

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

IN THE MATTER OF THE HEARING CALLED BY)
THE OIL CONSERVATION DIVISION FOR THE)
PURPOSE OF CONSIDERING:)

APPLICATION OF CHI ENERGY, INC.,)
FOR COMPULSORY POOLING, LEA COUNTY,)
NEW MEXICO)

CASE NOS. 12,157

APPLICATION OF CHI ENERGY, INC., FOR AN)
UNORTHODOX GAS WELL LOCATION OR, IN THE)
ALTERNATIVE, FOR NONSTANDARD SUBSURFACE)
GAS WELL LOCATION/PRODUCING AREA, LEA)
COUNTY, NEW MEXICO)

and 12,158

(Consolidated)

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: MICHAEL E. STOGNER, Hearing Examiner

April 15, 1999

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, MICHAEL E. STOGNER, Hearing Examiner, on Thursday, April 15th, 1999, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

STEVEN T. BRENNER, CCR
(505) 989-9317

99 APR 29 AM 8:35
OIL CONSERVATION DIV

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 By: W. THOMAS KELLAHIN

* * *

1 WHEREUPON, the following proceedings were had at
2 12:35 p.m.:

3 EXAMINER STOGNER: Hearing will come to order.
4 Call Case Number 12,157, which is the Application of Chi
5 Energy, Inc., for compulsory pooling, Lea County, New
6 Mexico.

7 Call for appearances.

8 MR. CARR: May it please the Examiner, my name is
9 William F. Carr with the Santa Fe law firm Campbell, Carr,
10 Berge and Sheridan. I represent Chi Energy, Inc., in this
11 matter.

12 I would request, Mr. Examiner, that you also at
13 this time call Case Number 12,158, which is an Application
14 of Chi Energy, Inc., for an unorthodox gas well location.
15 This is the well on the spacing unit that is the subject of
16 the pooling case. Consolidation of the cases for purposes
17 of hearing will shorten the proceedings this afternoon, and
18 we would request they be consolidated.

19 EXAMINER STOGNER: Okay, in that case call Case
20 12,158 also.

21 MR. CARROLL: Application of Chi Energy, Inc.,
22 for an unorthodox gas well location or, in the alternative,
23 for a nonstandard subsurface gas well location/producing
24 area, Lea County, New Mexico.

25 EXAMINER STOGNER: Other than Mr. Carr, is there

1 any other appearances in either one of these cases or both?

2 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of
3 the Santa Fe law firm of Kellahin and Kellahin, appearing
4 on behalf of Santa Fe Energy Resources, Inc. We're
5 appearing in opposition to Case 12,158. We oppose the
6 approval of the unorthodox bottomhole location for the
7 proposed Chi well.

8 EXAMINER STOGNER: Any other appearances?

9 Okay, so the compulsory pooling Application is
10 unopposed; is that right, Mr. Carr?

11 MR. CARR: Yes, sir.

12 EXAMINER STOGNER: And we're here -- I'm assuming
13 that you're representing an offset that's affected?

14 MR. KELLAHIN: Yes, sir.

15 EXAMINER STOGNER: Are there any witnesses in
16 your side?

17 MR. KELLAHIN: I have two, Mr. Examiner.

18 MR. CARR: And I have three.

19 EXAMINER STOGNER: Mr. Carr?

20 MR. CARR: I have three.

21 EXAMINER STOGNER: Will all five witnesses please
22 stand to be sworn at this time?

23 (Thereupon, the witnesses were sworn.)

24 EXAMINER STOGNER: Is there any need for opening
25 remarks, or should we just get right on with it?

1 MR. KELLAHIN: I'd like to state Santa Fe's
2 position for you, Mr. Examiner, if the time is appropriate.

3 MR. CARR: May it please the Examiner, I'm not
4 going to present an opening statement. I do have a
5 closing.

6 EXAMINER STOGNER: Mr. Kellahin?

7 MR. KELLAHIN: Mr. Examiner, if you'll visualize
8 two sections, Section 19 and just south of Section 19 would
9 be Section 30, in the west half of Section 30 Santa Fe
10 Energy Resources operates what is called the Topaz 30-1
11 well. That well is at a standard location in the west half
12 of 30, and it is a standard setback from the common
13 boundary with Section 19. This is a Morrow channel system,
14 and the Topaz 30-1 is a producing Morrow gas well.

15 In Section 19 to the north, Chi has proposed a
16 standup east-half spacing unit, and they propose to utilize
17 a surface location that is 1650 from the east line but only
18 480 feet from the common boundary between Section 30 and
19 Section 19.

20 You're in the oil/potash area, and the BLM
21 requires the minimization of adverse impact to potash. Chi
22 proposes to drill this well at that location for that
23 reason.

24 However, Mr. Examiner, the evidence will be
25 conclusive and undisputed that the optimum location in the

1 east half of 13 -- of 19, in which to target this well, is
2 at a standard location. You will find that all experts are
3 in agreement on that point.

4 However, instead of drilling this well
5 directionally, which has been the pattern for other wells
6 in this area to satisfy the needs of protecting the potash,
7 as well as maximizing the opportunity to increase ultimate
8 recovery, instead of doing that, Chi proposes to drill this
9 well vertically. They complain that doing it directionally
10 will cost them additional dollars.

11 We're here to demonstrate to you, Mr. Examiner,
12 that their Application should be denied, that the
13 circumstances are such that they should be required to
14 directionally drill this well to a standard bottomhole
15 location, that it's economic to do so, that it's in the
16 best interests of conservation to accomplish that, and they
17 should be required to make that change.

18 If this location is approved, the locations --
19 the exception is significant to the Santa Fe Topaz well, it
20 is our opinion that it will prematurely water the remaining
21 production from the Topaz well and adversely affect the
22 correlative rights of Santa Fe, who owns an interest in and
23 does operate that well.

24 At the end of the presentation, then, we will ask
25 you to deny their Application for the unorthodox well

1 location.

2 EXAMINER STOGNER: Thank you, Mr. Kellahin.

3 Mr. Carr?

4 MR. CARR: At this time, Mr. Examiner, we call
5 John W. Qualls.

6 JOHN W. QUALLS,

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

9 DIRECT EXAMINATION

10 BY MR. CARR:

11 Q. Would you state your name for the record?

12 A. John W. Qualls.

13 Q. Where do you reside?

14 A. Midland, Texas.

15 Q. Mr. Qualls, by whom are you employed?

16 A. Chi Energy, Inc.

17 Q. And what is your position with Chi Energy, Inc.?

18 A. Land manager.

19 Q. Have you previously testified before this
20 Division?

21 A. Yes, sir.

22 Q. At the time of that testimony, were your
23 credentials as an expert in petroleum land matters accepted
24 and made a matter of record?

25 A. Yes, sir.

1 Q. Are you familiar with the Applications filed in
2 each of these consolidated cases?

3 A. Yes, sir.

4 Q. And are you familiar with the status of the lands
5 in the subject area?

6 A. Yes, sir.

7 MR. CARR: At this time, Mr. Stogner, we would
8 request that the witness's qualifications be accepted.

9 EXAMINER STOGNER: Any objection?

10 MR. KELLAHIN: No objection.

11 EXAMINER STOGNER: So qualified.

12 Q. (By Mr. Carr) Initially, Mr. Qualls, I think it
13 would be helpful if you would summarize for the Examiner
14 what it is Chi Energy seeks with these Applications.

15 A. In Case Number 12,157 Chi Energy seeks pooling
16 from the top of the Wolfcamp formation to the base of the
17 Morrow underlying the east half of Section 19, Township 20
18 South, Range 34 East, Lea County, New Mexico.

19 In Case Number 12,158 Chi Energy seeks this to be
20 dedicated to the Greenstone Federal Com Well Number 1, to
21 be drilled as either, number one, a straight hole at a
22 location 480 feet from the south line and 1650 from the
23 east line of Section 19, or, in the alternative, to
24 directionally drill from this surface location to an
25 unorthodox gas well bottomhole location and a nonstandard

1 subsurface gas well to be applicable to either the
2 Undesignated West Lynch-Morrow Gas Pool or the Undesignated
3 Quail Ridge-Morrow Gas Pool, no closer than 760 feet from
4 the south line and no closer than 990 feet to the western
5 boundary of said spacing unit, which would be 1650 from the
6 east line.

7 Q. Let's go to what has been marked for
8 identification as Chi Exhibit Number 1, and I'd ask you to
9 identify and review that for Mr. Stogner.

10 A. Exhibit Number 1 shows the subject spacing and
11 proration unit, which is the east half of Section 19, 20
12 South, 34 East.

13 Q. Could you identify the Santa Fe-operated acreage
14 surrounding this spacing unit?

15 A. Santa Fe operates the well in the west half of
16 Section 19 -- I believe it's called the Topaz 19 -- and
17 then the west half of Section 30, which would be the Topaz
18 30 Number 1.

19 Q. Does Santa Fe also own operating rights in the
20 east half of Section 30?

21 A. Yes, sir.

22 Q. Are there other directionally drilled wells in
23 this immediate area?

24 A. Santa Fe directionally drilled a well in the west
25 half of Section 19, which was the Topaz 19.

1 Q. Is that the only one you're aware of?

2 A. Yes, sir.

3 Q. What is the status of the acreage in the east
4 half of Section 19?

5 A. The status -- It's a fed lease. Chi owns a term
6 assignment on that lease.

7 Q. And the primary objective in the proposed well is
8 what?

9 A. Morrow formation.

10 Q. Let's go now to Chi Exhibit Number 2. Will you
11 identify and review that?

12 A. Exhibit Number 2 -- There's actually two Exhibit
13 Number 2s. There are C-102s, which is a well location and
14 acreage dedication plat. The first one identifies a
15 surface location 480 from the south line, 1650 from the
16 east line. The second one indicates a bottomhole location
17 of 760 from the south line, 1650 from the east line.

18 Q. And so what you're requesting is with the second
19 part of this Application, approval of an unorthodox
20 location that would be no closer than 760 feet to the south
21 line of Section 19?

22 A. Yes, sir.

23 Q. Would you agree that Chi would prefer to drill a
24 well at a standard location on this acreage?

25 A. Yes, sir.

1 Q. The unorthodox surface location is required
2 because it is within the potash enclave?

3 A. Yes, sir.

4 Q. Let's go to what has been marked for
5 identification as Chi Energy Exhibit Number 3. I'd ask you
6 to identify this and then review it for Mr. Stogner.

7 A. Exhibit Number 3 lists all the working interest
8 owners in the east half of Section 19. If you start at the
9 top you have Chi Energy with 93 percent. This is with
10 Lewis Dreyfus owning 50 percent of the 93 percent.
11 Southwestern Energy has 45 percent of Chi's 93 percent.

12 The remainder of the working interest owners are
13 Lerwick, Ltd., with 5 percent; Doyle Hartman with .71
14 percent; James Davidson with .25; James E. Burr with .015
15 percent; Ruth Sutton with .0078 percent; Larry Nermyr,
16 .0156 percent; John H. Hendrix Corporation, .49 percent;
17 Michael Klein, .49 percent; and Ronnie Westbook, .02
18 percent. This comprises a hundred percent of the working
19 interest in the east half of Section 19.

20 Q. Mr. Qualls, could you identify the interest
21 owners who have not voluntarily committed to the drilling
22 of a well on this 320-acre unit?

23 A. Yes, sir, that would be Doyle Hartman, James Burr
24 and Larry Nermyr.

25 MR. CARR: Mr. Stogner, at this time I need to

1 advise you that I have received the case when it was
2 referred to me from Jim Bruce, and in the material I have
3 I've been unable to find where notice was given to James
4 Burr. It may have been, but I don't know that. And so at
5 the end of the hearing I am going to request that it be
6 continued for four weeks, and during that period of time I
7 will establish either that he was given notice of this
8 hearing or I will assure that he has proper notice, so that
9 when the case is taken under advisement that issue has been
10 addressed. And notice may have been given, I just don't
11 know.

12 EXAMINER STOGNER: Thank you, sir.

13 Q. (By Mr. Carr) Mr. Qualls, what percentage of the
14 acreage in this spacing unit has been voluntarily committed
15 to the well?

16 A. 99.25 percent.

17 Q. And when did Chi first propose this well to other
18 interest owners in this subject spacing unit?

19 A. February 15th, 1999.

20 Q. Is Exhibit Number 4 a copy of letters reflecting
21 efforts to obtain voluntary participation of the interest
22 owners in the proposed well?

23 A. Yes, sir.

24 Q. And in your opinion, have you located and made a
25 good-faith effort to obtain the voluntary participation of

1 Mr. Nermyr and Mr. Hartman and Mr. Burr, we believe?

2 A. Yes, sir.

3 Q. Let's go to Chi Energy Exhibit Number 5. Would
4 you identify this, please?

5 A. This is an AFE estimate summary prepared by Chi
6 Operating, Inc., on February 22nd, 1999.

7 Q. And what are -- Could you just briefly review the
8 totals that are set forth on this exhibit?

9 A. Dryhole cost is \$1,065,000. Completed well is
10 \$1,361,000.

11 Q. What does this AFE represent? Is this for the
12 straight hole?

13 A. No, sir, this is for the hole going to 760 from
14 the south, 1650 from the east.

15 Q. And this is the AFE that was provided to the
16 interest owners who have --

17 A. Yes, sir.

18 Q. -- committed to the well?

19 A. Yes, sir.

20 Q. Were those interest owners advised that cost
21 variations could result from the outcome of this hearing
22 here today?

23 A. Yes, sir.

24 Q. What is the impact on the cost of drilling this
25 well if you directionally drill it?

1 A. Approximately \$500,000.

2 Q. And that would be directionally drilling to what
3 location?

4 A. From 480 to 760 from the south line is
5 approximately \$300,000. From -- To take it on out from 760
6 to 1650 is an additional \$200,000.

7 Q. And are these the costs, total costs, for a
8 completed well?

9 A. Yes, sir.

10 Q. Have you made an estimate of the overhead and
11 administrative costs to be incurred while drilling this
12 well and also while producing it if, in fact, it is
13 successful?

14 A. Yes, sir, it would be \$6000 while drilling and
15 \$749 while producing.

16 Q. And what is the source of these figures?

17 A. Ernst and Young survey, 1998.

18 Q. 1998 survey?

19 A. Yes, sir.

20 Q. And do you recommend that these figures be
21 incorporated into the order which results from today's
22 hearing?

23 A. Yes.

24 Q. Who do you request be designated operator of the
25 proposed well?

1 A. Louis Dreyfus Natural Gas Corporation.

2 Q. Let's go now to Chi Energy Exhibits 6 and 7. Are
3 these notice affidavits confirming that notice of today's
4 hearing has been provided in accordance with OCD rules?

5 A. Yes, sir.

6 Q. And to your understanding, to whom was notice
7 provided?

8 A. I understand all the working interest owners in
9 the surrounding area, Santa Fe, the working interest owners
10 in the east half, except for James Burr, were provided
11 notice. Santa Fe was notified, Southwestern notified,
12 Louis Dreyfus notified.

13 Q. Aside from the question about Mr. Burr, is it
14 your belief that notice was provided to all interest owners
15 who would be subject to a pooling that could result from
16 today's hearing?

17 A. Yes, sir.

18 Q. And as to the unorthodox location, was notice
19 provided to the adjacent, adjoining and diagonal spacing-
20 unit operators in this formation?

21 A. Yes, sir.

22 Q. Were Exhibits 1 through 7 either prepared by you,
23 or have they been compiled at your direction?

24 A. Yes, sir.

25 MR. CARR: At this time, Mr. Stogner, I would

1 move the admission into evidence of Chi Energy, Inc's.,
2 Exhibits 1 through 7.

3 EXAMINER STOGNER: Any objection?

4 MR. KELLAHIN: No objection.

5 EXAMINER STOGNER: Exhibits 1 through 7 will be
6 admitted into evidence at this time.

7 MR. CARR: And that concludes my direct
8 examination of this witness.

9 EXAMINATION

10 BY EXAMINER STOGNER:

11 Q. Mr. Qualls, has the \$6000 figure and \$749 figure
12 for the overhead charges been accepted in previous
13 compulsory-pooling cases issued out of this office before?

14 A. I don't know, sir.

15 Q. So you don't have a previous order that uses
16 those figures?

17 A. No, I took that out of the Ernst and Young
18 survey, 1998 survey.

19 EXAMINER STOGNER: Do you have that with you, or
20 did you provide that?

21 MR. CARR: Yes, I do. And our intent here, Mr.
22 Examiner, is to use whatever they're recommending, Ernst
23 and Young figures.

24 Q. (By Examiner Stogner) What's the depth of this
25 well? Do you know, Mr. Qualls?

1 A. Right around 14,000 feet.

2 EXAMINER STOGNER: I'll take administrative
3 notice of the Ernst and Young. Are these my copies or --

4 MR. CARR: Yes, sir, you may keep that copy.

5 EXAMINER STOGNER: This is a relatively new
6 publication, isn't it?

7 MR. CARR: Yes, sir.

8 EXAMINER STOGNER: This --

9 MR. CARR: I received it this week, actually.

10 EXAMINER STOGNER: I think they were a little
11 behind, if I remember right.

12 Okay, are there any other further questions of
13 this witness?

14 MR. KELLAHIN: Yes, Mr. Examiner.

15 EXAMINER STOGNER: I'm sorry, Mr. Kellahin?

16 CROSS-EXAMINATION

17 BY MR. KELLAHIN:

18 Q. Mr. Qualls, if you'll turn to Exhibit 3 with me,
19 sir --

20 A. Yes, sir.

21 Q. -- if you do the math and take out the Dreyfus
22 interest and the Southwest Energy Interest, what is Chi's
23 working interest after that subtraction?

24 A. It would be like 4-point-something. I didn't
25 calculate it exactly. 4.65.

1 Q. 4.65-percent interest is Chi's interest, then, in
2 the east half of 19 under this proposal?

3 A. Yes, sir.

4 Q. In the section to the south, Section 30, are you
5 familiar with the west half of Section 30 where Santa Fe
6 Energy operates the Topaz 30-1 well?

7 A. I believe so.

8 Q. Chi does not have any interest in that spacing
9 unit, does it?

10 A. No, sir.

11 Q. When you look at the letters that you sent
12 proposing the wells to the interest owners in the eat half
13 of 19, is the only letter you sent the one dated February
14 15th of this year?

15 A. Yes, sir.

16 Q. With that letter did you attach what was
17 introduced as Exhibit 5, which is the AFE?

18 A. Yes, sir.

19 Q. You told us that this AFE represents the cost of
20 a well that is deviated from the surface location 480 to a
21 bottomhole location 760 from the south line. Is that not
22 true?

23 A. I believe that's right.

24 Q. You also told us that Chi would subtract
25 \$300,000, approximately, from this AFE cost to get a

1 vertical well at this position. Was that your testimony?

2 A. I think that's what I said.

3 Q. You did or not say that?

4 A. Yeah, to go from 480 to 760 would be an
5 additional \$300,000.

6 Q. And so if I take this AFE, which is the
7 directional AFE --

8 A. Uh-huh.

9 Q. -- and subtract \$300,000, then I would know what
10 it would cost for a vertical well under your estimate?

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

12 Q. You don't prepare these estimates, do you?

13 A. No.

14 Q. Who prepares these for Chi?

15 A. The engineer in our office.

16 Q. And what is his name?

17 A. John Wolfe.

18 Q. Is Mr. Wolfe available for testifying today?

19 A. Not today, no, sir.

20 Q. So in order -- You're advising the Division that
21 to drill to the closest bottomhole location, 1650 from the
22 south line, Chi has concluded that it would be
23 approximately \$200,000 more than what we're seeing on
24 Exhibit 5?

25 A. I believe that's right.

1 Q. Do you know how that's done?

2 A. As far as -- ?

3 Q. -- determining the additional costs or any of
4 that?

5 A. It's based on a footage.

6 Q. That's not something that you do, is it?

7 A. No.

8 Q. When I look at the well-proposal letters, am I
9 correct in understanding the proposal you made to those
10 interest owners in the east half of 19 is only the proposal
11 to go to the 760 bottomhole location?

