1 Page NEW MEXICO OIL CONSERVATION COMMISSION EXAMINER HEARING SANTA FE , NEW MEXICO Hearing Date Time:8:15 A.M. JULY 21, 1994 REPRESENTING NAME LOCATION J. A. A. llot - , a Xollo Kollohin Tanya Trujillo SF Compbell, Carr, Benge Cris Gholston Bass Enterprises Prod Co Ft. Warth, TX SF Maurice Thinner Byram Co. Charles Lundeen Anson Co. Okla City Hal Hawthorne 11 Wayne Barky Fortwork, Th Bass Enterprises Glenn W. Land, R Phillips Petroleum Co Odesn, TX DAVE BONEAU VATES PETROLEUM A RTESIA, NEW MEXICO Em 12 Cer al Lose Len Sim Artesia Brent May Yates Pet. Artosia Bob Fant Artesia Yates Pet John Thomas MigLANY. TA MARALO, INC Midland, TX Maralo Inc Richard Gill priderd Tx RANDY CATE Envon Oils GAS Cort Kichord Woodlands, TX Mitchell Energy Corp

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NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

<u>SANTA FE</u>, NEW MEXICO

Hearing Date

JULY 21, 1994

Time:_8:15 A.M.

NAME REPRESENTING LOCATION MITCHELL ENGRAY HOUSTON, TK BILL INPOLLITURAD Jerry Anderson By Formy PETE Respunce Dallow, TV. Antate)in Fra ant Co. Mitchell Energy Mark Stepherson Houston, TX Robert Bullock A-tasin, NM Vites Petrikin

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1	STATE OF NEW MEXICO
2	ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
3	OIL CONSERVATION DIVISION
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5	IN THE MATTER OF THE HEARING)
6	DIVISION FOR THE PURPOSE OF) CONSIDERING:) CASE NO. 11.019
7	APPLICATION OF YATES PETROLEUM)
8	CORPORATION)
9	
10	ORICINAT
11	ORIGINAL
12	REPORTER'S TRANSCRIPT OF PROCEEDINGS
13	EXAMINER HEARING
14	BEFORE: JIM MORROW, Hearing Examiner
15	
16	July 21, 1994
17	Santa Fe, New Mexico
18	
19	
20	This matter came on for hearing before the Oil
21	Conservation Division on Thursday, July 21, 1994, at Morgan
22	Hall, State Land Office Building, 310 Old Santa Fe Trail,
23	Santa Fe, New Mexico, before Steven T. Brenner, Certified
24	Court Reporter No. 7 for the State of New Mexico.
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MITCHELL WITNESSES (Continued): BILL THOROUGHMAN Direct Examination by Mr. Kellahin Cross-Examination by Mr. Ernest Carroll Examination by Examiner Morrow CARL RICHARD Direct Examination by Mr. Kellahin Cross-Examination by Mr. Ernest Carroll Examination by Examiner Morrow CLOSING STATEMENTS By Mr. Kellahin Statement by Mr. Wayne Bailey (Bass Enterprises) By Mr. Carroll **REPORTER'S CERTIFICATE** * * *

CUMBRE COURT REPORTING (505) 984-2244

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APPEARANCES 1 2 FOR THE DIVISION: 3 RAND L. CARROLL 4 Attorney at Law 5 Legal Counsel to the Division State Land Office Building Santa Fe, New Mexico 87504 6 7 FOR THE APPLICANT: 8 LOSEE, CARSON, HAAS & CARROLL, P.A. 9 300 American Home Building Post Office Drawer 239 10 Artesia, New Mexico 88211-0239 By: ERNEST L. CARROLL 11 12 FOR MITCHELL ENERGY CORPORATION: 13 KELLAHIN & KELLAHIN 14 117 N. Guadalupe P.O. Box 2265 15 Santa Fe, New Mexico 87504-2265 By: W. THOMAS KELLAHIN 16 17 * * 18 19 20 21 22 23 24 25

WHEREUPON, the following proceedings were had at 1 12:34 p.m.: 2 EXAMINER MORROW: We'll now call Case 11,019. 3 MR. RAND CARROLL: Application of Yates Petroleum 4 5 Corporation for an unorthodox gas well location, Eddy 6 County, New Mexico. 7 EXAMINER MORROW: Call for appearances. 8 MR. ERNEST CARROLL: Mr. Examiner, I'm Ernest Carroll of the Losee law farm of Artesia, New Mexico, and 9 10 I'm here on behalf of the Applicant, Yates Petroleum Corporation, and I will have four witnesses today. 11 EXAMINER MORROW: All right. Are there other 12 appearances? 13 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of 14 the Santa Fe law firm of Kellahin and Kellahin, appearing 15 on behalf of Mitchell Energy Corporation, and I'd like to 16 swear three witnesses. 17 EXAMINER MORROW: Will all the witnesses please 18 stand? 19 (Thereupon, the witnesses were sworn.) 20 MR. ERNEST CARROLL: Mr. Examiner, just to make 21 the record clear, I think Mr. Jim Bruce of the Hinkle law 22 firm has filed an entry of appearance, and I think he 23 wanted it noted on the record that that appearance was 24 25 entered. And Mr. Kellahin and I have no objection to that

entry of appearance. 1 EXAMINER MORROW: Who does he represent? 2 MR. ERNEST CARROLL: Bass Enterprises Production 3 Company. 4 EXAMINER MORROW: I'd hoped for a better 5 announcement than that. 6 7 MR. ERNEST CARROLL: I'm not getting paid for 8 that, your Honor. 9 EXAMINER MORROW: -- the best you can do. I thought you all would settle it. 10 MR. KELLAHIN: We've done that before, but not in 11 this case. 12 13 EXAMINER MORROW: Not in this case. MR. ERNEST CARROLL: I wish. But that's why Tom 14 gets paid the big bucks. 15 Are you ready for me to proceed, Mr. Examiner? 16 EXAMINER MORROW: Yes, if you will. 17 18 ROBERT BULLOCK, the witness herein, after having been first duly sworn upon 19 20 his oath, was examined and testified as follows: DIRECT EXAMINATION 21 BY MR. ERNEST CARROLL: 22 23 Q. Would you please state your name and occupation for the record? 24 25 Α. My name is Robert Bullock, and I'm a petroleum

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1	landman for Yates Petroleum Corporation.
2	Q. Mr. Bullock, have you had an opportunity to
3	testify in the capacity as a petroleum landman before the
4	Oil Conservation Division?
5	A. Yes, I have.
6	Q. And have you had your credentials accepted as a
7	professional petroleum landman?
8	A. Yes, sir.
9	MR. ERNEST CARROLL: Is Mr. Bullock's credentials
10	acceptable?
11	EXAMINER MORROW: Yes.
12	Q. (By Mr. Ernest Carroll) Mr. Bullock, you're here
13	on behalf of Yates Petroleum in Case Number 11,019; is that
14	correct?
15	A. Yes, sir.
16	Q. And you have prepared a couple of exhibits; is
17	that correct?
18	A. Yes, sir.
19	Q. Would you please turn to your first exhibit and
20	for the record explain what that exhibit is and then what
21	its significance is to this case?
22	A. Yates is attempting to set out their leasehold
23	interest owned in this area. We've highlighted it in
24	yellow.
25	We have designated in red the proration unit

designated for the drilling of this proposed well. The red 1 dot would denote our well location. The dedication is the 2 south half of Section 7, 22 South, 31 East, in Eddy County, 3 New Mexico. 4 And in the green we've attempted to designate the 5 northwest quarter of the WIPP site. 6 This entire area that is shown on the plat in 7 Q. 8 Exhibit 1 is within the area known as the known potash producing area, or the KPLA; is that correct? 9 10 Α. Yes, sir. And this 320-acre proration unit for the Llama Q. 11 well adjoins the north side of that area of land that has 12 been set aside for the WIPP, the Waste Isolation Project; 13 is that correct? 14 Α. That is correct. 15 You have also -- Within the south-half proration 16 Q. unit there appears right above the red dot, which you said 17 is the proposed location for this Application, a number 18 "1", but then I also see two open circles which have a "2" 19 and a "3" by them. What are those? 20 Those are also proposed locations that Yates has 21 Α. submitted APDs on, for alternative locations that have been 22 subsequently rejected. 23 And Yates will present the testimony of Brent May 24 Q. with respect to that process of how you went through --25

1	A. Yes.
2	Q each one of these locations; is that correct?
3	A. That's correct.
4	Q. All right. Is there anything else that you would
5	like to discuss concerning the Exhibit 1 with the Examiner?
6	A. No, sir.
7	Q. You have prepared a second exhibit; is that not
8	true? Exhibit 2?
9	A. That is correct.
10	Q. What is Exhibit 2?
11	A. Exhibit 2 is a certificate of mailing to the
12	offset leasehold operators and unleased mineral owners. We
13	contacted them by certified mail with regard to the
14	unorthodox location, and
15	Q. There were three parties that were given that
16	notice was required by Rule 1207; is that correct?
17	A. That's correct.
18	Q. And what parties were those?
19	A. The U.S. Department of the Interior, Mitchell
20	Energy Corporation, and Bass Enterprises Production
21	Company.
22	Q. Mitchell Energy and Bass Enterprises both have
23	entered appearances in this cause; is that correct?
24	A. That's correct.
25	Q. With respect to the United States, why was notice

1	given to them?
2	A. They have unleased minerals in this immediate
3	area.
4	Q. And you are aware that the government has
5	received our notices and has indicated whether or not they
6	will show up for this hearing; is that correct?
7	A. They declined to show up at the hearing. They
8	did receive notice.
9	Q. Now, the area And returning back to your
10	Exhibit 1, Sections 8, 9 and 10, just to the east of
11	Section 7, Yates Petroleum has some knowledge concerning
12	the potash resources in that area; is that correct?
13	A. Yes, that's correct.
14	Q. And just briefly, what has been that experience,
15	why Yates had that experience?
16	A. Yates and Pogo Production Company were the
17	successful bidders at a recent competitive Potash lease
18	sale. They bid on potash leases covering Sections 8, 9 and
19	10. They purchased these, they were the successful bidders
20	on these leases.
21	These leases to this date have not been issued,
22	and in fact they are being contested, and Yates' geology
23	department, along with Pogo, does recognize the fact that
24	there are potash reserves in these sections. We want to go
25	on the record by indicating that.

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All right. In fact, the leases that were bid 1 Q. upon by Yates and Pogo, they were solely potash leases and 2 not oil and gas? 3 Α. Potash leases only. 4 MR. ERNEST CARROLL: All right. Mr. Examiner, I 5 would move admission of Exhibits 1 and 2. 6 EXAMINER MORROW: 1 and 2 are admitted. 7 MR. ERNEST CARROLL: I have no further questions 8 of Mr. Bullock. 9 EXAMINER MORROW: Mr. Bullock the -- Excuse me, 10 go ahead, go ahead. 11 CROSS-EXAMINATION 12 13 BY MR. KELLAHIN: 14 Q. Mr. Bullock, my eyes are not what they used to be. I'm not sure I can read the dates on the Yates federal 15 lease. The "9-1-94", is that the federal lease expiration 16 date? 17 Yes, that's correct. 18 Α. And that would apply to the yellow-shaded acreage 19 Q. in Section 7? 20 That is correct. 21 Α. Is there any other acreage in that federal lease? 22 Q. It also covers the east half of 6 and the 23 Α. southwest quarter of 6. 24 25 And then we move over into Section 1, and that's Q.

a different lease? 1 Different lease, that's correct. 2 Α. Okay. for the federal lease that includes the 3 Q. south half of 7, what was the date that lease was initially 4 issued? 5 I don't have that information. 6 Α. 7 Is it a ten-year primary term? Q. 8 Α. I'm not sure. I'd have to look at the file. It's either a five- or a ten-year, and I don't have that 9 information in front of me. 10 Okay. It will be one or the other? 11 Q. One or the other, five or ten years. 12 Α. Okay. What efforts during the primary term has 13 Q. Yates undertaken to put that lease acreage into production? 14 Well, we're -- We've had no plans up to this 15 Α. point in time. 16 What caused you to initiate plans to institute 17 Q. drilling on any portion of your federal lease? 18 Well, we obviously think it's a good location to 19 Α. find oil and gas reserves. 20 21 Q. Is there anything that has happened in the recent 22 past to cause you to reach that conclusion? 23 Α. It's -- In the recent past, no, I don't believe 24 so. 25 Does it have anything to do with the fact that Q.

Mitchell has the Atoka gas well in the northeast quarter of 1 Section 13? 2 I'll defer that question. I don't know -- I A. 3 don't know the answer to it. 4 Okay. When you were nominating acreage to take 5 Q. potash leases in Sections 8, 9 and 10 with Pogo, you didn't 6 7 nominate Section 7 --I don't believe we nominated -- I'm sorry. 8 Α. You acquired potash leases in 8, 9 and 10? 9 Q. Yeah, but I don't believe we nominated it --10 Α. 11 Q. Okay. -- to my knowledge. 12 Α. 13 Q. But you've now acquired those? No, they have not been issued. We were the 14 Α. successful bidders on those leases. 15 All right. Did you attempt to be the successful Q. 16 bidder on Section 7? 17 Not to my knowledge. I don't know the answer to 18 Α. that. 19 MR. ERNEST CARROLL: Potash or oil? 20 (By Mr. Kellahin) Potash. 21 Q. I don't know the answer to that. Α. 22 Okay. Were you involved as a landman for Yates 23 Q. in any of the efforts to farm out any of the federal Yates 24 25 lease in Section 7 to Mitchell Energy Corporation?

No, it was another landman in the land 1 Α. department. 2 So that discussion didn't involve you, Mr. 3 Q. Bullock? 4 Α. No, it did not. 5 You talked about sending notifications out. 6 Q. 7 Α. Yes, sir. For purposes of this hearing, you sent Q. 8 notifications to the BLM, to Phillips -- I'm sorry, to 9 Bass? 10 That's correct. Α. 11 Bass. Let's look at the plat, Exhibit 1. 12 0. If we look immediately to the west of Section 7, in Section 12, 13 the purpose of the Bass notification was as to some 14 interest in Section 12? 15 Yes, Bass operates those wells along with the 16 Α. James Ranch Unit, and that acreage designated in those 17 heavy black lines is what's within that James Ranch Unit, 18 19 and Bass is the operator of that unit. 20 Q. Are you familiar with the well-location requirements of the Division concerning the deep gas wells? 21 22 Α. Yes. 23 Q. A south-half gas spacing unit, how close could 24 you have a well to the western boundary and still be 25 standard?

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1	A. I believe it's 1980.
2	Q. Yes, sir, and your proposed location is where?
3	A. It is less than that.
4	Q. It's 950, isn't it?
5	A. 950.
6	Q. With regards to the south dimension of the south
7	half of Section 7, what is the standard setback from that
8	boundary?
9	A. 660.
10	Q. And you're 330 from that dimension?
11	A. That's correct.
12	Q. When you look in Section 18, that's in the WIPP
13	site?
14	A. That's correct?
15	Q. It says "Bass, Thru Line". What's all that mean?
16	A. Those are the owners of the minerals in that
17	section.
18	Q. There's an oil and gas I don't want to confuse
19	you by my question. What my point is, in Section 18
20	A. Yes.
21	Q is there a federal oil and gas lessee in that
22	section?
23	A. I don't know. Appears to be from the map, but
24	I'm not going to say it on the record because I don't know.
25	Q. All right. When we look at notification to

1	Mitchell, as we move or encroach towards the west, they
2	have the 40-acre tract that's the southeast-southeast of
3	12, right?
4	A. Right.
5	Q. Okay. And when we look down in 15, all of the
6	east half of 13 is Mitchell tract?
7	A. Correct.
8	Q. Okay. Did you notify the DOE with regards to the
9	proposed well?
10	A. No, not to my knowledge.
11	Q. Do you know why you didn't?
12	A. No, sir.
13	Q. Now, the Yates has apparently filed at least
14	three APDs with the BLM for a well in the south half of 7?
15	A. That's correct.
16	Q. What has been your involvement in that process?
17	A. I was not involved in that.
18	Q. Okay. Mr. May would be the better witness to
19	A. Yes, sir.
20	Q discuss that sequence and what went behind
21	those
22	A. He's prepared to do that.
23	Q. Okay. This area is within the federal potash
24	area, the KPLA?
25	A. That's correct.

18

And it's also within the Oil Conservation 1 Q. Division's R-111-P? 2 That's correct. 3 Α. MR. KELLAHIN: Thank you, Mr. Examiner. 4 5 EXAMINATION BY EXAMINER MORROW: 6 7 Mr. Bullock, on those Sections 8, 9 and 10 where Q. you were a successful potash bidder, does your company have 8 the oil and gas lease on those? 9 10 Α. No, sir. Do you know who has oil and gas leases? 11 Q. No, I do not. 12 Α. 13 Were you all going to mine the potash? Was that Q. the --14 15 Possibility. Α. Sir? 16 Q. 17 That was a possibility being considered. Α. Now, the WIPP site is the green line. I now 18 Q. you've got a small green line there that says "WIPP Site", 19 but the big green line is really the designated WIPP site? 20 Designated 16 sections to that. 21 Α. Yes, sir. Is this -- The people you did notify 22 Q. with the federal government, are they -- Would you expect 23 24 that they would have notified the WIPP-site people? Was 25 that the expectation, or do you know?

On the APDs? Α. 1 Let's see, I saw a list --2 Q. Notification --Α. 3 MR. ERNEST CARROLL: It's on Exhibit 2. 4 5 Q. (By Examiner Morrow) And that's Exhibit A, right, page 2. What does that list represent? 6 7 Α. They have unleased minerals. Q. Sir? 8 They have unleased minerals in this. 9 Α. And that's the reason they were notified? Q. 10 Yes, sir. Α. 11 EXAMINER MORROW: I don't know what the WIPP site 12 people's requirements are, but I guess I would have thought 13 they would probably have been notified of the Application 14 or, you know, have something --15 MR. ERNEST CARROLL: Mr. Examiner, if I may, 16 unless Mr. Kellahin knows something that I don't know, the 17 minerals -- the leases were withdrawn when they created the 18 WIPP site. The minerals still reside in ownership of the 19 federal government. 20 21 That's why Margaret Brown was given the 22 notification. Even though the deal we made were on WIPP, 23 the minerals still, as we understand, reside in the United States, which is the proper party for notice, is Margaret 24 25 Brown as U.S. Attorney, and that's why it was handled in

that --1 EXAMINER MORROW: That's fine. Okay. Do you 2 have anything? 3 EXAMINATION 4 BY MR. RAND CARROLL: 5 Yes, the unleased minerals pertain to the WIPP 6 Q. 7 site, only? Yes, sir. 8 Α. MR. RAND CARROLL: Okay. 9 MR. ERNEST CARROLL: And frankly, I think that 10 the same -- that -- Section 8, 9 and 10, I don't think 11 those are leased right now for oil and gas. The federal 12 13 government just hasn't put it up for lease. And just because I'm also a part of the lawsuit where we're 14 appealing the failure to issue the potash leases to lease 15 16 to Yates, we --MR. KELLAHIN: Are you a defendant, Mr. Carroll? 17 MR. ERNEST CARROLL: Am I a what? 18 MR. KELLAHIN: A defendant? 19 20 MR. ERNEST CARROLL: We are -- No, we are a plaintiff. 21 MR. KELLAHIN: I'm teasing. 22 MR. ERNEST CARROLL: We -- On behalf of Pogo and 23 Yates -- I'm one of the counsel in that case -- neither 24 25 Pogo or Yates put that acreage up or asked that it be put

up for bid. 1 2 It is my understanding that a potash company, IMC, asked that it be done. There were a few selected 3 sections. Section 7 was not asked. It was placed on bid. 4 5 Yates and Pogo was the highest bidder. IMC contested that fact because we didn't have a 6 7 potash mine and they said, You can't own a potash lease, which we have contested that ruling, and it is before the 8 IBLA right now. The briefs have all been written, though 9 the case has not actually been heard, and it's just pending 10 the hearing date. 11 12 MR. RAND CARROLL: That's all I have. 13 EXAMINER MORROW: Thank you, Mr. Bullock, appreciate your testimony. 14 15 MR. ERNEST CARROLL: We next call Brent May. 16 BRENT MAY, the witness herein, after having been first duly sworn upon 17 his oath, was examined and testified as follows: 18 DIRECT EXAMINATION 19 BY MR. ERNEST CARROLL: 20 21 Q. Would you please state your name and occupation 22 for the record? 23 Α. Brent May. I'm a petroleum geologist for the Yates Petroleum in Artesia, New Mexico. 24 25 Mr. May, have you had occasion to testify Q.

before -- prior to this date, before the Oil Conservation 1 Division and have your credentials accepted as a 2 professional petroleum geologist? 3 4 Α. Yes. MR. ERNEST CARROLL: Mr. Morrow, are Mr. May's 5 6 credentials acceptable? 7 EXAMINER MORROW: Yes, sir. 8 0. (By Mr. Ernest Carroll) Mr. May, you are familiar with the Application for an unorthodox location 9 that is now pending here before this Examiner? 10 11 Α. Yes, I am. And you were in fact the geologist working for 12 0. 13 that Application; is that correct? 14 Α. Yes, yes. You have prepared certain exhibits for 15 Q. presentation; is that true? 16 17 Yes, I have. Α. Would you turn to your first exhibit, Exhibit 3, 18 Q. and explain on the record what it is, and then if you would 19 discuss its significance with respect this case. 20 This is a stratigraphic cross-section, A-A', of 21 Α. the Atoka and Morrow sections. You might note that the 22 location map is in the lower right-hand corner. 23 24 You might note that this is actually two cross-25 sections in one. The upper part is of the Atoka section

1	and the lower part is of the Morrow section.
2	Up in the Atoka section, on that part of the
3	cross-section, there is a sand colored in orange. That is
4	the primary objective of our Llama ALL Federal Number 1,
5	and I've loosely termed it the Apache sand.
6	The Morrow section shows the Morrow clastics
7	section, which I consider a secondary target, along with
8	the lower Morrow, lower Strawn and Delaware formations.
9	Looking at the upper, the Atoka cross-section,
10	there is a datum on an Atoka shale. I've also noted on
11	here the top of the lower Strawn and Atoka formations,
12	along with the Apache sand.
13	Down in the Morrow cross-section, in the lower
14	part, the datum is the top of what I term the Morrow
15	clastics, and I've also shown the lower Morrow top.
16	In both of these cross-sections the sands are
17	colored yellow on the gamma ray, and neutron-density
18	crossover is colored red.
19	Just starting from the left side of the cross-
20	section is the McKnight & Troporo Campana Number 1, 1980
21	north, 660 from the west line of Section 6, 22 South, 31
22	East.
23	This well was originally drilled into the Morrow,
24	into the lower Morrow. A lower Morrow sand was perforated,
25	and water was swabbed from it.

They then moved up to a thin sand which, in my 1 opinion, looks like it correlates into the Apache sand. 2 They perforated that sand with a few other zones in the 3 lower part of the Atoka. It flowed about 100 MCF of gas. 4 They then abandoned that zone and went up into 5 6 the lower Morrow, perforated and swabbed. The gas cut's all water. They then plugged the well. 7 8 The next well in the cross-section is the Mitchell Energy Apache "13" Federal Number 1. It's 1330 9 10 from the north line, 330 feet from the east line in Section 13 of 22 South, 30 East. This is the well we are playing 11 off of for our location. 12 Mitchell drilled this well into the lower Morrow. 13 On the way down, they DST'd the Apache sand. 14 It had gas to surface in 18 minutes at a rate of 9.5 million cubic feet a 15 day. 16 And I also might point out these shut-in 17 pressures on this zone. The initial shut-in was 3084, the 18 final shut-in was 3104. That is very low for the Atoka in 19 this area. I point that out because the engineers will 20 bring it up later in testimony. 21 You also might note that there were some sands 22 within the Morrow clastic section in this well. 23 Mitchell perforated the Apache sand and IP'd it 24 25 for a little over 4 million a day.

In April, 1994, the average daily production was 1 around 5 million a day, 46 barrels of oil, or probably 2 condensate, a day, and one barrel of water. And I'm sure 3 they probably have more updated numbers than I have on 4 that. 5 The next well on the cross-section is the 6 Mitchell Energy Apache "25" Federal Com Number 2, 660 from 7 8 the south line, 1310 from the east line in Section 25 of 22 South, 30 East. 9 Mitchell again drilled through the lower Morrow. 10 They ran pipe, perforated sand in the lower part of what I 11 call the Morrow clastics. It IP'd for a little over 7 12 million a day, but currently I guess they come up to the 13 hole and currently have perforations open in the Wolfcamp, 14 according to records at the OCD in Artesia. 15 The last well on the cross-section, on the far 16 right side, is the Old Shell James Ranch Unit Number 1. 17 In Yates' opinion, this is the discovery well of this Apache 18 sand. 19 In my opinion, it does correlate all the way from 20 this well, which is 660 from the south line, 2009 feet from 21 the east line in Section 36 of 22 South, 30 east. This 22 Apache sand does correlate all the way from this well out 23 to the Campana well in Section 6 of 22 South, 31 East. 24 Shell drilled this, I think, below the Devonian 25

and ran pipe. They tried a few perforations in the lower 1 -- in the Morrow, excuse me, and all were unsuccessful in 2 the Morrow. 3 They then came up to the Apache sand, perforated. 4 On one test it flowed 25 barrels of condensate and over 3 5 million cubic feet of gas in 20 hours. Another test showed 6 it flowed 22 barrels of condensate and 7.5 million cubic 7 8 feet of gas in 20 hours. They IP'd it, and I got this IP off a scout card, 9 and I think it may be incorrect because it showed a 10 calculated open flow of 9000 cubic feet of gas. It may 11 have been more like 9 million. It also showed 105 barrels 12 of condensate. 13 The cumulative production on this James Ranch 14 Unit Number 1 is almost 26 BCF of gas, 272,000 barrels of 15 condensate and 11,000 barrels of water. This well was 16 drilled back in the late Fifties. 17 Mr. May, let me ask you a question. From a 18 Q. geological standpoint, is it your expert opinion that the 19 area that is being produced from the lower part of your --20 and I'm speaking geographically. The last wells that 21 you're talking about and the Mitchell Apache well, is it 22 your opinion that this is one reservoir? 23 Α. In my opinion, yes. 24 From a geological standpoint? 25 Q.

1 Α. Yes, yes. Is there -- Excuse me, go ahead. Q. 2 I'm sorry, go ahead. 3 Α. No, I was just going to ask if you had any other 4 Q. comments to make with respect to Exhibit 3. 5 6 Α. Just one thing I forgot to point out in the 7 Mitchell Apache "25" Federal Com Number 2. The Apache sand, you might note, it does have a similar thickness as 8 the Apache "13", but it's tight on the porosity log. 9 That's all I have. 10 All right. Before we go to your Exhibit Number Q. 11 4, Mr. Bullock mentioned that on his Exhibit Number 1 that 12 there were actually three proposed locations, and they have 13 been numbered on Exhibit Number 1, "1", "2" and "3", and he 14 indicated that you would have more testimony concerning the 15 actual picking of this unorthodox location and the sequence 16 that Yates went through in trying to get an acceptable 17 location with respect to applications being made to the 18 BLM; is that correct? 19 That's correct. 20 Α. 21 Would you please explain to the Examiner what --Q. where Yates -- how it started with its proposing to drill a 22 23 well out in this area, and if you would then incorporate in your testimony Exhibit Number 4. 24 Okay, with the drilling of the Mitchell Apache 25 Α.

"13" Federal Number 1, that caught our attention. 1 It was a very good looking well in the Morrow formation. 2 And so we looked at our lease in 6 and 7 and 3 decided it looked good enough to drill an Atoka 4 5 penetration. We originally asked for an unorthodox location, 6 660 from the south line, 1980 from the west line, in 7 8 Section 7 of 22 South, 31 East. We asked the BLM verbally about this location, and verbally they told us that they 9 would deny it because of potash in the area. 10 We then asked them --11 EXAMINER MORROW: What was that location again? 12 THE WITNESS: 660 from the south line, 1980 from 13 the west line. And if you might turn to --14 (By Mr. Ernest Carroll) That would be an 15 Q. unorthodox location --16 Α. Yes. 17 -- would it not? 18 Q. That's correct. 19 Α. You might turn to Exhibit 5, and it is shown on 20 Exhibit 5. 21 The first exhibit -- I mean, the first location Q. 22 23 requested corresponds to what number on Exhibit 1? 24 Α. That corresponds to the Llama ALL Federal Number 25 2.

1	Q. Well, then, now But we have those three
2	locations, numbered "1", "2" and "3" on Exhibit 1. Which
3	is Is that the Number 2?
4	A. That is the Number 2.
5	Q. Now, you mentioned the names. Each time you
6	proposed a location, were you required to give a full new
7	name to it, for purposes of making the request for an APD?
8	A. As I said, that was the original location we
9	asked for. We originally were going to name it the Llama
10	ALL Federal Number 1. But since the BLM said they were
11	going to deny the location, we asked for the 330 from the
12	south line, 1980 from the west line, location, and we're
13	going to call it the Number 1.
14	The BLM again verbally told us they would deny
15	that location because of potash, and that's when they
16	suggested that we could move further to the west and drill
17	the unorthodox location we are asking for today, the ALL
18	Federal Number 1.
19	Q. Now, Mr. May, so the record is clear, the first
20	location that was asked, it was orthodox as to both its
21	distance from the south line and its distance from the west
22	line?
23	A. That's correct.
24	Q. The next location that was requested and denied,
25	it was orthodox with respect to the distance from the west
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1	line but it was closer to the south line, which would have
2	required an unorthodox approval; is that correct?
3	A. That's correct.
4	Q. All right. So both of those applications were
5	denied by the BLM?
6	A. Verbally denied. That's why we did not formally
7	ask for APDs for those two locations.
8	Q. All right. Then what happened?
9	A. Then we formally asked for the When they told
10	us, then, that we could have the 330 from the south line,
11	950 from the west line, then we formally put in an APD for
12	that location.
13	When we realized that we were going to be
14	contested in this case, we decided we wanted to have actual
15	documents on the other two locations, so we applied for the
16	APDs on those two.
17	Q. With respect to Exhibit 4, how does that relate
18	to the proceedings that transpired between yourself and the
19	BLM?
20	A. Since we didn't have any denied APDs in our
21	hands, I asked for the BLM to write a letter stating what
22	had occurred, and basically it is about the Llama ALL
23	Federal 1, 2 and 3.
24	I received this letter yesterday morning via fax.
25	Basically it states that Yates applied for these three

APDs, they are inside the Secretary's potash area, they 1 looked at all three and decided that the Number 2 and 3 2 they would recommend to deny because of potash in the area, 3 and that they would set up a drilling island in Section 7 4 of 22 South, 31 East, with the dimensions of from zero to 5 330 feet off the south line and zero from 950 feet from the 6 7 west line in Section 7 and would allow vertical and directional drilling within that -- in that area and would 8 recommend that an APD inside that island be approved. 9 Mr. May, did you have any input on the 10 Q. 11 development of these distances, or were they totally suggested by the BLM, the 330 and the 950 distances? 12 13 That was their suggestion. In fact, actually, Α. what actually occurred is that they had told our land 14 department we could not have any locations in Section 7. 15 And that's when I contacted a Mr. Craig Cranston 16 in the Carlsbad office of the BLM and asked him if there's 17 anywhere we could drill in Section 7. And at that time he 18 told me we could drill 330 from the south line and 330 from 19 20 the west line in Section 7. So I said that we would probably apply for that location then. 21 I later talked to Mr. Mark Stephenson with 22 Mitchell to see if they would contest us on that location. 23 He said they probably would. 24 25 The next day, Mr. Cranston called me back and

told me that we could have the location 330 from the south, 1 2 950 from the west. And I asked him, I thought we talked about 330-3 4 330. 5 And he said there had been a misunderstanding, that we could have the 330 from the south line, 950 from 6 7 the west line. Mr. May, the Apache well that Mitchell operates 8 0. 9 in Section 13, it is also at an unorthodox location? Yes, it is. 10 Α. And which direction is it unorthodox? 11 Q. I believe it's 1330 from the north line and 330 12 Α. 13 from the east line, so it is encroaching upon the Yates 14 lease. All right. And so it is unorthodox at least with 15 Q. respect to the distance to the east line; is that correct? 16 17 Yes, it is, and the north line too. Α. And the north line also? 18 Q. Well, I'm not sure if it's in a laydown or a 19 Α. 20 standup, but it is definitely unorthodox to the east line. And you are aware that Mitchell Energy did make 21 Q. application for an unorthodox location and was granted one 22 administratively? 23 24 Yes, I am. Α. Yates Petroleum was given notice of that 25 Q.

1	administrative application, was it not?
2	A. I believe they were, yes.
3	Q. And Yates petroleum did not object; is that
4	right?
5	A. That's correct. We did not contest the location.
6	Q. Any other comments that you need to make with
7	respect to Exhibit Number 4, Mr. May?
8	A. I think that's about done it.
9	Q. All right. Why don't we turn now to your Exhibit
10	Number 5, and again identify what it is for the record and
11	then explain its significance.
12	A. This is a structure map on the top of the Atoka.
13	It shows a south-to-southeast-plunging anticline through
14	the map.
15	It also shows the proposed Llama ALL Federal
16	Number 1 location and the other two locations in Section 7
17	that are going to be denied by the BLM.
18	I also point out the Apache "13" Number 1 is in
19	Section 13.
20	Both of these wells, the Apache "13" and the
21	Llama location, are on the eastern flank of this anticline,
22	and it shows that the Llama location should be slightly
23	downdip of the Apache "13", but updip of numerous wells
24	that are producing out of the same horizon further to the
25	south, which would be in Section 25 and Section 36 of 22

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South, 30 East. 1 And those wells are, for practical purposes, 2 virtually water-free. So I'm not afraid of encountering 3 water because we're downdip in 13. 4 Any other comments with respect to Exhibit Number 5 Q. 5? 6 I think that will do it. 7 Α. 8 Q. If you will turn to your Exhibit 6 and again identify it for the record and explain its significance. 9 Α. This is a sand isolith of the Apache Sand only 10 within the Atoka formation. It's a clean sand isolith with 11 a gamma-ray cutoff of 50 API units or less within the 12 Apache sand. 13 It shows a north-to-south trending sand deposit 14 which is probably, in my opinion, a shoreline-type deposit 15 such as a beach or bar. It also -- I might point out that 16 the fore shore would be to the east and the back shore 17 would be to the west. Thickness contours are five and ten 18 feet. 19 For a productive well within this sand, we would 20 probably need six to seven feet in thickness of sand or 21 Note that the Apache "13" Federal Number 1 had 22 more. eight, and the Old Shell James Ranch Unit Number 1 that I 23 pointed out on the cross-section earlier, down in the south 24 half of 36, has ten feet. 25

The Yates location, the Number 1 location, should 1 have ten feet or more. And that should give us sufficient 2 thickness to have a producing well. 3 But I might point out, in Section 25, the Apache 4 "25" Federal Com Number 2, in the south half of 25, has ten 5 feet also, but it was the well on the cross-section that 6 was tight. So there is risk involved in here. 7 Even though 8 we hit the sand, we could lose the porosity. Also, concerning the three proposed locations of 9 Yates, the two denied and the one that should be approved, 10 in my opinion geologically, within this sand there's no 11 difference between the locations. 12 0. Anything else that you would like to comment at 13 this time about that exhibit? 14 I might just point out that the Bass case earlier 15 Α. today, which was in Section 12 of 22 South, 30 East, I 16 briefly saw the exhibits on that, concerning that case, and 17 they were showing the same --18 MR. KELLAHIN: Objection, Mr. Examiner. 19 I'm going to object to this witness referring to those other 20 exhibits in a case in which we were not involved, didn't 21 cross-examine and were not a party. 22 MR. ERNEST CARROLL: Mr. Examiner, there is a 23 purpose and I will develop that. I was not sure that Mr. 24 May was going to bring it up at this time. 25

The purpose, just to let you know, is that -- and 1 I will fully develop it at this time -- is that there are 2 differing opinions as to where this sand lies, and that is 3 part of the geologic risk. And all we plan on doing is 4 referring to the fact that there is a different geological 5 opinion that was rendered with respect to how this sand 6 lies in Case Number 11,022, which was presented to this 7 Examiner earlier this morning. 8 And I think with respect to that -- and I think 9 Mr. May is -- He can render his opinion as to the fact that 10 there are differing opinions out here, and his mere 11 reference to that is totally appropriate. 12 (Off the record) 13 MR. RAND CARROLL: Yeah, we'll hear this 14 testimony --15 THE WITNESS: And I'll develop --16 MR. ERNEST CARROLL: -- because it shows that 17 he's not testifying as to the accuracy of the evidence 18 presented in that case; he's just showing there's varying 19 opinions, right? 20 MR. ERNEST CARROLL: That's correct. 21 MR. KELLAHIN: I object to that purpose, Mr. 22 Examiner. 23 (By Mr. Ernest Carroll) Mr. May, to properly 24 Q. develop this area, when I look at your Exhibit Number 6, 25

the control that you're using for predicting or drawing 1 this Apache Atoka sand is basically, at least in the area 2 of your proposed location, is based on one well; isn't that 3 true? 4 It's mostly -- Yes, in the northern part of this 5 Α. map it's basically based upon the Apache "13" Federal 6 7 Number 1. And I'd just like to say that my interpretation 8 is that it's running through Section 7, Section 6, the 9 Yates leases, but another interpretation could show it 10 running to the west of the Apache "13" Number 1. So all 11 I'm saying is that there is added risk there. 12 13 Q. And with respect to the case that you were talking about and the exhibits, just so the record is 14 clear, that was case Number 10- -- excuse me, 11,022; is 15 that correct? 16 That's what it shows, yes. 17 Α. And the two exhibits which you saw showing the 18 Q. Morrow and the Atoka formation were their exhibits --19 Exhibit 9 -- 8 and 9, it looks like. 20 Α. 8 and 9. And the interpretation contained on 21 Q. that differs significantly from your interpretation? 22 Yes, it does. Basically, all I'm trying to point 23 Α. out is that I feel my interpretation is correct, but there 24 25 are others out there.

1	Q. And this area and you do not have many points
2	to use or data points in which to do your predicting of how
3	this sand will lie here?
4	A. That's true, yes.
5	Q. All right. Now, Mr. May, would you Anything
б	else that you would like to comment with respect to this
7	Exhibit 6?
8	A. No.
9	Q. Well, turn to Exhibit 7, then, and again if you
10	would identify that for the record and then explain its
11	significance with respect to your presentation.
12	A. This is a structure map with the top of the lower
13	Morrow as a datum. It's similar to the Atoka structure map
14	in that a south-to-southeast-plunging anticline is within
15	the bounds of the map.
16	And again, the Yates location, the Llama ALL
17	Federal Number 1, along with the Apache "13" Federal Number
18	1, are on the eastern flank of the anticline. And within
19	the Morrow it is showing that the Yates location should be
20	structurally equivalent to the Apache "13" Federal Number
21	1.
22	Q. With respect to the three differing proposed
23	locations that Yates has tried to get approval for, is
24	there any from a geological standpoint, any significant
25	difference?

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1	A. The Not really in the structure. The two
2	denied locations are a little bit further downdip, but not
3	a whole lot. And again, in the Morrow I'm not worried too
4	much with that little bit of a difference on encountering
5	water.
6	Q. Any other comments that you'd care to make with
7	respect to Exhibit 7?
8	A. No.
9	Q. All right. If you would turn to your Exhibit 8
10	and again identify what it is for the record and then
11	explain its significance.
12	A. This is a sand isolith of the Morrow clastics
13	only. It's a clean sand map with a gamma-ray cutoff of 50
14	API units or less of the Morrow clastic section.
15	The sands were probably deposited in a channel-
16	type setting with a south-to-southeast trend.
17	I expect a sand thickness of around 25 to 30 feet
18	is needed for a decent chance of any production, and I have
19	the Yates location mapped at around 50 feet.
20	Q. Any other comments that you would
21	A. I just might point out again that there is the
22	element of risk in this, in that the Apache "13" well is
23	about the only data point within the center of the map.
24	You could easily another interpretation would be to move
25	the sand thick to the west of the Apache "13".

Mr. May, do you have an opinion with respect to 1 Q. the critical issues that this Commission is always faced 2 with, and that's the prevention of waste, protection of 3 correlative rights? Do you feel that the granting of this 4 Application being made by Yates Petroleum would in fact 5 fulfill those requirements? 6 7 Α. Yes, I do. Any other comments that you would like to make 8 Q. with respect to your exhibits here that we might have 9 overlooked? 10 I think that's all. 11 Α. MR. ERNEST CARROLL: Mr. Examiner, I would move 12 for admission of Exhibits 2 through 8. 13 EXAMINER MORROW: 2 through 8 are admitted. 14 MR. ERNEST CARROLL: And I have no further 15 questions of this witness. 16 CROSS-EXAMINATION 17 BY MR. KELLAHIN: 18 I've got your last one first, Mr. May. 19 Q. All right. 20 Α. Just to be different, we'll go backwards, I 21 Q. 22 guess. 23 When we're looking at the Morrow sand map, there is no geologic bias or preference for the unorthodox 24 25 location, opposed to those other two locations?

As far as from a geologic standpoint, I don't see 1 Α. a big difference between all of the Yates locations, if 2 that's what you're asking. 3 Yeah, geologically the closest standard location Q. 4 is equivalent to or better than the unorthodox location 5 that Examiner Morrow has before him to decide? 6 The orthodox location is shown around 45 to 46 7 Α. feet, versus about 52 for the unorthodox location. In my 8 opinion, that's not a big difference. 9 And in light of the absence of well control to 10 Q. the east, then, there is hard -- you're hard pressed to 11 draw a material difference between those depths or 12 13 thicknesses? Some of them could come up with a different Α. 14 interpretation, yes. 15 Morrow structure, again, the structural 16 Q. significance here is that it's not significant? 17 In my opinion, yes, it's not significant. Α. 18 All right. The unorthodox location is not enough 19 Q. structural difference to make a geologic preference for you 20 21 when you look at the Morrow structure map? 22 Α. Yes. All right. Exhibit 6 is the Atoka sand isolith. 23 Q. The data that you used to control your contours derive from 24 the Mitchell Atoka well in 13, the Apache "13"? 25

1	A. That's correct.
2	Q. Let's deal with the southern portion of the
3	interpretation first. When we get down to the south end of
4	the Exhibit and go farther south, there are other Atoka
5	wells within this Atoka reservoir that are not on your map,
6	aren't there?
7	A. Within the bounds of the map
8	Q. Yes No, sir
9	A or off the map?
10	Q off the map.
11	A. I believe that's correct, yes.
12	Q. They would be part of that same reservoir as we
13	see depicted on this map within Section 36?
14	A. I believe that's correct, if I understand your
15	question.
16	Q. In order to show us the whole Atoka reservoir,
17	why did you exclude the producing Atoka wells to the south?
18	A. I If you notice, the Morrow maps don't show as
19	much area as the Atoka maps. I myself feel like I don't
20	like airing my maps out in public, and I want to show as
21	little as I can, but still show enough to where I can get
22	my point across, because everyone can see my maps, can see
23	my interpretation, so I try to show just as much as I can
24	to support my statements.
25	Q. Okay. Apart from your preference to simply stop

the mapping at that point, you will agree geologically that 1 there are other Atoka wells to the south that are in this 2 same reservoir? 3 As far as my knowledge goes, yes. 4 Α. When you're looking for any kind of tool 5 Q. Okay. or data to help you determine the size of your reservoir, 6 we've got log data? 7 Α. Yes. 8 Did you use any seismic data in here? 9 Q. I did not have any seismic data available to me. 10 Α. Did you attempt to have your engineering staff 11 Q. give you any type of material balance analysis so that you 12 13 could at least match it with the size of your container? I drew my maps first and then compared them with 14 Α. the engineers, and they do have, I think, some supporting 15 statements that they will testify to later about that. 16 Do you have a map that has been refined to take Q. 17 into consideration the volume of gas that your engineers 18 may have calculated for you to be within that container? 19 This is my interpretation, and they have 20 Α. something similar, maybe a little bit bigger, and they will 21 testify to that. 22 All right. So the map I'm looking at, Number 6, 23 Q. doesn't represent the final work product of that 24 collaborative effort? 25

This is only the geologic interpretation. 1 Α. Okay. What caused you to interpret the eastern Q. 2 boundary of the isolith as you've described it? 3 That's purely my interpretation, that looking at Α. 4 the wells to the south and the thickness and just knowing 5 the depositional environments that I think this is within, 6 7 that's purely my interpretation. Going north, is there a reason that you didn't 0. 8 close off the reservoir in Section 6? 9 I left that open because there was very little Α. 10 well data control to the north, and it easily could close 11 off. I'm a geologist, so I like to be optimistic. 12 In making a presentation to the BLM, did you give 13 Q. them a hydrocarbon presentation? 14 No, I gave the BLM no presentation. 15 Α. As part of the APD process and their discussions Q. 16 of where to put that location, didn't include a 17 presentation by you about the geology of any of the 18 hydrocarbon reservoirs? 19 I did not discuss my geology with the BLM. 20 Α. All right. As part of your discussions with the 21 0. BLM on getting a surface location that satisfied their 22 23 concerns about potash, did you have one of your potash engineering consultants make a presentation to them about 24 the potash? 25

As far as I know, no presentations were made to 1 Α. 2 the BLM. At the time that these APDs were filed, was your 3 Q. geologic interpretation the same then as it is now? 4 5 Α. Very close. In what ways has it been modified or changed? 6 Q. Oh, very little, very little. 7 Α. Not to any significance? 8 Q. 9 No, no significant change. Α. You ranked the APDs in a certain order, did you 10 Q. not? 11 No, they really weren't ranked. It's just that 12 Α. 13 we proposed one, and they would say, no, you can't have 14 that one, so we would go to the next -- to whatever we thought we could get. 15 16 Q. The first one requested was the 1980-660 location? 17 Yes, that's correct. 18 Α. Did you consider any other locations other than 19 0. these three that were filed? 20 Just the 330-330 that the BLM representative had 21 Α. originally told me that I could have and then later called 22 back the next day and told me we could have the 330-950. 23 Did they describe for you any criteria that they 24 Q. were applying to determine where you could place this well 25

in the south half of 7? 1 I was told that there is a core hole in the very 2 Α. southwest corner of Section 8, 22 South, 31 East, that had 3 4 langbeinite within that core hole. I was also told that there was a core hole in the 5 6 northwest corner of Section 18, same Township, that was 7 barren for langbeinite, and that's why they were making us move to the west, closer to the barren core hole. 8 9 EXAMINER MORROW: The core was good, though, in what section? 10 THE WITNESS: In Section 8 of 22 South, 31 East, 11 12 in the very southwest corner. 13 (By Mr. Kellahin) Prior to Mitchell's Apache Q. Federal "13" well, did you have any reason to go forward 14 with drilling in Section 7? 15 We had spotted some Delaware locations on Section 16 Α. 7, I believe, but none of them had been approved, and --17 But we were not that interested in the Atoka Morrow until 18 19 the Apache "13" came along. You showed me Exhibit 4, it was the BLM letter. 20 Q. 21 Α. Yes. 22 Q. The BLM letter seems to indicate to me that all 23 they're concerned about is protecting potash if it's there. That's what I understand. 24 Α. Yeah, they don't much care, if at all, where you 25 Q.

