west half stayed in the gas storage unit production
18 with the Number 2 well.

19 So if you follow through that, you'll have the
20 answer to what happened.

21 CHAIRMAN WROTENBERY: Thank you, Mr. Kellahin.
22 And if there is additional information you'd like to
23 submit --

24 MR. CARR: Yeah, we'd like to go ahead with the
25 hearing today, get this record made, and respond to that.

1 CHAIRMAN WROTENBERY: Okay. Thank you, Mr. Hall.
2 Okay, we'll take just a short break, just a few
3 minutes here, and then get started with Nearburg's
4 evidence.
5 (Thereupon, a recess was taken at 10:00 a.m.)
6 (The following proceedings had at 10:10 a.m.)
7 CHAIRMAN WROTENBERY: Mr. Carr, are you ready?
8 MR. CARR: I am ready.
9 May it please the Commission, at this time we
10 call Bob Shelton. He needs to be sworn. In fact, all the
11 witnesses do. We've got four on our side.
12 CHAIRMAN WROTENBERY: You've got four --
13 MR. CARR: Yes.
14 CHAIRMAN WROTENBERY: -- and Mr. Kellahin?
15 MR. KELLAHIN: I have at least two to be sworn at
16 this time, Mr. John Wells and Mr. Jim Brezina.
17 CHAIRMAN WROTENBERY: Okay.
18 MR. KELLAHIN: We'll ask those two gentlemen to
19 stand to be sworn in.
20 CHAIRMAN WROTENBERY: And would all of the
21 Nearburg witnesses please stand to be sworn in?
22 And Mr. Hall, you didn't have any witnesses?
23 MR. HALL: I have no witnesses.
24 CHAIRMAN WROTENBERY: Okay.
25 (Thereupon, the witnesses were sworn.)

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ROBERT G. SHELTON,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name for the record, please?

A. My name is Bob Shelton.

Q. Mr. Shelton, where do you reside?

A. I reside in Midland, Texas.

Q. By whom are you employed?

A. Nearburg Producing Company.

Q. And what is your position with Nearburg Producing Company?

A. I'm the land manager.

Q. Mr. Shelton, have you previously testified before the Oil Conservation Commission?

A. Before the Commission I have testified many years ago, before Lori took over as the Chairman, yes.

Q. Could you summarize for the Commission your educational background?

A. I have a BA degree in business from Texas Tech University, and I started my employment with Diamond Shamrock in Amarillo, Texas, in 1976.

Q. Since that time have you been employed as a petroleum landman?

1 A. Yes, I have.

2 Q. And what is your title with Nearburg?

3 A. Land manager.

4 Q. And are you responsible for the land activity of
5 Nearburg in the Permian Basin?

6 A. Yes, I am.

7 Q. Are you familiar with the Application filed by
8 Nearburg in Case 12,622, seeking the establishment of two
9 nonstandard spacing units in the east half of this section?

10 A. Yes, I am.

11 Q. And are you familiar with the severed part of the
12 OCD nomenclature case which is also before the Division in
13 this proceeding?

14 A. Yes, sir, I am.

15 Q. Are you familiar with the history of the Grama
16 Ridge East "34" State Well Number 1?

17 A. Yes, I am.

18 Q. And have you prepared exhibits for presentation
19 here today?

20 A. Yes, sir, I have.

21 MR. CARR: We tender Mr. Shelton as an expert in
22 petroleum land matters.

23 CHAIRMAN WROTENBERY: We find him so qualified.

24 Q. (By Mr. Carr) Mr. Shelton, would you briefly
25 summarize for the Commission what it is that Nearburg

1 Exploration Company seeks in these consolidated cases?

2 A. We seek the approval of the Application by the
3 Division as set forth in Case 12,9- -- -690, which would
4 allow the contraction of the Grama Ridge East-Morrow Unit
5 by eliminating the east half and by the extension of the
6 Grama Ridge-Morrow Pool, which would be extended then to
7 encompass the east half of Section 34, or, in the
8 alternative, the formation of at least one 160-acre
9 nonstandard spacing unit to be encompassed by the northeast
10 quarter of Section 3 for the Nearburg Producing Company
11 Grama Ridge "34" State well.

12 Q. That would be a 160-acre unit comprised of the
13 northeast quarter of Section 34, correct?

14 A. That is correct.

15 Q. What about the southeast quarter of Section 34?

16 A. The southeast quarter of Section 34, as
17 previously stated, the communitization agreement expired in
18 1991. The well was not producible after that period of
19 time, did not produce, the spacing unit terminated, the
20 well has now been plugged and abandoned. There is no well
21 there, so there is no need for a southeast quarter
22 nonstandard spacing unit at this time, because there's no
23 well located on that tract.

24 Q. And so that portion of the case for the 160-acre
25 unit in the southeast quarter can be dismissed?

1 A. That's correct.

2 Q. Have you prepared exhibits for presentation here
3 today?

4 A. Yes, I have.

5 Q. Let's go to what has been marked for
6 identification as Nearburg Exhibit Number 1, and I'd ask
7 you to first identify it and review the information on the
8 exhibit for the Commission.

9 A. This is a land map from Midland Map Company that
10 shows the Nearburg Producing Company oil and gas lease that
11 we received an interest in, as issued by the State of New
12 Mexico, covering the north half of Section 34. Also shows,
13 by a line through the center of the proposed 160-acre
14 spacing unit for the northeast quarter, Nearburg Producing
15 Company well.

16 Q. Could you briefly review for the Commission the
17 ownership in the north half of this section?

18 A. The north half of this section is owned by
19 Nearburg Producing Company, CL&F Resources, and by Great
20 Western Drilling Company. They're the parties that
21 initially took the risk and drilled this well, and they
22 have proportionate ownership. Nearburg has 3/8 after the
23 back-in, Great Western has 50 percent, remaining interest
24 is owned by CL&F Resources.

25 Q. And who is the royalty owner?

1 A. The royalty owners are -- which the overriding
2 royalty interest was created when the lease was purchased,
3 is an overriding royalty interest of 2 percent owned in
4 various proportions by Wayne Newkumet, James D. Brown,
5 Brent Hilliard, Wendell Creech and David Alderks.

6 Q. And the base royalty is the State of New Mexico?

7 A. The base royalty is a 1/6 State of New Mexico
8 royalty.

9 Q. What is the ownership in the south half of the
10 section?

11 A. South half of the section on the working interest
12 side is identical to the after-payout working interest in
13 the north half of the section, difference being that
14 there's an overriding royalty interest owned by Redrock
15 Operating of 10 percent, which that was created, I believe,
16 in 1998, well after the well in the southeast quarter
17 ceased to produce.

18 Q. Nearburg and Great Western and CL&F have acquired
19 the EOG lease in the south half of the section; is that
20 right?

21 A. That's right, that gives us the rights to all the
22 Morrow formation in the south half, with the exception of
23 the gas storage unit interval in the southwest quarter.

24 Q. And in this section, where was the first
25 producing Morrow well drilled?

1 A. The first producing Morrow well was drilled in
2 the south half -- excuse me, in the southwest quarter of
3 Section 34, and it was drilled in 1966 and, as I
4 understand, was produced until 1973.

5 Q. What is the status of -- Now, you've indicated
6 the Llano "34" State Well Number 1 in the southeast quarter
7 has been plugged. When did that occur?

8 A. That well was plugged, let's see, in November --
9 Let's see. It was plugged in November of '02, so it's been
10 plugged about --

11 Q. In November of '01?

12 A. '01, excuse me, '01. So it's been plugged about
13 nine or ten months.

14 Q. How long did that well actually produce?

15 A. Oh, that well produced -- I think it -- It ceased
16 to produce in 1991, and I'll have to defer to Cap. I think
17 that well started producing in like 1984.

18 Q. What is the status, to your knowledge, of the
19 west half of this section?

20 A. The status of the west half of that section is
21 under a right-of-way agreement-type, storage agreement, is
22 my understanding, as I understand it, is defined by the
23 State of New Mexico in a letter that we got from them where
24 they have the rights to inject and withdraw gas for the
25 purpose of gas storage in the Grama Ridge-Morrow Unit.

1 And in the north half of the section, in the
2 northwest quarter, we have -- Nearburg, by virtue of its
3 acquisition of the only gas lease, has the right to any
4 indigenous gas that's not a part of the gas storage unit
5 facility.

6 Q. In terms of the concerns of Raptor Natural
7 Pipeline about protecting the unit from wells drilled into
8 and in communication with the injection interval, did you
9 participate, or at least were you aware of and appear in
10 the cases that resulted in the issuance of R-11,611?

11 A. Yes, we did. We had meetings in Midland and in
12 Santa Fe with various people for the formation -- or the
13 creation of the special pool rules.

14 Q. And does Nearburg support those rules?

15 A. Yes, we do.

16 Q. At my request, have you reviewed the Nearburg
17 files and prepared a summary of events which have led up to
18 this hearing?

19 A. Yes, sir, I have.

20 Q. And are those documents from the files -- do they
21 provide the general background of all events which resulted
22 in our being here today?

23 A. Yes, they do. We have kept a chronology of
24 things that have gone on, and they reflect over the period
25 of time what's happening.

1 Q. When we're talking about your files, how large
2 are the files that relate to this project?

3 A. The files that we've gotten by virtue of the
4 files that we have on our oil and gas lease, the files that
5 we got from EOG when we purchased the south half, are very
6 large. They fill up more than a -- they've got a -- one of
7 those banker boxes. They're about a banker box and a half
8 full of files. So there's, you know --

9 Q. Would you identify what's been marked as Nearburg
10 Exhibit Number 2?

11 A. Exhibit Number 2 is a summary of events which
12 resulted in this hearing.

13 Q. And is that the chronology which has been revised
14 dated 10-20-02?

15 A. Yes, it is.

16 Q. Will use of this summary facilitate your
17 presentation of the history of the events which have
18 resulted in this hearing?

19 A. Yes, sir, they will.

20 Q. All right. Mr. Shelton, let's go to the summary,
21 the chronology, and I'd ask you first to review Nearburg's
22 involvement with the lease covering the north half of the
23 section.

24 A. The north half, Section 34, original lease that
25 was owned by Apache, was canceled in 1999. And thereafter

1 a new lease was issued by the State of New Mexico without
2 stipulation. You'll find that under Tab 2. That lease was
3 effective 1-1-00.

4 At that time we reviewed the prospect from Great
5 Western Drilling Company and bought an interest in the
6 prospect with a commitment to drill a well in the northeast
7 quarter. And so Nearburg acquired an interest in that oil
8 and gas lease some months after the lease's issuance.

9 Q. Okay, what about the well? When was it drilled?

10 A. The well was started in March of 2000.

11 Q. And that was pursuant to an approved OCD APD?

12 A. Yes, that's correct.

13 Q. Attached to that was an acreage dedication plat?

14 A. That's correct.

15 Q. And the well was actually drilled and paid for by
16 Nearburg, Great West and CL&F?

17 A. That's correct, we were the ones that took the
18 risk and paid for the drilling of the well and the
19 completion.

20 Q. And when was it completed?

21 A. It was completed in June of 2000 as a producing
22 Morrow well.

23 Q. And did the OCD approve a request for allowable
24 for this well?

25 A. Yes, they did, they approved a request for

1 allowable and authorization to transport. That's under Tab
2 5 of these exhibits.

3 Q. Was the testing allowable also previously
4 approved for that well by the OCD?

5 A. Yes, it was.

6 Q. Now, when did you discover that, in fact, a
7 spacing unit dedicated to the well crossed pool boundaries?

8 A. We received a telephone call from the district
9 office, the Hobbs Office, after we filed our -- a couple of
10 weeks after we filed our completion report, and we were
11 informed at that time that the proposed spacing unit
12 crossed two different pool boundaries.

13 Q. And what did you do at that time?

14 A. At that time we tried to start talking to people,
15 talking to Raptor concerning the effect of our well on the
16 gas storage area, we were negotiating with them. And we
17 did that for several months and then filed in December an
18 application for the two nonstandard spacing units.

19 Q. Did you talk to the State Land Office at that
20 time?

21 A. Yes, we did.

22 Q. Let's go to the letter behind Tab 8 in Exhibit 2.
23 Would you refer to that? Is the response that was received
24 from the Commissioner of Public Lands --

25 A. Yes.

1 Q. -- relating to your concerns about the gas
2 storage unit?

3 A. Yes, we were concerned about what rights we had
4 under the gas lease, and we asked for a clarification
5 letter from the State of New Mexico, and this letter is
6 issued by Bruce Frederick, the -- one of the counsel for
7 the State of New Mexico.

8 Q. If you'd look at the second paragraph in this
9 letter, how has the State Land Office defined the rights of
10 LG&E at that time under these leases?

11 A. The right to store and inject and withdraw gas.

12 Q. And what was the advice of the State Land Office
13 concerning your lease as set forth in the last paragraph?
14 Would you read that into the record?

15 A. Yeah, it says "Despite the existence of LG&E's
16 storage rights, your clients..." which are Nearburg, this
17 letter is written to you, Mr. Carr "...have the right under
18 their oil and gas leases to explore for, and produce,
19 native oil and gas on and below the leased premises.
20 However, since they should not exercise their exploration
21 and production rights in a manner that..." would
22 unreasonably interfere "...with LG&E's existing storage
23 rights..." the New Mexico State Land Office advises your
24 clients to cooperate with LG&E to continue their activities
25 with LG&E to the extent possible.

1 So they have -- We have rights to produce
2 indigenous gas or native gas in the northwest quarter.

3 Q. Okay. Now, if -- Mr. Kellahin in his opening
4 suggested that Nearburg was trying to vertically segregate
5 the Morrow; is that true?

6 A. That is not true.

7 Q. You're trying to operate the Morrow?

8 A. We're trying to operate the Morrow as one common
9 source of supply.

10 Q. Are you obligated under prior orders and
11 agreements not to complete a well in any zone that is in
12 communication with the gas storage unit?

13 A. That is correct. And we have agreed previously
14 with Raptor Resources that -- and there is zones in our
15 wellbore that could, obviously, be in communication, and
16 we've agreed not to perforate those zones, and we
17 understand quite adequately the effect of producing any gas
18 storage gas. And obviously, we have no intention to do
19 that at all.

20 Q. You were here when Mr. Hall presented certain
21 documents for Raptor Natural Pipeline, were you not?

22 A. I was.

23 Q. And you heard Mr. Hall discuss the producing
24 aspect of this storage unit, as well as the storage aspect
25 of it --

1 A. That's correct.

2 Q. -- were you not?

3 Since the first of 2000, the year 2000, Nearburg,
4 Great Western and CL&F have owned the oil and gas rights
5 under the northwest quarter of Section 34?

6 A. That's correct.

7 Q. Have you ever received any royalty or any other
8 compensation for this interest from LG&E or Raptor?

9 A. No, we have not received any benefit from the gas
10 storage unit and have had no negotiations or no -- Raptor
11 has shown no interest in including us in the part of the
12 gas storage unit.

13 Q. Now, when did you file your application for the
14 creation of two nonstandard units in the east half of
15 Section 34?

16 A. I believe that was filed in December of '01.

17 Q. And what response to that application did
18 Nearburg receive?

19 A. Objection from Redrock. We got an approval -- We
20 got a waiver from EOG. At that time we did not own the EOG
21 interest in the south half of Section 34. They understood
22 the circumstances around which the well was drilled, and
23 they gave us a waiver for their rights to form the two
24 nonstandard spacing units.

25 We also received a waiver from the State Land

1 Office for the formation of the two nonstandard spacing
2 units, and the only objection we received was from the
3 overriding royalty interest owners in the southeast
4 quarter.

5 Q. The State Land Office waiver is behind Tab 12?

6 A. That's correct.

7 Q. And the Redrock letter, the letter from Mr.

8 Kellahin, I believe, advising of the objection is behind --

9 A. -- 13.

10 Q. The objection is behind 14 --

11 A. -- 14.

12 Q. -- is that right?

13 A. That's correct.

14 Q. All right. Was there a hearing on this matter?

15 A. Yes, there was. A hearing was held June 28th,
16 '01, before Mr. Stogner, to consider the formation of the
17 two nonstandard spacing units.

18 Q. Was there a subsequent hearing the following
19 month?

20 A. Yes, there was.

21 Q. And what happened at that hearing concerning the
22 producing status of the well?

23 A. The well was shut in and it remains shut in to
24 this date.

25 Q. Could you briefly review for the Commission the

1 efforts undertaken by Nearburg to acquire working interest
2 in the southeast quarter of Section 34?

3 A. Yes, with the aid of Great Western Drilling
4 Company and CL&F, we contacted EOG and negotiated with them
5 for the purchase of their rights in the south half of
6 Section 34. We were successful in obtaining those rights,
7 and they assigned them to us as they got them, without
8 override or without additional burden.

9 Q. So now the working interest is common in the east
10 half, as well as the north half of this section?

11 A. That's correct.

12 Q. Now, were you contacted by the State Land Office
13 concerning the producing status of the south half once you
14 had acquired that --

15 A. Yes, we were, we were contacted by the State, and
16 they asked for us to file a plan of development or
17 indication of what we would do with the well in the
18 southeast quarter and give a detailed description of what
19 we felt like the value of the wellbore was in the form of
20 future production. And we did that, we filed a report with
21 the State that basically said we did not find any remaining
22 reserves producible in the wellbore and that we intended to
23 not produce the well and, in fact, plug and abandon it,
24 which we did at a later time.

25 Q. When did you receive an order in that case?

1 A. The order was R-11,768, issued May 22nd, '02.

2 Q. And that denied your application?

3 A. It denied the application but then also gave us
4 the opportunity to file a standard 320-acre proration unit
5 consisting of the north half, depending on the necessary
6 adjustment to the pool boundaries to be sought through the
7 Division's nomenclature process.

8 Q. Mr. Shelton, Nearburg appealed that order, did
9 they not?

10 A. They did, they appealed, *de novo* appeal which is
11 before the Commission today.

12 Q. And if you're unable to dedicate a north-half
13 unit, is it still your desire to have a 160-acre
14 nonstandard unit comprised of the northeast quarter of the
15 section?

16 A. Yes, it is.

17 Q. At the request of Raptor and Redrock, the hearing
18 in this case was initially continued; is that correct?

19 A. That's correct.

20 Q. Did Nearburg, following the hearing in 2001 and
21 prior to the entry of the order in 2002, contact the
22 Division concerning a request to let the well produce
23 pending a resolution of these issues?

24 A. Yes, we did, we sent a letter to the Division
25 asking that we be able to turn the well back on and produce

1 the well. We felt like the well is in jeopardy of --
2 danger of additional harm by keeping the Morrow well shut
3 in, so we asked to turn the well back on, that request.

4 We were told we'd have to come before another
5 hearing, a hearing would have to be held to determine that,
6 and in an effort to try to get all of this before us, a
7 hearing and get it decided, we abandoned the idea because
8 we didn't want to spend additional time in another hearing
9 before this one occurred.

10 Q. Did you take an additional look at the well to
11 explore the damage-to-the-wellbore issue?

12 A. Yeah, our engineering staff looked at it, and
13 they determined that at that time, that although damage
14 could occur, most of the damage probably occurred at the
15 time we shut it in, and keeping the well shut in, probably
16 little additional damage would occur.

17 Q. So you dropped this matter?

18 A. That's correct, we did.

19 Q. What did Nearburg do in response to Finding 13 of
20 the order, the finding that said dedicate a north half --
21 there was an adjustment of pool boundary?

22 A. Well, we were unclear as to what the normal
23 nomenclature process was. So I went over to visit with Mr.
24 Kautz. And I asked him, I said, What is the normal
25 nomenclature process?

1 And Mr. Kautz informed me that in this case he
2 was the normal nomenclature process.

3 And I asked him, I said, What do we need to do?

4 And he told me, I'm very familiar with this
5 order, I'm very familiar with this situation, and I will
6 make adjustments to pool boundaries as we see fit.

7 And I said that's fine, and that's all we did.

8 Q. Did you provide any data or anything to Mr. Kautz
9 for his use?

10 A. No, we did not. I did ask him if he wanted any,
11 if we needed to supply any information in support of that,
12 and he told me no.

13 Q. If an east-half unit is dedicated to the Nearburg
14 well, what's going to happen to the owners of overriding
15 royalty interests in the north half of the section?

16 A. North half of the section, overriding royalty
17 interest owners would suffer a 50-percent reduction in
18 their override.

19 Q. And are these the royalty owners that we
20 identified at the beginning of the hearing?

21 A. Yes, they are. And there are also people that
22 did the geologic work, developed the prospect, took it to
23 Great Western, sold the idea to Great Western, and Great
24 Western purchased the lease and sold it to us. So these
25 are the guys that actually did the work that created the

1 value of the prospect.

2 Q. Now, Mr. Shelton, there is no dispute, is there,
3 that Redrock owns a 10-percent overriding royalty interest
4 in the south half of the section?

5 A. There's no dispute of that.

6 Q. And when was this interest acquired, do you know?

7 A. That interest was created at the time of an
8 assignment from Redrock to Roca Resources, and I believe
9 that was on March 1st, 1998. Wait a second, was that --
10 No, May 27th, 1999, excuse me.

11 Q. And is that exhibit, that assignment, included in
12 the Redrock exhibit packet behind their Exhibit 1 in Tab
13 10?

14 A. Yes, our Exhibit --

15 Q. Under Redrock's exhibit, is that also --

16 A. Redrock Exhibit 1, Tab 10.

17 Q. Do you know how long Redrock had held that
18 property interest prior to the assignment to Roca?

19 A. They got the interest from Apache on March 1st,
20 1998, so they held it for a year and two months.

21 Q. And that's also set out in Redrock Exhibit 1 --

22 A. Right.

23 Q. -- the history of that?

24 A. Uh-huh.

25 Q. Did the well in the southeast quarter of Section

1 34 produce from the Morrow formation?

2 A. Yes, it did.

3 Q. And what acreage was dedicated to that well?

4 A. The acreage that was dedicated to that well
5 during its life of production was the east half.

6 Q. And did you review the records -- have you
7 reviewed the records at the State Land Office concerning
8 the acreage dedicated to this well?

9 A. Yes, we have.

10 Q. And what did you discover?

11 A. We discovered that during the term, obviously,
12 the east half was dedicated to the well. The com agreement
13 for the well was terminated effective March 31st, 1991, so
14 the well did not produce after that date. And accordingly,
15 the spacing unit for that well, according to the OCD
16 definition of a spacing unit for a producing well, ceased
17 at that same time. So the well -- There was no spacing
18 unit for the well after March 31st, 1991.

19 Q. Did Redrock own anything in this property prior
20 to the time the well in the southeast quarter ceased
21 production?

22 A. No, they did not.

23 Q. Did you own anything --

24 A. No.

25 Q. -- in this section --

1 A. No, at the time the well in the southeast quarter
2 produced, there's not anybody present at this hearing that
3 owned an interest in that well now.

4 Q. Except the State of New Mexico?

5 A. The State of New Mexico, I'm sorry, yes, they
6 owned a royalty interest.

7 Q. And who is Redrock, do you know?

8 A. Redrock is a company out of Dallas, we later --
9 we found out when all of this started transpiring, when we
10 got an objection from Redrock, is owned by Tim Cashon and
11 Mark Stanger, is my understanding.

12 Q. Do you know Mr. Cashon?

13 A. Tim Cashon is the same individual that worked for
14 LG&E at the time when we originally drilled this well, and
15 we took data to them and showed them that we did not have
16 any communication with the gas storage unit.

17 Mr. Cashon worked for LG&E at that time, and he's
18 the man that we presented our information -- one of the
19 people that we presented our information to and laid out
20 all of our geology in this case so that we could rightfully
21 convince them that we were not in communication with LG&E's
22 gas storage unit. So at that time he was an employee of
23 LG&E.

24 Q. Now, the well, the Nearburg well on the northeast
25 quarter, is shut in, correct?

1 A. Correct.

2 Q. How long did it produce?

3 A. It produced from June -- 13 months, from June '00
4 to July, '01.

5 Q. And how were the payments for that production
6 disbursed?

7 A. They were disbursed on the basis of the ownership
8 of the north half of that section.

9 Q. Mr. Shelton, will Nearburg call geological and
10 engineering witnesses to review the technical portions of
11 this case?

12 A. Yes, sir, we will.

13 Q. Were Nearburg Exhibits 1 and 2 prepared by you or
14 compiled under your direction?

15 A. Yes, they were.

16 MR. CARR: At this time, may it please the
17 Commission, we'd move the admission into evidence of
18 Nearburg Exhibits 1 and 2.

19 MR. KELLAHIN: No objection.

20 CHAIRMAN WROTENBERY: Any objection?

21 MR. HALL: No objection.

22 CHAIRMAN WROTENBERY: Okay, Nearburg Exhibits 1
23 and 2, including all 16 tabs of Exhibit 2, are admitted
24 into evidence.

25 MR. CARR: And that concludes my direct

1 examination of Mr. Shelton.

2 CHAIRMAN WROTENBERY: Mr. Kellahin?

3 MR. KELLAHIN: Thank you.

4 CROSS-EXAMINATION

5 BY MR. KELLAHIN:

6 Q. Mr. Shelton, let's turn back to the July 7, year
7 2000, telephone call from Donna Pritzert at the Hobbs OCD
8 to you, notifying Nearburg that the north half was not
9 available for a spacing unit for your well. Do you
10 remember that?

11 A. I wasn't a part of the conversation, but I know
12 it occurred, yes.

13 Q. At that time, she told you that the section was
14 divided so that the west half is in what I'll call the gas
15 storage pool?

16 A. The west half is in the Grama Ridge-Morrow Pool.

17 Q. And then the east half is in the East Grama
18 Ridge --

19 A. Correct.

20 Q. -- Pool? All right.

21 Just so I don't have to repeat myself on the
22 nomenclature, I'm going to call the west half the storage
23 pool, just to help me out.

24 A. Okay.

25 Q. And the east half is the Nearburg pool.

1 A. Okay.

2 Q. And I'm going to call your well in the northeast
3 quarter the Nearburg well.

4 A. Okay.

5 Q. And then the well in the southeast quarter that
6 you plugged, I'll just call that the Llano well.

7 A. Okay.

8 Q. And then when we go into the southwest of Section
9 34, that's going to be the Gas Storage Well Number 2.
10 Okay?

11 A. All right.

12 Q. So that will be my nomenclature.

13 So now, in July of the year 2000, you are aware
14 of the pool separation that splits the section east half-
15 west half?

16 A. Uh-huh.

17 Q. Prior to that time you did not know that, right?

18 A. Correct.

19 Q. At the time you filed the APD, you did not know
20 there were two separate pools in the section?

21 A. Correct.

22 Q. After the Division tells you in July of the year
23 2000 that the well is in two pools, you then waited six
24 months to file an administrative application, right?

25 A. That's correct.

1 Q. Let's turn to the administrative application.
2 It's in your exhibit book, and it's behind Exhibit Tab 9.
3 This is the letter filed by Mr. Carr's firm in your behalf?

4 A. That's correct.

5 Q. And this is the administrative application to
6 create two nonstandard spacing units out of the east half
7 of the section, right?

8 A. That is correct.

9 Q. When you look at the bottom of the first page, in
10 support of your request for two nonstandard units, there's
11 an Attachment C, which is the amended acreage dedication
12 for the west half of the section for the Gas Storage Unit
13 Number 2. Do you see that? Do you see the language in the
14 letter, on the first page?

15 A. Yes.

16 Q. Yeah. And Exhibit C is an attachment that shows
17 the C-102 for that well, right?

18 A. Correct.

19 Q. Okay. At the time this is filed, you now know
20 that the Division takes the position you're in two
21 different pools, right?