12 A. Yes, sir.

13 Q. You did not propose a vertical well in the
14 alternative, did you?

15 A. As far as drilling a vertical well versus a 760
16 bottomhole?

17 Q. Yes, sir.

18 A. We said we would like to drill a 480 vertical
19 well if we could, but we're proposing that we're going to
20 end up drilling a 760.

21 Q. Well, where in this letter does it say that, Mr.
22 Qualls?

23 A. It doesn't say that.

24 Q. Doesn't say that, does it?

25 A. No.

1 Q. So if I'm reading this letter that you have sent
2 someone --

3 A. Uh-huh.

4 Q. -- I'm going to presume that your proposal is for
5 a directional well to a 760 bottomhole location from the
6 south boundary, am I not?

7 A. Yes, sir.

8 Q. That would be a fair assumption, would it not?

9 A. Yes, sir.

10 Q. All right. When we look at the Application today
11 for the unorthodox location, you're asking for approval of
12 a vertical well or, in the alternative, one that is
13 slightly directional to the 760 bottomhole location; is
14 that not true?

15 A. Yes, sir.

16 Q. You're asking for something in this case that you
17 have not proposed to the interest owners under the force-
18 pooling case; is that not true?

19 A. I guess. I don't see it that way, but if that's
20 the way --

21 Q. So which way is it, Mr. Qualls?

22 A. Well, we're proposing that we want to go to 760.
23 We didn't think we could get a vertical well, so we
24 proposed a well to go to 760 and sent out an AFE based on
25 that.

1 Q. Why didn't you think you could get approval of a
2 vertical well?

3 A. We're trying to get away from the south end of
4 that section line.

5 Q. Well, because 4 A, in your judgment, was much too
6 close to the south boundary, wasn't it?

7 A. (Nods)

8 Q. In response to Mr. Carr's question, you said that
9 Chi would want to drill at a standard location, right?

10 A. Yes, sir.

11 Q. And your reason for not doing so is what, sir?

12 A. Because of the potash.

13 Q. All right. Why would you want to be at a
14 standard location?

15 A. That's what you usually do when you're drilling a
16 standup in the east half of the section, you'd have to be
17 1650, 1650, which is a standard location.

18 Q. Are you aware of the general belief that a
19 standard location in the east half of 19 is going to be
20 geologically more favorable?

21 A. I'm not, no.

22 Q. You're not? But you do understand it's Chi's
23 position that they would prefer to drill at a standard
24 location?

25 A. We would do a standard location if it was

1 allowable, yes, sir.

2 Q. All right. Do you have available with you any
3 evidence from Chi as to the economic consequence of
4 spending the additional money to go to a standard
5 bottomhole location?

6 A. No, sir, I don't.

7 MR. KELLAHIN: All right. Thank you, Mr.
8 Examiner, that's all I have.

9 EXAMINATION

10 BY EXAMINER STOGNER:

11 Q. This James Burr, did you send a notice to him
12 on --

13 A. Yes, sir.

14 Q. -- February 15th?

15 A. Yes, sir, there's a copy of a registered letter,
16 certified letter, that was sent out to him, and it was
17 accepted.

18 Q. Is that copy of that certification --

19 A. Yes, it's in the exhibit.

20 MR. CARR: Do you have one, Mr. Stogner? I can
21 provide it if it's been left off the exhibit.

22 MR. CARROLL: Here it is.

23 EXAMINER STOGNER: And you were just going to
24 provide me a copy of that letter or --

25 MR. CARR: The letter is in the material, and I

1 can provide the receipt if it's not there.

2 EXAMINER STOGNER: Okay, all right, I just wanted
3 to -- that he --

4 Q. (By Examiner Stogner) He had been contacted, and
5 that --

6 A. Yes, he had a well proposal filed, which was
7 accepted, and got a return receipt, which is in your
8 exhibit.

9 Q. Okay. I'm going to refer to Exhibit Number 5.
10 There have been some -- a discussion about some additional
11 costs for the directional drilling, and could you point
12 that out to me in this exhibit?

13 A. As far as -- ?

14 Q. The directional drilling expenses.

15 A. My understanding, this AFE was prepared to go 760
16 from the south line, 1650 from the east line, which is a
17 directional drill from 480 from the south to the 760.

18 Q. And that additional cost is covered in here?

19 A. Yes, sir.

20 Q. Where would I look for that?

21 A. I would assume it would be under the drilling day
22 work. It was just incorporated into the costs of the well,
23 to get to that 760 from the south line.

24 Q. Okay, so that cost just -- The estimated cost is
25 just bumped up \$200,000 --

1 A. Yes, sir.

2 Q. -- as opposed to a different entry?

3 A. Right.

4 Q. Are you aware that the casing cost was bumped up
5 in this particular AFE for drilling in the potash area?

6 A. Yes, sir, I believe so.

7 Q. And that would be under the tangible drilling,
8 under casing surface, the casing intermediate?

9 A. Right.

10 EXAMINER STOGNER: I don't have any other
11 questions of this witness. You may be excused.

12 MR. CARR: At this time we would call Curt
13 Anderson.

14 CURTIS A. ANDERSON,
15 the witness herein, after having been first duly sworn upon
16 his oath, was examined and testified as follows:

17 DIRECT EXAMINATION

18 BY MR. CARR:

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

20 A. Curtis A. Anderson.

21 Q. Where do you reside?

22 A. In Midland.

23 Q. By whom are you employed?

24 A. Chi Energy.

25 Q. What is your position with Chi Energy?

1 A. I'm a geologist.

2 Q. Mr. Anderson, have you previously testified
3 before this Division?

4 A. Yes, I have.

5 Q. At the time of that testimony, were your
6 credentials as an expert in petroleum geology accepted and
7 made a matter of record?

8 A. Yes, sir.

9 Q. Are you familiar with the Application filed in
10 this case?

11 A. Yes, I am.

12 Q. And have you made a geological study of the area
13 which is the subject of the Application?

14 A. Yes.

15 Q. And are you prepared to share the results of that
16 study with the Examiner?

17 A. Yes.

18 MR. CARR: Are the witness's qualifications
19 acceptable?

20 EXAMINER STOGNER: Any objection?

21 MR. KELLAHIN: No objection.

22 EXAMINER STOGNER: So qualified.

23 Q. (By Mr. Carr) All right, Mr. Anderson, let's go
24 to what has been marked for identification as Chi Energy
25 Exhibit 8. Would you identify that and review it for Mr.

1 Stogner?

2 A. Exhibit Number 8 is a structure map that was
3 drawn on top of the lower Morrow formation. Again, the
4 lower Morrow formation is the primary objective of this
5 project. It is at a scale of 1 to 2000.

6 You'll see the red wells that are -- or the red-
7 colored well symbols that are in the area, are Morrow
8 producers. Written in red alongside those wells are
9 cumulative gas and oil production.

10 The proposed location for these cases is located
11 down in the southeast quarter of Section 19. You'll see it
12 -- which is labeled the BHL or bottomhole location, which
13 is a square. And also the surface location is designated.

14 The proposed proration unit is outlined in green,
15 which would be the east half of 19.

16 Q. What is the significance of the structure?

17 A. The structure in this case -- The proposed
18 location is kind of on the south-southeast flank with
19 positive or nosing feature. It is basically approximately
20 150 feet structurally high to the well located down in
21 Section 30.

22 Let me clarify one other symbol situation in the
23 southwest quarter of Section 19. Down in the southeast of
24 the southeast of the southwest there is a circle that
25 encompasses two dryhole symbols and an oil-well symbol.

1 One of those dryhole symbols is a deep well drilled by
2 Cities back in 1968. At that time it was P-and-A'd. Okay,
3 that wellbore was later re-entered and directionally
4 drilled to the bottomhole location that you see in the
5 southwest of the southwest of that quarter, and that would
6 be the Topaz 19 Federal Number 1 that Santa Fe operated.

7 Q. All right, let's now go to Chi's Exhibit Number
8 9, the isopach. Will you review the information on that
9 exhibit for the Examiner, please?

10 A. This isopach map is the same scale as the
11 previous structure map. The location and the proration
12 unit are the same.

13 The lower Morrow was deposited in a stream or
14 fluvial situation that flowed from north to south across
15 the prospect area. Potentially productive sand that was
16 deposited during this time is colored in orange and yellow.

17 Now, the interpretation on this map represents
18 what I call typical sandbody configuration throughout this
19 depositional trend. Okay, and this depositional trend
20 carries several townships to the north and is roughly
21 equivalent to a number of other depositional trends
22 throughout Eddy and Lea County.

23 The blue dashed line represents a suggested
24 stream orientation or location for this typical
25 depositional trend.

1 Now, subsequent meander cutoffs and migration
2 complicate this picture some. The sandbody configuration
3 changes or can change to either larger or smaller
4 configuration.

5 Now, there's not enough, in my estimation,
6 subsurface information here to define the more complex and
7 complicated picture. Therefore, I believe that anything
8 within the yellow and orange that's colored on this map is
9 potentially productive. Offset wells in this trend may or
10 may not be connected.

11 Q. When we look at this exhibit from the -- Was this
12 prepared from well-control information?

13 A. Yes, sir.

14 Q. And as we look at the area between the Santa Fe
15 well in the west half of 30 and the proposed location, have
16 you seen anything that shows a separation in the reservoir
17 at that point?

18 A. No.

19 Q. Are there separations in this sort of channel
20 deposit?

21 A. Yes.

22 Q. So it's possible that we have not been able, and
23 you're not attempting to show a separation?

24 A. No, we're not attempting to show a separation but
25 that it is a possible situation in this trend.

1 Q. You also have a trace on this exhibit for the
2 subsequent cross-section; is that right?

3 A. Yes, sir.

4 Q. Let's go to that now. That has been marked as
5 Chi Energy Exhibit Number 10.

6 A. Exhibit Number 10, that cross-section is A-A', A
7 being on the left or south, beginning at the Topaz well in
8 Section 30, going through wells located -- the first one
9 from left to right, second well on the cross-section is the
10 old Cities well that was drilled back in 1968. It
11 continues on up through the proposed well location into a
12 well located in the north half of Section 18, and then two
13 wells in Section 7.

14 The purpose of this exhibit is to demonstrate
15 where in the Morrow section the proposed -- or the proposed
16 primary objective is located. And that is colored in
17 orange on the cross-section. The subject of the structure
18 map we referred to earlier is the top of the lower Morrow,
19 which is highlighted in brown on the cross-section.

20 Q. If we look at the cross-section in the acreage
21 shaded in yellow -- or the acreage shaded orange, is it
22 your intent with this exhibit to show separation through
23 the reservoir between individual wells?

24 A. No, the intent is to kind of follow along with
25 the isopach map in showing a -- what I would call again a

1 typical reservoir size.

2 Q. So you do not have particular data that shows
3 separation, although it would be possible?

4 A. That's correct.

5 Q. Can you summarize -- Are you prepared to make a
6 recommendation to the Examiner as to the risk penalty that
7 should be assessed against nonconsenting interest owners in
8 this well?

9 A. That should be 200 percent.

10 Q. And can you just summarize the basis for that
11 recommendation?

12 A. A good example is, again, the deviated well
13 located in the southwest quarter of Section 19, originally
14 intended as a directional well to the lower Morrow
15 formation. You can see it was deviated to the west and
16 missed the objective. So you don't have to offset very far
17 to get out of our sandbody.

18 Q. Do you believe there's a chance you could drill a
19 well at the proposed location and it might not be a
20 commercial success?

21 A. Pardon me?

22 Q. Do you believe there's a chance that a well at
23 the proposed location might not be a commercial success?

24 A. Yes.

25 Q. In your opinion, will granting this Application,

1 the Applications pooling the lands and authorizing the
2 drilling of the wells as proposed be in the best interests
3 of conservation, the prevention of waste and the protection
4 of correlative rights?

5 A. Yes, sir.

6 Q. How soon would you hope to be able to actually
7 spud the well?

8 A. Middle, late June.

9 Q. Were Exhibits 8 through 10 prepared by you?

10 A. Yes, they were.

11 MR. CARR: At this time, Mr. Stogner, we move the
12 admission into evidence of Chi Exhibits 8 through 10.

13 EXAMINER STOGNER: Any objection?

14 MR. KELLAHIN: No objection.

15 EXAMINER STOGNER: 8 through 10 will be admitted
16 into evidence.

17 Thank you, Mr. Carr.

18 Mr. Kellahin?

19 MR. KELLAHIN: Thank you, Mr. Examiner.

20 CROSS-EXAMINATION

21 BY MR. KELLAHIN:

22 Q. Mr. Anderson, if we'll look at your cross-section
23 first --

24 A. Yes, sir.

25 Q. -- when we get from Exhibit 10, the cross-

1 section, in a minute, back to the isopach, Exhibit 9, the
2 isopach'd interval is shown to us on Exhibit 10, is it not?
3 You've coded that for us?

4 A. Yes, sir.

5 Q. You've shown the top and the bottom on the cross-
6 section of the area that you're displaying on the isopach,
7 which we'll talk about shortly?

8 A. That is correct.

9 Q. Where is the point on the cross-section upon
10 which you have placed the structure map?

11 A. At the -- The line that's labeled "datum".

12 Q. All right, the brown line, the datum line, is the
13 marker for the structure map?

14 A. Yes, sir.

15 Q. When we look at the cross-section and start at A,
16 we're starting with Santa Fe's Topaz 30- --

17 A. Yes, sir.

18 Q. -- -1 well, and then as we read over to the
19 right, we pick up the Cities Service Government 1-Y well?

20 A. Yes.

21 Q. When I look at the isopach, Exhibit 9, and I'm
22 looking at the line of cross-section on the isopach, is
23 this the log interval and the relationship for the well
24 with the red dot at its bottomhole location?

25 I didn't make myself clear. Is this the deviated

1 well?

2 A. No, sir.

3 Q. All right.

4 A. This is the straight hole that Cities drilled.

5 Q. Okay. So I am looking at the straight hole that
6 Cities drilled at the red dot. That was a vertical well?

7 A. Yes.

8 Q. And at that position in the reservoir, what is
9 the footage you have associated with the thickness for that
10 well?

11 A. Twenty feet.

12 Q. All right. So the 20 feet I see on the isopach
13 is the value you have associated with the red dot
14 immediately to the left of that number on the isopach?

15 A. Yes.

16 Q. Okay. In looking at the cross-section, am I
17 correct in understanding your horizontal scale to be one
18 that is relative?

19 A. Yes, sir.

20 Q. This does not truly represent the actual
21 horizontal distance between the wells?

22 A. No, it does not.

23 Q. When I look at the Topaz well and the Cities
24 Service well, then there geologically is a connection
25 between those two wells? You've correlated them to be

1 continuous, have you not?

2 A. Yes, sir.

3 Q. And at the Santa Fe Topaz well, you have a value
4 that is thicker than we get for that same sand member by
5 the time we get to the Cities Service well, correct?

6 A. Correct.

7 Q. All right. When we look at the Santa Fe well, it
8 appears to me that you've also coded in some perforations.

9 Can I see those?

10 A. At the Topaz --

11 Q. Yes, sir.

12 A. -- 30? The Topaz 30?

13 Q. Yeah.

14 A. And I coded in some perforations?

15 Q. Well, maybe they're numbers that are so hard to
16 read that they're black. So what I'm looking at in the
17 Topaz well is a drill stem test?

18 A. Yeah, that big long black thing --

19 Q. All right.

20 A. -- is a DST, yeah. The perfs are actually just
21 two feet, and they're on the bottom.

22 Q. All right. Is it the practice of operators that
23 are targeting this particular sand member to perforate the
24 entire sand member?

25 A. If it's all pay, yes.

1 Q. Okay. Would they do that without regard to
2 whether or not there is water present within the sand
3 member?

4 A. I would suspect if there's a suspicion of water
5 present, you would not perforate that interval, you would
6 stay with what you think is, at that time, pay.

7 Q. Are you aware of any water concern within the
8 lower member of the Morrow channel system in this area?

9 A. Yes.

10 Q. There is one, isn't there?

11 A. (Nods)

12 Q. The strategy, then, would be to isolate your
13 perforations in the very top portion of the isopach'd
14 interval, would it not?

15 A. Yes.

16 Q. And that strategy would be successful because it
17 would avoid perforating down to the sand member that has
18 too much water content to be gas-productive. True?

19 A. That's true.

20 Q. Do you utilize a particular water-saturation
21 value when you're analyzing these logs, for this subject?

22 A. It varies from area to area.

23 Q. What would you use in this area?

24 A. In this area, and from well to well and from
25 different parts of the wellbore, it's relative, whether

1 it's productive gas and 40 percent water or 20 percent
2 water and changes to 60, which would be an increase in the
3 water saturation.

4 Q. All right.

5 A. In other words, there's no specific cutoff.

6 Q. As you calculate on the log a water saturation
7 that is in excess of 30 percent, that would be of concern
8 to you, would it not?

9 A. Thirty usually doesn't bother me too much. If
10 can get over 40.

11 Q. When you hit 40 and above --

12 A. Yeah, I'm starting to worry.

13 Q. -- it would be your recommendation not to
14 perforate if you had a water saturation of 40 or greater?

15 A. That's correct.

16 Q. When we look at the isopach, if you could drill
17 vertically without regard to the potash -- Let's assume
18 this is not a potash area and that is not an issue, and you
19 can, in fact, drill vertically, then am I correct in
20 understanding that it would be your opinion that you would
21 drill, based upon this isopach, at the point of greatest
22 thickness?

23 A. Probably not.

24 Q. Thicker is not better?

25 A. Well, not necessarily.

1 Q. Is there a minimum number you use to be
2 satisfied?

3 A. In the Morrow sands it's permeability you're
4 looking for, not necessarily thickness. You can have a 60-
5 foot sand without permeability.

6 Q. When we're targeting a well location in the east
7 half of 19, does it not substantially reduce the risk to
8 target this well at a location which would penetrate the
9 greatest net thickness under this map?

10 A. It may or may not.

11 Q. So what's the point of the map, Mr. Anderson?

12 A. Well, that's their interpretations.

13 Q. Yes, sir, I'm looking at yours.

14 A. That's correct, to maximize or minimize your risk
15 in this situation, I'd drill at a standard location.

16 Q. Well, sure, and that's what I'm asking you.

17 A. Yeah.

18 Q. And why is that minimizing your risk?

19 A. Well, I wouldn't go to where the thickest contour
20 is.

21 Q. Well, let me ask you this. If you're going to
22 the thicker portion, you would drill at a standard
23 location, right?

24 A. Sure.

25 Q. And why would you do that?

1 A. Those are the rules.

2 Q. Well, independent of the rules, isn't it better
3 to minimize your risk by drilling to a thicker section on
4 the net map?

5 A. In some cases.

6 Q. In this case?

7 A. Well, in this case I wouldn't locate at the
8 thickest part, no.

9 Q. All right, but you've told me you would be at a
10 standard location.

11 A. Be at a standard location.

12 Q. You would be. There is no advantage gained by
13 Chi, by drilling at the unorthodox location?

14 A. Not at all.

15 Q. When we look at the isopach, then, am I correct
16 in understanding that you want to be at least somewhere in
17 the 20- to 30-footage range on this map? Is that not true?

18 A. Yes, sir.

19 Q. And why do you want to do that?

20 A. Well, then you get a more even continuity in your
21 drainage pattern, yes.

22 Q. Okay. And so a standard location would be
23 better?

24 A. Standard location would be fine, yes.

25 Q. Okay. And the unorthodox location is

1 geologically less favorable than a standard location; is
2 that not true?

3 A. Not necessarily --

4 Q. All right.

5 A. -- because where I would locate the standard
6 location would be about the same thickness.

7 Q. All right, so we could get 1650 from the southern
8 boundary and satisfy whatever geologic criteria you wish to
9 apply?