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are in the hydrocarbon reservoirs. 1 That's usually the way the BLM works. 2 Α. In fact, they told you you can be vertical or 3 Q. directionally drilled from this island? 4 5 Α. That's what they stated. 6 Q. Have you or Yates had any experience with 7 directionally drilled wells? 8 Α. I believe Yates has, yes. Doing the deep gas wells like this? 9 Q. I believe Yates has. I have not personally been 10 Α. involved in a deep gas well directional drilling. 11 12 Q. On Exhibit Number 1 -- Do you have a copy of that, Mr. May? 13 14 Α. I believe I don't, no. Okay, let me show you mine. On Exhibit 1 -- it's 15 Q. that locator plat that Mr. Bullock showed us -- look way 16 down in the south end there where we're in 36. 17 Α. 18 Yes. There's some directionally drilled wells, aren't 19 Q. there? 20 That's my understanding. 21 Α. Do you have any knowledge about those wells? 22 Q. I just know that they were directionally drilled, 23 Α. is all I know. 24 25 When we look at your Exhibit Number 6, in Section Q.

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1	36 there is identifications that would at least lead
2	someone to indicate that there was a directionally drilled
3	well in the northeast quarter of 36?
4	A. That's correct.
5	Q. Do you have any interest in that well?
6	A. As far as I know, we do not have interest in that
7	well.
8	Q. Have you been involved in any of the Yates
9	directionally drilled wells?
10	A. I was involved in one, and that was the a
11	Delaware well. But I have not been involved in any of the
12	deep gas wells, directionally drilled wells.
13	Q. Do you have any knowledge or familiarity with the
14	three directionally drilled Morrow wells that Yates has
15	been involved in up in Township 20 South, 30 East?
16	A. I was not directly involved in those, and I'm
17	just aware of them, and that's all.
18	Q. You didn't have anything to do with determining
19	the geology of those wells?
20	A. No, I did not.
21	Q. Going back to Exhibit 5 now, leaving the Atoka
22	sand map, if you'll look at the structure, again there's
23	not enough structural difference using top of the Atoka to
24	give you a geologic difference between the unorthodox
25	location and the closest standard location?

1	A. Probably not, and too, I'm not worried here
2	because the wells in the southern end of the field are much
3	lower in structure. So even if there is a difference up
4	around the locations, it doesn't matter, in my opinion.
5	MR. KELLAHIN: Thank you, Mr. Examiner.
6	EXAMINATION
7	BY EXAMINER MORROW:
8	Q. The APD has not been submitted?
9	A. It has been submitted, but not approved yet. But
10	in the letter they do say they're going to recommend
11	approval.
12	Q. Were any of the Was notification to any of the
13	potash companies required?
14	A. I'm not an expert on that, but from what I
15	understand I believe we have to, but I really couldn't
16	answer correctly on that. That would be more of a land
17	question.
18	Q. Do you know if it's within the half-mile distance
19	requirement from potash reserves, known potash reserves?
20	A. All I know is that the core hole in Section 8 did
21	have langbeinite, and the other core hole that we were
22	close to was supposedly barren in the langbeinite zone, and
23	I don't know where the BLM is drawing the end of that ore
24	zone, the edge of that ore zone, at.
25	I personally would like to know, but they don't

divulge that information. 1 Life-of-mine reserves, that's the term I was 2 Q. trying to think of. Within half a mile of --3 I think the BLM doesn't really use the life-of-4 Α. mine reserve like the state does. I think they basically 5 6 go off their potash reserves. MR. ERNEST CARROLL: Mr. Morrow, the way this 7 8 works -- and unfortunately I got some information, because it was held confidential, but when you give -- the way it 9 10 works, the life-of-mine reserves are secret, they are filed with the BLM. 11 When we make application -- And the BLM notifies 12 us whether or not we're within the life-of-mine or within 13 the half-mile buffer. 14 In this case, because I have seen the LMR because 15 of a prior OCD case, one, they didn't notify us and, two, I 16 have seen the fact that it is not, and that's why that has 17 not --18 EXAMINER MORROW: You say they would have 19 notified you had it been within a half mile and told you 20 who to notify? 21 MR. ERNEST CARROLL: That is correct, they would 22 have told us we would have to get permission from the 23 24 potash company. That's the way it works. When we're told 25 to do that, then we go to the potash company.

And from my knowledge of this area, this is --1 most of this is on leased area, and it is certainly not 2 within any life-of-mine of any of the active mines at this 3 time. 4 (By Examiner Morrow) One of your answers to --5 Q. Mr. Kellahin raised another question in my mind. The 950 6 location, was that one you submitted to BLM, or one that 7 8 the BLM told you you might want to consider? That's one they told us we might consider. Α. But 9 that's within their island, and it was the furthest west, 10 and that's the -- That's where we decided to go. 11 But yes, they did recommend that location because 12 they did state the island, but said that we could go 330-13 950. 14 EXAMINER MORROW: Do you have anything? 15 EXAMINATION 16 BY MR. RAND CARROLL: 17 Do you know the size of this island the BLM is --Q. 18 They said it would be from zero to 330 from the 19 Α. south side and zero from 950 from the west line in the 20 letter that is Exhibit Number 4. 21 Okay, and Exhibit Number 4, there's no date on 22 Q. 23 it, but the fax date is July 20 so it's your impression that it was written July 20th also? 24 25 Α. I have to assume it was written probably the

1	19th, but it was faxed to us on the 20th, the morning of
2	the 20th, because I had asked the BLM to write it for us.
3	MR. RAND CARROLL: That's all I have.
4	EXAMINER MORROW: Thank you, Mr. May.
5	Did you have anything more?
6	MR. ERNEST CARROLL: Nothing else, Mr. Examiner.
7	We next call Mr. Fant.
8	ROBERT S. FANT,
9	the witness herein, after having been first duly sworn upon
10	his oath, was examined and testified as follows:
11	DIRECT EXAMINATION
12	BY MR. CARROLL:
13	Q. Would you please state your name for the record,
14	and occupation?
15	A. My name is Robert S. Fant. I'm a petroleum
16	engineer for Yates Petroleum Corporation in Artesia.
17	Q. Mr. Fant, have you had an occasion to testify
18	prior to this date before the Oil Conservation Division and
19	have your credentials accepted as a petroleum engineer?
20	A. Yes, sir.
21	MR. ERNEST CARROLL: Mr. Morrow, is Mr. Fant's
22	credentials acceptable?
23	EXAMINER MORROW: (Nods)
24	Q. (By Mr. Ernest Carroll) Mr. Fant, you are
25	familiar with the Application that Yates has filed for an

unorthodox location for the drilling of their Llama Federal 1 well; is that correct? 2 Yes, sir. Α. 3 And you have prepared certain exhibits today for Q. 4 presentation; is that correct? 5 Α. Yes, sir, I have. 6 7 Q. If you would turn to those exhibits and turn to, first of all, your Exhibit Number 9, would you please 8 describe what this exhibit is and its significance today? 9 10 Α. Okay. Well, this is just a brief outline of what I want to talk about today. I want to review the reservoir 11 history, what I call the Los Medanos area, the model 12 description and history matching of the simulation that I 13 ran on this reservoir, and then I want to get into the 14 recovery projections and the impacts of well locations on 15 that. 16 I have three main points that I really want to 17 make here today, and it's that this Atoka reservoir, Los 18 Medanos Atoka reservoir, as I've described it, it's a 19 complex system. 20 It's got at least, you know, as I define it, two 21 large relatively high-permeability sandbodies, and they're 22 connected by a narrow section of lower permeability. 23 The complexity -- Gas moves around in this 24 25 reservoir very quickly, and I'll demonstrate that. And the

complexity requires reservoir simulation to predict the
 proper recoveries of the wellbore, of the different wells.
 And you can't just simply use straight volumetric analysis
 in this reservoir, or you'll come up with inaccurate
 answers.

6 Second point is that moving the Yates Petroleum 7 Llama Federal Number 1 from an orthodox location that we 8 originally proposed, the 660 by 1980, to the current 9 unorthodox location that we have proposed today, that has 10 no bearing on the impact of the wells, of the ultimate 11 recovery of the wells.

12 And my third point is that the imposition of a 13 penalty on this well would damage the correlative rights of 14 Yates Petroleum Corporation to the benefit -- to the undue 15 benefit of the offset operators.

Q. All right, Mr. Fant, would you then turn to
Exhibit Number 10 and again for the record identify what
this exhibit is and then explain its significance?

A. This is what I have titled "Wells Which Have
Produced From the Los Medanos (Atoka) Reservoir". And when
I'm speaking of the Atoka reservoir, I'm speaking of the
sandbody reservoir here.

And we have the James Ranch Unit Number 1. It was -- The locations are on there. I won't go through all of them; that would get tedious. But it's assigned to the

1	Los Medanos Atoka Pool, and it was drilled in 1957.
2	The James Ranch Unit Number 10 was drilled and
3	completed, you know, around April of 1980. It also is in
4	the Los Medanos.
5	James Ranch Unit 11 and then the 13 were in May
6	of 1981 and February of 1983, respectively. And that was
7	You know, at that point there wasn't that much drilling
8	for a while in this particular reservoir.
9	Then the To get my chronology correct, the
10	Apache "13" Federal Number 1 was completed in this
11	reservoir around November of 1993. That was last year.
12	It's been designated to be in a Livingston Ridge Atoka
13	Pool, but I'll demonstrate today that I believe it's
14	actually in the Los Medanos Atoka Pool, and that's why I've
15	included it here.
16	And then in April around April of this year
17	the Apache "25" Federal Well Number 1 was recompleted back
18	to the Atoka, and I believe it is in the Los Medanos Atoka,
19	and that's just
20	Q. Mr. Fant let me just ask you a question, just so
21	that we know we're talking Mr. May earlier presented an
22	Exhibit Number 6 which I'm showing you, and this is
23	basically his interpretation of the basic sand. It's the
24	sand isolith map of the Atoka, the Apache sand.
25	A. Uh-huh.

And this list of wells that you have listed here, 1 Q. those are the wells that you are saying for the purposes of 2 these exhibits after --that you're going to present here, 3 of what you've assigned to this one pool; is that correct? 4 Yes, sir. 5 Α. And so just preliminarily, your interpretation of 6 Q. 7 the sand or the pool body does follow the same 8 interpretation that Mr. May has presented in his Exhibit 6? 9 Α. Yes, sir. 10 Q. All right. And the well that you were mentioning, the Apache "13" Number 1, the nomenclature for 11 the pool that is assigned to it is different from the rest 12 13 of these wells that are in the lower part of this body; is that correct? 14 Yes, sir. 15 Α. And where is the rest of the Livingston Ridge 16 Q. Pool, locationwise, as to this "13" Number 1 well? 17 I believe it's in Section 21 of the 22 South, 30 18 Α. East Township, so it's a good distance away. 19 Several miles? 20 Q. Yes, sir. 21 Α. So when this well was placed in that pool, it was 22 Q. quite a stepout then; is that correct? 23 Yes, sir, and at the time it would have been a 24 Α. stepout to call it -- with no reservoir geology 25

information, it would be a long stepout to put it in the
 Los Medanos at that time when it was designated, simply
 because the Apache "25" Federal Number 1 had not been
 recompleted yet into the Atoka, and it was about the same
 distance down to the Los Medanos as over to the Livingston
 Ridge.

And so, you know, the nomenclature -- they would not be out of line calling it -- but I will demonstrate it that it is within, as the geologist has shown, within this same reservoir, based upon much more data.

Q. All right. Why don't we then turn and proceed to do that, and turn to your Exhibit Number 11, and would you again describe for the record what this is and describe its relevance.

Okay. I've entitled this the "Los Medanos (Atoka Α. 15 Sand) Field Production". It's basically just a monthly 16 production plot in MCF per month of the wells that are 17 designated as the Los Medanos Atoka sand reservoir. 18 This is the wells in the -- basically the wells in the southern 19 portion of the field. It comprises four wells. It goes 20 21 from January of 1970 up through December of 1993.

I do not have the production from the Apache "13" Federal Number 1 on this thing, on this plot, because that information was not made available to us.

25

And I've got a couple of -- This information

comes from Dwight's Energy Data, so it's just published 1 data. 2 One of the big points I want to make here is, in 3 1985, early 1986, sometime in that time frame, the 4 5 withdrawal from this pool was severely restricted. You can see the major drop in production rates down to about 10,000 6 7 MCF per month. And that significance I will show you in my next plot, but the production is essentially turned back on 8 around January of 1991, and it comes back up to around 9 100,000 MCF per month. 10 So we have a time period in there where we have 11 severely reduced takes from this reservoir, and that will 12 -- I will show the significance of that in a little bit. 13 I don't know why that was -- they dropped. I 14 assume it was a market condition, having to do with price 15 and availability of market. 16 All right, anything else with this exhibit? 17 Q. No. 18 Α. All right. If you would go to 12 and identify it 19 Q. 20 and again describe its significance --Okay. 21 Α. -- and its relationship to Exhibit 11. 22 Q. Okay. Well, this is a map -- Within Dwight's 23 Α. 24 Energy Data they also report shut-in pressures for the wells on their annual gas tests. 25

And I took that data and averaged for the time 1 periods when we had more than one well producing in the 2 field, took an average. And it's simply plotted as the 3 bottomhole shut-in pressure versus time, the average 4 bottomhole shut-in pressure. 5 6 Now, you can see that from about 1970 up until 7 about 1985 to 1986 we have a basic decline in pressure rather than one high point in 1980, but you can see we had 8 a decline in pressure. 9 But from 1986 to 1991, a time period that 10 coincides exactly with the production plot that I've just 11 presented to you, we have a rise in pressure. The average 12 shut-in pressure in this reservoir -- in this portion of 13 the reservoir -- is rising. 14 Now, sir, these are relatively high-permeability 15 Brent's already testified to the 7-million-cubic-16 wells. feet-per-day flow rate from these wells. The Mitchell well 17 in the north is already flowing at 5 million cubic feet a 18 day. These are relatively high-permeability wells. 19 If this were one small reservoir in the southern 20 21 end down there, we would not have this rise in pressure. 22 Something is recharging this reservoir, this portion of the 23 reservoir. 24 And when you compare that to the maps that the 25 geologists have prepared, it makes sense that the northern

portion of this reservoir is feeding gas into the southern 1 portion of this reservoir as the southern, you know, 2 portion is being produced. And when you restrict takes 3 from the southern portion of the reservoir, gas is still 4 flowing in from the north, and so you have this rise in 5 pressure. 6 And then production starts up again in the 7 reservoir, or higher production rates start up again, and 8 the pressure begins to decline again, just like you would 9 expect. 10 And this is what -- When you build a reservoir 11 simulator and try to history-match the field, this is what 12 we have to match. We must match that pressure rise from 13 1986 to 1991, otherwise we don't have a proper description 14 of the reservoir. 15 And that's basically it for now. 16 All right. Well, then, turn to your Exhibit Q. 17 Number 13, then. If you'll again describe it for the 18 record and discuss its significance. 19 Okay. On this one -- Okay, I developed a 20 Α. 21 reservoir description based originally upon the maps provided me by the geologist, basically the maps that were 22 23 presented by Mr. May. I digitized those into the 24 Scientific Software Intercomp's Petroleum Workbench, which 25 utilizes a reservoir simulator called SimBes II.

Is this simulator that you're talking about and Q. 1 describing here that you used, is that a recognized 2 simulator or program that is used throughout the petroleum 3 industry today? 4 Yes, sir, it is. 5 Α. Q. All right. 6 7 Α. And I developed a reservoir description and started this history-matching process. 8 9 I input the production on a per-well basis that I presented in my earlier exhibit, and I -- inputting that 10 production -- I mean, that's a number that we know 11 12 happened. Those volumes were produced. So what I have to history-match here is the pressure. 13 And this line on this particular graph is the 14 pressure in the southern region of the field, basically, 15 the pressure surrounding the James Ranch Unit wells in the 16 southern portion of the field, and it should match up with 17 this data. 18 If you're -- as originally described when I was 19 putting this thing together, just basically digitizing in 20 the straight maps from the geologist, I could not get a --21 what I called a good pressure match. Basically, the 22 pressure from 1986 through 1991 was not rising enough. 23 In other words, not enough gas was flowing into the southern 24 25 portion of the reservoir to create enough of a pressure rise.

Well, what I had to do was increase the size of 1 the northern portion of the reservoir. I felt that was 2 justifiable based upon, you know, the lack of control that 3 we had up there. We only have a few data points for 4 control, and it could be -- you know, it could be a little 5 bit larger, just move the contours out very slightly. 6 And in doing so, after many iterations, this is 7 the pressure match that I achieved, and it agrees very 8 well, in my opinion, with the historical pressure that 9 10 exists in the field. And based upon this, the reservoir originally 11 contained around 65 BCF of gas. So it was, you know, a 12 13 very large reservoir. And that's basically what I have on that one. 14 Q. All right. If you would turn, then, to your 15 Exhibit 14 and again identify it and describe its 16 significance. 17 I've got -- there's two other -- In the Α. Okay. 18 history-matching process, there's two other points that we 19 must give honor to, and the Apache "25" Federal Number 1 20 last summer, around the month of June, was DST'd in this 21 Atoka sand when it was drilled. They recorded a pressure 22 of around 2400 p.s.i. So if my model is correct, it should 23 show a pressure in that range. 24 25 Okay, what you're looking at here is a color-

1	coded map of the simulation grid, okay? And the color
2	coding is along the left with 500, 1500, 2500. That's
3	p.s.i.a. That's pressure. And you just correlate the
4	color over there and you can read the pressures.
5	But the And this is simply an output from the
6	simulation model. This is how it puts it out, and you can
7	see the WIPP site on there, and the sections.
8	Now, if Like I said, if the model is correct,
9	then the Apache "25" Federal Number 1, which is the
10	northern well in Section 25, should that well should
11	show around 2400 p.s.i. And it's colored red, and if you
12	come to the red section on there, that's 2000 to 2500
13	p.s.i. It's in the nearer the higher pressure region of
14	that. And so, you know, just eyeballing that, that's in
15	the 2400 p.s.i. range. So there's relatively good
16	agreement there.
17	Q. All right. Move on to your next exhibit, 15.
18	A. Okay, Exhibit 15 is the same kind of pressure map
19	for the time of around November of 1993, when the Apache
20	"13" Federal Number 1 was drilled. Okay?
21	That well was DST'd and had a 3100 p.s.i
22	roughly 3100 p.s.i. shut-in pressure, as Mr. May testified.
23	You look at this, it's the darker gray. The
24	darker gray is between 3000 and 3500. I've actually gone
25	in and looked specifically at that area, and the actual

1	pressure it shows there is like 3070, so within one percent
2	of the recorded pressure.
3	So I considered that again to be a very close
4	match with what's gone on in history.
5	Q. Well, Mr. Fant, the original pressure that was
6	discovered in the original Mitchell Apache "13" 1 Well
7	was The pressures that were recorded initially, were
8	they pressures that would have indicated to you that this
9	was a virgin reservoir?
10	A. Oh, no, sir. The James Ranch Unit Number 1, the
11	discovery well for this reservoir, had an 8219 p.s.i.
12	pressure. That's well more than the You know, over two
13	times the 3100 p.s.i. found in the Mitchell well.
14	Q. So at least would it be, then, your opinion that
15	there at the time of the drilling or the completion of
16	the Apache "13" Number 1 by Mitchell, that there has
17	already been significant movement of gas within this
18	particular pool at that date?
19	A. Oh, yes, sir.
20	Q. All right. Those facts or those the
21	supporting facts for your statement or opinion, then, that
22	this is one very large pool but it has two very large pods
23	as was shown on Mr. Brent May's Exhibit Number 6?
24	A. Yes, sir.
25	Q. All right. Anything else with respect to Exhibit

15? 1 2 No. Α. If you would go now to Exhibit 16, All right. 3 Q. would you identify it and explain its significance? 4 Okay, Exhibit 16 is -- again, it's an output from 5 Α. this Petroleum Workbench that I developed the simulator on. 6 This is the final -- as a geologist we call it an isolith, 7 a net thickness map of the reservoir. 8 9 You'll notice my map has zero -- it's on a twofoot contour interval. You know, the simulation program, 10 this is how it outputs it. It fills in a lot of the 11 12 numbers. I have to have a zero line on there to determine 13 the boundary of the reservoir. Now, this is the final history-match reservoir 14 size that I came up with. It required narrowing slightly 15 the southern region of the field and expanding slightly the 16 northern region of the field to put enough gas in there to 17 match the history -- the historical pressure responses in 18 the southern portion of the field, plus the two newly 19 drilled wells. 20 So what you now have done, through this reservoir 21 **Q**. simulation program that we've been having described to 22 ourselves, is that you have put the boundaries on and the 23 24 size so that you can determine how much gas is actually 25 there?

1	A. Yes, sir.
2	Q. And then the rest of your testimony, then, will
3	be relevant to how much gas there was, how much has been
4	produced, and then the net effect of these wells, and then
5	the ultimate drilling of the Yates-proposed unorthodox
6	location?
7	A. Yes, sir.
8	Q. All right. Anything else with respect to 16?
9	A. No, sir.
10	Q. Other than that this other than it does have
11	much more many more contours than Mr. May's map, Number
12	6, it is consistent with it, is it not?
13	A. Oh, yes, sir, it's very consistent.
14	Q. All right. Turn to Exhibit 17, then, and would
15	you again identify it for the record and then explain its
16	significance?
17	A. Okay, if I may just make some comments at this
18	point, before I go directly to 17.
19	Q. Sure, please.
20	A. Okay, I've got a history match made. We have
21	generated a history match that honors both the pressure
22	responses, plus the volumes produced from the southern
23	region of the field, and it matches the pressure responses
24	that we have recorded in the northern region of the field,
25	i.e., the pressures at the DSTs.

So with the proper reservoir description, we now 1 place the new wells and do predictive runs to determine the 2 impact of the location of the Yates well upon the offset 3 wells. 4 5 And now, to move on to Exhibit 17, this is a plot of data from three different simulation runs. These are 6 7 predictive runs. These are not the history-match runs. This is the prediction -- The one we're 8 particularly looking at is the prediction of the cumulative 9 gas produced versus time for the Apache "13" Federal Number 10 11 1. And the three cases that I ran for prediction 12 were with our well at an orthodox location of 660 by 1980, 13 you know, our well at an unorthodox location 330 from the 14 south, 1980 from the west, and then 330 from the south, 950 15 from the west, and these are basically -- These are just 16 the three locations that we had talked to the BLM about and 17 all that, and all that. 18 And it's tough to see on this particular graph, 19 but there's actually three lines on that graph. And what 20 21 it says here, and the significance of this plot, is that 22 the recovery from the Apache "13" Federal Number 1 is not 23 impacted by the movement of the Yates well within these confines. 24 Or, in other words -- You know, not only is the 25

cumulative the same, but the rates are the same, so the 1 timing of the recovery of the reserves is exactly the same. 2 So there's no impact on their well, based upon the 3 orthodox-to-unorthodox location movement. 4 All right. Anything else with respect to that 5 Q. exhibit? 6 There's nothing more. 7 Α. 8 Q. All right. If you would turn to Exhibit 18 and 9 please identify it. Okay, Exhibit 18 is the same type of plot for our 10 Α. Llama Number 1, ALL Federal Number 1, at the same three 11 locations that I mentioned earlier, and this is the same 12 type of plot before. 13 And what it shows is that there's no advantage or 14 disadvantage to Yates Petroleum Corporation based upon 15 location within these confines of moving from the 660 to 16 1980 over to the 330 by 950. 17 In other words, the last one showed that their 18 well will not consume any more or less gas based upon our 19 location. This one shows that our well will not cum any 20 more or less based upon this location. 21 I do not have the exhibit here, but I also have 22 the same plot for the proposed Bass location, and it shows 23 the same thing, that there is no difference in the recovery 24 25 of the well based upon --

2	the again, you're referring back to that case that was
3	heard earlier today, wherein Bass was proposing was
4	force-pooling, I guess, a well that will be just off to the
5	west?
6	A. Yes, sir.
7	Q. And again, what you're saying is, the location of
8	the Llama Number 1 will not impact the Bass well? Is that
9	what you just told us?
10	A. Exactly.
11	Q. All right. Anything else, then, with respect to
12	Exhibit 18?
13	A. No, sir.
14	Q. Turn to Exhibit 19.
15	A. Okay. Exhibit 19 is a table showing some numbers
16	that relate to the gas in place at different times for
17	different areas within the field.
18	Now, all of these volumes are in BCF. When we
19	look at the original gas in Okay, I've got three basic
20	things that I'm talking about, fieldwide, the Yates
21	leases and that's the ones in the Llama lease and
22	then Section Number 13, which is, as I understand it,
23	basically the Mitchell lease.
24	When you look at the original gas in place
25	fieldwide, there were almost 65 BCF of gas. This is a very
large reservoir. 1 Underlying the Yates leases there was 14.1 BCF. 2 And underlying Section 13, 3 BCF of gas. 3 Okay. Now, let's look at the next line. I have 4 5 gas in place at 11-1-93. That's essentially the time frame when the Apache "13" Federal Number 1 was placed on 6 7 production. 8 The reservoir had remaining in it 27.6 or almost 28 BCF. 9 The Yates leases had some 7.6 BCF underlying 10 them. 11 Section 13 had 1.6 BCF underlying it. So it had 12 13 been depleted, somewhat. Not totally, but to an extent. And that's consistent with the pressures that Q. 14 were found upon the initial potential of the "13" Number 1 15 well? 16 17 Α. Absolutely, sir, that agrees very well with that. Okay. Now, let's look at the gas in place that I 18 19 have projected for 12-1-94, December 1. That's basically the time frame that I figured with a quick response and 20 getting a rig out there, that we could have a well 21 producing. So that would basically be when the Llama would 22 23 start production. There would be about 26 in the field, 6.6 24 25 underlying the Yates leases and 1.4 BCF underlying Section

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2	Now, it's interesting to note that at current
3	production rates the Apache "13" Federal Number 1 would
4	have produced approximately 1.5 BCF by that time. They
5	started with 1.6 BCF or, when their well went on
6	production, they had 1.6 BCF underlying it. They now have
7	1.4 BCF, and they've already cum'd 1.5 BCF.
8	So that gas had to come from off the Some gas
9	had to come from off the lease. In other words, it's being
10	drained.
11	We can move on to the ultimate recovery. This
12	ultimate recovery is projected down to 100 MCF per day,
13	basically an economic limit.
14	Q. All right. So you are using an economic limit to
15	define the end of or when this reservoir would be
16	abandoned?
17	A. Yes, sir, and it doesn't change the recoveries
18	much because of the high permeability of this reservoir, we
19	draw down to a very low pressure. So there isn't much
20	impact of the economic-limit rate that's used, so it
21	doesn't have much of an impact.
22	But the field will cum about 61 BCF. Yates will
23	have produced about 6.6 BCF with their well, with no
24	penalty. And it's interesting to note, that's basically
25	the amount of gas that would be underlying the reservoir,

1	their leases, when they've started production.
2	The Apache well will have cum'd about 8.3 BCF of
3	gas, you know. Significantly more, you know. Several
4	times, I think, is a good term. The amount of gas
5	underlying their acreage. Okay.
6	And I have one more line, because we are in a
7	contested case, and so I considered the fact that a penalty
8	could conceivably be imposed, in that there are formulas
9	that the Division has used in past times to calculate
10	penalties.
11	I took just a good round-number you know, or
12	just a round-number penalty; it's not a good one. But a
13	round-number penalty of 50 percent, for example, and this
14	is for example purposes.
15	If we were If a 50-percent penalty were
16	imposed upon Yates, the field recovers the same amount of
17	gas, but Yates' recovery has dropped down to 3.7 BCF, and
18	the Apache Federal "13" Number 1, their the recovery
19	there goes up to almost 10 BCF, 9.9.
20	And so that's why they're getting Other people
21	would be recovering gas that's underlying our lease. And,
22	you know, that's my basis for saying that the imposition of
23	a penalty would damage Yates Petroleum Corporation to the
24	benefit of the offset operators.
25	Q. Mr. Fant, you are aware that the Apache "13"

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Number 1 well was drilled at an unorthodox location; is 1 2 that correct? That is correct. Α. 3 And in your calculations here, you have 4 Q. recognized the fact that no penalties were imposed upon 5 that well for production purposes; is that correct? 6 That is correct. 7 Α. Q. And so in this last scenario that you describe 8 here, it is assuming that the Apache "13" has no penalty 9 and the Yates well is penalized? 10 Α. That is correct. 11 And it is your understanding, while you use this 12 Q. scenario, that that has been the mode with which the OCD 13 has opted to alleviate unfair advantages gained by drilling 14 unorthodox location; is that correct? 15 Yes, sir, the penalties are usually imposed to 16 Α. 17 alleviate when the unorthodox well would unfairly drain gas from other people. 18 Mr. Fant, let me ask your opinion, and the 19 Q. language that I want you to consider in rendering your 20 opinion comes from the Oil Conservation Commission's Rules, 21 104 F -- or, excuse me, 104 G, excuse me -- that deals with 22 23 -- and is basically the directive to the Commission, or the Division. 24 25 It says -- G reads, "Whenever an exception is

1 granted, the Division may take such action as will offset 2 any advantage which the person securing the exception may 3 obtain over other producers by reason of the unorthodox 4 location."

5 Is it your opinion that -- Or what is your 6 opinion with respect to the issue of, by drilling this well 7 at the proposed unorthodox location, will an advantage be 8 secured by Yates over other offset producers?

A. No, there will be no advantage, you know, and my
exhibits demonstrate that. There is no advantage to Yates
Petroleum Corporation being at this unorthodox location.

Q. And if the Commission were to impose a penalty, do you feel that that would prejudice or cause the offset operators to have an advantage with respect to Yates?

Absolutely, and my exhibits demonstrate that. 15 Α. Mr. Fant, again with respect to the basic 16 Q. directive that the Oil Conservation Division must operate 17 under, guidelines -- that's the prevention of waste, the 18 protection of correlative rights -- in your opinion, based 19 upon the representations and the exhibits that you have 20 presented here today, do you feel that the Commission -- or 21 the Division -- should grant Yates' Application and that 22 the granting of such will prevent waste and protect 23 correlative rights? 24 Yes, the granting will follow those guidelines. 25 Α.

Are there any other considerations that you would 1 Q. like to present to the Examiner concerning your testimony 2 or exhibits presented? 3 Not that I know of. Α. 4 MR. ERNEST CARROLL: Mr. Examiner, I would move 5 admission of Exhibits 9 through 19 at this time. б 7 EXAMINER MORROW: 9 through 19 are admitted. 8 MR. ERNEST CARROLL: And I have no further 9 questions, Mr. Examiner. 10 CROSS-EXAMINATION BY MR. KELLAHIN: 11 Mr. Fant, let me see if I understand how you've 12 Q. 13 constructed your simulation. What you're trying to history-match in the simulation is the average of all --14 not the average but all pool production from the Atoka 15 reservoir that you've plotted on one of the displays, will 16 give you production over time? 17 Uh-huh. 18 Α. Is that the plot that you're matching with the 19 Q. 20 computer? The input is not on a per-month basis. 21 Α. That would be too taxing and too time-consuming. The input was 22 averaging on a yearly basis for the wells. So it was input 23 on a per-year basis, which is not an uncommon technique in 24 reservoir simulation. 25

But that particular plot, it was broken out by 1 well. And so it's not just that plot; it's the production 2 by well. But the sum of the production from the reservoir 3 simulator is the same as the sum of the production. 4 When I'm looking at the production to match 5 Q. 6 against, are you matching against individual production declines for the individual Atoka wells? 7 8 Α. Yes, separate -- Each individual well is input in 9 there, actually, but that is -- The production from the reservoir is an input to the reservoir. 10 Withdrawal from the reservoir -- In this 11 simulator, you input your withdrawal rates for history-12 matching because the withdrawal rates happened. We know --13 Those are hard. 14 All right. If my total pool withdrawal rate is 15 Q. the same but the ratio that the wells are producing that 16 reservoir volume changes --17 Α. Uh-huh. 18 -- can you still have a history match, the way 19 Q. you've simulated this? 20 21 Α. I cannot answer that with an exact answer at this 22 point. However, an opinion at this point would be that 23 the volume withdrawals from the southern portion of the 24 25 field, it's not tremendously relevant because it is a high-

permeability sandstone, and the recoveries -- You would 1 have a very close history match, even if they were in --2 the ratios between the wells in the southern portion of the 3 field were different. You would have a very -- You could 4 5 probably achieve a close one. I'm trying to understand if the reservoir 6 Q. 7 parameters that were inputted into the simulation are going 8 to be sensitive to the individual performance, future performance of any individual well in the pool? 9 Α. I'm not -- I --10 What you've plotted for me is a forecast of 11 Q. future performance of the total pool, based upon the past 12 production of these individual wells? 13 I have provided you with plots of individual Α. 14 15 wells, based upon the history match of the reservoir, okay? You've come up with -- What was it? 65 BCF? 16 Q. I forgot the --17 A. A little bit less, 64.8. But roughly 65, yes, 18 sir. 19 Rounded off. Exhibit 19 perhaps is a place for 20 Q. us to start. 21 22 Α. Okay. 23 Q. Exhibit 19, you've got about 65 BCF of gas in the 24 container, and the container is as you've shown on Exhibit 16? 25

1	A. Yes, sir.
2	Q. That's our container?
3	A. That is the sandstone reservoir.
4	Q. All right. When we look at the allocation, if
5	you will, of gas in place, what do you mean when you
6	identify Yates leases? What geographic area does that
7	include?
8	A. That's the Yates leases in Sections 6 and 7.
9	Q. So I've got two full sections of gas in place
10	that go into that column?
11	A. Yes, sir.
12	Q. Can you give me the gas in place in the south
13	half of Section 7 that's the spacing unit for the subject
14	well?
15	A. I cannot give you that information. I do not
16	have that specific number calculated.
17	Q. The computer will tell you, you just
18	A. That can be That could be calculated, yes,
19	sir.
20	Q. All right. So we don't know today what the gas
21	in place is for the south half of 7.
22	When we look at Section 13
23	A. Uh-huh.
24	Q do we know what the gas in place is for the
25	east half of Section 13?

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1	A. Again, that is not calculated.
2	Q. All right. You did the whole section?
3	A. I did the whole section, to give them the full
4	benefit of it.
5	Q. When we look at Exhibits 17 and 18, it's going to
6	take us until about January 1st of 1995 or December 1st,
7	1994, give or take, to get your well in the reservoir so
8	that you can start competing for your share of the
9	remaining gas?
10	A. Yes, sir.
11	Q. When I look at the remaining gas in the reservoir
12	yet to be recovered, remaining recoverable gas in the pool
13	as of December 1st of 1994, what is that volume?
14	A. December 1st, the remaining gas in the
15	reservoir and that's the whole of the reservoir, is 26
16	BCF.
17	Q. Okay. Got 26 BCF at the point in time at which
18	you're going to compete for the remaining gas?
19	A. Uh-huh.
20	Q. Do you have an allocation for me to show me the
21	remaining recoverable gas as of that date that is
22	underneath the south half of Section 7?
23	A. No, sir.
24	Q. For the east half of Section 13?
25	A. No, sir, I do not have those calculated.

1	Q. All right. When you ran the simulation, I know
2	it's spotted on some of the displays to look at the Bass
3	well
4	A. Uh-huh.
5	Q in the south half of, say, 12
6	A. Uh-huh.
7	Q you used their 1980-660 location?
8	A. Yes, sir.
9	Q. Okay. Are the recovery numbers on 19 based upon
10	also running or producing the Bass well?
11	A. Yes, sir, that It was assumed that that well
12	would be drilled Basically, all the information I have
13	is that that well will be drilled and completed in the
14	Atoka. I assumed it would start at roughly the same time.
15	We have the same hearing date. I assumed it would start at
16	roughly the same time ours did.
17	Q. Okay. Can you give me the information to show me
18	in the south half of Section 12, what its original
19	remaining gas in place is as of 12-1-94?
20	A. I do not have those numbers calculated.
21	Q. And as to ultimate recovery for the Bass well?
22	A. I do know that number.
23	Q. Okay.
24	A. That number is approximately 3.5 BCF of gas to be
25	recovered from the Bass well.

1	Q.	Okay.
2	A.	Again, insensitive to the location of our well.
3	Q.	Okay. Now, the 3.5 for the Bass well assumes
4	that it co	mes on line when?
5	A.	12-1-94.
6	Q.	Same time yours is?
7	Α.	Yes, sir.
8	Q.	So now we have three wells in this portion of the
9	reservoir	competing at the same time?
10	А.	Yes, sir.
11	Q.	Does the ultimate recovery from the Yates well at
12	the closes	t standard location, that volume
13	А.	Uh-huh.
14	Q.	is that volume going to change, based upon
15	whether Ba	ss drills their well or does not?
16	Α.	Oh, absolutely.
17	Q.	Can you tell me what portion of the 3.5 BCF that
18	was attrib	uted to their well will now go to your well if
19	they don't	drill?
20	Α.	I cannot speak for that number exactly.
21	Q.	So your simulation has got all three wells
22	performing	and withdrawing gas from the reservoir as of
23	12-1-94?	
24	Α.	Yes, sir.
25	Q	And if that occurs, then, it does not affect your

ultimate recovery, if your well is either at the unorthodox 1 location or at the closest standard location? 2 Oh, yeah, that's what my -- That's what my Α. 3 exhibits show, that it's insensitive to the movement of the 4 location within that confine. 5 Q. What's your degree of confidence as to that 6 conclusion? 7 Α. I'm not quite sure what you're asking there. 8 I'm not sure myself. You know, you have some Q. 9 parameters in here that are based upon engineering 10 assumptions and your best probabilities. 11 Α. Yes. 12 And I assume you've done this enough that you 13 Q. have a degree of confidence that says this is a good match, 14 and I'm comfortable I had enough reservoir data that went 15 into the simulation, and I'm confident that we're within 16 two BCF, a BCF, of being right. 17 Yeah, within reason, yes, the -- You know, as I 18 Α. say, my model that I've constructed and history-matched and 19 run the predictions off of, fits all of the engineering 20 21 data that I have available to me. It fits all of it. Q. Have you tried to run some case histories where 22 you spread the three wells apart to see if just 23 hypothetically at some point it did matter how far the 24 wells were, one from another? 25

1	A. I have not run several case histories, but I have
2	did run a simulation based upon another simulation
3	based upon the location of our well being in a different
4	place, being on the other side of the section.
5	Q. And what happened?
6	A. When it was moved that far you must, you know,
7	referring to my Exhibit 16
8	Q. Yes, sir.
9	A when you move all the way across the section,
10	you basically encounter narrower pay and most probably
11	lower permeability, and therefore the recovery was reduced
12	within moving all the way over there. I did not run
13	several cases across the way.
14	Q. Did you try a computer run where you put the
15	Mitchell well at a standard location 1980 from the north
16	line and 660 from its east boundary?
17	A. No, sir, that well is already at 330 by roughly
18	1300, so I did not consider moving that well.
19	Q. Based upon your experience, do you see that that
20	would have made any kind of appreciable difference if their
21	well had been in the standard location, as opposed to its
22	current position?
23	A. That would be That's not something that I can
24	specifically state at this point. My belief, looking at
25	this map, that their well probably would have recovered a

1	little bit less, because according to this map they would
2	have less net pay and probably lower permeability.
3	Q. Okay. Let's look at Exhibit 16.
4	A. Uh-huh.
5	Q. The reason that your well can go to a standard
6	location and still recover the same volume of gas is that
7	you're moving towards a thicker point on this what I
8	would call an isopach?
9	A. Essentially you're not moving to a thicker point.
10	It's essentially insensitive, as the geologist testified
11	earlier. There's really no difference in location. This
12	map is drawn as it is because, based upon some zero values
13	to the west, I could not move the reservoir further that
14	way. I could not expand the reservoir that way, and I was
15	forced to expand it to the east.
16	Q. I may not have made myself clear, even to myself.
17	When we look at the unorthodox location for your well
18	okay?
19	A. Uh-huh.
20	Q and you have run a case history where your
21	well is located both at a standard well location
22	A. Uh-huh.
23	Q and then you've run it where it's at the
24	unorthodox
25	A. Uh-huh.

1	Q didn't matter to you.
2	A. Yeah.
3	Q. Okay, is the reason it doesn't matter to the
4	simulation is that while you're moving farther away from
5	the Mitchell well, you are moving to a point where the
6	computer says you have got greater reservoir thickness?
7	A. Well, I believe I said this. Basically, within
8	the confines of where you're moving, it's really not any
9	thicker within I mean, it might be, you know, six to 8
10	inches thicker. I mean, we're talking very, very small,
11	you know, not even within the confines of what we can
12	precisely
13	Q. What's the grid size you've used in your
14	simulation?
15	A. The grid size is quite variable. There's
16	approximately five grid blocks between the Mitchell well
17	and our well. And the density of the grids There's not
18	an individual grid block size. There's a They narrow
19	when you come down. It's much more closely gridded near
20	the wells to provide better well definition, better
21	definition of well productivity and projections.
22	Q. And even by reducing the grid size, it doesn't
23	show you a difference in moving the well to the standard
24	location?
25	A. Not significant I did not allow the well to

have a higher permeability or KH or anything. 1 Uh-huh. 2 Q. You know, we have no data. I would not allow the 3 Α. 4 well to have a higher productivity at the other location. Basically, I defined what the productivity -- and I gave 5 6 the productivity of the well to be the same number. We've had lots of simulators before the Division, 7 Q. 8 and they will sometimes discuss with us for hours the 9 effect of wells and how close they can be and how far away they can be. But in this unique circumstance, it doesn't 10 seem to matter? 11 In this unique circumstance, we have a very high 12 Α. permeability gas reservoir. I'm not saying that in all 13 instances there's no correlation; I'm saying that in this 14 specific instance it doesn't change the impact on the 15 Apache "13" Federal Number 1, and it's due primarily to the 16 high permeability -- not high porosity but high 17 permeability, and the fact that we're dealing with gas, and 18 gas is very mobile. 19 I mean, my evidence of the mobility of this gas 20 is the fact that the James Ranch Unit Number 1 cum'd almost 21 26 BCF of gas. It is the primary well that drained most of 22 the gas out of the northern section of the field. 23 Have you tried to construct an area of drainage 24 Q. 25 for each individual well?

1	A. No. sir. that Due to the permeabilities
-	involved here and the mehility of the gag We have gag
4	Involved here and the mobility of the gas we have gas
3	moving from four miles north to the south. That would not
4	realistically be possible to say that this particular well
5	got it exactly from this particular area.
6	Q. Sometimes, because of reservoir characteristics,
7	we talk in detail about establishing a point of no flow
8	a no-flow boundary between wells as they compete for
9	reserves. Is that possible Is that analogy possible
10	here?
11	A. It is conceivable. But due to the mobility,
12	there's no way If one person turns their well on a
13	little bit higher, you know, this point moves to another
14	portion in the reservoir. If they go in and put a
15	compressor on theirs, their rate comes up, it moves the
16	other direction.
17	So I mean, we could play that game all day. But
18	the facts of the matter are, that would be an ever-moving
19	target.
20	Q. I don't want to prolong the discussion, Mr. Fant.
21	Do you have available to us, subject to objection of
22	Counsel, the necessary information by which we could verify
23	your simulation?
24	I don't want to try to do it now, but perhaps we
25	could discuss it outside the hearing, to get information so
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that we can have one of our modeling experts try to run 1 your simulation and see what happens. 2 I have brought with me the array output which Α. 3 defines the permeabilities, porosities, thicknesses and the 4 -- what I call the simulation deck, which defines the rates 5 and timing of that, with me. 6 All right, I'll discuss that with Mr. Carroll 7 Q. 8 then. Give me a quick lesson. What did you use in 9 10 permeability? Did you translate that date into KH and construct a permeability component to the simulation? 11 Α. The permeabilities were based -- You know, the 12 information that I had at my disposal was not tremendous. 13 I did have the four-point test from the Apache 14 "13" Federal Number 1, and I went in also to SS --15 Scientific Software Intercomp's well test analysis program 16 and did a history match of that particular four-point test 17 and arrived at around 60 millidarcies for the "13" 1, and 18 that's based upon an analysis of the data that was 19 20 published. You said 16 millidarcies? Q. 21 Α. Sixty. 22 23 Q. Sixty. Six zero. And that's for that well. 24 Α. 25 And the permeabilities for the other wells were

ratios based upon productivity of the wells. 1 Okay. When you're trying to adjust the 2 Q. parameters to make a history match, what parameters did you 3 adjust? 4 I adjusted primarily the net thickness map to 5 Α. allow for the size of the reservoir. If we don't -- We 6 know how much gas was pulled out of the southern portion; 7 8 that's a fixed volume. We know what the pressures are in the southern portion; that's measured data. We know what 9 10 the pressures are at certain points in the northern portion at certain times from DST data. 11 And so, you know, those -- All that data was 12 required to fit, and I adjusted the net thickness to get 13 the right volumes, and the permeability was not modified 14 It was -- I modified it through the -- what I would 15 much. call this narrow region, in order to provide the proper 16 displacement of gas from the northern region to the 17 southern region. 18 Okay, you're comfortable using the simulation to 19 Q. give you gas in place. You got 65 BCF? 20 Uh-huh. 21 Ά. So we've got a handle on the volume or the size; 22 Q. now we've got to figure out the shape? 23 Yes, sir. 24 Α. 25 And the shape is going to be predicated on lots Q.