22 A. (Nods)

23 Q. And instead of suggesting that they move the pool
24 boundary, because you now know they have a pool separation,
25 you don't do that, you ask for a nonstandard spacing unit

1 for the northeast quarter, right?

2 A. Correct.

3 Q. When you look to page 2 of the application, part
4 of the support for the request is in the first full
5 paragraph where it talks about the Commission order -- the
6 Division Order 5995, which subdivides the section, east
7 half-west half, right?

8 A. Yes.

9 Q. And you're referencing the fact that the Division
10 has found there's a fault separating the half sections,
11 right?

12 A. In the order in the 1979 case --

13 Q. Right.

14 A. -- the Division found that at that time, prior to
15 the existence of the well being drilled in the southeast
16 quarter, that is correct.

17 Q. That's right. So in support of this letter
18 asking for a nonstandard spacing unit, Nearburg submitted
19 nothing contrary to this paragraph to demonstrate that the
20 fault was not now there?

21 A. In the application I don't believe that was
22 necessary. That was going to be -- that would be and was
23 the subject of the hearing that resulted from this
24 application. Yes, we did supply information at that time.

25 Q. Well, if information was supplied with this

1 application and it was your desire to continue to try to
2 dedicate the north half of the section to the well, why
3 didn't you submit something to take the fault out?

4 A. We didn't -- I mean, in the application that's
5 not generally done. That's done at the hearing.

6 Q. Back in Exhibit C, have you taken any action to
7 have the Division terminate the spacing unit of the west
8 half for the Gas Storage Well Number 2?

9 A. I think clearly the spacing unit for that well
10 applies to the rights that are granted under that well,
11 which is only the injection and withdrawal of gas.

12 Q. That's not my question, Mr. Shelton. My question
13 is, have you taken any action to have it terminated?

14 A. No.

15 Q. So at this point you have a priority of request
16 before the Commission; you're supporting moving the entire
17 section into what I would call the gas storage pool?

18 A. We at this time have filed an Application for a
19 160-acre spacing unit, and we have geology that we
20 presented at the hearing that shows that the producible
21 interval in our well consists of acreage dedicated to it
22 out of a north-half spacing unit, which we do not believe
23 there's any contribution from the southeast quarter Llano
24 well.

25 Q. You're not answering the questions, Mr. Shelton.

1 That was not the question. Do you want the question again?

2 A. Please.

3 Q. When I look at Section 34, have you taken any
4 action to dedicate the north half to the well, other than
5 your original C-102?

6 A. No.

7 Q. Have you taken any action to advise the Division,
8 until this morning, that you propose to dedicate the north
9 half of this section to the well if they'll move the pool
10 boundary?

11 A. That opportunity to dedicate the north half was
12 granted us by the Commission in the order that Mr. Stogner
13 rendered as a result of the application for the new two
14 160-acre nonstandard spacing units. So it's very clear to
15 the Commission, I think, that if they do move the pool
16 boundaries, we will be dedicating the north half.

17 Q. All right, so that's your first option, your
18 first choice. If they move the boundary, you want to go
19 back and dedicate the north half?

20 A. Well, I mean obviously, Tom, we can do it either
21 way, this 160-acre nonstandard spacing unit or a north
22 half.

23 Q. That's what I'm trying to find out.

24 A. We can do it either way.

25 Q. So you're not abandoning the notion that you can

1 get the northeast quarter section approved as an NSP,
2 right?

3 A. I think you will show, and I think what needs to
4 be demonstrated is the geology and the merits of moving the
5 pool boundaries, and I think the Commission will find, and
6 I think it will all be obvious, that moving the pool
7 boundary lines is the -- is what needs to occur.

8 I think Mr. Kautz got it right, I think he's very
9 astute. I think he knows what he's doing, and I think he
10 got it right.

11 Q. When you approached Mr. Kautz and asked him about
12 the pool boundary, that was after Mr. Stogner's order?

13 A. That's correct.

14 Q. You contacted Mr. Kautz and asked him to pay
15 attention to that provision of the order?

16 A. No, I asked him what the normal nomenclature
17 process was, and he said -- and I asked him because -- I
18 said, Are you familiar with this order and that it refers
19 to a normal nomenclature process?

20 He says, Yes, I am familiar with that order, I'm
21 familiar with the case, and I am the normal nomenclature
22 process.

23 Q. Did you ask him to take action?

24 A. I asked him -- He said he was very familiar with
25 it. I said, Do we need to supply any information to you to

1 get this accomplished?

2 He said, No, you do not, I will take care of it.

3 Q. So the inference, then, is that you have asked
4 him to take action?

5 A. The inference is, I asked him what the process
6 was.

7 Q. And in part of that conversation you have asked
8 him on behalf of Nearburg to take action about that issue
9 and --

10 A. I asked him if he was going to take issue --
11 action on it, excuse me.

12 Q. All right.

13 A. He indicated he was that process and he would do
14 what he felt like was right.

15 Q. So when Nearburg is permitting the well back in
16 February, I think it was, of year 2000 --

17 A. Correct.

18 Q. -- and then the well is commenced in March of
19 2000 --

20 A. Correct.

21 Q. -- in that time period, prior to commencing the
22 well, then, you did not know about the gas storage unit?

23 A. That's correct.

24 Q. You did not know about the pool separations?

25 A. That's correct.

1 Q. You did not know about the historic or current
2 spacing unit dedications in that sections for Morrow wells?

3 A. That's correct. What we did know is that there
4 was a well in the southwest quarter that was producing.

5 Q. I understand that.

6 A. We did know that there was a well in the
7 southeast quarter that had produced but that was no longer
8 productive, and it was not producing. We knew --

9 Q. Did you further your check to determine what
10 spacing units were --

11 A. We knew we had a new north-half unit. And so it
12 would be logical to assume that if we had a new north-half
13 unit and there was a producing well in the southwest
14 quarter, that that well was probably on, at that time we
15 thought, a south-half unit, because we had a new lease on
16 the north half, and there was a producing well in the
17 southwest quarter.

18 Q. As part of --

19 A. And it was very logical to assume that if there
20 was a producing well in the southwest quarter, we would
21 have to bid on a south-half basis, or no new lease would
22 have been issued on the north half.

23 Q. All right, are you done?

24 A. Yes.

25 Q. All right. Did you rely upon the title opinion

1 to tell you anything about the existence of the gas storage
2 unit or any conflicts with existing wells?

3 A. We had a standup title opinion done by Mr. Phil
4 Brewer at the time our well was drilled, and it was a title
5 opinion that was limited to the north half of Section 34
6 only.

7 Q. As part of that process, did Mr. Brewer alert you
8 to the existence of the unit and the unit documents shown
9 in the Land Office files?

10 A. He did not. That title opinion does not
11 reference the existence of the gas storage unit.

12 Q. Let me show you the title opinion, Mr. Shelton.

13 A. This is not the title opinion I'm referring to.
14 I'm referring to Mr. Brewer's title opinion that was done
15 previous to the time we drilled the well. You'll notice
16 this title opinion is dated after the date we drilled the
17 well, and it's done by Turner and Davis.

18 Q. All right, let's get to this in a second. The
19 first one, the standup opinion by Phil Brewer --

20 A. Correct.

21 Q. -- that's the one we're talking about?

22 A. That's the one we're talking about.

23 Q. That title opinion makes no representation of
24 searching OCD files, does it?

25 A. The certified run sheet was prepared for his

1 record research, and he went up and reviewed the SLO files
2 and the county files. He did not review OCD records.

3 Q. As part of the review of the Land Office files --

4 A. Uh-huh.

5 Q. -- in that search, did he find or disclose to you
6 the existence of the gas storage unit?

7 A. He did not.

8 Q. Let's turn to what I'll mark as Redrock Exhibit
9 1-E. It's the July 18th [sic], year 2000, Division order
10 title opinion. Would you look through there and tell me if
11 on page 2 when it looks at the overriding royalty interest,
12 Mr. Carr has introduced representing many if not all of
13 those people? Do you see that?

14 A. He's introduced the ones that have an override
15 that was created prior to the time that we had burdened the
16 lease with overriding royalty interest of Ted Gawloski and
17 the Nearburg employees' fund.

18 Q. Yeah. What's the total overriding royalty burden
19 on the north half?

20 A. 2.7 percent. 2.75, excuse me.

21 Q. Yeah, that's close enough for me.

22 Do those overriding royalty interest owners bear
23 any portion of the cost of the well?

24 A. They do not.

25 Q. So if the Division requires the dedication of the

1 east half of Section 34 to the well, Redrock as an
2 overriding royalty owner would not pay any of the costs or
3 take any of the risk, right?

4 A. Correct.

5 Q. Let's turn for a moment to the southeast quarter,
6 to the Llano Number 1 well. Did you receive the Land
7 Office letter with regards to what -- I think the letter
8 was sent to Chevron. Did you receive notice from the Land
9 Office about what was to be done with the lease in the
10 south half of Section 34?

11 A. No, we received a letter that was addressed to
12 Chevron that asked us to determine what was to be done with
13 the well, not the lease.

14 Q. All right, so that was the sequence. Land Office
15 sends a letter to the record title owner, I believe --

16 A. And sent a copy of it to us. I think we were
17 copied under it, because they knew we had the operating
18 rights in the lease.

19 Q. Okay. So at this point you have the working
20 interest ownership for the southeast quarter?

21 A. Correct.

22 Q. And when did that occur? I think it was about
23 October of 2001.

24 A. That sounds correct. I can find it here, but I
25 believe that's correct, Tom. I'm sure you're right.

1 Q. And in response to the request to the Land
2 Office, Nearburg advised the Land Office that they had
3 plugged the Llano Number 1 well?

4 A. No, we advised them of -- At that time we had not
5 plugged the well. That was -- At that time we evaluated
6 the well, determined that there wasn't anything that we
7 wanted to do in the wellbore to try to re-establish
8 production, either in the Morrow, the Atoka, the Strawn,
9 the Bone Springs. We examined the entire wellbore. We
10 told the Division -- or the SLO, that we had no further
11 plans to develop the lease in that wellbore, and we didn't.

12 Q. Okay. When we look at that wellbore from
13 Nearburg's study --

14 A. Uh-huh.

15 Q. -- were there any additional tests performed on
16 that well by Nearburg?

17 A. No. Now, it was obvious, and it is obvious, and
18 I don't think -- I should not be addressing this, and I'll
19 leave that to our geologist --

20 Q. Well, let's keep it confined to something you
21 know, Mr. Shelton.

22 A. Okay. There was one other zone in there that
23 looked productive to us, that was in communication, we
24 believe, with the gas storage zone. That was the only
25 thing left that looked like it could be producible. We

1 informed the SLO of that, and we didn't do any further
2 development.

3 Q. Well, my question is, you took the wellbore as
4 you found it, took the data that had been generated, looked
5 at the logs and whatnot, and it was evaluated, but there
6 was no test taken in what we call the GRE sand, or what
7 Nearburg calls the GRE sand in that well?

8 A. No, there was not. There was no mechanical entry
9 into the well, nor tests made.

10 Q. Did you make an evaluation of the southeast
11 quarter to determine whether it had any geologic potential
12 or merit for development?

13 A. The southeast quarter well?

14 Q. Yeah --

15 A. The --

16 Q. -- no, the southeast quarter -- quarter section.

17 A. Yes, we did.

18 Q. You did?

19 A. Outside that wellbore in the southeast quarter.

20 Q. Right.

21 A. Yes, we did. We evaluated the lease, you know,
22 in addition to that wellbore.

23 Q. That's what I'm asking you. And what was your
24 answer to that evaluation? That it had no potential?

25 A. It had absolutely no potential.

1 Q. Then why would you bother to acquire the EOG
2 interest in the southeast quarter if it had no geologic
3 potential?

4 A. Well, Tom, I think that's quite obvious. If we
5 ended up for some reason having to form an east-half unit,
6 even after the result of this hearing, we would have stood
7 to lose a 50-percent interest in our well, rather than just
8 the override interest in our well. So it was a -- I mean,
9 it was a business decision to lessen our risk, obviously.

10 Q. All right, so it was a business decision as
11 opposed to a technical reason to further develop that well
12 or that quarter section?

13 A. That's correct.

14 Q. Having acquired the working interest ownership in
15 the southeast quarter nw, the only differential in a
16 dedication of the east half would be the 5-percent override
17 to Redrock?

18 A. Correct.

19 Q. Is there any land reason that you can't form an
20 east-half spacing unit for the Nearburg well?

21 A. We don't believe that's equitable to Nearburg,
22 and that's the reason we're -- and there's no sign, no
23 geologic reason to put acreage that's nonproductive in that
24 spacing unit.

25 Q. Mr. Shelton, you're not answering my question.

1 My question was, is there any land reason that precludes
2 you from dedicating the east half to the well?

3 A. No.

4 Q. Mr. Shelton, you're familiar with the technical
5 arguments to the extent that it's being debated about
6 whether there's a fault in existence in the Morrow that
7 separates the east half from the west half, right?

8 A. I am.

9 Q. At the Examiner Hearing before the Division, Mr.
10 Stogner, back in June and July of last year, Mr. Gawloski
11 was your geologic expert, right?

12 A. Correct.

13 Q. Mr. Gawloski presented a structure map that does
14 not show a fault across Section 34?

15 A. That's correct.

16 Q. Has Nearburg ever had an interpretation that
17 shows that Section 34 was fault-separated with a fault?

18 A. I'll leave that up to our geologist to answer.

19 Q. You do not know of your own personal knowledge if
20 there was such an interpretation?

21 A. I know there's been previous regional maps
22 prepared by Nearburg Producing Company that showed
23 different interpretations of this area.

24 Q. Were any of those interpretations done after the
25 log for the well that you drilled was available?

1 A. We re-interpreted this area as the result --
2 well, we always do, when there's a new well drilled and
3 there's new information, we always re-evaluate our geology,
4 and that did occur after we drilled our well, that's
5 correct.

6 Q. Has Nearburg ever advanced the proposition that
7 there was a fault separating the Section 34 in an east-west
8 direction?

9 A. I have over here the transcript that directly
10 says what Nearburg said in that hearing, and I would like
11 to read that, if that would be okay with you, Tom.

12 Q. My question was, has Nearburg ever, outside of
13 that hearing or any other way, advanced the notion that
14 there's a fault separating the Nearburg well from the Gas
15 Storage Well Number 2?

16 A. They could have. I'm going to refer that to the
17 geologist again.

18 Q. All right.

19 A. There's re-interpretations, always, on geology.

20 Q. Well, I understand that. But I'm talking about
21 an interpretation made after you had the Nearburg well in
22 place.

23 A. I'm --

24 Q. Not to your knowledge.

25 A. To my knowledge, we did reinterpret it after we

1 got our well. After we drilled our well I know we
2 reinterpreted.

3 Q. And to your knowledge, based on that
4 reinterpretation, have you always interpreted the data to
5 show no fault in 34?

6 A. To my understanding, yes.

7 Q. All right, sir. Let me ask you about the gas
8 volumes for the Nearburg well that you've talked about. It
9 was spudded on March 7th of year 2000, completed in June
10 9th of 2000, and it continued to produce, then, until Mr.
11 Stogner ordered it shut in, in July of 2001?

12 A. Correct.

13 Q. Am I correct in understanding that there was a
14 little more than 1 BCF of gas produced?

15 A. I'll defer to our engineer, I don't know. My --
16 The last thing I heard, I thought it was between .8 and 1.
17 I don't know, Tom.

18 Q. All right. Do you remember what this well cost?

19 A. No, I don't remember off the top of my head.

20 Q. Do you know whether the well has paid out with
21 that volume --

22 A. The well has paid out.

23 Q. It has paid out?

24 A. Yes, because the reversionary interest occurred,
25 and so I do know the well is paid out.

1 Q. Well, are you paying any of the overriding
2 royalty owners in the northeast quarter?

3 A. Yes, sir, we are. We're paying all of them.

4 Q. Are they getting paid on a percentage of a
5 standard spacing unit, or have you divided that in half?

6 A. They're getting paid their full overriding
7 royalty interest share.

8 Q. Okay.

9 A. Based on lease ownership.

10 Q. All right. So --

11 A. Well, they haven't gotten anything in 13 months.

12 Q. I understand. But for the past production, the
13 working interest owners and the overrides in the north half
14 have been paid?

15 A. Correct.

16 Q. If the Division determines that the proper
17 spacing unit should have been east half --

18 A. Uh-huh.

19 Q. -- then you would simply re-account, reallocate,
20 and you could then pay Redrock its override? That's a math
21 problem?

22 A. Right, I mean, that's a pretty simple
23 calculation.

24 Q. Nearburg was given the option to petition the
25 Division to have the well turned back on?

1 A. I think we always have that option.

2 Q. And they talked about the letters?

3 A. Well, we did -- And we did do that, yes.

4 Q. And you were told you'd have to go to hearing?

5 A. Correct.

6 Q. And you selected not to take that to hearing?

7 A. Correct.

8 Q. Did you tell the Division that you would escrow
9 the amount of money in dispute over the overrides so that
10 the well could be turned back on?

11 A. Nearburg is a financially sound company that
12 could certainly retroactively reallocate any cash on the
13 basis of production with any owner.

14 Q. That wasn't my question.

15 A. We don't believe it's necessary to escrow any
16 money.

17 Q. You did not suggest to the Division that you
18 could escrow the disputed amount?

19 A. That's correct.

20 Q. There's a series of letters between Nearburg and
21 the Land Office --

22 A. Uh-huh.

23 Q. -- most of those to and through Mr. Carr's firm?

24 A. That's correct.

25 Q. You're aware of those letters?

1 A. Yes, I am.

2 Q. Did Nearburg ever supply the Land Office with any
3 of its geologic arguments or exhibits?

4 A. Well, as I've previously testified, at the time
5 the Nearburg -- the Conoco letter went out, and they asked
6 if we had any more plans for that well or any development
7 for the lease, and we furnished text and maps to support
8 what we would and would not do. So they were furnished a
9 complete set of maps at that time.

10 Q. Are those the same maps that we saw for Mr.
11 Gawloski at the Examiner Hearing in June of last year?

12 A. Well, I don't believe they -- I mean, we
13 furnished them maps on the Bone Springs and on other
14 formations also. It was probably -- as to that particular
15 lease there was a more complete mapping.

16 Q. Let me ask you -- I'm interested in the Morrow.

17 A. Okay.

18 Q. Did you give them any Morrow maps?

19 A. Yes, we did.

20 Q. Were they maps different than the ones Mr.
21 Gawloski presented to Mr. Stogner?

22 A. I don't think they were different hardly at all,
23 Tom, but I don't remember. I'd have to look at both of
24 them and compare, and that's not something for me to do
25 anyway, probably.

1 Q. There's a Land Office letter of December 11th.
2 Do you have that in your exhibit book here, Mr. Shelton?

3 A. No, I don't believe I do.

4 Q. It's in Nearburg -- I'm sorry, it's in Redrock
5 Exhibit A-18.

6 A. I don't have a copy of that.

7 Q. On December 11th of -- I've lost track of my
8 years, Mr. Shelton. What's that letter say?

9 A. 2001.

10 Q. In 2001?

11 A. Uh-huh.

12 Q. -- the Land Office is advising you that they're
13 going to defer a decision about this matter to the
14 Commission for solution. Is that not what they finally
15 decided?

16 A. Well, it says they continue to support Nearburg's
17 efforts to persuade the Commission to rescind the shut-in
18 order of the well.

19 Q. But then you didn't pursue the shut-in order of
20 the well?

21 A. That's correct.

22 Q. All right. So when you read the rest, they defer
23 to the Commission here to address the merits of what
24 happens?

25 A. Correct.

1 CHAIRMAN WROTENBERY: Mr. Kellahin?

2 MR. KELLAHIN: Ma'am? Do we have a book --

3 CHAIRMAN WROTENBERY: I just noticed that Dr. Lee
4 has the, I think, initial Redrock book rather than the
5 exhibit book that you provided on the 11th. Do you happen
6 to -- Oh, you do have it?

7 COMMISSIONER LEE: No.

8 MR. KELLAHIN: Let me take a quick look and see.

9 COMMISSIONER LEE: This is yours, right?

10 MR. ROSS: I think this is the most recent one.
11 This is the one everybody has.

12 CHAIRMAN WROTENBERY: Which I think was the --

13 MR. ROSS: Which is the same one I have, which
14 you submitted September the 10th. It may be the same one.

15 MR. KELLAHIN: Let me let Dr. Lee use that one,
16 and I'll get another one.

17 CHAIRMAN WROTENBERY: Let's check one other
18 place. We do have it.

19 MR. KELLAHIN: Okay. Not me, then.

20 CHAIRMAN WROTENBERY: Thanks. Okay, now we're
21 with you.

22 Q. (By Mr. Kellahin) Mr. Shelton, if you go to
23 Nearburg's Exhibit 11, this is the Land Office letter of
24 January 10th of 2001. Do you see that?

25 A. Yes, sir.

1 Q. The second paragraph, down towards the end, it's
2 the last sentence of that paragraph, the Land Office is
3 saying, "We understand the error regarding a N2 dedication
4 to the Nearburg well that was drilled in the NE4 of Section
5 34, and concur that an E2 dedication was necessary due to
6 the differing Morrow Gas pools segregated by the North to
7 South trending fault through the middle of Section 34." Do
8 you see that?

9 A. I do.

10 Q. Did Nearburg submit anything to the
11 Commissioner's office to rebut this conclusion about a
12 fault separating the section?

13 A. Only at the time when we submitted the documents
14 pursuant to their request that we look for future
15 development in the southeast quarter. Those documents will
16 show that there was no fault.

17 Q. And what's the vintage of that submittal? When
18 was that done? It had to be after October --

19 A. I don't know, it was after -- It was after
20 this --

21 Q. Yeah, and --

22 A. -- but I -- Tom, I can't tell you the date we
23 submitted that.

24 Q. That would have had to have been after the
25 notification to Chevron to submit documentation for the

1 south half?

2 A. It was shortly after we -- They gave us something
3 like a certain number of days to submit that information,
4 and it was well within that time period after we received a
5 copy of the Conoco letter.

6 Q. So it appears that at least ten months after this
7 letter --

8 A. Uh-huh.

9 Q. -- you then send them something about the south
10 half?

11 A. Correct.

12 Q. Did you respond to this --

13 A. This letter, to me, doesn't show that they're
14 requesting us to justify whether there is or isn't a fault.
15 That's a statement by them, but it doesn't request
16 information.

17 Q. Well, I understand, though. If that's their
18 statement and apparently their conclusion, wouldn't you
19 want to send them --

20 A. I don't know --

21 Q. -- data that changed their minds?

22 A. I don't know that that's their conclusion, and
23 I'm certainly not trying to put words in the SLO's mouth,
24 but I think that that determination was made by the 1979
25 hearing of the OCD, not by the SLO.

1 MR. KELLAHIN: All right, that concludes my
2 questions. Thank you.

3 CHAIRMAN WROTENBERY: Thank you.

4 Mr. Hall?

5 MR. HALL: No questions.

6 CHAIRMAN WROTENBERY: Mr. Carr, did you have
7 anything further?

8 MR. CARR: No, I do not.

9 CHAIRMAN WROTENBERY: Thank you for your
10 testimony, Mr. Shelton.

11 THE WITNESS: Thank you very much.

12 CHAIRMAN WROTENBERY: I'm sorry, Commissioners,
13 do you have anything? No? Thank you.

14 Would you like to call your next witness?

15 MR. CARR: May it please the Commission, at this
16 time we would call Dean Horning.

17 MR. HORNING: Good morning.

18 DEAN A. HORNING,

19 the witness herein, after having been first duly sworn upon
20 his oath, was examined and testified as follows:

21 DIRECT EXAMINATION

22 BY MR. CARR:

23 Q. Mr. Horning, would you state your name for the
24 record, please?

25 A. Dean H. Horning. And some people refer to me as

1 Cap, C-a-p, so you'll hear that from time to time. Cap
2 Horning also.

3 MR. CARR: Everyone calls him Cap, and so if we
4 slip up and say that, that's who -- we're still talking
5 about Mr. Horning.

6 CHAIRMAN WROTENBERY: Okay.

7 Q. (By Mr. Carr) Where do you reside?

8 A. Midland, Texas.

9 Q. By whom are you employed?

10 A. Nearburg Producing Company.

11 Q. What is your position with Nearburg?

12 A. I'm the district geologist covering New Mexico,
13 the Permian Basin, and also Texas.

14 Q. Have you previously testified before the New
15 Mexico Oil Conservation Commission?

16 A. No, I have not.

17 Q. Could you summarize for the Commission your
18 educational background?

19 A. Well, I've got double degrees from the University
20 of Texas in math and physics and in geology and geophysics
21 and also graduate work towards a dissertation that was
22 truncated in 1977.

23 Q. Review your work experience for the Commission.

24 A. My work experience, my early years were with
25 Chevron and Tenneco working primarily in offshore

1 Louisiana, onshore Louisiana, same for Texas. But my past
2 20 years I've been working either in a direct exploration
3 mode or in a supervisory capacity in southeastern New
4 Mexico, primarily Morrow. So about 20 years here.

5 Q. And how long have you been employed by Nearburg?

6 A. A little over seven years.

7 Q. And what do your duties with Nearburg include?

8 A. Well, it's primarily in a supervisory capacity
9 for exploration in New Mexico and in Texas.

10 Q. What part of Nearburg operations do you
11 supervise?

12 A. Exploration, primarily.

13 Q. Do you supervise the geological --

14 A. Yes.

15 Q. Do you supervise geophysical aspects?

16 A. Geological and geophysical.

17 Q. And is that the area in which your
18 responsibilities lie?

19 A. Yes.

20 Q. Are you familiar with the application filed by
21 Nearburg for the creation of two nonstandard units in the
22 east half of Section 34?

23 A. Yes, I am.

24 Q. In June of 2001 there was a hearing concerning
25 those units, and the geological witness was Ted Gawloski.

1 A. Uh-huh.

2 Q. Did you supervise Mr. Gawloski?

3 A. Yes, I did.

4 Q. Did you work with him on this project?

5 A. Yes, I did.

6 Q. Are you familiar with the history of the Grama
7 Ridge East "34" State Well Number 1 drilled by Nearburg in
8 the northeast quarter of the section?

9 A. Yes, I am.

10 Q. Have you made a geological study of the area
11 which is the subject of these Applications?

12 A. Yes, I've done it myself, plus I've supervised a
13 lot of it.

14 Q. And how long have you worked on this particular
15 prospect?

16 A. Well, I mean essentially since early 2000 when
17 the prospect was first brought to us, January-February.
18 That was the first time I saw it.

19 Q. Are you prepared to share the results of your
20 work with the Commission?

21 A. Yes, I am.

22 MR. CARR: We tender Mr. Horning as an expert in
23 geology and geophysical science, and I will, when I tender
24 him, also tell you, we're not presenting any geophysics.
25 But that is his area of expertise.

1 CHAIRMAN WROTENBERY: Any objection?

2 MR. KELLAHIN: No.

3 CHAIRMAN WROTENBERY: We accept his
4 qualifications.

5 Q. (By Mr. Carr) Would you briefly summarize for
6 the Commission what it is you've done to study the geology
7 of the Morrow formation or reservoir in the area of
8 interest?

9 A. Well, the first thing I did, really, is review
10 the history on the pool, and reviewing the transcripts and
11 geological exhibits that were presented by Llano back in
12 1979 in the hearing that resulted in Section 34 being
13 divided into two pools.

14 Q. Did you make a complete geologic study based on
15 the data available to you?

16 A. Yeah, we -- that's when I really got involved in
17 it, as far as looking at all the issues with the Morrow
18 cross-sections, maps, et cetera.