10 A. On structure, it's definitely improvement.

11 Q. All right, we'll get to the structure map in a --

12 A. -- standard location, we're going updip, yes.

13 Q. All right.

14 A. Isopachwise, either location is fine.

15 Q. Okay. Geologically, is there any evidence
16 available to you to show that the proposed unorthodox
17 location would be separate from the pod being produced by
18 the Topaz well in the west half of Section 30?

19 A. No.

20 Q. All right, you would map them to be connected in
21 some fashion?

22 A. Either way.

23 Q. Your attempt here is not to try to compete with
24 the Topaz well, is it, sir?

25 A. No.

1 Q. I can't hear you.

2 A. No, sir.

3 Q. Your strategy and choice is to find new reserves,
4 is it not?

5 A. That's correct.

6 Q. And when we look at the way this north-south
7 fluvial channel system is being developed, there appears to
8 be an exploitation opportunity to encounter a unique pod in
9 the east half of 19?

10 A. Yes, sir.

11 Q. And that opportunity, then, would be new reserves
12 independent of what the Topaz well might produce, true?

13 A. Correct.

14 Q. And it would also be independent of what had been
15 developed in Section 18 to the north as a different pod,
16 right?

17 A. It could be.

18 Q. As we get closer to the 20-foot line, it's your
19 preference to be at a net footage thickness greater than 20
20 feet?

21 A. Twenty feet is plenty.

22 Q. Okay, what happens if you get less than 20 feet?
23 What happens?

24 A. I've seen a lot of wells make plenty of gas in
25 five feet, as long as you've got the permeability.

1 Q. All right, so permeability would be a key
2 component here --

3 A. Yes, sir.

4 Q. -- and you can't measure that as a geologist?

5 A. And generally permeability is better towards the
6 center.

7 Q. Okay, all right. So if the Chi location tags
8 into what the Topaz well is producing in the west half of
9 30, then geologically that location would have the
10 opportunity to compete for the same reserves that the Topaz
11 well is being produced?

12 A. I would say that would be a correct statement.

13 Q. And the farther north you go in the east half of
14 19, the greater opportunity you have for producing new
15 reserves?

16 A. You increase the chance for that, yes.

17 Q. Let's look at the structure map. When we look at
18 the structure map, if I'm looking in the east half of 19,
19 just confining the discussion to that point for a moment,
20 am I correct in understanding that the unorthodox location
21 is less favorable than the closest standard location?
22 True?

23 A. That's correct.

24 Q. And that's true because at the standard location
25 you gain structural advantage over the proposed unorthodox

1 location?

2 A. Correct.

3 Q. And here in this instance structure is important,
4 is it not?

5 A. Yes, it is.

6 Q. The higher onstructure you get, the better it is
7 for you, right?

8 A. Yes.

9 Q. When we look at the opportunity to adversely
10 affect the Santa Fe well in the west half of 30, then the
11 Chi well would be upstructure to the Topaz well, would it
12 not?

13 A. The proposed Chi well is upstructure --

14 Q. Yes, sir.

15 A. -- at any location on that east half.

16 Q. I understand. At the proposed unorthodox
17 location, it is what looks to be a hundred feet or so above
18 the Topaz well.

19 A. About 150 feet.

20 Q. A hundred and fifty, and these are 50-foot
21 contour lines?

22 A. Yes.

23 Q. A hundred and fifty feet above?

24 A. Uh-huh.

25 Q. We mentioned a while ago that there is an issue

1 about water saturation in the lower Morrow. Geologically,
2 is there an opportunity to adversely affect the Topaz well
3 if the Chi well is approved as requested, being upstructure
4 from the Topaz well?

5 A. I think that based on other wells in the area,
6 the potential exists that you could affect that well with
7 any location in the east half.

8 Q. If that location is more standard, the
9 opportunity to adversely affect the Topaz well is
10 diminished, is it not?

11 A. Yes, sir.

12 Q. When we talk about your net clean sand isopach
13 map, Exhibit Number 9, how did you arrive at net? What's
14 the value you're using?

15 A. I used gamma ray.

16 Q. What gamma-ray percentage did you use?

17 A. I usually use -- It varies from log to log
18 because of the different sensitivity of the tools they use.
19 Roughly the 50 API.

20 Q. Okay. Your isopach, then, has a 50 gamma ray
21 cutoff point to get you your net clean sand; that's what
22 you're looking for in the log?

23 A. Yes.

24 Q. All right. Have you prepared a net-pay isopach?

25 A. No, I haven't.

1 Q. You have not done one?

2 A. Yeah, of porosity?

3 Q. Yeah, a net porosity isopach?

4 A. No.

5 Q. What would you use for a porosity cutoff if you
6 were making such a map?

7 A. At least 6 percent.

8 Q. Six, 7, 8. Is 8 all right?

9 A. Eight would be good.

10 Q. Okay.

11 A. But I think you can go down to six.

12 Q. Okay.

13 A. At this depth in this zone.

14 Q. If you go from eight to six, you're making
15 yourself a bigger container?

16 A. Yes.

17 Q. All right. Have you assisted the engineers from
18 any of the companies that are aligned with your position in
19 trying to determine the original gas in place for any of
20 these spacing units?

21 A. No.

22 Q. You've not tried to volumetrically assist in the
23 calculation of original gas in place for the east half of
24 19?

25 A. No.

1 Q. West half of 30? None of that?

2 A. No.

3 Q. In order to have a Morrow prospect in this area,
4 Mr. Anderson, what is your opinion as to the targeted gas?
5 What volume do you target?

6 A. Up and down this trend you've got wells that
7 vary, of course, from very little to in excess of 30 BCF.
8 I think you're looking at a realistic number between three
9 and five B's.

10 Q. Three and five?

11 A. Yes, sir.

12 Q. Is that gas in place or recoverable gas?

13 A. That would be an ultimate.

14 Q. That's an EUR?

15 A. Yes.

16 Q. So somewhere between 3 and 5 BCF is enough that
17 encourages exploration geologists like you to seek a well?

18 A. Sure.

19 Q. How would you go about determining whether or not
20 you had 3 or 5 BCF of recoverable gas available to you in
21 the east half of 19?

22 A. I -- In working the trend and other trends, I
23 just kind of -- It's not something I put numbers on. It's
24 the zone that we look for. This zone works in this area.
25 The wells that have -- There's some pretty mature wells out

1 here. Those wells have averaged a good number. It makes a
2 good primary target. And at that point it makes -- I feel
3 comfortable with using it as a primary objective.

4 Q. All right. You don't have to put a pencil to
5 it --

6 A. No.

7 Q. -- you have enough experience in here --

8 A. Yeah.

9 Q. -- and enough personal experience to look at the
10 east half of 19 and say, This is a viable target for us,
11 I've got at least 3 to 5 BCF of recoverable gas, I want a
12 well?

13 A. Yeah.

14 Q. Okay. Am I correct in understanding that the
15 closer this well is to the Topaz well, the greater the
16 chance is that you're going to be competing for proven
17 reserves and not establishing new and unique reserves?

18 A. If you're connected. I would think that pretty
19 much any location in the east half would have an effect.

20 Q. Okay.

21 A. I think the closer you get, quite possibly the
22 sooner you feel that effect.

23 Q. So by moving to a standard location, then, you
24 would diminish the adverse impact potential that might
25 exist for the owners of interest in the Topaz well?

1 A. If it's connected.

2 Q. Did you have anything to do with the cost
3 analysis for establishing the costs for the Chi proposal?

4 A. On the AFE?

5 Q. Yes, sir.

6 A. I might have provided some tops, geologic tops.

7 Q. You have nothing to do --

8 A. Otherwise, I didn't figure any --

9 Q. That number?

10 A. No.

11 MR. KELLAHIN: Okay. Mr. Examiner, Santa Fe's
12 Exhibit Number 1 is taken from the case file of this case.
13 It is the administrative application filed by Chi, or Mr.
14 Bruce on behalf of Chi, for which there was a protest and
15 resulted in the subject hearing. We would move at this
16 time for the introduction of Exhibit 1.

17 EXAMINER STOGNER: Any objection?

18 MR. CARR: No objection.

19 EXAMINER STOGNER: Exhibit 1 will be admitted
20 into evidence. This is Exhibit 1 of Santa Fe Energy, Case
21 12,158.

22 Q. (By Mr. Kellahin) Mr. Anderson, if you'll take
23 Exhibit 1 and turn past the two opening pages, turn past
24 Exhibits A and B, and let's look at Exhibit C. Did you
25 provide Exhibit C to Mr. Bruce for the administrative

1 filing of Chi's Application in this matter?

2 A. Yes.

3 Q. This is your work, is it not?

4 A. Yes, it is.

5 Q. And this was filed back in February of this year.
6 Is this not identical to the net isopach that you discussed
7 with me this afternoon?

8 A. Yes, it is.

9 Q. You've not made any changes or modifications,
10 have you?

11 A. I did.

12 Q. All right, sir, what would they be?

13 A. All right, just relative to the placement of the
14 bottomhole location in the southwest quarter of 19, when
15 our draftsman spotted that well on there it was off by a
16 couple hundred feet. So I moved it back over to the east
17 where it belongs. On this exhibit it looks like it's
18 hugging the west line too much. It didn't go that far.

19 Q. Oh, I see where it is.

20 A. Yeah.

21 Q. Yes, I'm sorry.

22 A. Yeah, it's just a couple hundred feet to the
23 east.

24 Q. Yes, it's hard to perceive the difference. But
25 that is the only change?

1 A. Yeah.

2 Q. Okay. When we turn to Exhibit D, which is a
3 portion of the structure map, did you modify Exhibit D in
4 any way when you prepared and introduced Exhibit 8 today?

5 A. No, except for that bottomhole location.

6 Q. And when we look over on page 2 of Mr. Bruce's
7 filing and we look at the top paragraph, when he's arguing
8 that a certain approximate net thickness is necessary for a
9 location, he's using the 20- and 30-foot range, he got that
10 information from you, did he not?

11 A. That's correct.

12 MR. KELLAHIN: No further questions, Mr.

13 Examiner.

14 EXAMINER STOGNER: Any redirect?

15 MR. CARR: No, no redirect.

16 EXAMINATION

17 BY EXAMINER STOGNER:

18 Q. In referring to both of your maps, Exhibits 8 and
19 9 --

20 A. Yes, sir.

21 Q. -- when I look at your surface location and
22 proposed subsurface location, there seems to be a wellbore
23 between the two. If that's -- what? A shallow oil well
24 or -- ?

25 A. Okay, yes, you'll see an oil-well symbol there,

1 and that's an existing shallow oil well. One of the
2 stipulations for potash in here is that you have to stay
3 within 150 feet of that wellbore with your surface
4 location. So directly north of the oil well you'll see
5 kind of a ghost circle. It kind of even intersects the oil
6 well. And then a bottomhole location just a little north
7 of that.

8 Q. Now, if I look between the Topaz well in the west
9 half of 30 and the proposed wellbore, there's another well
10 symbol that looks like a plugged-and-abandoned gas-well
11 location. Can you tell me anything about that wellbore?

12 A. Is that the one in the northeast of the northwest
13 of 30?

14 Q. That's right.

15 A. Okay, yeah, that's a shallow dryhole.

16 Q. Oh, it's a shallow dryhole?

17 A. Yes, sir.

18 Q. That was a shallow oil -- didn't penetrate the
19 Morrow?

20 A. Didn't pen- -- No, sir. I -- In fact, on this
21 map, the deep control is circled.

22 Q. Okay. You said one of the requirements in potash
23 is to stay 150 feet away from this particular well,
24 existing well, or a well pad or an old wellbore?

25 A. It has to be a producing well. An old dry hole

1 won't work. So this is the only producing well down in
2 that south part of the section there. That's the only
3 surface location that's available.

4 Q. Were you involved in the negotiations with the
5 BLM about the spotting of the wellbore out here?

6 A. No, sir.

7 Q. Do you know who was, with Chi Energy?

8 A. I believe that was John Qualls.

9 Q. Okay, I'm trying to still make up my mind here
10 about -- I heard it said that if the potash wasn't out
11 here, the best location would have been 1650 from the south
12 line, 1650 from the east line; is that what I'm hearing?

13 A. That's the location that I would pick, yes.

14 Q. Based on both geology and surface constraints?

15 A. If there were no surface constraint, yes,
16 that's --

17 Q. And that would basically put you between that 40-
18 and 30-foot contour, just by eyeballing Exhibit 9?

19 A. Yeah, between 30 and 40.

20 Q. But being within that 40 is not attractive; is
21 that what I'm understanding?

22 A. Being within the 40, yes, sir, would be okay.
23 But it's not necessary.

24 Q. Okay.

25 A. I'm also looking at the proximity to the old

1 Cities well.

2 Q. But you're moving further from the old -- Oh,
3 that's what you're getting at?

4 A. That's correct, if I move it further east, I'm
5 going away from that wellbore that's got the sand in it.

6 Q. Oh, well, I'm not talking about moving further
7 east. I'm talking about moving further -- just further
8 north, staying on that 1650 line from the east line.

9 A. Yes, sir, and going up to 1650.

10 Q. Right.

11 A. Sure.

12 Q. Okay, I see where you're getting at. You could
13 still go north, it looks like maybe about a quarter of a
14 mile, and be within that 40?

15 A. Or within the 30 at least, yes.

16 Q. Exactly. So geologically speaking, anywhere
17 between your proposed subsurface line and up there to 1650
18 would basically be geologically acceptable?

19 A. Anywhere between our current bottomhole location
20 that's on here and 1650 from the south line, yes, sir.

21 Q. Yes, that's what I'm getting at.

22 A. Yes, sir.

23 Q. So anywhere in between that would be geologically
24 acceptable?

25 A. Yes, sir.

1 EXAMINER STOGNER: Any other questions of Mr.
2 Anderson?

3 MR. KELLAHIN: No, sir.

4 MR. CARR: No, sir.

5 EXAMINER STOGNER: You may be excused.
6 Mr. Carr?

7 MR. CARR: At this time we would call Jay
8 Gabbard.

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

12 DIRECT EXAMINATION

13 BY MR. CARR:

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

15 A. Jay Gabbard.

16 Q. Mr. Gabbard, where do you reside?

17 A. Oklahoma City.

18 Q. By whom are you employed?

19 A. Louis Dreyfus Natural Gas Corp.

20 Q. And what is your current position with Louis
21 Dreyfus Natural Gas?

22 A. I'm a reservoir engineer.

23 Q. What is the relationship in this case of Louis
24 Dreyfus Natural Gas to Chi Energy, Inc.?

25 A. We are a working interest owner in the east half

1 of 19. We are supporting their proposed well, and we
2 intend to operate --

3 EXAMINER STOGNER: I'm sorry, I can't hear you.

4 MR. CARR: You'll have to speak up. The way the
5 cooling system is going, Mr. Gabbard, we can't --

6 THE WITNESS: Excuse me. We are a working
7 interest owner in the east half of 19. We support the
8 proposed well, and we will operate the well.

9 Q. (By Mr. Carr) Mr. Gabbard, have you previously
10 testified before this Division?

11 A. Yes.

12 Q. At the time of that testimony, were your
13 credentials as an expert in reservoir engineering accepted
14 by the Division and made a matter of record?

15 A. Yes.

16 Q. Are you familiar with the Application filed in
17 this case on behalf of Chi Energy, Inc.?

18 A. Yes.

19 Q. And are you familiar with the subject area and
20 the wells located therein?

21 A. Yes.

22 MR. CARR: Are the witness's qualifications
23 acceptable?

24 EXAMINER STOGNER: Any objection?

25 MR. KELLAHIN: No objection.

1 EXAMINER STOGNER: So qualified.

2 Q. (By Mr. Carr) Mr. Gabbard, initially, could you
3 explain to the Examiner what interest Louis Dreyfus owns in
4 this particular area?

5 A. In the subject spacing unit or -- I'm not sure --

6 Q. What do you own in the spacing unit?

7 A. In the spacing unit we own 46 1/2 percent. That
8 could be reduced to 27.9 percent if Santa Fe elects to
9 acquire its interests pursuant to our JOA and AMI.

10 Q. So you have an agreement with Santa Fe that would
11 enable them to acquire a certain percentage of your
12 interest in the property?

13 A. Yes.

14 Q. What percentage is that?

15 A. We are obligated under the AMI to offer 60
16 percent of whatever we acquire in the AMI.

17 Q. Okay. What are your interests, your ownership
18 interests, in the offsetting units?

19 A. In the west half of 19 our interest is 40
20 percent, and in the west half of 30 it is 40 percent, and
21 in the east half of 30 it's 24.15 percent.

22 Q. Based on your understanding of this area, do you
23 have an opinion as to whether or not the Morrow formation
24 under the subject spacing unit is in communication with the
25 Morrow sand being produced in the Santa Fe well located in

1 the northwest quarter of Section 30?

2 A. I have no direct engineering information that
3 could answer that question. There is a potential for
4 communication. There are also some evidence of separations
5 in the channel, and it is not uncommon to find separations
6 both stratigraphically and structurally in the channel, and
7 basically we feel we won't know the answer to that until
8 the well is drilled.

9 Q. If there happened to be no communication, would
10 there be any reason to impose a penalty on the on the well
11 proposed by Chi in 19?

12 A. I believe not.

13 Q. Assume for the purposes of this question that
14 there is communication. What impact should this -- the
15 presence of communication have on the need to penalize the
16 well at the proposed Chi location?

17 A. If there is communication, it might very well
18 indicate that the east half of 19 has experienced some
19 drainage from production, from the well in 30, and it would
20 indicate the need for a well at the proposed location.

21 Q. You were present for Mr. Kellahin's opening. Do
22 you concur with the opening and the statements that
23 everyone agrees that a 1650-foot setback from the south
24 line of this section is, in fact, a better location, or the
25 best location?

1 A. I do not.

2 Q. Why is that?

3 A. Basically, it goes to the risk of what we know
4 about the precise nature of the lower Morrow channel that
5 is represented by Mr. Anderson's map. In his remarks, he
6 said that this was a reasonable representation of the
7 depositional system, and I concur with that.

8 In terms of the sampling of the area, there have
9 been perhaps eight wellbores that have sampled an area of
10 four sections. And indeed, without disputing his abilities
11 as a geologist or anything about the integrity of his
12 mapping presentation, in fact, our ability to know the
13 precise nature of where the thickest and best target is, is
14 very imprecise. Something like 3×10^{-6} percent of the total
15 area has been sampled by wellbore.

16 So when we speak of where the best location is,
17 we're using our best evidence with geology. But we also
18 believe, in this particular case, that there's a big factor
19 of risk that has to be applied, both to the geology and to
20 the cost to drill. And we believe, further, that we know
21 with a lot more certainty that we will incur greater costs
22 to drill an extended-reach well than we will to drill a
23 vertical well. We know that with very little doubt.

24 And we have participated in a reach well with
25 Santa Fe in the west half of 19 and have firsthand

1 experience with how that can go. And we believe that the
2 risks of doing that in this case are outweighed to drill
3 the reach for the additional cost.

4 Q. Could you summarize the reasons that you're
5 seeking Division approval of the proposed unorthodox well
6 locations?

7 A. Principally, we are -- would have set out in the
8 east half to not incur legal cost or the cost of a hearing
9 and have taken a legal location at the 1650 setback, if
10 that had been available to us.

11 But because this well is located in the potash
12 enclave, surface location is restricted and must be on a
13 designated drilling. A straighthole at this unorthodox
14 location 480 feet from the south line is unorthodox and
15 would need approval.

16 And principally we believe, as I said, a well at
17 this location would substantially reduce the cost over
18 drilling directionally, and it could influence our decision
19 on whether to pursue development or not.

20 Q. And you agree with the cost increases that were
21 testified to by Mr. Qualls, that \$300,000 to go 760 feet
22 out and \$500,000 to go 1650 feet?

23 A. Yes, sir.

24 Q. In your opinion, will the well be drilled if it
25 has to be directionally drilled to a point 1650 feet from

1 the south line of Section 19?