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of geology --1 2 Α. Yes, sir. -- so that you could have this volume match a 3 Q. number of different geologic shapes? 4 5 A. Oh, yes, sir. So when we're trying to figure out the amount of 6 Q. 7 gas in place per spacing unit per section per lease, it is going to be based upon the judgment of those people drawing 8 the geologic contours for the isopach? 9 10 Α. Yes, sir. And the computer is not going to tell us whether Q. 11 12 that geologic interpretation as to the shape of the 13 reservoir is a unique one? Oh, no, sir. Α. 14 So Mr. Gawloski can have a geologic shape for the 15 Q. container that matches your volume, the 65 BCF, and it 16 could be substantially different than Mr. May's geologic 17 interpretation? 18 19 Α. That could happen. MR. KELLAHIN: No further questions, Mr. 20 Examiner. 21 22 EXAMINATION BY EXAMINER MORROW: 23 On your Exhibit 19, there's some additional 24 Q. ultimate recovery. If you add Yates' leases and Section 13 25

1	together on ultimate recovery, it's considerably higher
2	than the gas in place under those two columns.
3	A. Yes, sir.
4	Q. Where do you think that will come from?
5	A. Basically, if you'll refer to Exhibit 16, this
6	It will just come from the entire reservoir, sir.
7	The permeabilities in the southern The
8	recovery from the southern portion of the field has
9	indicated to us that we can You know, the southern
10	portion of the field could have recovered the entirety of
11	the field if these other wells have not been drilled.
12	That's coming, you know Primarily, you know,
13	you can look at it, some of it is coming out of Section 18,
14	underneath the WIPP site. This is just fact.
15	If we drilled other wells in the area, these
16	recoveries would change, but this is the only data I have
17	for wells which will exist in this reservoir.
18	Q. It wouldn't None of it would come from the
19	south end, obviously?
20	A. No, recovery My simulation shows that we will
21	never move gas from the southern end to the northern end.
22	I mean, the southern end's pressure is already well below
23	the pressure in the northern end, and the northern end will
24	at best catch up. And so its pressure will just come down
25	to equal that in the southern region. It will never drain

1	gas out of the southern region.
2	Q. So it would be based only on those three wells in
3	the north end; is that what
4	A. Roughly speaking.
5	Q. You assume no additional drilling in 12, 7 or 6?
6	A. Uh-huh. Yeah, because we have basically been
7	told that the location that we are granted is only one that
8	we would be allowed on the entirety of our Llama lease, and
9	that was my reason for including Sections 6 and 7, because
10	we've been told that's the only place we can drill anywhere
11	in there.
12	Q. And you think that same prohibition would apply
13	to 12 and 8
14	A. I do not
15	Q as far as coming off
16	A. I do not know Their drilling a well in there
17	would be an economic issue for them or a regulatory issue
18	for them. I can't speak as to whether or not they would
19	drill another well.
20	But with the drilling of these three wells, we
21	have sufficient wellbores to drain the reservoir.
22	Q. These three will drain the whole north end?
23	A. Yeah. Yes, sir.
24	Q. I notice there's a seemed to be a jag in the
25	section line coming across there, between 13 and 18. Do

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you know what the extent of that is or --1 This is a digitized map, but there is a Α. 2 township --3 It's on all these maps. Q. 4 Yeah, it's just a correction line, I believe, for 5 Α. the --6 7 Q. Do you know what footage of that is? No, sir, I do not. But, you know, as I show, it Α. 8 was taken into consideration in the gridding of the system, 9 and in the placement of the wells in the model. 10 Do you have any questions? 11 EXAMINER MORROW: MR. RAND CARROLL: (Shakes head) 12 EXAMINER MORROW: Thank you. 13 Do you have anything further? 14 MR. ERNEST CARROLL: No, not of this witness. 15 We have one remaining witness, Mr. Examiner. 16 DAVID F. BONEAU, 17 the witness herein, after having been first duly sworn upon 18 his oath, was examined and testified as follows: 19 20 DIRECT EXAMINATION BY MR. CARROLL: 21 State your name and occupation for the record. 22 Q. My name is David Francis Boneau. I work as 23 Α. reservoir engineering supervisor for Yates Petroleum 24 Corporation in Artesia, New Mexico. 25

Mr. Boneau, you have previously had your 1 Q. credentials accepted in prior testimony as a petroleum 2 engineer, have you not, or in that field? 3 Α. Yes, sir. 4 5 MR. ERNEST CARROLL: Mr. Morrow, is Mr. 6 Boneau's --EXAMINER MORROW: Yes. 7 8 MR. ERNEST CARROLL: -- credentials okay? EXAMINER MORROW: Yes. 9 (By Mr. Ernest Carroll) All right. 10 Q. Mr. Boneau, you're familiar with the Application 11 of Yates that is being considered by the Examiner today; is 12 that correct? 13 That's correct, yes, sir. Α. 14 And you have prepared certain exhibits for 15 Q. presentation; is that true? 16 Yes, I've prepared a few. 17 Α. All right. Mr. Boneau, if you would care to --18 Q. I'm not sure you wish to summarize your testimony, or would 19 you like to start into the exhibits? You've been at this 20 longer than I have, and I'll never change it. How do you 21 wish to go? 22 Well, Mr. Fant obviously presented the bulk of 23 Α. our engineering testimony. 24 I would like to address essentially one issue, 25

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1	the economics of drilling a vertical or directional or a
2	well with a penalty.
3	Q. Mr. Boneau, the reason that you have addressed
4	this question is that because this was brought to our
5	attention through the use of the prehearing statement filed
6	by Mitchell, in that it was indicated that they were going
7	to at least try to suggest to the Examiner that Yates
8	should drill a directional well; is that correct?
9	A. Yes, sir. Their statement mentioned a
10	directional well, and a penalty has been a method used in
11	some other unorthodox wells. That's the origin of the two
12	possible outcomes that I'd like to consider.
13	Q. All right. Then if you would start with your
14	Exhibit 20 and explain it, what it is, for the record and
15	its significance.
16	A. Okay, Yates would love to drill a vertical well
17	at an orthodox location, and the BLM won't let us.
18	I tried to list the possibilities and the
19	economic outcome of those on Exhibit 20. Exhibit 20 says
20	it's a "Summary of Economics for Vertical and Directional
21	Well", and the results are in the little table at the top.
22	There's some supplementary information at the bottom.
23	The results say that if Yates can drill the well
24	it's asking for today, a vertical well, at an unorthodox
25	location with no penalty, the economics are superior: 99-

percent rate of return, 1.3 year payout, and you get your 1 money back plus 1.7 times your investment. Those are 2 excellent economics. 3 Cases 2 and 3 are things we'd like not to see, 4 but they -- something somebody might suggest. 5 Case Number 2 is the penalty case, and I used a 6 50-percent penalty, which somebody might think is 7 8 reasonable in this case. If we drill the well that we're asking for in a 9 vertical mode and the production is restricted to 50 10 percent of its -- of deliverability, the economics become 11 mediocre, is the right kind of word. And the numbers there 12 are 24-percent rate of return, 2.4-year payout, and you get 13 your money back plus 44/100 of your investment. 14 I list these three economic kind of parameters 15 because they interact with each other as to whether a 16 project is judged as economically good or bad. The rate of 17 return and the payout are not all that bad, but you don't 18 get much capital back in the way of profit for the large 19 investments involved there. You'll see that we're talking 20 about basically \$2-million wells. And the profit-to-21 22 investment ratio there is poor. 23 Item number 3, case number 3, covers the 24 situation where we would be required to drill a directional well from the location that the BLM allows us, and the 25

reasonable thought there is that that would result in no 1 The economics there again I would characterize as 2 penalty. mediocre, although they're better than the vertical well 3 with the 50-percent penalty. 35 percent rate of return, a 4 little over a two-year payout, and that profit-investment 5 ratio, 0.64. 6 7 The conclusion -- The simple statement is that if we can drill the well that we want to drill and if our 8 geology, et cetera, is right, we have a very excellent 9 economic project. If we're forced to drill a directional 10 well or saddled with a penalty, the economics don't go 11

The bottom of Exhibit 20 points out that I'm talking about risk-weighted economics, and that's the only kind of economics that Mr. Yates lets us do anymore. And by risk-weighted, I mean that you assign a chance to various outcomes from drilling the well, and those chances are listed at the bottom there.

away, but they're severely reduced.

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So what I'm saying is that we drill a vertical well, and I'm assuming there's a 30-percent chance that it will be dry, a 30-percent chance that we'll get half of the predicted reserves, and the predicted reserves are the 6.6 BCF for an unpenalized well or a 3.7 BCF for a penalized well. There's a 35-percent chance you'd get those predicted reserves, and there's a five-percent you'd get

1	better, one and a half times those predicted reserves.
2	Similar kinds of numbers for a directional well
3	because of the risk of the directional well, there's to
4	me, there's a slightly higher chance that you'll end up
5	with no well.
6	So the results at the top of the page are risk-
7	weighted economics that are briefly described at the bottom
8	of the page.
9	The rest of my exhibits basically fill in
10	information relevant to these results. Essentially the
11	only thing I'm telling you is that the project that we
12	propose is a very economic project. If we're forced to
13	drill the well directionally, it becomes very less
14	attractive project.
15	Exhibit 21 consists of two pages of AFEs. The
16	top page is for the case where the Llama Number 1 Well
17	would be drilled directionally, so it would be its
18	surface location would be 330 from the south and 950 from
19	the west, the location that we're talking about.
20	Here, the bottomhole location would be an
21	orthodox 660 from the south and 1980 from the west, so it
22	would be about 1000-foot offset in this well.
23	The cost to drill this well is estimated by our
24	drilling department at \$2.68 million.
25	The second page of Exhibit 21 is an AFE for a

vertical well, and the completed costs for the vertical 1 well is approximately \$1.8 million. So it costs an 2 additional \$800,000 to drill this well directionally, and 3 it raises the cost above \$2.5 million. We're talking about 4 5 serious money here. Exhibit 22 is nine pages of computer output from 6 the economic runs that are involved in calculating these 7 8 risk-weighted economics, and I think nobody here is interested in looking more than five seconds at any one of 9 Well, I don't intend to go over them in any detail; those. 10 I surely can if people wish. 11 If you would for the record, what are the bottom-Q. 12 line conclusions that you draw from these computer-13 generated numbers that comprise Exhibit Number 22? 14 Well, I told you my overall conclusion. The 15 Α. truth is that we think there's a lot of gas left in this 16 north pod. We also think that if you drill a well -- if 17 somebody drilled a well on every 320, that you would lose 18 money on a lot of them, because these are very expensive 19 wells, and there simply isn't enough gas under each 320 to 20 support a \$2-million well. 21 So the three wells that are talked about, we -- I 22 quess Mitchell wishes that nobody else would drill a well 23 in the north, and they would get all the gas and that would 24 be fine. 25

MR. KELLAHIN: That's argumentative, Mr. 1 Examiner. That's not our wish. 2 THE WITNESS: I'm sorry. One possibility, 3 anyway. I'm just rambling, sir. 4 5 MR. KELLAHIN: Yeah, but I'm still listening. THE WITNESS: The point is, there's a maximum 6 7 number of wells in the north that make any sense, and three is very close to that number. 8 The -- I'm not up here to say that the economics 9 are horrible with three wells in the north, and if you can 10 drill them vertically the economics are very attractive. 11 We think that it makes, you know, no sense to 12 force us to drill a directional well with the attendant 13 risk and the extra cost to get the same gas. That idea 14 just makes no sense to us, and that's the only message, 15 really, that I am bringing. 16 Let's go on to the last one. Are you finished? 17 (By Mr. Ernest Carroll) That's Exhibit 23? 18 Q. Yeah, Exhibit 23. When I made Exhibit 23, I 19 Α. 20 really thought that I could summarize our engineering I think Mr. Fant made a lot of it very clear, testimony. 21 so that I'll be somewhat repetitive. 22 But we believe that the Mitchell Apache "13" 23 Number 1 Well is in the same Atoka reservoir as the Los 24 Medanos Atoka well to the south. We believe that the 25

1	Mitchell well and our well will produce from a partially
2	depleted Atoka reservoir that's been depleted by 20-some
3	years of production in the south.
4	The Mitchell well is going to produce several
5	times the gas in place under its spacing unit or under
6	Section 13, and the Yates well, at no matter what location
7	we're allowed to drill it, will produce an amount of gas
8	which is approximately equal to the gas under the Yates
9	lease.
10	Hopefully, now, you've heard very clearly that
11	the unorthodox Yates location drilled in a vertical manner
12	does not hurt production from the Mitchell well, and the
13	only new thing you've heard from me is that the Yates
14	economics are poorer, much poorer, if a penalty or a
15	directional well is forced upon Yates.
16	That's our case, sir.
17	Q. Mr. Boneau, then, in again returning to Rule 104
18	G, do you feel that the granting of the Yates Application
19	as it now stands for the offset location the unorthodox
20	location do you feel that that granting by the OCD, or
21	do you have an opinion whether or not that will grant or
22	give Yates an unfair advantage relative to Mitchell, or any
23	other operator in this area?
24	A. No, sir, we've gone to a lot of work, several
25	months of pursuing this problem, to show in a scientific
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and engineeringly sound way that Yates is being forced to 1 move this location, but Yates will gain no advantage from 2 this unorthodox location, and the offset operators will not 3 be harmed. 4 Mr. Boneau, do you have an opinion as to whether 5 Q. or not -- and I think your exhibits show this, but just the 6 drilling of a directional well, as opposed to a vertical 7 well, is there increased risk? 8 Α. Yes, there is increased risk. 9 By forcing that increased risk upon Yates, do you Q. 10 have an opinion as to whether or not that would 11 disadvantage Yates relative to the other operators? 12 Drilling a directional well will force us to 13 Α. spend extra money to achieve a smaller chance of success. 14 It's a double bad deal. 15 Is there any advantage that Yates will obtain by 16 Q. the drilling of this well, a vertical well, at the 17 unorthodox location, in your mind, from an engineering 18 standpoint over the other operators? 19 No, there's not. 20 Α. With respect to the issues, in your opinion do Q. 21 you believe that this Division should either penalize or --22 23 and my question certainly does not -- and I do not assume that the Division even has the authority to cause Yates to 24 25 drill a directional well.

But just assuming for -- argumentatively for 1 right now, do you feel that there is any reason that that 2 3 should be done, any reason that has historically been adopted by the Division? 4 I don't know of any such reason. 5 Α. With respect to the issues of the prevention of 6 Q. 7 waste and the protection of correlative rights, do you have an opinion as to whether or not the granting of the 8 9 Application as presented, what effect that will have with respect to those two issues? 10 The granting will prevent waste, and especially 11 Α. the waste of drilling a directional well, and the granting 12 13 will protect the correlative rights of Yates and Mitchell in this case. 14 MR. ERNEST CARROLL: Mr. Examiner, I believe at 15 this time I would move admission of Exhibits 20 through 23. 16 EXAMINER MORROW: 20 through 23 are admitted into 17 the record. 18 MR. ERNEST CARROLL: And I would pass the witness 19 at this time. 20 MR. KELLAHIN: Thank you, Mr. Examiner. 21 CROSS-EXAMINATION 22 BY MR. KELLAHIN: 23 Dr. Boneau, if you'll go to your AFE with me, 24 Q. 25 please --

Yes, sir. Α. 1 -- did you personally prepare this AFE? 2 Q. There are two AFEs, and they were prepared by our 3 Α. drilling supervisor. You may be able to read his 4 signature --5 Mr. Springer? 6 Q. -- at the bottom, is Al Springer. 7 Α. Springer is your drilling engineer? 8 Q. Drilling supervisor. 9 Α. Supervisor. Is he an engineer? 10 Q. He's an engineer, yes, sir. 11 Α. And this is what he normally does for Yates? 12 Q. 13 Α. One of his jobs for Yates is preparing AFEs, yes. Has he got other jobs? 14 Q. He's got to get some holes to the bottom, TD too, 15 Α. yes, sir. 16 And he proposed both these? 17 Q. Yes, sir. 18 Α. \$2.2 million for dryhole directional? 19 Q. That's the number that's there, yes, sir. 20 Α. Plus half a million completion gets you to the 21 Q. \$2.68? 22 That's approximately correct, yes, sir. 23 Α. And then on a vertical well, \$1.35 million and 24 Q. 25 approximately, I guess, the same half-million dollars to

1	complete it?
2	A. Yes. He made very little change in the
3	completion phase, depending on whether it's directional or
4	not.
5	Q. The major change in here is the extra million or
6	\$900,000 attributed to directional costs for drilling the
7	well?
8	A. It's a lot of footage and day work, motors, stuff
9	like that, yes, sir.
10	Q. Is that a part of the business at Yates for which
11	you have specialty or expertise?
12	A. Which part are you talking about?
13	Q. The drilling AFEs?
14	A. Mr. Springer is much more an expert on drilling
15	AFEs than I am.
16	Q. All right. But you've used those costs in the
17	economic analysis?
18	A. Yes, sir.
19	Q. Okay. Will you look at Mr. Fant's recoverable
20	gas? If you get your well down by December 1st of 1994,
21	he's got 6.6
22	MR. ERNEST CARROLL: Hand it
23	Q. (By Mr. Kellahin) Sure. He's got 6.6 BCF
24	recoverable gas?
25	A. For a Yates well?

. ----
1	Q. Yes, sir.
2	A. Yes, sir.
3	Q. Okay.
4	A. I agree with that.
5	Q. You agree with that?
6	A. That's what he has, yes, sir. And that's what I
7	used in that's what I used as predicted number.
8	Q. All right. Let's turn to Exhibit 22 and let's
9	find the economic run for the vertical wells that's got
10	reserves of 6.6, and I think you've turned to the second
11	sheet.
12	A. That's the one, yes, sir.
13	Q. 6.6? When I go down on the vertical well,
14	there's no penalty, and is this risk-weighted?
15	A. The risk-weighted answers are on Exhibit 20.
16	Q. Yes, sir.
17	A. I'm not Let me talk a bit and see if I'm
18	anywhere near your question, okay?
19	Q. Sure.
20	A. Sure.
21	Q. All right, I'll give you the question again. I
22	want to see This economic run is in fact risk-weighted
23	for the vertical well?
24	A. We're looking at page 2 of Exhibit 22?
25	Q. Yes, sir, and I'm also looking at page 1 of

1	Exhibit 20, and at that column down here where it says
2	"Vertical", "Chances of Occurring"
3	A. Uh-huh.
4	Q. When I look at Exhibit 20 on the vertical column,
5	it says you've risk-weighted it, meaning you have a 30-
6	percent chance of a dryhole?
7	A. Yes, sir.
8	Q. Seventy-percent chance of success?
9	A. Also a 30-percent chance that we'll get the
10	economics in page 1 of Exhibit 22, which is the 50-percent
11	recovery, 50 percent of predicted.
12	Q. You're getting ahead of me.
13	A. Okay.
14	Q. On Exhibit 20 for the vertical well, you have
15	A. We have a 30-percent chance that you'll get a
16	dryhole.
17	Q. All right.
18	A. That will be that mechanically we won't get
19	there, that it will be tight like this Apache "25", that
20	the geologist, the engineers are totally wrong, da-da,
21	whatever
22	Q. I see.
23	A we'll get there, and there won't be any Atoka
24	gas.
25	Q. Okay. When I look at the economic analysis, that

is risk-weighted calculations --1 2 Α. Yeah. -- using these percentages? 3 Q. That's what I'm trying to do, yes, sir. 4 Α. All right, sir. When I get down to the next 5 Q. column, it says 30-percent risk of a dryhole. What's the 6 7 next one? 0.5 times predicted? 8 Α. Yeah. What's that? 9 Q. Thirty-percent chance that you'll get half of the 10 Α. predicted reserves. 11 12 Q. Okay. And the page in Exhibit 22 that corresponds to 13 Α. that is the front page, the one that says "Vertical Well", 14 no penalty --15 16 Got you. Q. -- reserves equal 3.3 BCF, 0.5 times predicted. 17 Α. All right. So that's where we got 3.3. We've 18 Q. risked half the reserves? 19 We're saying there's a chance, and I'm saying a 20 Α. 30-percent chance that when you get there you'll get a 21 poorer Atoka sand than Mr. Fant, Mr. May, myself, et 22 cetera, predict, and you'll get half the reserves, you'll 23 24 get --25 Okay, I want to see if we're compounding risks Q.

1	here. When I look at 50 percent of the reserves, what is
2	the significance of the column that say 30 percent under
3	vertical when it's on that row?
4	A. I'm saying that there's a 30-percent chance that
5	you will get that well, you will get a well with 3.3 BCF of
6	reserves.
7	Q. Is that compounding the risk between the dryhole
8	and then a certain volume of reserves and then some other
9	risk?
10	A. I think not. I don't know what you're saying by
11	"compounding".
12	The idea is, you You're more realistic if you
13	do not say, I know exactly what I'm going to drill, we're
14	going to get 6.6 BCF, absolutely for sure. Here's the
15	economics.
16	I don't believe that, and that's what I'm
17	trying not to do that.
18	As an alternative, I'm trying to say, what are
19	the reasonable range of possible outcomes, and put a
20	reasonable chance, a reasonable percentage on each of those
21	outcomes.
22	Q. Okay.
23	A. I suggested as reasonable four possible
24	outcomes
25	Q. All right.

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1	A one that you get a dryhole, one that you get
2	half of what you predicted, the third one would be that you
3	get exactly what you predicted, and the fourth one would be
4	that you get more than what you predicted, one and a half
5	times what you predicted.
6	Q. Okay. Now, when I look at that Exhibit 20, come
7	back and show me on Exhibit 22 for each page, which
8	corresponds to the risk assigned for the economic well.
9	Page 1 of 22
10	A. Page 1 of 22 corresponds to a dryhole, a vertical
11	well with no penalty.
12	Q. Okay.
13	A. And there's a 30-percent chance I'm saying, in
14	getting the numbers at the top of Exhibit 20, that there's
15	a 30-percent chance that page 1, Exhibit 22, are the
16	correct economics.
17	Q. All right. You have
18	A. Page 2 of Exhibit 22 is the economic calculation
19	for the predicted vertical no-penalty, the one that has 35-
20	percent chance.
21	Page 3 is the 1.5-times-predicted, no-penalty,
22	vertical, 9.9 BCF, 1.5-times-predicted.
23	So those first three pages Okay, the fourth
24	page is a dryhole. And for a dryhole you don't have to run
25	any fancy economics; you just look at the AFE and say how

1	much did it cost me to drill a dryhole?
2	Q. All right, sir. I understand how you did this.
3	On 22, turn to page 2. You've got a vertical well with 6.6
4	BCF, no-penalty. On the bottom you say "Reserves, 6.6" So
5	that means that you didn't you took 100 percent of the
6	forecasted reserves?
7	A. The forecasted reserves are not listed anywhere,
8	but the forecasted reserves would be obtained by taking 30
9	percent of zero for a dryhole, 30 percent of 3.3 for the
10	0.5 times predicted case, 35 percent times 6.6 for the,
11	quotes, predicted case, and 5 percent times the reserves
12	for the which are 9.9, for the 1.5-times-predicted case.
13	Q. Okay.
14	A. And you do the similar things to the dollars that
15	you get in year one to the present value, et cetera. You
16	weight them all by the chances of that outcome occurring.
17	Q. All right. Look at the vertical-well example
18	with 6.6 of reserves in the upper right on page 2 of
19	Exhibit 22.
20	A. Uh-huh.
21	Q. You have not run me an example to show unweighted
22	economics; you've just told me Mr. Yates required you to
23	run weighted economics?
24	A. That's true, those are my words You can take
25	page 2 of Exhibit 22 as unrisked economics for 6.6 BCF, and
-	

1	there's a lot of economic parameters there that we could
2	quote and talk about.
3	Q. That's what I'm trying to communicate with you.
4	On page 2 am I looking at output that is unweighted as to
5	risks?
6	A. On page 2 you're looking at unrisked economics
7	for a 6.6 BCF well drilled vertically at a cost of \$1.8
8	million. Yeah, I think
9	Q. All right.
10	A I think my answer to your question is yes.
11	Q. You got me, yes. All right. When I look at rate
12	of return, it's 265 percent?
13	A. That's correct.
14	Q. And it's going to pay out in 1.79 years?
15	A. In 0.79 years.
16	Q. I'm sorry, 0.79 years.
17	A. Less than one year.
18	Q. Okay. Now, let's turn to the unrisked economics
19	on the directional well with 6.6 of reserves to it. It's
20	the second from the end.
21	A. Second from the end, you've got the picture.
22	Q. All right. Now, you get 122 percent and it takes
23	1.17 year to pay out?
24	A. Yes, sir.
25	Q. Okay. Is that economic?

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Yes, that's economic. It's poorer than the 1 Α. other, it's -- That's very economic, if there were, scout's 2 honor, guaranteed 6.6 BCF there, it would be economic to 3 drill a directional well. 4 And what my Exhibit 20 is telling you is that, 5 risk-weighted, it's what you would call economic. It's 35-6 percent rate of return, two-year payout, and not so great, 7 probably, the investment. But the rate of return -- Almost 8 everyone would call 35 percent economic. Almost everyone 9 would call 2.1-year payout economic. Not everybody would 10 call that profit-investment ratio economic. 11 But risk-weighted or non risk-weighted, the 12 directional well would probably be called economic. It's 13 very much less economic than drilling a vertical well. 14 Were you involved in making similar analysis for 15 Q. your company with regards to the directionally drilled 16 wells you drilled in the Morrow, up in Township 20 South, 17 It's up in Dos Hermanos. 30 East? 18 You quoted that before, and that went round and 19 Α. round in my mind for the last couple hours. 20 I'm guessing you're referring to wells in 20-29 21 that were what I think of as Strawn wells. 22 These were called the Amaranth, if I'm saying 23 Q. that correctly. 24 25 Α. Oh, okay. Okay, you're --

1	Q. Amaranth?
2	A. Amaranth.
3	Q. I can't say the word. It's A-m-a-r-a-n-t-h.
4	A. Amaranth, yes.
5	Q. Amaranth? Didn't you drill three directionally
6	drilled Morrow gas wells up there?
7	A. I don't remember three, but Amaranth is a
8	directional well, and the wells I'm referring to are also
9	directional wells at like 12,000 feet.
10	Q. Uh-huh.
11	A. Yates did those, and, you know, I've looked at
12	some but not all the numbers related to them.
13	Q. Were the directional wells economic successes?
14	A. The ones I specifically looked at cost 50 to 60
15	percent more than a vertical well, and We're a little
16	bit talking apples and oranges. You're asking about the
17	Amaranth, and I'm talking about some wells in 20-29.
18	Q. For the wells that you're describing and can
19	recall, what kind of recoverable reserves were you looking
20	for that justified the directional wells?
21	A. The wells that I can recall are an East Burton
22	Flat Strawn, and those are I think it followed a gas
23	condensate field, is an accurate description.
24	The good wells there make 400,000 barrels of
25	condensate and 1.5 BCF. The ones that we drilled

directionally encountered the edge of the reservoir and 1 were not economic. That's, you know, neither here nor 2 there. 3 On Dos Hermanos wells, you're not familiar with Q. 4 5 the information with regards to the directional drilling of those wells? 6 7 In preparation for this hearing, I did not look Α. up the numbers. I did not refresh my mind on those 8 numbers, and so I'd be --9 I don't want you to guess, Dr. Boneau. Q. 10 Yeah, I'd just be guessing. Α. 11 MR. KELLAHIN: Thank you, Mr. Examiner. 12 EXAMINATION 13 BY EXAMINER MORROW: 14 Mr. Boneau, do you think your company would drill 15 Q. a well as a directional well or with a 50-percent penalty, 16 as you suggested, if that were required? 17 I -- How much should I hedge? 18 Α. No. I don't know. Yes or no is good enough for me. 19 Q. I think -- I think no is the answer. 20 Α. Okay. Is the Mitchell well the only well 21 Q. 22 assigned to the Livingston Ridge Atoka Pool? 23 Α. My understanding is that there are two wells, and I think it's actually called Northeast Livingston Ridge 24 Atoka Pool, and it's that well and the well in 21 that was 25

1	mentioned earlier.
2	Q. So there's another one?
3	A. There's another well five miles away.
4	You know, with the NMOCD having no data for
5	1994
6	Q. Yeah, I know.
7	A everybody's kind of in a fog.
8	Q. But you think it's that well, and then the well
9	south of it is also in that?
10	A. The Apache "25"?
11	Q. Yeah.
12	A. I think logically it would be assigned to that.
13	I didn't
14	Q. All I was asking, is there a well outside the
15	limits that you've drawn, you and your people have drawn on
16	your maps, are there wells anywhere in the North Livingston
17	Ridge
18	A. Yeah, I think there's an original well in the
19	North Livingston Ridge that's five miles to the west that
20	is not at all related to the reservoir we're talking about.
21	Q. In your all's opinion, it's not related?
22	A. In our opinion it's not related to the reservoir
23	we're talking about. But these Apache wells and those Los
24	Medanos Atoka wells are related to the same reservoir.
25	I don't like to use the word "pool" because that's you

guys' word, but reservoir. 1 EXAMINER MORROW: Okay. Do you have anything? 2 3 MR. RAND CARROLL: (Shakes head) EXAMINER MORROW: Thank you, sir. 4 5 MR. KELLAHIN: I have one follow-up question --EXAMINER MORROW: Okay --6 7 MR. KELLAHIN: -- if I might. EXAMINER MORROW: -- go ahead. 8 FURTHER EXAMINATION 9 BY MR. KELLAHIN: 10 Dr. Boneau, on Exhibit 22, one of the things I 11 Q. failed to ask you about is, in the upper right-hand corner 12 you have a discount rate, you use 25-percent discount. 13 I thought the discount rate was to be the cost of 14 borrowed money that went into these types of economic 15 16 analyses. Is that what you do, or do you do something else? 17 18 No, there are no numbers on my Exhibit 20 that Α. are related to discount rate at all. 19 20 Q. 22? No, on Exhibit 20, what I call the answers. 21 Α. 22 The rate of return, the payout and the profitinvestment ratio are totally independent of the discount 23 Discount rate affects what you would call the 24 rate. present value of the project, and I've avoided mentioning 25

1	present value because you get into the problem that you're
2	just bringing up.
3	Q. What is this number in the top right-hand corner
4	of Exhibit 22?
5	A. It calculates the value at a 25-percent discount
6	rate.
7	At the lower right-hand corner of those, there
8	are values calculated at discount rates of 0, 5, 10, 15,
9	20, 30 at 20 different discount rates, take your pick.
10	Q. Okay. But what you picked was 25 percent
11	A. No
12	Q and the rest of this spreadsheet will show
13	that?
14	A. No, no, no.
14 15	A. No, no, no. Q. Okay.
14 15 16	 A. No, no, no. Q. Okay. A. Nothing that I showed you depends at all on what
14 15 16 17	 A. No, no, no. Q. Okay. A. Nothing that I showed you depends at all on what discount rate I pick or you pick. I did not pick one, I
14 15 16 17 18	 A. No, no, no. Q. Okay. A. Nothing that I showed you depends at all on what discount rate I pick or you pick. I did not pick one, I did not have to pick one to present the data that I
14 15 16 17 18 19	 A. No, no, no. Q. Okay. A. Nothing that I showed you depends at all on what discount rate I pick or you pick. I did not pick one, I did not have to pick one to present the data that I presented.
14 15 16 17 18 19 20	 A. No, no, no. Q. Okay. A. Nothing that I showed you depends at all on what discount rate I pick or you pick. I did not pick one, I did not have to pick one to present the data that I presented. MR. KELLAHIN: All right, thank you.
14 15 16 17 18 19 20 21	 A. No, no, no. Q. Okay. A. Nothing that I showed you depends at all on what discount rate I pick or you pick. I did not pick one, I did not have to pick one to present the data that I presented. MR. KELLAHIN: All right, thank you. MR. ERNEST CARROLL: No further questions.
14 15 16 17 18 19 20 21 22	 A. No, no, no. Q. Okay. A. Nothing that I showed you depends at all on what discount rate I pick or you pick. I did not pick one, I did not have to pick one to present the data that I presented. MR. KELLAHIN: All right, thank you. MR. ERNEST CARROLL: No further questions. EXAMINER MORROW: Okay. Thank you, Mr. Boneau.
14 15 16 17 18 19 20 21 22 23	 A. No, no, no. Q. Okay. A. Nothing that I showed you depends at all on what discount rate I pick or you pick. I did not pick one, I did not have to pick one to present the data that I presented. MR. KELLAHIN: All right, thank you. MR. ERNEST CARROLL: No further questions. EXAMINER MORROW: Okay. Thank you, Mr. Boneau. (Off the record)
14 15 16 17 18 19 20 21 22 23 23 24	 A. No, no, no. Q. Okay. A. Nothing that I showed you depends at all on what discount rate I pick or you pick. I did not pick one, I did not have to pick one to present the data that I presented. MR. KELLAHIN: All right, thank you. MR. ERNEST CARROLL: No further questions. EXAMINER MORROW: Okay. Thank you, Mr. Boneau. (Off the record) EXAMINER MORROW: All right, we'll take 15

1	(Thereupon, a recess was taken at 3:15 p.m.)
2	(The following proceedings had at 3:40 p.m.)
3	EXAMINER MORROW: We'll call 11,019 again and
4	hear from Mr. Kellahin.
5	EXAMINER MORROW: Mr. Examiner, we're ready to
6	proceed with our presentation.
7	We call at this time Mitchell's petroleum
8	geologist, Mr. Ted Gawloski. That's G-a-w-l-o-s-k-i.
9	TED GAWLOSKI,
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. KELLAHIN:
14	Q. For the record, Mr. Gawloski, would you please
15	state your name and occupation?
16	A. My name is Ted Gawloski. I'm a senior staff
17	petroleum geologist with Mitchell Energy Corporation.
18	Q. Mr. Gawloski, on past occasions have you
19	testified before the Division as an expert petroleum
20	geologist?
21	A. Yes, I have.
22	Q. Are the geologic interpretations and the exhibits
23	that we're about to present represent your own work
24	product?
25	A. Yes, they do.

1	Q. And based upon that work product, do you have
2	recommendations and conclusions for the Examiner concerning
3	Yates' Application?
4	A. Yes, I do.
5	Q. In our prehearing statement, Mitchell filed its
6	statement of position requesting that the Division deny
7	this Application and/or, in the alternative, require that
8	this well be directionally drilled to a standard bottomhole
9	location.
10	Are you familiar with that position?
11	A. Yes, I am.
12	Q. Did you help formulate that position?
13	A. Yes, sir.
14	Q. This is regards to Mitchell's position only
15	insofar as we drill directionally for the deep gas wells in
16	the potash area?
17	A. That's correct.
18	Q. And it reflects no position of your company
19	concerning directional drilling or horizontal wells for any
20	Delaware oil production?
21	A. That's correct.
22	Q. Having focused your attention on this particular
23	topic, let me ask you to turn to Exhibit 1 and identify
24	that display for us.
25	A. Exhibit 1 is a land plat of the what we call

the Apache Prospect area in 22 South, 30 East. 1 The acreage shaded in yellow is Mitchell's 2 leasehold position. 3 The green dot shows the proposed location, the 4 unorthodox location, of the Yates Petroleum Llama "ALL" 5 Federal Number 1. 6 7 And you'll note that there is a section-line shift there. It is about 204 feet of shift to the south 8 along those township lines. 9 Were you involved in formulating the geology that 10 0. resulted in Mitchell drilling the Apache Federal Number 11 "13" 1 Well? 12 13 Yes, I was. Α. Let's look at the reservoir from a structural 14 Q. position. Do you have a cross-section? 15 Yes, I do. Exhibit Number 2 is a structural Α. 16 cross-section, and it goes from the top of the Strawn, 17 shown on the top by a dark blue line, down through the 18 Atoka, and the Atoka -- what we call the Atoka "AC" sand, 19 20 what Brent May referred to as the Apache sand in this area, which is the main deep gas target in the area. 21 22 It then goes down into the Morrow sections, what we define as the Morrow "B" sand section and the Morrow "C" 23 sand section. 24 And you'll see further on that there is pay from 25

1	the Strawn, the Atoka "AC", and in the Morrow horizons
2	through here.
3	You'll also note that within the Morrow "B"
4	section there's many discontinuous sand lenses in here,
5	many of which We have actually tested two of these and
6	found them to be very discontinuous and limited in their
7	size. We don't think that that is a viable target in this
8	area.
9	But essentially we're showing all the different
10	horizons in here, and what The zone that we used to map
11	was on the top of the Strawn, and it reflects what we see
12	down through the lower sections.
13	Q. The trophy in this play is the Atoka "AC" sand?
14	A. That's correct, that is the main objective out
15	here. We did drill the wells to the Morrow, looking for
16	Morrow, as well as the Atoka. But the Morrow in our wells
17	did not really pan out, after several tests in these wells.
18	Q. Your exploitation strategy was to look for the
19	Atoka?
20	A. Yes, as well We looked both for the Atoka and
21	the Morrow.
22	Q. But in deciding what to do, it was the Atoka that
23	was driving the prospect?
24	A. That's correct.
25	Q. Did you have Atoka production in the area?

When we first drilled the initial wells --Α. 1 The Apache Federal "13" 1, the well that Yates 2 Q. seeks to offset. 3 Α. We had just drilled the well before that, and had 4 5 tested this correlative zone on a drill stem test, but we have not put it on line yet. 6 7 Q. Okay, let's go through the various geologic displays that you've presented. You have a structure map, 8 it's Exhibit Number 3. 9 Α. That's correct. 10 Now, that's on the top of the --11 Q. Top of the Strawn. 12 Α. And there is a marker on the cross-section so the 13 Q. Examiner can find the point where you're marking the top of 14 the Strawn? 15 That's correct. 16 Α. 17 Q. Okay. It's the dark blue line on the top of the cross-18 Α. 19 section. Let's turn to Exhibit Number 3. Show us the line 20 Q. 21 of cross-section again for the cross-sectional display. 22 Α. The line of cross-section from the north goes 23 through the wells in the Cabin Lake field and Section 2 and 11. Both of those are Strawn producers. 24 It then comes to the southeast, to an orthodox 25

location for Yates, which is essentially 660 from the 1 2 south, 1980 from the west, through their proposed unorthodox location, then, to our Apache "13" Federal 3 Number 1, and then farther south to our Apache "25" Number 4 2, and then to another well in Section 36 of 22 South, 31 5 6 East, which is in the Atoka pool to the south, to show the 7 continuity of the reservoir. Why would you choose to construct a structure map Q. 8 on top of the Strawn, when we're here to discuss the Atoka? 9 We have -- Well, first of all, the Strawn is in 10 Α. real close proximity to the Atoka, and also it is our 11 seismic reflector pick out here that we have used 12 regionally throughout this area, and we have a significant 13 amount of seismic data, as you can see on Exhibit Number 3, 14 that we --15 Show us how that information is coded on Exhibit 16 0. Number 3 for the seismic data. 17 You can see several east-west lines with those 18 Α. 19 little open circles, and then subsea numbers through both east-west and north-south, running across the prospect 20 21 area. 22 There's several miles of seismic, some of which Mitchell shot and some of which they purchased, that we 23 incorporated with well data to construct this map. 24 25 Satisfied you have an adequate verification of Q.

the seismic information with the log data? 1 Yes, we sure do. 2 Α. What's the point of the structural map? 3 Q. Well, the point of the structure map was, we're Α. 4 going to show that Yates' orthodox location versus their 5 proposed location is really in approximately the same 6 7 structural position, maybe approximately 20 feet low, but we can show, especially in the Atoka horizon, that that is 8 really not an issue, because the reservoir does not make 9 any significant amount of water. 10 Okay, let's turn now to Exhibit Number 4. Let's 11 Q. identify that display. 12 Exhibit Number 4 is an isopach of the Morrow "C" 13 Α. sand section, and that would be the interval below the --14 on the cross-section, below where it's marked top of the 15 Morrow "C", based upon a porosity cutoff of 7 percent, it 16 would be a net isopach, and it essentially shows a north-17 south trend through the prospect area. 18 One of the things to note in conjunction with 19 20 Exhibit Number 3 is that there are two wells to the north, 21 one in Section 6 and one Section 1, that tested wet out of 22 this zone, and the proposed location would be 187 feet 23 downdip from the well in Section 1 and 103 downdip from the well in Section 6, and we don't feel that this -- the 24 Morrow "C" is an objective out here under Yates' leasehold 25

here. 1 All right. If you were picking well locations 2 Q. for Yates and it was your charge as a geologist to find 3 them a location in Section 7, would it matter to you --4 No, it would not. 5 Α. -- as to the Morrow "C" sand? Q. 6 No, it would not. 7 Α. That's not going to influence your decision? 8 Q. It would be a -- The zone would be wet, and it 9 Α. would not be a target. 10 All right. Any other Morrow potential? 11 Q. There is some Morrow potential, what I've 12 Α. 13 designated Morrow "B". Q. Let's look at that display. 14 Again, it shows a pronounced north-south trend. 15 Α. That's Exhibit Number 5? 16 Q. Yes, that's Exhibit Number 5. There are some 17 Α. producers to the north. 18 However, recently we have tested two wells out of 19 this zone in Section 24 and in Section 25. They're denoted 20 by the blue dots on the map. Both of these wells, 21 unfortunately, were extremely limited reservoirs. One only 22 produced 30 million cubic feet of gas, and another one 23 24 approximately 100 million. So these reservoirs are very discontinuous and 25

very limited in size, and we feel that they're really not a 1 2 primary target in this area. If your primary target in Section 7 is the Atoka, 3 Q. would you adjust that location anyway, based upon anything 4 you see for the Morrow "B" or for the Morrow "C"? 5 Α. No, I would not. 6 7 Q. Okay. Let's turn and look at the Atoka, Exhibit Number 6. 8 Exhibit Number 6 is an isopach of what we have 9 Α. termed the Atoka "AC" sand, which is the main the Atoka pay 10 in the area. We feel that this is the primary target in 11 12 the area, because this reservoir has cum'd in excess of 38 million cubic feet of gas to date. It still has five 13 current producers. 14 This map was constructed using all the available 15 well data, as well as in close association with our 16 17 reservoir engineer, using his pressure data, so as to make the size of the reservoir fit the pressure data. 18 Using the well control and that pressure data, we 19 came up with this configuration of the reservoir. 20 I might add that we used all the well 21 22 information, including the wells to the south, in this map. Let's look at the wells to the south. Each Atoka 23 Q. 24 producer has got a red-colored dot, and then next to it are 25 some values. What do those numbers represent?