19 Q. Did you review all information in Nearburg's
20 files?

21 A. Oh, yes, we had quite a bit of subsurface data,
22 and that's what it was based on.

23 Q. Have you also looked at information from various
24 public sources?

25 A. Yes, we have.

1 Q. OCD records?

2 A. OCD records, information from libraries and then
3 in-house stuff also.

4 Q. Have you prepared a geological interpretation of
5 this reservoir from the data you have reviewed?

6 A. Yes, I have.

7 Q. Now, in making this study, I need to ask you
8 this, did you have any seismic data available to you or did
9 you utilize any information --

10 A. No, we didn't have any seismic.

11 Q. And your study was prepared strictly and
12 completely on well control information?

13 A. All subsurface data, yes.

14 Q. Let's go to what has been marked for
15 identification as Nearburg Exhibit Number 3, and I'd ask
16 you to first identify that and then basically review what
17 this exhibit is and what it shows.

18 A. This is a structure map that was presented at the
19 1979 hearing. And as you see, it's a rather convoluted
20 structure. Let me go over a little bit of this.

21 On the west side of the structure map you'll see
22 a straight line. It's essentially a down from the west
23 fault. This is a well-documented subsurface fault on the
24 order, depending upon the interpretation, between 500 and
25 1000 feet. This is typically the type of fault you see out

1 in this country, it's -- you know, we're dealing with a
2 wrench-fault-type system. These are basement-oriented
3 faults. They're extremely high angle to vertical, so no
4 matter what your topo surface is, the expression is always
5 a straight line.

6 If you move over just right of center on this
7 exhibit you'll see another fault that specifically goes up
8 through the center of Section 4 and then curves back on
9 itself through Section 26. This is the type of fault you
10 typically do not see. Essentially the expression here is a
11 low-angle fault down to the southeast, cutting across the
12 nose, and you see the expression of that trace on the
13 surface.

14 In 20 years I've -- You know, when you look at
15 low-angle faults here, you think that sooner or later
16 you're going to cut a well. And in the 20 years I've never
17 seen in the northern part of the Delaware Basin either loss
18 of section or repeated section. So the credibility of this
19 type faulting is not really indicative of what you see in
20 this part of the Basin.

21 Q. And you're talking about that curved fault that
22 runs through the middle of 34?

23 A. Right. Yeah, well, it goes through the center of
24 34, and then it curves over through 26.

25 The -- And the next exhibit will show this. They

1 essentially put 225 feet of throw on this fault, down to
2 the east once again, and in the southeastern quarter of 34
3 -- or, excuse me -- yeah, in 34, that's where the Llano
4 well was drilled and in fact came in high. So instead of
5 being 225 feet low it was actually six feet high to the
6 wells in the southwest quarter of 34 and the southwest
7 quarter of 35.

8 Q. So this exhibit was presented in March of 1979?

9 A. That's correct.

10 Q. And it was in October of 1979 that the well was
11 drilled in the southeast quarter?

12 A. Yes, it was drilled essentially six, seven months
13 later.

14 Q. Let's go to Nearburg Exhibit Number 4. Would you
15 identify that, please?

16 A. This is cross-sectional supporting data also
17 presented at that hearing. It's a structural cross-
18 section. Therefore, the data is subsea on this thing.

19 If you refer to the index map, lower middle of
20 this map, referring to the index map in the lower middle,
21 you can see the three wells on it, GRM 3, GRM 2 and then
22 the Getty "35". The two wells in question that we want to
23 talk about are really the GRM well in the southwest quarter
24 of 34 and the Getty "35" in the southeast of -- excuse me,
25 southwest of 35.

1 Q. The two wells on the right?

2 A. Exactly. And as you can see on the cross-
3 section, there's a dashed line representing a vertical
4 fault, down to the east again with 225 feet of throw.

5 One thing that they did correct on this is the
6 top of the Morrow clastics, and that's represented by -- in
7 the well in the southwest of 34. That occurs at about
8 12,750. They've got the correlation point there. And also
9 in the well in the southwest of 35 at 12,800.

10 If you do the math on that and subtract the KBs,
11 you get essentially minus 9099 on the well in 34 and minus
12 9103 in the southwest of 35, essentially four foot of
13 difference. These two wells are flat to each other.

14 With no other data presented on this thing, I
15 mean, this fault was essentially wished in there. There's
16 absolutely no reason or no evidence or subsurface data to
17 put this fault in there.

18 Q. All right, Mr. Horning. Now, you have made an
19 independent -- or independently mapped and prepared cross-
20 sections on the area which we've just looked at; is that
21 right?

22 A. Yes.

23 Q. Let's go to Nearburg Exhibit Number 5 and start
24 with the stratigraphic cross-section GRE-GRE'.

25 A. Okay.

1 CHAIRMAN WROTENBERY: Mr. Carr, is Exhibit Number
2 5 the one that you gave us a substitute for?

3 MR. CARR: Yeah, Exhibit Number 5, a replacement
4 copy was provided. I will tell you that the only change on
5 it -- The wells have had various names over time, and the
6 only change on them is to put the most recent name on the
7 top. And we're going to present this by explaining each
8 well and trying to identify it by location. Nothing in
9 terms of the technical information on the exhibit changed,
10 so it shouldn't be a problem.

11 Q. (By Mr. Carr) All right, Mr. Horning, let's go
12 to Exhibit Number 5. Identify the line of cross-section
13 and review the information on this exhibit.

14 A. Okay, again I'd like to point out that this is a
15 stratigraphic cross-section. It is hung on the top of the
16 Morrow clastics or top of the Morrow "B", however you want
17 to refer to it, at the base of that big lime -- the big
18 blue lime section up here. And again, this is a convention
19 in this part of the country.

20 If you look at the index map, the line goes from
21 the southwest of 34 to the southeast of 34 to the northwest
22 of 35, to the Nearburg well, and then up to the southwest
23 of 27. This is sort of a nonconventional of looping a
24 strat section like that, but there were two things we were
25 interested in looking at here. One is the relationship

1 between the southwest and the southeast of the section, and
2 also the relationship of the wells in the northwest of 35,
3 northeast of 34 and southwest of 27.

4 Q. All right, let's start with the well on the left,
5 and I'd ask you to review the information.

6 A. The well on the left is -- I guess we can refer
7 to as the gas storage well. It was drilled in March of
8 1966.

9 Q. This is in the southwest quarter of Section 34?

10 A. That's correct. The first thing to notice, if
11 you go from top to bottom, is that a DST was taken that
12 included the sand that you see at approximately 12,920.
13 This was a -- This reservoir had a tremendous PI. It
14 flowed 15 million on the DST at around 4000 pounds. It
15 also had shut-in pressures of 7682, which is real
16 indicative of this area, or about a .6 gradient. You'll
17 see the pressures range from 6800 to almost 7900. At least
18 that's -- the wells I've looked at, that's sort of the
19 pressure range in this regime.

20 The second zone down is what we call the lower
21 Morrow "B" main sand, and as you can see it's very
22 pervasive across the section. This sand also is very
23 ubiquitous throughout the entire area. You can extend it
24 many miles to the north, with varying producing
25 characteristics.

1 One thing I would like to point out in this is
2 that they did perforate this sand, and it's a little bit
3 difficult looking at this 2 1/2 version on this sonic log
4 but they've got about six foot of perfs in this thing.

5 They're also in sort of a strange location. It
6 doesn't really look like they've perforated it within the
7 best porosity. But in fact, the cutoff on this cross-
8 section -- Mr. Gawloski ran it at 61 microseconds. That is
9 equivalent, if you do the calculations, to about an 8-
10 percent density cutoff. Empirically we find that that's
11 probably a little bit too optimistic. We usually bump them
12 to 64 to 67 microseconds in this area, and sometimes even
13 70. And if we had done that with this zone, we probably
14 would have no mappable net feet of pay in that sand at all.
15 It looks like a very tight sand to me. I don't know if MCF
16 of gas ever came in or went out of this.

17 Moving to the next well over in the southeast of
18 34, you'll also notice that green triangle, DST tight
19 through that upper Morrow lime of no consequence. The
20 second sand down does not exist in the gas storage well.
21 It also tested tight, was worked over in 1984, also of no
22 consequence.

23 The next zone down, also at 12- --

24 COMMISSIONER LEE: Let's see, just a second,
25 please.

1 THE WITNESS: Excuse me.

2 COMMISSIONER LEE: These two zones, in your
3 opinion, are not connected, right?

4 THE WITNESS: That's right.

5 COMMISSIONER LEE: But is that possible those two
6 zones are the same zone?

7 THE WITNESS: Not in my opinion. I mean,
8 intervally, these things are really layer cake out here,
9 and you would be hard pressed to connect them up any other
10 way.

11 COMMISSIONER LEE: Why the characteristics of
12 these two zones on your are very similar?

13 THE WITNESS: Similar characteristics? Well,
14 you'll see that a lot in the facies out here. These are
15 very -- we try to divide these things into --

16 COMMISSIONER LEE: But this is your judgment?

17 THE WITNESS: Yes, uh-huh.

18 COMMISSIONER LEE: Okay, thank you.

19 THE WITNESS: The next zone down, you notice at
20 12,900 I have correlated into the zone that it DST'd 15
21 million a day in the well to the west. That zone has never
22 been completed.

23 The next zone down from that is also the lower
24 Morrow "B" main sand. And as you can see, that has a lot
25 of perforations in it. And we believe that most of the 4.1

1 BCF that this well produced came from that zone.

2 There's one other item that I'd like to note.

3 Right below the lower Morrow main "B" sand in this well in
4 the southeast of 34 --

5 COMMISSIONER LEE: We're talking about the second
6 well?

7 CHAIRMAN WROTENBERY: Yeah, we're in this well.

8 COMMISSIONER LEE: This well is this one?

9 CHAIRMAN WROTENBERY: This one. That's the
10 first.

11 COMMISSIONER LEE: Oh, it's not this one?

12 CHAIRMAN WROTENBERY: No, that's over here.
13 We're going this way. Thank you.

14 THE WITNESS: Okay, and I'm still on this second
15 well from the left. Right below that main -- that big,
16 thick sand, you'll also see a gamma-ray expression down
17 there. At the time we didn't know whether this was a shaly
18 sand or a shaly lime. Since then, we've acquired a mud log
19 and have looked at it and determined that it is a sand.

20 As you can see, it's got about 4 percent density
21 porosity. There's no crossover. The neutron is to the
22 left of the density, indicating it's probably shaly. And
23 if you look at the mud log also, it talks about gummy
24 shales, intergranular.

25 So it's probably -- and I would concede that it

1 is a remnant of the GRE sand that we'll be talking about at
2 the next well over.

3 Q. (By Mr. Carr) And this is the well that was
4 drilled in -- the second well, the one you've been talking
5 about --

6 A. Yes.

7 Q. -- in the southwest of 34, is the well that was
8 drilled in October of 1979 --

9 A. This was drilled --

10 Q. -- a few months after the fault was placed?

11 A. Right, this well was drilled in 10-79. The fault
12 that we just talked about in the 1979 hearing was January
13 of 1979. This well was essentially drilled 13 years after
14 the injection well was drilled, six years after it was
15 converted to an injector in 1973.

16 Q. Do you have any opinion as to why the second zone
17 down was not perforated?

18 A. Well, at the time we didn't have any direct
19 evidence, but we made an inductive leap and said, Well, we
20 knew that it was essentially communicating with the gas
21 storage reservoir. And since then we've found the
22 engineering evidence that it is indeed connected with that
23 reservoir through RFTs.

24 Q. All right, Mr. Horning, let's now go to the third
25 well from the left, the BTA well located in the northwest

1 of Section 35. Could you review the information on that
2 well?

3 A. Yes, the salient point on that well is really
4 down on the GRE sand, as you can see, down below the main
5 sand. The main reason this is in here, we wanted to map
6 the extent of the GRE sand, because that's the sand that
7 the Nearburg well was producing out of. And indeed, we can
8 correlate it directly to it. It has good density porosity,
9 up to almost 14 percent. It has crossover, not a lot of
10 it, maybe about a foot. In fact, it was completed in that
11 upper zone, low perm, not very productive, but we believe
12 that it is part of that GRE sand. That's in the northwest
13 of Section 35.

14 Q. All right. And now we're going to flip the
15 direction and we're going to start going back to the west
16 with the fourth well on the cross-section, which is the
17 Nearburg well in the northeast of 34.

18 A. Right, looping back to the west we're now looking
19 at the Nearburg well, again looking at the GRE sand below
20 the main sand. That is the well that we perforated and
21 have been producing from. We have not completed in the
22 main sand, nor any other sands in the Morrow clastics.

23 Up above the big carbonate interval, we also have
24 a Morrow "A" sand up there that has been mapped, and I'll
25 be showing you those, that we'll getting to sometime down

1 the road.

2 Q. All right. And are you ready to go to the last
3 one?

4 A. Yes, the last one is simply there to show that we
5 do have -- up above the blue unit, we do have a remnant of
6 that Morrow "A" sand. And in doing these cross-sections
7 too, unless we have direct evidence that we are dealing
8 with sands, we're either looking for a PE of 2 or less, or
9 we're looking for a gas effect for the sand, or a gas
10 effect for the sand and gas, or perforations that produce
11 gas.

12 This thing has a PE showing that -- It looks like
13 this is part of that remnant sand up in Section 27, and you
14 can continue it to the Nearburg well, over to the Burgundy
15 well.

16 The other thing about this is, down below the
17 main sand, once again we're picking up a remnant of the GRE
18 sand with density porosity and crossover.

19 So these are three of the sands on this cross-
20 section -- or in the GRE, these are three of the units that
21 were mapped as having net feet of pay.

22 Q. If we look at the second well from the left, the
23 well in the southwest quarter of 34 --

24 A. Yes.

25 Q. -- and look at the way you have -- I mean

1 southeast quarter of 34. When we look at the way you have
2 mapped the GRE sand, you do not find a GRE sand present in
3 that well?

4 A. Well, I think the GRE sand is present in that
5 well, but the way -- Out in this area we always map with
6 net feet of pay. If you map with gross, you know, it can
7 get pretty confusing, you can end up with sands everywhere.
8 So we did not interpret the GRE sand to have any productive
9 extent in the southeast quarter of 34 at all.

10 Q. Are you ready to go to your next cross-section,
11 your structural cross-section?

12 A. Yes.

13 Q. Let's take that out. It has been marked Nearburg
14 Exhibit 6.

15 A. Okay, GRE2-GRE2' extends across the area from
16 Section 33 into Section 36, and it's simply to show that
17 there is a lot of continuity within the Morrow clastics
18 across this, especially in the Morrow "B" sand.

19 Q. Mr. Horning, let's wait just a minute till we get
20 the --

21 A. Okay.

22 CHAIRMAN WROTENBERY: And Mr. Carr, again, this
23 is one --

24 MR. CARR: This is one, there is a replacement --

25 CHAIRMAN WROTENBERY: -- exhibit you replaced?

1 MR. CARR: -- just to correct the captions at the
2 top and put the current well names on it. But they are the
3 same wells and same logs.

4 Q. (By Mr. Carr) All right, Mr. Horning, let's go
5 with Exhibit Number 6.

6 A. Okay, this is a structural cross-section, datum
7 subsea, once again extending from Section 33 east to
8 Section 36. This cross-section was constructed primarily
9 just to show the continuity within the Morrow Pool from the
10 west to the east. We also see that, as I've stated before,
11 the lower Morrow "B" main sand is pervasive throughout the
12 area.

13 The other things that we wanted to look at, if
14 you focus on the first -- the second well from the left and
15 the fourth well from the west, these were the two logs that
16 were in the cross-section that I went over that was
17 presented in the 1979 hearing. They essentially had the
18 225-foot fault between them. In fact, they would be
19 between the second well from the left and the third well
20 from the well from the left, that's where that fault would
21 have occurred.

22 You can see that the Minerals, Inc., well was
23 drilled. It came in actually high to not only the well to
24 the west, but to the well to the east, essentially negating
25 the need for that fault whatsoever.

1 I've got the subseas on there, and you can see
2 how they came in. They came in about 60 feet high to both
3 of those wells. It's one of the highest wells in the area.

4 Q. And if we look at the third well from the left --

5 A. Uh-huh.

6 Q. -- and we come down to the -- I guess the second
7 yellow sand --

8 A. Yes.

9 Q. -- there's a notation there about RFT data. What
10 does that indicate?

11 A. Well, I mean, we always suspected that we were in
12 communication with that sand to the west, but this well was
13 in communication with the sand in the gas storage well.
14 But RFT data has shown that -- and the sand has never been
15 completed in this well -- RFT data has shown that you are
16 in a zone that has been depleted from somewhere, and --

17 Q. Was the RFT log run in close proximity to the
18 time the well was completed?

19 A. Oh, yes.

20 Q. And in that interval was there any -- were there
21 any wells at that time that were producing from that
22 interval, other than the wells to the west?

23 A. None whatsoever.

24 Q. Do you have an opinion as to where the pressure
25 depletion would have come from?

1 A. Well, you know, I'm assuming that it came from
2 the amount of gas that was taken out of the gas storage
3 well. It made 5.9 BCF, 25,000 barrels, so that's putting a
4 pretty big dent in the reserves in that reservoir.

5 Q. And that storage well has produced since 1966?

6 A. Since 1966.

7 Q. And this well was completed in 1979?

8 A. This well was completed in 1979, and the gas
9 storage well was converted to an injector in 1973, so
10 there's been a lot of gas moving in and out of that zone.
11 And as I said before, these zones -- virgin pressure on
12 these zones, we're running between 7600 and 7800 pounds.

13 Q. And what sort of pressure did you get in the RFT
14 log? Do you know?

15 A. I don't know. I'll just defer that to George and
16 let him go over that. I don't remember. I remember there
17 were two RFT take points in the 3000-plus range, and the
18 were within a pound of each other, so -- But he can go over
19 that in more detail.

20 MR. CARR: May it please the Commission, there is
21 no Exhibit 7, we have withdrawn that, and we're now ready
22 to go to Exhibit Number 8.

23 Q. (By Mr. Carr) Would you take that out and
24 identify that, please? All right, Mr. Horning, would you
25 explain to the Commission what this is and what it shows?

1 A. All right. Well, Exhibit 8 is a structure map on
2 the top of the Morrow clastics. It was that same marker,
3 it was right below that big blue lime unit.

4 Basically what we see here is a plunging
5 southwest nose. This map is on 50-foot contours, so I was
6 able to put a 50-foot structure over the south half of 34
7 and the north half of 3.

8 But the other main -- the structural element on
9 this map is the southwest-to-northeast fault, the one that
10 has been well documented in this area from subsurface
11 control. And it ranges from 500 to 1000-plus feet. In
12 this area it's about 900 foot of throw to the west.

13 As you can see, it comes down with very gentle
14 regional dip from the northeast. Nothing spectacular
15 there. I saw no reason whatsoever to put any faults in
16 this area, at least from a subsurface standpoint, or any
17 other reason, actually, so...

18 Q. Mr. Horning, if we look at this structure map,
19 there's a trace on it for the cross-section GRE2-GRE2'.
20 That was your structural cross-section; is that right?

21 A. That's correct, uh-huh.

22 Q. And if we remember that cross-section, the well
23 in the southwest quarter -- southeast quarter of Section 34
24 was actually the highest well --

25 A. Yes.

1 Q. -- shown on that?

2 A. Uh-huh.

3 Q. Is it possible that the structural position on
4 those wells is simply related to the way they roll over
5 that structural nose that --

6 A. Well, yeah, I mean, I suspect what happened here,
7 that this -- and you'll see this a lot in this area, that
8 the wrench-fault tectonics are creating structures for you
9 all the time. And I would imagine what's happening here
10 is, you've just got fault drag into the upthrown side of
11 that fault and rolling this whole structure over. So it's
12 a real common tectonic feature in this area.

13 Q. But not evidence to put a fault in the reservoir?

14 A. Well, there's no evidence to put a fault in
15 Section 34, no.

16 Q. Let's go to Exhibit Number 9, your net isopach of
17 the lower Morrow "B" GRE sand. All right, what is this?

18 A. Well, this is a net isopach, and by "net" I mean
19 that we used a porosity cutoff of greater than or equal to
20 8 percent. Again, in this area we do a lot of mapping like
21 this, because if you used gross sands you'd end up
22 sometimes putting sands everywhere. So we really
23 concentrated on the net cutoff.

24 And as you can see in this map, we're picking
25 up -- if you direct your attention to the southwest of 35,

1 you've got two foot of net sand over 17 foot of gross,
2 going to the northwest of 35 you've got 2 net over 2 gross,
3 to the Nearburg well in the northeast of 34 you have 16 net
4 over 19 gross, and then in the well in the southwest of 27
5 you've got 1 net over 2 gross.

6 And so looking at the net distribution of this,
7 this is how we set up this isopach.

8 Q. And they would actually set up the orientation --

9 A. Sets up the orientation, yeah. I mean, these
10 types of sands with these types of log characters are
11 thought to be of marine origin. Generally when we map in
12 this area we try to break things out into marine and non-
13 marine. The non-marine would be a more dip-oriented, the
14 marine being more strike-oriented, you know, with different
15 apparent dips to those -- the paleo dips.

16 So this is more or less a marine-type sand that
17 has an apparent strike orientation.

18 Q. Now, you noted the four wells which set up the
19 orientation for this small reservoir. Do you see any
20 potential for contribution to the Nearburg well from the
21 well in the southeast quarter? If you'll wait just a
22 minute --

23 A. No, I mean --

24 Q. Mr. Horning, wait just a minute.

25 A. Excuse me.

1 CHAIRMAN WROTENBERY: Go ahead, please.

2 Q. (By Mr. Carr) The four wells that you identified
3 set up the basic trend or orientation for this sand. Do
4 you see any potential for contribution to the Nearburg well
5 in the northeast of 34 from the southeast quarter of this
6 section?

7 A. No. I mean, if we were to re-do this map today
8 based on what I saw in the mud log we might add some gross
9 feet in this thing, but the net-sand map would still have
10 the same orientation. Essentially the productive area of
11 that isopach would look the same.

12 Q. If we look at the four wells that you use to set
13 the orientation of the sand and we go to the eastern edge
14 of that sand, what did you find in that well? That 2 over
15 17, what does that show?

16 A. Well, essentially this shows that you've got
17 about 2 foot within that 17 feet of gross that's got
18 greater than 8-percent porosity. That doesn't necessarily
19 mean it's productive, but what you're doing is, you're
20 applying a cutoff to get the orientation of these things.

21 Q. So you've got two feet of net sand there?

22 A. Yes, uh-huh.

23 Q. Do you see anything geologically that would
24 suggest to you that that is in a separate reservoir in the
25 GRE sand?

1 A. Well, no. I mean, the key to mapping these
2 things is really -- look for the net distributions on them.
3 And if you look at the entire area, or at least right
4 around Section 34, there only are four wells that have any
5 net sand in them whatsoever. And so that's what we do, is,
6 we concentrate on what the net distribution is. So there
7 is no reason to separate that sand.

8 Q. No net sand in this GRE sand in the south half of
9 34?

10 A. None whatsoever. It looks --

11 Q. Is there any that you see in Section 3?

12 A. No. There was a little bit of gross sand down
13 there, but no net sand. No reservoir sand, at least.

14 Q. Let's go now to what has been marked as Nearburg
15 Exhibit 10, and this will be the isopach of the lower
16 Morrow "B" main sand.

17 A. The big story on this sand is just to show how
18 pervasive it is. In fact, if you map this sand from a
19 gross sense, you'd pretty much have sand everywhere. But
20 applying the cutoff, you get a feeling for the orientations
21 of the sands, the continuities of the sands. In fact, you
22 can see over Section 34 that it pretty much blankets
23 Section 34.

24 Q. No discontinuities?

25 A. No.

1 Q. All right, let's go to Exhibit 11, net isopach
2 for the Morrow "A". What does this show you?

3 A. Once again, this is a net sand cutoff, 8 percent
4 or greater on the "A" sand. This was the little thing
5 stringer that lay above the blue unit on the cross-
6 sections, that thin, small one. And essentially, this map
7 is just to show that the net distribution of that sand
8 exists only in the north half of 34, not in the south half
9 of 34.

10 Q. Is this sand --

11 COMMISSIONER LEE: Wait a minute, you -- In that
12 region, how many data points do you have?

13 THE WITNESS: Well, we've got -- Right around 34,
14 of course, we have the one in the southwest of 27, we have
15 the northeast of 34, and --

16 COMMISSIONER LEE: Using those two points you can
17 come up with the contour of that thing?

18 THE WITNESS: Yeah, it's primarily based on the
19 one in the northwest of 35 and the one in the northeast of
20 34.

21 COMMISSIONER LEE: No, I'm talking about 34. How
22 many data points in 34 do you have in the north?

23 THE WITNESS: One in the northeast of 34.

24 COMMISSIONER LEE: One, you've come up with the
25 contour?

1 THE WITNESS: Yes.

2 COMMISSIONER LEE: This is amazing.

3 Q. (By Mr. Carr) Do you have any net or gross feet
4 in this interval, in the well in the southeast of 34?

5 A. No net or gross.

6 Q. Do you have any in the southwest of 34?

7 A. No net or gross.

8 Q. Do you have any net in the south of 27?

9 A. In the -- We've got two foot of gross in there.

10 Q. And no net feet there?

11 A. No.

12 Q. And so with those zeroes and two points in the
13 middle that show net feet you're able to draw a small
14 structure there?

15 A. Yeah, I mean, you're able to -- the
16 interpretation is, you've got a small accumulation of sand
17 there. And we extended out across 34, thinking that there
18 was a possibility to pick up some net in there.

19 Q. And this is a sand interval above the gas storage
20 interval?

21 A. Yes, it's above the gas storage intervals.

22 Q. Now, Mr. Horning, have you had an opportunity to
23 look at the mud log that has been included in the exhibit
24 packet submitted by Redrock?

25 A. Yes, sir, I have.

1 Q. And you were here when Mr. Kellahin talked about
2 that mud log and the import they're attaching to it in this
3 case?

4 A. Uh-huh.

5 Q. Do you have that with you?

6 A. Yeah, I've got it right here.

7 Q. That's what's marked Exhibit B-9, I believe, in
8 the Redrock exhibit material? If you look at that exhibit,
9 you'll note that at certain places they indicate there is a
10 flare at certain intervals?

11 A. Uh-huh.

12 Q. You have drilled a number of wells in this area,
13 have you not, been the geologist on those?

14 A. That's true.

15 Q. And you have worked with mud logs on numerous
16 wells, have you not?

17 A. Uh-huh.

18 Q. What does that indication on this log that says
19 "Flare" tell you?

20 A. Well, it's very typical to be drilling with a
21 flare in the Morrow. If you just look at the extent of
22 this mud log, the big sand that DST'd 15 million came in
23 about 12,900 on this thing. As you can see, there's a
24 break-back on that thing. If you look over at -- you've
25 got a lot of trip gas, a lot of connection gas, working on

1 rig for 20 minutes, working on rig for seven minutes,
2 you've got a lot of gas accumulating in the system. It
3 could have come from that zone or something above that.

4 But below that zone at 12,900, you're carrying
5 flares all the way through: 3-1/2-foot flare, 1 to 2, 2 to
6 4, 2 to 4, 1 to 3, 1 to 2, flareout, which is real common,
7 you know, when you've got a 1-to-2-foot flare the wind can
8 blow it out or a slug of water or -- whatever. It looks
9 like -- It re-ignited above the GRE sand and continues on
10 down.

11 Q. Does this tell you that there is gas coming out
12 of the GRE sand?

13 A. Well, no, there's no direct indication of that.

14 Q. What does it tell you?

15 A. It doesn't tell you anything. I mean, it just
16 tells you that you're drilling with a flare throughout this
17 system. And I mean, if you read the description of this
18 sand, it talks about intergranular, gray-black, slightly
19 gummy shales in it, so...