2 A. I can say that Louis Dreyfus's approval is
3 currently limited to participation at the 760 from the
4 south-line location, with no penalty. Should we incur some
5 penalty or should we be required to drill 1650, we will
6 have to go back and seek management approval for that. I
7 don't know the answer.

8 Q. If the Division should impose a penalty on a well
9 at the proposed unorthodox locations, what penalty would
10 you recommend?

11 A. We're recommending that if the well is drilled as
12 a straight hole, that a 27-percent penalty be applied to
13 the results of semi-annual deliverability tests. If the
14 well is 760 or more from the south line of Section 19, we
15 would recommend no penalty.

16 Q. Can you explain upon what you base this
17 recommendation or how you derive the number?

18 A. We use a surface-encroachment approach, applied
19 to a 660-foot setback.

20 Q. And why would you use a 660-foot setback?

21 A. In this particular instance, it relates to an
22 equitable opportunity to develop reserves in the east half
23 of 19. When our AMI was originally formed, Section 19 was
24 not under lease to Santa Fe or to Louis Dreyfus. Chi
25 Energy, in fact, was the first party to obtain a farmout

1 for the whole of 19, actually, and brought that to Dreyfus.
2 And we had drilled a well in Section 30, believed that
3 merit for pursuing development in 19 was attractive, and we
4 sought to see development in the west half of 19.

5 And when we originally proposed that, we proposed
6 it as a directional well, using the old OXY well as a place
7 to kick our well from, off to the northwest, which at that
8 time was our best interpretation of where we thought the
9 thick part of the sand channel was.

10 In fact, when we offered our *pro rata* share,
11 offered to Santa Fe their *pro rata* share of the interest in
12 the farmout that we obtained from Chi, they repropose that
13 we first re-enter the OXY well and try to complete the well
14 as a standard or just a vertical well completion at the
15 660-from-the-south-line location.

16 And we, in fact -- Santa Fe, in fact, did that
17 and attempted to get the well down. They were unable to
18 stabilize the hole conditions, and we had pre-agreed that
19 we would kick the well off to the northwest if they were
20 unable to do that, and they did.

21 Now, it raises the issue that, given the
22 opportunity that we believe Santa Fe preferred to drill 660
23 from the south line, which in terms of impact for the well
24 in 30 would be more onerous than the location that we are
25 proposing. It's considerably closer.

1 And now that we are in a position where we are
2 restricted in where we can drill, and we would like -- and
3 having participated in a very expensive cost overrun in a
4 directional well that did not find the Morrow channel where
5 we sure it would most certainly be, we still believe, based
6 on the original Government 1-Y well, that OXY well, the
7 original vertical well in the southeast of the southwest of
8 19, that there is indication that this lower Morrow sand is
9 present in 19.

10 And we -- Having drilled off to the west, we
11 think we've established that if there is a reasonable place
12 to look for the channel it's not west, it's east. And
13 that's where we would like to drill.

14 Now, if we had had the opportunity to drill at a
15 1650 location, we don't believe that we are any smarter
16 about that particular location than what its meaning to our
17 ultimate recovery is than the vertical location. Again, we
18 know the costs are substantially more.

19 So with that in mind, and because Santa Fe both
20 has an opportunity to participate and had an opportunity to
21 drill a well at 660 from the south line or re-enter that
22 well and, in fact, made that attempt, and we brought that
23 before the Commission as an unorthodox location that was
24 unopposed by Dreyfus, we feel like we should be afforded
25 the low-cost opportunity to develop reserves in the east

1 half of 19 without incurring the additional risk, both to
2 the mechanical integrity of the completion by drilling
3 directionally, and just the general cost that we would
4 incur.

5 Q. Let's go to what has been marked for
6 identification as Chi Energy's Exhibit Number 11. Could
7 you identify that and review it for the Examiner?

8 A. This is a plan for a directional well to drill to
9 a point 760 from the south line of Section 19.

10 Q. Can you just briefly review the schematic for Mr.
11 Stogner?

12 A. The schematic, of course, has a depth scale on
13 the left and has a lateral deviation as the X axis, and it
14 shows at a point of about 8550 that we would -- that would
15 be our kickoff point, we would build three degrees per
16 hundred, and we would, in that build, around 9000 feet,
17 would begin to drop the well down to vertical, around 9508
18 [sic], and the end of the vertical drop would be at 10,400.

19 And the proposed bottomhole location shows to be
20 280 feet north of the surface location, which would be 760
21 from the south line of the section.

22 Q. How often will the well be surveyed while
23 drilling?

24 A. It will be surveyed every 200 feet.

25 Q. And it will also be surveyed at total depth?

1 A. Yes, it will.

2 Q. And that survey will be filed with the Division?

3 A. Yes, sir.

4 Q. In your opinion, will approval of this
5 Application, including approval of the well locations and
6 the penalty on the straight hole as recommended, be in the
7 best interests of conservation, the prevention of waste and
8 the protection of correlative rights?

9 A. Yes, sir.

10 Q. Will the penalties as recommended by you enable
11 you to go forward with the development of this acreage?

12 A. It would.

13 Q. Was Chi Energy, Inc.'s, Exhibit Number 11
14 prepared by you, or can you testify to its accuracy?

15 A. This was prepared by Halliburton and prepared in
16 conjunction with our operations engineers.

17 Q. And it is correct and from your files?

18 A. Yes.

19 MR. CARR: At this time, Mr. Stogner, we would
20 move the admission into evidence of Chi Energy, Inc.,
21 Exhibit Number 11.

22 EXAMINER STOGNER: Exhibit Number 11 will be
23 admitted into evidence.

24 MR. CARR: And that concludes my direct
25 examination of Mr. Gabbard.

1 EXAMINER STOGNER: Mr. Kellahin, your witness.

2 MR. KELLAHIN: Thank you, Mr. Examiner.

3 CROSS-EXAMINATION

4 BY MR. KELLAHIN:

5 Q. Mr. Gabbard, let me see if I can understand your
6 argument. Let's use Mr. Anderson's Exhibit 9, just to give
7 us locator map.

8 A. Very well.

9 Q. All right. One of your arguments is that it is
10 okay to encroach upon the Topaz spacing unit because Santa
11 Fe has the opportunity to acquire an interest in the
12 offending spacing unit? Isn't that what you're telling me?

13 A. I'm not using that as a rationalization for the
14 location itself.

15 Q. All this discussion about percentages and
16 agreements and opportunities or options to participate in
17 the offending well mean nothing, sir, does it not, unless
18 it's an excuse for crowding the Topaz well without a
19 penalty?

20 A. It is saying that they have an opportunity to
21 participate at this location.

22 Q. And having said that, then, and if they decline
23 to do so, are you suggesting to influence the Examiner that
24 the location then can be approved without a penalty?

25 A. Not on the participation.

1 Q. All right, let's look at that. You talked about
2 it. Are you aware that they have 40 percent of the Topaz
3 spacing unit?

4 A. Which Topaz spacing unit?

5 Q. The west half of 30.

6 A. Yes.

7 Q. Okay. And you have a share of the Topaz spacing
8 unit too, don't you?

9 A. Forty percent.

10 Q. All right. When you look at the east half of 19,
11 under your arrangement with Chi you have acquired 46 1/2
12 percent, right?

13 A. Right.

14 Q. And you have a contractual obligation to offer 28
15 percent of that to Santa Fe, right?

16 A. I'll trust your math.

17 Q. All right. See what happens? So Santa Fe has
18 the opportunity to participate in the offending well at 28
19 percent, as well as continue to participate in the Topaz
20 well at 40 percent, true?

21 A. Yes.

22 Q. You also understand it's Santa Fe's belief, and
23 will be their testimony in a moment, that the Chi well at
24 its location is unnecessary because it increases the
25 opportunity to water out the Topaz well? You've had that

1 discussion with the Santa Fe people, have you not?

2 A. I have heard their opinion of that.

3 Q. All right. And if their opinion is correct,
4 then, they are being afforded the opportunity to pay for a
5 well which they think is unnecessary, and yet you want the
6 Examiner to know about all those percentages? How is that
7 useful for his decision, sir?

8 A. Perhaps it's not.

9 Q. Okay, when we look at your argument about no
10 penalty, if you're at least 760 from the common line and a
11 27 percent penalty if you're the 480, something like that,
12 have you researched and are you aware of any other order by
13 this Division that adopts a penalty like that?

14 A. The reason that --

15 Q. My question was a yes-or-no question, sir.

16 A. No.

17 Q. All right. When we look at your other argument,
18 you are arguing that the Chi's new location should be
19 approved without a penalty because on a prior occasion
20 Santa Fe did not object to the re-entry and directional
21 drilling of the well in the west half of 19? You've made
22 that argument, haven't you?

23 A. Yes.

24 Q. So anytime -- Your position is, so anytime an
25 operator fails to object to a prior unorthodox location,

1 that precludes him from objecting to a subsequent
2 unorthodox location?

3 A. No, sir, I'm suggesting it's more equitable if
4 they would not.

5 Q. Let's talk about the cost. Would you look at
6 Santa Fe Exhibit 1? Is that still before you, sir? I
7 showed it to Mr. Anderson. Do you have that available?
8 I'll give you another copy.

9 On page 2 of Exhibit 1, Chi is advancing the
10 argument administratively through Mr. Bruce that they
11 estimate there's an additional \$700,000 worth of costs to
12 take this well to a standard bottomhole location, the 1650
13 location, versus a vertical hole; do you see that?

14 A. Yes, I do.

15 Q. Do you remember Mr. Qualls' testimony a while ago
16 that the number is now \$500,000?

17 A. Yes, I do.

18 Q. And your number is what, sir?

19 A. I agree with \$500,000.

20 Q. All right, so you don't have a clue as to where
21 the \$700,000 came from, do you?

22 A. I want to make one comment about that.

23 Q. All right, sir.

24 A. This letter is dated February 15th. In fact,
25 Louis Dreyfus had not committed to this proposed well at

1 that date, so some of the cost estimates that Chi has --
2 and Chi has represented they have a small interest but not
3 the determinant interest on what the -- what is going to be
4 the best location for this, given the participation of the
5 other working interests, as long as it's not imprudent.
6 And if that was their estimate at that time, I think they
7 probably made it in good faith, and that's the best I can
8 say about it.

9 There have been some revisions in our discussions
10 about the casing program since the initial estimates were
11 made, and there has been some reduction in cost.

12 Q. So you've reviewed Mr. Qualls' Exhibit 5, the
13 AFE?

14 A. Yes, I have.

15 Q. You've done that personally, that's your work?

16 A. It is -- No, it's not my AFE.

17 Q. Is it your review of his work? Is that something
18 you do?

19 A. I do in terms of considering the economics of a
20 proposal, yes.

21 Q. All right.

22 A. As to the accuracy, no, our operations department
23 would be more involved in the details of the accuracy of
24 any particular number that might be in that AFE.

25 Q. All right. Well, let's talk within the frame of

1 your work in judging the cost relative to the opportunity.
2 That's what you're doing, right?

3 A. Right.

4 Q. That's what you do regularly as an engineer, is
5 look at the opportunity in relation to those costs, true?

6 A. That's right.

7 Q. Show me your economic analysis, sir, on the
8 potential recoverable gas that could be accessed by this
9 well.

10 A. May I see that?

11 Q. Have you prepared one?

12 A. I've prepared several.

13 Q. All right, which one do you want to talk about?

14 A. Which one do you want to see?

15 Q. I want to see the one that shows me what you have
16 estimated to be the recoverable gas for a well drilled and
17 accessing the east half of 19.

18 A. Let me see if I can produce it. I believe I have
19 it, bear with me.

20 MR. CARR: Tom, we're going to need to make some
21 copies.

22 Q. (By Mr. Kellahin) Before we talk about
23 specifically what you're looking at, Mr. Gabbard, how many
24 economic analyses did you perform on this prospect?

25 A. I couldn't tell you.

1 Q. More than one?

2 A. Absolutely.

3 Q. More than two?

4 A. I made numerous runs.

5 Q. And would you make numerous runs? What
6 parameters are you changing?

7 A. Well, actually the numbers I'm going to show you
8 that we based our first approval on, I think, would be
9 prior to the revision of the new casing program. So our
10 costs were a little bit different. I'm not -- If we had
11 been assigned internally on a figure and I reduce the cost
12 and nothing material has changed, I'm not required to run
13 that back through for management, but I may well re-look at
14 the economics as they affect us.

15 Q. All right, so each --

16 A. So, you know, I've probably done in the tens
17 of --

18 Q. All right, let me understand. Every revision you
19 have made has been a revision based upon some change of the
20 cost component; is that right?

21 A. No, we also look at -- I may do sensitivity runs
22 to look at what the reserves -- you know, range of reserves
23 that we might expect, or based on what we think our risk
24 profile is.

25 Q. Now, that's the number I want.

1 A. I may look at costs as well.

2 Q. I want the reserve number. I want the unrisked
3 reserve number that you used throughout the calculation.
4 What number did you use, sir?

5 A. We used 4.3 BCF.

6 Q. 4.3 BCF is a good number to rely upon, then, for
7 the basis of your calculations on what would be the
8 recoverable gas for this well, right? Is that the number?

9 A. Absolutely not.

10 Q. The number again, four point what?

11 A. 4.3.

12 Q. 4.3 All right.

13 A. Did you say unrisked? Did I hear you say
14 unrisked?

15 Q. Unrisked, unrisked.

16 A. So that would absolutely not be anything that
17 Louis Dreyfus would rely on.

18 Q. I don't care about whether you realize it or not;
19 I just want to know the number you used. So you've used
20 4.3 BCF of recoverable gas, right?

21 A. Right.

22 Q. And how did you get that? Is that decline-curve
23 analysis?

24 A. No, sir, that would be looking at wells in this
25 trend and what we think that their ultimate reserves would

1 be.

2 Q. Well, the only way to do that is either P/Z or
3 decline curve? Either one, right?

4 A. Yes, sir.

5 Q. And which one did you use?

6 A. Both.

7 Q. All right, so you did use production decline
8 analysis to get you the 4.3 BCF, right?

9 A. Well, I don't have a decline for this particular
10 well. You're saying --

11 Q. Well, I -- No, it hasn't been drilled yet.

12 A. Right.

13 Q. But you could take the Topaz well and establish a
14 decline for that well and give you a number, could you not?

15 A. I could.

16 Q. And you could take the pressure data for the
17 Topaz well, get your data points, and that would give you a
18 P/Z analysis, and you could back into what would be
19 recoverable gas, true?

20 A. Yes, sir.

21 Q. And that's what you did, isn't it?

22 A. I have done that.

23 Q. All right, and you would expect an engineer to do
24 that, wouldn't you?

25 A. Yes, sir.

1 Q. Okay. Did you test that with any volumetrics
2 with the net-pay isopach map, to see if you could fit that
3 volume of gas within a container shaped, perhaps as Mr.
4 Anderson has provided us?

5 A. Yes.

6 Q. Was that net-pay isopach done for you by Mr.
7 Anderson?

8 A. No, sir, it was not.

9 Q. Where did you get your volume for your
10 volumetrics?

11 A. It was backed out as a number from what I thought
12 was net pay in the wellbore, and I may just routinely make
13 a guess on what I think it might be in the drainage area.
14 I might have used material balance, and it would then back
15 out what it said the drainage area might be.

16 Q. Have you forecasted what you anticipate to be the
17 initial rate of the Chi well if drilled?

18 A. I have not.

19 Q. Have you anticipated what its pressure might be?

20 A. Well -- Excuse me.

21 Q. Yes, sir.

22 A. Under several scenarios, I've made an estimate
23 for economic purposes, yes. And that is based on average
24 initial rates of wells in this trend.

25 Q. And that's what we're talking about, Mr. Gabbard.

1 What would you estimate would be the average initial rate?

2 A. Well, let me elaborate because -- since you asked
3 the question on what other rates I'd looked at.

4 I also looked at the case of if we considered
5 that we were just sharing the remaining reserves that you
6 might want to assign to the Topaz 30 well, and have made an
7 estimate of what we might expect our capabilities to be if
8 we had the same kind of sand and deliverability as the
9 Topaz 30 and what that would mean to both the well in 30
10 and to our well.

11 Q. And that's a good way to work, isn't it, Mr.
12 Gabbard, to take the closest analogy, which is the Topaz
13 well and use those values?

14 A. To take the closest analogy in terms of reserves?
15 Not necessarily.

16 Q. No, I'm talking about taking data from the Topaz
17 well, such as initial rate, current rate, original
18 pressure. You look at Mr. Anderson's map, it looks like
19 it's a comparable. Why not use that well?

20 A. I don't have a problem with using that. There
21 are some peculiar things about the way that well was
22 produced that make it a little bit untypical to other wells
23 in the trend. I'm sure Santa Fe can elaborate more on that
24 more accurately than I can.

25 Q. What is your opinion about the remaining

1 recoverable reserves available to the Topaz well? What
2 number is that?

3 A. It's about -- estimating -- Well, let's see, I've
4 got a few intervening months, but assuming that we might be
5 able to put a well on the east half of 19 on or around
6 October 1st, I would be estimating perhaps 1.4 BCF
7 remaining --

8 Q. Okay.

9 A. -- to the Topaz 30 at that time.

10 Q. If the Chi well is approved at its requested
11 location and it tags the northern edge of the Topaz pod,
12 then you're going to be in competition with the Topaz well
13 for the 1.4 BCF of remaining gas for that pod, right?

14 A. If we get in the reservoir, whether it's the tag
15 in the northern -- You've drawn this distinction about the
16 pods, but you also drew the distinction that there might
17 not be any separation. And if there is no separation,
18 indeed, we'll be competing for those reserves wherever we
19 would be in the east half of 19, quite likely.

20 Q. All right. And that competition is more
21 equitable, is it not, sir, if you're competing at a
22 standard location common to the Topaz well along the common
23 line? That would be fair, would it not?

24 A. If our opportunity to develop was equal, yes,
25 you'd say that that would be the most equitable thing.

1 Q. All right. And when you get 480 feet off the
2 line, or even 760 off the line, if you're in competition
3 with the Topaz well, you're going to get gas underlying the
4 west half of 30 that otherwise would be produced by the
5 Topaz well?

6 A. We've offered that a mirror-image location be
7 permitted for this location. We are in no way attempting
8 to gain reserves from what is both our well and Santa Fe's
9 well, the Topaz 30.

10 Q. Well, let's follow that up for a --

11 A. That is not what we are drilling this prospect
12 for, for some percentage of what they perceive as remaining
13 reserves for that well.

14 Q. Well, let's follow that thought. Did I
15 understand you correctly that we should approve your
16 location? If that's approved, then Santa Fe needs to
17 replace the Topaz well with a well that's 760 from the
18 common line, and that's the solution?

19 A. If they believe that there is significant
20 drainage impact that was commercially important, then they
21 would certainly have that remedy.

22 Q. By your own calculation that's not feasible, is
23 it, if there's only 1.4 BCF of recoverable gas left? It
24 won't support a third well, will it?

25 A. There is -- You asked me for an estimate of

1 remaining reserves. Let me address that. Remaining
2 reserves -- I have looked at the material balance on the
3 well in the south, the Topaz 30. I received a pressure
4 test that was taken in 1998 that was supplied to me by
5 Santa Fe. I had also had a previous surface shut-in
6 supplied to me by an engineer there, just on a call to try
7 to get some information so I could do routine reserve work
8 that was taken in 1997, and there were a number of pressure
9 tests taken when the well was first drilled, and I've
10 analyzed all of that.

11 What I am seeing is that there is some -- between
12 the first point that I had and the second point, there is
13 some evidence that reserves might be -- or the material
14 balances developed in a little bit of a kink, and you could
15 -- the very first fit in the reserves that I assumed for
16 quite a period of time, when I only had the first point,
17 was that gas in place was on the order of 3 BCF, and my
18 most conservative estimate for what the Topaz 30 might
19 recover is about 2.6 BCF. And that's a very good fit with
20 the material balance.