Those numbers represent cumulative production as 1 Α. of the end of 1993. As you can see, they range as high as 2 25.7 BCF of gas in the well in Section 36, which was the 3 discovery well. 4 Do you have a copy of Mr. May's isopach of the 5 Q. Atoka "AC" sand? 6 7 Yes, sir, I do. Α. 8 Q. If you'll look at the bottom portion of his 9 display, he stops his information with, I think, the bottom half of Section 36, is it? 10 That's correct. 11 Α. All right. And your isopach, then, continues 12 Q. into the next section and a half, and you complete the 13 closure of the reservoir? 14 15 Α. That is correct. Describe for us why you have concluded that the 16 Q. reservoir has that closure to it. 17 There is no more current production farther south 18 Α. of where those two wells in Section 1 occur, and then the 19 isopach thickness becomes -- essentially is less than the 20 five-foot contour. 21 And as far as to the north goes, there is -- you 22 23 see a separate pod up to the north. All right, let's look at that point. In Section 24 Q. 25 7 you've closed off the reservoir --

1	A. That's correct.
2	Q in Section 7, and Mr. May chose to leave those
3	contours open at the moment?
4	A. That is correct.
5	Q. All right. What's the reason that has caused you
6	to close those off?
7	A. We had reservoir limitations based upon the
8	pressure data from our wells in Section 25 and in Section
9	13 that gave us limitations to the size of the reservoir.
10	We already know there's limitations to the south and all
11	along the west, and we configured this reservoir using that
12	pressure data.
13	Q. You have pressure data that tied the Apache "13"
14	Federal 1 well in Section 13 to the Atoka production to the
15	south?
16	A. That is correct.
17	Q. Geologically, is it consistent to tie them
18	together as one reservoir?
19	A. Yes, it is.
20	Q. What has given you your east-west dimension to
21	the reservoir?
22	A. The east-west dimension is mainly based upon what
23	we're using for our reservoir calculations, pressure data.
24	Q. Okay. Describe for us any other points of
25	difference that are significant between you and Mr. May

when we look at his isopach compared to yours. 1 There's some difference in values, but they're 2 Α. relatively minor differences in values. However, they both 3 show that the proposed location in the orthodox location 4 for an Atoka well is, if anything, a little bit better at 5 an orthodox location, so that --6 What causes you to say that the Yates well at a 7 Q. 8 standard or orthodox location, is better geologically than 9 the proposed location? 10 Α. It just shows that you can get it just slightly increasing in thickness of sand with good porosity. 11 Okay. If you were doing this geologic work for 12 0. Yates, what would be your first priority as to a location 13 in Section 7? 14 I would maximize my potential for this particular 15 Α. reservoir as being my main objective and go to the thickest 16 part of my isopach and put my location there. 17 Geologically, do you see any benefit to moving 18 Q. towards an unorthodox location that crowds towards the 19 Apache Federal "13" well? 20 21 Α. No, I do not. Turn now, sir, to Exhibit Number 7. Would you 22 Q. 23 identify and describe that? Exhibit Number 7 is a diagram that shows some of 24 Α. 25 the completed or proposed directional Morrow wells within

1 the vicinity of the Apache area and the proposed Yates unorthodox locations. 2 There have been two wells just to the south that 3 have been drilled directionally from the Morrow, one 4 5 completed as a Morrow producer, and that well is in Section 36 of 22 South, 30 East. 6 7 Q. You're looking down to the south end of the display? 8 That's correct. 9 Α. All right, sir. 10 Q. And there's another well in Section 31 of 22 11 Α. South, 31 East, that was drilled, directionally drilled, to 12 the Morrow and completed as an Atoka "AC" sand. 13 You'll also note, only about 14 miles to the 14 north and west, in the Dos Hermanos Northeast field, Yates 15 Petroleum has already drilled a well, directional, for the 16 Morrow, and that's the Amaranth ANG Federal Number 1 Well 17 in Section 12. 18 They have also two other proposed Morrow 19 20 directional wells, one also in -- another one in Section 21 12, Amaranth ANG Federal Number 2, and another one in 22 Section 14, the Crescent ANV Federal Com Number 1. 23 The well that was completed in Section 12 has a surface location of approximately 1310 from the north line 24 and 2630 feet from the east line, and a bottomhole location 25

1	of 3739 feet from the north line and 3405 feet from the
2	east line. That calculates out to 2429-foot offset to the
3	south and about 775 foot of offset to the west.
4	Essentially, we're using this to show that there
5	have been directional wells for the Morrow in this area, by
6	other operators and also by Yates, that show that the
7	Morrow can be effectively drilled directionally in this
8	area.
9	MR. KELLAHIN: That concludes my examination of
10	Mr. Gawloski.
11	We move the introduction of his Exhibits 1
12	through 7.
13	EXAMINER MORROW: Exhibits 1 through 7 are
14	admitted.
15	CROSS-EXAMINATION
16	BY MR. ERNEST CARROLL:
17	Q. Mr. Gawloski with respect to your Exhibit Number
18	3, you chose to map the top of the Strawn; is that correct?
19	A. That's correct.
20	Q. Mr. May did not map the Strawn in his
21	presentation, did he?
22	A. I don't believe he did, no.
23	Q. But from what you recall of Mr. May's
24	presentation, his general conclusions concerning the
25	regional dip and actually is consistent with what your

1	conclusions are? There's no real major difference between
2	his geological presentation and yours, even though you may
3	have mapped two different horizons?
4	A. Well, I don't have it in front of me, but I
5	believe that's correct.
6	Q. All right. Now, your Exhibit Number 4, you chose
7	to map the in this exhibit the Morrow "C"; is that
8	correct?
9	A. That's correct.
10	Q. You remember, do you not, that Mr. May did not
11	present a map concerning the Morrow "C", nor did he propose
12	the Morrow "C" as an objective, did he?
13	A. That's correct.
14	Q. Exhibit Number 5. In this particular exhibit,
15	you show, I guess, the main body of this Morrow "B" pulling
16	off to the west, up there at the top, adjacent to Section
17	7; isn't that correct?
18	A. I show a north-south trend going through
19	essentially where Mitchell's acreage is, and it does then
20	go to the northwest
21	A. All right.
22	Q across Section 12.
23	Q. And this is basically the same horizon that Mr.
24	May did map and give a presentation on, is it not?
25	A. I think it's He mapped part of this section.

All right. One of the key differences, though, 1 Q. between what he was -- the parameters that he was using to 2 map this and yours is that you have also added a 3 requirement of the 7-percent porosity, where only he used 4 the thickness of the sand; isn't that correct? 5 6 Α. That's correct. This is a mapping formula that 7 we have used regionally for many years, and it's quite 8 effective as a reservoir cutoff. But if you're trying to compare this map to what 9 Q. Mr. May -- your parameters are different, so you wouldn't 10 expect them to be exactly the same, would you? Since you 11 have added the dimension of porosity? 12 Α. That's correct. 13 And you also recall that Mr. May actually pulled 14 Q. 15 this -- instead of pulling to the west as yours does, his pulled to the east this thickness in this particular 16 17 horizon? MR. KELLAHIN: Mr. Examiner, may I show the 18 witness Mr. May's Exhibit? I think that's what you're --19 THE WITNESS: Thank you. 20 21 Q. (By Mr. Ernest Carroll) Or at least the main 22 body or thickness area is pulled farther to the east in Mr. 23 May's presentation than in yours? 24 Α. That's correct, but there's absolutely no well 25 control in that direction to be able -- you'd be pulling it

in that direction. The well control is up to the north and 1 to the west, where I have taken the sandbody. 2 In other words, there's no well control for you 3 Q. to say that it doesn't go to that direction either, is 4 there? 5 There's a well in Section 6 that's thin, and 6 Α. 7 that's -- We both use that well control. There's none 8 directly east, because it's the WIPP site. 9 Q. In your Exhibit Number 6, you have chosen to close off at the top this reservoir just slightly past the 10 midpoint of Section 7; is that correct? 11 It goes closer to the north line --12 A. Or the top -- close to the top quarter? 13 Q. 14 Okay, yes. Α. You have no well control to dictate the closure 15 Q. at that point, do you? 16 17 Α. No, I don't. We used the reservoir pressure information to determine the size and shape of this 18 19 reservoir. You also -- For two reasons, I would think, you 20 Q. have no seismic control, and the two reasons are, no 21 22 seismic lines run across there, and also the Atoka has no 23 appropriate -- or there are no markers or ability to 24 actually read the Atoka through seismic; is that correct? 25 Yeah, we would never attempt to try to isopach or Α.

map using a seismic on a sand that's less than 10 feet 1 It's not --2 thick. Okay, and that's what we have in the Atoka here? 3 Q. It's beyond any resolution of any seismic. We 4 Α. used a seismic in this area for a structural picture. 5 So we know now that there's no well data and 6 Q. 7 there's no seismic data that shows closure as being as you have depicted it here? 8 Α. That's correct. 9 Now, the pressure data that you have indicated 10 Q. that you used, was this a reservoir simulation? 11 As far as the reservoir pressure information, Mr. 12 Α. Richard will testify to that, and I will not get any 13 further into it except that we used his information to 14 construct this isopach and used it for the boundaries and 15 the shape --16 Well, what were you told? Was this a simulation 17 Q. of the reservoir that you looked at to then draw your 18 lines? 19 I'm trying to determine how you picked the point 20 where you did to draw the line that's given the value of 5 21 feet, 10 feet and 15 feet. Was it something that was drawn 22 23 already out from a reservoir simulation or what? From my understanding, he determined the amount 24 Α. of reserves left in the reservoir, and using the pressure 25

this map using that information, and I won't go into any further detail because I don't really know. Q. Well, what I'm trying to find out, did you draw that line, or did the engineer draw the line and you put it on your map? A. Which line are you referring to? Q. I'm talking about the three lines that show closure, the value of 15 feet, the value of 10 feet and the value of 5, would show closure of the reservoir there in Section 7. A. The maps were done in conjunction with each other's information. Q. Okay. But were you physically responsible for drawing the line that is on Exhibit 6, or did the engineer daw that line? A. I drew the line. Q. You drew the line. What did you see that caused you to put that line there? Was there another map already prepared with a line in the same place and you copied it? How did you place that line? A. We determined the reservoir to the map to the reservoir, using the pressure data.	1	information from the Apache "25" and "13" he constructed
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20 prepared with a line in the same place and you copied it? 21 How did you place that line? 22 A. We determined the reservoir size, and we know the 23 limits of the reservoir to the south and to the west, and 24 we then fit the size of the reservoir to the map to the 25 reservoir, using the pressure data.	19	you to put that line there? Was there another map already
How did you place that line? A. We determined the reservoir size, and we know the limits of the reservoir to the south and to the west, and we then fit the size of the reservoir to the map to the reservoir, using the pressure data.	20	prepared with a line in the same place and you copied it?
A. We determined the reservoir size, and we know the limits of the reservoir to the south and to the west, and we then fit the size of the reservoir to the map to the reservoir, using the pressure data.	21	How did you place that line?
23 limits of the reservoir to the south and to the west, and 24 we then fit the size of the reservoir to the map to the 25 reservoir, using the pressure data.	22	A. We determined the reservoir size, and we know the
24 we then fit the size of the reservoir to the map to the 25 reservoir, using the pressure data.	23	limits of the reservoir to the south and to the west, and
25 reservoir, using the pressure data.	24	we then fit the size of the reservoir to the map to the
	25	reservoir, using the pressure data.

All right, but --1 Q. And our reservoir engineer could go further into 2 Α. that. 3 Well, what I'm saying is that, did you just take 4 Q. a value, another map, another line drawn -- Did you 5 6 plagiarize, then, what the engineer did? 7 Α. No, sir. All right. Then you decided where to put that 8 0. 9 line; is that correct? Using his information --10 Α. Q. Okay, what --11 -- with the well control, yes, sir. 12 Α. 13 What was the form of the information? Was it Q. metes and bounds, footage, or was it a map? I want to know 14 how you knew to draw that line. What information was it? 15 It was pressure information, P over Z data. 16 Α. 17 Okay, pressure data says so many pounds. How do Q. 18 you know -- Was there a map, then, that had pressure data located on it? Is that what you're telling me you looked 19 20 at? There is a map that will be presented that has 21 Α. 22 the pressure data on it. 23 Q. Okay, is that what you looked at? Is that what you looked at? 24 25 Α. Is that what I looked at?

Just a map that had lines drawn with pressure 1 Q. 2 values on it? I used that, with the reservoir information, the 3 Α. reserves in place to use -- to construct this map. 4 Q. Then, Mr. Gawloski, did you use your own thought 5 process to draw this cutoff line, or did you use the values 6 7 that were presented to you? And if you did use a value, 8 what pressure value did you use to draw your cutoff line? We used the volume of the reservoir, of the 9 Α. reserves in place, and used the pressure information that 10 we have gotten, that you used, from the Apache "25" and the 11 Apache "13", and I used that to construct this isopach. 12 I believe I've answered your question, sir. 13 Well, I'm not sure that you have, Mr. Gawloski. Q. 14 15 Let me try one other way of getting to it. Did you look at the exhibit that was going to be 16 presented by your engineer in today's case to draw your 17 lines? 18 I used -- This isopach, he used to put his 19 Α. pressure information on. He essentially used the isopach 20 21 that I constructed. 22 Q. All right. Did you construct the isopach before 23 he put the data on, the pressure data? 24 Α. Yes, I did. 25 All right. So now we're getting somewhere. Q. How

1	did you know What data did you use to draw your isopach
2	to give to him, since you have just told us that the
3	isopach came first?
4	A. The isopach was constructed using his data. Then
5	he took the isopach and put his essentially pressure lines
6	on it. He used the same isopach. I have two different
7	isopachs. We used the same information, the same isopach.
8	Q. When you call the outside line, I take it the
9	"5", that's five feet; is that correct?
10	A. Yes, sir, it is.
11	Q. How do you know that that's five feet? Why or
12	In your own mind, how did you determine that that line
13	represented five feet?
14	A. Just the way I would do any other isopach map. I
15	got values down to six feet and down to eight feet.
16	Q. Is that based off of well control?
17	A. Yes, sir, it is.
18	Q. And how did you determine the distance between
19	the ten-foot line and the five-foot line?
20	A. Geologic contouring.
21	Q. Your impression, then
22	A. Yes
23	Q your interpretation?
24	A I used the data available to me, and I
25	constructed this isopach map.

Now, Mr. Gawloski, by closing off this reservoir 1 Q. as you have in Section 7, rather than Section 6, you 2 increase the relative value of the gas underlying Section 3 13 as opposed to Section 7, don't you? 4 5 Α. I can't answer that question. I'm not an 6 engineer. 7 You presented Exhibit 7. The only three wells Q. that are directional wells drilled by Yates or attributed 8 to Yates, because I think two of them you have indicated 9 are only proposed, are those wells up in the northern part 10 of the map; is that correct? 11 That's correct, they're approximately 14 miles 12 Α. north northwest of the proposed location. 13 So technically, there's only been one directional 14 Q. well drilled by Yates, as depicted from this exhibit; is 15 that correct? 16 And further wells, as you have presented in 17 Α. Burton Flat, which is just to the north of here. 18 With respect -- How long was this particular well 19 Q. 20 drilled that you've shown here as having been drilled? The Amaranth well, sir? Is that what you're 21 Α. referring to? 22 23 Q. Yes. The completed well. Let's see, it was spudded in 24 Α. April, completed August 30th of 1993. 25
1	Q. Of 1993?
2	A. Yes, sir.
3	Q. And these two additional proposed wells have not
4	been drilled; is that correct?
5	A. To the best of my knowledge, they have not.
6	Q. Have you done a study of the what the
7	production of this well has been that's been completed?
8	A. I have just the initial potential data. The
9	production data has not been available to me.
10	Q. Are you representing to this Examiner that that
11	well has been an economic success and that Yates would
12	drill another one?
13	A. No, sir, I'm just showing that there has been
14	directional Morrow wells in the area, and I don't know the
15	economic value of that particular well.
16	Q. Has Mitchell drilled any Morrow wells
17	directionally so as to have an experience base as to
18	whether or not they would do it again?
19	A. To my knowledge, we have not.
20	Q. Mr. Gawloski, when the "13" 1 Apache "13" 1
21	well was drilled, did Mitchell ever consider drilling that
22	well directionally so it would be orthodox?
23	A. No, sir.
24	Q. Was this the location that Mitchell would have
25	chosen if it could have had any location to pick that was

1	unorthodox?
2	A. Could you repeat that question?
3	Q. Okay, and I may have Sometimes late in the day
4	I get a little tongue-tied myself.
5	Did Mitchell ever consider drilling this well
6	orthodox?
7	A. Yes, we did, we had initially proposed the
8	location 1980 from the south and east lease lines, and that
9	was denied by the BLM.
10	They subsequently came back to us with a corridor
11	in which we could put the well, and we have placed that
12	well within that corridor and notified all the partners
13	involved that it would be an unorthodox location.
14	And then we proceeded to We got our permit and
15	then drilled the well.
16	Q. You apparently moved, then, this well from the
17	south half of the section to the north half; is that
18	correct?
19	A. That's correct.
20	Q. Why did you move from the southern to the
21	northern?
22	A. When we had initially proposed the well, we had
23	two seismic lines over in this prospect. We subsequently
24	shot as many as four or five new lines ourselves, and the
25	additional data showed that the location would be better

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fit in the northeast quarter of Section 13. 1 Better fit as to what horizon? You just told us Q. 2 a little while ago that you can't read or determine --3 Structural interpretation of the reservoir. Α. 4 Did you shoot this seismic line after the denial 5 Q. of the orthodox location? 6 I'm not sure when all that occurred. 7 I know we Α. did shoot it after we acquired the acreage. I don't know 8 when the denial versus -- when the seismic was shot. 9 You can't tell us, then, that Mitchell didn't Q. 10 have that seismic line prior to the picking of the original 11 orthodox location? 12 Well, we did not have -- we had -- We did not Α. 13 have the lines that we shot prior to the initial location. 14 That was shot after that location was proposed to the BLM. 15 Geologically, as you have this mapped in your 16 Q. Exhibit 6, it is reasonable to assume that your well is 17 draining not only Section 13, but parts of the section to 18 the west -- I mean the east -- and also Yates' section to 19 20 the north, Section 7, is it not? I can't speak upon reservoir drainage, sir. I'm 21 Α. not qualified in that respect. 22 Well, if you assume drainage in a perfect circle 23 Q. around that, it would get into those sections, would it 24 not, based on that assumption? 25

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MR. KELLAHIN: Objection, the witness has said 1 he's not qualified, in fact, he's not a reservoir engineer. 2 3 We have a reservoir engineer; we're going to call him shortly. 4 5 It's not an appropriate question. EXAMINER MORROW: Would you as soon wait and ask 6 7 him? MR. ERNEST CARROLL: All right. 8 (By Mr. Ernest Carroll) Mr. Gawloski, let me ask 9 Q. you one last question. How is Mitchell disadvantaged by 10 the locating of the Yates well at the unorthodox location 11 proposed? 12 Geologic matter? 13 Α. Geologically, yes. 14 Q. Geologically, the isopach shows it to be a little 15 Α. bit greater thickness, within the reservoir, in both the 16 unorthodox and the orthodox locations. 17 But how does that work to the disadvantage of Q. 18 Mitchell? 19 They would have a thicker zone -- well, I mean, 20 Α. it really doesn't -- Geologically, there is no difference. 21 22 MR. ERNEST CARROLL: Okay, that's all. 23 THE WITNESS: Geologically there's none, yes. MR. ERNEST CARROLL: Thank you. 24 EXAMINER MORROW: Go ahead, sir. 25

1	REDIRECT EXAMINATION
2	BY MR. KELLAHIN:
3	Q. Mr. Gawloski, hindsight is nice. You now have a
4	log on the Apache Federal "13" well.
5	At the time you were locating the well in 13, you
6	didn't have the log of the well you drilled, right?
7	A. That's correct.
8	Q. Where was the closest Atoka production that you
9	could key off of in finding or fine-tuning your location?
10	A. We It was quite a bit to the south. We
11	probably had the log on the Apache "25" Number 1. And
12	other than that, it would be the wells farther to the
13	south.
14	Q. Closest production to you is two miles to the
15	south?
16	A. Yes, a little over two miles to the south.
17	Q. So there was no judgment made available to you in
18	terms of whether you were keying off of known production?
19	A. That's correct.
20	Q. You couldn't fine-tune your location based upon
21	offset production?
22	A. No.
23	Q. You could make no judgments about vertical or
24	directionally drilled wells?
25	A. That's correct.

By drilling the well in 13, you have given the 1 Q. offset interest owners the opportunity to minimize the risk 2 in drilling their wells, have you not? 3 That's correct. Mitchell took the risk to drill 4 Α. the deep well and discovered the reservoir and headed up 5 6 farther to the north. 7 0. And that was a substantial step out for existing 8 Atoka production? That's correct. 9 Α. Q. If the Division Examiner is to know which 10 geologic location is better, the unorthodox or the standard 11 location in 7, what is your conclusion? 12 My conclusion would be that the orthodox location 13 Α. is a better location, based upon this isopach right here. 14 It shows it to be a little bit better thickness. 15 Would that standard location afford, in your 16 Q. opinion, Yates the opportunity to have their share of the 17 reservoir? 18 19 Α. Yes. Geologically, do they need the unorthodox 20 Q. 21 location in order to have their geologic share? 22 Α. No, they do not. 23 MR. KELLAHIN: No further questions, Mr. 24 Examiner. 25 Mr. Morrow, I overlooked MR. ERNEST CARROLL:

1 one. EXAMINER MORROW: Go ahead. 2 MR. ERNEST CARROLL: I apologize. 3 CROSS-EXAMINATION (Continued) 4 5 BY MR. ERNEST CARROLL: Mr. Gawloski, in your earlier examination you 6 Q. 7 stated that by drilling at the -- by locating the well at the orthodox location as opposed to the unorthodox 8 location, you would have a slightly increased thickness of 9 the Atoka. Just a moment ago you said a little bit better 10 thickness. 11 What do you mean? How much thickness are you 12 talking about when you say slightly increased or a little 13 bit better? 14 So far it's between 10 to 12 to 13 feet from the 15 Α. -- 10 foot from the unorthodox location, upwards to 12 feet 16 to 13 feet for the orthodox location. 17 So you're talking about somewhere in the realm of 18 Q. maybe two feet; is that correct? 19 20 Α. Two or three feet. Two or three feet. The data that you're looking 21 0. at, is it reasonable to assume that you can determine two 22 or three feet with that much particularity, or 23 accurateness? 24 Based upon the data I have, this is the -- you 25 Α.

know, the way the map I constructed. 1 You're talking about contours or wells with, you 2 know, six to eight feet, so you can get pretty precise with 3 it. 4 Well, geologically here, how much better a well 5 Q. is two feet going to make a difference? 6 7 Α. If it has as much permeability as your engineers have determined, then it could make a difference. 8 It could make a difference? 9 Q. Yes, it could. 10 Α. And again, the difference between the 10 and the 11 Q. 12 feet is just your geologic interpretation based on 12 nothing but pressure data; is that correct? 13 No, that's incorrect. I did not use just Α. 14 pressure data; I used all the geologic data as well in 15 16 here. And we know that there's no well-control data up 17 Q. there in Section 7, and there's no seismic data available 18 for the Atoka? 19 20 Α. That's correct. MR. ERNEST CARROLL: That's all. 21 22 EXAMINATION 23 BY EXAMINER MORROW: You mentioned that corridor. Would you describe 24 Q. that corridor that the BLM --25

The corridor that the BLM --1 Α. -- authorized for you in Section 13? 2 Q. -- had given to us was from zero to 330 feet from 3 Α. the section line to the west, and it went from 3300 feet 4 from the north line to 1320 feet from the north line. 5 To the west or the east? 6 Q. 7 Α. Well, from the east section line. 8 Okay, and --Q. It was a very narrow corridor. 9 Α. 10 -- 3300 --Q. -- 3300 from the north line to 1320 feet from the 11 Α. north line. 12 And you actually drilled it --13 Q. -- 1330 feet from the north line. 14 Α. 15 Q. 1330. 1320 feet would be on the proration unit boundary 16 Α. lines, so we couldn't --17 18 Oh, yeah. Q. -- we couldn't go that far. 19 Α. And it was 330 from the east? 20 Q. That's correct, that's as far as they let us go. 21 Α. Now, where was the orthodox location you said you 22 Q. 23 had --24 Α. It was originally proposed at 1980 from the south 25 and east.

And you said the -- if I understood you right on 1 Q. 2 that offset thing there, the northwest corner of 18, Section 18, is 204 feet south of the northeast corner 3 Section 13? 4 5 Α. That's correct. We had calculated that at 204 6 feet. So from that corner there, at least, or a line 7 Q. extended across there, you'd be two hundred and -- 1330 8 minus about 1126 feet from that -- or due south of that 9 north line of Section 18? 10 Α. Yes. 11 EXAMINER MORROW: Do you have any questions? 12 13 MR. RAND CARROLL: (Shakes head) EXAMINER MORROW: Thank you, Mr. Gawloski, 14 appreciate your testimony. 15 MR. KELLAHIN: Mr. Examiner, at this time we'll 16 call Mr. Bill Thoroughman. Mr. Thoroughman is a drilling 17 engineer with Mitchell. 18 19 BILL THOROUGHMAN, the witness herein, after having been first duly sworn upon 20 21 his oath, was examined and testified as follows: 22 DIRECT EXAMINATION 23 BY MR. KELLAHIN: Mr. Thoroughman, would you please state your name 24 Q. and occupation? 25

1	A. Yes, sir, my name is Bill Thoroughman. I'm a
2	staff drilling engineer for Mitchell Energy Corporation.
3	Q. Mr. Thoroughman, on prior occasions have you
4	testified and qualified as an expert drilling engineer
5	before the Oil Conservation Division?
6	A. Yes, I have.
7	Q. Did you testify before the Division this last
8	spring concerning Mitchell's application to delete the
9	potash protection string in certain wells to be drilled in
10	the R-111-P area?
11	A. Yes, I did.
12	Q. As part of your duties, do you on a regular basis
13	prepare, review and evaluate estimated expenditures for
14	wells?
15	A. Yes, I do.
16	Q. Both directional and vertical wells?
17	A. That is correct.
18	Q. If an AFE is being generated by your company,
19	will it ultimately come across your desk for review?
20	A. Yes, sir, that's correct.
21	Q. If those wells are drilled in southeastern New
22	Mexico, then you would see the AFE at some point in time?
23	A. Yes, sir.
24	Q. Do the other engineers in your company rely upon
25	your expertise and opinions when it comes to matters of
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drilling and completing wells? 1 Yes, sir, they do. 2 Α. Do they rely upon your judgment and expertise Q. 3 when it comes to cost components with regards to these 4 various activities in the drilling and completing of these 5 6 wells? Yes, sir, they do. 7 Α. Q. Have you made a specific study within your 8 expertise for the cost of a vertical well and the costs of 9 a directional well within the footage parameters of the 10 Application that Yates has before the Division? 11 Yes, sir, I have. Α. 12 MR. KELLAHIN: We tender Mr. Thoroughman as an 13 expert drilling engineer. 14 EXAMINER MORROW: All right, accept Mr. 15 Thoroughman. 16 THE WITNESS: Thank you. 17 (By Mr. Kellahin) Set the stage for us, Mr. Q. 18 Let me look at Exhibit 8 with you. Thoroughman. 19 All right, how this started is, our regulatory 20 Α. affairs group came to me with the request that we analyze 21 or look at the differences in cost of drilling a 22 directional well and a straight hole to a location similar 23 to our Apache wells. 24 So how I began this operation was to get the 25

1	certain parameters. You'll notice on my Exhibit 8 that I
2	have the unorthodox location noted here at 330 from the
3	south line, 950 from the west line.
4	Then if you'll notice a little further to the
5	right and up, I have spotted the point which would be an
6	orthodox location, that being 1980 from the west line, 660
7	from the south line.
8	Now, with this information, and knowing and
9	having done some directional work, I know that our
10	directional companies need a target. So what I did was
11	drawn in what you see as the orthodox location boundaries,
12	both for south and west. I personally call those hard
13	lines. We want our TD to be across those lines.
14	So when I go now to a directional company, I give
15	them a standard target for Mitchell Energy, which is a 100-
16	foot-radius circle, and it fits inside of the hard lines
17	for an unorthodox boundary.
18	Q. Having determined the path of the directional
19	well and the various footages required to get there, did
20	you cause to be prepared an AFE for a vertical well and
21	then an AFE for a directionally drilled well within the
22	facts of this case?
23	A. Yes, sir.
24	Q. Show us what you concluded were to be the costs
25	for doing both.
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All right. We have drilled a number of wells Α. 1 specifically in this area and had our -- what we feel like 2 -- We have our dryhole costs for a straight hole pretty 3 well nailed down. 4 5 But we have not, as was previously testified to, drilled any directional wells out here yet, although I 6 7 suppose we will have to eventually. So without that current expertise in southeast New Mexico, I called Wilson 8 Downhole, which is my favorite pick of directional service 9 companies. These people provide us both with the tools and 10 the expertise and people to supervise and drill directional 11 wells. 12 I gave them the parameters as I have shown you in 13 Exhibit 8, and they have responded to me with what I have 14 shown as Exhibit 9. 15 Have you examined Exhibit 9 and satisfied 16 Q. yourself that it's accurate? 17 Α. Yes, sir. 18 Let's look and see what it cost to drill the 19 Q. 20 directional well under this analysis. 21 Α. Okay, you'll notice that Wilson has provided me 22 with a -- and this is standard for them -- a complete cost 23 estimate of their services, probably more detail than we 24 need right here, including, if you go to the second page of Exhibit 9, at the bottom they tell me, "For AFE purposes, 25

please add this additional cost for downhole motors, 1 steering tool and wireline for correction runs if 2 necessary." -- we call that a contingency -- for a grand 3 total of \$101,417.85 4 Have you taken that information and incorporated 5 Q. it into a complete AFE for the drilling costs of the 6 7 directional well? Yes, sir, I have. 8 Α. Do you have an exhibit that shows that? 9 Q. 10 Α. Yes, I do. And what is its exhibit number? 11 Q. Exhibit Number 11. 12 Α. 13 Q. All right, 10 is going to be the AFE for the 14 drilling costs of the vertical well? That is correct. 15 Α. And if we go to 11, that's going to be the cost 16 Q. of the directional well? 17 Yes, sir, that's correct. 18 Α. All right. Let's save 11 for a minute. 19 Q. Go to 10 and show me what it costs, in your 20 opinion, to drill -- And this is without completion? 21 That is correct. Α. 22 The cost differential is going to be in the 23 Q. drilling portion of the AFE? 24 That is also correct. 25 Α.

All right. What did you get for the vertical 1 Q. 2 well? For my vertical well, I came up with \$1,291,000. 3 Α. Okay, when you look over at Exhibit 11, at the 4 Q. directional well, what is your total dryhole or drilling 5 cost? 6 \$1,580,000. 7 Α. All right. Wherein is that differential of 8 Q. approximately \$300,000? 9 10 Α. Okay, armed with the cost estimate from Wilson Downhole, you'll find it under line item number 15. I've 11 entered \$102,000, rounding up on their cost estimate. 12 13 Q. All right, sir. Where else do we find it? Pardon me? 14 Α. Where else will we find the difference? 15 Q. From Wilson -- I had them also estimate, based on 16 Α. their experience in the area, how many additional days it 17 would take me to do this work over a straight hole. 18 19 They responded with 38 to 40 days, and based upon our depth-versus-days curves, this is ten days more than we 20 normally have. 21 So the other items that you'll see in here will 22 be based on ten additional days. They would appear under 23 14, Solids Control Equipment. 24 All right, the 14, it says 50 days, ten of that 25 Q.

is attributable to directional drilling? 1 2 Α. Yes, sir. Supervision, which is line item number 19. 3 That says 70 days, and ten of those are 4 Q. directional drilling? 5 6 Α. Yes, sir. 7 Q. Okay. Α. All right, Daywork Contract Fee. 8 9 Q. The 70, ten of which is directional drilling 10 dedicated? Α. That is correct. 11 12 Q. Okay. Mud and Chemicals, I have ten additional days of 13 Α. servicing my mud system. 14 15 Q. I don't see that as a day component. I'm sorry, line item 53. 16 Α. 17 Q. All right. Okay? 18 Α. It says Mud and Chemicals --19 Q. Yes, sir. 20 Α. -- the \$110,000? 21 Q. Yes, sir. 22 Α. 23 Q. What portion of that is directly attributable to directional drilling? 24 25 Α. Roughly \$20,000.

All right. Anything else? 1 Q. Okay, under Bits -- this is not time-related -- I 2 Α. estimated we'd use an additional \$60,000 worth of bits in 3 doing this directional work. 4 So the \$150,000 includes a \$60,000 increase? 5 Q. Α. Yes. 6 7 That's directly attributable to the directional Q. drilling? 8 Yes, sir. 9 Α. All right, sir. Anything else? 10 Q. Okay, Open Hole Logging and Testing, I've got an 11 Α. additional \$10,000 there. 12 Extra mud log days, although it doesn't say it 13 right there, and possibly some further charges from the 14 wireline company. 15 16 Q. Okay. And then there are additional -- let's see, 17 Α. dollars under Miscellaneous Services and Contingency, I 18 used 7 percent. 19 So \$88,000? 20 Q. 21 Α. Yes, sir. Is that all -- that 7-percent contingency 22 Q. 23 directly attributable to directional drilling, or is that inclusive of all contingencies? 24 25 It would go up from \$75,000 for a straight hole Α.

to \$88,000 for a directional hole. 1 All right, so you have another \$13,000 on 2 Q. contingencies attributable directly to directional 3 drilling? 4 5 Α. Yes, sir. Q. Okay, anything else? 6 There is additional money in the Tangible portion 7 Α. 8 of this cost estimate for additional 7-inch pipe. One of the directions I made to Wilson was I 9 wanted to do all the build -- If I could go back --10 Q. Yes, sir. 11 -- to 9, I wanted them to do all of their 12 Α. building, which is where we have QC problems, prior to us 13 running our protective string of 7-inch at \$12,300. 14 Consequently, I'll need more 7-inch pipe since I'll have a 15 different measured depth, and there needed to be more money 16 in there for that string. 17 Q. Do you have an estimate of the amount of money 18 attributed to that item? 19 Yes, it looks to me like it's \$11,000. 20 Α. Okay. Anything else? 21 Q. That's it. 22 Α. Have you had a chance to look through the AFE 23 Q. that Mr. Springer prepared for Yates? 24 25 Α. Yes, briefly.

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All right. You and he have a major difference in 1 Q. dollars, don't you? 2 Not on a straight hole. As a matter of fact, if 3 Α. I did not include any coring and drill stem testing, I 4 think those dollar amounts just about make the difference 5 6 in our straight hole. Straight hole, you're really close? 7 Q. 8 Α. Yes, sir. Wherein lies the major difference between you on 9 Q. the directional well? You've got about \$300,000 extra, and 10 he's somewhere near \$700,000 extra. 11 Well, leaning heavily on my friends at Wilson, 12 Α. they told me I need ten additional days to drill it their 13 14 way. And I would suppose, since it's pretty well 15 documented, that 60 days is about what it takes us to drill 16 a Morrow test in this area, that there are an additional 45 17 days allotted under Yates' AFE. Possibly more than that, 18 because they're drilling the footage down to 7000 foot, 19 which I did not do. 20 So that would be the major component of 21 Q. difference? 22 That's -- Yes. Well, that's one of them. 23 Α. There's three major ones. 24 25 All right. Find the three major components of Q.

difference that will get us this \$400,000 differential. 1 Okay, if you go to their line item 920-200, Α. 2 they're carrying \$380,000 under Tools and Equipment Rental, 3 Trucking and Welding. And if I understand the inference 4 there that that would be what I carry as Directional 5 Equipment and Services, which came from Wilson at \$102,000. 6 So there is \$278,000 difference there, I believe. 7 Did I 8 say that right? Yeah. Okay, and then the third one is under 9 Contingency. We use a standard 7 percent of our intangible 10 costs to determine what contingency we'll weight the AFE 11 with, and that puts me \$92,000 difference than them. 12 13 Q. You had an opportunity to look at Mr. Springer's AFE. Has it caused you to change any of your opinions 14 15 about your own AFE? No, sir. 16 Α. Which one would you recommend to the Examiner is 17 Q. an accurate, current and reasonable AFE for each of these 18 activities? 19 We have looked at directional work, we have not 20 Α. done any yet. And my AFE reflects very closely what we 21 have told our management. 22 And by bringing this here to New Mexico, it will 23 go to my management. So I'd have to stick to my numbers. 24 25 MR. KELLAHIN: Thank you, Mr. Examiner. That

1	concludes my examination of Mr. Thoroughman.
2	We move the introduction of his exhibits; they
3	are Exhibits 8 through 11.
4	EXAMINER MORROW: 8 through 11 are admitted into
5	the record.
6	CROSS-EXAMINATION
7	BY MR. ERNEST CARROLL:
8	Q. Mr. Thoroughman, I take it you have not drilled a
9	directional well within the KPLA; is that correct?
10	A. That's correct.
11	Q. When you visited with Wilson Downhole, did you
12	inquire of them how many directional wells that they had
13	drilled within the KPLA?
14	A. No, sir.
15	Q. You don't have and cannot tell this Examiner that
16	they have ever drilled one in the KPLA, can you?
17	A. Well, other than they have an office there.
18	Q. You say they have an office in the KPLA?
19	A. That's my understanding.
20	Q. In the K in the
21	A. Carlsbad office.
22	Q. Okay. You know that Carlsbad is not within the
23	known potash area?
24	A. That's correct.
25	Q. Mr. Thoroughman, let's first look at your AFEs,

1	and for some reason the I'm not sure what exhibit Oh,
2	I see, I found it now. It's Exhibit 10. That would be the
3	drill a straight hole?
4	A. Yes, sir.
5	Q. Okay. You have that before you. As I When I
6	look down here to I want to find the rig cost, and
7	basically that is composed in line item 51 and 52, is it
8	not?
9	A. Yes, it is.
10	Q. And so for a directional hole, rig cost on this
11	AFE is \$405,000; is that correct?
12	A. Oh, on the straight hole?
13	Q. On the straight hole.
14	A. Yes, sir.
15	Q. And if I spoke "directional", I apologize.
16	A. That's all right.
17	Q. But Exhibit 10, which is the straight hole?
18	A. That's correct, \$405,000.
19	Q. \$405,000. Let's look at Exhibit 11.
20	A. Okay.
21	Q. Let's go to the same number, 51 and 52, which
22	would be rig cost. I see a blank in the Footage Contract
23	Fee, and so the total of those two lines is \$385,000, some
24	\$20,000 less for a directional hole?
25	A. You have to add in Rig Mobilization and

Demobilization, line item number 11. 1 \$40,000? 2 Q. 3 Yes, sir. Α. So for ten extra days, rig cost is going to 4 Q. 5 amount to what? \$15,000 more different to drill a --6 Α. \$15,000, yes, sir. 7 Q. Just \$15,000 for ten extra days? But the difference being, Mr. Carroll, is that by 8 Α. asking them for a footage price I've deferred a lot of 9 risk, and there's a value of that risk to the contract. 10 Q. Excuse me? 11 12 Α. When I ask the contractor for a footage contract, he assumes a lot of the risk that I would normally have 13 under Daywork. Consequently, the price is normally just a 14 15 little bit higher if you have a footage contract. But anyway, you're representing that these AFEs 16 Q. here show only a difference of \$15,000 and rig cost, as 17 between drilling a straight hole and a directional hole? 18 Α. Yes, sir. 19 Let's go now, to -- Let me see which exhibit 20 Q. 21 number it is. It's the Wilson Downhole paper that 22 describes the way the hole is going to be -- I don't know 23 if that's a separate number or not. No, it's not. 24 Α. 25 Okay, so it's part of the Wilson --Q.

Exhibit Number 9. 1 Α. Okay, all right. So we're going basically to the 2 Q. last page of Exhibit Number 9? 3 Α. Yes, sir. 4 All right. Where is this well -- the kickoff 5 Q. 6 point, as far as depth? 7 Α. 10,626. Okay, that is the point that the well is 8 Q. initially being kicked off? 9 10 Α. Yes, sir. That's where I guess you go and you put something 11 Q. in there, a shoe or whatever --12 13 Yes, sir. Α. -- and you begin to deviate. 14 Q. And the way this hole is designed is that once 15 you begin to build angle, you stay with an angle all the 16 way to the objective; is that correct? 17 No, what you do is, you build with your build 18 Α. assembly, which would include some bent subs, bent housing 19 motors, whatever they prefer --20 Uh-huh. 21 Q. -- and we'll build the angle at one and a half 22 Α. degrees per 100 foot, until we reach an angle of 20 1/2 23 degrees. 24 25 Then we will pack the hole and drill on down,

1	this casing at 12,300, and then come out from the casing,
2	packed hole, holding 20 1/2 degrees to TD.
3	Q. You hold that angle?
4	A. Yes, sir.
5	Q. So when you drill into the objective, you are at
6	that angle that has been previously built?
7	A. That is correct, that is correct.
8	Q. Mr. Thoroughman, are you aware that, because of
9	problems with these lower formations, that that is not the
10	practice of Yates, that you get down and I'm not exactly
11	sure what depth it is, but then you re-straighten the hole
12	and you drill through certain of these objectives so that
13	you are drilling a straight hole, because they have
14	formation problems and cannot hold the angle?
15	A. I'm not familiar with any of Yates' problems on
16	directional.
17	Q. Well, you wouldn't know that that's what Yates
18	does?
19	A. That is correct.
20	Q. Okay, and you wouldn't know that that's what that
21	AFE that Mr. Boneau testified to was built or one of the
22	assumptions that was incorporated, do you?
23	A. I would not know that.
24	Q. And you don't know that Wilson has had any
25	experience where they would even know that that was what

1	was required or suggested or the preferred way of doing, do
2	you?
3	A. I do not know.
4	MR. ERNEST CARROLL: That's all I have, Mr.
5	Morrow.
6	EXAMINATION
7	BY EXAMINER MORROW:
8	Q. Mr. Thoroughman, these estimates, then, were
9	based on your experience in west Texas or Gulf Coast
10	A. Yes, sir. Yes, sir. Of course, the straight
11	hole was based on west Texas or southeast New Mexico
12	experience. But the my experience in directional
13	drilling has all been in Texas and offshore.
14	EXAMINER MORROW: Do you have anything?
15	MR. RAND CARROLL: (Shakes head)
16	EXAMINER MORROW: Thank you, sir.
17	THE WITNESS: Okay, thank you.
18	MR. KELLAHIN: Mr. Examiner, we call at this time
19	Mr. Carl Richard.
20	<u>CARL RICHARD</u> ,
21	the witness herein, after having been first duly sworn upon
22	his oath, was examined and testified as follows:
23	DIRECT EXAMINATION
24	BY MR. KELLAHIN:
25	Q. Mr. Richard, for the record would you please

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....

1	state your name and occupation?
2	A. My name is Carl Richard. I'm a senior reservoir
3	engineer for Mitchell Energy.
4	Q. Mr. Richard, on several prior occasions have you
5	testified as a reservoir engineer before the Division?
6	A. Yes, I have.
7	Q. As part of your duties, have you made a study of
8	the reservoir engineering aspects with regards to this
9	Application by Yates?
10	A. Yes, sir, I have.
11	Q. Did you assist Mr. Gawloski in the sizing and the
12	shaping of the reservoir as he was mapping it for this
13	particular reservoir?
14	A. Yes, I have.
15	Q. As part of your study, have you made yourself
16	familiar with the pressure information involved in the
17	reservoir?
18	A. Yes, sir, the pressure information available.
19	Q. The production history of the wells?
20	A. Yes, sir.
21	Q. And based upon that information, have you made
22	economic calculations concerning the feasibility and the
23	economic viability of a directional versus a vertical well
24	in the south half of Section 7?
25	A. Yes, I have.