20 Q. And the gas in that as being flared, does it come
21 from the GRE sand, or do you know where it's coming from?

22 A. No, I mean I don't know where it's coming from.
23 It's coming up the hole someplace. I would suspect it's
24 coming from the main sand at 12,900 in that well.

25 Q. And so if you looked at this alone, would you

1 conclude that you, in fact, had gas coming out of the GRE
2 sand?

3 A. No.

4 Q. Mr. Horning, what conclusions can you reach from
5 your geological study of this area?

6 A. Well, several conclusions. One is that I don't
7 think the GRE sand is in communication with anything in the
8 gas storage unit. I'd also conclude there is no fault in
9 Section 34. I would conclude that the GRE sand does not
10 exist in the south half of Section 34, that the "A" sand
11 does not exist in the north half of 34.

12 Q. If the owners of the reserves in the north half
13 of this section were to have an opportunity to receive
14 their fair share of those reserves, could that be
15 accomplished if there was a north-half spacing unit?

16 A. Yes.

17 Q. Could that be accomplished if there was a
18 nonstandard unit comprised of the northeast quarter of this
19 section?

20 A. Oh, yes.

21 Q. Were Exhibits 3 through 6 and 8 through 11, I
22 believe, prepared by you?

23 A. Yes.

24 MR. CARR: At this time we'd move the admission
25 into evidence of Nearburg Exhibits 3 through 6 and 8

1 through 11.

2 CHAIRMAN WROTENBERY: Any objection?

3 MR. HALL: No objection.

4 CHAIRMAN WROTENBERY: Okay, Exhibits 3 through 6
5 and 8 through 11 are admitted into evidence.

6 MR. CARR: And that concludes my direct
7 examination of Mr. Horning.

8 CHAIRMAN WROTENBERY: May I ask one question?
9 There was an exhibit 1A --

10 MR. CARR: And we are probably not going to use
11 1A. It was really -- The purpose was, again, to try and be
12 sure we had everybody on the same page with the well names.

13 CHAIRMAN WROTENBERY: Okay.

14 MR. CARR: And I think at this point in time we
15 do not intend to use that.

16 CHAIRMAN WROTENBERY: Okay. It's about lunch
17 time. Should we break for lunch and then --

18 MR. KELLAHIN: Yes, ma'am.

19 CHAIRMAN WROTENBERY: -- start with cross-
20 examination after lunch? How about we break until 1:15?
21 Will that give everybody enough time to get something to
22 eat, get organized?

23 (Thereupon, noon recess was taken at 11:56 a.m.)

24 (The following proceedings had at 1:10 p.m.)

25 CHAIRMAN WROTENBERY: Okay, we'll go back on the

1 record. And Mr. Kellahin, I think you're up.

2 CROSS-EXAMINATION

3 BY MR. KELLAHIN:

4 Q. Mr. Horning, would you take out Nearburg's Morrow
5 stratigraphic cross-section? I have it as Exhibit 5.

6 Looking at the caption box in the lower right, it
7 says geology by Ted Gawloski.

8 A. Yes.

9 Q. Do you see that?

10 A. Uh-huh.

11 Q. And at all times during Nearburg's investigation
12 of Section 34, was Mr. Gawloski the geologist principally
13 encharged for that task by Nearburg?

14 A. Yes.

15 Q. And you were his supervisor?

16 A. Yes.

17 Q. At the hearing last June of last year, Mr.
18 Gawloski presented a series of exhibits.

19 A. Uh-huh.

20 Q. We've got a cross-section and a structure map,
21 isopachs. Had you reviewed all those at the time he made
22 that presentation last year?

23 A. I think I had looked at every one of them, yes.

24 Q. How closely was he working under your supervision
25 on this project?

1 A. Well, we certainly discussed the projects, we
2 discussed the maps. I wasn't intimately involved in all
3 the details, but I would look at them for validity to see
4 if they made sense at the time.

5 Q. Mr. Gawloski is no longer a geologist with
6 Nearburg?

7 A. No, no longer with Nearburg.

8 Q. I'm sorry?

9 A. No longer, no.

10 Q. When did he leave?

11 A. Gee, it must have been two or three months ago,
12 middle of July, I believe, middle to late July.

13 Q. Of this year?

14 A. Yes, sir.

15 Q. Did you go back through and look at all the
16 displays and exhibits that Mr. Gawloski had prepared on
17 this topic?

18 A. Yes, I did.

19 Q. When you looked at the stratigraphic cross-
20 section he prepared --

21 A. Uh-huh.

22 Q. -- which you now are sponsoring, are there any
23 changes between the map we see now and the one we had back
24 in June of last year?

25 A. Yeah, there are some minor changes, yes.

1 Q. I don't care about the minor ones --

2 A. But no major --

3 Q. -- we don't have enough time to --

4 A. -- no major changes --

5 Q. -- talk about all those changes.

6 A. -- that I know of.

7 Q. All right, so I'm looking at the same picture I
8 saw last year?

9 A. Correct.

10 Q. All right. As a result of Commission
11 requirements, the parties have exchanged in September our
12 hearing exhibits for today, and then we've supplemented it.

13 At the time that this exhibit was prepared, is
14 this August of this year?

15 A. Yes.

16 Q. All right. Does this represent anything that you
17 have edited --

18 A. Yes, sir.

19 Q. -- from Mr. Gawloski's work?

20 A. Yes.

21 Q. Okay. In August of this year, had you looked at
22 the mud log for the Llano well in the southeast quarter of
23 Section 34?

24 A. No, sir.

25 Q. You had not. So the cross-section I'm looking at

1 now was prepared before you looked at the mud log?

2 A. That's correct.

3 Q. Mr. Carr talked to you about Nearburg Exhibit --
4 I'm sorry, Redrock Exhibit B-9. That's the mud log?

5 A. The mud log, yes, sir.

6 Q. And I think we gave you a full mud log. There's
7 a little copy floating around. Did you have enough of that
8 so that you could study that exhibit?

9 A. Yeah, I mean it covered the interval that we're
10 looking at right here --

11 Q. Okay.

12 A. -- yes, sir.

13 Q. When we look at that interval -- and I'm looking
14 at your cross-section Number 5, and I want to find the
15 Llano, which is the second from the right --

16 A. Correct. No, second from the left.

17 CHAIRMAN WROTENBERY: Second from the left.

18 MR. KELLAHIN: I'm not so good with directions
19 anymore. I used to be pretty good.

20 Q. (By Mr. Kellahin) From the left.

21 A. Yes, sir.

22 Q. And I'm looking at the base of the Morrow "B"
23 sand.

24 A. Uh-huh.

25 Q. And if I were to extend the GRE sand that you

1 have in the Nearburg well, which is the third over -- no,
2 it's --

3 A. Fourth over.

4 Q. I can't count. Fourth over.

5 A. Uh-huh.

6 Q. -- the GRE sand, if we extend that back to the
7 Llano well, there appears to me to be an indication just
8 below the base of the lower perms in the Llano well that
9 may or may not be the Morrow GRE sand.

10 A. Correct.

11 Q. I'd like to approach you and have you mark on my
12 copy where we are so I can talk to you about --

13 A. Sure.

14 Q. -- what may or may not be that Morrow GRE sand.

15 A. Okay, what we're talking about right here --

16 Q. You have to wait for the court reporter. Why
17 don't you mark it, and then we'll talk about it?

18 A. Okay.

19 MR. KELLAHIN: Madame Chairman, let me show you
20 what Mr. Horning has marked on my display so that we're all
21 looking at the same thing.

22 CHAIRMAN WROTENBERY: Did you see it?

23 COMMISSIONER LEE: Yeah.

24 CHAIRMAN WROTENBERY: Okay, thanks.

25 Q. (By Mr. Kellahin) When we look at the log of the

1 Llano well independent of the mud log, what does that
2 squiggle tell you? What are we seeing?

3 A. Well, it tells me that we have some sort of
4 lithologic body there, and without any other additional
5 information I would say it would be either a shaly lime or
6 a shaly sand.

7 Q. Can you now take the mud log and use a mud log to
8 help you understand the lithology?

9 A. Absolutely.

10 Q. Yeah, that's one of the things a mud log will do
11 for you?

12 A. Right.

13 Q. And having looked at that mud log, can we now
14 conclude that the GRE sand is, in fact, a sand?

15 A. In this well?

16 Q. Yes, sir, in the Llano well.

17 A. Yes, I mean, I conceded before that if I was
18 mapping it now I would correlate that in as a remnant of
19 the GRE sand.

20 Q. Okay. If we're going to take this interval and
21 prepare a gross isopach on the GRE sand, would you account
22 for the gross thickness of that GRE sand as it's depicted
23 in the Llano log?

24 A. Would I account for it in the interpretation?

25 Q. Yeah, when you draw the contour lines for the

1 gross map, would this have enough positive footage to be in
2 the gross calculation?

3 A. Well, it would certainly be on the map in a gross
4 sense.

5 Q. That's all I'm asking.

6 A. Well, what are you asking me?

7 Q. I'm asking you --

8 A. Would I isopach it as gross?

9 Q. Yeah.

10 A. And what else are you asking me?

11 Q. I don't know yet.

12 A. Okay. Well, I mean, yes, I concede it has, oh,
13 probably six feet of gross sand in it, yes.

14 Q. Okay, that's all I wanted to know.

15 A. Yes.

16 Q. What else do geologists like you do, Mr. Horning,
17 use the mud log for?

18 A. What do we use it for?

19 Q. Yeah.

20 A. Well, primarily it's used as a tool while you're
21 drilling to decide what zones you will test.

22 Q. Let me ask you a more specific question.

23 A. Uh-huh.

24 Q. What if the geologist on site is looking at the
25 mud-log details and he sees fluorescence in the samples --

1 A. Uh-huh.

2 Q. -- at this particular interval? What is that a
3 possible indication of?

4 A. It's an indication that there may be
5 hydrocarbons. Depends upon the type of fluorescence, of
6 course. It could be mineral or hydrocarbon.

7 Q. Does it matter to the geologist if during the
8 drilling process he needs to account for the drilling time
9 just above and just below that zone?

10 A. Yes, drilling time is important.

11 Q. Pardon?

12 A. Yes, drilling time is important.

13 Q. What happens if there's a drilling break? What
14 does that mean?

15 A. Well, that's usually an indication that you have
16 a relatively faster drilling formation than the surrounding
17 or the ambient formation. Generally if you're drilling a
18 shale and you get a break, then you start looking for sand.
19 That's not always the case, sometimes it's a shale. So...

20 Q. But that would be one of the things you would
21 begin to look at with the mud log if you had a drilling
22 break?

23 A. Right.

24 Q. Indication of sand and that it might be
25 hydrocarbon-bearing?

1 A. Might be, yes.

2 Q. When we're looking at the radius of investigation
3 of a mud log, how big an area are we looking at in this
4 wellbore?

5 A. When we're looking at a mud log?

6 Q. Yes, sir.

7 A. Essentially the size of the wellbore.

8 Q. When we look at a porosity log, how far out are
9 we looking in the reservoir from the center of that
10 wellbore?

11 A. The size of the wellbore.

12 Q. That's all we're looking?

13 A. That's right.

14 Q. Based upon this information, you have prepared an
15 isopach. And Dr. Lee asked you about the one GRE data
16 point in the Nearburg well, and I'm trying to find out if
17 there's other data points you could use.

18 A. Well, are we talking about the GRE sand?

19 Q. Not just yet. I meant in the GRE sand. We've
20 got that data point in the Nearburg well --

21 A. Yes.

22 Q. -- on the log --

23 A. Uh-huh.

24 Q. -- at that point. And if we're trying to decide
25 the size and the shape and the orientation of that GRE

1 pod --

2 A. Uh-huh.

3 Q. -- with one data point, we can swing that pod in
4 all kinds of orientations, can we not?

5 A. Well, in this case, if you're making
6 environmental interpretations and you're connecting what
7 you consider to be a reservoir, you're fairly well
8 constrained. If you're dealing with one point, yes, but
9 we're dealing with four points in this case.

10 Q. Let me ask you if you have utilized the Llano
11 "34" 1 well in the southeast quarter as a data point to
12 give you an orientation of the gross GRE sand?

13 A. No, we don't map gross sand in this area.

14 Q. Do you know whether or not Mr. Gawloski mapped a
15 gross?

16 A. No, he doesn't either.

17 Q. He won't do it either?

18 A. Huh-uh.

19 Q. Would that be a data point that would tell you
20 orientation of the GRE sand?

21 A. In a gross sense?

22 Q. Yes, sir.

23 A. No, sir.

24 Q. In a net sense, when we look at the Nearburg well
25 and the wells around it, can you honor those data points

1 and rotate that pod from east-west to north-south?

2 A. No, I mean, it's got essentially a northwest-
3 southeast-type orientation to it, as per those four wells
4 with net pay in them.

5 Q. Within the confines of those wells --

6 A. Uh-huh.

7 Q. -- you can rotate that pod, can you not, and
8 still honor those data points?

9 A. Well, I don't know how I would do that unless I
10 had an infinite number of wellbores. I mean, it's not --
11 If I rotated it, then I would be saying that I think this
12 is a dip-oriented sand, and I think it's a strike-oriented
13 or a marine-reworked sand.

14 Q. When you look at your well control for that
15 decision, what do you have west of the Nearburg wellbore
16 that gives you a data point?

17 A. Well, essentially the BTA well in Section 27.

18 Q. Twenty-seven. You've got to go north to 27 to
19 get that.

20 A. Yeah, northwest.

21 Q. What do you have west of the Nearburg well that
22 gives you a data point?

23 A. We have nothing, there's no --

24 Q. There's nothing out there?

25 A. No well in the northwest quarter, no, sir.

1 Q. If the mud log and the porosity logs are only
2 investigating this immediate vicinity of the wellbore, how
3 does that allow you to conclude that the GRE sand doesn't
4 extend down into the southeast quarter?

5 A. Well, I mean, first of all we make a conclusion
6 as to what type of sand it is, what the depositional facies
7 is, what the environment of deposition is. And once we
8 look at the logs in the area, I mean, we map off net sand,
9 and once we see an alignment we essentially cross-check
10 ourselves, does this alignment make sense with the
11 environment of deposition? And we always thought that this
12 was marine in nature, that it was strike-oriented, and
13 essentially we had a strike orientation to all four of
14 those wells.

15 Q. You have to make that assumption about the
16 deposition in order to make your hypothesis work?

17 A. Yes.

18 Q. If you have a different point of view as a
19 geologist and have concluded that it is a channel system,
20 as opposed to a shoreline marine deposit, you could likely
21 use the same information and come up with a channel
22 orientation to --

23 A. Well, yeah, I mean, if I was mapping a channel
24 system then it would be paleo-dip-oriented. But in this
25 case we're not doing that, so...

1 Q. Are you prepared to tell us that under no
2 circumstances is this mud log an indication that
3 hydrocarbons can be produced out of the GRE sand in the
4 southeast quarter of the section?

5 A. That the mud log is?

6 Q. Yes, sir.

7 A. No, the mud log is just one piece of data. All I
8 said was, I couldn't tell anything from the mud log as to
9 whether or not it would be productive or not.

10 Q. Okay. So that is -- the mud log details you have
11 are not so definitive that you can absolutely, for
12 certainty, exclude the southeast quarter from the GRE sand?

13 A. Based on the mud log alone?

14 Q. Yes, sir.

15 A. Well, I'd have to back up a little bit in reading
16 the samples. When I see sands that have intergranular
17 gummy shales in them, that pretty much precludes that it's
18 a productive sand.

19 Q. When we look at the mud log and look at the Llano
20 well, what happens when we see an increase in gas show
21 before and after that drilling sand?

22 A. You're looking at the mud log right now?

23 Q. Yes, sir.

24 A. Okay, would you --

25 Q. Yes, sir.

1 A. -- would you ask me that question again, please?

2 Q. I'm certainly capable of asking you a bad
3 question, so bear with me Mr. Horning.

4 What I want to know is, when you look at the mud
5 log are there any indications of gas show above and below
6 the GRE interval in the Llano well?

7 A. Well, there's obviously background gas in here.
8 I don't see anything relative to a gas increase per sand.
9 All I see is that this well is carrying a background gas
10 of, say, 1500 to 2000 units on average, which is very
11 common. That's what's producing the flares throughout that
12 interval.

13 Q. The first time Nearburg looked at this mud log
14 was in association with the Redrock presentation of the mud
15 log to you in September of this year?

16 A. Yeah, I believe so, uh-huh.

17 Q. Okay. When did Nearburg plug the well in the
18 southeast quarter?

19 A. I don't know when that well was plugged.

20 Q. Sometime after October, I think, of last year,
21 Mr. Shelton told us.

22 So at the time this well was plugged by Nearburg,
23 you didn't have and didn't examine this mud log?

24 A. No.

25 Q. Okay. Let's turn to the structure map, and I

1 have it as Nearburg Exhibit 9 -- I'm sorry, Exhibit 8. All
2 right, don't fold up your cross-section here, Mr. Horning.

3 A. Okay.

4 Q. We're going to stack a couple of these together.

5 A. All right.

6 Q. When I look at the cross-section, Exhibit 8 -- Do
7 you have one of those out yet?

8 A. Okay, I've got the structure map out.

9 Q. Okay, looking at the structure map, this is the
10 current presentation that you're giving to us --

11 A. Uh-huh.

12 Q. -- it's dated at the bottom by Mr. Gawloski as
13 the geologist in December of last year. Do you see that?

14 A. Yes, sir.

15 Q. Is this the same map that he showed us at the
16 hearing in June?

17 A. I believe it is. The difference being is, there
18 was some overposting or overshifting by the computer that
19 my technician had picked up, and we've since corrected
20 that, but --

21 Q. I don't care about that --

22 A. Okay.

23 Q. -- you've got all that --

24 A. Okay. It's essentially the same map, yes.

25 Q. When you're talking about the GRE sand, and you

1 told me just now that it's strike-oriented, what are you
2 saying? When I look at that -- When I look at the isopach
3 of the GRE sand and you tell me it's strike oriented --

4 A. Uh-huh.

5 Q. -- and you've got it oriented east and west, how
6 do you reconcile that with the structure map that tells me
7 the strike of the structure is north and south?

8 A. Well, this is current-day structure. This has no
9 bearing on paleostructure. And the only way you can decide
10 what paleo dip is, is to look at the orientation of the
11 fluvial systems, which are generally north-south in that
12 area.

13 Q. Mr. Horning, have you examined all of Mr.
14 Gawloski's work?

15 A. I believe so, uh-huh.

16 Q. Have you looked at any exhibits that he prepared
17 that were pre-hearing, June of last year?

18 A. Oh, yeah, I'm aware of all of those.

19 Q. There's a bunch of those?

20 A. Yeah.

21 Q. Did Mr. Gawloski always concur with you about the
22 absence of a fault in Section 34 that cuts that into two
23 halves, east-west?

24 A. No, we had a regional structural map that at one
25 time had a fault proceeding down through Section 34.

1 Q. Was that before or after the Nearburg well was
2 drilled?

3 A. I think that was before the well was drilled,
4 uh-huh.

5 Q. If I had some type of prospect map or something,
6 it would have been --

7 A. These are regional maps, essentially. They're
8 macro-geology maps, they're not detailed maps. Yes.

9 Q. So post-drilling of the Nearburg well we should
10 not have an interpretation from Nearburg that is other than
11 showing what we're seeing on Exhibit Number 8?

12 A. Well, no, that's not true either. A lot of times
13 the regional maps are not changed as the local maps are
14 changed, and they're only integrated at a later time in the
15 mapping system. So there could very easily be a regional
16 map existing, showing a fault coming through 34 that was
17 post-drilling.

18 Q. When I look at the structure map, Exhibit Number
19 8, let's look at the relationship structurally as you've
20 mapped the Nearburg well with the gas storage well, the
21 Unit Well Number 2. What is the structural relationship?

22 A. It appears that the -- on this datum, that the
23 Nearburg well on the top of the Morrow clastics is
24 approximately 13 feet high to the Llano "34".

25 Q. And when I go back to the stratigraphic cross-

1 section and I find the gas storage well --

2 A. Yes, sir.

3 Q. -- they were putting gas in what's identified
4 here as the lower Morrow "B" main sand?

5 A. Well, they've got perforations in it. I doubt if
6 they were putting any gas into it.

7 Q. And we come all the way over, then, to the
8 Nearburg well, and I'm looking at the interval just above
9 the GRE sand, which is lower Morrow "B" main sand?

10 A. Uh-huh.

11 Q. I see that?

12 A. Yes, sir.

13 Q. Am I correct in remembering that the prior cross-
14 section showed that to be wet?

15 A. What it showed was, it calculated to be wet.
16 They're two different things.

17 Q. Okay.

18 A. You know, classically in this area if you have R_t
19 below a certain level, you think the zone could be wet.
20 But we also see low-resistivity Morrow sands produce. So
21 until you actually perforate or production test it in some
22 way, you don't know.

23 Q. Well, let me make sure I understand your
24 vocabulary.

25 A. Uh-huh.

1 Q. If I've got an upstructure well in the Nearburg
2 position to the gas storage --

3 A. Uh-huh.

4 Q. -- and there is a prior map of yours that shows
5 that the Nearburg well is wet in that interval, what have I
6 been told?

7 A. Well, what the previous cross-section, I believe,
8 had, it said it calculated wet, which is absolutely
9 correct. You know, and that's just -- All you're using is
10 R_t , you're using porosity, you're using salinities of the
11 water to make those calculations.

12 Q. Is there a percentage that you look for in that
13 calculation that tells you you can now call it wet?

14 A. No.

15 MR. KELLAHIN: Okay. Madame Chairman, I'm losing
16 track of my numbers, with other things. The title opinion
17 we used a while ago with Mr. Shelton, I want to mark that
18 E-1 --

19 CHAIRMAN WROTENBERY: That's what you --

20 MR. KELLAHIN: -- so -2 goes in sequence.

21 MR. KELLAHIN: I'm about to show what I'm going
22 to mark as E-2.

23 Mr. Horning, let me describe for you what I'm
24 showing you.

25 A. Okay.

1 Q. First page is a cover letter. Mr. Carr and I
2 have been exchanging documents pursuant to subpoenas, and
3 this is one of the documents that I received back in August
4 of this year. And what I'd like you to turn to is, if
5 you'll just turn the cover sheet over --

6 A. Uh-huh.

7 Q. -- the top of this indicates a geologic review.
8 Do you see that?

9 A. Yes, sir.

10 Q. And then above that is a fax header which has a
11 date of July 31st of this year.

12 A. Uh-huh.

13 Q. And when you read down into the body of this, if
14 you'll go down -- I'm not sure all these copies got marked.
15 Do you have one that's highlighted?

16 A. No, but I see where it says "and calculates wet".

17 Q. Yeah, I want you to go farther down --

18 A. Okay.

19 Q. -- and we're talking about the Nearburg well
20 compared to the GRE Unit Well Number 2 -- that's the well
21 in the southeast quarter -- compared to the Nearburg
22 well --

23 A. Uh-huh.

24 Q. -- and it concludes, "It is apparent, then, that
25 these sands are not in reservoir communication and are

1 separated by either a..." permeability barrier or a fault.
2 Do you see that? And then it goes on to say, the structure
3 mapping of the Morrow in this area does indicate the
4 presence of a fault between the Nearburg well and the Grama
5 Ridge Well Number 1 and then the Number 2 well. Do you see
6 that?

7 A. Yes.

8 Q. Did you write this?

9 A. Who wrote this?

10 A. I don't know who wrote it.

11 Q. Do you have any maps that show how this was done
12 in terms of describing and locating the fault?

13 A. No.

14 MR. KELLAHIN: Okay. Madame Chairman, we need to
15 mark this as Exhibit E-3.

16 Q. (By Mr. Kellahin) Mr. Horning, I've handed you
17 what is marked as Nearburg [sic] Exhibit E-3.

18 A. Uh-huh.

19 Q. Can you tell me, Mr. Horning, why Nearburg on
20 this display has put a fault running north-south through
21 Section 34 separating out the Nearburg well from the gas
22 storage well?

23 A. Well, one of the practices we have when we're
24 doing regional faulting is that we don't die faults out
25 unless we've got a reason to do that, and this is probably

1 an extrapolation of that regional map that had this fault
2 passing down through this area, but I don't believe at the
3 time we had any information, pressure information or any
4 fault cuts or anything like that. It was just an
5 extrapolation from some regional faulting to the north, as
6 I remember.

7 Q. So to remove the fault, you still need to account
8 for the pressure differential between the gas storage well
9 and the Nearburg well in the GRE sand? That sand does not
10 talk to each other in those two wellbores, right?

11 A. Well, they don't exist.

12 Q. So either, in your opinion, the GRE interval
13 disappears because of a fault barrier, or it disappears for
14 some other reason?

15 A. Well, I mean all this is post-depositional
16 faulting, so faulting does not affect deposition. So I
17 mean if the sand was going to be there, it would be there.

18 Q. So what's the explanation for the fact that this
19 fault line has now been edited out of the display?

20 A. Well, I mean, the conversations that we had at
21 the time after the well was drilled, and I believe after
22 our -- I got more involved in it, probably, after our
23 meetings with LL&E [sic] when I was reviewing these things
24 for Ted, and I noticed the Llano "34" well was pretty
25 conspicuous, that the sand that's at about 12,900 on the

1 cross-section had not been perforated, not only by the --
2 not the original owner but also five subsequent owners.
3 And I said these guys -- I mean, it doesn't take much for
4 an exploration geologist to look at that and say somebody
5 knew something about that, and they probably knew it was
6 hooked up with the gas storage unit. And I said, If that's
7 the truth then there is no reason for faulting through
8 here.

9 And hence, you know, we contoured it after that
10 and...

11 Q. Make sure I don't misunderstand you. When I'm
12 looking at the Nearburg well in the northeast quarter --

13 A. Uh-huh.

14 Q. -- you're telling me it is separated from the Gas
15 Storage Well Number 1 in the southwest quarter?

16 A. No, I'm not talking about the Nearburg well. The
17 well that actually caused us to take that fault out of
18 there was the Llano "34" well in the southeast of 34. And
19 it was inferential data, you know. We looked at the zone
20 at 12,900, noticed the high porosity on the crossover and
21 said, Why would these guys not perforate this and why would
22 subsequent operators not perforate it?

23 Q. I'm still not with you. Are we dealing with a
24 comparison of the Nearburg well to the well in the
25 southwest quarter of 34? Am I on the right well?

1 A. No, what I'm trying to do is describe to you the
2 processes that allowed us to take the fault out. What I'm
3 talking about is the gas storage well in relationship to
4 the Llano "34" well, and --

5 Q. You're dealing with two wells in the south half
6 of the section?

7 A. Yes, sir.

8 Q. Okay, so you're dealing with the Llano well in
9 the southeast --

10 A. Uh-huh,

11 Q. -- and the gas storage well in the southwest?

12 A. Correct.

13 Q. Okay. So the fault is taken out based upon data
14 from the two wells in the south, and that data is pressure
15 information between various zones?

16 A. No, we did not have pressure information at the
17 time, and -- but we were -- Like I say, it's very
18 inferential. I mean, this is part of the inductive process
19 we always go through when we're trying to place faults or
20 create structures or do isopachs, and when we looked at
21 that zone we said, Why wouldn't anybody perforate that
22 zone, either the original operator or subsequent operators?

23 And the conclusion was, is because they knew at
24 that time that it was -- we didn't have any information to
25 tell us that at the time, but they knew at that time that

1 it was hooked in with the gas storage zone.