21 The latest point they supplied me, I will say, is
22 indicating some increase in that. I'm aware that Santa Fe
23 is saying that there may be, you know, a water problem
24 here, and they've indicated some other places where they've
25 seen evidence of that in this trend. It could possibly be

1 water support, I don't know. I have not seen evidence in
2 the production characteristics --

3 Q. Mr. Gabbard, what question are you answering,
4 sir? I asked you if 1.4 BCF of remaining recoverable gas,
5 which is the number you gave me, is enough gas to support a
6 third well.

7 A. You're -- 1.3 would not be.

8 Q. All right.

9 A. You're asking -- You also asked what I -- what
10 you thought was the best model for reserves in the east
11 half of 19, and you were suggesting --

12 Q. No, sir, I didn't ask you what I thought the best
13 model was.

14 A. Well, you told me what it was, and you suggested
15 to me that it was the Topaz because of its proximity to our
16 particular location.

17 Q. And have you disagreed with that?

18 A. Yes, I have.

19 Q. Okay. Let's look at this water issue that you've
20 mentioned.

21 A. Yes.

22 Q. Do you share Santa Fe's concern that if the Chi
23 well is too close, its position allows it to prematurely
24 water out the Topaz well?

25 A. I do not.

1 Q. You don't share that concern?

2 A. No.

3 Q. Tell me why not.

4 A. I think this is based on log calculations,
5 principally, that they think they have determined what they
6 would calculate as a wet stringer in the lower part of the
7 sand in the Topaz 30.

8 Q. Do you remember what that percentage is?

9 A. The water saturation?

10 Q. Yes, sir, that they gave you for the concern
11 about water?

12 A. No, I don't know what Santa Fe's number for that
13 is.

14 Q. Okay.

15 A. But we were aware that there was some low
16 resistivity there and that there could be an issue there.
17 And their completion technique, as you alluded to, was not
18 the full interval in this well because of their concern
19 about water. I fully concur that that was a prudent thing
20 for them to have done.

21 But I also agree -- or, by my instrument of
22 looking at what is pay in and around -- in the wellbore,
23 and might, I guess, what's out and about, around the
24 drainage area of that well, I think I see 16 feet of net
25 good pay, not the 1 1/2 feet that were perforated. I think

1 that you could easily fit that inside of Section 30 without
2 putting it into 19. It could be in the north half, it
3 could be just as portrayed on Mr. Anderson's map. It
4 doesn't have -- You don't have to get too inventive to try
5 and put these reserves into 30.

6 Q. That wasn't my question, sir. My question is, if
7 the Chi well is drilled, and if it is in pressure
8 communication with the Topaz well -- they would be
9 connected -- and Santa Fe's concern is that connection
10 would cause the Topaz well to be prematurely watered out,
11 and you have disagreed. Why would you disagree that if
12 they're connected, the Chi well would not water out the
13 Topaz well?

14 A. I'm not absolutely sure that there is a moving
15 water contact in the Section 30.

16 Q. Have you studied that issue in this channel to
17 see if that's occurred in the past?

18 A. I have.

19 Q. Okay, has it?

20 A. It's not clearly evident that it was water that
21 caused that.

22 Q. All right. Have you done any type of pressure
23 analysis to see what the impact is of one well on another
24 and how far that impact might be felt in this area?

25 A. Yes, I have.

1 Q. Where did you do it, and what did you find out?

2 A. I looked at the case of a 50-percent penalty,
3 which it had been suggested to me that it might be
4 something we should expect in coming here that is more in
5 line with the footage calculations that the Commission is
6 -- generally employs in their determination on penalties.

7 And I made the assumption that, yes, we were
8 unlucky and could only expect to share some percentage of
9 the remaining reserves with Topaz 30. And I determined
10 that with that sort of penalty and all other things being
11 equal in terms of deliverability, that the well at a
12 vertical location might produce 465 million gas, that it
13 might have a drainage area of roughly 61 acres if you
14 applied a radial pattern, that perhaps something on the
15 order of 28 acres might be in a little bit of a pie shape
16 that would come into Section 30.

17 Q. Did you or did you not study pressure
18 interference between two wells? That was the question?

19 A. Well, that was the extent of my study.

20 Q. Okay. If the Chi well is in pressure
21 communication with the Topaz well, those wells will equally
22 share whatever the remaining gas is, is it not?

23 A. Not necessarily.

24 Q. What initial rate do you anticipate for the Chi
25 well under that analysis you've just described?

1 A. Let me refer to something here. An unpenalized
2 rate?

3 Q. Yes, sir.

4 A. If we're using that October 1st date, we might be
5 looking for a deliverability, assuming a line pressure 570
6 pounds, which is my best information about what it was in
7 the past. Santa Fe probably has undoubtedly better
8 information than I do. But the deliverability I would
9 expect at that time for the Topaz 30, actually, would be
10 987 MCF per day. If you made the assumption that we had
11 the same deliverability and all other things equal, then I
12 guess you'd say we had that as well.

13 Q. All right. So you're forecasting that the rate
14 of the Topaz well by October of 1999 is going to be a
15 little less than a million MCF a day?

16 A. Yes.

17 Q. Okay. And that it would be your forecast that if
18 the Chi well is completed and connected with the Topaz well
19 at that time, it would have an equivalent unpenalized rate
20 of about a million a day, right? Is that what you're
21 telling me?

22 A. Yes, if that's all that -- if you're saying that
23 the only reserves that they found at that location --

24 Q. Yes, sir.

25 A. -- were associated with what is being produced

1 with the well in 30.

2 Q. Okay. So at an unpenalized rate, each well
3 producing a million a day, they would each produce 50
4 percent of the remaining recoverable gas, true?

5 A. Unpenalized, yes.

6 Q. And if it's unpenalized and the remaining gas is
7 1.4 BCF, they would share that 50-50, right?

8 A. Yes, sir.

9 Q. And they would do that if there was no penalty on
10 the Chi well, right?

11 A. At the vertical location.

12 Q. Okay. Have you made any kind of calculation to
13 determine what is the remaining recoverable share of the
14 gas within this Topaz pod that is still under the Chi
15 spacing unit?

16 A. You'll have to repeat that.

17 Q. Yes, sir.

18 A. You lost me.

19 Q. When we look at the remaining recoverable gas at
20 the opportunity you exercise your correlative rights, and
21 we try to apportion that between the Topaz well and the Chi
22 spacing unit, do you know what that apportionment would be?

23 A. You're assuming -- This is just a scenario that
24 we just set up?

25 Q. Yes, sir.

1 A. I said that we would produce perhaps -- well, I
2 was looking at the 50-percent penalty. I did not assume
3 that we would drill the vertical location without a
4 penalty, so...

5 Q. And your assumption under your analysis was that
6 the penalty, as high as you calculated, was a 50-percent
7 penalty?

8 A. Yes.

9 Q. Okay. Under those circumstances you described,
10 it would not be feasible for Chi to drill the well, would
11 it?

12 A. Absolutely not.

13 MR. KELLAHIN: No, you wouldn't want to do it.

14 Thank you, Mr. Examiner.

15 EXAMINER STOGNER: Mr. Kellahin.

16 Mr. Carr, redirect?

17 MR. CARR: No, sir.

18 EXAMINATION

19 BY EXAMINER STOGNER:

20 Q. This proposed penalty that you suggested for the
21 straight hole, that was based on a proximity of 660 feet?

22 A. Yes.

23 Q. Why 660?

24 A. Because that was the distance that Santa Fe
25 attempted to develop reserves in the west half, and on an

1 equity, considering our joint ownership in these lands,
2 which is very nearly equal, regardless of the outcomes of
3 the wells, assuming they participated with us, that it
4 seemed to be the most equitable thing to allow us to --
5 given our restriction on the potash -- and again, I would
6 say to you that it is clear to us there's gas being
7 produced from this lower Morrow channel to the north of us
8 in Section 18, there is gas being produced from the channel
9 to the south of us in Section 30, still producing, good
10 wells, and there is reasonable evidence to suspect that
11 there could be quite a bit of net sand in the east half of
12 19.

13 I don't have any more evidence that we are not
14 connected to the well in 18 or the well in 30. There is
15 simply no pressure data for the original OXY Government 1 Y
16 well there in the southeast southwest of 19. We do know
17 that there was sand present.

18 And given that they had -- when they had their
19 opportunity to develop, they chose to develop at that
20 distance, and we would actually have developed at the 1650,
21 had the potash not restricted us.

22 We were given some advice that we should expect
23 no penalty if we were required to directionally drill to
24 something greater than 660 that were unopposed, that we
25 might very well not be penalized if we had done a laydown,

1 you know, we could have been 660 off the line, although
2 there's a currently active unit in the west half of 19, but
3 just in a suppositional way.

4 Therefore, we feel like that in terms of
5 opportunity to develop, that that's a better number, even
6 though it is not common for what the Commission has done in
7 the past. That's why we make these appeals to the
8 Commission to adjudicate these special cases where there
9 are special circumstances.

10 Q. Was that put in some sort of an agreement when
11 Santa Fe re-entered that old Cities well, to base your 660
12 on?

13 A. There was -- No, there was no agreement.

14 Q. Nothing official, just your assumption? Nothing
15 official, just your assumption?

16 A. Assumption about what?

17 Q. Just what you told me, the 660 came from,
18 assuming that they were allowed to develop a 660 -- or did
19 you say something else, or did I just not understand all
20 that lengthy discussion tat you just gave me?

21 Let me re-ask my original question. What do you
22 base the 660 on for that 27 percent?

23 A. I'm basing it on where they attempted to develop.
24 They, in fact, did re-enter at the vertical location, at
25 660 from the south line.

1 Q. Okay. Was there some sort of an agreement, a
2 written agreement, whenever they did that with the offsets,
3 that they be allowed to develop 660?

4 A. No, there was not.

5 Q. Okay.

6 A. Are you meaning the offset of the Topaz 30?

7 Q. What offset were you referring to?

8 A. That's the only offset that there was existing at
9 that point, proposed or considered.

10 Q. Now, we're talking about the one in the west half
11 of 19. I'll tell you what. We seem to be talking about
12 this west half of 19. Can somebody give me -- In fact,
13 I'll ask you, what was the approval order for that?

14 A. I don't --

15 Q. You don't know?

16 A. I don't know.

17 Q. But you will tell me, though, won't you?

18 MR. CARR: I can get that for you.

19 EXAMINER STOGNER: Good, okay.

20 Q. (By Examiner Stogner) Now, let me see if I get
21 this straight too. You're proposing a 27-percent penalty
22 on the production, proposed production, for this distance,
23 but not penalty on the 760. I don't believe I've heard
24 anything about a risk-penalty factor on the compulsory
25 pooling. I think now would be a good time to see what it

1 is.

2 MR. CARR: Mr. Examiner, Mr. Anderson did testify
3 in support of a 200-percent risk penalty.

4 Q. (By Examiner Stogner) Okay, now -- We heard
5 geological. Now we heard some differences that make me
6 believe that maybe 200 percent, because you can't have an
7 unorthodox location without penalty and then come in and
8 ask for risk penalty at 200 percent. I don't see the
9 corresponding thing here. You say you want an unorthodox
10 location because it's more acceptable; is that correct?
11 But you also say it's risky? Doesn't this seem to be head-
12 on to each other here?

13 A. We're saying that the risk of knowing where the
14 sweet spot of this Morrow channel is, we consider to be far
15 riskier than what we know about the cost to drill
16 directionally.

17 Q. Which is \$500,000 more to go over about 280 feet?

18 A. It is \$300,000 to go from the vertical location
19 to the 760. We believe it would be another \$200,000, or a
20 total of \$500,000, if we were required to go to the 1750 --
21 or 1650.

22 Q. Okay. I'd like to find out a little bit more
23 about this original standard location that the BLM denied,
24 and I don't have anything on that other than Jim Bruce's
25 letter. When was that application applied for, for the

1 standard location?

2 A. I'll have to --

3 Q. I'm getting a little confused here. Who is the
4 Applicant? I mean, I'm -- Chi Energy, I thought, was going
5 to be the operator. That's what compulsory pooling said,
6 so that will have to be changed.

7 MR. CARR: Yes, it will.

8 EXAMINER STOGNER: And then the case that we're
9 hearing now -- and what I understand from this gentleman is
10 that that standard location would not be acceptable, was
11 not even originally applied for. That seems a little
12 bit --

13 MR. CARR: I'm not aware of an application for a
14 1650 off the south-line location.

15 MR. QUALLS: No.

16 MR. CARR: There was none. Mr. Stogner, the NSL
17 number that you asked for --

18 EXAMINER STOGNER: Yes.

19 MR. CARR: -- is 3910, NSL-3910. That was for
20 the Topaz 19 Federal Com Number 1 in 19. That's down in
21 the southwest quarter.

22 EXAMINER STOGNER: So a standard location was
23 never even requested by the BLM?

24 MR. QUALLS: I have talked the BLM and
25 requested -- talked to the potash guy in Carlsbad. His

1 name is Doug Hope. He said there's no way we could do a
2 standard location on a surface 1650-1650. He said we could
3 come in and go 150-foot radius from that well in the
4 southeast corner, the Yarbrough Number 1, 480 from the
5 south and directional drill to a 760. That was what was
6 applied for, was 760.

7 EXAMINER STOGNER: Based on what your
8 conversation with the BLM was?

9 MR. QUALLS: Yes, sir.

10 EXAMINER STOGNER: As opposed to trying to go
11 through his supervisor or make an application and then for
12 them to come back to you and justify what you're saying
13 today?

14 MR. QUALLS: He told me over the phone that we
15 could --

16 EXAMINER STOGNER: So the answer is no, okay.

17 MR. QUALLS: -- that we couldn't --

18 EXAMINER STOGNER: Thank you.

19 MR. QUALLS: -- drill a --

20 EXAMINER STOGNER: Thank you.

21 I have no other questions of this witness. You
22 may be excused.

23 MR. CARR: That concludes our direct case. We
24 would request a ten- or fifteen-minute recess.

25 EXAMINER STOGNER: Let's make it ten.

1 (Thereupon, a recess was taken at 2:40 p.m.)

2 (The following proceedings had at 3:00 p.m.)

3 MR. KELLAHIN: Mr. Examiner, our first witness is
4 Mr. Tom Tinney. Mr. Tinney is a geologist with Santa Fe
5 Energy Resources. He currently resides in Midland, Texas.

6 THOMAS J. TINNEY, III,

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

9 DIRECT EXAMINATION

10 BY MR. KELLAHIN:

11 Q. Mr. Tinney, for the record, sir, please state
12 your name.

13 A. Thomas Jordan Tinney, III.

14 Q. And where are you employed?

15 A. Santa Fe Energy Resources.

16 Q. In what capacity?

17 A. I'm the geological and geophysical manager.

18 Q. On prior occasions have you testified before the
19 Division?

20 A. Yes, I have.

21 Q. And pursuant to your employment as a geologic
22 manager for Santa Fe, have you made a study of the geologic
23 issues involved in this case and prepared your conclusions
24 and supporting displays?

25 A. Yes, I have.

1 MR. KELLAHIN: Mr. Examiner, we tender Mr. Tinney
2 as an expert geologist.

3 EXAMINER STOGNER: Any objection?

4 MR. CARR: No objection.

5 EXAMINER STOGNER: Mr. Tinney is so qualified.

6 Q. (By Mr. Kellahin) Mr. Tinney, let's -- before we
7 look at the specifics of your display, let's talk about
8 some of your ultimate conclusions. You were here during
9 Mr. Anderson's testimony concerning his presentation, were
10 you not?

11 A. Yes, I was.

12 Q. All right. Do you have any agreement or
13 disagreement with Mr. Anderson about the depositional
14 environment of this north-south-trending fluvial Morrow
15 channel system?

16 A. No, I do not.

17 Q. What have you concluded?

18 A. I agree with Mr. Anderson that this is a north-
19 south-trending lower Morrow fluvial system.

20 Q. When you look at your results and examine the
21 east half of Section 19, what is your conclusion about the
22 geologic preference between a standard location versus the
23 proposed unorthodox location Chi seeks to have approved?
24 What do you conclude?

25 A. I conclude that a standard location, an orthodox

1 location, proposes the best chance of capturing the unique
2 reserves, and that an unorthodox location has a high chance
3 of encountering reserves that otherwise would be produced
4 from the well in the west half of Section 30.

5 Q. When you look at structure in this area, in the
6 Morrow, lower Morrow, is structure an issue of importance
7 to you?

8 A. Yes, it is. I think there's evidence in this
9 particular area that there are several separate gas-water
10 contacts in this system and that the structural position
11 does play a role in the well performance.

12 Q. Geologically, is there an opportunity or a
13 reasonable probability that if the Chi location is approved
14 it will be connected to the same Morrow pod that is
15 currently being produced in the Topaz well?

16 A. Yes, it's my opinion that a well located at an
17 unorthodox location would adversely affect the Santa Fe
18 well in the west half of 30.

19 Q. When you look at structure and confined your
20 examination to the east half of 19 and you're looking at a
21 structural advantage or disadvantage, how does that
22 information affect your conclusion about Chi's proposed
23 location and the closest standard location for that spacing
24 unit?

25 A. When you look at the structure map, you'll notice

1 that Chi's proposed unorthodox location will be
2 structurally high to the Topaz 30, which does have a --
3 water in that reservoir, that an orthodox location would be
4 structurally higher, and that would afford them the best
5 opportunity for a well with unique reserves.

6 Q. All right. Would you agree or disagree with Mr.
7 Anderson's opinion that if potash was not an issue and you
8 could drill a vertical well, that you would drill that well
9 at a standard location in the east half of 19?

10 A. I would agree with that.

11 Q. Do you find any geologic evidence to the
12 contrary?

13 A. No.

14 Q. Nothing to suggest that there is some advantage
15 gained by moving to an unorthodox location?

16 A. No, sir.

17 Q. This is not one of those circumstances that the
18 only reasonable location in the spacing unit is at an
19 unorthodox location?

20 A. That's correct.

21 Q. We don't have that problem?

22 A. No, sir.

23 Q. Let's look at your work product, Mr. Tinney. If
24 you'll turn to look at Exhibit Number 2, before you explain
25 the details, explain the code so we can understand your

1 color code and what you're showing us.

2 A. Okay.

3 Q. First of all, what are we looking at?

4 A. This is an isopach of the lower Morrow. It's a
5 gross sand isopach, and the blue line is the measured
6 potash boundary. The red square would be the proposed Chi
7 Energy Greenstone Fed Number 1 at the 480-from-the-south-
8 line location, and you can see the well is labeled. And
9 then also you can see Santa Fe's acreage position is
10 stippled in gray.

11 Q. Okay. We'll come to the cross-section in a
12 moment, but are you isopaching a sand interval that is any
13 different from the markers used by Mr. Anderson when he
14 constructed his map?

15 A. I'm not isopaching a different interval. The way
16 I determined the values is slightly different. Mr.
17 Anderson used a gamma-ray cutoff that he said generally was
18 50 API. I chose to do a true gross sand map, which you
19 just take the inflection of the bed from the shale and
20 calculate that number

21 Q. Okay. Looking at the gross lower Morrow
22 interval, you are looking at the equivalent interval that
23 Mr. Anderson was examining, are you not?

24 A. That's correct.

25 Q. There's no disagreement between you as to what

1 interval we're examining?

2 A. No, not at all.

3 Q. On the gross map, you have displayed some
4 information. First of all, you have shown the Section 19,
5 30, Section 18, these stacked sections, to be part of what
6 appears to be a channel system; is that true?

7 A. Yes, sir.

8 Q. Within that you have confined some contour lines.
9 What are those contour lines, and what do they mean?

10 A. Well, the contour lines, obviously, are the
11 actual gross sand. The color is more for reference in
12 terms of the eye so you can pick out the system and the way
13 it trends north-south.

14 Q. In those instances where you had a deviated well
15 and a bottomhole location --

16 A. Yes, sir.

17 Q. -- have you made the appropriate adjustments to
18 the display to denote --

19 A. Yes, the bottomhole locations will be noted --

20 Q. All right.

21 A. -- as BHL for bottomhole location.

22 Q. Within Section 30, just to the south of the Topaz
23 well, there's a dashed red line, and you've indicated
24 gas/water. Do you see that line?