MR. KELLAHIN: We tender Mr. Richard as an expert 1 2 reservoir engineer. EXAMINER MORROW: We accept Mr. Richard. 3 (By Mr. Kellahin) The custom and practice of Q. 4 many reservoir engineers, Mr. Richard, when dealing with 5 this type of work, is to prepare a P-over-Z curve and then 6 7 conduct conventional engineering calculations. 8 What was the methodology you chose to address this issue? 9 10 Α. Since I don't have a sophisticated simulator available, I chose a long-standing practice of constructing 11 a reservoir-wide P-over-Z curve with the pressure 12 information that was available. 13 Let's talk about how you went about and did that. 14 Q. If you'll look at Exhibit 13 -- I'm sorry, Exhibit 12, 15 identify for us what this is. 16 This is a P-over-Z versus cumulative plot of the 17 Α. Atoka "AC" sand, commonly referred to by Yates as the 18 Apache sand. 19 What I have on this P-over-Z is the discovery 20 well, the James Ranch Unit Number 1, had an estimated 21 bottomhole pressure of about 8020 pounds and a cumulative 22 production of zero. 23 When Mitchell drilled the Apache "25" Number 1, 24 25 we had a drill stem test pressure, final shut-in pressure,

about 2409. 1 And I've also plotted on here, just to have that 2 point, the final shut-in pressure on the drill-stem test 3 for the Apache "13" Federal Number 1. That pressure was 4 3104. 5 What I have concluded by extrapolating the line 6 that I have drawn there is that on a reservoir-wide basis, 7 8 I have a closed system. That closed system has an original gas in place of about 65 BCF. 9 10 Q. Well, stop right there. What did the computer system generate for Yates? 11 Roughly the same number. 12 Α. Your pencil is pretty sharp, Mr. Richard. You 13 Q. 14 guys agree? 15 Α. Yes, we do agree. The sophisticated computer simulation of what Q. 16 amounts to material balance matches what you do? 17 Yes, sir. 18 Α. So you and Yates don't have a substantial 19 Q. difference of opinion about original gas in place? 20 No, sir, we don't. 21 Α. All right. What then did you do? 22 Q. Well, like I'm saying, this is a simple method. 23 Α. I assumed an 80-percent recovery efficiency, calculated a 24 recoverable gas in place of about 57 BCF. 25

Okay. At what point in time -- That's ultimate 1 Q. gas recovery? 2 Pardon? 3 Α. That's ultimate gas recovery from --4 Q. That's recovery, yes. 5 Α. Using --6 Q. I think Mr. Fant used a 100-MCF-a-day rate as his 7 Α. 8 economic limit. I'm using a percentage of the original 9 pressure, or 80-percent recovery efficiency. 10 Q. Did you give you his summary exhibit that showed his conclusions? Did I hand that to you a while ago? 11 Α. No, you did not. 12 MR. KELLAHIN: Let's take a moment and get you a 13 14 copy of that. (Off the record) 15 (By Mr. Kellahin) I'm going to show you, Mr. Q. 16 Richard, Yates Exhibit 19. 17 Fieldwide, he gets about 65 BCF, and you get 65 18 BCF. 19 20 Α. Yes, sir. Let's go to the next display, then, Exhibit 13. 21 Q. Identify and describe what you're doing here. 22 Well, what I've done is taken Mr. Gawloski's 23 Α. isopach map and, based on this reservoir -- finite 24 25 reservoir volume of 65 BCF -- Like I said, Mr. Gawloski

1	mentioned that we got together and determined that He
2	determined the shape based on geologic parameters, and
3	basically I confined the size that he had to work with.
4	This is volumetric calculations, very simple, of
5	the isopach map that he provided you.
6	What I've done is contoured that map, come up
7	with the acres of that map, and applied the original gas in
8	place of 1722 MCF to estimate a reservoir volume of 41,000
9	acre-feet, to come up with an original gas in place of
10	about 71 BCF.
11	Basically, what I've done here is tried to
12	confirm that Mr. Gawloski's map and the P-over-Z volumes
13	are within reason.
14	Q. All right, sir.
15	A. What I've also done on this thing is estimating a
16	recoverable gas in place, using 85-percent recovery
17	efficiency, of 65,000 barrels. I'm subtracting out the
18	cumulative production as of 12-3-93 of 38 BCF. An
19	estimated remaining recoverable of about 22 BCF.
20	Q. All right, let's stop a moment. You said
21	estimated recoverable gas in place of about 60 BCF?
22	A. Yes, sir.
23	Q. Is there any number on Yates' Exhibit 19 that
24	corresponds to your number?
25	A. I think what he's got listed in ultimate recovery

1	would be a number that corresponds I'm sorry, would be
2	in The gas in place as of 12 or, excuse me, 11-1-93,
3	would correspond to that 22/382 [sic] that I have, 22 BCF.
4	Q. All right. What, then, did you do?
5	A. What I did is basically tried to determine, as
6	Yates has pointed out, and I think we're in total
7	agreement, that it's a limited reservoir, based on the
8	initial pressures that we saw in both the "25" 1 and the
9	Apache "13" Number 1, the pressures were reduced almost 61
10	percent of what the original reservoir pressure was in that
11	James Ranch well.
12	When we first looked at this drill stem test on
13	the Apache "13" Number 1, I was really disheartened because
14	I was really not confident that we had a viable reservoir,
15	we were so significantly depleted.
16	What I did on this next display is took just
17	very, very simply, took that 2400 p.s.i. control point that
18	I had in the Apache "25" Number 1 and the 3100 p.s.i.
19	control point that I had in the Apache "13" Federal Number
20	1 and basically extrapolated a gradient from south to
21	north, based on those two control points.
22	It's extremely simple simplification of what I
23	think the reservoir pressure gradient would be from
24	south to north.
25	Q. How does that information help you as a reservoir

 A. Well, what I've done here You see a hachur area? Q. Yes, sir. A. I've taken basically an average pressure between Yates is referring to the northern half of t reservoir, and basically what I've done here is confirm what they're saying, is that we feel Mitchell and Yates would drill a well in the northern portion of this reservoir, and basically sharing reserves for the north portion of that reservoir. What I was trying to do with this thing in th 	-
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11 portion of that reservoir. 12 What I was trying to do with this thing in th	ern
12 What I was trying to do with this thing in th	
	e
13 hachured area is estimate the volume above this arbitra	ry
14 2800-foot p.s.i. pressure line to estimate the volume t	hat
15 I felt Yates and Mitchell would be sharing with two wel	ls
16 in that northern portion of the reservoir.	
17 Q. Have you taken that information and made an	
18 engineering calculation to give us the estimated	
19 recoverable gas that is within that hachured area?	
A. Yes, sir, that's the next exhibit, Exhibit 15	•
21 Like I'm saying, this is very, very simple. It's	
22 planimetering the 5-, 10- and 15-foot contours, coming	up
23 with an estimated reservoir volume of about 12,000 acre	-
24 feet.	
25 Current gas in place, I used a 3100-p.s.i.	

pressure to come up with 940 MCF per acre-foot, and again 1 using an 85-percent recovery efficiency, came up with 800 2 MCF per acre-foot, and then estimated the recoverable 3 reserves as of the dates that all these pressures represent 4 of about 9.8 BCF in the northern portion above that 2800 5 6 p.s.i. line. It's very simple. 7 Q. Okay. If the Yates well and the Mitchell well are competing for the 9.8 BCF of remaining recoverable gas, 8 those two wells will produce it all, will they not? 9 Α. For the most part. 10 Is the 9.8 exclusive of the past production 11 Q. attributed to the Mitchell well? 12 Well, what I've listed here is the cumulative 13 Α. production from the Apache "13" Federal Number 1 as of July 14 11th, 1994, and that's about 967 million. 15 The number that you're -- the question you asked 16 me, is that 9.8 -- it does exclude -- It does not include 17 the production that Mitchell has produced from the northern 18 19 portion to date. Okay. Have you attempted to determine the 20 Q. remaining recoverable gas in place per spacing unit between 21 the east half of 13 and the south half of 7? 22 23 Α. Yes, sir, I have. Let's look at Exhibit 16, Mr. Richard. 24 Q. Is that 25 what you've done here?

Yes, sir. Again, based on Mr. Gawloski's isopach 1 Α. 2 map, planimetering the east half of Section 13, which is the proration unit for Mitchell's Apache "13" Number 1, I 3 came up with an estimate, made a reservoir volume of about 4 2300 acre-feet, again using the current recoverable gas in 5 place of 800 MCF per acre-feet. 6 7 Under that proration unit only, I estimate about 1.8 BCF reserves for a Mitchell lease. 8 And doing the same thing for the south half of 9 Section 7, essentially the same volume and essentially the 10 same recoverable reserve. 11 Both these wells will outproduce the recoverable 12 Q. gas underlying their respective spaces? 13 Yes, sir, I think even Mr. Fant --Α. 14 -- reached that conclusion? 15 Q. -- testified to that, yes, sir. 16 Α. Let's go back and look at Exhibit 14. Do you see 17 Q. the size and the shape of the container? Mr. Fant's 18 simulation included a shape of the reservoir that was 19 farther to the west and thereby included the location that 20 Bass has proposed. 21 22 Where is that location in relation to your 23 orientation and position of the reservoir? Α. Currently, it's out of the five-foot contour that 24 we have drawn -- that Mr. Gawloski has isopached. 25
1	Q. Okay.
2	A. It's northwest of that five-foot contour and out
3	of the reservoir.
4	Q. Your judgment, then, is that it will be outside
5	of the reservoir?
6	A. Yes, sir.
7	Q. If the reservoir If the Bass well is in the
8	reservoir, then you're going to have to re-map the
9	reservoir and put more productive acreage farther to the
10	west in Sections 12 and 13?
11	A. Yes, sir.
12	Q. You'll have to re-shape the reservoir?
13	A. Yes, we will.
14	Q. Will changing the shape also cause you to
15	increase the original gas in place? You're going to
16	A. No, sir. It's a finite container. I think I've
17	made that point.
18	Q. Yes, sir.
19	A. I think Mr. Fant made that point. And I think we
20	agree wholeheartedly that 65 BCF is the original gas in
21	place. We might differ a little on recoverable.
22	But no, that container will remain constant.
23	Q. Okay. In the absence of competition from the
24	Bass well, what is your best engineering judgment about the
25	volume of gas ultimately to be recovered by the Yates well?

1	A. On Exhibit Number 15 and like I say, this is
2	very, very simple I've got 9.8 BCF of recoverable
3	reserves. Cumulative production to date is about a BCF.
4	Assuming, I guess, Mr. Fant and was assuming a
5	production start date of a year or the beginning of the
6	next year, 1995. I don't really I have about a half
7	BCF, I guess, of one and a half BCF could be attributable
8	to the production from the Apache "13". Subtracting that
9	from the 9.8 estimated recoverable, I think Mitchell and
10	Yates probably would share the remainder of that reserve,
11	which would be slightly over 3 BCF Excuse me, closer to
12	4 BCF.
13	Q. Slightly under 4 BCF would be attributable to the
14	Yates well?
15	A. Yes, sir.
16	Q. In making judgments about parameters in the
17	calculation, sometimes you have a choice of being
18	conservative in how you've mapped and oriented the
19	reservoir, and other times you can be aggressive and still
20	honor the parameters and the values of the reservoir.
21	How would you characterize your work here?
22	A. The work that I've done here is extremely
23	conservative. I think
24	Q. Define for us how you mean "conservative".
25	A. I think Mr. Fant demonstrated that and I think

through the reduction in pressure, he alluded to the fact 1 that it was a highly conductive reservoir. I agree a 2 hundred percent that it's highly conductive, based on the 3 depletion that we saw from production to the south. 4 I do think that this 2800-foot contour, or p.s.i. 5 contour, that I have superimposed over Mr. Gawloski's 6 isopach, that molecules of gas even further south than that 7 8 will be drained by Mitchell's well and Yates' well to the north. 9 There is a higher -- As you can see, the further 10 north you get, and on the Yates lease there should be a 11 higher gradient up to the north. 12 So what I'm saying is that this 9.8 BCF is 13 probably very -- it's a very conservative number. 14 Mr. Fant attributed 6.6 remaining recoverable gas 15 Q. reserves that could be produced from the Yates well? 16 He has Yates leases. I think --A. 17 We were describing it as a single well that would 18 Q. be able to produce that entire --19 Yes, sir. 20 Α. 21 Q. -- tract acreage. And if you're assuming there's only two wells 22 competing for the remaining reserves, and if you agree with 23 his engineering estimate of ultimate recovery of 6.6 BCF --24 25 Have you estimated for yourself whether that's economic if

1	the well is drilled directionally versus vertically?
2	A. Yes, sir, I have.
3	Q. In fact, have you used various recoveries and
4	analyzed each of those to decide whether it's economic
5	under both drilling options?
6	A. Yes, sir, I have.
7	Q. Let's turn now to Exhibit 17, Mr. Richard.
8	Describe for us how you've organized the spreadsheet.
9	A. Well, what I've done is run reserves for 3-, 4-
10	and 5-BCF reserves. I have vertical well and a directional
11	well, and what I've done is listed the summary of the
12	economic parameters that Mitchell uses as guidelines to
13	determine whether a well is economic or not.
14	Q. All right. Let's start with the assumptions at
15	the bottom of the display. Where did you get those cost
16	numbers?
17	A. The drilling completion cost numbers for both the
18	vertical and the directional well were provided to me by
19	Mr. Thoroughman.
20	Q. We start off with a vertical well, and you use 3
21	BCF recoverable reserves. Tell us what result your
22	economic calculation gives you.
23	A. These are unrisked reserves, I want to stress
24	that these are unrisked.
25	Vertical well, 3 BCF reserves, present value

profit discounted at 10 percent, I'm looking at about \$2.47 1 million profit, rate of return --2 All right, stop there with the profit. 3 Q. Yes, sir. 4 Α. Read over to the 3 BCF recovery for the 5 Q. directional well. 6 \$2.18 million profit. 7 Α. Okay, and as you move down the columns, make the 8 Q. comparisons for us. 9 Okay. Rate of return on the vertical well, 77 10 Α. percent, on a directional well, 59 percent. 11 Payout -- which is, I think, a critical factor --12 17 months; on a directional well, 20 months. And this is a 13 criteria that Mitchell uses, discounted profitability 14 index, which is your investment plus whatever percent, one 15 and a half times your investment, 1.38 for a vertical well 16 and 1.05 for a directional well. 17 Under your analysis, if the recovery of the well 18 Q. is only half of what Mr. Fant represents the well has the 19 capacity to do, it will still achieve payout for the cost 20 of a directional well with the addition of three months? 21 Yes, sir, that's what it indicates here. 22 Α. 23 Q. Under this economic analysis, if you had the 24 Yates position to drill, would you be able to economically 25 drill a well directionally?

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1 Α. Yes, sir, I think we would recommend that to our 2 management. 3 MR. KELLAHIN: That concludes my examination of Mr. Richard. 4 5 We move the introduction of his Exhibits 12 6 through 17. 7 EXAMINER MORROW: 12 through 17 are admitted. 8 CROSS-EXAMINATION BY MR. ERNEST CARROLL: 9 10 Mr. Richard, let's first start with Exhibit 12, Q. your P over Z. 11 12 Α. Yes, sir. 13 The star that represents the Apache "25" Federal Q. Number 1 Well on your linear graph here, for purposes of 14 P-over-Z analysis, aren't you assuming that at that point 15 in time that that's the average pressure throughout the 16 field? 17 That's exactly what I assumed. 18 Α. And the Apache "25" well has been one of the 19 Q. poorer wells, has it not? 20 21 Α. Let me back up. It is at or near what I calculated from the southernmost portion to the 22 23 northernmost portion, based on these gradients that I superimposed to be an average pressure. It just happened 24 25 to be a hard, factual pressure that I had.

Well, are you saying that by coincidence this Q. 1 happened, or what did you take into account to arrive at an 2 average pressure for the field? 3 Α. I had a gradient fairly well established by the 4 drill stem test pressures that we took in wells, and --5 Okay, and --6 Q. 7 Α. Somewhere -- Mr. Fant -- If you look at his sophisticated -- Go ahead. 8 You say drill stem pressures? Q. 9 Right. 10 Α. You're talking about original drill stem 11 Q. pressures, right? 12 I'm talking about final shut-in pressures on 13 Α. original drill stem tests. 14 Q. All right, and you agree with me that the first 15 well was drilled in 1957? 16 Yes, sir, I do. 17 Α. And the last well was drilled in 1993? 18 Q. Yes, sir, I do. 19 Α. So for the purposes of your simplified analysis, 20 Q. you're saying that the value of the 1957 -- you can just 21 automatically assume between these, 1957 and 1993, that 22 23 some arbitrary average pressure for the entire field --Let's say -- let's -- That's why I backed up. I 24 Α. think -- I'm going to try to explain this to you. 25

I had a pressure gradient established in 1993 by 1 two drill stem tests. I'm saying this is really simple. 2 The Apache "13" Number 1, which is the pressure here, 3100 3 pounds, and the Apache "25" Number 1, which is 2409. 4 I could simply draw a gradient through those two 5 pressure points, and I can extend that gradient to the 6 7 south, just like he does in his sophisticated simulation. 8 0. Now --What I have done -- Let me finish please. 9 Α. What I have done is taken this Apache "25" Number 10 1 pressure, because it was extremely close to the average 11 pressure of the reservoir from the northern extreme to the 12 southern extreme. 13 And I used this data point because it is an 14 actual measured pressure. It's not an average between what 15 I think is the northernmost pressure and the average 16 between what I think is the southernmost pressure; it is a 17 measured pressure. Therefore, the two points you see 18 there. 19 Now, when you start drawing your gradient, you 20 Q. just arbitrarily assumed for your simplified drawing that 21 here's the two points, and somehow every so many feet you 22 get a break or a decrease or an increase in pressure. 23 Is that what you're telling us? 24 25 Α. Essentially, yes.

And so what that assumes is that throughout this 1 Q. reservoir, porosity and thickness is equal? 2 To a certain extent, yeah. It's an 3 Α. oversimplification --4 It has to? 5 Q. 6 Α. -- yes. But we know in reality and from both the maps 7 Q. 8 that we have looked at that that's not true, though? Oh, you bet. Mr. Fant testified to the fact that 9 Α. 10 this was a highly conductive reservoir and so forth and so I know that's not true, yes. 11 on. Now, let's get to a very interesting point that I 12 Q. tried to develop with the geologist a while ago. Now, you 13 had two pressure points, and this is where you started your 14 pressure gradient analysis, and you applied -- You took a 15 map that was furnished to you by Mr. Gawloski, right? 16 Yes. 17 Α. You had a shape of a reservoir already drawn? 18 Q. It's right here. 19 Α. Okay, and that's Exhibit what, now? 20 Q. Exhibit Number 14. 21 Α. Exhibit 14. That's the same one I've got. 22 Q. 23 Α. Yes, sir. So what you're telling me is that this map of the 24 Q. 25 reservoir was furnished to you before you ever developed

your pressure gradients? 1 2 Yes, sir. Α. 3 Q. Right. So --4 Α. 5 So Mr. Gawloski's map is not based on pressure; Q. it's just --6 7 Yes, it is. Α. -- his interpretation? 8 Q. 9 Yes, it is. Α. 10 Q. Now, wait a minute --Α. Okay --11 Wait a minute, wait, let's just stop --12 Q. 13 Okay, I'll answer your question in a second. Α. 14 All right. The point here that I want to explore Q. is, which came first? 15 Reservoir volume came first. 16 Α. Reservoir volume? 17 Q. 18 Yes, sir, it did, based on this first thing that Α. was just discussed, P over Z. 19 All right, now --20 Q. From that --21 Α. -- reservoir volume, then, is what you say 22 Q. dictated the outline of this reservoir; is that correct? 23 Α. Limit, it's a limited reservoir --24 The limit --25 Q.

1	A yes, sir.
2	Q okay
3	MR. KELLAHIN: Mr. Examiner, the attorney and the
4	witness are talking over each other's conversation. It's
5	difficult to follow. If they'll both pace themselves, we
6	might learn more from each of them.
7	EXAMINER MORROW: You all want to slow them down,
8	Tom?
9	Q. (By Mr. Ernest Carroll) When you look at a
10	closed volume
11	A. Yes, sir.
12	Q sphere, you have a zero line, do you not?
13	A. Essentially, yes.
14	Q. Where is the zero line on Exhibit 14?
15	A. I don't have a zero line on Exhibit 14. From
16	isopaching of the reservoir, though, I would expect it to
17	be equidistant the same distance from the ten-foot to
18	the five-foot, and the zero contour would be roughly
19	equidistant from the five-foot contour line.
20	Q. So you say Mother Nature builds reservoirs
21	equidistant as far as You can always count on that. Is
22	that some sort of
23	A. Well, I think from your sophisticated reservoir
24	modeling, I think your computer does the exact same thing.
25	That's how it mechanically isopachs or draws contours in.

I want to show you what's been previously 1 Q. introduced as Exhibit 16, which is the computer reservoir 2 modeling. 3 Yes, sir. 4 Α. Those lines do not appear to be equidistant in 5 Q. any shape, form or fashion, do they? 6 7 Well, this is a -- There's lots of other Α. parameters that went into this map. 8 9 This is -- Like I'm saying, what I told Mr. Gawloski is, your reservoir is limited to 60 -- or the 10 volume that I have calculated here on Exhibit 13, your --11 12 the volume of that reservoir cannot be any bigger than 13 41,000 acre-feet. 14 Okay. Now --Q. That's where -- That's the limit of his 15 Α. constraints. He mapped it geologically the way he chose to 16 17 map it. All right. 18 Q. That 41,000 acre-feet was a result of pressure 19 Α. data. That's what he kept referring to, pressure data, but 20 what it was was a reservoir volume extrapolated from 21 pressure data. 22 Now, look at your Exhibit 14. 23 Q. 24 Yes, sir. Α. 25 Q. You show a very large -- You show a contoured

1	area that is 15 foot in thickness; is that correct?
2	A. Yes, sir.
3	Q. You will agree with me that there are no wells
4	that have been drilled to the Atoka in this area that show
5	that there's 15 feet of sand out there?
6	A. That's correct.
7	Q. That's correct.
8	Now, you will also agree with me that if there
9	are no 15-feet thickness, that and then say 10 is the
10	maximum, you're going to have to expand the outer
11	boundaries of this reservoir, aren't you?
12	A. I think Like I'm saying, Mr. Gawloski's
13	interpretation was totally different. I think Mr. May
14	alluded to the fact that he was overly optimistic on his
15	mapping.
16	And what Mr. Gawloski did is took this In
17	Section 31 there's a 12-foot-of-pay line in there. I think
18	what he did is honored that 12 foot of pay and penciled in
19	a 15-foot contour there.
20	He's always had a 15-foot contour in his mapping,
21	even before I constrained the area that he had to be
22	within.
23	Q. Mr. Richard
24	A. Yes, sir.
25	Q but if he's wrong, and if we're talking about

1	a closed sphere, if we have a sphere that's this wide and
2	this tall, if you compress that down, you have to expand
3	the width, do you not?
4	A. Yes, sir.
5	Q. So Mr. Gawloski, if he's been more optimistic,
6	since there are no data points which support 15, in fact,
7	this reservoir could be much larger then, couldn't it?
8	A. Yes, sir, it could.
9	Q. Mr. Richard, I take it you have not, because
10	you've presented no exhibits, you have not studied what the
11	drainage effect or the effect on ultimate production of
12	your Apache well, if the well is drilled at the unorthodox
13	location by Yates?
14	A. If Yates drills an unorthodox location, have I
15	done
16	Q. Have you studied the effect that that will have
17	on the ultimate reserves recovered?
18	A. Not in simulation detail, no, I have not.
19	Q. You didn't present an exhibit either did you?
20	A. No, sir, I did not.
21	Q. So I'm correct today, you have presented no
22	testimony about that issue to this Examiner?
23	A. Not to this point.
24	Q. You agree with Mr. Fant that these wells, the
25	Apache Well, first of all let's just say you agree that

the Apache "13" is going to probably recover more gas than 1 one might expect to be in place under the proration unit? 2 Concede that fact, yes, sir. 3 Α. And in fact, the Yates well will probably do the 4 Q. same, no matter where it's drilled, at any of the --5 6 Α. Yes, sir, I do. 7 Q. -- the locations that we've talked about? Now, your Exhibit 17, when you talk about the 8 9 economic analysis, this economic analysis just deals with the Yates well; it doesn't talk about the Apache well at 10 all, does it? 11 I think the Apache well is already down, it's 12 Α. I think it's a moot point now. 13 producing. Well, I understand, but it's not being -- Nothing 14 Q. to deal with the Apache well is trying to be illustrated by 15 the numbers that are presented on this exhibit? 16 That's exactly right. What we're here to prove 17 Α. is directional well versus vertical well to the Commission. 18 19 Q. The second line down, where it says PV Profit, you see that line --20 21 Α. Yes, sir, I do. -- and you've got the numbers? 22 Q. 23 The differences between the 3 BCF vertical and directional well, the amount of money there is just 24 25 basically the difference in the cost of drilling a straight

hole versus a --1 2 Α. Exactly, yes, sir. So if Mr. Thoroughman's calculations with respect 3 Q. to the cost of drilling a directional hole and a straight 4 hole are incorrect, then these numbers would be incorrect? 5 Yes, sir, I worked with the numbers that Mr. 6 Α. 7 Thoroughman provided with a lot of confidence in his numbers, because I have used his numbers in the past. 8 What was the cost of -- Excuse me, what was the Q. 9 price of gas in this field this month? Do you know? 10 Α. About -- Mitchell was receiving approximately 11 \$1.96 an MCF. 12 \$1.96? What has been Mitchell's average price 13 Q. for gas in that area? 14 I really couldn't tell you. 15 Α. Did you examine the economics that was presented 16 Q. by Yates to determine what -- the price that they were 17 using? 18 I did not take note of the price. 19 Α. You have no grounds to disagree with me that if I 20 Q. 21 told you Yates was using their historical price of average 22 of \$1.75, you have no reason to disagree with that? 23 Α. No, sir, I don't. Change in price for gas would skew the economics 24 Q. also, wouldn't it? 25

1	A. Yes, sir, it would.
2	Q. A moment ago you said that the whole purpose of
3	your being here was to prove that Yates could drill an
4	economic well by bottoming that well at a standard
5	location. That was your purpose here?
6	A. I said to show that it was economic, to drill a
7	standard well to an orthodox location, I think that's what
8	I tried to represent.
9	Q. And you will agree with me that you are the last
10	Mitchell witness; is that true?
11	A. Yes, sir.
12	Q. Mitchell has not put on any evidence, and you
13	certainly have not tried to testify to the fact that by
14	drilling an unorthodox location that Yates will cause or
15	gain some advantage over Mitchell?
16	A. Well, from a reservoir standpoint I think and
17	again, oversimplifying it, the closer you are to my well,
18	or Mitchell's well, the more interference those two wells
19	will have. The production rates that we will experience
20	will be decreased by your well.
21	I mean, just all the basic things that
22	encroaching in Mitchell's direction are dealt with here
23	commonly, you know, in the forms of penalties or anything
24	like this, are normally addressed. I mean
25	Q. And that's the same You can say the same of

the Mitchell well, because it is unorthodox in both 1 dimensions in a direction closer to the Yates lease? 2 Yes, sir, and I think at the time that Mitchell 3 Α. was drilling that well, there was no protest at the time. 4 5 Q. And you will agree with me that the Apache well 6 has been producing and will produce for at least a year or 7 longer than the Yates well could ever produce because of the completion dates? 8 Yes, sir, I agree with that. 9 Α. And you will also agree with me, if we're talking 10 Q. about generally, that the first well drilled in a reservoir 11 is likely to have more effect on that reservoir and how 12 it's drained than a well that's drilled later, if they're 13 about the same. 14 You might want to repeat that for me, please. 15 Α. Okay. You will agree with me, if we're going to 16 Q. talk generally, as you were just commenting, that the first 17 well drilled into a reservoir is more likely to have a 18 larger impact on how the drainage patterns develop in a 19 pool than a second or later well? 20 Are you referring to the James Ranch Unit Number 21 Α. 22 1 as a first well, or implying that that is the first well, 23 drilled --24 I'm talking about the Apache well as opposed to Q. 25 the Yates well that is to be drilled. The Apache well,

because it's produced longer --1 2 Α. The sheer fact ---- has a greater effect. 3 Q. The sheer fact that it's been producing longer, 4 Α. 5 yes. And you're not here, and you haven't presented 6 Q. 7 any facts or figures which shows that Mitchell is going to 8 be disadvantaged to any extent by the drilling of this unorthodox location, other than just your general 9 10 hypothetical statements that you just made? Α. Yes, sir. 11 And you will agree with me that no matter where 12 ο. this well is drilled, the Apache well is still going to 13 recover more gas than is in place under that proration 14 15 unit? Yes, sir, I do agree with that. 16 Α. MR. ERNEST CARROLL: That's it. 17 MR. WAYNE BAILEY: Mr. Morrow -- Oh, I'm sorry. 18 EXAMINER MORROW: 19 I was going to ask a couple 20 questions along the line that Mr. Carroll was. 21 EXAMINATION BY EXAMINER MORROW: 22 23 Q. Do you think that the unorthodox location will 24 recover more gas for Yates than the orthodox location 25 would?

1	A. One thing that sort of unorthodox versus
2	orthodox location, I think Yates would be drilling in a
3	region of the reservoir that has historically had a higher
4	pressure gradient. I think they probably could recover
5	more reserves at their orthodox location.
6	Q. More
7	A. You asked me the question whether or not I
8	thought that they would affect me. Yes, I do think that
9	Q. No, I didn't ask that yet, I was going to.
10	A. Okay.
11	Q. I just asked first
12	A. I thought you were referring to that, I'm sorry.
13	Q would their unorthodox location recover more
14	gas for them than the orthodox location would recover?
15	A. I think Mitchell and Yates, if it's as we have it
16	isopached here, will share in the reserves for that
17	northern portion of the reservoir.
18	Q. But I believe you said you thought maybe the
19	orthodox would recover more for them.
20	A. Well, I just think from an interference
21	standpoint, the unorthodox location is going to interfere
22	with Mitchell's recovery ultimately.
23	Q. And it might decrease both recoveries, do you
24	think?
25	A. Well, I do think that the further away they are,

- --

the more recoverable gas that we can officially get in that 1 reservoir. 2 Even with good communication and --3 Q. Well, it's a high-perm reservoir. Α. 4 Yeah. Of course, this right here didn't show any 5 Q. difference in reserves, so you weren't suggesting that each 6 would recover the same; you're just saying if they did 7 recover this map on Exhibit 17 --8 Α. Yes, sir. 9 -- if the directional well recovered 5, the 10 Q. payout would be this, and if the vertical well recovered 11 5 ---12 Yes, sir, it's just to compare and contrast. 13 Α. It doesn't imply anything about what each might 14 Q. 15 recover? No, sir, it does not. Α. 16 I think what I tried to show here -- Yates showed 17 in their exhibits that they thought they had 6.6 BCF 18 reserves, and what I'm showing here is that the well is 19 economic from -- or what we perceive as economic from 20 anywhere from 3 to 5 BCF reserves. 21 You might want your attorney to do it, but I was 22 Q. going to ask you what Mitchell recommends to the OCD at 23 this point. What do you recommend we do with this case? 24 Well, I would recommend OCD require Yates to 25 Α.

1 drill directionally to a standard location. I'm seeing the economics are -- it's a viable economic prospect. 2 They're -- The thing that -- The reason Mitchell 3 is here protesting is, they are encroaching on Mitchell 4 5 leasehold. Mr. Carroll alluded to the fact that this reservoir could change. If it does change, Mitchell has a 6 7 significant leasehold in Section 13 and Section 24, as well as the southeast of the southeast of Section 12. They're 8 encroaching in that direction as well. 9 I just summed it up. 10 Well, Yates had talked some about the possibility 11 Q. of a penalty, assignment of a penalty factor, but Mitchell 12 didn't have any --13 Well ---Α. 14 -- any recommendation on that, I suppose. Or I 15 Q. hadn't heard anything from you --16 Α. We had -- Yeah, we had discussed that. But I 17 think what we're doing is, really, we'd like to see this 18 well directionally drilled because of the encroachment. 19 A penalty factor, I guess, you know, in looking 20 21 at penalties that have previously been applied, distance 22 from the north-south and distance from the east-west 23 standard to -- unorthodox to standard location was 24 generally the rule that was used by the Commission, and we 25 had considered that.

1	But no, we chose not to present that today.
2	EXAMINER MORROW: Okay. Anything, Rand?
3	MR. RAND CARROLL: (Shakes head)
4	EXAMINER MORROW: Do you have anything further?
5	MR. KELLAHIN: No, sir.
6	EXAMINER MORROW: Mr. Carroll?
7	MR. ERNEST CARROLL: (Shakes head)
8	MR. KELLAHIN: I think that concludes the
9	presentation of our evidence.
10	I don't want to prolong the discussion. There
11	are
12	EXAMINER MORROW: That's fine, go ahead.
13	MR. KELLAHIN: There are a couple of closing
14	statements I would like to make, not from the technical
15	aspects but from the rules, application of the rules.
16	I know there's a representative of Bass here to
17	make a closing statement, Mr. Morrow. If you'll indulge me
18	for a moment, I'll simply say what's on my mind
19	EXAMINER MORROW: Okay.
20	MR. KELLAHIN: and turn it over to others.
21	The custom, practice and procedure for handling
22	unorthodox locations has been well established, well
23	documented before the Division, and it's a series of
24	sequential steps.
25	Mr. Carroll, in my opinion, is unable to prove

the first two predicates and therefore has focused on the 1 third, which is a step I never get to because he can't 2 3 prove the first two. The sequence in which we have handled these types 4 of cases is that, geologically, it's predicated on absolute 5 6 proof that the unorthodox location is geologically better 7 than the closest standard, and you see that every day. They will come in here and prove to you day in and day out 8 that the reservoir is positioned such that the unorthodox 9 location is needed so that they'll have a chance to get 10 11 their share of the reservoir gas. They've proved just the opposite. They have 12 13 undisputably proven, and we have validated for you, that geologically the best location is the closest standard. 14 They fail step one. 15 If you move to step two, having proved step one, 16 you then need to demonstrate that the remaining recoverable 17 gas in your spacing unit in the south half of 7 cannot be 18 recovered at the closest standard location. 19 We're not talking about ultimate gas; we're 20 21 talking about at the time you choose to compete in the 22 reservoir and exercise your opportunity to protect your 23 correlative rights. As to the remaining gas, you cannot compete at a 24 25 standard well location. The fact that we may produce a BCF

1	or a BCF and a half is not charged against us. We're
2	looking at remaining recoverable of gas.
3	And what's the proof? Mr. Fant unequivocally
4	validated the fact that it doesn't matter for his well. He
5	can be at the closest standard location, and it's still
6	going to get 6.6 BCF of gas. I'm surprised at it, but
7	maybe I'm a layman. I thought distance mattered sometimes.
8	He says no, it doesn't matter in this reservoir;
9	I can be at a standard location and I can compete; I'm
10	going to get just as much gas from my well as Mitchell gets
11	from theirs.
12	They fail step two.
13	The typical applicant will show you that
14	geologically he needs the unorthodox location. And his
15	engineer tells him, I've got to have it or I don't get my
16	share, I lose it to someone else.
17	Once you prove those two, to justify the
18	location, then the question is the question Mr. Carroll
19	wants to talk about out of a portion of the rule book.
20	He's going to say, Give me my unorthodox location because
21	I've proven there's no adverse consequence on Mitchell, and
22	Mitchell's not come forward with anything else to say I'm
23	going to get beat up. And therefore, I don't get a
24	penalty.
25	We don't get that far, if you first can't justify
•	

the first two components. If you get to the unorthodox 1 location because you have no other place to be in the 2 reservoir, and you can demonstrate that that location won't 3 harm the offset, then we don't talk about penalty. 4 Our argument is that in this reservoir you should 5 not justify the unorthodox location because of the potash 6 They can drill directionally. The BLM will permit 7 excuse. it, they can do it, they should have done it, they need to 8 be told to do it. 9 They can go to the directional bottomhole 10 location, which is standard, they can do it for an extra 11 \$300,000, and they can make a well that will pay out in 20 12 If they go vertical, it pays out in 17. months. 13 There is no reason to circumvent gas spacing 14 rules and the notion of 320 gas spacing by putting this 15 well where there is no proof that it needs to be. 16 We recommend that you deny the Application and 17 leave Yates with the option to directionally drill to the 18 bottomhole location, which is where they can compete, and 19 it's what their proof shows, and there's no other answer. 20 21 Thank you, Mr. Examiner. 22 EXAMINER MORROW: Thank you. 23 Mr. Carroll? 24 MR. ERNEST CARROLL: Why don't we let Bass go, and then --25

EXAMINER MORROW: Do you want to do some 1 thinking? 2 MR. ERNEST CARROLL: -- since I have the burden 3 of proof? 4 EXAMINER MORROW: Oh, okay. 5 MR. ERNEST CARROLL: Since they have indicated 6 7 they want, let's -- I don't know what they're going to say; 8 I'd like to know before I --9 EXAMINER MORROW: Okay. MR. ERNEST CARROLL: -- make my comments. 10 MR. BAILEY: My name is Wayne Bailey with Bass --11 EXAMINER MORROW: Yes, sir. 12 MR. BAILEY: -- and I just have a letter that 13 I've written to you that hasn't gotten to you in the mail 14 15 yet. I'll just give copies to everybody so it can be 16 17 entered into the record today. EXAMINER MORROW: Do you want to read this or --18 MR. BAILEY: Yes, sir, if I --19 20 EXAMINER MORROW: -- summarize what it says or --21 Go ahead. 22 MR. BAILEY: It has previously been pointed out, 23 Bass has a substantial leasehold interest directly to the west of the Yates location. So we are -- We would like to 24 25 back up Mitchell's position, and we just have this letter

that I'd like to read into the record: 1 2 Dear Mr. Morrow: 3 Please reference that certain application of 4 Yates Petroleum Corporation to drill the Llama ALL 5 6 Federal No. 1 Well at a location 330 feet from the 7 south line and 950 feet from the west line, Section 7, 8 22 South, 31 East, as an unorthodox gas well location to test the Morrow formation. Bass is the owner of 9 leases offsetting the subject well to the west, 10 consisting of 200 acres in the south one-half of 11 Section 12, 22 South, 30 East. This will verify that 12 Bass hereby objects to the requested unorthodox 13 location and we request the Division to deny Yates' 14 15 proposed location. According to our geological information, a gas well completed at the Yates 16 location will drain a significant portion of Bass' 17 offsetting leasehold interest in Section 12. 18 In the event Yates drills at the proposed location, Yates 19 will produce more than its proportionate share of 20 hydrocarbons from the reservoir, draining offset 21 acreage and adversely affecting Bass' correlative 22 23 rights. Furthermore, it should be noted that Bass has 24 obtained a permit to drill the James Ranch No. 70 at a 25 proposed orthodox location in the southwest quarter of

the southeast quarter of Section 12 (660 feet from the 1 south line and 1980 feet from the east line). 2 This statement is not intended to limit Bass's 3 objection to the subject application on other grounds 4 5 in the future. Bass has filed the appropriate notices with the NMOCD in order to preserve its right to 6 7 appeal any order granted to Yates as a result of the subject application and testimony presented at the 8 July 21, 1994, hearing. 9 10 EXAMINER MORROW: Thank you. 11 MR. BAILEY: Thank you very much. 12 MR. ERNEST CARROLL: I'll be brief, Mr. Morrow. 13 EXAMINER MORROW: Good. 14 MR. ERNEST CARROLL: The reason I'll be brief is 15 because Mr. Kellahin is just absolutely dead-dog wrong. 16 I'd like to read the first and opening statements 17 of 104, paragraph F: "The Division Director shall have 18 19 authority to grant an exception to the well location 20 requirements of Sections B and C above without notice and hearing when the necessity for such unorthodox location is 21 22 based upon topographical conditions..." 23 There is no requirement. I don't know where Mr. Kellahin got this. The only way that you get an unorthodox 24 location is that you prove that there is a better geologic 25

location. That's not it. 1 Our application is here because we have a 2 topographical problem. The BLM says you can't drill 3 anywhere but right here, in this drilling box that they 4 call their drilling island. That's topographical. 5 That's 6 what the Commission says. Mr. Examiner, I have yet to hear any authority 7 8 that you have the ability to tell Yates to drill a directional well. I can guarantee you that that has never 9 been done before. And I can tell you why, because you look 10 at Rule 104, and it tells you the only thing that this 11 Division can do. And that is G. 12 It says, "Whenever an exception is granted, the 13 Division may... " It doesn't have to, and I think you're 14 well aware that there have been lots of times that no 15 penalty has been invoked when it was shown that there was 16 no adverse effect on the surrounding people that were 17 closest to this unorthodox location. 18 But it says, "...may take such action as will 19 offset any advantage... " That's all you have the authority 20 to do, is offset any advantage. 21 And I guarantee you, we heard it from every 22 23 witness, they did not present one lick of evidence that said we were going to get an advantage over them, to whom 24 we are the closest. 25

This is about the simplest case this Examiner has 1 probably ever had. 2 EXAMINER MORROW: That's the kind I like. 3 MR. ERNEST CARROLL: I agree with you. And you 4 want to know the reason why? There's one real good reason. 5 It's just common sense. Why we can't tell, as Mr. Kellahin 6 7 is saying that we ought to be able to do -- you go out and drill that best location -- because we all know that this 8 is nothing but a guessing game. 9 There is no such thing as a best location. Damn 10 little times that a well has been drilled in this entire 11 United States that that well has been what they thought it 12 13 was going to be. That's because we don't have a crystal ball, we don't have that looking glass. 14 15 And these guys are talking about better, two feet? My God, that's ludicrous. That's why this Division 16 doesn't do what Mr. Kellahin is saying. That's the only 17 way it's done. It's impossible. 18 19 Thank you. EXAMINER MORROW: Anything further in this case? 20 MR. KELLAHIN: Mr. Examiner, if it will help you, 21 I'm happy to try to formulate a draft order for you, give 22 you something to think about, if that's your desire. 23 EXAMINER MORROW: Let me think about it, and I'll 24 25 let you know.

MR. KELLAHIN: All right, sir. 1 2 MR. ERNEST CARROLL: Mr. Examiner, I just -- and that brings up a very important point. We do have a lease 3 expiration, and if that's what you would like we'll do the 4 5 same. If you'll recall, the testimony was that this 6 7 thing expired September 14th -- I think 14, or September 1st, I've forgotten. 8 MR. RAND CARROLL: September the 1st. 9 MR. ERNEST CARROLL: Or 1st, yes. It is a short-10 11 fused deal. And I don't disagree with Mr. Boneau's statement that this well may not be drilled if we have to 12 13 drill it directionally. So it does put the onus, and I apologize for not 14 bringing that up. I'd be glad to present one too. 15 16 EXAMINER MORROW: We'll let you know if we need one. 17 MR. ERNEST CARROLL: Thank you. 18 19 EXAMINER MORROW: Anything more? 20 MR. KELLAHIN: No, sir. Thank you. 21 EXAMINER MORROW: Case 11,019 will be taken under 22 advisement. 23 (Thereupon, these proceedings were concluded at 24 5:45 p.m.) 25 * * *

	211
1	CERTIFICATE OF REPORTER
2	
3	STATE OF NEW MEXICO)
4	COUNTY OF SANTA FE)
5	
6	I, Steven T. Brenner, Certified Court Reporter
7	and Notary Public, HEREBY CERTIFY that the foregoing
8	transcript of proceedings before the Oil Conservation
9	Division was reported by me; that I transcribed my notes;
10	and that the foregoing is a true and accurate record of the
11	proceedings.
12	I FURTHER CERTIFY that I am not a relative or
13	employee of any of the parties or attorneys involved in
14	this matter and that I have no personal interest in the
15	final disposition of this matter.
16	WITNESS MY HAND AND SEAL August 5, 1994.
17	Elling / Sa
18	STEVEN T BRENNER
19	CCR No. 7
20	
21	My commission expires: October 14, 1994
22	I do her eby certify that the foregoing is
23	a complete record of the proceedings in the Examiner Mearing of Case No. 11 019
24	heard by me on July 21 1994
25	Examiner, Examiner
_	CUMBRE COURT REPORTING
	(505) 984-2244

	1
1	STATE OF NEW MEXICO
2	ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
3	OIL CONSERVATION COMMISSION
4	
5	IN THE MATTER OF THE HEARING)
6	COMMISSION FOR THE PURPOSE OF) CONSIDERING:
7	APPLICATION OF VATES PETROLEUM)
8	CORPORATION)
9	
10	<u>OKIGINAL</u>
11	REPORTER'S TRANSCRIPT OF PROCEEDINGS
12	COMMISSION HEARIND E G E I V E
13	
14	BEFORE: WILLIAM J. LEMAY, CHAIRMAN WILLIAM WEISS, COMMISSIONER
15	GARY CARLSON, COMMISSIONER
16	
17	September 22nd, 1994
18	Santa Fe, New Mexico
19	
20	This matter came on for hearing before the Oil
21	Conservation Commission on Thursday, September 22nd, 1994,
22	at Morgan Hall, State Land Office Building, 310 Old Santa
23	Fe Trail, Santa Fe, New Mexico, before Steven T. Brenner,
24	Certified Court Reporter No. 7 for the State of New Mexico.
25	* * *

CUMBRE COURT REPORTING (505) 984-2244

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25	Exhibit 10	66	97		

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1	E	хніві	TS (C	ontinue	d)
2	Applicant's		Identifi	.ed	Admitted
3	Exhibit	11		67	97
	Exhibit	12		70	97
4	Exhibit	13		75	97
5	Exhibit	14A		77	97
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6	Exhibit	14C		77	97
7	Exhibit	15		83	97
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15	Exhibit	1	1	48	161
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20	Exhibit	9	2	02	211
21	Exhibit	10	2	03	211
	Exhibit	11	2	08	211
22	Exhibit	12	2	09	211
23	Exhibit	13	2	09	211
	Exhibit	14	2	30	_
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1	APPEARANCES
2	
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19	
20	
21	
22	
23	
24	
25	

WHEREUPON, the following proceedings were had at 1 2 11:03 a.m.: 3 CHAIRMAN LEMAY: We shall resume and call Case 4 Number 11,019. 5 MR. RAND CARROLL: Application of Yates Petroleum 6 7 Corporation for an unorthodox gas well location, Eddy County, New Mexico. 8 9 CHAIRMAN LEMAY: Appearances in Case 11,019? MR. ERNEST CARROLL: Mr. Chairman, I'm Ernest 10 11 Carroll of the Losee law firm of Artesia, New Mexico, and I'm here on behalf of the Applicant, Yates Petroleum, and I 12 13 will have four witnesses today. 14 CHAIRMAN LEMAY: Okay. Mr. Kellahin? MR. KELLAHIN: May it please the Commission, I'm 15 Tom Kellahin of the Santa Fe law firm of Kellahin and 16 Kellahin. 17 I'm appearing today on behalf of Mitchell Energy 18 Corporation and Bass Enterprises Production Company. 19 The evidentiary presentation I'll make today is 20 with Bass's technical witnesses. I have two witnesses, one 21 a geologist, and the other a reservoir engineer. 22 CHAIRMAN LEMAY: Okay. My hesitancy is, there 23 was some confusion whether Mitchell and Bass were objecting 24 or just Bass was objecting and wishing to carry the case de 25

novo. 1 MR. KELLAHIN: Well, Mitchell continues with its 2 opposition to the Yates well. The presentation today is by 3 Bass. 4 CHAIRMAN LEMAY: But they're both in agreement as 5 to ---6 7 MR. KELLAHIN: -- their opposition. CHAIRMAN LEMAY: -- the de novo hearing and 8 they're roughly on the same side of the fence? 9 10 MR. KELLAHIN: Yes, Mr. Chairman. My point is, Mitchell wants to continue to be a party of record in this 11 proceeding. 12 The presentation today, however, is Bass's 13 presentation. 14 15 CHAIRMAN LEMAY: All right. How many witnesses do you have? 16 17 MR. KELLAHIN: Two, sir. CHAIRMAN LEMAY: Thank you. Will those witnesses 18 kindly stand? 19 20 (Thereupon, the witnesses were sworn.) CHAIRMAN LEMAY: Mr. Carroll, you may proceed. 21 MR. ERNEST CARROLL: Thank you, Mr. Chairman. 22 23 We would first call Mecca Mauritsen, please. 24 May I proceed? 25 CHAIRMAN LEMAY: Please, yes.