2 Q. Okay, let's stop right there. You're talking
3 about the Llano well in the southeast quarter?

4 A. Yes, sir.

5 Q. The assumption is that it's hooked in with the
6 gas storage unit at that time?

7 A. Uh-huh.

8 Q. What's the time frame we're talking about now?

9 A. What do you mean, "time frame"?

10 Q. When you see that the decision is being made not
11 to complete the Llano well in that zone.

12 A. You mean when did we have this discussion and --

13 Q. No, I've confused you.

14 A. Uh-huh.

15 Q. You've got evidence that indicates that the Llano
16 well is not hooked to the gas storage, right?

17 A. No, we've got indication that it is.

18 Q. That it is.

19 A. Uh-huh.

20 Q. And what's the vintage of that, approximately?

21 A. You mean when we were discussing it or --

22 Q. Yeah, when were you thinking about it?

23 A. It was sometime after we had had the discussions
24 with LL&E as to whether or not the Nearburg well was in the
25 gas storage unit.

1 Q. What data -- Let me ask you, what data did you
2 look at that caused you to believe that the pressure
3 depletion in the Llano well in the southeast quarter was
4 attributed to the gas storage well in the southwest
5 quarter?

6 A. Say that again.

7 Q. Yeah. What data are you looking at to say that
8 they are connected in the south half, between those two
9 wells?

10 A. It's purely inferential data, in that that zone
11 was never completed, not only by the original operator or
12 any subsequent operators.

13 Q. Are you looking at any of the RFT data?

14 A. Not at that -- We didn't have the RFT at that
15 time.

16 Q. Did you know at that time what wells were in the
17 gas storage unit?

18 A. At that time I knew that the Shell well was in
19 the gas storage unit, and some of the surrounding wells.
20 As far as I knew, the only other well that was in that zone
21 that we believe all the gas went into and came out of was
22 in Section 33.

23 Q. Okay. Were there any other gas storage wells in
24 the gas storage unit, other than that well?

25 A. The one in 33?

1 Q. Yeah.

2 A. I really can't remember if there were or not. I
3 don't believe so.

4 CHAIRMAN WROTENBERY: Mr. Horning --

5 THE WITNESS: Yes.

6 CHAIRMAN WROTENBERY: -- could you just -- when
7 you're talking about "that" zone --

8 THE WITNESS: I'm talking about the --

9 CHAIRMAN WROTENBERY: -- when you're saying that
10 the --

11 THE WITNESS: Yeah, on the --

12 CHAIRMAN WROTENBERY: -- Llano well was not
13 completed in that zone? Which zone are you referring to?

14 THE WITNESS: Okay, I'm referring -- If you look
15 at the gas storage well, that's the big zone that DST'd 15
16 million, the zone at 12,920.

17 CHAIRMAN WROTENBERY: Okay.

18 THE WITNESS: What I'm referring to, the zone
19 that was not completed, not perforated, in the Llano "34",
20 it's essentially at 12,900.

21 CHAIRMAN WROTENBERY: Okay, thank you.

22 Q. (By Mr. Kellahin) Let's go back to Exhibit E-3.
23 That's Mr. Gawloski's structure map that's got the fault on
24 it.

25 A. Yes, sir.

1 Q. Did either you or he prepare any cross-sections
2 that would show this fault?

3 A. Well, I certainly didn't, and I don't -- I'm
4 trying to remember. We may have, I'll answer it that way.
5 I don't remember any, actually. I mean, you know, it...

6 Q. So when we're looking at the presence or absence
7 of the fault, tell me what data you used that caused you to
8 believe the fault wasn't there.

9 A. Well, I've already answered that about three
10 times.

11 Q. It's just pressure data, right?

12 A. Well, no, we weren't using any pressure data.

13 Q. You didn't have any completion data, did you?

14 A. We had no completion data and no -- and that was
15 it. We had a conspicuous lack of completion data.

16 MR. KELLAHIN: Madame Chairman, I need to
17 renumber this exhibit.

18 CHAIRMAN WROTENBERY: E-4.

19 MR. KELLAHIN: E-4 is the number?

20 Q. (By Mr. Kellahin) Mr. Horning, let me show you
21 Mr. Gawloski's cross-section from May of the year 2000.

22 A. Uh-huh.

23 Q. Do you see that? Mr. Gawloski has interpreted a
24 fault that separates the Nearburg well from the well in 34,
25 does it not?

1 A. Correct.

2 Q. We're comparing the gas storage well in the
3 southeast quarter to the Nearburg well in the north half of
4 the quarter, and it shows a fault?

5 A. Correct.

6 Q. And when we compare that and go back to his
7 structural cross-section, we're not looking at any regional
8 interpretation, are we?

9 A. No, this is local.

10 Q. Yeah, and so is his structure map, isn't it?

11 A. Well, you know, I remember this cross-section
12 now, and this was made, I think, for purposes of the LL&E
13 meeting, and it was a reaction to essentially the structure
14 map you've got here.

15 Q. What did you show LL&E, the gas storage people,
16 to cause them to believe that the Nearburg well was not
17 connected to the gas storage unit? What geologic displays
18 did you show them?

19 A. Well, I don't remember exactly. This may have
20 been one of them. Essentially what we were looking at is
21 the stratigraphic interpretation of the GRE sand in
22 relationship to the well in the southwest of 34.

23 Q. So the geology that was shown the gas storage
24 people was a geologic interpretation --

25 A. Yes.

1 Q. -- that separated the Nearburg well from the gas
2 storage with the fault?

3 A. Correct. As you'll note on this cross-section,
4 though, I mean, these sands were carried straight across,
5 and it's...

6 Q. The interpretation you're giving the Commission
7 now is a different interpretation?

8 A. Yes, uh-huh.

9 MR. KELLAHIN: I'm going to give you a chance to
10 fold up the maps here --

11 CHAIRMAN WROTENBERY: Thank you.

12 MR. KELLAHIN: -- and then I'd like to talk about
13 the isopach.

14 THE WITNESS: Okay.

15 Q. (By Mr. Kellahin) For the GRE sand isopach map,
16 Mr. Horning, I have Nearburg Exhibit 22. Is that what you
17 have?

18 A. Exhibit 9?

19 Q. Look at 22 and 9 together, and tell me if there's
20 a difference between them.

21 A. What is 22?

22 Q. The 22 I have is a lower Morrow "B" net isopach
23 of the GRE sand.

24 A. I don't know. Is this -- Oh, okay. Okay.

25 Q. I think we've figured it out here.

1 A. Okay.

2 Q. The exhibit you sponsored is Exhibit 9.

3 MR. CARR: Right.

4 THE WITNESS: Correct.

5 MR. KELLAHIN: Exhibit 22 has got some
6 engineering stuff on it.

7 MR. CARR: Correct.

8 THE WITNESS: Yes, sir.

9 Q. (By Mr. Kellahin) Okay, let's go with 9.

10 A. Okay.

11 Q. When I look at your pod for the GRE sand on this
12 net isopach, you've got the Nearburg well at 16 gross feet?

13 A. No, sir.

14 Q. Or did I read that backwards?

15 A. Yeah, that's net. It's usually net over gross.

16 Q. All right. So the gross is the second number?

17 A. Yes, sir.

18 Q. All right, and the first number is the net. When
19 we go down to the Llano well we've got zero, zero. And as
20 you follow the line of cross-section you've done it in the
21 same manner. If you find a value you give the gross and
22 the net.

23 Is this consistent with the map presented by Mr.
24 Gawloski at the Examiner Hearing back in June of last year?

25 A. Well, it's consistent, but it's different.

1 Q. All right, look at the differences.

2 CHAIRMAN WROTENBERY: This is E-5, Mr. Kellahin?

3 MR. KELLAHIN: Yes, ma'am.

4 Q. (By Mr. Kellahin) When I look at Mr. Gawloski's
5 map, at the Nearburg well, he's using the same values you
6 are. He's got the 16 and the 19, right?

7 A. Yes.

8 Q. And then you move to the east and go over to the
9 well in 35, he has 3 net feet and 8 gross feet?

10 A. Uh-huh.

11 Q. You've reduced that now to 2 and 2?

12 A. Uh-huh.

13 Q. Why did you make that change?

14 A. Well, essentially, I mean, this is one of the
15 processes, you know, when you're working with your
16 reservoir group. When we looked at the volumetrics of this
17 pod, all our P/Zs told it wasn't going to make that much
18 gas, so...

19 Q. You're referring to Mr. Gawloski's pod?

20 A. Yes, when we did volumetrics on that, it had more
21 gas in it than this well was going to make, as per P/Z
22 calculations. So went back --

23 Q. Now, let me interrupt you. What you were doing
24 is, you concluded that the engineering calculations were
25 correct, and therefore Mr. Gawloski's map is too big?

1 A. Yes, sir.

2 Q. And what we're about to look at is how you have
3 shrunk his map?

4 A. Yes, I just went in there and I just took a
5 closer look at it, blew the logs up to a 5-inch rather than
6 looking at them on a 2-1/2-inch, got a little bit better
7 resolution, and I got a little bit more conservative with
8 the pod so that we could get a better feeling of the
9 distribution relative to what sort of reserves we expected
10 to get out of that pod.

11 Q. You were looking at the same data Mr. Gawloski
12 had looked at?

13 A. Yes.

14 Q. So the two of you had a different interpretation
15 about the gross and the net. Yeah, I mean it's a different
16 -- it's the format. I mean, if you make your
17 interpretations off a 2-1/2 as opposed to a 5-inch log, you
18 may come to a slightly different conclusion.

19 Q. And when you go to the Llano well in the
20 southeast quarter of 25, Mr. Gawloski's got zero net, but
21 he gives it 6 gross. The Llano well in the southeast of
22 34?

23 A. Yes.

24 Q. Zero net and 6 gross. And he might be able to do
25 that if he went back to the log of the well and he counted

1 that GRE sand that we've discussed in the mud log. That's
2 where he'd get the 6?

3 A. No, I think what he did was, he was looking at
4 the actual electric log at the time, that showed that
5 gamma-ray expression. And what we did subsequent to that
6 does not correlate anything that we could not corroborate
7 as being a sand directly.

8 Q. Mr. Horning, did you have any involvement as a
9 geologist with Nearburg's study of the repeat formation
10 tester, RFT, data?

11 A. Did I have --

12 Q. Yeah.

13 A. I looked at it, yes.

14 Q. Is that an engineering discipline that we're
15 about to discuss with the RFT?

16 A. Yeah, when you look at an RFT it's an
17 engineering-type discipline. You need a pressure transient
18 guide to look at it.

19 Q. Do you assist the engineer by helping him locate
20 any well in the area that might be affected by the pressure
21 data?

22 A. Yes.

23 Q. You give him a geologic shape to work with or at
24 least an idea of the wells that might account for the
25 pressure changes?

1 A. Yes, we work together all the time on things like
2 that.

3 Q. Did you prepare a map associated with the RFT log
4 study to show how you distributed the wells that might be
5 affected by that pressure?

6 A. No.

7 Q. In looking at the geologic evidence, did I
8 understand from Mr. Carr that you have some geophysical
9 background?

10 A. Some, yes.

11 Q. Are you degreed as a geophysicist?

12 A. It's what they call a geophysical option.

13 Q. Am I correct in understanding that you have
14 deleted from your interpretation any seismic information?
15 Is that what we're seeing here?

16 A. Well, we didn't delete any seismic information,
17 no.

18 Q. You did not introduce it?

19 A. We didn't use seismic for these interpretations
20 at all.

21 Q. That's what I'm trying to ask you.

22 A. Yeah.

23 Q. While you had that data available through the
24 licensing people, the geophysical data, you've separated
25 that out, and what we are seeing is displays that are

1 independent of seismic interpretation?

2 A. Yes, these are totally subsurface
3 interpretations.

4 Q. That's what I want to make sure of.

5 A. Uh-huh.

6 Q. Are there other geologists you manage for
7 Nearburg?

8 A. Yes, off and on, yes.

9 Q. How often do you have to prepare an isopach
10 initially and look for sand and figure how to put this
11 thing together?

12 A. Usually in a supervisory nature, I'm only
13 supervising the formation of those isopachs. But of course
14 in Mr. Gawloski's absence I've had to go back in and take a
15 look at some of these things.

16 Q. As part of your study did you -- And we could use
17 Exhibit E-5 as a locator. This is Mr. Gawloski's map from
18 August of last year.

19 When we look at that map, did you examine any
20 well down in the south in Section 9?

21 A. No.

22 Q. So that would have been excluded from your
23 investigation?

24 A. Yes, sir.

25 Q. Did you look at it at all to see if it could be

1 excluded?

2 A. Look at it at all?

3 Q. Yeah, did you go -- in terms of the area of
4 investigation, did you go that far south?

5 A. No.

6 Q. When we look at the map and look at other points
7 south that might be affected by pressure changes in the gas
8 storage and wells adjacent to the gas storage, did you
9 investigate anything down in Section 3 to the south?

10 A. Yes, I looked at an RFT and a well in the
11 northeast of Section 3 briefly.

12 Q. Did you look at anything down in Section 10
13 further south?

14 A. No, I did not.

15 Q. When we look at the cross-section, Mr. Horning,
16 and we're looking at the various layers in the Morrow --

17 A. Are you talking about the strat section?

18 Q. Yeah, either one, it doesn't matter.

19 A. Okay.

20 Q. I'm trying to see how these lenses are packed
21 together.

22 A. Uh-huh.

23 Q. And you can take certain lenses and package them
24 and figure out their deposition or how they were
25 distributed in the area?

1 A. In general, that's true, you can make some
2 interpretations as to the character.

3 Q. And when we look at the lower middle "B" sand,
4 that sand has a distribution or a an orientation that's
5 north-south, is it not?

6 A. In general, that's true. There are areas where
7 it coalesces along -- in a paleo strike. But it's also a
8 sand that's comprised of many facies.

9 Q. Did Nearburg ever prepare maps of the lower
10 Morrow "B" that included the GRE sand?

11 A. Yes, they did.

12 Q. And then only after they drilled the Nearburg
13 well, did they come to the conclusion that the GRE sand was
14 disconnected?

15 A. Disconnected from what?

16 Q. Physically separated from the base of the lower
17 Morrow?

18 A. Yes.

19 CHAIRMAN WROTENBERY: We're on E-6, is that --

20 MR. KELLAHIN: Yes, ma'am, that's what I have.

21 Q. (By Mr. Kellahin) Mr. Horning, I'm showing you
22 Mr. Gawloski's geologic interpretation of the lower Morrow
23 "B" from March of the year 2000. Am I correct in
24 understanding this is at a point in time where you have not
25 separated out the GRE sand?

1 A. That's correct.

2 Q. Okay. And when we look at the lower Morrow "B"
3 as a package, it has the orientation in Section 34 as Mr.
4 Gawloski has displayed it. Do you see that?

5 A. Yes.

6 Q. And now after the well is drilled, we have an
7 interpretation that takes the GRE sand out of this package
8 and displays it in a way that we have an east-west
9 orientation to that stringer?

10 A. Correct.

11 Q. Why was that done?

12 A. Well, I mean, what we're dealing with is large
13 lithogenetic units within the Morrow package. We may be
14 referring to when we had upper "A" and upper "B". But
15 within one sand package, like the lower Morrow "B" main
16 sand, there's probably multiple facies in there, both
17 marine and non-marine.

18 If you start breaking each one of those out, they
19 will have their own independent orientation. But when you
20 lump them all together, you sort of get a smearing of that
21 data, until you break each one out separately.

22 Q. Is that generally true of Morrow gas wells in
23 southeastern New Mexico?

24 A. Yes.

25 Q. That you can take a map and look at a log and

1 start breaking out these little individual stringers and
2 trying to make assumptions about how big they are and where
3 they go?

4 A. Yes.

5 Q. So this is not unusual when we look at the
6 Morrow?

7 A. No.

8 Q. When you look at that significance and you start
9 deciding that it has a particular depositional environment,
10 whether it's marine or non-marine --

11 A. I'm having a hard time hearing.

12 Q. I'm sorry, do you want to close the door? You're
13 getting background noise, aren't you?

14 A. My hearing isn't that great.

15 Q. Let me start over.

16 A. Okay.

17 A. When I look at the GRE sand, you've told me, I
18 believe, that that has a marine deposition environment
19 associated with it. And then when we look at the Morrow
20 "B" above that, it seems to be non-marine in the way it's
21 interpreted, right? On Mr. Gawloski's exhibit here?

22 A. No, no, I wouldn't say that at all. I would say
23 the overall general trend of that is a dip-oriented system
24 that's comprised of fluvial or non-marine and marine. You
25 know, so it's -- I mean, your overall deposition obviously

1 is from north to south, but you also have areas where you
2 have a lot of marine influence, as you do in Section 34 and
3 Section 33.

4 Q. How do you as a geologist, when you're looking at
5 a log like this, will go through and be able to identify
6 you're now in a zone or a portion of the Morrow that is
7 marine-influenced?

8 A. How do we do that?

9 Q. Yeah, how do you do it?

10 A. Well, in general, it's just by the log
11 characteristics. You look for symmetrical gamma-ray
12 indications, you look for fining upward sequences, you look
13 for coarsening upward sequences, and all those have their
14 own implications to what you're looking at in a deposition
15 setting.

16 Q. And that's what you've done when we look at this
17 cross-section, you have decided that the lower portion of
18 the Morrow "B", specifically this GRE sand, has a marine
19 influence to it?

20 A. Yes.

21 Q. And based upon that, you believe that you can
22 turn the orientation of that lens so it has a more east-
23 west dimension to it?

24 A. Well, I mean actually, we didn't really have to
25 work very hard at it, because all the net sand distribution

1 was west-east.

2 Q. Let me go back to the cross-section, have you
3 show me on the log how you can recognize the difference
4 between marine and non-marine.

5 A. What do you want me to do?

6 Q. Show me how you do it.

7 A. Where do you want me to show you that?

8 Q. I want you to show it to me down in the GRE sand.

9 A. Well, if you just look at the GRE sand,
10 essentially what you see is a coarsening upward sequence.
11 That's basically marine. It can be associated with delta
12 front or deltaic systems, or it can also be associated with
13 reworked marine bar systems. It's a classic gamma-ray
14 profile.

15 Q. Let's look at the Nearburg log on the cross-
16 section, and I've got the lower Morrow B mapped, and I see
17 that's shaded in, in yellow. How is that any different
18 from what you've described for us for the GRE sand?

19 A. The large Morrow --

20 Q. Yeah.

21 A. Well, essentially there, if I was looking at
22 that, I'd say that you've got essentially three cycles.

23 You know, the lower cycle may be bar-related.
24 The second cycle up is more of a marine delta-front-type
25 facies. The one on top of that could be bar or even have a

1 fluvial or non-marine influence, a distributary channel, if
2 you will.

3 Q. Anything else?

4 A. No, that's basically what you do. I mean,
5 it's...

6 Q. Apparently I've not satisfied my helpers, Mr.
7 Horning. Let's go to the Nearburg well --

8 A. Okay.

9 Q. -- and look at the GRE sand.

10 A. Uh-huh.

11 Q. Show me where it's coarsening up and how that is
12 any different from what I see in what appears to be
13 coarsening up in the lower Morrow "B" sand.

14 A. I'm trying to figure exactly what you're asking
15 me here. Both of them exhibit, from the gamma ray,
16 coarsening upward sequences.

17 Q. So let me see if I understand it. In both of the
18 sands you're seeing a coarsening up in that member?

19 A. Uh-huh.

20 Q. That means they're both non-marine, right?

21 A. No, it means they're both marine.

22 Q. It means they're both marine?

23 A. Yes, sir.

24 Q. So the Morrow "B", now, just above this, should
25 have a different profile than what Mr. Gawloski has

1 demonstrated on his map that we're talking about?

2 A. No, not necessarily. No, I mean it's not like
3 you can take a composite of three cycles there and, in all
4 cases, without separating each one of those out, come up
5 with a -- You know, you can't take a composite unit like
6 that and get an orientation on it.

7 The lower portion of it, it may be a bar
8 orientation. The next portion, just by looking at the
9 thickness, may be more deltaic associated or a delta front,
10 and it can have either dip or lateral-type distributions to
11 it. They have both. The next zone up could be
12 distributary channel, which is fluvial or dip-oriented.

13 So when you add the combined effects of all those
14 things together when you're mapping, what you're going to
15 do is, you're going to get an overall dip direction as the
16 sands prograde, and then you're going to find areas where
17 they spread out, just as they do in 34 and 33.

18 MR. KELLAHIN: Mr. Horning, my education is in
19 English literature. We are way outside of my area, and I'm
20 going to save the rest of this for my expert to talk about,
21 so --

22 THE WITNESS: Okay.

23 MR. KELLAHIN: -- I'm done. Thank you.

24 We'd move the introduction of Exhibits E-1
25 through E-6.

1 MR. CARR: No objection.

2 CHAIRMAN WROTENBERY: Exhibits E-1 through E-6
3 are admitted into evidence.

4 Mr. Hall, did you --

5 MR. HALL: I have no questions.

6 CHAIRMAN WROTENBERY: Commissioner Bailey?

7 COMMISSIONER BAILEY: Mr. Kellahin took care of
8 my questions.

9 CHAIRMAN WROTENBERY: Okay.

10 MR. CARR: I have just a little bit of redirect,
11 if that's all right.

12 CHAIRMAN WROTENBERY: Okay, go ahead, then.

13 REDIRECT EXAMINATION

14 BY MR. CARR:

15 Q. Mr. Horning, if I understand your testimony here
16 this afternoon, when we were talking about the way you had
17 mapped the GRE sand, what you were mapping from was net
18 sands, not gross sands; is that correct?

19 A. That's correct.

20 Q. What is the difference between net and gross
21 sand?

22 A. Well, what we're trying to do there is actually
23 map the reservoir -- the potential reservoir distribution.

24 Q. Are you looking for productive reservoir?

25 A. Yes.

1 Q. And is that what that net-gross distinction --

2 A. Yeah, I that's -- I mean, it's just the direct
3 route to figuring out what we need to know.

4 Q. Now, you have been talking about this reservoir
5 and this well for a couple of years now; is that correct?
6 With various people?

7 A. Yeah.

8 Q. When you met with LG&E, you produced some of the
9 exhibits that have been presented here today by Mr.
10 Kellahin, did you not?

11 A. Yeah, I mean, I wasn't involved in the creation
12 of that. I remember that -- the cross-section now. I
13 think it was at that -- the conversation with LL&E.

14 Q. But these were actually based on regional
15 mapping?

16 A. Yes.

17 Q. And that's what you understood of the reservoir
18 at that time --

19 A. That cross-section --

20 Q. -- is that fair to say?

21 A. -- was essentially extrapolated off a regional
22 cross-section that showed the extrapolation of a fault from
23 the north down, uh-huh.

24 Q. And this is what you understood at that time?

25 A. Yes.

1 Q. And you've continued to study the reservoir?

2 A. Yes.

3 Q. And based on that study, you have removed the
4 fault from your interpretation --

5 A. Yeah, I mean, it's --

6 Q. -- have you not?

7 A. -- it's a normal process to refine your data and
8 interpretations.

9 Q. The concern with the fault isn't really the
10 fault, it's that there is a break in the formation that
11 prevents communication or migration of hydrocarbons or
12 other substances across the formation; isn't that why we're
13 concerned about a fault?

14 A. Uh-huh.

15 Q. And when you looked at the log on the well in the
16 southwest quarter and compared it to the log in the
17 southeast quarter, you could see that the storage sand
18 extended across that area, could you not?

19 A. The storage sand extended across the south half
20 of Section 34.

21 Q. And that's what you can see on the first two logs
22 on your GRE-GRE' cross-section; isn't that right?

23 A. Yeah, it doesn't exist in any wellbores in the --

24 Q. And so that's what you had shaded in yellow
25 across that section?

1 A. Right, uh-huh.

2 Q. And when you looked over on the well in the
3 southeast quarter, you saw there had been five operators
4 and no one had ever perforated that sand; isn't that right?

5 A. Correct.

6 Q. And from that you concluded that there had to be
7 a reason for that?

8 A. Yes.

9 Q. And you concluded it was because there was no
10 fault; is that right?

11 A. That there was no separation between the
12 reservoirs by any means.

13 Q. Now, that was just a negative, that was just a
14 conclusion from the absence of information; isn't that fair
15 to say?

16 A. Right.

17 Q. Since that time you've looked for information,
18 have you not?

19 A. That's correct.

20 Q. You have RFT information, do you not?

21 A. That's correct.

22 Q. Now, Dr. Lee earlier today had questions about
23 the way you had correlated between those two wells because
24 of similarity in the gamma-ray characteristics on a couple
25 of logs; isn't that right? Is that right --

1 A. That's correct.

2 Q. -- do you recall that?

3 Isn't there pressure information that would
4 confirm your interpretation?

5 A. Yes, there is.

6 Q. And that's in the RFT log?

7 A. Yes, it is.

8 Q. And that's going to be reviewed by our
9 engineering witness?

10 A. Yes.

11 Q. Based on your interpretation of this reservoir,
12 when you look at these individual Morrow sands, in the
13 south half of the section do you find any of the GRE sand,
14 producing GRE sand, that's in the Nearburg well?

15 A. No.

16 Q. When you go to the north half of this section, do
17 you find any of the sand which is in the storage unit?

18 A. No.

19 MR. CARR: That's all I have. Thank you.

20 CHAIRMAN WROTENBERY: Mr. Kellahin, anything
21 else?

22 RECROSS-EXAMINATION

23 BY MR. KELLAHIN:

24 Q. Mr. Horning, if you look at your isopach, Exhibit
25 Number 9 --

1 A. Look at what isopach?

2 Q. I'm sorry, your isopach, Exhibit 9, which is the
3 Morrow GRE sand --

4 A. Yes, sir.

5 Q. -- the way the GRE pod has been shrunk now --

6 A. Uh-huh.

7 Q. -- the way it's been oriented, allows you to
8 argue that the north half has the greatest potential
9 productivity associated with that sand package, right?

10 A. Correct.

11 Q. And if you take the fault off, it allows you to
12 match the volumetrics on what this well is supposed to do?

13 A. Yes.

14 MR. KELLAHIN: Nothing further.

15 CHAIRMAN WROTENBERY: Mr. Hall?

16 Thank you for your testimony, Mr. Horning.

17 THE WITNESS: Okay, thanks.

18 MR. KELLAHIN: May we have a second to fold this
19 stuff up?

20 CHAIRMAN WROTENBERY: That's a good idea.

21 (Thereupon, a recess was taken at 2:20 p.m.)

22 (The following proceedings had at 2:30 p.m.)

23 CHAIRMAN WROTENBERY: Okay, we're ready.

24 MR. CARR: May it please, the Commission, at this
25 time we would call Mr. George Friesen.

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GEORGE FRIESEN,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your full name for the record, please?

A. Yes, it's George Friesen.

Q. Mr. Friesen, where do you reside?

A. Midland, Texas.

Q. By whom are you employed?

A. Oil Property Engineering.

Q. What is the relationship -- your relationship with Nearburg Exploration in this matter?

A. I'm a consulting engineer for Nearburg.

Q. Have you previously testified before the Oil Conservation Commission?

A. No.

Q. Would you briefly summarize for the Commission your educational background and then review your work experience?

A. Sure. I have a bachelor's of science in petroleum engineering from the University of Wyoming, 1976, and 26 years of experience with Tenneco, Enron Oil and Gas, Coastal Management, and approximately six years with my own

1 consulting firm.

2 Out of the 20 years, about 16 of those have been
3 in the Permian Basin. And the kind of work that I do is
4 waterflood work, property evaluation, reserves and pressure
5 transient analysis.

6 Q. Mr. Friesen, are you familiar with the
7 Application filed on behalf of Nearburg for the creation of
8 two nonstandard spacing units in the east half of Section
9 34?