25 A. Yes, I do.

1 Q. And it says minus 10,143?

2 A. Yes, sir.

3 Q. You put that line there?

4 A. I did.

5 Q. Why did you?

6 A. That is based on log analysis calculations. We
7 can show that on the cross-section, we have some water-
8 saturation calculations on the cross-section. But what
9 I've done there is, when the water-saturation calculations
10 were greater than 40 percent, then I felt like that was at
11 risk at being water-productive or predominantly water-
12 productive, and therefore that's an arbitrary.

13 We also, in the Topaz 30, ran a DST and recovered
14 water when we DST'd the sand in conjunction with gas.

15 Q. All right. We'll come back and integrate the
16 gas-water contact line with the cross-section in just a
17 moment.

18 After you have a gross map like this, there is an
19 opportunity for you as a geologist to become more
20 definitive and refine this map; is that not true?

21 A. Yes, it is. Yes, there is.

22 Q. Have you done that in this instance?

23 A. Yes, in the next exhibit.

24 Q. And what is that next exhibit?

25 A. The next exhibit would be Exhibit 3, I believe,

1 net pay of lower Morrow sand. And what I've done here is,
2 the first number that's next to the well is net pay based
3 on porosity greater than or equal to 8 percent, and I used
4 40 percent as a water-saturation cutoff to determine net
5 pay. The second number is just a net-sand number, which is
6 anything greater than or equal to 8 percent.

7 Q. You and Mr. Anderson, then, are in agreement
8 about a water-saturation value? He said he would start
9 being concerned at 40 percent, and you've used that 40
10 percent?

11 A. That's right.

12 Q. What does that mean to you?

13 A. Well, you just run the risk anytime you're higher
14 than 40 percent in this area, of producing more water than
15 gas. So it is a risk.

16 Q. And the porosity cutoff value, 8 percent, is
17 within the range of reason?

18 A. Yes.

19 Q. All right. Once you do that, make the
20 adjustments and reproduce the map, you can come to
21 conclusions in Section 19, can you not?

22 A. Yes.

23 Q. Let's look at Section 19, and particularly the
24 east half of 19.

25 A. Right, what I feel like will happen here is

1 reflected in the gross-sand map, is also reflected in the
2 net-pay map, that there's a high probability that an
3 unorthodox location on the Chi Energy Greenstone Fed Number
4 1 would encounter common reserves to the Topaz 30 Number 1,
5 which is labeled in the west half of Section 30.

6 As you can see, it had a net pay, the Topaz 30
7 had a net pay of four feet, and a net sand of 14 feet.
8 Obviously, the rest of that 14 feet was below the water-
9 saturation cutoff. The Chi well, if they encounter a
10 similar-type reservoir, would have all 14 feet above the
11 water contact, and therefore you would -- one would
12 conclude that their well might outperform the Topaz 30.

13 In addition to that, if you look at the orthodox
14 location, that location has the best chance to encounter, I
15 feel like, unique reserves.

16 Q. All right. Do you remember Mr. Anderson's
17 testimony that his strategy also was to find new and unique
18 reserves?

19 A. Yes.

20 Q. In your opinion, using your analysis, can you
21 best achieve obtaining new and unique reserves at a
22 standard location or at the proposed unorthodox location?

23 A. Well, it's my feeling, from the mapping I've
24 done, that the best chance to do that is at the standard
25 location or orthodox location.

1 Q. Let's integrate your net-pay isopach now with
2 your structure map. You've also prepared a structure map,
3 have you not?

4 A. Yes, I have, and that would be the next exhibit.

5 Q. All right, let's take Exhibit 4, which is the
6 structure map, again have you define the coding, and then
7 we'll talk about your conclusions.

8 A. The coding is similar to the other maps.
9 Actually, it's the same with the outline of the potash, the
10 stippled acreage being Santa Fe acreage. I've also got a
11 gas-water contact on the structure map; it's minus 10,143.
12 It shows the location of the Topaz 30 at a minus 10,106,
13 and that moving to the north to the Chi Energy Greenstone
14 Fed Number 1 at an unorthodox location, that they would be
15 updip to the Topaz 30.

16 Q. Let's examine your structural conclusions as they
17 affect the east half of 19. When you look at structure,
18 does it matter whether you're at a standard location or the
19 proposed unorthodox location?

20 A. Well, the standard location will just afford you
21 to be structurally higher, and because of the fact that
22 there is proof in this area that there are separate gas-
23 water contacts, obviously even if you get into a reservoir
24 that has unique reserves, you want to be as far
25 structurally updip as possible.

1 Q. You can conclude, then, that the standard
2 location is structurally preferable to the unorthodox
3 location?

4 A. Yeah, I agree with Mr. Anderson that his map is
5 similar to this one, and that it would be structurally
6 higher at that location.

7 Q. And that structural difference is enough to
8 matter?

9 A. Yes, anytime that you can gain structure in the
10 Morrow, you have to take advantage of it, is my opinion.

11 Q. Let's look at the structural relationship between
12 the Chi-proposed location and where the Topaz well
13 currently exists and have you tell us your geologic
14 conclusions about what, if any, adverse consequences the
15 Chi well would impact or have on the Topaz well.

16 A. Well, as I mentioned, if you take the net-pay map
17 and assume that they're going to have 14 feet of net pay,
18 which will be somewhere near the Topaz 30, and that by
19 moving 50 feet updip, that you would get all of that 14
20 feet above that water, therefore you would have a better
21 performance of your well.

22 Q. Let's go to the cross-section so that you can
23 illustrate that point. If you'll take Exhibit 5 for me and
24 take a moment and unfold it.

25 A. Exhibit 5 is a northeast-to-southwest cross-

1 section. North would be on the left, so it is the proposed
2 Chi Energy Greenstone Fed location.

3 Q. Let's go to the far right and look at the Topaz
4 30-1, the Santa Fe well.

5 A. Yes, the Topaz 30 Fed Number 1, you can see the
6 sand labeled lower Morrow, also the water saturation
7 calculations to the right of that well. We perforated a
8 foot and a half in the very top of that particular well.
9 And as you can see as you move down, your water saturations
10 increase.

11 And I'd also like to note that the DST from
12 13,821 to 14,008, we'd like to note that they recovered
13 eight barrels of water on that DST. And if you look at the
14 interval, even though it's a rather large interval, the
15 only zone that has any porosity that could give up water
16 would have to be that lower Morrow sand.

17 Q. Is this occurrence unique to the Topaz 30 and 1
18 well, or has it occurred elsewhere in the immediate area?

19 A. No, this same thing occurs to the north. If you
20 look at the Section 7, the well labeled TXO Production Corp
21 Hamon 'A' Fed Number 1, that well, they perforated the
22 top -- I think it's four feet in that particular well. If
23 you do the water-saturation calculations, it's also wet in
24 the bottom. They realized that, and I think that's the
25 reason that they perforated only the top four feet of that

1 particular well.

2 Q. When you look at the current perforation
3 relationship in the Topaz 30-1 well --

4 A. Uh-huh.

5 Q. -- to what you've calculated to be the 45-percent
6 water-saturation value --

7 A. Yes.

8 Q. -- would that illustrate your concern about water
9 encroachment if there's a second well in the Topaz pod?

10 A. Yes, any of those water-saturation calculations,
11 I think, do indicate that there is water in that reservoir,
12 and the fact that the well actually is producing water.
13 And I think Mr. Adams will address that fact when he gives
14 his testimony.

15 Q. But looking at the log analysis, you as a
16 geologic expert can recognize and realize the risk imposed
17 by the Chi well if it connects with the Topaz pod?

18 A. Yeah, absolutely. When you've only got a foot
19 and a half of perforations open and you realize that you've
20 got water below you, any well updip that has a superior
21 structural advantage, you would feel like that that would
22 have a chance of watering your well out.

23 Q. Does that probability affect where a well would
24 be located in the east half of 19?

25 A. I think it should, yes. The fact that -- their

1 unorthodox location, and the way I've correlated and the
2 way Mr. Anderson correlated, the fact that by drilling
3 there they have a high probability of encountering that
4 same sand, an orthodox location would give you the best
5 opportunity to prevent that from happening.

6 Q. Summarize for us your geologic conclusions, then,
7 Mr. Tinney.

8 A. My geologic conclusions are that I agree there is
9 a fluvial north-south-trending system, that there is a high
10 probability by drilling at an unorthodox location that a
11 well would tag into a common reservoir with the Topaz 30
12 Fed Number 1, and then by having a structurally superior
13 position would have an adverse effect on our well, that a
14 standard location or an orthodox location would afford Chi
15 and its partners the best opportunity to encounter unique
16 reserves, and I think that, as they have stated, that's
17 really their sole purpose, is to try to capture unique
18 reserves, new and unique reserves.

19 Q. In your opinion, do the interest owners in the
20 east half of 19 substantially reduce the risk involved in
21 that well if they move to a standard bottomhole location?

22 A. I think that it actually is beneficial to them by
23 moving to a standard location.

24 Q. It would reduce the risk, then?

25 A. Yes, sir.

1 MR. KELLAHIN: That concludes my examination of
2 Mr. Tinney. We move the introduction of his Exhibits 2
3 through 5.

4 EXAMINER STOGNER: Exhibits 2 through 5 will be
5 admitted into evidence.

6 Thank you, Mr. Kellahin.

7 Mr. Carr, your witness.

8 MR. CARR: Thank you, Mr. Stogner.

9 CROSS-EXAMINATION

10 BY MR. CARR:

11 Q. Mr. Tinney, when I look at your Exhibits 2, 3, 4,
12 when you constructed these exhibits, what information did
13 you have? Well-control data?

14 A. Yes, sir.

15 Q. And are the wells shown on this exhibit that you
16 were able to analyze to develop your interpretation?

17 A. Yes, sir.

18 Q. And did you have access to any seismic work over
19 the area?

20 A. No, sir.

21 Q. Okay. If I look at your Exhibit Number 2, you
22 have shaded in yellow what look like there are almost
23 separate pods through the reservoir. Is that what you're
24 intending to show?

25 A. Yes, sir, I think that's what the evidence does

1 show, is that we have separate pods in here.

2 Q. Do you have any geological evidence that would
3 suggest that, in fact, you have separation running through
4 the southern portion of Section 19 and that could not be
5 just a continuous zone running through there, instead of
6 two separate pods?

7 A. No, that's an alternative interpretation.

8 Q. And that's just your interpreta- -- The same
9 would apply as we come across the southern half of Section
10 18 to the north?

11 A. Yes, sir, the only evidence that is there is,
12 there is engineering data that suggests that those are
13 separate reservoirs.

14 Q. Geologically, though, this is just your
15 interpretation --

16 A. That's correct.

17 Q. -- they could be connected?

18 What do you mean by the Topaz outline that you've
19 indicated down at the bottom, in the legend, with this
20 block around six sections?

21 A. That's the original prospect outline.

22 Q. Is that the area -- Do you have your AMI in that
23 area, or is that something else?

24 A. I'd have to defer.

25 Q. Okay.

1 A. That's not my area of expertise, sir.

2 Q. And you have ownership in five of the six
3 sections; is that correct?

4 A. Yes, sir.

5 Q. If we look in 19, do you actually have in the
6 east half any ownership at this time in the deep rights, or
7 do you know?

8 A. Once again, I --

9 Q. Okay.

10 A. -- I don't have the expertise.

11 Q. If we go to Exhibit Number 3, again I see you
12 have got what you've indicated coming across this channel
13 permeability barriers. From a geologic point of view, this
14 is just your interpretation; there's no particular geologic
15 data that would support that; is that correct?

16 A. That is correct.

17 Q. And you've put across the southern portion of
18 Section 30 a line that is your gas-water contact?

19 A. That is correct.

20 Q. You used a 40-percent cutoff in mapping or
21 placing that line across the reservoir there?

22 A. Yes, sir.

23 Q. Now, if I understand it, a 40-percent cutoff
24 means you've got 40-percent water; is that what that means?

25 A. Yes, sir.

1 Q. And conversely, you would still have 60-percent
2 gas south of that line?

3 A. That's correct, sir.

4 Q. And so there would be some gas south of that line
5 that you still would be able to recover; is that right?

6 A. Potentially, yes, sir.

7 MR. CARR: Okay, that's all I have.

8 EXAMINATION

9 BY EXAMINER STOGNER:

10 Q. Your Topaz 30 was completed in 1996; is that
11 correct?

12 A. Yes, sir.

13 Q. What stimulation was utilized on it?

14 A. I'd have to defer, actually. Not my area of
15 expertise. I believe it was natural, Mr. Stogner, but I
16 don't -- don't really know.

17 Q. In looking at your Exhibit Number -- well, 2 and
18 3, is this one well adequate to drain this pod or the
19 yellow pod? Is that you're indicating?

20 A. Yes, sir.

21 Q. And what is the acreage within the productive
22 interval? Is that the -- Can I look at the yellow portion
23 and say this is the productive interval, or does it extend
24 beyond that?

25 A. I would really ask you to look at the net-pay

1 map. You can see on the net-pay map that the Topaz 30 has
2 four feet of net pay. So really anything within that zero
3 line potentially could be productive.

4 Q. Okay, what's the -- Do you know what the area of
5 that would be?

6 A. Yes, sir, that's approximately 300 acres.

7 Q. 300 acres. I'm trying to realize something.
8 Part of that small pod goes into their -- or reservoir goes
9 into -- in the east half of Section 19?

10 A. That's correct.

11 Q. But I don't see how what you're proposing would
12 allow them to recover their rightful share that goes into
13 the east half of 19.

14 A. It's our interpretation that the Topaz 30 will
15 drain all of those reserves.

16 Q. You mean will take reserves under 19 and come
17 down?

18 A. Yes, sir.

19 Q. Isn't that a little bit beyond 320-acre spacing,
20 since you're at a standard location?

21 A. Yes, sir.

22 Q. Then why hasn't Santa Fe asked for 640-acre
23 spacing to adequately regulate or develop these reserves?

24 A. I couldn't answer that question.

25 Q. Hm. Who could?

1 A. I imagine our landman would have to answer that
2 question.

3 EXAMINER STOGNER: Okay, good. I'll reserve that
4 question for them, or hopefully Mr. Carr will ask a similar
5 question where I won't have to.

6 Okay, any other questions of this witness?

7 You may be excused.

8 I'm sorry, I meant Mr. Kellahin.

9 MR. KELLAHIN: Yes, sir, Mr. Rod Adams is our
10 next witness.

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

14 DIRECT EXAMINATION

15 BY MR. KELLAHIN:

16 Q. Mr. Adams, for the record, would you please state
17 your name and occupation?

18 A. Rod Adams. I am a petroleum engineer. I'm
19 employed by Santa Fe Energy Resources. I'm the division
20 engineer responsible for New Mexico.

21 Q. And where do you reside, sir?

22 A. Midland, Texas.

23 Q. As part of your responsibilities for your
24 company, have you as a petroleum engineer examined the
25 engineering facts relevant to the topic before the Examiner

1 this afternoon?

2 A. Yes, I have.

3 Q. Have you testified on prior occasions?

4 A. No, I have not.

5 Q. Summarize for us when and where you obtained your
6 engineering degree.

7 A. I have a bachelor of science in petroleum
8 engineering from the University of Tulsa. I graduated in
9 1978. I've been continuously employed in the oil business
10 for the last 21 years. I'm a registered engineer in the
11 State of Oklahoma.

12 Q. The information you're about to present and the
13 opinions you're about to express, were those arrived doing
14 your normal engineering functions for your company?

15 A. That is correct.

16 Q. The method by which you have arrived at these
17 conclusions is those typically used by members of your
18 profession to reach conclusions on these subjects?

19 A. Yes, they are.

20 MR. KELLAHIN: We tender Mr. Adams as an expert
21 petroleum engineer.

22 EXAMINER STOGNER: Any objection?

23 MR. CARR: No objection.

24 EXAMINER STOGNER: Mr. Adams is so qualified.

25 Q. (By Mr. Kellahin) Mr. Adams, was a copy of the

1 Chi administrative application, which included Mr.
2 Anderson's net clean sand isopach map, made available to
3 you?

4 A. Yes, it was.

5 Q. You had an opportunity to look at that
6 information, did you, prior to the hearing?

7 A. Yes, sir.

8 Q. In addition, you had available to you the other
9 reservoir data from the Topaz well that Santa Fe operates,
10 as well as other data available from similar wells in the
11 area?

12 A. That is correct.

13 Q. Let me ask you to address your major conclusions.
14 First of all, the conclusion with regards to, if Mr.
15 Anderson's map is correct, what does that mean?

16 A. If Mr. Anderson's map is correct, they should
17 find a new, unique reservoir. That reservoir would cover
18 the entire 320 acres in the east half of Section 19. The
19 volumetric calculations from his mapping would indicate
20 6674 acre-feet of Morrow sand underlying that production
21 area.

22 If you go ahead and use the log characteristics
23 and the production information from the Topaz well, you
24 come up with a gas-in-place number of 6.2 BCF, or something
25 around 5 BCF recoverable, which compares with Mr. Gabbard's

1 testimony of 4.7 BCF.

2 Q. All right. If you use Mr. Anderson's map,
3 calculate gas in place, apply an appropriate recovery
4 factor, is there sufficient recoverable gas in the east
5 half of Section 19 to pay for the cost of directionally
6 drilling this well to a standard bottomhole location?

7 A. Absolutely. The next exhibit that I put together
8 was an economic run showing 5 BCF of recovery with the
9 comparable information of the other Morrow wells in the
10 area, and it indicates that they would have a hundred-
11 percent rate of return and pay out in a very short period
12 of time. And this was done assuming \$1.7 million as the
13 cost to drill this directional well.

14 Q. All right. The \$1.7-million directional well
15 would get you from the 480 surface location down to a
16 standard subsurface location?

17 A. That is correct.

18 Q. And you had engineering drilling people within
19 Santa Fe to prepare and submit to you an itemized, detailed
20 AFE that gave you that number?

21 A. And those are attached in the exhibits --

22 Q. All right.

23 A. -- that we did.

24 I would add that when I first did that, the
25 number that they came up with was one point fifteen sixty

1 dollars, which is the same number that they have, and when
2 I told them that I needed to come up here and be able to
3 pound the table and testify to these numbers and to make it
4 as high as it could cost, they were able to push the cost
5 up to \$1.7 million.

6 Q. All right. So even if it's required to be
7 drilled to a standard bottomhole location, the additional
8 expense that you show over a vertical well is about what?
9 Four hundred and --

10 A. -- thirty-thousand dollars.

11 Q. How much?

12 A. About \$430,000.

13 Q. About \$430,000 additional costs. Those are the
14 numbers you used?

15 A. Yes. And compared to the \$500,000 they came up
16 with.

17 Q. All right. And you have applied the current
18 economic methodology used by reservoir engineers to show if
19 this was profitable or not?

20 A. Right, the next exhibit, basically, is an
21 economics evaluation of what the reserves on the well would
22 yield economically. And so it basically -- the line on the
23 left would show what kind of BTAX rate of return you would
24 get, and the line on the right is the BTAX net present
25 value, discounted at 15 percent.

1 You can see from these numbers that you basically
2 need a well that makes about 1.4 million BCF to make a well
3 that will pay out --

4 Q. All right, let's look at Exhibit --

5 A. -- and gain 15 percent rate of return.

6 Q. Let me look at Exhibit 8 and have you help me
7 read it. If I'm reading the bottom horizontal graph, I'm
8 showing a reserve number. These are recoverable gas in
9 BCF, right?

10 A. Yes.

11 Q. And if I'm looking at the left-hand vertical
12 column, I'm looking at a rate of return?

13 A. Yes.

14 Q. And as I match the two, the minimum for a rate of
15 return would give me how much BCF?

16 A. Zero percent rate of return would be about 1.25
17 rate of return.

18 Q. All right. For 1.25 recoverable gas, that means
19 I can pay for the well one time?

20 A. That's right, that's it.

21 Q. And that will give me my \$1.7 back?

22 A. That's it.

23 Q. Okay. If we believe Mr. Gabbard's conclusion
24 about the remaining recoverable gas in the Topaz pod, he
25 was dealing in the range of perhaps 1.4 BCF; is that not

1 true?