1	MECCA MAURITSEN,
2	the witness herein, after having been first duly sworn upon
3	her oath, was examined and testified as follows:
4	DIRECT EXAMINATION
5	BY MR. ERNEST CARROLL:
6	Q. Would you please state your name and address for
7	the record?
8	A. Yes, I'm Mecca Mauritsen, and I live in Artesia,
9	New Mexico.
10	Q. And how are you employed?
11	A. I'm a petroleum landman with Yates Petroleum
12	Corporation.
13	Q. Have you had occasion to testify before the New
14	Mexico Oil Conservation Division?
15	A. Yes, I have.
16	Q. And at that time were your credentials as a
17	petroleum landman found acceptable?
18	A. Yes, they were.
19	MR. ERNEST CARROLL: Is Ms. Mauritsen's
20	credentials as a petroleum landman acceptable?
21	CHAIRMAN LEMAY: Yes, they are.
22	Q. (By Mr. Ernest Carroll) Now, are you familiar
23	with Yates Petroleum's Application for the unorthodox well
24	for the Llama well?
25	A. Yes, sir.

8

1	Q. And you have prepared a couple of exhibits, have	
2	you not?	
3	A. Yes, I have.	
4	Q. Would you first turn to Exhibit Number 1, and	
5	would you identify for the record what Exhibit Number 1 is?	
6	A. Yes, it's a lease map of this area. It shows the	
7	Yates Petroleum leasehold interests, it shows our proration	
8	unit for our well, and the well location.	
9	Q. All right. If you would, then, particularly	
10	point out how those items are denoted on Exhibit Number 1.	
11	A. Our leasehold acreage is in yellow, the proration	
12	unit is outlined in red, and the well location is the red	
13	dot.	
14	Q. All right. The Number 1 location, which is the	
15	unorthodox location that was originally approved in the	
16	Division hearing, is what is shown in red; is that correct?	
17	A. Yes, sir.	
18	Q. There's a bold green line that takes up the lower	
19	right-hand corner. What does that show?	
20	A. That outlines the WIPP site.	
21	Q. Now, the entire area that is shown and depicted	
22	on this plat, which is marked as Exhibit 1, that entire	
23	area lies within what is known as the potash enclave, is it	
24	not?	
25	A. Yes, it is.	

9

Or the area that is covered by Order R-111-P? 1 Q. Yes, it is. 2 Α. As an additional piece of information, the well 3 Q. that Yates is concerned with here is located in the 4 southern half of Section 7; is that correct? 5 Α. Yes, sir. 6 7 And in fact the south half is the proration unit Q. to be dedicated to that well? 8 That's right. 9 Α. This acreage is BLM acreage or United States 10 Q. ownership; is that correct? 11 12 Α. Yes. 13 Q. US minerals? Yes, sir. 14 Α. You are aware that part of the problem with 15 Q. locating a well here has been because of potash resources; 16 is that correct? 17 Α. That's right. 18 To your knowledge, Sections 8, 9 and 10, they are 19 Q. the subject of a leasing by the BLM that is under contest 20 or protest at the present time; is that right? 21 That's right. Α. 22 And that protest is between Yates and Pogo, 23 Q. versus IMC; is that correct? 24 Α. That's correct. 25

All of the acreage that is denoted in yellow is 1 Q. Yates Petroleum acreage; is that correct? 2 That's right. 3 Α. The bulk of the acreage -- well, the acreage 4 0. that's in 6 and 7, Sections 6 and 7, that all falls under 5 one lease, does it not? One federal lease? 6 7 Α. That's correct. 8 Q. How many acres are comprised in that one lease? Approximately 1080 acres. 9 Α. 10 Q. Okay. Is there any other points that you would like to make for the Commission's benefit out of Exhibit 11 Number 1, Ms. Mauritsen? 12 13 Α. I don't believe so. All right. Would you turn to Exhibit Number 2 14 Q. and identify what Exhibit Number 2 is for the record? 15 Yes, it's our certificate of mailing to all the 16 Α. offset operators and unleased mineral owners of our 17 unorthodox location. 18 Okay, this just shows compliance with the 19 Q. Commission Rule 1207; is that correct? 20 That's correct. Α. 21 And the parties here, Bass and Mitchell, are the 22 Q. 23 parties that have shown -- made and entered an appearance? That's correct. 24 Α. 25 And contact has been had with the federal Q.

1	government, and they have indicated they are going to take
2	no position with respect to the hearing; is that correct?
3	A. That's correct.
4	Q. And they did not make an appearance in the
5	Division hearing; is that correct?
6	A. No, they did not.
7	MR. ERNEST CARROLL: Mr. Chairman, at this time I
8	would move admission of Exhibits 1 and 2 that have been
9	testified by Ms. Mauritsen.
10	CHAIRMAN LEMAY: Without objection, Exhibits 1
11	and 2 will be admitted into the record.
12	MR. ERNEST CARROLL: I would pass the witness.
13	CHAIRMAN LEMAY: Thank you.
14	Mr. Kellahin?
15	MR. KELLAHIN: Thank you, Mr. Chairman.
16	CROSS-EXAMINATION
17	BY MR. KELLAHIN:
18	Q. Would you say your last name again for me,
19	please?
20	A. It's Mauritsen.
21	Q. Mauritsen?
22	A. Uh-huh.
23	Q. Ms. Mauritsen, Mr. Robert Bullock testified for
24	Yates at the Examiner hearing in this case, did he not?
25	A. That's correct.

1	Q. Have you been involved with this project?	
2	A. Actually, I was the original landman involved,	
3	but I was on vacation at that time, so he	
4	Q. So Mr. Bullock pinch-hit for you?	
5	A. Yes, sir.	
6	Q. But you're the primary landman that dealt with	
7	this particular topic?	
8	A. Yes, sir, I am.	
9	Q. In fact, is this your area of responsibility?	
10	A. We're not necessarily designated areas at Yates	
11	Petroleum, but I am handling this particular	
12	Q. Are you knowledgeable about your company's	
13	position with regards to lease ownership, not only for the	
14	yellow lease acreage, but the other lease acreage in this	
15	area?	
16	A. I'm fairly familiar with it, yes.	
17	Q. Were you involved in discussions with the BLM	
18	with regards to a location that satisfied the BLM,	
19	Carlsbad, for purposes of drilling this well in the potash	
20	enclave?	
21	A. I was not actually involved in those	
22	conversations. Our regulatory permit agent and our	
23	geologist were involved with direct negotiations on that.	
24	Q. Okay. At the time of the Examiner hearing before	
25	Examiner Morrow That hearing took place on July 21st of	

1	1994, right?
2	A. That's correct.
3	Q. At that point in time, the acreage position that
4	Yates has outlined for us in yellow is the same outline as
5	we see now?
6	A. That's correct.
7	Q. The proposed spacing unit for the well is the
8	same south half of 7 as we see now?
9	A. That's correct.
10	Q. Back in July of 21st [<i>sic</i>], when we look at the
11	southwest offset section in 13
12	A. Uh-huh.
13	Q do you know what the ownership was with
14	regards to that section?
15	A. As far as I know, it's mostly owned by Mitchell
16	Energy, the east half is. There is a part of that west
17	half, west half, that's in the James Ranch unit, I believe.
18	Q. Based upon your knowledge and information and
19	belief, is this land plat correct as of July 21st of 1994?
20	A. I believe so.
21	Q. Okay. The spacing unit that Mitchell Energy has
22	for the Apache "13" Federal well
23	A. Yes, sir.
24	Q do you know what that spacing unit is?
25	A. I believe it's the east half of Section 13.

1	Q. All right. And faintly on the display it does	
2	show the Mitchell Apache "13" Federal well, does it not?	
3	A. Yes, it does.	
4	Q. When we look north of that in Section 12	
5	A. Yes.	
6	Q are you aware that Bass Enterprises Production	
7	Company has proposed a well in the south half of 12?	
8	A. Yes, I am.	
9	Q. It's intended to target the same Atoka sand that	
10	Mitchell produces from in 13, is it not?	
11	A. I believe so.	
12	Q. And that is the same sand that is targeted for	
13	the Yates well that you're currently drilling in 7?	
14	A. I believe so.	
15	Q. Are you familiar with the OCD case that is the	
16	compulsory pooling application by Bass for the south half	
17	of Section 12?	
18	A. Vaguely familiar, yes.	
19	Q. Okay. The map shows an ownership for Richardson	
20	Oil Company for part of the south half?	
21	A. That's correct.	
22	Q. When you look at the southeast-southeast, that's	
23	a 40-acre tract for Mitchell?	
24	A. That's correct.	
25	Q. When you look at the north half of the southwest	

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1	quarter, there's an 80-acre tract there?
2	A. Right.
3	Q. At the time the Examiner heard this case, did
4	Yates have any interest in that 80-acre tract?
5	A. We had had a couple calls from Phillips Petroleum
6	to see if we were interested, but we did not have
7	anything any definite proposal at that time.
8	Q. At the time of the Examiner hearing, that acreage
9	was controlled by Phillips?
10	A. That's correct.
11	Q. The Examiner order was entered on August 2nd of
12	1994?
13	A. That's correct.
14	Q. And now Yates has an interest in the Phillips 80
15	acres, does it not?
16	A. We've just now concluded a deal. It's not
17	completely done, but it's more or less concluded, yes, sir.
18	Q. That deal will turn the working interest
19	ownership in that 80-acre tract over to Yates?
20	A. That's correct.
21	Q. What's your basis for acquiring that acreage now?
22	A. Our basis for it?
23	Q. Yeah.
24	A. Our engineers and geologists reviewed it and
25	thought it was something that would be interesting, and

1	management approved acquisition of it.
2	Q. Are you familiar with the discussions in terms of
3	the numbered well locations in the south half of 7?
4	A. Yes.
5	Q. They're numbered 1, 2 and 3?
6	A. That's correct.
7	Q. Is there any significance to the order in which
8	they're numbered?
9	A. Actually, no. The first The Number 2 and 3
10	locations were our original two locations we proposed. The
11	BLM told us verbally that they would not accept those
12	locations. The only location they would give us was the
13	330 from the south line, 50 from the west location.
14	So just for internal bookkeeping, we went ahead
15	and put it in as the Number 1, and the other two as 2 and
16	3, just so we could drill our Number 1 location.
17	Q. So I can keep the chronology straight, in what
18	sequence are they?
19	A. Okay, our first actual location we tried to get
20	approved was the Number 2 location, was the orthodox
21	location.
22	Q. That would have been a standard location for
23	production from this pool?
24	A. That's correct.
25	Q. A standard location would be no closer than 1980

to the short end of the spacing unit? 1 That's right, and 660 from the --2 Α. -- the side? 3 Q. -- the side. Α. 4 All right. The second location picked is Number 5 Q. 3? 6 That's right, and it's 330 from the south, 1980 7 Α. west. That was the second one that we asked for, and we 8 were denied on that. 9 Q. The footage again on the second request, which is 10 11 location 3 --Number 3, 330 from the south, 1980 from the west. 12 Α. 13 Q. All right. It still honors the western boundary and moves towards the WIPP site? 14 That's correct. 15 Α. MR. KELLAHIN: Okay. Thank you, Mr. Chairman. 16 CHAIRMAN LEMAY: Thank you. 17 Additional questions of the witness? 18 MR. ERNEST CARROLL: No. 19 CHAIRMAN LEMAY: Commissioner Weiss? 20 COMMISSIONER WEISS: I have no questions. 21 CHAIRMAN LEMAY: Commissioner Carlson? 22 EXAMINATION 23 BY COMMISSIONER CARLSON: 24 Q. You probably addressed this, but on your map, 25

what is the dashed line there, encompassing -- to the west 1 of Section 7? 2 That's the outline for the James Ranch unit. 3 Α. Q. That's the James Ranch unit? 4 Yes, sir. 5 Α. And the 80 acres that Yates recently acquired is 6 Q. 7 the 80 acres which is the north half of the southwest quarter of Section 12; is that right? 8 That's correct. 9 Α. Which is outside the James Ranch unit or inside? 10 Q. Α. It's outside. 11 COMMISSIONER CARLSON: That's outside. 12 That's all I have. 13 14 CHAIRMAN LEMAY: I don't have any questions. Witness may be -- I'm sorry, Commissioner Weiss? 15 16 EXAMINATION BY COMMISSIONER WEISS: 17 I'm sorry, what is the name of this field that 18 Q. you want to develop, or where you want to drill? Does it 19 20 have a name? I believe our geologist could answer that. 21 Α. Okay. And do you know why the BLM, I guess, 22 Q. refused your 2 and 3 locations? 23 Potash. Our geologist can further explain that, 24 Α. but it was due strictly to potash. 25

1	COMMISSIONER WEISS: Thank you.
2	CHAIRMAN LEMAY: Additional questions?
3	MR. ERNEST CARROLL: No.
4	CHAIRMAN LEMAY: Witness may be excused.
5	MR. ERNEST CARROLL: We next call Mr. Brent May.
6	BRENT MAY,
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. ERNEST CARROLL:
11	Q. Would you state your name and address for the
12	record?
13	A. Brent May, Artesia, New Mexico.
14	Q. And how are you employed, Mr. May?
15	A. I'm a geologist with Yates Pet.
16	Q. Mr. May, have you had occasion to testify before
17	the New Mexico Oil Commission and Division in the past and
18	had your credentials as a petroleum geologist accepted?
19	A. Yes, I have.
20	MR. ERNEST CARROLL: Mr. Chairman, is Mr. May's
21	credentials acceptable?
22	CHAIRMAN LEMAY: Yes, they are.
23	MR. ERNEST CARROLL: Thank you.
24	Q. (By Mr. Ernest Carroll) Mr. May, you are
25	familiar with Yates' Application for an unorthodox location

- -

1	for the Llama Number 1 well?
2	A. Yes, I am.
3	Q. And in fact, you have been the development
4	geologist with respect to that well, have you not?
5	A. Yes, I have.
6	Q. And you've previously testified at the Division
7	hearing with respect to this Application?
8	A. Yes, I did.
9	Q. Now, Mr. May, it's also true that you were one of
10	the primary go-betweens for Yates Petroleum with the BLM in
11	the process of gaining approval for this well; is that
12	correct?
13	A. Yes, that's correct.
14	Q. Since that's an important issue, Mr. May, why
15	don't we Why don't you briefly describe the process,
16	since we have gotten into since there were actually
17	three locations that Yates had picked, and we've heard that
18	they were the 1, 2 and 3, though that is not the same order
19	of the sequence that they were proposed to the BLM. And if
20	you might kind of enlighten the Commission as to what
21	happened, what the problems were, with gaining an
22	acceptable site, and then we might jump ahead to Exhibits
23	4, 4A and 4B, and you can explain the role that they had in
24	this.
25	A. Okay. After management gave us the go-ahead for

this project, our regulatory people, our land department, 1 started discussions with the BLM, and we put in for an 2 orthodox location in Section 7, 660 from the south line and 3 1980 from the west line. That was an orthodox location 4 5 that we originally wanted. And regulatory personnel had discussions with the 6 7 BLM. The BLM, of course, stated there was potash in that area, we were inside the Secretary's order, and that in --8 I believe it was in the section to the east, Section 8, 9 there was a core hole that did have potash existing in that 10 11 core hole. There was also a core hole in the very northwest 12 quarter of Section 18, I believe, just to the south of 13 Section 7, that was barren of potash, and they told the 14 regulatory personnel that we could not have that location 15 16 because of potash in the area. We then went back, asked for the 330 from the 17 south line, 1980 from the west line. That was our next 18 19 location. 20 And they again verbally told us that we could not have that location because of the potash in the area. 21 And 22 at that time I think they even told our regulatory people 23 we could not have any locations on this section. 24 That's when I entered in, because I wanted to 25 make sure that things were clear, because this looked like

a very good prospect. 1 I talked to some of the BLM personnel down in 2 Carlsbad and they gave me some of the information on the 3 core holes, about the one in Section 8 and the one in 4 Section 18, I believe. 5 And at that time -- Originally, in that first 6 7 conversation, they told me that they might give us a location 330 off the south, 330 off the west, in Section 7. 8 And I asked them if that's the only one they would let us 9 10 have, and they said that's correct. I relayed that to our management. We then 11 contacted Mitchell to see if they would contest us on that 12 13 location, and they said they would. And the next day I got a call back from the same 14 15 BLM personnel saying that we could have a location 330 from the south line, 950 from the west line, which is the 16 current location of the Llama ALL Federal Number 1. 17 He said there had been a misunderstanding and that we could 18 have that location, we could drill it, but that was the 19 only location we would get on this entire lease. 20 Mr. May, what is the primary objective that the 21 Q. Llama is being projected for? 22 It's an Atoka sand that I loosely call the Apache 23 Α. sand, and that's just my own terminology. 24 25 Q. Approximately what is the depth of that?

	24
1	A. That's around 12,900 feet to 13,000 feet.
2	Q. The pool that this well will be producing from,
3	what is the name for it?
4	A. We believe it ought to be put into the Los
5	Medanos Atoka Pool, but the Mitchell Apache "13" Federal
6	Number 1 in Section 13 of 22 South, 30 East, was placed
7	into, I believe, the Livingston Ridge Atoka Pool. But it
8	is out of the same pay.
9	Q. Now, just to finish up, now, with that little
10	brief historical note, Exhibit Number 4, let's get back to
11	the process that Yates had to go through to get this the
12	Application for a Permit to Drill approved.
13	What is Exhibit Number 4?
14	A. Exhibit Number 4 was a letter faxed to me from
15	the BLM office in Carlsbad, I believe the day before the
16	original hearing. It basically states that Yates applied
17	for the Llama ALL Federal Number 1, 2 and 3 in Section 7,
18	22 South, 31 East. It states that these locations are
19	within the potash area and that the 2 and 3 would be
20	they would propose to deny those because of potash
21	reserves.
22	And it then goes on to state that they would set
23	up a drilling island in Section 7 with dimensions of zero
24	to 330 feet from the south line and zero to 950 feet from
25	the west line, and that we could drill within this drilling
L	

1 island. Since the Number 1 was within this drilling 2 island, they would recommend approval of that location. 3 Now, Mr. May, what -- Your understanding of this 0. 4 nomenclature, "drilling island", is that that block, that 5 area of -- that entire block there, 330 by 950, Yates could 6 have, at least with the permission of the BLM, located a 7 well anywhere within that drilling island? 8 That is my understanding, yes. 9 Α. And Yates chose to move it the farthest point 10 Q. that it could, back towards the orthodox location? 11 That is correct. 12 Α. What is Exhibit 4A? 13 Q. Α. Exhibit 4A is the denial of the APD for the Llama 14 Federal Number 2, and that's basically what it is. 15 And then Figure 4B is the denial of the Llama ALL 16 Federal Number 3. 17 The Llama well is presently drilling; is that 18 Q. correct? 19 That is correct. 20 Α. Now, is there any other information that you 21 Q. would care to impart to the Commission on the basis of this 22 process that you went through in trying to get -- I do have 23 one question before I turn to -- get to that general 24 question. 25

This lease upon which the Llama Number 1 Well is 1 to be drilled, that is a 1080-acre lease; is that correct? 2 I believe that's correct. 3 Α. Have you had discussions with the BLM with 4 Q. respect to any further drilling on that particular lease? 5 They did tell us when I had those discussions 6 Α. that this would be the -- the Llama Number 1 would be the 7 8 only location we could get on that entire lease. So this drilling island that they denoted in the 9 Q. letter that -- from Mr. Manus, is the only place where a 10 well can be drilled --11 That's my understanding. 12 Α. -- on the entire ten hundred --13 Q. That's my understanding, yes. 14 Α. Now, as you go north, you actually approach one 15 Q. of the potash mines, the New Mexico Potash Mine; isn't that 16 correct? 17 Α. I believe it's off to the north northeast, I 18 think. 19 Any other statements that you would like to make 20 Q. to the Commission with respect to the process that you went 21 through in trying to get an Application -- an APD approved? 22 I believe that's all. 23 Α. All right. Well, why don't we turn to Exhibit 24 Q. Number 3, and if you would identify what Exhibit Number 3 25

is and then explain its significance to this case to the 1 Commission. 2 This is a stratigraphic cross-section, A-A', of 3 Α. the Atoka and Morrow sections. Basically it's two cross-4 sections within one. On the upper side I have the Atoka, 5 and on the lower side I have the Morrow cross-section. You 6 7 might note the location map down in the lower right-hand 8 corner. As I stated before, the Atoka sand is the primary 9 target, which is outlined in orange, which I loosely term 10 the Apache sand. 11 The Morrow clastics I consider a secondary 12 13 target, along with possibly the lower Morrow and maybe the 14 Strawn. Starting on the upper cross-section, the Atoka 15 cross-section, I have an Atoka shale as the datum. I have 16 the top of the lower Strawn marked and the Atoka and, of 17 course, the Apache sand. 18 Down on the lower cross-section of the Morrow, 19 the data is on top of the lower Morrow clastics, and I also 20 21 have the top of the lower Morrow marked. The yellow marked on the logs is coloring in the 22 sands on the gamma ray, and the red is showing the 23 crossover between the neutron density curves. 24 Starting on the left-hand side with the McKnight 25

and Troporo Campana Number 1 in Section 26 of 22 South, 31 1 East, they originally drilled this well down into the lower 2 They set pipe, attempted a perforation in the Morrow. 3 Morrow, it tested wet. 4 They then came up into the Atoka and shot a few 5 different perforations within the Atoka -- one of those 6 7 included is the Apache sand -- and flowed it for about 100 MCF. 8 They went up to the top of the lower Strawn, 9 perforated that and swabbed gas-cut water. 10 Going to the next well, the Mitchell Energy 11 Apache "13" Federal Number 1 in Section 13 of 22 South, 30 12 13 East, Mitchell drilled this well into the lower Morrow. On 14 they way down, they stopped and DST'd the Apache sand. They had gas to surface in 18 minutes at around 9.5 million 15 a day on that. They recovered 1473 feet of gas-cut oil and 16 mud. 17 And I'd also like to point out the shut-in 18 pressures on this DST. The initial shut-in was 3084, the 19 final shut-in was 3104. That's very low for the Atoka in 20 this area. Usually virgin Atoka bottomhole pressure is 21 around 8000. And I point that out because the engineers 22 will expound upon this in their testimony. 23 Mitchell set pipe to the Morrow, and they came 24 back up and perforated the Apache sand, and it IP'd for 25

over 4 million a day. And in April, the average daily
production was around 5 million a day, 46 barrels of oil
and one barrel of water. This Apache "13" Federal Number 1
is the well we're playing off of.

The next well is the Mitchell Energy Apache "25" 5 Federal Com Number 2 in Section 25 of 22 South, 30 East. 6 7 Again, Mitchell drilled into the lower Morrow, set pipe. They attempted a Morrow perforation, it came on for a 8 little over 7 million a day. But according to the OCD 9 records that I've seen in the Artesia office, they have 10 since abandoned that Morrow zone and gone up and completed 11 into the Wolfcamp. You'll note that they did not attempt a 12 13 completion in the Apache sand. It looks tight here.

The last well on the cross-section, the Shell Oil James Ranch Unit Number 1 in Section 36 of 22 South, 30 East, which I believe Bass operates now, Shell originally drilled into the Devonian with this well. They set pipe into the Morrow, attempted a Morrow completion. They were unsuccessful.

They then came up to the Apache sand, perforated it. It flowed for, on their last test, 7.5 million cubic feet in 20 hours.

They IP'd it, and I got this IP off a scout ticket. It says, calculated open flow with 9000 cubic feet a day -- I have a feeling that probably should be 9 million

1	a day plus 105 barrels of condensate.
2	The cumulative for this well is almost 26 BCF,
3	272,000 barrels of oil, and 11,000 barrels of water.
4	This is the discovery well. This well was
5	drilled back in 1959, and it's produced for numerous years
6	to produce the 26 BCF. And it is the same zone that is
7	producing out of the Mitchell "13" Apache Federal "13"
8	and Federal Number 1, and it is the same sand we are going
9	after in the Llama Number 1.
10	Q. Mr. May, with respect to the geologic evidence
11	that you see in this, as depicted in this cross-section,
12	does it appear that this entire area is one interconnected
13	field or pool geologically?
14	A. That's what I believe, and too, the engineers
15	will testify to that fact too.
16	Q. At least the geologic evidence is certainly
17	there?
18	A. Yes, yes.
19	Q. Mr. May, is there any other statements that you
20	would like to make with respect to Exhibit 3?
21	A. I think that's all at this time.
22	Q. All right. If you would turn to your next
23	Exhibit, Number 5. If you would please identify what
24	Exhibit 5 is for the record and then again explain its
25	significance.

That is a structure map on the top of the Atoka. 1 Α. And before I get into it very deep, I'd like to point out a 2 few things. 3 The Llama ALL Federal Number 1 is shown in 4 Section 7 with the red circle around it. And of course, 5 the two denied locations are shown also. 6 In Section 12 of 22 South, 30 East, is the Bass 7 location, circled in green. 8 And then in Section 13 of 22 South, 30 East, is 9 the Mitchell Apache "13" Federal Number 1, which is the key 10 well in this area. 11 I'd also like to point out at this juncture that 12 13 the Bass well is closer to the Mitchell Apache Federal "13" -- it's closer to that well than it is our proposed 14 location that we're drilling on right now. In fact, the 15 distance between the Bass well and the Mitchell well is 16 approximately 2650 feet, whereas the distance between the 17 Bass well and the Yates well is around approximately 3050 18 feet. 19 And both of those distances are greater than the 20 distance required by the OCD for two standard locations, 21 each located 660 feet from a common side boundary. 22 With that said, I'd like to go on and discuss the 23 structure map. 24 25 As I stated before, it's a structure map with the

top of the Atoka as the datum. It's showing a south-to-1 southeast-plunging anticline. The Yates location, along 2 with the Mitchell well and the Bass well, are on the 3 eastern flank of that structure. The Yates well should be 4 a little bit lower in structure than the Mitchell well, but 5 it's also updip of other producers which are to the south 6 7 in Sections 25 and 36, 22 South, 30 East, so... 8 And those producers have been effectively water-9 free, so I don't think structure is too big of a problem on 10 this sand. That's about all I have for this. 11 Mr. May, with respect to the control that you 12 0. have in mapping the Atoka, most of the control exists to 13 the west of the proposed location; is that correct? 14 To the northwest and to the south. Α. 15 With respect to this picture that Yates is 16 Q. 17 depicting here, is there some risk associated with it? Oh, yes, there is risk, and I can even show that 18 Α. even more so on my next figure. 19 Is there anything else, then, that you'd care to 20 Q. 21 point out with respect to Exhibit 5? I think that's all for the structure map. 22 Α. 23 Q. If you'll turn to Exhibit 6, would you again identify this for the record and then explain its 24 25 significance?

1	A. This is a clean-sand isolith with a gamma-ray
2	cutoff of 50 API units or less in the Apache sand.
3	It's basically showing a north-south-trending
4	sand deposit, and it's probably some sort of a shoreline-
5	type deposit.
6	The contours shown are five and ten feet.
7	Probably for a productive well we'll need probably six to
8	seven feet of sand thickness or more.
9	You might note that the Apache "13" Federal
10	Number 1 has eight feet of thickness. The old James Ranch
11	Unit Number 1, the old Shell well, which was the discovery
12	well in the field down in the south half of 36, has ten
13	feet, and that the Yates location should have ten feet or
14	more.
15	You also might note that the Bass location is
16	probably going the way I have it mapped, should have
17	around five feet of thickness.
18	The Even with the Yates location within the
19	heart of the sand thickness, there is risk involved in this
20	prospect. If you recall, the Mitchell well on the cross-
21	section, the Apache "25" Federal Com Number 2, which is in
22	the south half of Section 25, that well was tight on the
23	cross-section. And I'm showing it, it has ten feet of sand
24	thickness. So just because we have the sand thickness
25	doesn't necessarily mean we will have the porosity.

The other thing, too, is that the Mitchell Apache 1 2 "13" Federal Number 1 is about the only data point in the center of this map. As I stated before, most of the other 3 data points are to the north or northwest or to the south. 4 And so there is risk there on which side of the thick is 5 running on that well. I believe that it is going to the 6 7 east, and that's my interpretation, but there is risk there. 8 Mr. May, on this exhibit, the previous one and 9 Q. your next exhibit, there is a bold yellow line, and --10 Oh, yes, I forgot to point out that the yellow 11 Α. line is the outline of the WIPP site. 12 13 Q. And that area has been withdrawn for oil and gas development since the creation of WIPP; is that correct? 14 That is correct. 15 Α. I note that there is one well down in the very 16 Q. lower southeast corner that apparently was drilled prior to 17 the creation of WIPP? 18 That well was originally -- has a surface 19 Α. location in Section 6 of 23 South, 31 East, and it was 20 deviated underneath the WIPP site. The location in Section 21 31 is the bottomhole location. 22 All right. Anything else that you would care to 23 Q. 24 call to the attention of the Commission with respect to this exhibit? 25

I believe that's all. 1 Α. Q. Would you turn to Exhibit 7 now and again 2 identify it for the record, and then discuss its 3 significance? 4 This is a structure map with the top of the lower 5 Α. Morrow as a datum. It's similar to the Atoka map in that 6 7 there is a south-to-southeast-plunging anticline, and with 8 the locations in question located on the eastern flank of this anticline. 9 10 The Yates location should be structurally equivalent to the Apache "13" Federal Number 1. 11 That's about all I want to show. 12 13 Q. Anything else? No, that should be it. 14 Α. Okay, if you would turn to Exhibit Number 8 and 15 Q. again identify it and then discuss its significance. 16 Α. This is a clean-sand map with a gamma-ray cutoff 17 of 50 API units or less of the Morrow clastic section. 18 These sands were probably deposited in a 19 20 channelized-type setting with a south-to-southeast trend. A sand thickness of probably 25 to 30 feet or 21 more is needed for a decent chance of production. Yates' 22 23 location should have around 50 feet of sand. 24 I might also like to point out some of the other 25 Morrow producers in the area.

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1	The well in 24, which is the Mitchell Apache "24"
2	Federal Number 1, is a Morrow producer.
3	The well in the southwest quarter of Section 1 is
4	no longer producing out of the Morrow but has made around
5	1.9 BCF.
6	The well in the southeast corner of Section 2 is
7	also no longer producing out of the Morrow but has made
8	about 1.6 BCF.
9	And the well in the northeast quarter of Section
10	11 has made about 3/4 of a BCF out of the Morrow.
11	So the Morrow clastics, I think, it's not as good
12	a target as the Atoka sand, but I believe it's a fair
13	secondary target.
14	Q. Anything further with respect to Exhibit Number
15	8, Mr. May?
16	A. No, I believe that's all.
17	Q. Mr. May, with respect to from a geologist
18	standpoint, with respect to the requirements that the
19	Commission must oversee, and that is the prevention of
20	waste and the protection of correlative rights, do you have
21	an opinion as to whether the approval of this unorthodox
22	location for the Llama Number 1 Well will in fact protect
23	correlative rights and prevent waste?
24	A. Yes, it will.
25	Q. Mr. May, is there any other items of information

1	that you wish to bring to the attention of the Commission?
2	A. I believe that's all.
3	MR. ERNEST CARROLL: Mr. Chairman, I would move
4	admission of Exhibits 3 through 8 at this time.
5	CHAIRMAN LEMAY: Without objection, Exhibits 3
6	through 8 will be admitted into the record.
7	MR. ERNEST CARROLL: I will pass the witness.
8	CHAIRMAN LEMAY: Thank you. Mr. Kellahin?
9	MR. KELLAHIN: Mr. Chairman, this will take a
10	little while. I'm happy to start and break for lunch
11	whenever you would like, or we could break now. It doesn't
12	matter to me.
13	CHAIRMAN LEMAY: Let's see how it goes.
14	MR. KELLAHIN: All right.
15	CROSS-EXAMINATION
16	BY MR. KELLAHIN:
17	Q. Mr. May, if you will turn, sir, to your structure
18	map on the top of the Atoka, that's Exhibit 5. Do you have
19	that, sir?
20	A. Yes, sir.
21	Q. And it may be a little awkward to do, but if you
22	have some way to look at your stratigraphic cross-section,
23	which is Exhibit Number 3
24	A. Uh-huh.
25	Q. Okay, are you with me?

1	A. Yes, sir.
2	Q. When we look at the structure map, help us find
3	on the cross-section where we are when you're mapping the
4	top of the Atoka structure.
5	A. Okay, I'm not quite sure I understand. You want
6	me to point out the wells the cross-section goes through?
7	Q. No, sir, take the Mitchell Energy Apache Number
8	13 well.
9	A. Yes, sir.
10	Q. When we look at the log of that well, can you
11	tell me somewhere on the log that shows me where we are on
12	the structure map when you mapped the top of the Atoka?
13	A. Oh, I understand. Yes, sir, it's what I have
14	labeled as the Atoka top on the cross-section.
15	Q. Okay. Probably about 200 feet above the
16	reservoir sand in the Atoka that you're looking for?
17	A. Approximately, yes.
18	Q. Do you have any other What's the datum point?
19	What caused you to hang these logs the way you did?
20	A. That was just a good datum point right above the
21	sand, and the reason I mapped on the top of the Atoka is
22	that it's a good regional marker that I use out here.
23	Q. I want to understand your methodology. When
24	you're trying to pick up the Mitchell Atoka Apache sand
25	I'm looking at that little thing that produces so much gas

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1	for Mitchell you have found that on the Mitchell Energy
2	log on the cross-section?
3	A. Yes, sir.
4	Q. And it's your conclusion that that sand is the
5	one that you shaded in pink?
6	A. Yes, sir.
7	Q. And it correlates to the perforations they have
8	in that wellbore?
9	A. Yes, sir.
10	Q. Okay. I guess the next challenge for you is to
11	figure out if you can find that sand signature on any of
12	the other logs available in the area?
13	A. That's correct.
14	Q. All right. Somehow you've got to make a
15	correlation
16	A. That's correct.
17	Q so that you're looking at the equivalent sand
18	member that we found in the Mitchell well?
19	A. That's correct.
20	Q. How did you do that?
21	A. I pulled out all the surrounding logs and
22	basically correlated them to the Mitchell well.
23	Q. All right. Give me the criteria for the
24	correlation. What did you find in each of these logs that
25	told you that was the correlation point?
1	A. You carry the various shale markers or limestone
----	---
2	markers or whatever that carries consistently, and you can
3	carry those around through the different wells if you can,
4	and you note how the sand falls in relationship to those
5	markers, and see if it correlates.
6	Q. Are those markers the points on the log for which
7	you've drawn the horizontal blue line that says "datum
8	point"?
9	A. That is a marker, I believe, that carries, yes.
10	Q. Okay.
11	A. That's one of them. I use You know, you look
12	at all the markers and try to determine that way.
13	Q. Okay. When we go down to the Apache sand, show
14	me what you did to make the correlation for the Mitchell
15	well, the "13", to go down south to the great big producer?
16	Wasn't that the "25", the Mitchell
17	A. The James Ranch Unit Number 1, the
18	Q. I'm sorry.
19	A. Is that the one?
20	Q. Yeah, the Shell Oil James Ranch 1 is the
21	discovery well in the pool that's done what? 26 BCF?
22	A. Yes, sir.
23	Q. Okay. Show me on the far right of the logs, on
24	the Shell Oil James Ranch Unit 1, what caused you to see
25	something in that log at that point that told you that was

1 the correlative Apache sand in the Mitchell. One of them is the datum which I carried that 2 Α. Shell marker over. 3 There's -- You look at the whole picture, you 4 5 just don't look at one specific marker, and -- But that was one that helped me determine that. But I looked at all the 6 shale markers or limestone markers and worked my way down 7 log by log and came up with that correlation. 8 All right. When you're looking for information, 9 Q. you've made your datum point correlation, you start at that 10 11 point and start looking down, then, in the log? Well, I should -- down -- I mean, I've worked my Α. 12 way towards this -- the James Ranch Unit Number 1 to see if 13 they correlate. 14 15 Q. Are you talking vertically or horizontally? 16 Α. I'm sorry, I go from log to log and I pull out 17 all the logs from the -- if there's any logs in between the Apache "13" Federal Number 1 to the James Ranch Unit Number 18 19 1, I take all the available logs in between those and go from -- either starting from one end or the other, you 20 progress from each well and see -- and carry those 21 correlations along --22 23 Q. Okay. -- until you get to the end of the line. 24 Α. I don't want this to be too tedious, Mr. May, but 25 Q.

1	give me a quick summary of the criteria, going from right
2	to left on the cross-section, that shows me what you saw in
3	that log that identified it as the Apache sand.
4	A. That datum is one.
5	Q. Okay, what else?
6	A. Most all of the Several of those shale
7	markers, some of those hot shales, and also the top of the
8	Atoka. There's also a few limes in there, scattered about,
9	that were carried along too.
10	Q. Okay, all right. Anything else?
11	A. Not that I can think of.
12	Q. All right. When we look at the isopach, now, if
13	you'll look at Exhibit 6, let's sort of tie this together.
14	You know from the initial pressures of the
15	Mitchell Apache well in 13 that you're into a partially
16	pressure-depleted reservoir?
17	A. Possibly, yes.
18	Q. All right. And so you're looking for places to
19	connect the Mitchell well with some other point of
20	withdrawal, right?
21	A. That's not what I do when I work my I work
22	from the geology end, and the engineers use the pressure
23	data.
24	Q. Okay. Well, I don't want you to get into
25	engineering, but my point is, when you look
-	

I did not use any engineering data when I made 1 Α. 2 these maps. No, but you testified a while ago that you were Q. 3 in a partially depleted reservoir? 4 That's -- I just wanted to point out the 5 Α. pressures to set up the engineers --6 7 Well, let's set up the geology with the pressure. Q. If you'll look, you only have one point of 8 withdrawal from the reservoir, the Mitchell well, unless 9 10 you can find geologically some other well to connect it, right? 11 Α. That's true. 12 Q. Okay. When you look at your isopach, find the 13 Shell Oil Company James Ranch 11 well down in Section 36. 14 The Unit Number 1, the discovery well? Α. 15 Yes, sir. Q. 16 Yes, sir, I have it. 17 Α. Which one is that in Section 36? 18 Q. That's in the southeast quarter of 36, that gas 19 A. well. 20 With ten feet? 21 Q. Yes, sir. 22 Α. Okay. You used geologic data and you have 23 Q. connected on the isopach the Mitchell well in 13 with the 24 Shell Oil well down in 36? 25

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That is correct. 1 Α. All right. We're going north now, and we're 2 Q. going to find your other data point. 3 Okay. 4 Α. On the far north side of the isopach you have 5 Q. picked up the McKnight well? 6 7 On the very extreme north side? Yes, sir. Α. Yes, sir. That well is of a significance to you, 8 Q. is it not? 9 Yes, it is. 10 Α. All right. The way you correlate it, you've Q. 11 identified an Apache sand which in your opinion is the same 12 13 Apache sand that Mitchell found in the Mitchell Federal 13 well? 14 Yes, sir, in my opinion. 15 Α. And you attribute five feet to that well? Q. 16 Yes, sir, I do. 17 Α. Okay. Is five feet of significance to you as a 18 Q. geologist? 19 In certain terms. As far as reservoir quality Α. 20 and the productivity of the reservoir, to me, that may be a 21 little bit tight. But as far as telling me where the sand 22 is, possibly is, yes. Yes, that's important. 23 So there's the potential to have less than five 24 Q. 25 feet and have connection into the reservoir and still have

a productive well? 1 Possibility, yes. 2 Α. Q. Okay. 3 When you include other geologic factors in that. 4 Α. All right. But you've used a five-foot 5 Q. approximation, if you will, for the limits of your isopach 6 7 boundaries? 8 Α. That's not -- my cut-off for probably a productive well would be around six or seven, possibly. 9 10 Q. Okay. When we look at the McKnight well, you've got five feet on it, but you've designated it as a dry 11 hole? 12 13 A. Yes, it was a dry hole. Did they perforate and test the Apache sand? 14 Q. In my opinion, yes, they did open it up, and it 15 Α. was the zone that, with a couple of other perforations 16 added in, flowed approximately 100 MCF. And for reasons I 17 don't know, they then went uphole from that. 18 All right. So we have a perforation in your 19 Q. correlation of the Apache sand on the McKnight well? 20 Yes, sir. 21 Α. And it was tested and it didn't produce much? 22 Q. 23 Α. Not much, no. You've chosen to extend the isopach farther 24 Q. 25 north, rather than use the McKnight well as a control point

1	to close the top of the reservoir?
2	A. I did that because I was being optimistic. But
3	yes, you could possibly close it off, because that's the
4	only data point you have up there.
5	Q. Apart from the McKnight well, is there any
6	geologic basis for putting the reservoir oriented through
7	Section 7 as you've done?
8	A. The McKnight well and what I believe is the
9	depositional environment out here, plus along with the
10	Apache "13" Federal Number 1, also helped draw the thick
11	through Section 7.
12	Q. Okay. Have you attempted to, either through your
13	own efforts or with the assistance of the engineers, come
14	up with a volume, volumetrically, for the shape of the
15	reservoir that you've shown on Exhibit Number 6?
16	A. This map is based solely on geologic data.
17	Q. I understand.
18	A. And no, I have not The engineer has done all
19	the volumetric number-crunching. And no, that was not
20	entered into this geologic picture.
21	Q. Let me make sure I understand. The engineer did
22	his own geologic work?
23	A. No, no, he, he came I did this geologic work,
24	and the engineer, through his through some of his
25	computer programs, came up with a size of the reservoir,

1	and then he sized it, and he will show that in some of his
2	exhibits.
3	Q. All right.
4	A. And they fall fairly similar. I mean, there's
5	differences, but
6	Q. All right. Did you provide the geologic data
7	points for the model the engineer prepared?
8	A. He had my map, yes.
9	Q. He had your map.
10	Do you know the total volume of original gas in
11	place that he utilized?
12	A. Not off the top of my head, and he can answer
13	that question.
14	Q. Do you know whether this isopach matches his
15	reservoir volume?
16	A. The volume All I know is that the way he
17	shaped his reservoir, from the size of the reservoir, those
18	two maps are in agreement.
19	Q. But you don't know volumetrically what is the gas
20	contained within this isopach?
21	A. Not off the top of my head, no.
22	Q. Is there something that you could look at that
23	would refresh your memory?
24	A. His notes, but he can testify to that.
25	Q. Other than Well, what separates this Apache

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1	reservoir that Mitchell's got in 13 from the production
2	shown by all the little red dots up in Sections 1, 2, 11
3	and 12?
4	A. In my opinion, those did not have the Apache
5	sand. Those did have some zones that were clean on the
6	gamma ray, but they appeared to be limestones to me.
7	Q. Down in 36, we've looked at the discovery well.
8	That's got ten feet?
9	A. Yes, sir.
10	Q. When we follow the western boundary of the five-
11	foot contour line
12	A. Yes, sir.
13	Q it extends into 35, and there's a well that
14	says eight feet?
15	A. Yes, sir.
16	Q. What's that?
17	A. That was another well. In fact, it's produced, I
18	think, close to a BCF out of the Apache sand, and I gave it
19	a value of eight feet.
20	Q. Whose well is that, Mr. May?
21	A. I believe it might be a Bass well.
22	Q. That's the James Ranch Unit Number 11 well, is it
23	not?
24	A. I believe you're right.
25	Q. Do you know if that well was directionally

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1	drilled?
2	A. As far as the data that I have, it was a
3	vertical, vertically drilled well, unless there's some
4	other data that I'm not aware of.
5	Q. Okay. Your assumption in drawing the contour for
6	this well at eight feet is the presumption that it's a
7	vertical well, and you've used the surface location for
8	that well?
9	A. That's correct.
10	Q. Your cutoff point on your isopach, you have what?
11	Is it 50 degrees API?
12	A. Yes, sir, on the gamma-ray.
13	Q. Yeah.
14	A. That's based off the gamma-ray.
15	Q. Give us a basis for your conclusion that 50 is
16	the right value to use for the cutoff.
17	A. Working the area and knowing Well, basically
18	just knowing the history of the area and working the area
19	through experience, that's a good cutoff value I like to
20	use, down in the for sand.
21	Q. Is there a structural component to the placing of
22	a well in the south half of 7 that's of significance to
23	you, Mr. May?
24	A. No, not really, because the other producers in
25	the south half of the field, down in Sections 25 and 36
-	

1	would they're going to be basically downdip of most of
2	the locations in Section 7, and those wells were relatively
3	water-free production.
4	Q. When you're looking for possible locations in the
5	south half of 7
6	A. Yes, sir.
7	Q did structure play a part in your choice of
8	location?
9	A. It played a part, but a small part. The big part
10	was where I felt the sand might be.
11	Q. Okay. Let's look at the big part.
12	A. Okay.
13	Q. If you go back to the isopach, at your first pick
14	of a location that you submitted to the BLM it's shown as
15	location number 2 on Exhibit Number 1?
16	A. Yes, sir.
17	Q. That's the standard location?
18	A. Yes, sir.
19	Q. What caused you geologically to recommend that as
20	your first choice?
21	A. It was in the heart of the sand thick, and also
22	it was probably it looked like it had a good chance of
23	being in the heart of the sand thick on the Morrow too.
24	Q. When we look at the Atoka, the heart of the sand
25	thick is how thick?