10 A. Yes.

11 Q. Are you also familiar with the portion of this
12 case that relates to the boundaries of the Grama Ridge-
13 Morrow Pool as they traverse Section 34?

14 A. Yes, I am.

15 Q. Are you familiar with the history of the Nearburg
16 well?

17 A. Yes.

18 Q. Have you made an engineering study of the area
19 which is the subject of this Application?

20 A. Yes, I have.

21 Q. How long have you worked on this prospect?

22 A. Prior to our June, 2001, hearing, I had just a
23 couple of days to prepare for that, but in the last year
24 I've stayed with the project and continued to work as new
25 data comes in.

1 Q. Are you prepared to share the results of your
2 work with the Oil Conservation Commission?

3 A. Yes.

4 MR. CARR: We would tender Mr. Friesen as an
5 expert in petroleum engineering.

6 MR. KELLAHIN: No objection.

7 CHAIRMAN WROTENBERY: He is so qualified.

8 Q. (By Mr. Carr) I think initially, Mr. Friesen, it
9 would be helpful if you would summarize the study you have
10 made of the Morrow reservoir.

11 A. Yes, what I've done is, I've reviewed -- Since
12 our last hearing we've gotten new engineering data in, so
13 I've reviewed the pressure history and the development
14 history of Section 34, and in particular the two wells that
15 we're talking about here, the one in the southeast and the
16 southwest quarter of Section 34.

17 Also, as I mentioned, I've reviewed all the
18 pressure information, and I believe that without a doubt
19 there's one continuous zone, one pool across Section 34.
20 There is no fault. Pressure data will clearly show that.

21 And then in addition to that, I've prepared a
22 drainage study on what people are calling the GRE sand, and
23 it shows that there's an EUR of about 1.2 BCF there that is
24 not in communication with the storage unit. And it is
25 rather small, very small reservoir, what I would say. It's

1 not very big. 1.2 BCF.

2 Q. Let's go to what has been marked for
3 identification as Nearburg Exhibit 18. It consists of a
4 log and a tape.

5 A. That's right, this exhibit is the Schlumberger
6 repeat formation tester, commonly as an RFT, which was run
7 in the well on the southeast quarter of Section 34 in
8 September of 1979.

9 Q. What is the purpose of a repeat formation tester
10 log?

11 A. It's to get reservoir pressure.

12 Q. And how precise is a repeat formation tester log?

13 A. It's a good tool. I use them over the years.
14 It's a good, reliable tool. It's been fairly common to use
15 them in the oil business to get an idea of what reservoir
16 pressure at the time you drill a well.

17 Q. Does it show your pressures by individual
18 perforated intervals within a well?

19 A. Yes, and it doesn't test very large zones. So
20 you can get pressures in just a few inches of one another,
21 a foot of one another.

22 Q. Now, the log that we have is a log for which
23 well?

24 A. The log we have is for -- call it also the Llano
25 "34" Number 1. We've also referred to that as the well in

1 the southeast quarter of Section 34.

2 Q. Is it the same well that is shown on the GRE-GRE'
3 cross-section as the second well from the left?

4 A. Yes, it is, this well right here.

5 Q. And when was the log run?

6 A. It was September of 1979.

7 Q. Is that at the approximate time the well was
8 drilled?

9 A. Yes, when this well was drilled there was a
10 requirement to run -- or prove pressure. In some form you
11 had to prove that you were not in communication with the
12 gas storage unit, and the company, Minerals, Inc., chose to
13 run an RFT through here. And where you were not in
14 communication, they were okay with you perforating the
15 zone. Where you were in communication you could not
16 perforate because you'd be taking gas out of the gas
17 storage zone.

18 Q. Now, at the time this log was run in 1979, what
19 wells were completed in and producing from the storage --

20 A. Well, the only other well in 34 is this one, and
21 then of course there's the other storage well over to the
22 west over here.

23 Q. And so the well that you say is "this one", is
24 that the well that's in the southwest quarter --

25 A. Yes.

1 Q. -- of Section 34?

2 A. Right. We've also been referring today as the
3 GRM Unit Number 2 well.

4 Q. And that's the gas storage well?

5 A. Yes.

6 Q. And so at the time the well, the second well on
7 the GRE, the well in the southeast quarter was drilled, the
8 only producing wells were to the west?

9 A. Yes.

10 Q. You've worked with RFT logs before. How good a
11 log is this?

12 A. This is fine, this is a good log. It's got a
13 number of very good points. There's good repeatability
14 throughout this log too.

15 Q. Let's go to the single sheet that is also marked
16 Exhibit 18. I'd ask you to refer to that, please.

17 A. What I've done --

18 MR. CARR: Just a second.

19 CHAIRMAN WROTENBERY: I don't --

20 THE WITNESS: 18, it's got a plot on the bottom.

21 CHAIRMAN WROTENBERY: Was that under Tab 18?

22 THE WITNESS: That's it, Dr. Lee, yes, you've
23 got...

24 MR. CARR: If we can have a minute.

25 THE WITNESS: I've got it marked as 18 in the

1 package I've got.

2 CHAIRMAN WROTENBERY: It was with the log or --

3 MR. CARR: Yes, it was --

4 CHAIRMAN WROTENBERY: -- under Tab 18?

5 MR. CARR: -- it was with the log.

6 THE WITNESS: It should be with the log, yes.

7 CHAIRMAN WROTENBERY: Okay, we didn't have it, or
8 I didn't have this --

9 COMMISSIONER LEE: I don't have it.

10 CHAIRMAN WROTENBERY: Commissioner Lee --

11 THE WITNESS: Well, I've got a copy here.

12 MR. CARR: If we can have just a minute, we have
13 copies of it.

14 THE WITNESS: You can use this one, I'll just
15 mark the other one as 18.

16 CHAIRMAN WROTENBERY: What was that?

17 COMMISSIONER BAILEY: This is 19.

18 CHAIRMAN WROTENBERY: Okay, you had -- See, this
19 is what I had as 19.

20 THE WITNESS: Now there's -- Okay.

21 CHAIRMAN WROTENBERY: Okay, wait a minute. I
22 think --

23 COMMISSIONER LEE: Well, we have it.

24 CHAIRMAN WROTENBERY: That's the last page of 19.

25 MR. CARR: It's just in the books, included

1 with -- So the second part of Exhibit 18 should be a page
2 marked "Minerals Inc, Llano 34 State Com #1", and it has
3 writing at the top and a graph at the bottom. I think
4 it's --

5 CHAIRMAN WROTENBERY: "RFT Data and Results"?

6 MR. CARR: Yes, that's it.

7 THE WITNESS: Yes.

8 MR. CARR: It was apparently included in the
9 pocket for Exhibit -- or with Exhibit 19.

10 CHAIRMAN WROTENBERY: Uh-huh. Did you get it?

11 COMMISSIONER BAILEY: Yes.

12 Q. (By Mr. Carr) Mr. Friesen, let's go to this
13 page, and I would ask you to tell me first what it shows at
14 the top.

15 A. Okay, at the very top of the page is a table, and
16 all I've done is reproduce the RFT results from the log and
17 put them on the table, and I've shown the measured depth,
18 the corresponding subsea depth, the RFT reservoir pressure
19 at that depth and then calculated the pressure gradient.

20 And then the last column, I put some comments on
21 there as to whether it is in communication with the gas
22 storage sands or not.

23 Q. Okay, let's go to the graph at the bottom and
24 explain what that shows.

25 A. Okay, the graph at the bottom is really just

1 that, just a picture to better show the ranges and
2 pressures that you see here. What I've done here is, I've
3 plotted the initial reservoir pressure along the X axis,
4 and along the Y axis is measured depth.

5 The red vertical lines that you see, the segments
6 -- little red line segments over to the left, indicate
7 where the Llano well was perforated, maybe not initially
8 but where over time it was perforated and where it was not
9 perforated. You'll see there the gas storage sand, 12,894
10 to 12,902. It's also called the "B" 2 sand. It's never
11 been perforated there.

12 And what I've shown with that black heavy line is
13 the pressures, a graphical representation of the pressures
14 from the RFT. And what you see there is an extreme --
15 quite a bit of pressure depletion in the gas -- what we'll
16 call the "B" 2 sand.

17 And what that deflection shows from that dashed
18 line -- That dashed line is really just an approximate
19 pressure gradient. It's just to give you a visual to kind
20 of show how much different the pressure is in that sand
21 that's in communication with the gas storage sand, relative
22 to what it would be if it were not in communication.

23 Q. And Mr. Friesen, if I look at this exhibit, the
24 dashed line running top to bottom, sort of sloping off
25 toward the right, you've marked approximate pressure

1 gradient, p.s.i per foot --

2 A. Right.

3 Q. -- without pressure communication to gas storage
4 sands.

5 A. Right.

6 Q. Isn't that line actually an estimate of what
7 you'd anticipate to be virgin reservoir pressure?

8 A. That's correct, and it's really just for that.

9 Q. Now, if we take this exhibit and we look at the
10 four red lines on the right side --

11 A. Yes.

12 Q. -- do they, in fact, correspond to the four
13 different formations that are shown in yellow on the log,
14 on the GRE-GRE' cross-section for this same well in the
15 southeast quarter?

16 A. Yes, they do.

17 Q. All right. Now, what does this RFT pressure
18 information tell you about the pressures in the uppermost
19 of the four zones?

20 A. That it is not on communication with the gas
21 storage unit.

22 Q. And why do you say that?

23 A. Because it is at about 6043, 6044 pounds, which
24 would be right at virgin pressure here, that particular
25 point.

1 Q. If we go down below that to the lower "B", the
2 main sand, what conclusion can you reach there?

3 A. That it's not in communication either. Its
4 pressure is up to about 7286 pounds, roughly, something
5 like that.

6 Q. And if we go to the bottom of sand, is the same
7 sort of conclusion --

8 A. Yes, it's at 8134 pounds, roughly.

9 Q. Let's go to the second sand down, which is the
10 sand in the gas storage project. What pressure do you
11 reach there?

12 A. It's at 3596 pounds.

13 Q. And so that is substantially below virgin
14 pressure?

15 A. Yes, it is.

16 Q. Now, this RFT log was taken on the well in the
17 southeast quarter when? 1979?

18 A. Yes, at the time the well was drilled, yes.

19 Q. Tell me again what wells were producing in this
20 area at that time.

21 A. This well here was producing in these zones.

22 Q. When you say "here", you mean the well --

23 A. This would be the Grama Ridge Unit Number 2 well,
24 or way -- also, the well in the southwest quarter of
25 Section 2.

1 Q. And when did that well commence production?

2 A. In 1966, March of 1966.

3 Q. Do you have an opinion as to what caused the
4 pressure drawdown in the well in the southeast quarter?

5 A. Yes, it was the gas storage unit over here.

6 Q. Is there really any other possible source of
7 that?

8 A. None, absolutely none.

9 Q. Now, earlier Dr. Lee talked about the apparent
10 likeness between the gamma-ray curve on the well in the
11 southwest quarter and the curve on the well in the
12 southeast quarter; is that right?

13 A. Uh-huh.

14 Q. If this geological interpretation had been
15 correlated to tie those two together, in your opinion would
16 you still have virgin pressure in the upper zone?

17 A. No, no. This zone here would have been -- If
18 these two were tied together and this zone was at 3720
19 pounds at the time this well was drilled --

20 Q. Now, you're not making a record here, because
21 when it's read no one will know what you mean when you say
22 "this".

23 A. Oh, I'm sorry.

24 Q. Okay, back up.

25 A. GRM Unit Number 2 well. At the time the Llano

1 "34" state well was drilled, this zone in the GRN Unit 2
2 well, right here --

3 Q. Which is where?

4 A. -- was at approximately 12,920 feet, was at 3720
5 pounds. We'll have an exhibit to show that here in a
6 little bit.

7 The pressure in this well here, in this
8 particular zone --

9 Q. Well, again --

10 A. -- in the Minerals, Inc., Llano "34" State Number
11 1 at 12,920 feet, was a 6043 pounds.

12 Q. If they were in communication, that wouldn't have
13 happened?

14 A. No, no.

15 Q. What does this pressure data tell you about
16 communication across this reservoir in the storage sand?

17 A. Well, clearly, these are one reservoir, one pool,
18 one common source. There's no other explanation to have
19 these two pressures the same at that same point in time.

20 Q. Now, when we're looking at pressure data -- We've
21 listened to interpretations all day today. When we're
22 looking at this pressure information, is there anything
23 interpretive about this or are these actual numbers?

24 A. No, these are actual numbers.

25 Q. Let's go to what's been marked Exhibit Number 19.

1 Do you have that before you?

2 A. Yes, 19.

3 Q. Would you identify that, please?

4 A. Okay, 19 is a graphical representation of the
5 reservoir pressures in the four Grama Ridge-Morrow Unit gas
6 storage wells over time, and it shows their initial
7 pressures at discovery in 1966, 1967.

8 Then it shows by about 1973 you reach a pressure
9 minimum. Pressures in all four wells were, let's say, oh,
10 1000 pounds or so. It looks like the Grama Ridge-Morrow
11 Unit Number 4 well was a little higher, maybe, at 1600
12 pounds. At that time the unit was formed, the storage unit
13 was formed. And then the oscillating pressures from 1973
14 forward -- and this data ends in 1994 -- shows the
15 reservoir pressure, bottomhole pressure, as a function of
16 time in those four gas storage wells.

17 The blue line is the Grama Ridge Unit Number 2
18 well, which is in the southwest quarter of Section 34.

19 Q. What's on the second page of this exhibit?

20 A. The second page is just the tabular data that I
21 found in the files, and I just presented that as backup to
22 the graph.

23 Q. And what is the third page?

24 A. Okay, the third page is just a blowup of the data
25 that we looked at on the first page, and it's a blowup

1 around the time that the Llano "34" State Number 1 was
2 drilled, in about late September or -- excuse me,
3 September, 1979, at the time the RFT was run.

4 Q. All right, and what does this graph show you?

5 A. Well, what the graph shows you is, the reservoir
6 pressure in the Grama Ridge storage unit ranged from 2420
7 p.s.i. to 3720 p.s.i. And the top line, the blue line,
8 which shows a pressure of 3720 p.s.i., is the Grama Ridge
9 Unit Number 2 well, the well in the southwest quarter of
10 Section 34.

11 Q. All right. On September the 13th, 1979, the
12 pressure data you have on the well in the southwest quarter
13 was 3720 p.s.i.?

14 A. Yes.

15 Q. When you go back to the RFT log that was taken in
16 October of that year --

17 A. September, yes, of that year, uh-huh.

18 Q. -- what was the pressure in the well in the
19 southeast quarter?

20 A. That was 3596 pounds, let's say 3600 pounds.

21 Q. What does that tell you?

22 A. It tells me that they're the same reservoir.

23 Q. Does it tell you there's pressure communication?

24 A. Pressure communicated, yes, across there, no
25 separation.

1 Q. In going through the files that Nearburg has
2 obtained on the wells in the south half of the section from
3 EOG, have you found certain documents which support your
4 interpretation of this pressure information?

5 A. Yes, I have.

6 Q. Could you refer to what has been marked as
7 Nearburg Exhibit Number 20?

8 A. Yes, I will. This is one of the documents that I
9 found in the data that we got from EOG after we bought the
10 well in the southeast quarter of Section --

11 Q. And what is it, a memorandum?

12 A. This is a memorandum.

13 Q. And what is its date?

14 A. It's dated November 16th of 1979.

15 Q. And who is the author of this memorandum?

16 A. This is a gentleman by the name of Al Klaar, it
17 looks like.

18 Q. Do you know what Mr. Klaar was professionally?

19 A. Yes, he -- At this particular time he was the
20 manager of engineering at Minerals, Inc., that drilled this
21 well, the Llano "34" State Number 1.

22 Q. Was Mr. Klaar also the witness, the engineering
23 witness, in the case in March of 1979 when the pool was
24 divided?

25 A. Yes, he was.

1 Q. Would you turn to the second page of this memo,
2 please?

3 A. Yes.

4 Q. Would you go to the paragraph that starts out,
5 "Morrow 'B'" and review that for the Commission?

6 A. Yes. What I'd like to -- It says, "The Morrow
7 'B' zone was developed in this well across the interval
8 12,895' to 12,902'. An independent pressure measurement"
9 -- that was the RFT we just reviewed -- "on this interval
10 showed that the bottomhole pressure of the Morrow 'B' is
11 3597 psi. This indicates that the subject well's location
12 in the Morrow 'B' zone is in direct communication with the
13 Llano-operated Morrow Grama Ridge Morrow Underground Gas
14 Storage System; and therefore, as stipulated in the farmout
15 agreement, the Morrow 'B' will not be produced from the
16 subject wellbore."

17 Q. Does this explain why there are no perforations
18 in that interval?

19 A. That's right, nobody's ever touched it.

20 Q. And this confirms your interpretation of pressure
21 communication, does it not?

22 A. Yes, yes.

23 Q. And this is by Llano in November of 1979?

24 A. Yes, it is.

25 Q. Mr. Friesen, I'd ask you to turn to what have

1 been marked as Nearburg Exhibits 12 and 13.

2 A. Let's see, I do not have 12 and 13 up here.

3 Okay, yes, I've got it.

4 Q. You're familiar with these exhibits?

5 A. Yes.

6 Q. Are they from the files that Nearburg obtained
7 from EOG when they acquired the south half of this section?

8 A. Yes, they are.

9 Q. Could you identify what are Exhibits 12 and 13,
10 perhaps 13 first?

11 A. Okay, Exhibit 13 is a letter written by Redrock
12 to John Hillman of Roca Resources, answering some questions
13 that are referred to in Exhibit Number 12.

14 Q. And who signed this letter?

15 A. Mark Stanger.

16 Q. And do you know who Mr. Stanger is?

17 A. Yes.

18 Q. And who is he?

19 A. The gentleman sitting over there.

20 Q. Is he one of the principals of Redrock?

21 A. As far as I know, yes.

22 Q. If you will turn to the second page of this
23 letter, please, where it says Requirement D.

24 A. Requirement D, yes.

25 Q. That's referring to a requirement set forth in a

1 title opinion, is it not?

2 A. Yes.

3 Q. And that is what is -- the title opinion is what
4 is marked as Nearburg Exhibit Number 12?

5 A. Yes.

6 Q. Would you turn to page 7 of that, please?

7 A. Yes, page 7.

8 Q. Go to the bottom and read the first sentence of
9 the requirement.

10 A. It says, "If it has not already been done, the
11 certificate which we previously submitted to Llano, Inc. on
12 August 11, 1988, regarding the lack of communication
13 between the active producing wells and the gas storage
14 wells should be executed by appropriate officers of Llano,
15 Inc., NMESCO Fuels, Inc. or their respective successors."

16 Q. If we go to the letter, now, from Mr. Stanger
17 when it addresses this requirement, what does that letter
18 say?

19 A. Under Requirement D it says that "Llano or any of
20 the other entities is unwilling to sign an agreement of
21 this nature. ROCA will have to satisfy themselves as to
22 potential communication in the storage" well. "Well
23 records indicate...the well has not produced from the" gas
24 "storage interval."

25 Q. In June of 2000, you testified at the Examiner

1 Hearing, did you not?

2 A. Yes.

3 Q. You presented a variety of reserve estimates at
4 that time; is that fair to say?

5 A. Yes, I did.

6 Q. How long had you worked on this matter at the
7 time you were called upon to provide reserve estimates?

8 A. Well, approximately 48 hours, a couple of days.

9 Q. And what was the general range of those?

10 A. 1.1 BCF to 1.9 BCF.

11 Q. And how had you prepared that data, those
12 estimates?

13 A. Yes, I had prepared that using a P/Z curve, which
14 both of the initial points in that curve -- and I pointed
15 it out at the time -- were not static reservoir pressures.
16 I had to do some estimating on both of those. So that was
17 the 1.1 BCF.

18 Then I had another estimate from decline curve
19 analysis of 1.7 BCF, decline curve analysis of the Nearburg
20 well. And I only had about 12 months of data, so it wasn't
21 a lot of history. But it gave me 1.7 BCF.

22 And then I had two maps. I had Ted Gawloski's
23 volumetrics, and I had Pass Petroleum Engineers, who does
24 Nearburg's reserves -- they're a third party that does
25 Nearburg's reserves -- I had a volumetric estimate from

1 them, and it was -- those two estimates showed, you know,
2 in that range of 2.7 to 3 BCF, but then really making
3 proper -- what I felt were proper adjustments to that, is
4 where I came up with my 1.9 BCF of reserves for --

5 Q. Had you -- Is it fair to say you've made a very
6 hurried study?

7 A. Yes, it was done real quick.

8 Q. Since the time of that hearing, have you done
9 additional reserve work?

10 A. Yes, and we've gotten an additional point for a
11 P/Z plot.

12 Q. And that's been on a very long shut-in pressure
13 reading, has it not?

14 A. Yes.

15 Q. The well has been shut in?

16 A. Yes, the well was shut in in July, 2001, and we
17 took that pressure point in February, so we were looking at
18 over 4000 hours of shut-in pressure. It's a real good
19 reservoir pressure.

20 Q. Okay, what have you done with that information?

21 A. I have put that information on Exhibit 21.

22 Q. Would you explain what that exhibit shows?

23 A. Yeah, Exhibit 21 is a graph of cumulative
24 production versus P/Z, and it shows the first two points
25 that I used, which I mentioned are not static -- good --

1 real good static reservoir pressures.

2 The very first point there is an estimate. I
3 took an estimated flowing tubing pressure, converted that
4 to a flowing bottomhole pressure, and then estimated in my
5 opinion what the drawdown would be to come down with the
6 initial static pressure there.

7 I also used the RFT information that we looked at
8 from the well in the southwest quarter of -- excuse me,
9 southeast quarter of Section 34, and made a second estimate
10 of what the initial reservoir pressure would be based on
11 that RFT data, and that's the point you see -- the first
12 point on my P/Z graph.

13 That second point you see at about 550 million
14 cubic feet of gas produced is a 70-hour shut-in, which we
15 had at the time of our last hearing.

16 And then the third point is the one that's about
17 a 4300-hour shut-in pressure.

18 And then that dashed red line is just honoring
19 all three points, averaging through them, and I've come up
20 with an EUR, which would be recoverable reserves, of 1.2
21 BCF, or gas in place of 1.4 BCF.

22 Q. Pass Petroleum Consultants also do independent
23 volumetric work for Nearburg --

24 A. Yes.

25 Q. -- do they not?

1 A. Yes, they do.

2 Q. Have they recently redone their work on this
3 well?

4 A. Yes, for the 1-1-2002 reserve report, they redid
5 their numbers and came up with an estimated reserve of 1.26
6 BCF.

7 Q. Let's go to the second page of this exhibit.
8 What does this show?

9 A. Okay, this is an exhibit that we used at our
10 first hearing, and I went ahead -- At that time the well
11 was not shut in, and I went ahead and updated it for the
12 last point on there. But what it shows is the Grama Ridge
13 "34" Number 1 well, the Nearburg well, and it shows the
14 flowing tubing pressure over time, and it also shows the
15 well's producing rate over time.

16 And what it shows me -- It's really good
17 anecdotal evidence. When you see that dramatic drop in
18 flowing tubing pressure, 5300 pounds, and by December
19 you're down to 1000 pounds, and then that thing is starting
20 to flatten out in your line pressure, that's a small
21 reservoir. And then of course with that tubing pressure
22 coming down real fast, you can't hold the rate. And the
23 rate's dropping very fast as well.

24 So what it is, it's just another piece of
25 evidence to back up the P/Z that you've got a small

1 reservoir here in the GRE sand.

2 Q. What about page 3 of this exhibit? What is that?

3 A. Page 3 is just -- It's a summary page of the
4 calculations, the physical properties, et cetera, that I
5 used in preparing my exhibits for this hearing.

6 Q. And at the bottom we have what you call
7 volumetric gas reserves?

8 A. Yes.

9 Q. And what is that?

10 A. Yes, and what I've done there, I've used two
11 pressures. The one at 7100 pounds is my estimated
12 reservoir pressure on the GRE sand. The reservoir pressure
13 at 7922 pounds uses the data from the RFT from the well in
14 the southeast quarter of Section 34.

15 But what it shows is that the original gas in
16 place essentially is the same, 1.4 BCF to 1.5 BCF, and
17 recovery is essentially the same too, 1.2 BCF, 1.2 BCF for
18 reserves.

19 Q. What do these reserve estimate numbers tell you
20 about whether or not the northeast quarter of 34 is in
21 communication with the gas storage project?

22 A. No, it absolutely is not in communication with
23 the gas storage project that Nearburg -- GRE sand.

24 Q. Let's go to what has been marked Exhibit 22.
25 Would you identify that?

1 A. Yes, 22 is Nearburg's -- I think you referred to
2 this earlier as Nearburg Exhibit Number 9, and then what I
3 did was put the engineering information on there. What I
4 did was take Cap's net sand map. Typically, the geologist
5 will use a cutoff, usually in porosity, but he'll make a
6 net sand map, and from that I need to make a net pay map.

7 And if you'll notice, the one adjustment that I
8 made -- Am I getting ahead of you or --

9 Q. No, go forward.

10 A. The northwest quarter of Section 35, you'll see
11 there's a well labeled there with 2 feet of net sand, 2
12 feet of gross sand. Above that in red it says "Lo. K", low
13 permeability, "no pay, perf with slight show of gas". So
14 really, that's not commercial reserves in my opinion. So
15 that became right there at that 2/2, that well became my
16 zero line for my net pay isopach.

17 And then I honored Cap's shape and the rest of
18 his thicknesses and constructed a net pay isopach map, and
19 my thicknesses for that net pay isopach map are shown in
20 the red numbers. And what I came up with was 1134 acre
21 feet, 201 acres, roughly, about 5.6 feet of average
22 thickness.

23 Q. And you took the volumes that you've been able to
24 calculate, and you placed them within the structure as
25 determined by the geologist; is that fair?

1 A. Yes, yes.

2 Q. Would you refer to what has been marked for
3 identification as Nearburg Exhibit 23?

4 A. Yes, 23 is some more information that came out of
5 the files that we got from EOG when we bought the --
6 Nearburg bought the well, southeast quarter of Section of
7 34.

8 Q. What is the first page of this?

9 A. That first page is just a letter to Mr. Don Garey
10 from a Mr. Edwards.

11 Q. At Minerals, Inc.?

12 A. At Minerals, Inc., yes, sir.

13 Q. And attached to that is what?

14 A. Attached to that is some information for the
15 assignment of operating rights of the farmout agreement.

16 Q. And what acreage is covered by this assignment of
17 operating rights?

18 A. Pardon?

19 Q. And what acreage is covered by this assignment of
20 operating rights? At the top of the first paragraph of the
21 assignment, does that identify it?

22 A. Yes, Section 34.

23 Q. And what portion of 34? If you'll look at the
24 assignment, would you review what's in the first whereas
25 clause? The next page, Mr. --

1 A. Oh, I'm sorry. It says, yes, Whereas NMESCO --
2 leases that cover the east half of Section 34.

3 Q. All right. Now, when we look at this assignment
4 of the east half of Section 34, I'd like you to go to
5 paragraph 9 on page 3.

6 A. Okay.

7 Q. And what does that provide.

8 A. Yes, what it says here is that the assignors --
9 and this is where we get into that need to prove whether
10 you're in pressure communication with the gas storage unit
11 or not, because if you're in communication you're not going
12 to be able to produce the Morrow.

13 But what it says here is, the "Assignors
14 expressly reserve the right to approve any and all
15 completion attempts in the Morrow Formation below the below
16 the Clastics Marker..." which on that cross-section is that
17 blue, the top of the cross-section "...on the subject lands
18 as this interval is defined..." And then they define
19 essentially the whole Morrow section that you can see on
20 that cross-section as the unitized interval.