2 A. That's correct.

3 Q. Is there enough left in the Topaz pod to support
4 two wells at this point?

5 A. No, there's not. That's -- The gist of this
6 statement is that if you split the remaining reserves
7 between those two wells, you would be losing money and
8 you'd be causing economic waste by drilling a second well
9 to recover the remaining reserves.

10 Q. Well, let's talk for a moment about this concept
11 of correlative rights. Mr. Stogner began to touch on it
12 with Mr. Tinney. If you looked at the original gas in
13 place before the Topaz well was drilled, you're going to
14 have a certain portion of that gas not only underlying the
15 Topaz spacing unit, but originally in place under the Chi
16 spacing unit in the east half of 19, true?

17 A. That's the geologic interpretation that we have,
18 that's correct.

19 Q. All right. Correlative rights is the opportunity
20 to recover your share?

21 A. That's correct.

22 Q. If that opportunity is delayed and the offsetting
23 well produces it, you simply lose it, do you not?

24 A. That's correct.

25 Q. At this point in time, in order for Chi to put a

1 well at the edge of their spacing unit, to get whatever is
2 left of their share, is there enough to support that
3 activity?

4 A. No, they would have to take more than all the
5 remaining gas that's left in the Topaz well for that to
6 work.

7 Q. At this point in time, you simply can't balance
8 the equity, can you?

9 A. You can't.

10 Q. In order to achieve the best opportunity in the
11 east half of 19, then, what would you do?

12 A. You need to drill a well that finds unique
13 reserves.

14 Q. Mr. Qualls says that was their purpose.

15 A. That's right.

16 Q. And where do you best achieve that?

17 A. You achieve that at a legal location further
18 north than the location they've proposed.

19 Q. Let's look at the rest of the parts that support
20 the economics that you have concluded make this profitable
21 as a directional well.

22 A. Okay.

23 Q. If you'll look at Exhibit 9, identify and tell us
24 what that is.

25 A. Exhibit 9 is the well-cost estimate that was put

1 together by Mr. Burton and approved by me, saying what our
2 cost would be for a directional well.

3 Q. It's the \$1.7 million?

4 A. Correct.

5 Q. Do you have experience and knowledge about going
6 through this and determining whether it's reasonable?

7 A. Yes.

8 Q. Were you involved in any of the other wells?

9 A. Yes, I've been in this area for five years, and
10 I'm familiar with the wells that were drilled in the area
11 and I've put together an exhibit showing the drilling times
12 for the offset wells that Santa Fe has operated in the
13 area.

14 Q. All right. So 9 is the directional well?

15 A. Yes.

16 Q. What is Number 10?

17 A. Straight hole.

18 Q. It's the AFE for the straight hole?

19 A. Uh-huh.

20 Q. You show a differential of about what? \$430,000?

21 A. Yes.

22 Q. Do you find any support for the representation in
23 Chi's letter to the Division that the additional cost is
24 some \$700,000?

25 A. No.

1 Q. Let's look at the comparison of times. If you'll
2 turn to Exhibit 11, describe for us what you're
3 illustrating here.

4 A. Santa Fe was the operator of the four mentioned
5 here, the Sinagua 18-1, 18-2, and the Topaz 30-1 and Topaz
6 19-1.

7 The Sinagua 18-1 was a straight hole.

8 The 18-2 was a deviated well that was kicked off
9 at 9750, and so what I did here is basically take the
10 drilling days down to 10,000 feet, and then to take the
11 drilling days below 10,000 feet so that I can compare how
12 much longer it took to drill a deviated well from a
13 straight hole.

14 I did the same thing on the Topaz 30 well.

15 The Topaz 19-1 is a re-entry, and so its top
16 10,000 feet didn't take as long because the well had
17 already been drilled, and we were just re-entering an
18 existing wellbore.

19 But from what I was able to conclude from this is
20 that it took an average of 26 days to drill down to 10,000
21 feet on the first three wells, and it took 19 days to drill
22 on down to the -- from 10,000 to TD, which is a total of 45
23 days, which is the number of days that Mr. Burton used on
24 his AFE. And for a deviated well it took 33 days, or an
25 extra 14 days, to get down to TD. And his original answer

1 was 60 days to drill the deviated well, but to go ahead and
2 push the cost here, he used 70 days on this \$1.7-million
3 AFE.

4 Q. So for drilling days, you've used a number that's
5 higher than any of the actual days, actually involved in
6 any of the directional wells?

7 A. That's correct.

8 Q. And so it's a very high AFE number. And despite
9 that AFE cost, you can show economics that justify the
10 directional well?

11 A. That's correct.

12 Q. It would be highly profitable, wouldn't it?

13 A. Very highly profitable.

14 Q. What's the payout period of the directional well?

15 A. It would be 1.28 years at 5 BCF.

16 Q. You only have to wait what? Fourteen months --

17 A. Yeah.

18 Q. -- fifteen months, to get payout?

19 A. Yes.

20 Q. What's your rate of return?

21 A. A hundred percent. It's greater than a hundred
22 percent.

23 Q. This development has occurred within the context
24 of the potash enclave, has it not?

25 A. That's correct.

1 Q. That potash reserve was known to everybody before
2 these wells were ever drilled?

3 A. That's correct.

4 Q. So everybody, including Santa Fe, has factored in
5 the risk involved of having to pay for directional wells to
6 get to the resource?

7 A. That's correct.

8 Q. Everybody knows that up front?

9 A. Yes.

10 Q. When you controlled 19, you knew that as an
11 issue, right?

12 A. That's correct.

13 Q. And if Chi acquired an interest subsequent to
14 that, they knew they were acquiring an interest that might
15 require them to drill a directional wellbore?

16 A. That's correct.

17 Q. They weren't blindsided by any change in the
18 rules, were they?

19 A. No.

20 Q. Let's look at 12. What's 12?

21 A. Exhibit 12 is a summary of pressure data of
22 measured bottomhole pressures that I have on the Topaz
23 30-1, and the calculated Z factors that make up the graph
24 that is Exhibit 13, that indicate a reserve -- excuse me, a
25 gas-in-place number of almost 4 1/2 BCF for the Topaz 30

1 Number 1.

2 Q. Are you satisfied, Mr. Adams, that you've got
3 good pressure data points to construct your P/Z curve?

4 A. Yes.

5 Q. And when we look at Exhibit 13, we're seeing that
6 forecast?

7 A. That is --

8 Q. Thirteen?

9 A. That's correct.

10 Q. The P/Z gets you 4.5 BCF of gas?

11 A. In place.

12 Q. In place.

13 A. Not recoverable, but in place.

14 Q. Okay. Have you attempted to calculate that in
15 any other way?

16 A. I did decline-curve analysis, and the decline-
17 curve analysis I did came up with a 3 1/2 BCF recoverable
18 from the well, which would be about 80-percent recovery
19 factor, which is normal.

20 Q. Are you satisfied that you've got reasonable
21 agreement between your P/Z analysis and your production
22 decline curves?

23 A. Yes, I do, and that's why I would conclude that
24 the existing well can drain the reserves that's represented
25 on this P/Z plot.

1 Q. Have you taken the additional engineering step of
2 satisfying yourself that these volumes, in fact, will fit
3 within the size and the shape of the reservoir mapped by
4 Mr. Anderson?

5 A. By Mr. Anderson?

6 Q. Oh, no, by Mr. Tinney.

7 A. Yes.

8 Q. It will fit within that net-pay isopach, right?

9 A. That is correct. Exhibit 14 shows the volumetric
10 estimates to come up with 300 acres of drainage area for
11 the Topaz well, which ties pretty well with Mr. Tinney's
12 mapping.

13 Q. All right. So when you're looking at 14 then,
14 you've got the -- you've backed through the volumetric
15 calculation, and you've got a drainage area that's going to
16 be 300 acres?

17 A. Yes, and I have made some assumptions here. The
18 assumptions that I've made on this exhibit are that the
19 average porosity will be 9 percent, which comes off the
20 logs of the Topaz 30 Number 1. I assumed that all of the
21 pay in the well, of the 14 feet that I counted on the well,
22 would be above water and would be pay and that the water
23 saturation was 23.3 percent, which was the average of the
24 top four feet in the Topaz well.

25 So I assumed that over the entire 14-foot

1 interval, that those would be the average parameters that
2 would give you a gas in place of 4 1/2 BCF which would
3 match the P/Z.

4 Q. And you used Mr. Tinney's net-pay isopach,
5 Exhibit 3, to get you your volumetrics?

6 A. Actually, this is assuming wellbore thicknesses,
7 and it was done independently of Mr. Tinney's mapping, and
8 it confirms that his mapping is reasonable.

9 Q. All right. When we look to the Division rules
10 that are in place for developing wells and dedicating
11 acreage, the rules in here require 320-acre spacing --

12 A. That is correct.

13 Q. -- wells 1650 from the end and 660 from the side
14 boundary?

15 A. That is correct.

16 Q. In your opinion, those rules look to be fair and
17 reasonable and appropriate?

18 A. Yes.

19 Q. A well that drains 300 acres in a 320-acre pool
20 is about as good as you can do in southeastern New Mexico
21 in the Morrow, isn't it?

22 A. That's not too bad.

23 Q. All right. When we turn to Exhibit 15, identify
24 and describe what you're showing here.

25 A. I've gone ahead here and done the economics of a

1 straight hole and done a similar-type evaluation that I did
2 previously on the deviated well. And what I tried to show
3 here is that on the lower-cost well you -- it takes 1.3 BCF
4 to get a 15-percent rate of return. And where I was headed
5 with this was that anything less than 1.3 BCF, if you
6 drilled a well for that, it would be an economic waste, it
7 would be an uneconomic well.

8 Q. All right. Let's bring that within the context
9 of your investigation of what is the remaining recoverable
10 gas associated with the pod being produced by the Topaz
11 well?

12 A. Basically what that's saying is that for Chi to
13 drill an economic well that does not create economic waste,
14 they would have to either get a unique reservoir, or they
15 would have to take all the remaining reserves left in the
16 Topaz well.

17 Q. And that number is what?

18 A. 1.3 BCF.

19 Q. Okay. You referred to the phrase "economic
20 waste". What do you mean by that, Mr. Adams?

21 A. I'm saying that you would drill a well without
22 getting a return on your money.

23 Q. And that's a probable occurrence in the Chi
24 location if they connect with the Topaz pod?

25 A. I believe that to be true.

1 Q. Does that substantially increase the risk of the
2 well at the unorthodox location, as opposed to the closest
3 standard location?

4 A. I believe so.

5 Q. Let's look at Exhibit 16. What are you showing
6 here?

7 A. Exhibit 16 is -- and 17 and 18, are basically
8 production plots from three wells that I think are
9 comparable to the Topaz 30 Number 1. They are the wells
10 that are on the cross-section that Mr. Anderson presented.
11 And what I was trying to show with these plots is what may
12 potentially happen if Chi's well was granted.

13 On Exhibit 16 you see the Hamon A Fed Com Number
14 1 well, which was producing 2 to 3 million a day in 1994,
15 and then for some strange reason in the middle of 1994, the
16 well went down to nothing, and it's, you know, gone down to
17 producing maybe 40, 50 MCF a day after that.

18 Q. Let's find that well. If I look on Mr. Tinney's
19 Exhibit Number 2 and find Section 7, up to the north of 18,
20 there is a code that shows the Hamon well, right?

21 A. Yes, that would be the location in the southeast
22 of 7.

23 Q. All right. That well drilled, completed,
24 produces, and by the second or third month in 1994, why, it
25 just -- it stops?

1 A. Yes. You can see the well was making 80 barrels
2 of water a day, and on the cross-sections it was shown that
3 the perforations were at the very top of the section, and
4 they were trying to avoid water, and this well was --
5 something happened to it in 1994 that caused it to quit
6 producing.

7 Q. When you look at the Hamon well, is it completed
8 in a manner similar to the Topaz well where there is small
9 perforations high in the zone, in a point that you have
10 lower water saturation?

11 A. It's the same, yes.

12 Q. All right. Let's turn to Exhibit 17 and have you
13 show us what, in your opinion, was the direct result of the
14 adverse consequences on the Hamon well.

15 A. As you can see in the middle of 1994, the Sinagua
16 18-1 was drilled, which is the direct south offset. The
17 well came in producing 2 million a day, and we finally
18 opened it up to 5 1/2 million a day. The well is only
19 making two or three barrels of water a day. It's
20 substantially higher structurally than the Hamon well, and
21 it had a competitive advantage, and it, I believe, affected
22 the Hamon well.

23 Q. And that was done with wells at standard
24 locations from the common boundary?

25 A. That is correct. The other evidence that I have

1 of that is Exhibit 19, which is the pressure data on the
2 Sinagua 18-1 well, and the original pressure that we had on
3 the well, measured bottomhole pressure, was 3634, which is
4 substantially less than the 6590 original bottomhole
5 pressure that we had on the Topaz. So the Sinagua 18-1
6 well was depleted when it was originally drilled.

7 You can also see that in that it took four months
8 to get the well connected, and the well lost 200 pounds of
9 bottomhole pressure in the four-month period that we were
10 waiting to get it connected.

11 Q. Apply that information to your engineering
12 conclusions about what is the probable adverse consequence
13 to the Topaz well if the Chi well is approved at the
14 requested location.

15 A. Okay. Well, I think one of the things that's
16 interesting is, the Topaz well right now, or back in June,
17 had a bottomhole pressure of 3843, which is very similar to
18 the original bottomhole pressure of the Sinagua well. And
19 so you basically have analogy that the Sinagua well at a
20 pressure of 3600 pounds, 3400 pounds, negatively affected
21 the offset to the north.

22 And our concern here is that our well, which is
23 in a similar reservoir-pressure condition, our well is
24 making -- is producing water. Exhibit 18 shows that it's
25 making 30 barrels of water a day and that if another well

1 was brought in updip, we have the potential loss of
2 production from our well. That's our concern.

3 Q. Is that concern eliminated if the Examiner does
4 what Mr. Gabbard proposed, and that is no penalty if it's
5 bottomed 760 from the common line? Is that going to fix
6 it?

7 A. I don't think that would fix it.

8 Q. Why?

9 A. I think that if they get a well that is in the
10 reservoir and they produce it at its capacity, our well
11 would be damaged, and we would never be able to get our
12 production back.

13 Q. Is it a solution to suggest that a production
14 penalty can be applied by the Examiner on the unorthodox
15 location so that he could approve this location, put a
16 penalty that's appropriate on it, and maintain the
17 correlative-rights equity involved?

18 A. I believe that -- The one area where I would
19 differ from Mr. Gabbard is that I believe that if they got
20 a well in the center of the channel that had 14 feet of pay
21 in it, that would be about the same thickness as our
22 Sinagua 18-1 well, and at the pressure conditions of it,
23 that well was able to make 5 1/2 million a day.

24 So I think that their location could make 5 1/2
25 million a day, compared to our million a day that we're

1 able to make at -- 1.3 million, that we're making out of
2 our well right now. Instead of the million a day that he
3 suggested, I think it's 5 1/2 million a day.

4 You would also see that in that we only have a
5 foot and a half open in our well, and if they had 14 feet
6 open they would have ten times the capacity in their well
7 to produce. So I would think it would be reasonable to
8 think that they could produce four or five times what we
9 can produce in our wellbore.

10 Q. Even at a penalized allowable where it would
11 produce no more than a million a day, it would still be an
12 unfair competitive advantage to the Santa Fe property?

13 A. That is correct.

14 Q. Do you see any way to balance the problem and get
15 a solution that lets them drill this unorthodox location
16 without an adverse consequence to Santa Fe?

17 A. No.

18 Q. Summarize your conclusion for us, Mr. Adams.
19 What would you propose?

20 A. You know, this is real simple. If we want to go
21 out and drill a well, the goal is to make money, and the
22 only way to make money is to drill for unique reserves, and
23 we've heard all the witnesses testify to that.

24 If this location is drilled, we have four
25 options: We will either drill a well that is in the Topaz

1 reservoir, we will either drill -- or we will drill a well
2 that's in a unique reservoir, or we will drill a well
3 that's a dry hole, or we could possibly drill a well that's
4 in the Sinagua reservoir to the north. Those are the four
5 possibilities that we have. And the only one that makes us
6 money is that we get unique reserves.

7 And for that reason, my strong recommendation is
8 that the best location be drilled for an economic well, and
9 that would be a legal location.

10 Q. Do you share Mr. Gabbard's opinion that closer is
11 better and the best way you handle the risk involved is to
12 get as close to the Topaz well as you can?

13 A. No, closer means drained.

14 MR. KELLAHIN: That concludes my examination of
15 Mr. Adams. We move the introduction of his exhibits.

16 EXAMINER STOGNER: Any objection?

17 MR. CARR: No objection.

18 EXAMINER STOGNER: His exhibits are admitted into
19 evidence. What number --

20 MR. KELLAHIN: Yes, sir, they're 5 through 18,
21 Mr. -- I'm sorry, 5 through 19.

22 EXAMINER STOGNER: Five through 19.

23 MR. KELLAHIN: I think they're 6 through 19, I
24 believe.

25 EXAMINER STOGNER: Six through 19.

1 MR. KELLAHIN: Six through 19.

2 EXAMINER STOGNER: Mr. Carr, your witness.

3 CROSS-EXAMINATION

4 BY MR. CARR:

5 Q. Mr. Adams, if we look at Exhibit Number 2, just
6 for reference, and if I understand what you're
7 recommending, is that the proposed unorthodox location, the
8 straighthole location in the southeast of 19, simply needs
9 to be denied. There's no penalty that would be effective.
10 Is that your testimony?

11 A. Yes.

12 Q. And if that were to occur, the result of that
13 would be that whatever reserves exist in the -- and based
14 on this interpretation, in the southeast of Section 19
15 could never be recovered by the owners in Section 19?

16 A. That is correct.

17 Q. So that would be -- you would simply leave those
18 reserves, and they would ultimately be recovered by the
19 Santa Fe well in the west half of 30?

20 A. That is correct.

21 Q. Now, you are concerned about the potential for
22 damage to the well in 30, if a well is permitted, and as
23 proposed by Chi; is that correct?

24 A. That's correct.

25 Q. And if I understood your testimony, you cited as

1 an example what had actually occurred up in between the
2 Hamon A Federal well in 7 and the Sinagua --

3 A. -- Sinagua --

4 Q. -- Sinagua --

5 A. -- 18 Fed Com Number 1.

6 Q. -- well in 17 -- I'm sorry, in 18. Is that
7 right?

8 A. That's correct.

9 Q. Now, when that -- When did that occur? Was that
10 1994 or 1995 --

11 A. 1994.

12 Q. -- when that problem occurred?

13 A. 1994.

14 Q. In 1998, Louis Dreyfus came to Santa Fe and
15 proposed a directional drill using the existing OXY
16 wellbore in the southwest of 19; is that correct?

17 A. That is correct.

18 Q. Were you involved at that time?

19 A. Yes, I was.

20 Q. And wasn't it Santa Fe that recommended actually
21 drilling a straight hole initially to test this very same
22 formation?

23 A. No, what we recommended doing was re-entering an
24 existing well and cleaning it out to TD and drill stem
25 testing the well so that we could see if it was truly

1 unique reserves, if it was tied to the Topaz well or if it
2 was tied to the Sinagua well, or if it was wet.

3 Q. And is it your testimony that you never intended
4 to produce lower Morrow in that well?

5 A. No, that's not my testimony. If we would have
6 had virgin pressure, we would have gone ahead and attempted
7 to complete the well, because it would have been separate
8 from the well in Section 30.