1	A. It's going to be probably somewhere over ten
2	feet. Now, how thick it really gets there, I'm not
3	certain. We just don't have the data, and the thickest
4	well we've seen are ten feet, but
5	Q. All right.
6	A ten feet or more is what I'm saying.
7	Q. In Section 7 or anywhere else on this map, ten
8	feet is the greatest thick we have to work with?
9	A. That's correct. Now, you could go a little bit
10	thicker within part of the inside of that contour, but I'm
11	not sure exactly how thick it's going to be.
12	Q. There would be standard locations in the
13	southeast quarter of 7, the opposite 160 that you've chosen
14	to drill. There are standard locations over there, are
15	there not?
16	A. And still be in the thick? Was that your
17	question?
18	Q. That was my next question.
19	A. Okay. Theoretically, yes, there are standard
20	locations in the southeast quarter.
21	Q. Why didn't you pick the southeast quarter for a
22	location?
23	A. Because that was not in the middle of the heart
24	of the sand. We have a potential When you spot a well
25	within the heart of the sand, even though I'm not sure

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1	we're going to get more than ten feet, you have a good
2	chance of getting more than ten feet.
3	And over on a standard location, over on the
4	southeast side, it looks like to me you're probably just
5	going to get ten feet. So we have a possibility of getting
6	possibly a thicker section where we originally spotted it.
7	Q. If the primary geologic objective as you've
8	analyzed this is reservoir thickness, the unorthodox
9	location that you're drilling is potentially less thick
10	than either of the two other locations you've shown?
11	A. I'd say they're about even.
12	Q. Okay. The drilling island concept in Exhibit 4,
13	the BLM letter
14	A. Yes, sir.
15	Q that concept gave you a radius, if you will,
16	or an area for which there was no objection as to potash?
17	A. That's what I understand, yes.
18	Q. The letter says In the third paragraph of the
19	letter, it says they give you a drilling island, they
20	give you some dimensions.
21	And then they go on and say vertically or
22	directionally drilled wells can be completed from within
23	this drill island.
24	A. That's correct.
25	Q. You had a choice, didn't you?

1	A. That's correct.
2	Q. You had a choice to go vertical or directional?
3	A. That's correct.
4	Q. You could have gone directional to the choice or
5	location of your first pick, could you not?
6	A. We could have, yes.
7	Q. You gave us some footage numbers a while ago
8	where you said, well, you know, the Bass well is closer to
9	the Mitchell well than we're going to be to the Mitchell
10	well, something like that?
11	A. Yes, sir.
12	Q. You're aware of the footage requirements for a
13	320 gas spacing unit in the Atoka, are you not?
14	A. Yes, sir. Yes, sir.
15	Q. It requires you to be 1980 from the end line,
16	does it not?
17	A. That is correct. That's why we're here today.
18	Q. And you're going to be 950?
19	A. That's correct.
20	Q. The Bass location in 12
21	A. Yes, sir.
22	Q are you aware the south half of 12 is subject
23	to a pooling case before the Commission?
24	A. That's what I understand.
25	Q. All right. Are you aware of what decision Yates

1	has made with regards to the commitment of that 80-acre
2	tract that they now control in the north half of the
3	southwest of 12?
4	A. My understanding is that we have not completely
5	finalized the deal, but it's pretty much closed, and we
6	will join in the drilling of the Bass well. That's my
7	understanding.
8	Q. Okay. You show that location at the five-foot
9	line?
10	A. That's correct.
11	Q. What's the basis for picking five feet for the
12	Bass location?
13	A. Based off the Apache "13" Federal Number 1 and
14	the well-control data points off to the northwest, that's
15	the width that I drew my sand.
16	And I might point out, I drew this map long
17	before I knew that location was there and before this
18	hearing started.
19	Q. This is the same map you showed us at the
20	Examiner hearing, is it not?
21	A. Exact same map, except it has the Bass location
22	on it.
23	Q. All right. And the other displays are the same,
24	are they not, with the exception of the stratigraphic
25	cross-section which you didn't introduce?

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1 Α. The stratigraphic cross-section was in the original hearing. 2 Was it? All right, everything's the same? 3 Q. A. Yes, sir. 4 When you look at the north half of the southwest 5 Q. quarter of 12 --6 7 Yes, sir. Α. -- the Yates acreage that you now control --8 Q. Yes, sir. 9 Α. -- and you're going to commit to the Bass well --10 Q. 11 Yes, sir. Α. -- it looks like goat pasture, doesn't it? 12 Q. It doesn't look that great, according to my map. 13 A. Yes, sir. You're outside the productive acreage 14 Q. of the reservoir, and yet you're going to commit that 15 16 acreage to this well? That's correct. 17 Α. MR. KELLAHIN: May I have a minute, Mr. Chairman? 18 (Off the record) 19 20 (By Mr. Kellahin) Mr. May, do we have any data Q. from your drilling well in the south half of 7 that will 21 give us geologic information by which to decide this 22 matter? 23 Not at this time, no. 24 Α. Where are you in the drilling of the well? 25 Q. It's

1	been staked, it's being drilled now?
2	A. That's correct, we are drilling in the Bone
3	Springs.
4	Q. I'm sorry, I can't hear you.
5	A. Inside the Bone Spring formation, which is way up
6	the hole from the Atoka.
7	Q. When was the well spudded?
8	A. Probably around two weeks ago, I believe it is.
9	Q. Okay, and we're at the Bone Springs. What's your
10	estimate of when you'll hit the Atoka?
11	A. Oh, a rough guess, maybe another two weeks,
12	possibly. It could be a little bit longer. We have to set
13	a long string of pipe first.
14	Q. What's the drilling plan? When you get to the
15	Atoka, are you going to go on down to the Morrow?
16	A. We are going to the Morrow.
17	Q. And then once you get to total depth, you're
18	going to start working your way back up and testing the
19	well?
20	A. If we deem to run pipe upon the well, yes.
21	Q. Okay, you'll analyze the logs, look at the
22	geologic data and make choices about what to do?
23	A. That's correct.
24	Q. How long will it be before you can have the logs
25	available by which to see if you even have the Mitchell

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Apache Federal sand? 1 The electric logs? 2 Α. Q. You tell me. 3 The electric logs may be a month. 4 Α. In terms of actual drilling, is there drilling 5 Q. information that you receive if you penetrated this Atoka 6 sand? Would give you information apart from the electric 7 8 logs? 9 Α. We have a mud-logger on location. 10 Q. All right. So the mud-logger could tell us 11 information when we hit the Atoka sand that might be of significance? 12 13 Α. Possibly. And when would that occur? 14 Q. What was it I said? A week and a half until we 15 Α. hit the sand, something like that, two weeks. 16 17 MR. KELLAHIN: Okay. Thank you, Mr. Chairman. CHAIRMAN LEMAY: Thank you. 18 Additional questions? 19 20 MR. ERNEST CARROLL: Could I just -- One? CHAIRMAN LEMAY: Would you like to redirect? 21 Fine. 22 23 MR. ERNEST CARROLL: One clarification, Mr. 24 LeMay. 25 CHAIRMAN LEMAY: Please, go ahead.

1	REDIRECT EXAMINATION
2	BY MR. ERNEST CARROLL:
3	Q. Mr. LeMay [sic], When Mr. Kellahin was asking you
4	in talking about possible locations in the southeast
5	quarter of Section 7, you have been informed by the BLM
6	that there are no locations there that they will permit?
7	A. That's correct, they will not permit anything in
8	the southeast quarter, they will not permit anything
9	besides the Llama ALL Federal Number 1 on this entire
10	lease.
11	MR. ERNEST CARROLL: That's it.
12	CHAIRMAN LEMAY: Thank you.
13	Commissioner Weiss?
14	EXAMINATION
15	BY COMMISSIONER WEISS:
16	Q. Yes, could another geologist draw these lines in
17	a different manner?
18	A. Sure, there could definitely be another
19	interpretation.
20	That's part of the risk involved in this.
21	COMMISSIONER WEISS: That's the only question I
22	have.
23	Thank you.
24	CHAIRMAN LEMAY: Commissioner Carlson?
25	COMMISSIONER CARLSON: No questions.

1	EXAMINATION
2	BY CHAIRMAN LEMAY:
3	Q. Yeah, Mr. May, why did you choose to isopach on
4	the basis of I guess what amounts to clean sand thickness
5	and correlating that with the reservoir, rather than
6	something on the porosity side of the log?
7	A. We always use the gamma-ray cutoff clean sand.
8	We can map the sand unit more to what we think the
9	depositional environments might be, and that way that gives
10	us a better feel for when we don't have very much data, as
11	in this case, we can include the depositional environments
12	into our interpretation of that map. And so that's why we
13	like to use the clean sand cutoff.
14	Q. That would give you the lithology, maybe, of the
15	pay.
16	A. That's right.
17	Q. When you're talking about isovolume maps, or
18	equating a map like that with actually the volume of the
19	reservoir, do you see a correlation between clean gamma ray
20	and reservoir volume, for instance?
21	A. Somewhat. I mean, it's not exact by any means,
22	and there's going to be differences. But in the shape and
23	maybe the position well, not the position, but possibly
24	in the shape, possibly.
25	Q. Thick sand means thick volume, generally, in

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1	A. That's correct.
2	Q a qualitative sense more than a quantitative?
3	A. Yes, sir.
4	Q. That's all I had.
5	Just to re-affirm your conversations with the
6	BLM, they would not approve any drilling island in Section
7	7 except that island that you indicated, or just the south
8	half of 7?
9	A. No, that's the entire lease, between Section 7
10	and Section 6.
11	Q. Do you know the corehole that I guess was
12	mineralized in Section 8, the location of that?
13	A. I think it was over on the west side of Section
14	8, more in the I'm not sure of the exact footages, but
15	it's probably more in the southeast quarter. But it's very
16	close to the west line in Section 8
17	Q. Okay.
18	A and that's the one I was told that had
19	mineralization within the potash zone.
20	Q. I see.
21	A. And the other one was in the very northwest
22	quarter of Section 18 and barren.
23	Q. Which was barren?
24	A. Yes, sir.
25	Q. So their Do you know their basis in denying

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1	you the locations, the orthodox locations, was because it
2	was a Secretarial order, or it was basically in the I
3	didn't think I could ever forget this term, but
4	COMMISSIONER WEISS: Buffer.
5	CHAIRMAN LEMAY: Buffer zone, thank you
6	Commissioner.
7	Q. (By Chairman LeMay) the buffer zone of the
8	corehole?
9	A. I think the buffer zone may have come into play,
10	yes. And it was based off the presence of the potash and
11	not just because we were in the Secretary's order. Based
12	off the potash and probably the buffer zone.
13	Q. Did you contact the Is it IMC that has that or
14	the potash company?
15	A. As far as I know, the potash lease in Section 7
16	is unleased.
17	Q. It is unleased?
18	A. Yes, sir.
19	Q. So you're not talking about obtaining any
20	permission from any leasee; it was strictly the BLM who
21	felt they had to protect their potash mineralization?
22	A. That is correct.
23	MR. ERNEST CARROLL: Chairman LeMay, if I might
24	help, Sections 8, 9 and 10, maybe a part more, were
25	actually put up for lease by the BLM. The ore that they

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1	find here is langbeinite, not the sylvite, and that's
2	what the corehole in Section 8.
3	There was a bid sale approximately a year and a
4	half ago. Yates Petroleum was actually the high Yates,
5	in conjunction with Pogo, were the high bidders.
6	The BLM stated that Yates was acting in bad faith
7	and awarded the bid to the second highest bidder, which was
8	IMC. That process of denying Yates' bid and awarding it to
9	IMC is presently under appeal to the IBLA.
10	CHAIRMAN LEMAY: Thank you.
11	MR. ERNEST CARROLL: That's where it stands.
12	But all of Section 8 was included, as well as 9
13	and 10, was included in that bid, single-bid package.
14	CHAIRMAN LEMAY: Thank you for the clarification.
15	That's all I have.
16	Commissioner Weiss, I'm sorry?
17	FURTHER EXAMINATION
18	BY COMMISSIONER WEISS:
19	Q. Is it only the BLM who governs these locations or
20	comments to you? Does WIPP? Do the people who operate
21	WIPP?
22	Is that a different arm of the government or
23	A. From what little I understand, it is the BLM that
24	only contacts us.
25	But from what I understand, the WIPP might have

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1	some input with the BLM.
2	Q. But
3	A. In fact, one of the stip We do have a
4	stipulation on our APD that we have to send the WIPP site
5	our daily depths and our deviation surveys.
6	COMMISSIONER WEISS: Thank you.
7	FURTHER EXAMINATION
8	BY CHAIRMAN LEMAY:
9	Q. One more maybe this would be better answered
10	by your engineer concerning the drilling of the current
11	well, deviation surveys, whipstock those type of questions.
12	Are you beyond the point where you can deviate
13	that well economically, the one that's drilling?
14	A. Yeah, I'd have to
15	Q. Okay.
16	A defer that to the engineer.
17	CHAIRMAN LEMAY: All right. Additional questions
18	of the witness?
19	He may be excused.
20	Let's break for lunch and reconvene at 1:30.
21	(Thereupon, a recess was taken at 12:15 p.m.)
22	(The following proceedings had at 1:36 p.m.)
23	CHAIRMAN LEMAY: Okay, we shall continue.
24	Mr. Carroll?
25	MR. ERNEST CARROLL: We next call Bob Fant.

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1	ROBERT S. FANT,
2	the witness herein, after having been first duly sworn upon
3	his oath, was examined and testified as follows:
4	DIRECT EXAMINATION
5	BY MR. ERNEST CARROLL:
6	Q. Would you state your name and address for the
7	record?
8	A. My name is Robert Fant. I live in Artesia, New
9	Mexico.
10	Q. How are you employed?
11	A. I'm employed by Yates Petroleum Corporation as a
12	reservoir engineer.
13	Q. Mr. Fant, have you had occasion to testify before
14	the Oil Conservation Division and have your credentials as
15	an engineer specializing in reservoir engineering accepted?
16	A. Yes, sir.
17	MR. ERNEST CARROLL: Mr. Chairman, is his
18	credentials as far as being as a reservoir engineer
19	acceptable?
20	CHAIRMAN LEMAY: They're acceptable.
21	Q. (By Mr. Rand Carroll) Mr. Fant, you are familiar
22	with Yates Petroleum's Application for an unorthodox
23	location for its Llama Number 1 well?
24	A. Yes, sir.
25	Q. And in fact, you testified at the prior hearing

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before the Oil Conservation Division with respect to that 1 Application, did you not? 2 Yes, sir, I did. Α. 3 Mr. Fant, you have prepared certain exhibits for 4 0. presentation today? 5 Yes, sir, I have. 6 A. Let's turn to your first exhibit, Number 9. 7 Q. Would you identify it for the record and then explain its 8 significance? 9 10 Α. Exhibit Number 9 is basically just a brief outline of what I want to talk about today. 11 I'm going to talk about some history of this 12 particular reservoir, model description and history 13 matching, the process that I went through to develop a 14 model that represents this particular reservoir, and 15 recovery projections. 16 I will digress. I will repeat steps 2 and 3 for 17 a second alternative interpretation that I have placed. 18 I have three main points to make today, and the 19 first one is that the Los Medanos Atoka reservoir system is 20 a complex system with two large sandbodies with relatively 21 high permeability, as evidenced by their production rates. 22 They're connected by a narrow section between the 23 two pods, and that section appears to have lower 24 25 permeability.

1	The complexity of the reservoir system requires
2	use of a simulator to predict To properly describe the
3	reservoir, you need the simulator just to describe the
4	reservoir and to predict the accurate prediction, you know,
5	recoveries from the individual wells themselves.
6	My second point is that moving the Yates
7	Petroleum Corporation Llama ALL Federal Number 1 from the
8	closest orthodox location to the present drilling
9	unorthodox location has no impact on the recovery of the
10	offset wells, no significant impact, and I will cover that
11	later.
12	Furthermore, my third point is that the
13	imposition of a penalty upon Yates Petroleum Corporation's
14	Llama ALL Federal Number 1 will damage the correlative
15	rights of Yates Petroleum to the advantage of offset
16	producers.
17	Q. All right. Mr. Fant, if you would then turn to
18	your Exhibit Number 10 and again identify it for the record
19	and then explain its significance.
20	A. Okay. Exhibit 10 is just a table indicating the
21	wells which have produced from what I call the Los Medanos
22	Atoka reservoir. What I'm speaking of here is the
23	reservoir pool. And we could go down it.
24	You've got the James Ranch Unit Number 1, the
25	Number 10, the Number 11 and the 13. Those were all

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assigned to the Los Medanos Atoka. 1 The Apache "25" Federal Number 1 is producing 2 from the Los Medanos Atoka. 3 The Apache "13" Federal Number 1 was assigned to 4 the Livingston Ridge East Atoka field. But based upon the 5 evidence I'm going to present today, I want to show that 6 this is actually a portion of the reservoir, this Los 7 8 Medanos Atoka reservoir. Even though we have two fields, it's the same reservoir. 9 10 Q. Anything further with Exhibit 10? Α. No. 11 Would you turn to Exhibit 11 and again identify 12 Q. it and then explain its significance? 13 Okay. Exhibit 11 is a plot of the production 14 Α. since 1970 from the Los Medanos Atoka sandbody. 15 This -- There was production prior to January, 16 1980, I simply -- I have a cumulative number for the prior 17 data of approximately 7 BCF. 18 The -- in January -- in basically February-March 19 20 of 1980, you'll see a big rise in production. That's the drilling of another well. 21 In mid- -- Or at the beginning of 1983, there's 22 another rise in production. These correspond to the 23 completion of wells that I've presented in Exhibit Number 24 25 10.

1	Also plotted on this The blue curve, by the
2	way, is the production, and that's in MCF per day.
3	The black dots represent the average the shut-
4	in bottomhole pressure, as the tests that are run yearly
5	for the wells in the pool.
6	As you can see, the black dots just continue on
7	down with production. They're kind of tough to see in the
8	early time frame because they correspond with production.
9	In 1980, we have a rise in production, and the
10	pressure begins to fall faster.
11	But the interesting thing to note, and probably
12	one of the most important things to note, is that around
13	1986 production was restricted in this field. Actually, it
14	was the latter part of 1985, production was restricted.
15	And you'll see that as through time period up
16	until January of 1991, with restricted production, the
17	average shut-in bottomhole pressure in these wells
18	increased. Now, that's what I looked at and said, you
19	know, something odd is going on here.
20	Based upon this, I didn't feel I could use a
21	standard P-over-Z-versus-cumulative analysis technique.
22	That would give inaccurate results, because bottomhole
23	pressures should not continue to rise over a five-year time
24	frame.
25	Again, in 1991, production increased from the

field again, and pressures began to drop again. 1 This plot right here, when I was making the 2 reservoir description, is what -- is some of the stuff I 3 had to match. I had to match production volumes, and I had 4 to match this pressure history of the reservoir. If I 5 don't match that, I don't have a -- I don't have a proper 6 reservoir description. 7 There's a couple other data points that are not 8 on this that have to be matched also for a reservoir 9 description, and that's the two DSTs that Mr. May spoke 10 about earlier. I'll cover them in a little bit. 11 So what I did was, I took the map that Mr. May 12 had presented earlier, the isopach map with the two pods, a 13 northern pod and a southern pod, and that was the basis to 14 start with for the reservoir description. 15 I incorporated porosity logs, the thicknesses 16 from those maps, the structure map that he had given me, 17 fluid types that are presented in the published data on the 18 production from the wells. 19 And I took all this stuff and began using a 20 program called Simbest II. It's a reservoir simulator put 21 out by SSI, one of the leaders in reservoir simulation. 22 23 They're, you know, pioneers essentially in the process of reservoir simulation. 24 25 And I took all available -- all the available

1	data that I could find and attempted to honor what we know
2	as hard data, the pressures, the rates, the porosities, the
3	thicknesses of known wells, and adjusting the other data to
4	get a history match.
5	It took I don't know how many runs. It took
6	multiple runs.
7	But if you'll move on to Exhibit Number 12,
8	you'll see what I came out with. This is a plot of the
9	history match of the field, okay? Again, the black
10	triangles are the pressure points that I'm attempting to
11	match. The blue line is what the reservoir simulator
12	matched. And this is the final pressure match that I came
13	up with.
14	The volumes are already a match, because they are
15	input into the reservoir model. For a history matching
16	run, you input the volumes, production volumes.
17	Okay, in order to get from just the start of Mr.
18	May's map to this, I had to adjust the size of the
19	reservoir a little bit, the shapes, still honoring the idea
20	of a pod in the north, a pod in the south. The specific
21	well data, that data has remained. But you can You
22	know, we don't know exactly where the edge of the reservoir
23	is, so we had to you know, that was open to
24	interpretation.
25	But I had additional data that Mr. May didn't. I

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had all the pressure data and the production volumes, and 1 so I was honoring that. 2 And like I said, this Exhibit Number 12 is the 3 pressure match that I ended up with. The blue line follows 4 pretty closely the pressure. 5 The two probably most important points also that 6 are matched are the little circles off -- just before the 7 1984 time frame. If you look at the legend, the purple and 8 light blue are the actual DST number from the Apache "13" 9 Federal Number 1, and then the predicted. They're about 20 10 p.s.i. off. I mean, they sit right on top of each other. 11 It's tough to see that there's two points there. 12 13 And down beneath them is the -- I've got -- and I do apologize, this is mismarked. The legend should read, 14 the Apache "25" Federal Number 1 DST and Apache "25" 15 Federal Number 1 prediction for the bottom two in the 16 It should be "25" instead of "24". 17 legend. But again, those numbers sit right on top of each 18 This is very important. As you can see, the Apache 19 other. "13" 1 is much, much higher pressure than the wells in the 20 southern region of the field, which I've been history 21 matching here. And it -- But, you know, that's basically 22 it for that exhibit. 23 Mr. Fant --24 Q. Uh-huh. 25 Α.

1	Q just to make sure the record is totally clear,
2	your Exhibit 10 had six wells listed on it?
3	A. Yes, sir.
4	Q. Are those six wells that are when you On
5	your Exhibits Number 11 and 12, when you say average shut-
6	in bottomhole pressure, is it those six wells that are
7	being averaged?
8	A. No, the average is for the first four wells
9	Q. The first four wells?
10	A on those. The Apache "25" Federal Number 1 is
11	shown as that's a DST point. And the Apache "13" Number
12	1 is a DST point, because those wells are in a different
13	portion of the reservoir from what I was history matching
14	it
15	Q. Okay, and that was my next point. The
16	A. Uh-huh.
17	Q. You're talking about two pods. You have a lower
18	pod and upper pod; is that correct?
19	A. Uh-huh.
20	Q. The first four wells on Exhibit 10 are in the
21	lower pod; is that correct?
22	A. That is Well, actually the first five are.
23	The It depends on how you interpret where this Apache
24	"25" Federal Number 1 it's near the neck of the It's
25	nearing that portion of reduced permeability, so it's kind

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of in a --1 The constriction area --0. 2 Α. Yes. 3 -- between the two pods? Q. 4 Yes. See, it's nearing that portion of the Α. 5 reservoir. 6 All right. And to just make sure that we're 7 Q. looking -- and I'm addressing Exhibit 11 --8 Uh-huh. 9 Α. Q. -- you show -- First of all, you show around 10 January of 1980, there's a period here of increased 11 production; is that correct? 12 A. That is correct. 13 And that's the heavy blue line? 14 Q. Α. Uh-huh. 15 If you look over on the -- your Exhibit 10, you 16 Q. see that the James Ranch Unit 10, 11 and 13 were wells that 17 came on in April of 1980, May of 1981, and February of 18 1983? 19 Yes, sir. 20 Α. 21 0. Is that -- Are those the wells that are 22 responsible for the increase in production? 23 Α. Absolutely. Okay. And those are the wells that are 24 Q. 25 responsible for this upward movement of the blue heavy

line? 1 Yes, sir. 2 Α. All right. Now, with respect to the dots which 3 Q. are the average shut-in bottomhole pressure on this chart, 4 the average bottomhole pressure, what -- depending on where 5 they fall on the time line, that's how you determine which 6 wells are being averaged; is that correct? 7 Yes, the --8 Α. Okay. 9 Q. From -- Prior to 1980, it's just one well. 10 Α. Q. Right. 11 In your opinion -- And moving on to your Exhibit 12 13 Number 12 --Uh-huh. 14 Α. -- in your opinion, do you feel that you have --15 Q. because of -- and you were, in particular, dwelling on the 16 fact that the Apache "13" Federal Number 1 prediction and 17 18 the actual drill stem tests were shown to be very -- almost on top of each other. 19 20 In other words, it was the -- the simulator was reporting -- was predicting the same pressure that you 21 actually found out when you went out and run the drill stem 22 test; is that correct? 23 Yes, sir. 24 A. 25 And that was the same thing for the Apache "25" Q.

1	Federal Number 1?
2	A. Yes, sir.
3	Q. Because of that occurrence, do you in your
4	expert opinion, do you feel that the simulation run that
5	you're ultimately going to testify to here is an accurate
6	match for this particular reservoir?
7	A. Yes, sir, I do.
8	Q. Is there anything else now that we need to
9	explain, in particular with respect to Exhibits 10, 11 and
10	12?
11	A. No, I believe that's got it for those.
12	Q. All right, let's move, then, to your Exhibit
13	Number 13, and again identify it for the record and then
14	explain its significance.
15	A. Okay, Exhibit Number 13 is the final isopach map
16	of the reservoir description.
17	You can see again, it has a pod to the north and
18	a pod to the south. And particularly with this reservoir
19	simulator, you need to add a zero line, which I've added.
20	Mr. May's had five-foot and ten-foot contour intervals.
21	I'm contouring here on a two-foot contour interval.
22	And as Mr. May presented earlier, this particular
23	reservoir description shows a 12-foot contour interval near
24	the middle of Section 7. That is an interpretation, and it
25	is essentially required to get the volume fit for the
1 reservoirs.

This honors the geologic interpretation of Mr. May. You know, the points that he has as zeroes are zeroes, the points he has as five are five, or ten -- Those points are honored, where we have actual data.

And you'll note that the narrow section in
Section 24 and 19, where the reservoir not only thins but
gets narrower.

9 And as I just testified, you know, I believe we 10 have a good description of the reservoir at this point. 11 This is only one of the maps that go into it. There are 12 porosity, permeability and many other maps that go into it, 13 but this is the one that shows where the gas is, basically.

14 It's interesting to note -- You know, now that we have a good reservoir description, now we can make -- Since 15 16 we've matched the history, now we can make predictive runs. If you don't match the history match, you can't make 17 accurate prediction runs. But since we have matched the 18 historical data, we can make accurate prediction runs for 19 all the wells in the field. And that's what I did. 20 I ran 21 several cases.

I do want to put at this point -- I put in --Production from these wells is controlled by basically two things: the KH, the product of permeability and thickness that your wellbore encounters, and tubing hydraulics. I

mean, you've got to get the stuff through the tubing, back 1 to the surface. And if you've got a big well and you only 2 have little bitty tubing, it's going to be a problem. 3 So I incorporated those properties into the 4 prediction runs, and that's basically it for 13. 5 6 Q. All right. If you'd move to Exhibit 14A --7 Α. Okay. -- again, identify it and its significance. 8 Q. I'd like to kind of cover 14A, 14B and 14C all 9 Α. together. They are in each instance a plot of predicted 10 production from wellbores. 11 14A is predicted recovery -- production rates for 12 the James Ranch Unit Number 70. That's the Bass well in 13 Section 12. 14 15 Exhibit 14B is the prediction of production rates for the Llama ALL Federal Number 1. That's the Yates well. 16 And then 14C is the prediction of rates for the 17 Apache "13" Federal Number 1, and that's the Mitchell well 18 that's currently there. 19 The three prediction cases that I want to speak 20 21 of at this point relate to the three locations that Ms. 22 Mauritsen and Mr. May testified to earlier: an orthodox 23 location, at 660 from the south line, 1980 from the west line; the first unorthodox location that we asked for, 24 which was 330 from the south line, 1980 from the west line; 25

and then the third case was with the Yates well at 330 from 1 the south line, 950 or where we are currently drilling. 2 Now, in each one of these cases, the only 3 difference between case -- the blue, the red and the green 4 case is the location of the Llama well. But as you can see 5 on them, it's insensitive. I mean, the three production 6 lines basically lay on top of each other, within, you know, 7 the parameters that we can calculate. 8 You can see that that's true for the James Ranch 9 Unit Number 70, the Llama ALL Federal Number 1, and the 10 Apache "13" Federal Number 1. In other words, the location 11 of our well within these confines does not affect --12 13 materially affect the recovery of the other wells. Now, Mr. Fant, what I take it is that once you 14 Q. have determined what the reservoir looks like, based upon 15 the reservoir simulation -- and you have a picture in 16 Exhibit 13 -- then you can take the locations of these 17 three wells with it, and using that information in this 18 reservoir simulation, predict what the wells are going to 19 produce over a period of time? 20 Yes, sir. 21 Α. And that's basically what you've done in your 22 Q. Exhibits 14A, -B and -C? 23 Α. Yes, sir. 24 And is it a fair statement that the result of 25 Q.

this is that there is no significant difference between 1 where the location of the well is -- that is, the Yates 2 Llama well -- with respect to the production of the other 3 two wells? 4 Yes, sir. 5 Α. 6 Is there anything else that you would like to Q. present with respect to Exhibits 14A, -B and -C? 7 8 Α. Yes, if I may. I've looked at this reservoir for a good while now, and I've been studying it very intently, 9 10 and it bothered me because intuitively, most people would think, oh, there's going to be more -- a big impact if you 11 12 move the well closer. That's the first thing that comes to people's mind, is, you're going to impact the other well 13 tremendously by moving closer. 14 And so I ran several different calculation 15 techniques to determine why we're not seeing a big impact 16 with this. I wanted to see if it was a simulation problem, 17 see if it was something related to a gridding or something 18 like that in a simulation. 19 And so I looked at the drawdown curve, the --20 21 essentially the interference that the Yates well imposes on 22 the other two wells. 23 Now, granted, there will be interference. Ι mean, if we put a well at an orthodox location, there's 24 25 going to be interference between the wells. This is a

1	highly conductive reservoir with gas in it which is very,
2	very mobile.
3	Now, I used three different techniques. I looked
4	at the simulator itself that I was running, and I was
5	saying, what's the difference in the pressures? What's the
6	difference in the impact at the other wells by moving our
7	well? And the difference is 10 p.s.i.
8	If we're at an orthodox location, we might draw
9	it down 150 p.s.i. Yeah, there might be a 150-p.s.i.
10	drawdown over time. Well, at the unorthodox location it
11	would be 160, a ten-p.s.i. difference. At the Mitchell
12	well it's seven, at the Bass well.
13	So I mean, ten p.s.i. within this reservoir is
14	almost uncalculable. I mean, we That's not even within
15	the accuracy of the pressure bonds that we would put down
16	the holes to say that it's that we can measure it.
17	So I said, okay, the simulator says it's only
18	seven to ten.
19	I ran a I set up a well test module, and it's
20	another one of SSI's programs that allows us to simulate
21	interference between wells through differential equations
22	and things of that nature, and ran an interference test
23	between the wells. It said the difference between the two
24	locations should be seven to ten p.s.i., in that range.
25	I ran another very finely gridded simulator,

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where the grids are on the order of 140 feet, grid blocks 1 are only 140 feet big. It said that the interference 2 between the wells, difference, should be only seven to ten 3 p.s.i. 4 And so in all instances, that seven to ten p.s.i. 5 is the impact. So that's less than three-tenths of one 6 7 percent of the pressure that was found in the Llama -- I mean in the Apache "13" Federal Number 1, less than three-8 tenths of one percent. That's the impact. 9 That's why we can't find it in here. That's why 10 it doesn't seem to show up, because that's not within the 11 precision of the calculations we're talking about. 12 And that's basically all I have on those three 13 exhibits. 14 Well, Mr. Fant, the James Ranch Unit Number 1 15 0. well, how much gas has that particular well produced since 16 its drilling in 1957? 17 Approximately 25.7 BCF, almost 26 BCF. 18 Α. That's a tremendous amount of the gas for one 19 Q. well, is it not? 20 Α. Yes, sir. 21 Now, when the James -- excuse me, the Apache "13" 22 Q. Number 1 was drilled, the reservoir pressure for -- that 23 24 was found in that was not what is normally encountered in virgin Atoka reservoirs, is it not? 25

 Well, in this reservoir, virgin pressure was around 8200, 8220, in that range. So over 8200 p.s.i. And 3100 is well below that number, indicating significant drainage. And it's my interpretation that drainage that the wells in the southern region have drained gas from the northern region tremendously, already. A significant amount of gas has moved from the northern region of this reservoir to the southern region, as evidenced by the pressure in the Apache "13" Federal Number 1. Q. In fact, you had a pressure drop of more than one half; is that correct? A. Yes, sir. Q. I was In looking at your Exhibit 13, it appears that the upper pod, as opposed to the lower pod, actually would contain more volume or is larger. Is that a fair statement, and is there a reason for that, and can you explain it? A. Yes, sir, the reason that the northern pod is larger than the southern pod. Okay, that's in the published data. We know what the pressures are in the southern area. That again is published data. Figure 12, to make the pressure rise from January 	1	A. Oh, no, sir. Virgin Atoka should be around
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 published data. We know what the pressures are in the southern area. That again is published data. In order to get this pressure match as shown in Figure 12, to make the pressure rise from January 	21	come out of the southern pod. Okay, that's in the
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In order to get this pressure match as shown in Figure 12, to make the pressure rise from January	23	southern area. That again is published data.
25 Figure 12, to make the pressure rise from January	24	In order to get this pressure match as shown in
	25	Figure 12, to make the pressure rise from January

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1	essentially January of 1986 through 1991, you have to have
2	a large amount of gas come in there.
3	You know, that This pressure rise right here
4	is what's controlling the relationship, you know, it's
5	what's driving me to force the northern pod larger than the
6	southern pod. I mean, it To fit the physics of the
7	situation, to use a term that somebody used one time, the
8	physical properties that have been measured, it has to be
9	bigger in the north. Otherwise, you cannot get the
10	pressure rise in the southern region that actually
11	happened.
12	Q. Now, that pressure rise is the pressure rise that
13	was reported on your Exhibit Number 11; is that correct?
14	A. Yes, sir. It's reported on Exhibit 11 and
15	Exhibit 12.
16	Q. Okay. With respect to the exhibits that we've
17	covered so far, is there anything else that you'd like to
18	call to the attention of the Commission?
19	A. I don't believe so at this time.
20	Q. All right. Then if you would turn to your
21	Exhibit Number 15.
22	A. Okay. Now, this exhibit Or this particular
23	set of exhibits is another reservoir description and some
24	more modeling, and I will go through it quickly.
25	It's shown It shows why this can't be one just

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big reservoir, why you have to have two. 1 I took this basic interpretation of how to fit 2 the sandbody in here, as you see in Exhibit 15, which is 3 another isopach map, for a reservoir description, okay, in 4 this SSI Simbest II model. 5 I took -- This is based generally upon the 6 interpretation presented by Bass Enterprises Production in 7 Case 11,022 that we -- that was previously heard. 8 That was Bass's force-pooling case that was 9 Q. 10 actually heard the same day as our -- as the original case that we have? 11 Α. Yes, sir, it was. 12 13 I had to change the map a little bit, because if you take their original interpretation there is zero sand 14 on our location, and it's kind of a moot point of being 15 here. 16 But if you expand theirs a little bit wider to 17 put some sand where our well would be -- And that's the 18 only way I can run a simulator. Otherwise, recovery is 19 20 zero. But if you have no restriction between the 21 northern end and the southern end, I can't make a history 22 match, and I'll show you that. 23 This is the basic reservoir thickness 24 25 description. This reservoir holds about 61 BCF, versus the

1	64 or 65 BCF that the previous reservoir held.
2	And again, I'm going to reiterate that I do not
3	believe this interpretation; I'm simply presenting a
4	simulation of it to show why I don't believe it can happen.
5	But that's basically it for Exhibit 15.
6	Q. Okay, then turn to Exhibit 16.
7	A. Okay, Exhibit 16 is another pressure history
8	match, and you'll see at the top I have "Bass
9	Interpretation", for lack of a better terminology. It just
10	denotes this pressure match versus the other one.
11	And you'll see that the blue line doesn't even
12	closely correspond to the actual measured pressures in the
13	southern region.
14	And furthermore, when you look at the Apache "13"
15	Federal Number 1 DST versus the prediction, they're, you
16	know, 600, 700 p.s.i. apart. I mean, they're not even
17	close. This You cannot believe predictions from this, I
18	mean in terms of this does not accurately represent this
19	reservoir, this particular reservoir.
20	Q. Therefore, the simulation based upon the
21	geological picture that Bass presented at its force-pooling
22	hearing on its well
23	A. Uh-huh.
24	Q when using the same techniques which got a
25	perfect almost perfect, not perfect but almost, match

-

under the geologic picture presented by Mr. May using the 1 same parameters when applied to the geologic picture that 2 Bass presented at their hearing, you do not get the close 3 match at all? 4 Absolutely, you do not get that match. 5 Α. In your expert opinion, do you feel that the 6 Q. geologic picture, based upon at least the conclusions that 7 can be arrived at through reservoir simulation -- do you 8 feel that the Bass picture is accurate? 9 10 Α. No, sir. Anything else that you would like to talk about 11 Q. with respect to Exhibit 16? 12 Α. No, sir. 13 All right. If you'd turn to Exhibit 17, and Q. 14 again we have -A, -B and -C. These need to be talked about 15 at the same time, Mr. Fant? 16 Yes, sir, I'd like to speak --17 Α. If you would, again for the record, identify what 18 Q. these three exhibits are. 19 Okay. Again, you'll see at the top of each one 20 Α. of these it says "Bass Interpretation". 21 I went ahead and ran prediction runs based upon 22 this particular reservoir description, based upon the Bass 23 interpretation, and ran the predictions for the three 24 25 wells.

Again, 17A is a prediction under the Bass 1 interpretation for the James Ranch Unit Number 70. 2 17B is a prediction for the Llama ALL Number 1, 3 under the Bass interpretation. 4 And 17C is a prediction for the Apache "13" 5 Federal Number 1 under the Bass interpretation. 6 You can see that there is difference. Again, I 7 8 ran the three different cases, orthodox and the two unorthodox locations that I've previously testified about, 9 10 and that, yes, there is difference in the curves in this instance, but it's not that much. It may look like that 11 much, but I will cover an exhibit that talks about 12 13 cumulative numbers and so that you can see what the exact impact of that is. 14 And again, I want to reiterate that I really 15 don't believe that interpretation. I'm just -- I'm 16 presenting these for information to understand that, you 17 18 know, what the impact could conceivably be of our well on the other wells. 19 That's about it. 20 All right. Mr. Fant, and this is a question I 21 Q. have not asked, but -- that we have not talked about, but 22 in all of the exhibits, the 14A, -B and -C and the 17A, -B 23 and -C, approximately January, just after January of the 24 25 year 2000, there seems to be a rise. What is -- Could you

explain what that is?

1

A. Thank you for pointing that out. That's -- We
have a reservoir right now that's producing against
pipeline pressure. I mean, that's -- The tubing pressure
is having to go through production units and into pipeline
pressure right now, you know, 500 p.s.i. or so.

We -- there's going to come a point in time --7 This reservoir is large, there's a lot of gas down in the 8 ground here. And I feel -- And you know, as a prudent 9 engineer, I would recommend at some point in the future of 10 this reservoir that we're going to put a compressor on the 11 well and draw the wellhead pressure down, and I predict 12 13 that we draw it down to about 100 p.s.i. It could go lower, but I used 100 p.s.i. 14

So that's basically the installation ofcompression in the field.

I assumed that if Yates Petroleum goes out there and installs compression, everybody else is going to go out and install compression too, so that -- because, again, the gas is very mobile, and they would want to get their fair share.

22 So that's basically -- Those rises in production 23 rates are due to the addition of -- the simulation of 24 additional compression in the field.

25

Q. Anything with respect to those exhibits, anything

1	further?
2	A. No, sir.
3	Q. All right. If you would turn to your exhibit
4	marked Number 18, could you again identify it and discuss
5	its significance?
6	A. Okay. In Exhibit 18, this is basically a summary
7	of the recoveries, and it has field and lease gas-in-place
8	numbers, along with the recoveries from those. And as I
9	note at the top, all volumes are in millions of cubic feet
10	of gas.
11	There's a lot of numbers on here, but there's a
12	few Well, we also have one case on here that I have not
13	talked about.
14	When You know, we received a prehearing notice
15	and we were told that Bass was asking for a substantial
16	production penalty. We didn't know exactly what
17	substantial was, so I pulled a number out of the air, 50
18	percent, to run a case on. And so that we could show, if
19	we restrict our well to 50 percent of its productivity,
20	what's the impact on our well and the other wells?
21	And there's some as you go down in this
22	well when I say "the well", the James Ranch Unit Number
23	70 what I'm speaking of there is the wellbore recovery
24	from the 3 and the the wellbore recovery from the
25	James Ranch Unit Number 70. And when we're talking about

1	gas-in-place numbers, I'm talking about for that 320-acre
2	proration unit assigned to that well.
3	Same for the Apache "13" 1, Llama ALL.
4	Because within the reservoir simulator I can
5	outline areas and say, okay, this represents this lease.
6	How much gas is under that lease? How much gas is
7	recovered from that lease? How much gas moves onto that
8	lease from other leases? What's the influx? And things of
9	that nature.
10	But it's real interesting to note that when you
11	look at the James Ranch Unit Number 70, under the Yates
12	Petroleum Corporation interpretation, the upper portion,
13	the original gas in place and I'm speaking of 19 you
14	know, 1956, before any wells were drilled was about 2.3
15	BCF. Okay, and this is from a history match that matches
16	the reservoir properly.
17	Q. Now, Mr. Fant, this when you say oil gas
18	I mean, excuse me, original gas in place, you are talking
19	about under a 320-acre proration unit assignable to each of
20	these wells; is that
21	A. Yes, sir.
22	Q. Except under the Llama lease
23	A. Yes.
24	Q notation?
25	A. In the case yes, that

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1	Q. I didn't mean to interrupt you, but I
2	A. Oh, no, sir.
3	Q wanted to make sure that was clear.
4	A. That's how much was originally If you look at
5	how much is there when the well would be completed and
6	my predictions in this was that that would be completed
7	around the first of the year. I don't know if that's
8	possible, but maybe a month either side of that.
9	But basically a BCF of gas exists under that
10	lease. Okay.
11	But when you look at the recoveries for an
12	orthodox location or the unorthodox location that we're
13	currently drilling, the numbers are 4055 versus 4048. What
14	we're talking about is a difference of 7 million cubic
15	feet, sir. And when we're talking about 7 million cubic
16	feet of gas out of 4 billion, we're talking less than .3
17	percent, just like the pressure numbers that I was speaking
18	of earlier.
19	So there's essentially 7 million cubic feet is
20	nothing that is not really within the precision of the
21	numbers that we can calculate. We really can't estimate
22	that close. Basically, in other words, they're going to
23	recover the same amount of gas.
24	Apache "13" Federal Number 1, you know, basically
25	the same kind of numbers as the James Ranch Unit Number 70.

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1	The only thing is, they recovered 7.3 BCF of gas, almost
2	seven times what's under their well right now, or what was
3	under their well at completion. That's not right now,
4	that's at completion.
5	Our well, gas in place originally was 5.7 BCF.
6	We're looking at about 6.3 BCF recovery from the Llama
7	Federal Number 1.
8	But a very important note is, as Brent talked
9	about earlier, we have one drilling island for the entire
10	lease, our entire lease.
11	When you look at our entire lease, right now
12	there's approximately 6.5 BCF underlying that lease. And
13	if we were to get At our unorthodox location with no
14	penalty we would recover 6.3 BCF. We would recover We
15	will recover less gas than is underlying our lease right
16	now, whereas everybody else in the pool will recover more
17	gas than is underlying their lease.
18	Now, I ran the case with the 50-percent penalty.
19	You can see that the James Ranch Unit Number 70 recovery
20	goes up 5.3 BCF. Apache "13" Federal Number 1 goes up to
21	8.9 BCF. Our well goes down to 3.3 BCF.
22	In other words, gas that would have been
23	recovered by our well that is on our lease is being
24	recovered by other wells. And that's that would damage
25	our correlative rights if that were the case, if a penalty
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were imposed.

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I have also included the cumulative numbers, the same types of cumulative numbers for the Bass interpretation. I do not have a 50-percent penalty run, because I do not believe this case to be true. But I just looked at them again.

James Ranch Unit Number 1, even under this altered interpretation, they have 1.4 BCF under their well -- under their 320 at completion, and they recover 3.9 BCF, or 3.6 BCF with the unorthodox location. Almost three times what's underlying their well right now.

Same basic kind of situation for the Apache "13" 1, and the Yates well, under their interpretation, would recover more than is underlying that lease right now.

But again, that particular interpretation is not
true. I do not believe that's true.

We've got to go up to the top set of numbers forwhat is right, because that matches with history.

You look at the field, 6.5 BCF in place, and we're going to recover -- 65 BCF, excuse me, in place, and we're going to recover around 61 BCF, of which some 37 to 38 BCF have already been recovered.