21 And then it just goes on to say that -- oh, a
22 little more language in there, but it makes it real clear
23 that you're not going to be able to -- you've got to prove
24 you're not in communication with the gas storage unit.

25 Q. And if you are, does it provide that you may not

1 produce it?

2 A. You cannot produce it, that's right.

3 Q. Does this document confirm Mr. Horning's
4 suspicion that that's why there were no perforations in
5 that zone?

6 A. Oh, yeah, absolutely.

7 Q. Mr. Friesen, what conclusions have you been able
8 to reach from your engineering study?

9 A. My conclusions are that Section 34 is one common
10 source, it's one pool across there. Clearly from the
11 pressure information, there's no interruption and there's
12 no faulting, there's nothing. It's one pool in there, one
13 common source of supply, one reservoir. And I think
14 everyone's really known this since 1979.

15 I can count five operators that's never touched
16 that sand. And I'm sure they put a lot of thought into a
17 plausible reason why this sand was not communicated over
18 here, because if you could have come up with a plausible
19 reason you could have perforated that, and there would have
20 been, I think, a significant amount of gas there.

21 But no one ever touched it. And I think they've
22 known that for a long time. And the size of the reservoir,
23 at least in the GRE sand, is really small. It's 1.2, 1.3
24 BCF, and that -- I'm convinced that the bulk of those
25 reserves are from the north half of Section 34.

1 Q. Mr. Friesen, have you reviewed the engineering
2 exhibits proposed or tendered, presented by Redrock in this
3 case?

4 A. Yes.

5 Q. And are there significant differences between
6 your work and the work of Redrock?

7 A. You know, I don't really think so. I think their
8 volume -- well, a couple things. Their volume, their acre-
9 feet on their GRE sand, is roughly about 60 to 70 percent
10 greater than ours. But that's going to probably tie back
11 to your geological interpretation.

12 I think, too, that they -- on their P/Z plot they
13 honored the last two points. They did not honor the first
14 points. And if you extrapolate that, you can get a little
15 more gas in place, and you can get a little more reserves.

16 But if you take their exhibit and honor all three
17 points, which are reasonable points, honor all three of
18 those points, you're going to come up with, really, no
19 difference in, really, gas in place or recoverable reserves
20 out of the GRE sand.

21 Q. And again, their evidence shows it's a small
22 reservoir?

23 A. Yes, it's small, by -- especially the P/Z,
24 there's really no difference in the two, if you honor all
25 the data.

1 Q. And not in communication with the storage unit?

2 A. No, there's no way it can be in communication
3 with the storage unit.

4 Q. Were Nearburg Exhibits 12, 13 and 18 through 23
5 either prepared by you or have you compiled them from the
6 files of Nearburg?

7 A. Yes, uh-huh.

8 MR. CARR: At this time we would move the
9 admission into evidence of Nearburg Exhibits 12, 13 and 18
10 through 23.

11 MR. KELLAHIN: No objection.

12 MR. HALL: No objection.

13 CHAIRMAN WROTENBERY: Nearburg Exhibits 18
14 through 23 and 12 and 13 are admitted into evidence.

15 I would like to clarify one thing on Exhibit 22,
16 just to make sure our record copy is complete. The copy
17 that I had didn't have all of the pay information that Mr.
18 Friesen indicated he had added, and I don't know, Steve, if
19 your copy has it or not. Mine didn't have the additional
20 information in red. Did yours have it?

21 MR. ROSS: Yes.

22 CHAIRMAN WROTENBERY: Okay.

23 THE WITNESS: Here, I'll just give you mine --

24 CHAIRMAN WROTENBERY: Oh, okay.

25 THE WITNESS: -- and I'll just take this one.

1 CHAIRMAN WROTENBERY: Thank you. Just so long as
2 we've got a complete exhibit for the record. Okay.

3 MR. CARR: That concludes my direct examination
4 of Mr. Friesen.

5 CHAIRMAN WROTENBERY: Mr. Kellahin?

6 MR. KELLAHIN: Do you want to do this now, or do
7 you want to take a break?

8 CHAIRMAN WROTENBERY: We took a break about 30
9 minutes ago, so I think -- Do you need a break?

10 MR. KELLAHIN: Was I on a break?

11 CHAIRMAN WROTENBERY: Yeah, briefly.

12 MR. KELLAHIN: Give us five minutes, would you,
13 please?

14 CHAIRMAN WROTENBERY: Sure.

15 (Thereupon, a recess was taken at 3:05 p.m.)

16 (The following proceedings had at 3:12 p.m.)

17 CROSS-EXAMINATION

18 BY MR. KELLAHIN:

19 Q. Mr. Horning, let's go back and look at --

20 A. Friesen.

21 Q. I'm sorry.

22 A. Friesen.

23 Q. We've changed witnesses, haven't we --

24 A. Yes, sir.

25 Q. -- Mr. Friesen?

1 A. That's okay, that's fine.

2 Q. I want to go back and look at the stratigraphic
3 cross-section. We've got that up on the display board.
4 You're certainly welcome to pull that closer so maybe we
5 can all see it better, so scoot it on up here, please.
6 Right in front of Mr. Carr would be fine.

7 MR. CARR: I'm afraid it will fall on me.

8 THE WITNESS: Is that okay, or --

9 MR. KELLAHIN: Yes, sir, that's fine.

10 CHAIRMAN WROTENBERY: Can you see it now, Mr.
11 Friesen?

12 THE WITNESS: I think so, I've got enough room.

13 Q. (By Mr. Kellahin) My copy of the RFT log is
14 Exhibit 18. That's what you have?

15 A. Yes.

16 Q. There's a whole bunch of tests on this log,
17 different intervals?

18 A. Yes, sir.

19 Q. How many total tests are there?

20 A. There are 22.

21 Q. Okay. Can you show me on the cross-section where
22 this test runs, from test 1 through test 22? And let's
23 stay with the Llano well in the southeast quarter of the
24 section.

25 A. Okay.

1 Q. That's what this RFT was run on.

2 A. That's correct.

3 Q. Let's find the total vertical extent of the 1
4 through 20.

5 A. One through 22?

6 Q. Twenty-two.

7 A. Well, it starts at the bottom of the well, starts
8 down here.

9 Q. Well, when you say "down here", let's make sure
10 we know where that is.

11 A. Oh, that's true.

12 Q. Let's do it this way, by color. If we get the
13 Llano well and down at the base, below the top of the
14 Morrow "C", there's a red perforation.

15 A. Yes.

16 Q. Let's find that. Where is the test in relation
17 to that?

18 A. Okay, that test is at -- the very first one is at
19 13,167.

20 Q. It's just above that perforation, is it?

21 A. Yes.

22 Q. So that's going to be test 1?

23 A. Yes.

24 Q. And then we count up the wellbore?

25 A. Yes.

1 Q. And how far do we go up before we get to 22?

2 A. We go up to -- 22 is -- Well, 22 is off of the
3 cross-section here. But if you go up through -- The last
4 test is number 12 that has data, and it is 12,828 feet --

5 Q. Well, let's find that one.

6 A. -- and it is right here in this zone, 12,828
7 feet, Morrow "B". Top of the Morrow "B", we'll call that.

8 Q. All right, that's just slightly above the top
9 perforations in the Llano well?

10 A. Yes, right in there.

11 Q. Okay, I've got it. Please have a seat.

12 When you look at all those tests through that
13 interval, are you concluding that the Llano "23" well in
14 the southeast quarter is experiencing pressure depletion in
15 all 23 test zones?

16 A. Did you mean to say the Llano "34"?

17 Q. Whatever's in the southeast quarter.

18 A. The south of the -- Llano "34".

19 Q. Yeah, the test well is the RFT test well.

20 A. RFT --

21 Q. That's not what we're looking at?

22 A. No, the only pressure depletion in the well in
23 the southeast quarter of Section 34 is going to be the gas
24 storage sand right here in the Morrow "B", we'll call that,
25 maybe the middle Morrow "B", right here.

1 Q. Okay, I don't want to go through all these. I'm
2 trying to take a shortcut. So if I look in the Llano "24"
3 well in the southeast quarter, and if I read across the
4 cross-section, and I take the upper perforation in the gas
5 storage well, in the southwest quarter --

6 A. Yes.

7 Q. -- the one marked in red --

8 A. Yes.

9 Q. -- and I read across, I'm in the only zone that
10 you tell me the RFT shows depleted?

11 A. That's correct.

12 Q. Okay. All the rest of them, if we go through
13 each of the tests, show virgin pressure or original
14 pressure?

15 A. That's correct.

16 Q. That's not associated with production out of the
17 gas storage unit?

18 A. No, that's correct.

19 Q. Let's see if I remember this right. If we're
20 looking at the Llano well in 34 --

21 A. Yes, sir.

22 Q. -- that's some 12 or 13 years after gas storage
23 production is taken out of the wells in -- the well in the
24 southeast quarter?

25 A. Yes, that's right, 1966 to 1979.

1 Q. So we've got about twelve years of production out
2 of the gas storage well in the southeast quarter --

3 A. That's not quite right, you don't have that much
4 production.

5 Q. Well, let me go back and start over --

6 A. Okay, sure.

7 Q. -- I can give you a better question.

8 You're telling me that there is -- based upon the
9 RFT log there is pressure depletion in the well in the
10 southeast quarter, right? And you find that pressure
11 depletion in the zone that's being perforated in the gas
12 storage well?

13 A. That's correct, this zone right there.

14 Q. That's the one I'm talking about.

15 A. Middle Morrow "B", yes.

16 Q. And after 10, 12 years, that's the zone in the
17 RFT lot that shows pressure depletion?

18 A. Yes, sir.

19 Q. And all the rest of them do not?

20 A. That's correct.

21 Q. Have you gone back to see what wells were taking
22 pressure out of the gas storage reservoir at that point?

23 A. Taking gas out of the gas storage reservoir?

24 Q. Yeah.

25 A. And this would be the time frame of September,

1 1979?

2 Q. What I'm trying to do is find the time reference
3 for the RFT log that shows pressure depletion in the gas
4 storage zone of the well in the southeast quarter.

5 A. Oh, you mean the corresponding evidence that
6 shows depletion here.

7 Q. I'm not quite there yet.

8 A. Okay, sorry.

9 Q. So the interval I'm looking at, the well in the
10 southeast quarter --

11 A. Uh-huh.

12 Q. -- have you looked for other wells that could
13 account for the pressure depletion in that zone in the well
14 in the southeast quarter?

15 A. No. No, I looked at Section 34.

16 Q. Okay.

17 A. I looked at those two wells in 34.

18 Q. I understand. So your assumption about pressure
19 depletion in the Llama "34" Number 1 well is based upon
20 looking at the Shell well in the southwest quarter?

21 A. That's correct.

22 Q. Did you know during this period of time what
23 other wells were associated with the gas storage unit?

24 A. Yes, and I marked them on Exhibit --

25 Q. Have you looked at them?

1 A. I've looked at them on a plat --

2 Q. Okay, let's put them on paper here.

3 A. -- and I've shown them on Exhibit 19.

4 Q. If you'll take Mr. Gawloski's structure map,
5 Exhibit E- -- I can't read my own writing.

6 CHAIRMAN WROTENBERY: Which one was that one?

7 MR. KELLAHIN: That's it.

8 CHAIRMAN WROTENBERY: E-3.

9 Q. (By Mr. Kellahin) E-3. Did we save you a copy
10 of E-3 here somewhere?

11 A. No, I don't think so. I think I just brought my
12 exhibits.

13 Q. Here we go, let's use this one as E-3.

14 A. Okay.

15 Q. I'm going to use Mr. Gawloski's structure map.
16 It's got the interpretation of the fault cutting through
17 Section 34. Do you see that?

18 A. Uh-huh.

19 Q. What you're looking at is the Llano well in the
20 southeast quarter, and looking over to the southwest
21 quarter --

22 A. Yes.

23 Q. -- and under this interpretation, those two wells
24 should be fault-separated.

25 But you're showing now, based upon the RFT, that

1 the gas storage interval of the Morrow is pressure-
2 depleted, so something's affecting the well in the
3 southeast quarter?

4 A. Yes.

5 Q. All right. Let's find the other gas storage
6 wells that were there. Did you look over in Section 33 to
7 the west and look at that well?

8 A. The only thing I did was to look at a plat like
9 this and look to see the location of those other three
10 wells, where they set relative to the Number 2 well, the
11 Gas Storage Unit Number 2 well.

12 Q. Let me help you find them, though. If you look
13 in the southeast quarter of 33, that's going to be the
14 Grama Ridge Unit Number 3 well?

15 A. Okay.

16 Q. Okay, now we're going to go south into Section --
17 I guess that's Section 4. We're going to cross over the
18 fault, and we're now going to be on the same side of the
19 fault as the Llano well.

20 A. Uh-huh.

21 Q. When we look in Section 4, that's going to be the
22 Grama Ridge Well Number 4.

23 A. Okay.

24 Q. Right?

25 A. That's correct.

1 Q. Now, let's go east into Section 3. In the west-
2 half of Section 3, there's a well during this time frame
3 that's also in the unit, and it's called the Grama Ridge
4 Number 1, right?

5 A. Yes.

6 Q. And then you go down south into Section 10, and
7 the well in the northwest quarter of 10 is in the storage
8 unit. I think that one is Number 5.

9 So now we've got all the gas storage wells.

10 Have you done any investigation to see if the
11 depletion of pressure in the gas storage zone in the Llano
12 well could have been affected by the wells in Sections 3, 4
13 or 10?

14 A. In Section 3, that pressure plot is included on
15 my Exhibit Number 19. And I also included the plots of --
16 pressure plots over time in Number 4 and Number 1.

17 Q. Did you include the one for the Number 5 well
18 down in Section --

19 A. No, 5 was -- 5 kind of entered later on in this,
20 and they never reported any data in the files that I had
21 over this time period on 5.

22 Q. So your study would not have included, then, the
23 well in 10?

24 A. No, not in 10. It was something later or
25 something not, at least, through this data in 1994 that I

1 looked at. It was really the four wells in the storage
2 unit. I don't recall the situation on 5.

3 Q. Can you look at your sheet for me --

4 A. Yes.

5 Q. -- and tell me the pressures you have in those
6 other wells that correspond to the test in the Llano well?

7 A. Yes.

8 Q. Let me have those so I don't lose track of them.
9 If we start with the Llano well --

10 A. Uh-huh.

11 Q. -- that zone is what, 3500?

12 A. 3596, let's call it 3600, 3600 pounds.

13 Q. Give me the values for the other wells.

14 A. Okay, from my plot, Exhibit 19, the pressure
15 interpolated from my plot for Well Number 4 at that time
16 was 2420 pounds.

17 Q. I'm sorry, I lost track of you. Tell me again.

18 A. 2420 pounds for the --

19 Q. Which well?

20 A. -- Number 4.

21 Q. Number 4.

22 A. Yes. The --

23 Q. Wait, the Number 4 well is down in Section 4, and
24 give me the value again, I'm sorry?

25 A. 2420 pounds.

1 Q. All right. Next?

2 A. The -- I'm going to just move to Number 1, kind
3 of a little out of order, but it is 2875 pounds.

4 Q. 2875, okay.

5 A. And then I'm going to go to Number 3, which is
6 3250 pounds. And then I'm going to go to Number 2, which
7 is 3720 pounds, from Exhibit 19.

8 Q. So that gives us all those values, and the one
9 you don't have is the one for --

10 A. Is 5, no, sir I have no data on 5.

11 Q. When we're dealing with this particular zone, and
12 I've got about 3600 pounds in the Llano well, why is that
13 lower than the pressure over in the well in the southwest
14 quarter of that same section? I'm sorry, the southwest
15 quarter of the section.

16 A. I'm sorry, I was thinking of something else.
17 Shoot that by me one more time?

18 Q. Yeah, in the south half of 34 --

19 A. Yes, sir.

20 Q. -- I've got the Llano well with 3600 --

21 A. Yes.

22 Q. And then I have the pressure on the well in the
23 southwest, which is 3720 --

24 A. Uh-huh.

25 Q. -- if that is the source of withdrawal of

1 pressure, why is that number not lower than the well to the
2 east that is supposed to be effective?

3 A. Well, here's the reason why. What I have are
4 discreet data points. My data points are about April of
5 1979. So April of 1979 they ran a bottomhole pressure test
6 in the Grama Ridge Unit Number 1, 2, 3 and 4. They got a
7 hard pressure point.

8 From that point forward, up past the time when
9 the Llano well was drilled in September, they were putting
10 gas into this unit. Pressure in every well in that unit
11 was increasing, and you can see that from Exhibit 19.

12 Now, the next time they take a pressure in the
13 four wells that's a hard pressure point is some time in
14 late 1979, after the Llano well RFT was run.

15 So all I'm doing is taking two points, two
16 pressure points, connecting them with a straight line and
17 just reading off of the graph. But there's no doubt in my
18 mind that when the Llano well was RFT'd, thirty-about-six-
19 hundred pounds, the pressure over here was 3600 pounds.
20 And, you know, putting gas in the unit might be a few
21 pounds different, but these things are in pressure
22 communication, there's no question about that.

23 Q. So let me ask you this. So at the time that
24 we're dealing with the RFT log --

25 A. Yes.

1 Q. -- you don't know the exact pressure on any of
2 the other four wells?

3 A. I do not know the exact pressures. I do know
4 they're putting gas into it, and I have a -- I know the
5 range of pressures between before they ran the RFT and
6 after. And the only well, the only well, that could show
7 3600 pounds is the Number 1 from Exhibit 19, in that time
8 frame. No other Grama Ridge unit well could show 3600
9 pounds. They were all lower.

10 CHAIRMAN WROTENBERY: The Number 1 or the Number
11 2?

12 THE WITNESS: I'm sorry, I'm sorry. Oh, boy. I
13 meant to say the Number 2. Thank you. The blue line, the
14 Number 2 well, the well in the southwest corner of Section
15 34. Thanks, I'm sorry I confused everybody.

16 Q. (By Mr. Kellahin) I don't have your exhibit in
17 front of me. Which one are you working with that shows
18 this plot?

19 A. It's the second page --

20 Q. I've got it.

21 A. It's the blow up of 19. No, the blow-up of 19.
22 You've got the first page, large scale. Get the one with
23 the blow-up. There you go, yes, sir.

24 Q. Well, these pressure numbers are going up and
25 down over time, right?

1 A. Yes, sir, they're putting gas in, they're taking
2 it out. When you put gas in the storage unit, the
3 pressures go up. When they withdraw gas, the pressures go
4 down.

5 Q. Aren't there engineering disciplines that would
6 allow you to take this information and reconstruct the
7 pressure to see if these wells really are affecting one
8 another?

9 A. Oh, let's see. No, you've got good pressure
10 information. Not really. The wells are affecting one
11 another, I don't think there's any question about that, the
12 gas storage unit wells. It's all one pool, one common
13 source.

14 But what you don't really have here is any kind
15 of interference test or anything like that, that would be
16 more definitive.

17 Q. Let me ask you this. Why aren't the pressures in
18 the gas storage wells affecting each other, without regard
19 to your conclusion that the well in the southeast quarter
20 of 34 is in communication?

21 A. Well, I didn't make a study on -- I could study
22 these things and draw some conclusions, but there's no
23 reason. These are gas storage unit wells in a common pool,
24 but it's -- it's been argued to be a common source, a
25 common pool. There may be some lensing going on, and that

1 could explain some of these pressures, but I have not
2 studied that.

3 And it's really clear to me that the Number 2
4 well, the Grama Ridge Unit Number 2 well, and the Llano
5 "34" are in pressure communication. I mean, that's just --

6 Q. So that information --

7 A. -- there.

8 Q. -- about those two wells is what causes you to
9 believe that there is not a fault projected between those
10 two wells, as we see on Mr. Gawloski's structure map?

11 A. That's correct, there's no fault, there's no
12 interruption across 34. One pool.

13 Q. When we look at the relationship of the GRE sand
14 to this lower Morrow "B" sand --

15 A. Are we over here now?

16 Q. Yes, sir.

17 A. Okay.

18 Q. Let's do it in the Nearburg well, because you've
19 got that shaded so I can see it.

20 A. Okay, yeah.

21 Q. That's the interval I'm talking about --

22 A. Yes.

23 Q. -- that lower Morrow "B" interval and the GRE
24 package. Is there any way to study that package from a
25 pressure perspective to see how any of these wells affect

1 the other?

2 A. Ask me that one more time, I'm sorry.

3 Q. Okay. We've looked at the interval where the gas
4 storage unit and the Llano well, you say, are communicating
5 because of the wells in the south half of 34. See that?

6 A. Gas storage unit where --

7 Q. Let's start over.

8 A. I think -- Yes, sir, please.

9 Q. In the south half of 34 you have the Llano 34-1
10 well in the southeast.

11 A. Right.

12 Q. Move back to the well in the southwest.

13 A. Yes, sir.

14 Q. Move up to the highest perforation. You're
15 saying those two wells talk to each other at that interval?

16 A. Yes.

17 Q. Okay.

18 A. Across there, uh-huh.

19 Q. Leave that topic, and let's go down to the
20 Nearburg well that's shaded red on the fourth log across.

21 A. Okay.

22 Q. Do you see that interval?

23 A. Yes, sir.

24 Q. Where did the gas go, if at all, that's in that
25 interval? How was it produced?

1 A. The gas in the Nearburg GRE sand?

2 Q. No, above it in the middle Morrow, the lower
3 middle Morrow. You've got it shaded in such a way that it
4 should be productive.

5 A. Uh-huh. Well, I see some perforations here, I
6 see low perm, nonproductive, perforations here --

7 Q. You see lots of perforations in the Llano well in
8 the southeast quarter?

9 A. Uh-huh.

10 Q. Have you studied to see whether that well, the
11 Llano well, has taken gas out of that member that was
12 underlying the northeast quarter of the section?

13 A. The Llano well has taken no gas out of the GRE
14 sand, none.

15 Q. That's not what I'm saying. We're still above --

16 A. I'm sorry, I thought that's what you were saying.

17 Q. Forget the GRE sand, you've broken that --

18 A. Okay.

19 Q. But the main part of the lower Morrow "B" is
20 depleted. The perforations in the Llano "34" well and the
21 lower Morrow "B", that well has been attributed with more
22 than 4 BCF of production?

23 A. Yes.

24 Q. Okay. Have you looked to see where that
25 production went in terms of its relationship to the

1 Nearburg well that shows that same zone?

2 A. Oh, I see. No, sir. No, sir.

3 Well, it took me a while to get there, didn't it?

4 I'm sorry.

5 Q. That's my fault, not yours.

6 If we look over on that same zone that we're
7 looking at, there's a perforation in the gas storage well.
8 Do you see that?

9 A. Now same -- same zone we're looking at?

10 Q. Yes, sir --

11 A. This is --

12 Q. -- right there, you've got your hand on it.

13 A. Okay.

14 Q. You see the red perforation in the gas storage
15 well?

16 A. Here.

17 Q. You've got it, that well. Why is that not a
18 source of pressure depletion, not only for the Llano "34"
19 well but anything else connected in that interval?

20 A. You mean through here?

21 Q. Yes, sir.

22 A. Well, what you've got here -- and this is why --
23 this goes back to why they were allowed to produce this
24 sand in the Llano well, is it was not in communication with
25 the gas storage unit. So this is typical in the Morrow.

1 You've got a big change in permeability across this
2 particular member, but it's still one pool, one common
3 source. But those kinds of things happen all the time.
4 And so this was virgin pressure, they could produce it.

5 If this thing would have come in at a lower
6 pressure and been close to the pressure in the gas storage
7 unit, they could not have -- and I've pointed that out in
8 other exhibits -- could not have ever produced that.

9 Q. Let me give you a question and answer.

10 A. Yes, sir.

11 Q. When we look at the RFT log in that lower middle
12 Morrow "B" --

13 A. Yes.

14 Q. -- it's correlative to the perforation in the gas
15 storage well?

16 A. Yes.

17 Q. That RFT log shows across that interval that the
18 Llano well is not pressure depleted, right?

19 A. Right here that's true.

20 Q. Yeah, that's what happened, right?

21 A. It's virgin pressure, yes, sir.

22 Q. Virgin pressure, despite the fact that across
23 that interval the gas storage well in the southwest quarter
24 was producing gas?

25 A. No, it's perforated there. Now, we don't have

1 any evidence whatsoever, and it is clear to me from the
2 data in this data in this RFT that it is not producing
3 here. It's perforated there, but it is not in -- this
4 member is not in pressure communication with the Llano
5 well. Only perforated, not producing. It's not producing.

6 If it were producing, if it would have taken out
7 a significant amount -- any amount of gas, we would have
8 seen it in this RFT over here. They couldn't have
9 perforated it.

10 Q. So the only engineering data you have to take
11 away the fault is the fact that one of those tests on the
12 RFT log shows that the zone correlative to the gas storage
13 is depleted?

14 A. The two tests, yes, sir, two pressure tests from
15 RFT there.

16 Q. That's it?

17 A. That is the two. And that's the two everyone has
18 relied on to prove that there's communication across that
19 reservoir and there is no fault. There have been too many
20 engineers and geologists look at this zone. If they could
21 come up with a plausible reason why it was not communicated
22 gas storage unit, they would have produced it. No one has
23 been able to do that. That well is plugged. And it's just
24 -- It's too clear, it is too clear that that is one
25 reservoir across there, one pool.

1 Q. Well, let me show you how Mr. Gawloski did it.
2 I've lost track, is this 8?

3 MR. ROSS: Seven.

4 CHAIRMAN WROTENBERY: E-7.

5 Q. (By Mr. Kellahin) Seven. Let me show you, Mr.
6 Gawloski where he has mapped the upper Morrow "B" interval,
7 and this would be the portion that we've been talking about
8 that is connected with the gas storage. Do you see that?
9 Is this the same -- Let me ask you, is this same interval
10 we're talking about?

11 A. I don't know.

12 Q. Okay, you don't know?

13 A. No. I mean, I -- if the experts say it is, I'll
14 certainly go along with that --

15 Q. I don't want you to guess.

16 A. -- but I --

17 Q. Let me go back and ask you, to make sure it's
18 clear.

19 A. I don't know.

20 Q. I'm trying to find the zone that you had the RFT
21 test on that showed you pressure depletion in the Llano
22 well --

23 A. Uh-huh.

24 Q. -- and some of the codings off the cross-
25 section --

1 A. Uh-huh.

2 Q. -- and I'm looking for what Mr. Gawloski was
3 using as the upper Morrow "B".

4 A. Yes.

5 Q. And if I'm looking at that interval which
6 contains in the upper Morrow "B" the interval you see is
7 depleted, and if I see how he shaded that map, he bypasses
8 the well in the southwest quarter, he connects the
9 southeast quarter well with wells down in 3 and around.

10 If this geological interpretation is correct, can
11 you tell me the pressure information is inconsistent with
12 this exhibit?

13 A. Well, first of all, I cannot make an opinion on
14 this map. I've never seen it, and I -- you know, this is
15 not -- this cross-section started with Mr. Gawloski, but
16 Cap has made an interpretation. Since Mr. Gawloski left I
17 looked at this pressure data. I mean, had Ted and I worked
18 together on this and incorporated the pressure data with
19 his exhibits for today, well, I'm sure that he -- you know,
20 he would have taken that new evidence into account.

21 But I just can't -- I don't know what he mapped
22 here. I mean, I really just don't. And without a cross-
23 section or someone leading me through this thing and --

24 Q. Let's go back to something you know.

25 A. I just can't make a statement on that.

1 Q. Let's go back to something you know.

2 Am I correct in understanding that your testimony
3 about the pressure relationship that affects the well in
4 the southeast quarter --

5 A. Uh-huh.

6 Q. -- and the well in the southwest quarter causes
7 you to exclude an interpretation of a fault between those
8 two wells?