9 Q. You would never have produced that well if you
10 had not had virgin pressure; is that your testimony?

11 A. My testimony is that after that testing we would
12 decide whether to complete the well or to sidetrack it.
13 Our intent probably was that the pressure was depleted, to
14 sidetrack it and see if we could get into a unique
15 reservoir.

16 Q. But you were at that point testing this very
17 formation, and the well was substantially closer than the
18 location we're talking about?

19 A. That's correct.

20 Q. If we look at Exhibit Number 2, again, and we
21 accept the geological interpretation, the pod that we have
22 over Section 30 basically covers in excess of 320 acres,
23 does it not?

24 A. I'm sorry, what?

25 Q. Covers in excess of 320 acres?

1 A. On the --

2 Q. On Exhibit Number 2?

3 A. The yellow pod does, but you need to cut it off
4 from the gas-water contact. And so above the gas-water
5 contact, my estimate in looking at his mapping is that
6 there's about 360 acres that are above the gas-water
7 contact.

8 Q. Below the gas-water contact, is there no gas
9 contribution?

10 A. Below the gas-water contact?

11 Q. Yes.

12 A. I don't believe so.

13 Q. And that line was drawn using a 40-percent
14 saturation?

15 A. The geologists picked that based on their
16 calculations of water saturation.

17 Q. And the 60-percent gas below that point would not
18 be produced; is that your testimony?

19 A. That is correct.

20 Q. You do believe 320-acre spacing is appropriate
21 for the reservoir?

22 A. Yes.

23 Q. If we look at the well, the well -- Sinagua? I'm
24 having --

25 A. Sinagua.

1 Q. Sinagua, in Section 18 --

2 A. Yes.

3 Q. -- have you calculated recoverable reserves for
4 that well?

5 A. Yes.

6 Q. And what did you come up with?

7 A. 6.7 BCF.

8 Q. And have you run volumetrics and have you
9 satisfied yourself that in fact you could fit the 6.7 BCF
10 in that tract?

11 A. At virgin pressure it would have fit under that
12 tract.

13 Q. And what pressures were you using? What
14 bottomhole pressure did you use?

15 A. Well, the calculations that I did were based on
16 the original reservoir pressure in the well, and it was
17 about 550 acres, based on the depleted pressure.

18 Q. When Mr. Gabbard testified, you understood that
19 he said that 4.3 BCF was what he considered necessary to
20 make a successful well; did you understand --

21 A. No, I didn't hear him say that. I heard him say
22 that that was his unrisks reserves on what he thought was
23 the --

24 Q. All right, that's right.

25 A. -- potential for that unit.

1 Q. Right. And you understood that was unrisked?

2 A. Yes.

3 Q. And that you assign a risk to that?

4 A. Yes.

5 Q. Now, when you go out and drill, no matter what
6 you do in terms of calculating this, you would agree with
7 me that anytime you attempted to complete a well in the
8 Morrow in this area, there is substantial risk associated
9 with that?

10 A. To drill and complete a well, yes.

11 Q. And as we move out from this proposed location
12 and go to the north, you are increasing the risk, are you
13 not?

14 A. I think there's some questions about whether the
15 original OXY well is productive. The resistivity on the
16 well was very low and was not completed by OXY originally,
17 probably because they thought it was wet, based on log
18 calculations. So in one aspect, by getting structurally
19 updip you are reducing the risk of doing a wet well.

20 If we do get a unique pod here in this east half
21 of Section 19, there is a possibility that it has a
22 different water contact than the well in 30 or the well up
23 in 7, because those two wells do have different water
24 contacts. So if you are at the bottom of a new pod, it
25 could be wet also. So you want to get updip to stay above

1 a water contact, even though I have not identified one in
2 the pod on the east half of 19.

3 Q. Is it your testimony that you have a lower risk
4 associated with moving the well to a standard location,
5 going 1650 off the south line in Section 19?

6 A. Yes.

7 Q. Do you believe that this is a high-risk well?

8 A. In -- ?

9 Q. In 19, if you would move to that location?

10 A. I think it would be less risky than the well that
11 they're talking about drilling.

12 Q. Santa Fe has an opportunity to elect to
13 participate in that well, do they not?

14 A. We are evaluating that.

15 Q. And that's through some contractual arrangements
16 with Louis Dreyfus; isn't that right?

17 A. I think it's the AMI that was referred on that
18 other map --

19 Q. Do you --

20 A. -- I'm not sure.

21 Q. Do you also have other arrangements with
22 Southwestern and other people whereby you could acquire
23 interest --

24 A. Yes.

25 Q. -- in this property?

1 And have you made any determination on that at
2 this point?

3 A. No, I have not.

4 Q. Have you made any decision as to whether or not
5 you consider this of such high risk if you move to a
6 standard location that you would not participate?

7 A. Basically, this is beyond our authority at the
8 local level and we have to present it to our corporate
9 management, and we haven't had the opportunity to do that
10 yet.

11 Q. Were you involved with the effort to sidetrack
12 that OXY well and drill directionally off toward the north
13 and the west?

14 A. Yes.

15 Q. And you would agree with me that whenever we
16 attempt to drill in the Morrow, we are encountering
17 substantial risk?

18 A. I would also note that we kicked that well off
19 1300 feet to try to get far away from that existing
20 wellbore. So, you know, as far as far as kicking it off to
21 get -- you know, closer is better -- we thought a better
22 location is 1378 feet away.

23 Q. From the data that you --

24 A. And Louis Dreyfus agreed with that when we did
25 it.

1 Q. And the data that you had available, if I look at
2 the mapping we have in the well in the western half of
3 Section 30, 4 feet --

4 A. I'm sorry, west --

5 Q. West half of Section 30, the Topaz well --

6 A. Okay.

7 Q. -- your well, what do we have? Four feet there?

8 A. Yes.

9 Q. And then we go north up to the OXY well, we have
10 six feet there. Isn't it possible that what we've got is
11 the --

12 A. I don't have that map, I'm sorry, I don't --
13 geologic exhibits.

14 MR. KELLAHIN: Two?

15 MR. CARR: Three.

16 MR. KELLAHIN: Oh, you have 2. There's 3.

17 THE WITNESS: Okay.

18 Q. (By Mr. Carr) If I look at the map, the well in
19 30 appears to have 4 feet in it, based on this mapping,
20 correct?

21 A. Okay.

22 Q. And you go to the OXY location, you have six
23 feet?

24 A. That's correct.

25 Q. Isn't it a reasonable interpretation that instead

1 of having a unique reserve in Section 19, we just have a
2 reservoir that's improving as it moves in that direction?

3 A. Well, actually it's -- the gross sand is less.
4 So I mean, it's -- The only reason there's four feet in the
5 Topaz 30 is because it's structurally downdip. You go 14
6 feet updip to that well and you have 14 feet of pay.

7 Q. I understand it's your interpretation that you've
8 got a separate, isolated pod. But I'm just saying, looking
9 at this data, isn't it possible that we just have a common
10 reservoir extending off into the east half of Section 19?

11 A. The same as in the 30?

12 Q. Yes.

13 A. That's what he's mapped, yes.

14 Q. Okay. And based on just the general nature of
15 the Morrow, wouldn't you agree with me that you might have
16 a unique sand and also a continuous sand in that area?

17 A. What do you mean by "unique" and "continuous"?

18 Q. Well, you're talking about intersecting or
19 encountering a unique, separate or new pod that has
20 separate reserves in it, in the Morrow, at a standard
21 location.

22 A. Yeah, I'm looking for a well that has a virgin
23 reservoir pressure.

24 Q. And isn't it possible that if you drill a well up
25 there on the Morrow, just because of the nature of the

1 Morrow, you could have that, and also encounter another
2 zone that's continuous across the area?

3 A. I guess that's possible.

4 Q. And the problem we have is that no matter what we
5 do, if your interpretation is correct and we drill at the
6 standard location, as to the reserves that are available to
7 the Topaz well and also present in the southeast of 19, we
8 will never get those reserves in 19?

9 A. Right.

10 Q. Okay.

11 A. And I'll add that my estimate of those reserves
12 are about a quarter of a BCF right now --

13 MR. CARR: That's all I --

14 THE WITNESS: -- based on this mapping.

15 MR. CARR: Thank you, that's all.

16 EXAMINER STOGNER: Mr. Kellahin?

17 MR. KELLAHIN: Nothing further, sir.

18 EXAMINATION

19 BY EXAMINER STOGNER:

20 Q. Okay, let's first look at Exhibit Number 3. This
21 is one I've referenced. Now, the west half of 19 is not
22 being produced by anybody; is that correct?

23 A. That well is produced out of the middle Morrow
24 right now.

25 Q. In the bottomhole location over to the --

1 A. -- to the west.

2 Q. -- far west?

3 A. Yes.

4 Q. Okay. So if your proposed location at a standard
5 location, the east half of 19, is drilled and a reservoir,
6 a unique reservoir, is obtained, would Santa Fe consider
7 drilling up in the northwest quarter?

8 A. I would think if they found a unique well, what
9 we would do is, we would drill a well offsetting the Topaz
10 19-1 and drill a directional well up to the north in that
11 wellbore also.

12 We can't drill in the northwest quarter because
13 of the potash problem. We're stuck around the old
14 producing wells.

15 And so we would basically -- to protect the west
16 half, we would have to offset the Sinagua 19-1 and kick it
17 to the north.

18 Q. Or perhaps go up there in 18 and kick off. But
19 anyway, you'll try to get those reserves in the northwest
20 quarter, right?

21 A. Uh-huh.

22 Q. Why?

23 A. I'm sorry, what?

24 Q. Why would you do that?

25 A. Because they're unique reserves.

1 Q. Well, they wouldn't be unique, because the well
2 in the east half of 19 discovered it, so they wouldn't be
3 unique anymore.

4 So why would Santa Fe want to get the production
5 in the northwest quarter now?

6 A. If that well was discovered, then we would have
7 the opportunity to protect our interest in what was not
8 drained underneath our lease, to go get what's not drained,
9 and we would do it with a legal location.

10 Q. Well, if you didn't have a legal location, you
11 would not even consider drilling an unorthodox?

12 A. Well, we would consider drilling at an
13 unorthodox, and that's in effect what we did when we
14 re-entered the 19-1. And the reasoning behind that was, is
15 that those were reserves that would not be recovered by the
16 Topaz 30-1.

17 Q. But you would go after those reserves in the
18 northwest, you would feel compelled to?

19 A. Sure.

20 Q. Good. Sort of like what Chi is doing now?

21 A. Uh-huh.

22 EXAMINER STOGNER: That's all the questions I
23 have.

24 Any other questions of this witness?

25 MR. KELLAHIN: Yes, sir.

FURTHER EXAMINATION

BY MR. KELLAHIN:

Q. Let's look at Mr. Stogner's hypothetical. Let's look at the opportunity in 19. Let's assume that Chi does get unique reserves. Aren't there some additional factors you have to consider for the west half of 19? For example, whether or not there is enough gas that can be produced in order to make the well profitable?

A. That's correct, it would need to be a well that would have 4 BCF or something that Mr. Gabbard was talking about earlier. Under that scenario you could split those reserves and have an economic well.

Q. In order for the example in 19 to be the equivalent of the Topaz example, you would have to find new reserves for 19 that could not support the drilling of the second well?

A. That is correct.

Q. And so you simply waived your opportunity because it would be wasteful to drill the unnecessary well?

A. That is correct.

Q. And that's the way of life down there, is it not?

A. Yes, it is.

MR. KELLAHIN: No further question.

EXAMINER STOGNER: Okay. Anybody else have anything further?

1 MR. CARR: No, sir.

2 EXAMINER STOGNER: You may be excused.

3 Does anybody else have anything further in both
4 of these cases?

5 MR. KELLAHIN: Yes, sir, I have a closing
6 statement.

7 EXAMINER STOGNER: Okay, Mr. Kellahin?

8 MR. KELLAHIN: Mr. Examiner, let's -- I'd like to
9 dismiss with you some of the contentions Chi has made to
10 justify the location.

11 It would establish a highly unusual solution to
12 suggest that it's okay to drill an unorthodox location if
13 you afford the opportunity of the parties being encroached
14 upon to participate in the offending well. You would have
15 to ignore a substantial portion of the testimony in this
16 case, because the testimony of this case is such that our
17 belief is, the second well is unnecessary.

18 And you're faced with a circumstance then, the
19 dilemma, that if Santa Fe, in order to protect itself from
20 being watered out, has to spend additional money, receive
21 an interest that's less than the interest they now have in
22 order to capture reserves that the Chi well will drain from
23 the Topaz property, it's ridiculous to suggest that
24 offering a percentage, whatever that percentage is, fixes
25 the problem. It doesn't. It's a red herring, it's a

1 sidetrack, it's a dead-end, it's a detour, it's a
2 distraction from where you ought to focus your attention.

3 You have processed thousands of location
4 exceptions, Mr. Examiner, I don't doubt that there are
5 thousands of them. Look at what you do.

6 When you examine those applications,
7 administratively or by hearing, the first thing you're
8 looking at is the applicant's geologic case. Occasionally
9 you will see them give you an isopach that shows you the
10 standard location is better than the unorthodox location
11 they want, and you kick it back to them saying, Applicant,
12 this makes no sense. You want an unorthodox that is less
13 favorable geologically than the standard location that's
14 already suitable to you.

15 That circumstance exists here. When we look at
16 the kinds of cases that you do approve, you're looking at a
17 circumstance where the unorthodox location is the best
18 opportunity in that spacing unit. That's why you justify
19 it. It's that it is preferable, it is better, it is
20 superior to anything they can do in any other standard
21 position.

22 That is not their own testimony. With the
23 exception of Mr. Gabbard who thinks that closer is better,
24 Mr. Anderson tells us his best place is at a standard
25 location. That's where he wants to be.

1 We have taken their case and given you the rest
2 of the story. The rest of the story is that you can
3 calculate enough recoverable gas in the east half of 19
4 that can be accessed with a directional wellbore, and have
5 a well that is hugely profitable. It's going to pay out in
6 15 months. These people fight to have wells that will do
7 that. That's a huge home run if they can do that. If it
8 pays out in 30 months, they're happy. Highly profitable.

9 The Applicant has failed to demonstrate the
10 necessity of what they want you to do. It ought to be
11 denied. You establish a different position for Mr. Carr
12 and I to come back to you then for all these location
13 exceptions. We can present a case and ignore our own proof
14 and say, Here's what we need to do, Mr. Examiner. In each
15 and every instance, if there is an existing well at a
16 standard location and there is a sliver of that reservoir
17 on my spacing unit, then shame on you if you don't let us
18 have that chance. Well, if you do that, even with a
19 penalty, I think you've run afoul of the definition of
20 correlative rights.

21 Now, Mr. Carr wants to argue, I've got to have
22 this unorthodox location. If I don't get it, then the
23 Topaz well gets my remaining gas, and that can't be fair.

24 Sure it's fair, it happens all the time. And
25 it's fair because in order to get their remaining share of

1 that sliver at this late date in the game, they have to
2 drill an unnecessary well. They're also asking you to
3 force-pool this acreage to avoid drilling unnecessary
4 wells. How are they going to have it both ways? That well
5 is unnecessary.

6 By their own proof they show you the remaining
7 recoverable gas is only 1.4 BCF of gas. 1.4. They can't
8 pay for the Chi well. They can't pay for the Chi well, and
9 if they get the Chi well there, they damage the Topaz well.
10 Is that what we do here?

11 In the masquerade of protecting correlative
12 rights, you're going to incur economic waste, allow an
13 unnecessary well to be drilled, damage an existing well.

14 This is one that you ought to tell them no. No
15 penalty can solve this problem. The only answer is the one
16 they should have been exploring, and that's to file the
17 paperwork at the BLM, and let's test the BLM on how much
18 potash is there to be wasted on a vertical wellbore? Let's
19 go through that exercise. Let's find out if that potash is
20 worth more than 4.5 BCF of recoverable gas in the east half
21 of 19. Let's test that process. There is a process
22 available. Let them file that application. Let's make the
23 potash people come in here and justify that. That's where
24 they need to go first. They don't need to come in here and
25 damage the Santa Fe well.

1 We ask that you deny this Application, because
2 that's the right thing to do.

3 EXAMINER STOGNER: Mr. Carr?

4 MR. CARR: May it please the Examiner, in the
5 midst of all the frenzy that Mr. Kellahin is trying to
6 create, I think it's important to take a look at what's
7 happened in this area for some period of time.

8 We have a number of operators that cooperatively
9 have attempted to develop the Morrow reserves. Now Chi
10 comes before you, and they're proposing a well in the east
11 half of Section 19. They're really attempting to do just
12 what's been done before by other operators in the field,
13 they want to economically test the Morrow, just as Santa
14 Fe, Louis Dreyfus and others tried to economically look at
15 the Morrow in the southwest quarter of Section 19.

16 With a location that is as close to the southern
17 boundary, or at least using as the basis for any penalty
18 calculations a figure which is the location which was used
19 by Santa Fe, Louis Dreyfus and others in the southwest of
20 the section, we do prefer a standard location. But we are
21 in the potash area.

22 Mr. Kellahin has always great ideas for everyone
23 else. Our economics are always better, according to him,
24 than we view them. We always have an opportunity to just
25 straighten things out at the BLM or in the federal court or

1 in the state Supreme Court.

2 But the fact of the matter is that we have potash
3 problems, we have an unorthodox surface location, we have
4 to directionally drill, which will increase our costs, to a
5 high-risk formation, and it may jeopardize the well.

6 And so what we've come here before you requesting
7 is approval of an unorthodox location for a straight hole
8 with a reasonable penalty, or authority to drill to an
9 unorthodox bottomhole location, moving farther away from the
10 Santa Fe well in Section 30.

11 We're seeking a penalty, Mr. Stogner, based on
12 the 660-foot setback. That is not consistent with the
13 rule. It would be if we oriented the spacing unit in a
14 different way and if we let surface determinations control
15 over what happened in the reservoir. But until the rules
16 can be changed those are the rules, and we know that.

17 And we explain that we did that because we were
18 trying to just continue to do what others have done, and so
19 we're asking you to use that as the basis for the
20 imposition of a penalty. We believe it's fair, and we
21 believe it's in line with what has been done in the area
22 before.

23 But the real reason we're asking for this is, we
24 believe, based on our economics, that if the well is
25 penalized as we recommended, then in fact the well will be

1 drilled and all owners in the acreage, then, will be able
2 to participate in the production from the acreage. And all
3 those owners will almost certainly include Santa Fe.

4 It's very simple. We'd like to be 480 feet from
5 the south line with a 27-percent penalty, or 760 feet with
6 none, and that's what we're asking for. We believe if
7 that's approved, the acreage will be developed, and we will
8 have an opportunity to produce what's under our tract.

9 And yet when you listen to the proposal advanced
10 by Santa Fe, the net effect is to move us out of a portion
11 of the reservoir and move us away from acreage that is
12 productive, that we will have a right to operate and put
13 our well in the position that if their interpretation is
14 correct, we won't be able to access those reserves.

15 Mr. Kellahin talks about the fact that I will
16 want to talk about correlative rights. Well, I do. And he
17 always suggests I'm going to misspeak, but he needs to
18 remember what the definition is. The definition is an
19 opportunity to produce what is recoverable under your
20 acreage. And they want to move us to a point where we
21 cannot produce reserves that are recoverable.

22 We request that the Applications be granted, that
23 the penalties we request be imposed. And by doing so, we
24 believe you will protect correlative rights, you will
25 prevent waste, and the reservoir will be developed.

1 EXAMINER STOGNER: Thank you, Mr. Carr.

2 Anything else?

3 Then in that case, Cases 12,157 and 12,158 will
4 be taken under advisement at this time.

5 And the hearing is adjourned.

6 (Thereupon, these proceedings were concluded at
7 4:15 p.m.)

8 * * *

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14 I do hereby certify that the foregoing is
15 a complete record of the proceedings in
the Examiner hearing of Case No. 12157,
16 heard by me on 15 April 1999.
17 Martin P. Stogner, Examiner
18 Cal Conservation Division
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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 Division 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 April 18th, 1999.



STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 2002