9 A. Yes.

10 Q. And that's how you've excluded the fault?

11 A. Oh, yes. Yes, sir, absolutely.

12 MR. KELLAHIN: Nothing further, thank you.

13 CHAIRMAN WROTENBERY: Mr. Hall, did you --

14 MR. HALL: I have no questions.

15 MR. CARR: Just real quick --

16 CHAIRMAN WROTENBERY: Yes, sir.

17 MR. CARR: -- may I do a little redirect?

18 CHAIRMAN WROTENBERY: Yes.

19 REDIRECT EXAMINATION

20 BY MR. CARR:

21 Q. If we look at the last map that Mr. Kellahin was
22 asking you about, prepared by Mr. Gawloski, the date on
23 that map is 3 of 2000. Do you see that?

24 A. Yes.

25 Q. That's before the Nearburg well was drilled; is

1 that right?

2 A. Yes. Yes, that's true.

3 Q. You don't know what sands are being mapped here?

4 A. No, I don't, I --

5 Q. If it's all the upper sands, you don't know that?

6 A. I do not. I don't know what he mapped here.

7 Q. Mr. Friesen, Mr. Kellahin asked you about the
8 fact that you could maybe have these pressure differentials
9 between the wells in the south half of the section and
10 still have the fault, and he took you to another one of Mr.
11 Gawloski's older maps and asked you a number of questions
12 about pressures in the gas storage unit.

13 If we look at the -- If we compare the well
14 locations in the storage unit with your Exhibit 19 --

15 A. Yes.

16 Q. -- and the information you have from the RFT
17 log --

18 A. Yes.

19 Q. -- is it fair to say that you have very close
20 pressure readings between the wells in the southeast
21 quarter and the southwest quarter of Section 34?

22 A. Definitely, yes.

23 Q. At the same time, do you have very close pressure
24 between the well in the southwest of 34 and the northwest
25 of 3? If you look at your graph on --

1 A. The southwest of 34?

2 Q. The southwest of 34 --

3 A. Uh-huh.

4 Q. -- and the well to the south of it in the storage
5 unit.

6 A. Uh-huh, the Number 1?

7 Q. I guess that's the Number 1. But it's also shown
8 on your Exhibit Number 19, is it not?

9 A. That's correct.

10 Q. And it's got a similar pressure?

11 A. It has a pressure of 2875.

12 Q. And these pressures follow the same trend, from
13 1965 through 1995, do they not?

14 A. Yes, yes.

15 Q. And if we take that well down in 3 and we compare
16 it to the well in 33, it also displays a very similar
17 pressure trend, does it not?

18 A. Yes. The trends are -- Yes.

19 Q. And if we look at the well in Section 4 and
20 compare it to the well in 33, we have a similar pressure
21 trend --

22 A. Yes.

23 Q. -- do we not?

24 A. Yes, yes.

25 Q. And if this is a fault that is breaking this into

1 two storage units, it's not separating much, is it?

2 A. No, no, the -- no, that's correct. That's
3 correct.

4 Q. Are you aware of any effort by Llano or anyone to
5 run two separate gas storage units here?

6 A. No, sir.

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

8 MR. KELLAHIN: I have a follow-up.

9 CHAIRMAN WROTENBERY: Mr. Kellahin?

10 RECROSS-EXAMINATION

11 BY MR. KELLAHIN:

12 Q. Let's go back where Mr. Carr left off. If you
13 look at the structure map where we put these pressure
14 values, and if you look at the well in the southwest
15 quarter of 34, you gave me a pressure of 3920, right?

16 A. Which one is that again? I'm sorry.

17 Q. Gas Storage Well Number 2.

18 A. Gas Storage Well Number 2. 3720?

19 Q. Right.

20 A. Yes, sir.

21 Q. And you go down to Well Number 4 --

22 A. Yes, sir.

23 Q. And you gave me 2440.

24 A. 2420, 2440, okay.

25 Q. I've got 1300 pounds of differential between

1 those two wells.

2 A. Uh-huh.

3 Q. Is that your definition of close?

4 A. Of what?

5 Q. Is that your definition of close? Mr. Carr asked
6 you if these pressures were close?

7 A. Oh. No, I did not -- no, I did not, as I
8 mentioned, and you asked me this question, I did not study
9 why those pressures are different, why you see the 2400 to
10 3720 pounds through there. And I could study that, but I
11 have not studied that.

12 I think it was just too clear to me that the
13 Grama Ridge Morrow Unit Number 2 well was in communication
14 with the Llano "34" Number 1. I mean, that's just -- it's
15 -- across -- the whole thing that I've looked at here, is
16 Section 34, and across Section 34 there's no fault. It's
17 one reservoir, one pool across there.

18 Q. Have you studied the gas storage unit to see if
19 all the gas storage wells were being produced collectively
20 by the same system that would uniformly draw those
21 pressures down?

22 A. No, no, I have not conducted a study like that.

23 MR. KELLAHIN: No further questions.

24 MR. CARR: No further questions.

25 CHAIRMAN WROTENBERY: Dr. Lee?

EXAMINATION

BY COMMISSIONER LEE:

Q. What kind of study do you want? Right now they say it's 1700 p.s.i. difference. What kind of study do you need to come up with the conclusion?

A. Well --

Q. I thought, engineers, you could come up with a conclusion in two seconds.

(Laughter)

A. Well, some engineers can. But --

Q. Yes, I buy it, okay? This too maybe is communicating. Then how about those two, the storage well. They have a 1700 pressure difference.

A. Oh, the difference in the 1700 pounds? Well, I would have to make a study, but --

Q. What kind of study do you need?

A. Well, I would have to -- we would have to make a study in conjunction with the geologist, we would have to look at the wells, we would have to look at the various lenses, where they're perforated, and we would have to determine in this one pool or one common zone, you know, are there any lenses -- what lenses are interconnected across there? That in conjunction with structure map, you know, other things that...

But I have not looked at any other data, other

1 than what I've presented here today, and there's just more
2 geologic data that you have to work into this to make
3 statements --

4 Q. But I thought you said this is a single pool?

5 A. Right, for the definition that the -- like the
6 OCD uses, a single pool, a common source. But we all know
7 in the Morrow we get -- you know, we do have some things
8 that are changes in permeability --

9 Q. Permeability doesn't affect your -- I believe the
10 gas storage field, you injected in the same pressure,
11 right? They take the gas that you injected.

12 A. At the same surface pressure?

13 Q. Right.

14 A. I have not looked to see how many compressors or
15 the surface arrangement at that gas storage unit. I'm just
16 not sure on that. It could be there are a multiple
17 compressors on it, I'm not sure, multiple distribution
18 lines, or it could have been single.

19 And as part of what we -- Good point, that's
20 probably what you'd incorporate in the further work that
21 you do, is looking at surface facilities and how that was
22 run.

23 CHAIRMAN WROTENBERY: Mr. Carr, Mr. Kellahin,
24 just for the record, do we have a map among all of these
25 exhibits that shows the location of the gas storage units -

1 - Unit Wells Number 1, 3 and 4?

2 MR. HALL: There is in my exhibit notebook.

3 CHAIRMAN WROTENBERY: Okay.

4 MR. HALL: Exhibits 1 and 2.

5 MR. KELLAHIN: Let me check with Mr. Hall and see
6 if -- We don't have precise footages, but there's a map
7 that displays where these are. Is that helpful?

8 CHAIRMAN WROTENBERY: Is there something in your
9 exhibits? Is this in your exhibits?

10 MR. HALL: Look at my exhibit under Tab 1.

11 CHAIRMAN WROTENBERY: Tab 1, got it.

12 COMMISSIONER LEE: Can I ask another question?

13 CHAIRMAN WROTENBERY: Yes, go ahead.

14 COMMISSIONER LEE: How about those -- Tom, about
15 those wells? Which one is perforated -- producing before
16 1979, around that area?

17 MR. KELLAHIN: We have to defer to Mr. Hall and
18 the gas storage people.

19 MR. HALL: Well histories are reflected in
20 Exhibit 12 for the unit wells.

21 COMMISSIONER LEE: Can you tell me --

22 MR. HALL: Looking to see when the dates are.
23 That exhibit does not tell that, Dr. Lee. I will get that
24 for you, for all four of the unit wells.

25 COMMISSIONER LEE: Thanks.

1 CHAIRMAN WROTENBERY: Did you say thanks?

2 COMMISSIONER LEE: Yes.

3 CHAIRMAN WROTENBERY: Would you be able to get
4 that before tomorrow?

5 MR. HALL: I will certainly try.

6 CHAIRMAN WROTENBERY: Thank you.

7 Do you have any questions?

8 COMMISSIONER BAILEY: No.

9 CHAIRMAN WROTENBERY: Anything else for Mr.
10 Friesen, then?

11 Thank you for your testimony, Mr. Friesen.

12 THE WITNESS: You're welcome.

13 MR. CARR: May it please the Commission, at this
14 time we call Ricky Cox.

15 RICKY COX,
16 the witness herein, after having been first duly sworn upon
17 his oath, was examined and testified as follows:

18 DIRECT EXAMINATION

19 BY MR. CARR:

20 Q. Would you state your full name for the record,
21 please?

22 A. Ricky Cox.

23 Q. Where do you reside?

24 A. I live in Midland, Texas.

25 Q. By whom are you employed?

1 A. I work for Great Western Drilling Company.

2 Q. Have you previously testified before the New
3 Mexico Oil Conservation Division?

4 A. No, I have not.

5 Q. Could you summarize your educational background?

6 A. I have a bachelor's and master's degree in
7 geology from Texas Tech University, graduated in 1982, my
8 master's.

9 Q. And for whom have you worked?

10 A. I started work for Marathon out of college, spent
11 eight years there, moved to BTA for five and with Great
12 Western now for about seven.

13 Q. At all times have you been employed as a
14 geologist?

15 A. All times as a geologist, yes.

16 Q. And has your work experience been focused in the
17 Permian Basin?

18 A. All 20 years in the Permian Basin.

19 Q. Are you familiar with the subject of each of
20 these consolidated cases?

21 A. Yes, sir, I am.

22 Q. And are you familiar with the history of the
23 Grama Ridge "34" State Well Number 1, the Nearburg well?

24 A. Yes, I am.

25 Q. Have you made a geological study of the area

1 which is the subject of this Application?

2 A. Yes, sir.

3 Q. Mr. Cox, how long have you worked on this
4 prospect?

5 A. I was the geologist that reviewed this field when
6 Dave Alderks and Jim Brown showed Great Western the
7 prospect.

8 Q. And did you map the prospect at that time?

9 A. I did. I always, as a matter of mode of
10 operation, double-check the data that's presented to me
11 when I look at a prospect.

12 Q. And was it partially on your recommendation that
13 Great Western attempted to secure this lease?

14 A. It was completely on my recommendation.

15 Q. Are you prepared to share the results of your
16 geological work with the Oil Conservation Commission?

17 A. Yes, sir.

18 MR. CARR: We tender Mr. Cox as an expert in
19 petroleum geology.

20 CHAIRMAN WROTENBERY: We accept his
21 qualifications.

22 Q. (By Mr. Carr) Mr. Cox, briefly summarize your
23 geological study of this Morrow reservoir.

24 A. I started looking at it specifically when Dave
25 Alderks and Jim Brown, Brent Hilliard, brought Great

1 Western the prospect. We agreed to review it. We knew
2 that it was based on an upcoming land sale, acreage
3 available, and they brought in the data, we reviewed it
4 over the next -- It was a very short-fuse deal. Typically,
5 Dave does that to me. He shows me things that are expiring
6 or up for sale in a very short time.

7 So the next couple of days we pulled logs and
8 reviewed all of his work from his structure map to his
9 isopach maps, his picks, his cross-section, and in most
10 cases we duplicated all of his work, although not every
11 single well pick.

12 We presented the resulting maps to Great Western
13 management and made the recommendation that we pursue the
14 prospect. It was approved. We went to our board out of
15 Forth Worth, they agreed, and we proceeded with the land
16 sale, we won the sale. And then in January, late January,
17 early February, we presented the prospect for sale to the
18 industry at the North American Prospect Expo in Houston.

19 At that time, Nearburg and -- I guess actually
20 Ted came by first and saw the deal in our booth. He
21 brought Cap and Bob by, and they indicated a very strong
22 interest in purchasing the prospect at the Expo, came back
23 to Midland, and planned the deal.

24 Q. Mr. Cox, in making your study did you have any
25 seismic data available to you?

1 A. No, sir, no seismic.

2 Q. Everything you will present is based on well
3 control information?

4 A. All well control.

5 Q. And in making your study of the area, did you at
6 any time consult with or work with anyone from Nearburg?

7 A. No, Nearburg wasn't even in the picture when we
8 did our evaluation of this deal.

9 Q. Let's go to what has been marked as Great Western
10 Drilling Exhibit Number 14. Could you identify and review
11 this, please?

12 A. Exhibit 14 is a structure map on the base of the
13 Morrow "B" sand. If I can use this GRE cross-section, that
14 point would be here.

15 Q. When you say "here" --

16 A. Would be at the point where the correlation is
17 drawn from the top of the Morrow "C". That is the point of
18 my structure map. That's common for me, I do that
19 throughout all of southeastern New Mexico. I realize
20 that's different from other maps you've seen, but this is
21 common for my method of evaluation.

22 Contour interval is 100 feet. That also is
23 different from the other maps you've seen.

24 Major points that I looked for when I drew this
25 map, it was important to me to know where the bounding

1 fault is on the west. It's a long, straight regional
2 fault. It's easily controlled by wells. I don't see any
3 other evidence in the area of interest, being the north
4 half of Section 34, that exhibits any evidence of faulting,
5 based on the well control. I drew it in as a nose or a
6 closure off of a regional north-south nose.

7 After we drilled the well with Nearburg, the well
8 proved up the original interpretation of being a closed
9 feature there.

10 Q. And what you've mapped, really, is the low-relief
11 rock structure across the area?

12 A. Yes, sir, exactly.

13 Q. Let's go to Exhibit Number 15. What is that?

14 A. This is a gross sand isopach of the lower Morrow
15 "B" sand. It is all of the sands in the interval
16 previously identified as the Morrow, the middle Morrow "B",
17 it's all of those sands lumped together to make a gross
18 isopach. No attempt has been made to look at net sand.

19 We made this map to support a drilling location
20 in the northeast quarter of Section 34 when we presented it
21 to the industry. The intent was to show a thick body of
22 sand trending north-south through the area, and that was
23 all it was. I mean, it was that simple. It's a very
24 simple prospect, you have a structural relief, you have a
25 large volume of sand trending through the area, and we sold

1 the deal.

2 Q. All right. Let's now go to Great Western
3 Drilling Exhibit 16, and first, if you would, I'd like you
4 to identify for the Commission what are the red dots on
5 this exhibit.

6 A. It's common when I do a net sand isopach map, I
7 would like to see the wells that are perforated in the
8 interval that I'm mapping. And these red dots represent
9 wells that have perforations reported in the interval that
10 I'm mapping. The one exception is in Section 35, I have a
11 drafting error. The well in the southwest quarter of
12 Section 35 does not have perforations in this sand. That's
13 an error on my part. I felt it was easier to explain it to
14 you here than to try to send out new exhibits.

15 Q. What does this show us?

16 A. This is a net isopach map of what we have
17 informally termed the lower Morrow "B" 2 sand. We named it
18 the "B" 2 because it was the second sand from the top of
19 the middle Morrow. Not highly technical.

20 The intent here, or the purpose of drawing this
21 map was to put together the reservoir geometry, the facies
22 geometry, and try to predict where this sand may or may not
23 be, knowing that we own acreage in the area. It was of
24 interest to know if it would at some point cross our
25 acreage and be a potential reservoir. We made a net sand

1 map because that brings us closer to reservoir-quality sand
2 than simply a gross isopach map.

3 Based on the e-log character, the electric log
4 character and the gamma-ray, this sand is interpreted by me
5 as a marine beach or an offshore bar deposit which should
6 be trending perpendicular to the depositional dip, so it
7 would be a long depositional strike. And knowing from
8 other maps that I've made in this area that the
9 depositional dip was basically north-south, I oriented this
10 sandbody east-west, I biased my contouring based on my
11 interpretation.

12 Q. All right, let's go now to Exhibit Number 17, the
13 Morrow "A" sand net isopach.

14 A. This again is a net sand map, very similar to the
15 one before it. It was made and shown on our montage at
16 NAPE when Nearburg looked at this prospect. And not to
17 brag, but we didn't have to change this map after we
18 drilled the well. We were right.

19 And what it shows is again a net sand isopach of
20 the Morrow "A" sand, which is the sand directly above the
21 thick blue Morrow lime that you've seen on all of the
22 cross-sections. It's a very thin sand, it is extremely
23 productive. Both Dave Alderks and Ted Gawloski told me in
24 their extensive work in this area that -- this six-or-
25 eight-township area -- it is a rule of thumb that this sand

1 will produce 1 BCF per net foot of sand. That is their
2 rule of thumb when they work this area. So it doesn't take
3 very many feet to be highly attractive.

4 Again, based on the log character, I believe this
5 is a bar, offshore bar or a beach-type deposit that should
6 be running parallel to strike and perpendicular to
7 depositional dip.

8 Q. This is the zone that's above the gas storage?

9 A. That's right, this zone has not been tested in
10 the Nearburg well. It is a potential zone. And that's why
11 it was made in the first place, to help sell the prospect,
12 and again now it is still potential uphole behind-pipe pay.

13 Q. Mr. Cox, what conclusions can you reach from your
14 geological study of this area?

15 A. Well, starting with the structure map, we believe
16 the structure in this area is very simple. It is not
17 complicated by any faulting outside of the large regional
18 fault bounding this area on the rest. The reservoir sands
19 that we are currently producing in and those that have
20 additional potential are oriented more or less east-west
21 across the north half of Section 34. The well control in
22 the south half of Section 34 simply doesn't have reservoir-
23 quality sands in the zones that we see as potential.

24 Q. Were Exhibits 14 through 17 prepared by you?

25 A. Yes, sir, they were.

1 MR. CARR: May it please the Commission, at this
2 time we'd move the admission into evidence of Great Western
3 Drilling Exhibits 14 through 17.

4 CHAIRMAN WROTENBERY: Any objection?

5 MR. KELLAHIN: No.

6 CHAIRMAN WROTENBERY: Okay, Exhibits 14 through
7 17 are admitted.

8 MR. CARR: And that concludes my direct
9 examination of Mr. Cox.

10 CHAIRMAN WROTENBERY: Mr. Kellahin?

11 MR. KELLAHIN: Thank you.

12 CROSS-EXAMINATION

13 BY MR. KELLAHIN:

14 Q. I didn't see a cross-section. Did you have a
15 cross-section so I can tell what you mapped?

16 A. No, sir, but I can show you on the cross-section
17 shown on the -- if you like.

18 Q. The only one I care about is your Exhibit Number
19 15. If you'll take the Nearburg exhibit and show me the
20 top of the bottom of the zone here that's being isopach'd
21 for your Exhibit 15.

22 A. The top of my zone on my Exhibit 15 is the top of
23 the Morrow "B". The top of my mapped isopach and the
24 bottom would be the top of the Morrow "C", identified on
25 the cross-section, everything in there lumped together.

1 Q. Okay. So when I look at your isopach, this was
2 prepared before the Nearburg well was drilled?

3 A. Yes, sir, this was one of the maps that was
4 produced that we included on a montage of three maps that
5 sold the prospect.

6 Q. When I look at 15, you identified this as a gross
7 map, but I see values that would lead me to believe it's
8 netted in some way. Look at Section 34, look at the
9 Nearburg well.

10 A. Uh-huh.

11 Q. This base case was done before you had the
12 Nearburg well?

13 A. That's right.

14 Q. Did you change it after the Nearburg well?

15 A. We added the one point for control.

16 Q. All right.

17 A. We also added the BTA well to the east in Section
18 35.

19 Q. Tell me what you're doing when you put 67/13 next
20 to the Nearburg well.

21 A. You're right, you identified it correctly. The
22 67 represents the gross isopach value --

23 Q. Uh-huh.

24 A. -- and the 13 represents the net value. But I
25 did not contour the net through an interval like this.

1 It's meaningless.

2 Q. So what I'm looking at is the contouring of the
3 gross interval?

4 A. That's correct.

5 Q. And you have put down your values as to the net,
6 but you didn't map a net map?

7 A. That's correct, this is a gross isopach.

8 Q. If you'll look at the log on the Nearburg well,
9 what were you using to get the 13 net feet? How did you
10 count that up?

11 A. Generally speaking, I used a gamma-ray of 50 API
12 units or less and 8-percent density log.

13 Q. How do you get the gross number? How did you get
14 the 67 number?

15 A. The 67 number is everything that looks like clean
16 sand.

17 Q. Okay, that's what you're counting when we look at
18 the log?

19 A. That's right.

20 Q. And then to get the net, tell me again, what did
21 you do?

22 A. On the net numbers I typically take a gamma-ray
23 -- it's a combination of two things: a gamma-ray value of
24 50 API units or less, equal to or less than 50 API, plus
25 8-percent density or better.

1 Q. When you're mapping this lower Morrow, as you've
2 identified it, you have gone down to the southeast quarter
3 of 34 and you've picked up the Llano well. Do you see
4 that?

5 A. Yes, sir.

6 Q. Have you used the same methodology to get the
7 gross interval in the Llano well to be 77?

8 A. Certainly, use the same method for every well on
9 the map.

10 Q. That well also has a net of 34?

11 A. That's correct.

12 Q. You've not attempted to separate out this GRE
13 stringer, have you?

14 A. No, sir, I didn't do that.

15 Q. When we look at your structure map -- it's
16 Exhibit 14 -- were you able to use log data on Exhibit 14
17 to locate these faults that you have on the western portion
18 of the display?

19 A. Yes, sir.

20 Q. Comes from log data?

21 A. Yes.

22 Q. You don't use geophysical data?

23 A. No, sir.

24 Q. Does the structure map, 14, have any relationship
25 to 15 in terms of the orientation of the lower Morrow sand

1 package?

2 A. No, sir.

3 Q. So the orientation of the lower Morrow is
4 independent of what we see on the structure?

5 A. It's independent of current-day structure. It
6 was influenced solely on depositional structure at the time
7 it was deposited.

8 Q. Why did you take this entire Morrow -- lower
9 Morrow "B" interval and orient it the way you've oriented
10 it?

11 A. North-south, basically?

12 Q. Yes, sir, why?

13 A. That's what the well control shows.

14 Q. Okay. Without a cross-section, I need you to
15 help me with Exhibit 16. I'm looking at the Morrow "B" 1?

16 A. "B" 2.

17 Q. I'm sorry, "B" 2. Where is that on the Nearburg
18 cross-section?

19 A. The "B" 2 sand is represented in Well Number 1,
20 this GRE, which is the Shell GRB State, the well in the
21 southwest of 34. It's the first yellow sand.

22 Q. Okay.

23 A. That's the "B" 2. It's the "B" 2 because in the
24 Minerals, Inc., well in the southeast quarter it's the
25 second sand in the "B" interval. "B" 1, "B" 2.

1 MR. KELLAHIN: All right, I see what you've done.

2 No further questions.

3 CHAIRMAN WROTENBERY: Mr. Hall?

4 MR. HALL: No questions.

5 CHAIRMAN WROTENBERY: Mr. Carr?

6 MR. CARR: (Shakes head)

7 COMMISSIONER BAILEY: I have one.

8 EXAMINATION

9 BY COMMISSIONER BAILEY:

10 Q. On Exhibit Number 16, you mentioned that the
11 point in the southwest of Section 35 was incorrect.

12 A. It should not be shaded red. It was not
13 perforated.

14 Q. And the Llano "34" in the southeast of 34 was not
15 perforated in the "B" 2 either?

16 A. That's correct.

17 Q. With the elimination of both of those as "B" 2
18 sands, would it be possible to reorient the pod from east-
19 west to north-south, since you've lost two of your data
20 points now?

21 A. It's not a loss of a data point, ma'am, it's
22 simply that they did not perforate the well. The sand
23 exists in that well and it has, as I pick it, net feet of
24 sand. It simply wasn't perforated.

25 COMMISSIONER BAILEY: That's all I have

1 CHAIRMAN WROTENBERY: Mr. Carr, did you have any
2 further questions?

3 MR. CARR: No, ma'am, I do not.

4 CHAIRMAN WROTENBERY: Okay, thank you for your
5 testimony, Mr. Cox.

6 Anything else, Mr. Carr?

7 MR. CARR: I have nothing further. That
8 concludes our presentation of our direct case.

9 CHAIRMAN WROTENBERY: Thank you. And we had --

10 MR. KELLAHIN: I've got some housekeeping --

11 CHAIRMAN WROTENBERY: Oh.

12 MR. KELLAHIN: -- I guess I have all my E
13 exhibits, and we have not formally introduced them, but --

14 CHAIRMAN WROTENBERY: We did introduce E-1
15 through -6.

16 COMMISSIONER LEE: -7.

17 MR. KELLAHIN: -7 is the last one, then.

18 CHAIRMAN WROTENBERY: -7 we didn't.

19 MR. KELLAHIN: I guess I'm going to not be able
20 to introduce that. I couldn't authenticate any of it.
21 I'll try again later.

22 CHAIRMAN WROTENBERY: Okay. I am right? We did
23 introduce E-1 through -6, didn't we? I believe we did. I
24 had a note that we did. Do you recall?

25 Well, just in case we didn't introduce E-1

1 through -6 -- I think we did already. Does anybody have
2 any objection --

3 MR. KELLAHIN: Yeah, and Mr. Carr has corrected
4 me. It ought to be E-1 through 7, and then we're done,
5 because that's the last number I have.

6 MR. CARR: As much as I'd like to make him
7 authenticate it.

8 MR. KELLAHIN: This is the one.

9 CHAIRMAN WROTENBERY: That's Number 7.

10 MR. KELLAHIN: Right.

11 CHAIRMAN WROTENBERY: But we are going to --

12 MR. KELLAHIN: No, that's admitted, and -8 is the
13 map, and I haven't marked that. Do you want that marked?

14 CHAIRMAN WROTENBERY: Oh, we already have a map
15 that shows this in the Raptor exhibits, so I think we've
16 got that covered.

17 MR. KELLAHIN: I'm sorry, I'm confused.

18 CHAIRMAN WROTENBERY: Okay.

19 MR. KELLAHIN: We're straight now. Thank you.

20 CHAIRMAN WROTENBERY: Okay, I think we've already
21 admitted E-1 through -6, but just in case we haven't we'll
22 go ahead and do that. I don't believe there was any
23 objection.

24 Anything else for today?

25 MR. KELLAHIN: I'd like to suggest that we recess

1 and come back in the morning at a time that the Commission
2 says you want to start.

3 CHAIRMAN WROTENBERY: Sounds good. How about
4 nine o'clock?

5 MR. KELLAHIN: That's fine.

6 CHAIRMAN WROTENBERY: Is that okay with
7 everybody?

8 MR. CARR: That's fine.

9 CHAIRMAN WROTENBERY: Okay, we'll break, then,
10 for the rest of the day and reconvene at 9:00 a.m. in the
11 morning.

12 (Thereupon, evening recess was taken at 4:15
13 p.m.)

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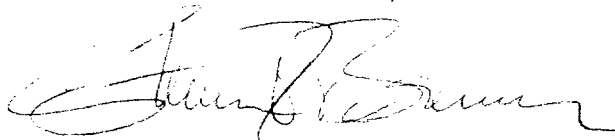
CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL October 27th, 2002.



STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2006