Q. Mr. Fant, looking at -- and just so that -- to make sure we're fully understanding the significance of this table, looking under the Yates Petroleum Corporation

1	interpretation in the James Ranch Unit 70
2	A. Uh-huh.
3	Q the very first original gas in place, that
4	would have been the figure, if there had never been a well
5	drilled in the pool; is that correct?
6	A. Yes, sir.
7	Q. And even with an unorthodox location, the
8	reservoir simulation states that or shows that this Bass
9	well will recover almost twice what the original gas was in
10	place, even if we drill our well at the unorthodox
11	location?
12	A. Yes, sir.
13	MR. KELLAHIN: Mr. Chairman, I've been patient
14	for a long time. I've allowed Counsel to lead his witness,
15	but it's becoming a habit where he leads his witness and
16	then he summarizes his witness's testimony in an
17	argumentative way and gets his own witness to agree with
18	him. I think that's inappropriate questions, and I object.
19	CHAIRMAN LEMAY: Fine, I think he can probably
20	present a different kind of
21	MR. KELLAHIN: Mr. Carroll knows how to do it
22	right.
23	MR. ERNEST CARROLL: Well, I'm not sure that I
24	agree with Mr. Kellahin's characterization.
25	Q. (By Mr. Ernest Carroll) But with respect to the

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Llama well, using the same kind of analysis, how does it 1 compare with respect to what we are going to -- what the 2 simulation predicts with respect to the original gas in 3 place? 4 Well, there's two things we need to look at 5 Α. 6 there. With respect to the proration unit, it recovers 7 slightly more, just -- you know, we're talking 600 million 8 cubic feet more than was originally under it. 9 But in relation to the Llama lease, which again, 10 I want to reiterate, we are only allowed one drilling 11 island on to drain the whole thing, it had 13.7 BCF to 12 start with, and we're only going to be able to recover 6.3. 13 So the government -- the federal government in their 14 declaration we can only have one drilling island, has 15 already handcuffed us tremendously. 16 Is there anything else, Mr. Fant, that you would 17 Q. like to point out with respect to this exhibit? 18 I don't believe so. 19 Α. All right. Mr. Fant, with respect to the issue 20 Q. 21 of protection of correlative rights, what is your basic 22 opinion with respect to the granting or disallowance of this unorthodox location? How does that play with respect 23 to the protection of correlative rights? 24 And it's a two-phase question. I would like for 25

you to deal with correlative rights as to other persons who 1 have a right to produce in the field, being Mitchell and 2 Bass, and then also secondly deal with the correlative 3 rights of Yates. If you could synopsize or summarize your 4 testimony based with that as your primary focus. 5 Basically, the granting of this 6 Α. Okay. Application in its current form with no penalty will allow 7 Yates to produce that amount of gas underlying their lease. 8 You know, that's basically the way it is with Yates 9 10 Petroleum.

The -- With respect to the offset operators, we 11 do not damage their correlative rights with this particular 12 location versus an orthodox location. There's no essential 13 change in their recoveries from their wells based upon the 14 location of our well if we're producing without a penalty. 15 They recover essentially the same amount of qas, which is 16 significantly larger than that amount of gas underlying 17 their lease. So their correlative rights are being 18 protected there. 19

If a penalty were imposed, the correlative rights 20 of Yates Petroleum would be damaged to the tune of about 21 3.1 BCF recovered by the offset operators, and that would 22 be damaging Yates Petroleum's correlative rights to the 23 24 advantage of the others. 25

MR. ERNEST CARROLL: Mr. Chairman, I would move

admission of Exhibits 9 through 18 at this time. 1 CHAIRMAN LEMAY: Without objection, Exhibits 9 2 through 18 will be admitted into the record. 3 MR. ERNEST CARROLL: And I forgot to ask my 4 famous wrap-it-all-up question. 5 (By Mr. Ernest Carroll) Mr. Fant, is there 6 Q. anything else that you would care to discuss with the 7 Commission at this time? 8 No, sir. 9 Α. MR. ERNEST CARROLL: I would pass the witness, 10 Mr. Chairman. 11 CHAIRMAN LEMAY: Thank you, Mr. Carroll. 12 13 Mr. Kellahin? MR. KELLAHIN: Thank you, Mr. Chairman. 14 CROSS-EXAMINATION 15 BY MR. KELLAHIN: 16 Mr. Fant, if you'll look at your Exhibit 13 --Q. 17 Yes, sir. 18 Α. -- that's your interpretation of the size, the 19 Q. shape and the position of the reservoir based upon your 20 simulation work? 21 Α. Yes, sir. 22 Exhibit 13 contains what volume of gas originally 23 Q. in place? 24 Approximately 65 BCF, it's 64.77. 25 Α.

1	Q. The conclusions you have derived from Exhibit 13
2	have caused you to believe that, first, the unorthodox
3	location does not obtain an advantage over the offsets?
4	A. Yes, sir.
5	Q. All right. Those conclusions about well
6	locations are predicated on whether or not your
7	interpretation of the size and the shape of the reservoir
8	represents a unique match?
9	A. Yes, sir.
10	Q. When we look at Exhibit Number 18, where you're
11	looking at relative share of productive acreage Exhibit
12	18 is the little spread sheet
13	A. Uh-huh.
14	Q to show us original gas in place per spacing
15	unit, and then that's what's happened over time?
16	A. Uh-huh.
17	Q all the numbers in here are conditioned and
18	predicated upon whether or not Exhibit 13 is correct?
19	A. Yes, they are predicated upon the reservoir
20	simulation match.
21	Q. All right. And if your simulation match is
22	wrong, then those conclusions are going to be wrong?
23	A. If my simulation were wrong, they would be wrong.
24	If it were.
25	Q. All right. Looking at Exhibit 18, when we look

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at the spacing unit, the south half of 7, the remaining 1 recoverable gas as of, I think you said January of 1995, 2 give or take --3 A. Approximately, yes. 4 -- is 2.7 BCF, rounded off? 5 Q. Α. Yes, sir. 6 7 All right. If you'll read over to the far right Q. column, if a 50-percent penalty is imposed on that well, it 8 still is going to recover more gas than is currently 9 underneath that spacing unit as of January of 1995? 10 Yes, it would, but no -- much less -- much 11 Α. smaller ratio than the other wells would. 12 I understand. Do you have a copy of Mr. May's 13 Q. 14 isopach? Α. Not before me. 15 MR. KELLAHIN: Perhaps we could find one for the 16 witness, Mr. Carroll. It's Exhibit Number 6. 17 THE WITNESS: 6, I believe. 18 19 Q. (By Mr. Kellahin) When we compare Exhibit 6 to your Exhibit 13 --20 Uh-huh. 21 Α. -- do you have them both? Q. 22 I do. A. 23 24 Q. All right. Did you attempt to calculate original gas in place using Mr. May's isopach? 25

The process that I used was to start with this Α. 1 Mr. May has honored the geologic data, okay? 2 number. That's well data, basically, point data. And I started 3 with Mr. May's numbers. 4 This particular map, in its present form, cannot 5 properly be calculated, because there's no zero line on it. 6 There's no edge -- There's no definition of the edge of the 7 8 reservoir on Mr. May's map. This is a geologic map. All right. 9 Q. This cannot be -- That cannot be done 10 Α. specifically with this map. This is a starting point to 11 arrive at my Exhibit 13. 12 Looking at Exhibit 13 --13 Q. Uh-huh. 14 Α. -- that's the end product, then, of looking at 15 Q. matching production and pressure as best as you could model 16 It generated this display for us, Exhibit 13? 17 it. Α. This is an input into the simulator. I adjusted 18 this, such that the pressure outcome matched the others. 19 All right. You're trying to get 65 BCF original 20 Q. gas in place? 21 No, sir, the 65 BCF is an end product. That was Α. 22 not determined beforehand. The 65 BCF is the proper amount 23 24 of gas in this reservoir with these two pods that gives you the proper history match for the reservoir. It's -- The 65 25

1	BCF is not an input, sir; it's an output
2	Q. No, I didn't mean to imply that. If you look at
3	the production and pressure, that calculation with your
4	assumptions and adjustments gave you 65 BCF of gas in
5	place?
6	A. In the end, yes, sir.
7	Q. All right. And that shape on Exhibit 13 contains
8	65 BCF of gas?
9	A. Yes.
10	Q. Okay. My question for you, does this represent a
11	unique match for the data?
12	A. Oh, absolutely not. I mean, I would be a fool to
13	say that it's a unique one.
14	But the basic trend of two pods is You must
15	have the two pods to get the proper history match, you
16	know, and honoring the productive capabilities of the
17	wells. That's what must be done.
18	Q. And when we look at Mr. May's isopach
19	A. Uh-huh.
20	Q you had to add reservoir space?
21	A. Uh-huh.
22	Q. And you chose to add it to the east and put
23	additional gas in place in Sections 8 and 5?
24	A. Well, I think if you'll look very closely, you
25	will note that I also moved it west.

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But see, to the west I'm constrained by two dry 1 holes, one in Section 1, and then another one in, I 2 believe, Section 11. I'm constrained by physical dry holes 3 that do not allow me to move it too far in that direction. 4 There are no dry holes in Sections 5, 8 or 17, so 5 there was nothing that would suggest that it should be 6 moved in that direction. 7 Well, it gave you the option of putting the gas 8 0. in place in that direction because there was no geologic 9 indication otherwise? 10 It essentially forced me to do that 11 Α. interpretation. 12 In addition, you have added reservoir volume to 13 0. Section 6 to the north and continued it on to Section 31? 14 Yes, sir. 15 Α. Okay. Separate the two pods for me, if you will. 16 Q. If I understood correctly, the well in the southeast of 24, 17 in the neck between the pods --18 Uh-huh. 19 Α. -- that, in your opinion, was put in the south 20 Q. pod, if you will? 21 I would not want to classify that as essentially Α. 22 in either one. That well is very tight, and I would 23 consider that to be the neck region of the pods. It's not 24 a clearcut north and south, but it's further to the south 25

1	of the narrowest portion.
2	Q. When you separated this into two pods
3	A. Uh-huh.
4	Q where did you draw the line? Approximately
5	where we've discussed it?
6	A. Well, when I Yeah, approximately, I would say,
7	my general No calculations were specifically made on
8	this, but in general, midpoint through Section 24 and 19.
9	Q. Okay. Do you have a gas-in-place volume,
10	original gas-in-place volume for the south pod?
11	A. No, sir.
12	Q. You didn't attempt to apportion the 65 BCF
13	between the two pods?
14	A. No, sir, that's not a particular That was not
15	of interest.
16	Q. Okay.
17	A. And the reason it was not of interest is because
18	you cannot precisely define the difference between the
19	north and the south.
20	Q. Exhibit 15, Mr. Fant
21	A. Okay.
22	Q what's the basis for this map?
23	A. The general basis for this map came from, like I
24	said, the map the isopach map of the Atoka sandstone
25	presented by Bass in their Case Number 11,022, because both

. . .

1	of it was presented the same day that we heard this case
2	before the
3	Q. When you look at the Bass isopach that was
4	introduced in the force-pooling case, what was the southern
5	boundary of the isopach?
6	A. Their southern boundary, I believe, was in
7	Section 25. I mean, it simply did not extend beyond that.
8	Q. All right.
9	A. And I had to Since the reservoir does
10	continue, I had to and they showed it to continue, they
11	just stopped their map there I had to I pinned the
12	basic interpretation of mine onto the southern end of that.
13	Q. I just want to be straight as to your method.
14	This exact shape that you have put into evidence as Exhibit
15	15 is not exclusively the shape introduced by Bass at the
16	force-pooling case?
17	A. No, sir, their location has our well being
18	completely dry, in which case penalty is irrelevant.
19	Q. So you have made some adjustments in the Bass
20	interpretation?
21	A. Had to, to be able to run any kind of case at
22	all.
23	Q. All right. The end result of this adjustment is,
24	you've added a reservoir volume south of the line on 25.
25	The south two rows of sections have been added by you

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1	Α.	Oh, yes.
2	Q.	to the Bass map?
3	Α.	Yes, sir.
4	Q.	Okay.
5	Α.	That's all the information I had.
6	Q.	And when you get this shape, this shape contains
7	65 BCF of	gas originally in place, doesn't it?
8	Α.	No, this contains 61.
9	Q.	61, all right.
10	Α.	61 BCF.
11	Q.	You've got a difference of 4 BCF?
12	Α.	Uh-huh.
13	Q.	End result, though, is this is 61 BCF?
14	Α.	Yes, sir.
15	Q.	How many model runs did you conduct before you
16	were sati	sfied with Exhibit 13?
17	Α.	Exhibit 13?
18	Q.	Yeah, that's your I believe that's the
19	interpreta	ation that you have
20	Α.	I can't say exactly how many there were. It was
21	in the 40.	-to-50 range. I mean, it was many, many runs to
22	get the ma	atch.
23	Q.	During the match runs, what parameters are you
24	adjusting	in order to achieve the match? Have you selected
25	a certain	number or types of parameters to adjust in order

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1	to make the match of pressure and production?
2	A. Well, it's a History matching in a reservoir
3	is a very intuitive process. You change a parameter, you
4	see how it affects the reservoir, and you see if that's the
5	proper type of effect.
6	The particular parameters, obviously, I changed
7	the net thickness, I had to, to get the proper to get
8	the proper relationship between them.
9	Also included in that is the porosity data for
10	where there is no where there are no wells. You know,
11	we only have porosity data where there are wells.
12	Q. I understand. Did you change the porosity value
13	as you moved through the reservoir?
14	A. The porosity value has to change as you move
15	through the reservoir. The porosity value was changed
16	very, very little. I honored in all instances the existing
17	data from the wells.
18	Q. When we look in Section 7 on Exhibit 13
19	A. Uh-huh.
20	Q you have a contour line of 12 feet.
21	A. Yes, sir.
22	Q. When we look at Mr. May's isopach, his greatest
23	contour thickness is ten feet?
24	A. Uh-huh.
25	Q. Why did you add reservoir volume in Section 7?

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2all, Mr. May's particular map here is done on a five-foot3contour interval. That would say that the next contour4would have to be on his map, if he were to put another5one in there, it would have to be 15 feet.6Q. Well, is there any data in the reservoir to show7reservoir thickness greater than ten feet?8A. There is a well that is ten feet. In fact, it's9just on the inside of ten feet, if you'll look down in10Section 36, and so11Q. I'm looking at Section 7, though, in terms of12control.13A. When we're talking about the reservoir there's no14control, so there's no reason to say it couldn't be there.15Simply Remember, we're constrained by many16things. We're constrained We know we have to put a17certain amount of volume to get the proper pressure18relationship between wells. In order to do that, the19well everything had to be moved west.20You know, if you notice on my map, the Bass21location, my interpretation shows the Bass location about22seven feet; Mr. May's map only shows it at five. We have23added reservoir volume there.24But in terms of Section 7, there is no specific25control to put it in there, other than the fact that we	1	A. If you'll recall to Mr. May's Well, first of
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21 location, my interpretation shows the Bass location about 22 seven feet; Mr. May's map only shows it at five. We have 23 added reservoir volume there. 24 But in terms of Section 7, there is no specific 25 control to put it in there, other than the fact that we	20	You know, if you notice on my map, the Bass
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But in terms of Section 7, there is no specific control to put it in there, other than the fact that we	23	added reservoir volume there.
25 control to put it in there, other than the fact that we	24	But in terms of Section 7, there is no specific
	25	control to put it in there, other than the fact that we

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1	have to have more reservoir volume. And in order to do
2	that, if you start expanding these controls, you wouldn't
3	want to have a monstrously large open ten-foot contour
4	interval in the middle of this thing. It would not fit
5	with all the other data, it wouldn't hold the right amount
6	of gas and it would not fit.
7	Q. To achieve this result, can you give us a range
8	of the permeability values that you inputted into the
9	model?
10	A. Well, the maximum permeability that I input in
11	the model was 60 millidarcies. That came from a Again,
12	using SSI's well-test program, I simulated the four-point
13	test on the Apache "13" Federal Number 1.
14	So I took physical data, ran this simulator
15	it's a well-test simulator, it's not a reservoir simulator,
16	it's a well-test simulator to determine what type of
17	permeability would be required to give that type of four-
18	point test, and I came out with 60 millidarcies. That was
19	one of basically the highest.
20	The lowest, there are some down in the range of
21	one millidarcy near the neck. You have to reduce the
22	permeability in the neck. And that makes sense. If you're
23	nearing the flank of a sandbody, you get poorer reservoir
24	quality near the flank, and consequently you're going to
25	get poorer permeability. And so the range is approximately

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one to 60. 1 Is that the factor that you adjusted to the 2 Q. greatest extent in order to achieve the results shown on 3 13? 4 Well, I don't know whether you could say to the 5 Α. 6 greatest extent. I don't really have a clearcut image as to what was done. That was varied, the thickness was 7 8 varied. Those were two of the more varied properties, because, especially in the case of permeability, there's 9 actually less hard data, and I used as much hard data as I 10 could, and I honored that. 11 Did you have to adjust -- or to use water 12 Q. saturation as a factor that was adjustable? 13 Water saturation were calculated off logs, but Α. 14 were primarily based upon rock types, free water tables. 15 You know, the water saturation from the north end -- from 16 the southern end to the northern end, changes due to 17 capillary pressure data and things of that nature. 18 That stuff was -- Those parameters were determined by 19 correlations. 20 All right. Apart from permeability, then, and 21 0. reservoir thickness, porosity thickness, were there any 22 23 other parameters that you chose to adjust in order to achieve the results shown on 13? 24 You know, I believe that's basically it. 25 Α. I mean,

I did not adjust the structure. There was no reason for 1 But it was the net thickness, porosity and that. 2 permeability, yeah. 3 MR. KELLAHIN: Thank you, Mr. Chairman. 4 CHAIRMAN LEMAY: Thank you. 5 Mr. Carroll? 6 7 MR. ERNEST CARROLL: Just a couple of questions, Mr. Chairman. 8 REDIRECT EXAMINATION 9 BY MR. ERNEST CARROLL: 10 Mr. Fant, help me a minute when we talk about 11 Q. this reservoir simulation. The -- This is a computer 12 process, is it not? 13 Yes, sir. Α. 14 And I have heard the term "grids" being used with 15 Q. respect during correlation and talking about reservoir 16 simulation. Is a grid process in use? 17 Oh, absolutely. We over- --18 Α. Would you explain what that is? And then I have 19 Q. 20 a question after that. Okay, we overlay a gridding system. It's part of 21 Α. the front-end package of SSI's simulator that you can 22 overlay a gridding system for the wells. And you want to 23 maintain -- there's a balance in the gridding system 24 between -- The more grid blocks you have, the slower your 25

1	process runs, but the finer details you get out of it.
2	I used what I call a variable grid system. It's
3	much tighter gridding in and around the wells to more
4	accurately represent the interaction between the wells,
5	because that's what's at stake here. That's what we're
6	looking at here, is the interaction between the wells. And
7	so I used a fine gridding system near the wells. It got a
8	little bit coarser on the exterior of the model.
9	Q. Now, the gridding system is basically a it is
10	an areal measurement?
11	A. Uh-huh.
12	Q. And there is a certain amount of area within each
13	grid; is that correct?
14	A. Uh-huh, yeah.
15	Q. And within each grid, the computer program tries
16	to predict how much gas is in place; is that correct?
17	A. That's exactly what it does.
18	Q. So the smaller the gridding system Is this a
19	fair statement: The smaller the gridding system, you get a
20	much or at least a more accurate number; is that
21	correct?
22	A. Yes, sir.
23	Q. Or a finer finer-tuning the process?
24	A. Yes, sir.
25	Q. So throughout this reservoir, then Do you know
how many -- what the number of grids that you used through 1 this reservoir? I'm just wondering if that was -- is 2 3 even --It's just -- It's around 1500 cells within the Α. 4 whole simulator. They vary in size because, again, I used 5 a variable-size gridding system. 6 Is it a fair statement that the more grids you 7 Q. use, the more accurate the number that you should get? 8 I believe so, yes, sir. 9 Α. All right. Now, each grid, then, may have a 10 0. 11 different value assigned to it by the program; is that why --12 Absolutely, that's why -- that's why you have --13 Α. 14 you generate these maps that, based upon the values shown on these maps, that value is assigned to that particular 15 grid that lays right there. 16 All right. Now, let's go one step farther in our 17 Q. process here. The grids, once they've been assigned by 18 this program, they become stationary, do they not? 19 20 Oh, yes, sir. Α. So if you're sitting here trying to test your 21 Q. model simulation and you go in and pick the place where you 22 built your model and you pick the point where the Apache 23 "13" well is going to be, then it's looking -- when you get 24 a match there, then you're looking at a very specific area 25

1	of information that's generated by this computer
2	simulation, are you not?
3	A. Yes, sir.
4	Q. Can you give Does that have anything to do
5	with respect to the manner in which you draw your opinion
6	and why you say this simulation accurately reflects the
7	reservoir?
8	A. Yes, sir. I mean, it's a finely gridded process.
9	I looked at what's actually happening at the wells in a
10	very small area. And again, you know, the you go back
11	to the pressure maps. It matches. I mean, it's a good
12	pressure match for reservoir simulation.
13	Q. And you get the two matches not only with the
14	Apache "13" but also the well in Section 25?
15	A. Yes, sir, and the rest of the reservoir.
16	MR. ERNEST CARROLL: That's all I have.
17	CHAIRMAN LEMAY: Thank you.
18	Commissioner Weiss? Would you like to
19	COMMISSIONER WEISS: Yeah, I'm sorry. Oh, yeah,
20	I have one key question.
21	EXAMINATION
22	BY COMMISSIONER WEISS:
23	Q. How did you average the bottomhole the shut-in
24	pressure, shut-in bottomhole pressure data?
25	A. Basically, it was a linear average on the

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Just ten wells? Ten --1 Q. Four wells. Add them up and divide by four if 2 Α. it's four. If it's three --3 Q. Whatever it was, yeah. 4 Uh-huh. Α. 5 COMMISSIONER WEISS: That's the only question I 6 7 Thank you. have. 8 CHAIRMAN LEMAY: Commissioner Carlson? COMMISSIONER CARLSON: 9 No. EXAMINATION 10 BY CHAIRMAN LEMAY: 11 I've got a couple. Because I'm a neophyte in 12 Q. this computer modeling, bear with me. 13 I understand you have to make these two wells 14 that haven't been drilled yet producers --15 A. Yes, sir. 16 -- in order to make the model work? 17 0. Yes, sir. 18 Α. But in essence, it looks like it may be a 19 Q. noncommercial well or a dryhole well up there in Section 6, 20 that McKnight Troporo well that -- I think on the cross-21 section it has something like 100 MCF. 22 23 Α. Uh-huh. According to your gas-in-place map, that would 24 Q. 25 evidently be a pretty good producer or your --

1	A. Well, the perm Excuse me.
2	Q. How do you reconcile that? The map versus the
3	drill stem test?
4	A. The permeability up there in the simulator, I
5	mean we have thickness there, but it is tight. That's
6	taken care of in permeability. I mean, basically, they
7	considered it noncommercial.
8	So you can have thickness, as in the case of
9	the If you were just to look at this map, you would
10	think also that the well in Section 24 would be a good
11	producer. But it's tight, low porosity. And so you take
12	those There's the other effects. This is just This
13	is just sand thickness that we're looking at here. There's
14	the impacts of porosity and permeability.
15	And as you lower porosity, water saturations have
16	a tendency to increase because of the capillary pressure
17	data. And with the increasing water saturation, not only
18	is your absolute permeability reduced, but relative
19	permeability goes down also.
20	So it's like a triple-whammy on you know, for
21	lack of a better term. It gets hit from all directions and
22	it's unable to produce.
23	Q. So your Exhibit 16 I mean, I'm sorry, 13
24	A. Yes, sir.
25	Q wouldn't be a map to predict relative quality.

You couldn't take that and transfer it to your Exhibit 18, 1 which shows your relative recoveries per well under 2 different scenarios? 3 No, you could not specifically take that. Α. You 4 have to take into account all of the data in terms of 5 whether you're on the edge of the field and things of that 6 You have to take all of those things into account. 7 nature. And that again, that -- As Mr. May pointed out 8 earlier, that brings into mind the thought of geologic 9 risk, that's one of the other risks associated with 10 drilling into this reservoir. You can hit thick sand, but 11 if it's tight, you're -- there's nothing much you can do 12 about it. 13 Right. So your Exhibit 18, then, your recoveries 14 Q. are based on kind of splitting up the 65 BCF that's the 15 original gas in place, not necessarily looking at gas in 16 place under various proration units. Is it proration-unit-17 blind? 18 I mean, this -- The reservoir simulator Yeah. 19 Α. does not understand that term "proration unit". It simply 20 says that, you know, as we spoke about earlier, the well in 21 Section 36, the James Ranch Unit Number 1, has already 22 drained gas from way up in the north. It obviously was not 23 proration-unit- -- didn't understand the concept of 24 proration unit. 25

So it just -- wherever the gas can move -- I 1 mean, we're trying to model the physical, the physical, 2 process that's going on down in the reservoir, because gas 3 can move across lease lines, we know that. 4 Uh-huh. Q. 5 And so, you know, that's --6 Α. It looks like it has here. 7 Q. Oh, absolutely, sir. 8 Α. Well, that kind of prompts the next question. 9 Q. Just eyeballing it, how much gas would you assume was under 10 WIPP? It looks like it's close to half the gas in the 11 field, is under WIPP. 12 Yes, sir. I don't know whether half, but -- I 13 Α. have not specifically outlined that to say how much is 14 under WIPP, but a tremendous amount is under WIPP. 15 So are we kind of talking about really boiling it Q. 16 down to its basic -- who's going to get the WIPP gas? 17 That's an issue, but --Α. 18 I mean, if we're talking about this big piece of 19 Q. acreage out there, you have half the gas initially in 20 place, and positioning wells around that place you can't 21 drill --22 23 Α. Uh-huh. -- we're -- aren't we talking kind of getting 24 Q. reservoir advantage, if possible, to get that gas? 25

1	A. I really don't think so, sir. That is a target
2	for the gas.
3	However, if you go back to my numbers on in
4	this, what we are essentially producing with no penalty is
5	the amount of gas underlying our lease. So that's really
6	what we're getting, is the amount of gas underlying the
7	Llama lease, which we go back to
8	We're not here because we wanted to be at an
9	unorthodox location; we're here because we were forced to
10	go to an unorthodox location by the federal government, and
11	this is where they told us we can drill. That's all they
12	allowed us. So we are allowed one drilling island to
13	recover the gas underlying 1080 acres, one well.
14	Q. Well, I guess that's where I have the problem,
15	is, we're not talking about proration units or land; we're
16	talking about accessing as much gas in the reservoir as
17	possible.
18	If in essence we have a dry hole in 6, what would
19	prevent your map from putting the max thickness under 18,
20	closing it off under 7? Wouldn't your computer react the
21	same way if you kind of build up the high in 18 where you
22	cannot drill, closed off the north half of 7, and then
23	basically showing a lot of your lease to be I think we
24	know it's probably nonrecoverable gas, whether there's gas
25	in place up there or not, because we've got a drill stem

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test in 6. That's --1 In the edge of the reservoir --Α. 2 Yeah. 3 Q. -- up in 6? 4 Α. But you have a lease right next -- I mean, 5 Q. including all of 6 but --6 Α. Uh-huh. 7 -- the northeast quarter --8 Q. 9 A. Yeah. -- the northwest quarter 10 Q. How much of it actually is drained out of Section 11 Α. 6, I don't know. 12 But again, that would really -- that only 13 deteriorates the northern -- I mean, that really only 14 condemns that wellbore. I mean, you could move 300 feet 15 away and you could get good reservoir quality. 16 I think that would be true anywhere --17 Q. Yeah. 18 Α. -- in nature. As you --19 Q. Absolutely. 20 Α. -- uncover it, you get dry holes, you know. 21 Q. Drill right next to --22 Α. Yeah, right. I mean, that's just the nature of 23 Q. the beast there. 24 Exactly. And so I just tried to take a general 25 Α.

interpretation. 1 I think the problem with moving the thick down to 2 18 -- and I will discuss the problems with moving the thick 3 down to 18 -- is, again, when you move the thing down, 4 you're moving reservoir quality to the south. I mean, the 5 thicker -- we would generally have to -- You know, the 6 good, thick sand like that, we would generally have to say, 7 okay, that moves good permeability to the south. 8 9 As we move better permeability to the south, we increase this connection between the two pods. 10 We could still restrict the 19, 24, just sharpen 11 Q. the restriction. It still --12 13 A. You would have to -- you -- but it would require -- You still have to deal in the volume of gas. I 14 mean, I'm constrained -- I've got to put a certain amount 15 of gas in the northern portion --16 Right, I understand. 17 Q. -- to cause the proper pressure response in the 18 Α. 19 south --20 Q. Right. -- because we know how much we've pulled out of 21 Α. the south and what the pressure response has been. 22 Right. 23 Q. And so that's what constrained me. 24 Α. You know, we pulled it up there -- It was 25

geologic data to pull it to the north. 1 Okay, I'm trying to sort through it. I guess 2 Q. the --3 Oh, absolutely, yeah. 4 Α. -- I'm trying to find the key elements, and it 5 Q. seems to me that -- I could be wrong, but it seems to me 6 you're trying to argue, we've got some gas under WIPP, or 7 gets the advantage under WIPP. That's --8 Well, I think -- and if that's the case --9 Α. Or lack of advantage. I shouldn't say advantage, 10 **Q**. but maybe the argument being lack of advantage in getting 11 the WIPP gas or advantage of getting the WIPP gas. 12 Yeah. I mean, if that's the case, then everybody 13 Α. should be on the same footing, should be able to just --14 -- talk about WIPP. There's a big blank spot in 15 Q. that map that --16 Yeah, I mean, it's --17 Α. -- will stay blank. 18 Q. -- there's very little data under WIPP. 19 Α. CHAIRMAN LEMAY: Right. Okay, that's all I had. 20 But Commissioner Weiss has a question. 21 THE WITNESS: Okay. 22 FURTHER EXAMINATION 23 BY COMMISSIONER WEISS: 24 Mr. Fant, could you take your thick and put it 25 Q.

1	over WIPP and essentially match the same performance?
2	A. Take my thick
3	Q in 7
4	A in 7 and put it down in WIPP?
5	Q. Yeah.
6	CHAIRMAN LEMAY: That's what I tried to
7	THE WITNESS: I think that's what it would
8	be as I would say, it would be
9	Q. (By Commissioner Weiss) No, move it over to the
10	east.
11	Still have your thin, but move it over
12	A. Move it over to the east, say, over towards 18
13	the boundary between 17 and 18?
14	Q. Yeah. Yeah, something like that.
15	A. I'm sure that You know, of course, we could go
16	through a thousand gyrations.
17	Again, the reason I started with this map was, I
18	started with the geologic interpretation from the
19	geologists and moved from there.
20	I didn't want to just go out and make wholesale
21	changes to the geologists' interpretation of where the main
22	pay is, because I don't have any data to say it should go
23	that way.
24	We've got a geologist's interpretation that says
25	that's where it should be.

1	Q. But you think that would probably
2	A. Oh, yeah, it I mean, we could again, this
3	as Mr. Kellahin As I told Mr. Kellahin, this is not a
4	unique this is not the only one.
5	But this represents the relationship between the
6	wells in the north and the wells in the south, which and
7	then you know, so that the right amount of gas is put up
8	in the north. And then all we're dealing with is the
9	relationship between the wells.
10	And pretty muchly, you can look at the You
11	know, these are two pretty diverse opinions of how those
12	wells would be located in the reservoir between Exhibit 13
13	and Exhibit 15, pretty diverse opinions of how they could
14	be.
15	But still the impact between the wells is
16	minimal.
17	COMMISSIONER WEISS: That's all I had. Thank
18	you.
19	CHAIRMAN LEMAY: You may be excused.
20	Let's take a break, 15 minutes.
21	(Thereupon, a recess was taken at 2:54 p.m.)
22	(The following proceedings had at 3:14 p.m.)
23	CHAIRMAN LEMAY: We shall continue.
24	Mr. Carroll?
25	MR. ERNEST CARROLL: Thank you.

1 DAVID F. BONEAU, the witness herein, after having been first duly sworn upon 2 his oath, was examined and testified as follows: 3 DIRECT EXAMINATION 4 BY MR. ERNEST CARROLL: 5 Mr. Boneau, would you state your name and address 6 Q. 7 for the record? My name is David Francis Boneau. I live in 8 Α. 9 Artesia, New Mexico. How are you employed? Q. 10 I'm employed by Yates Petroleum Corporation as 11 Α. reservoir engineering supervisor. 12 Mr. Boneau, you have testified and had your 13 Q. credentials accepted in the area of reservoir engineering 14 by the Commission, have you not? 15 Α. Yes, sir. 16 17 MR. ERNEST CARROLL: Mr. LeMay, is there any problem with Mr. Boneau's --18 CHAIRMAN LEMAY: His qualifications are 19 acceptable. 20 21 THE WITNESS: Thank you. (By Mr. Ernest Carroll) Mr. Boneau, you are 22 Q. 23 familiar with the Application of Yates Petroleum for the unorthodox location for its Llama Number 1 well? 24 That's correct, yes, sir. 25 Α.

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And you testified at the first hearing before the 1 Q. Division Examiner, did you not? 2 Yes, I did. 3 Α. And you have prepared certain exhibits today for 4 Q. presentation to the Commission? 5 I've prepared a small number, yes, sir. 6 Α. All right. If you would turn to your first 7 Q. Exhibit, Number 19, would you identify it and explain its 8 significance?. 9 Well, the purpose of my testimony, which I really 10 Α. hope is fairly short, is to try to make clear that a 11 penalty on the Yates well is not appropriate. Yates would 12 13 love to have had the opportunity to drill an orthodox location, and we've not been able to. 14 15 Exhibit 19 -- It is really simple. It shows our lease, our great big lease, 10,080 [sic] acres, and in the 16 lower left corner it shows the area in which we are allowed 17 by the BLM to drill, so that the daunting task is to drain 18 19 what gas is under this large lease from wells way down in the far southwest corner. 20 And the point, I guess, is simply that the BLM 21 has penalized us quite severely. Really tough technical 22 task to drain that lease with that well when you also 23 24 consider that the offset operators want us not to drain anything from them. 25

1	So Exhibit 19 just kind of shows the magnitude of
2	the problem facing Yates.
3	Q. All right. Would you turn to your Exhibit 20,
4	identify it and explain its significance?
5	A. Okay, the rest of my testimony is simply aimed at
6	showing some drainage diagrams. Mr. Fant and I worked
7	together, and he's done the high-tech approach to the
8	problem, which is really the most accurate approach to the
9	problem.
10	I've taken a lower-tech approach, and the benefit
11	of my approach, if there is a benefit, is that there are
12	some pictures that address some questions that have come up
13	and address in a qualitative way where the gas comes from
14	that the various wells are producing or are going to
15	produce in the location we're talking about here.
16	So I do need to explain Exhibit 20, and then
17	we'll get on to the pictures.
18	We're worried about the interaction between the
19	Apache "13" Federal Number 1 well, which does exist and has
20	been producing since early 1994 from the Atoka sand, and
21	we're worried about the interaction of that well with the
22	Yates well, Yates Llama well, which is being drilled now,
23	and the interaction in the future with the well proposed by
24	Bass.
25	Q. Mr. Boneau, let me interrupt you one moment. The

Apache "13" Federal Number 1 well was drilled in an 1 unorthodox location, was it not? 2 Yes, it's drilled in an unorthodox location. Α. 3 ο. In fact, it's closer than it should be to its 4 east line of Section 13? It's unorthodox in that 5 direction? 6 It's unorthodox in that direction, yes, sir. 7 Α. All right. And Yates Petroleum did not oppose 8 0. that orthodox location, did it? 9 Α. My memory is that no one opposed that, and 10 Mitchell was a brave soul to go out and drill that well, 11 frankly. 12 All right. If you would continue on. That has 13 Q. not been brought up prior to this time, and I apologize. 14 Okay. So I'm trying to show something about the 15 Α. interaction between these three wells, and I'm making big-16 time assumptions, I'm making assumptions, gross 17 assumptions, and those assumptions include that all three 18 wells will produce 5 million a day. The Apache "13" Number 19 1 has been producing 5 million a day. 20 The other assumption I'm making is that the 21 reservoir in this area is like the reservoir encountered at 22 23 the Apache "13" Number 1, and by that I mean the thickness is eight feet, like at that well, et cetera, et cetera, on 24 25 that other gas and reservoir parameters.

So what Exhibit 20 shows are months in 1994 and 1 1995 and 1996, in the first column. 2 In the second column it shows what production the 3 Apache "13" Number 1 will produce at 5 million a day, and 4 5 you just take the number of days times 5 million, and you 6 get those numbers. 7 The Apache "13" -- And everybody knows there's no real data in New Mexico for 1994, but this well has been 8 9 producing about 5 million a day, and our pumpers have been out there looking at it many different times, and it's 10 always 5, 5.2, 5.6 million a day. 11 So anyway, column 2 is simply 5 million a day 12 times the days in those months. The Apache "13" Number 1 13 started about in February, 1994. 14 The next column is just the cumulative MMCF that 15 16 that well will produce, adding up those 5-million-a-days for all those days. 17 And the fourth column is the number of acres that 18 19 contain the gas produced, the cumulative gas produced until 20 that point. So that in February of 1994, the Apache "13" Number 1 produced about 140 million cubic feet of gas. 21 22 Does 140 million cubic feet of gas fit into 24 acres where 23 those acres have the properties of the reservoir that were found at the Apache "13" Federal Number 1? 24 The middle of the exhibit talks about the Yates 25

Llama well, the same numbers, MMCF per month, and then a 1 cum MMCF, and then the acres drained by that gas. 2 I'm assuming here that the Yates well will start producing on 3 November 1st, 1994, and we're drilling and that's a 4 5 reasonable target. 6 The far right side shows similar numbers for the 7 well proposed by Bass at its orthodox location. I've 8 assumed that the Bass well will begin production January 1, 1995. 9 The numbers on the first page of Exhibit Okay. 10 20 assume that the Yates well has no penalty. 11 There's a second page to Exhibit 20, and it is 12 exactly the same stuff. The numbers for the Apache "13" 1 13 and the Bass are totally unchanged, but the Yates well is 14 given a 50-percent penalty and thereby reduces the acres 15 that the Yates well drains. 16 The third page of Exhibit 20 are the reservoir 17 properties and the calculation procedure that takes gas 18 19 produced and gives you an acres drained, and those are relatively standard things, and I have no intention, unless 20 21 you want me to, to go into that in detail. But the third 22 page shows how we calculate acres drained from gas 23 produced. 24 So Exhibit 20 are the numbers that show the acres drained by the various wells, starting production for the 25

1	Apache "13" Number 1 in February, for the Yates in
2	November, and for the proposed Bass well in January of
3	1995.
4	What I'm proposing, then, or what the other
5	exhibits are, are pictures of where this gas is drained
6	from. And my point is Well, hopefully we'll see my
7	point. My point is to show that if the Yates well is
8	penalized, people other wells take gas from our lease,
9	and if Yates is not penalized, we get gas from an area that
10	you would consider fair game for the Yates wells. That's
11	what I'm trying to show.
12	Is it appropriate if I go on to the next exhibit?
13	Q. Certainly, Mr. Boneau, and that is Exhibit Number
14	21?
15	A. Exhibit Number 21 is a set of drainage area
16	curves, figures. And I've drawn figures for, I think, five
17	different times.
18	The first page shows the drainage as of September
19	1, 1994. And in September 1st, 1994, the only well
20	producing in this area is the Apache "13" Federal Number 1,
21	and it has drained about 179 acres, and it is draining gas
22	from the Bass spacing unit, from the Yates spacing unit,
23	and it is draining quite a bit of gas from under WIPP.
24	Okay.
25	And the set of exhibits that I have here are the

case where Yates is penalized 50 percent, what this is 1 supposed to be. 2 So the next page, page 2 of Exhibit 21, shows the 3 situation as of January 1st, 1995. So the Yates well has 4 been producing for two months, the Apache Federal continues 5 to produce, and the Bass well is not yet on production. 6 What you see is that the Apache Federal "13", 7 Federal Number 1 well has now drained 283 acres. 8 The Yates is starting to drain an area around its location, and 9 there's interference between the Apache Federal 13 Number 1 10 and the Yates Llama well, and so those two drainage areas 11 have bumped into each other, and there's kind of a no-12 drainage boundary, a standoff line, established between 13 them. 14 The third picture shows the situation as of July 15 1, 1995, and now the Bass well has been on for six months 16 and the Yates well for a little longer, and all three of 17 the wells are interfering with each other. 18 The Yates well is penalized in all these cases, 19 and so its acreage has already fallen behind the acreage 20 drained by the Bass well, even though it started earlier. 21 The Mitchell Apache "13" Federal Number 1, it is 22 draining about 40 acres of the Bass spacing unit and about 23 10 acres or so of the Yates spacing unit. The Yates well 24 25 is draining a little bit -- a few acres that is in Section

1	12. And these interference lines have been established in
2	the direct line between any pair of two wells.
3	Okay, going on to the fourth page. The fourth
4	page is January 1, 1996, so six months later. And again, I
5	make the point that this is the case where the Yates well
6	is penalized. And you start to see, at least in my mind,
7	in January 1, 1996, you start to see the detrimental
8	effects on the penalty upon the Yates well.
9	The Bass well is now starting to drain part of
10	Section 7. And the Apache "13" Federal Number 1, over in
11	the WIPP area in Section 18, is making an end run around
12	that side of the Yates drainage area.
13	So with Yates having a penalty on its well, the
14	Bass well is essentially going around the north side and
15	the Apache "13" well is going around the south side.
16	And what You know, what's going to happen and
17	what you can see in the next picture happening, is that the
18	WIPP is mostly being drained by the Mitchell well, and a
19	lot of Section 7 is going to be drained by the Bass well.
20	The final page of Exhibit 21 is six months after
21	that, July 1, 1996. And the things I'm talking about are
22	happening maybe a little more clearly, I hope.
23	The Bass well is draining Section 7. And the
24	WIPP site in Section 18 is being drained almost entirely by
25	the Mitchell well. And again, my description The Bass
•	

well's drainage area is moving around the north edge of the 1 Yates well, and the Mitchell well is moving around the 2 south edge. And with Yates' well being penalized, the 3 Yates well -- in my opinion, it's obvious that it's not 4 getting to compete with the other wells the way it should. 5 That's the story, and you can make -- I hope that 6 the Commissioners see some benefit in these pictures, 7 giving you an idea where the well -- where the gas produced 8 by a particular well comes from. 9 Mr. Boneau, with respect to the issue that's 10 Q. facing this Commission, the granting of the unorthodox 11 location and whether or not to grant a penalty, as 12 advocated by Bass, first of all, in your opinion, should --13 is it necessary for a penalty to be assessed against Yates 14 in order to prevent unfair interference with the Bass well 15 or an unfair advantage over by the -- to be gained by the 16 Yates well over the Bass well? 17 My understanding of the rules is that a penalty 18 Α. is supposed to compensate for an unfair advantage gained by 19 Yates by having its well in an unorthodox location. And my 20 pictures show that if such a penalty is imposed, the 21 picture that we're looking at, that Yates -- well, that 22 there is no unfair advantage, that Yates essentially has no 23 advantage -- and that was Mr. Fant's testimony -- but that 24 25 if this penalty is imposed, Yates is unfairly exploited by

the surrounding wells.

1

The situation -- My last exhibit, Exhibit 22, talks about the case where no penalty is imposed, and rather than leading you through a whole set of five, I just put out the last one. It's July 1, 1996.

There, the Yates well has a bigger drainage area, it has not been restricted. The Yates well has drained some gas from Section 12, the Apache well has drained 40 acres of gas from Section 12, the Bass well has drained about 60 acres from Section 13, Yates gets 20 percent of the WIPP gas, and Mitchell gets the rest, that kind of thing.

To me, the picture in Exhibit 22 is fairness. It is not the case and it's not true, and we all know it's not true, that the Yates well is going to get exactly the gas under its lease, and the Bass well is going to get exactly the gas under its spacing unit.

But the movement of gas is balanced out fairly 18 well -- actually very well. There's been a boundary 19 established between the Bass and the Yates, and that 20 boundary is a little bit to the left of the boundary line 21 between Section 7 and Section 12, but it's a pretty much 22 23 north-south boundary, and neither person is going to -neither well is going to push much into the other guy's 24 lease. It looks like Bass is pushing a little -- pushing 25

us back towards our lease where we belong.

1

But Exhibit 22 situation, with no penalty, is basically fair, and my -- So my conclusions are simply that if we are penalized, people get our gas; if we're not penalized, the gas is spread around a little, but everybody gets what I think a fair-minded person would call his share of the gas.

8 Q. Mr. Boneau, I think you've addressed the issue of 9 correlative rights in your last statement, but if you might, just so the record is totally clear, would you give 10 us your -- the benefit of your opinion with respect to the 11 issue of the correlative rights of Yates Petroleum and Bass 12 with respect to either the granting or nongranting of a 50-13 percent -- We're assuming for purposes of this testimony 14 that Bass is going to ask for a 50-percent penalty, and 15 that's what we assume from looking at their exhibit, but 16 use that number. 17

18 A. If Yates is penalized anything like 50 percent,
19 the Apache "13" Federal 1 and the Bass get gas from the
20 Yates lease that they're clearly not entitled to.

If there is no penalty, we get a little gas from
their lease, they get a little gas from the Apache lease.
We get a little gas from their lease principally because
our well goes on line two months ahead of theirs.
But it's basically a fair situation, and no

1	penalty is a good upholding of the doctrine of correlative
2	rights. I mean that's what we ought to get out of this
3	hearing, is no penalty.
4	MR. ERNEST CARROLL: Mr. Chairman, I would move
5	admission of Exhibits 19 through 22.
6	CHAIRMAN LEMAY: Without objection, Exhibits 19
7	through 22 will be admitted into the record.
8	Q. (By Mr. Ernest Carroll) Mr. Boneau, is there
9	anything else that you would like to address with the
10	Commission?
11	A. No, sir.
12	MR. ERNEST CARROLL: I pass the witness.
13	CHAIRMAN LEMAY: Thank you.
14	Mr. Kellahin?
15	MR. KELLAHIN: Thank you, Mr. Chairman.
16	CROSS-EXAMINATION
17	BY MR. KELLAHIN:
18	Q. Dr. Boneau, let me make sure I understand your
19	contention.
20	The illustrations that you have presented, am I
21	correct in understanding that that is based upon the
22	accuracy of Mr. Fant's simulation of the position and the
23	shape of the reservoir?
24	A. No, it's not. It's not related to his
25	description of the reservoir. It obviously makes some

1	assumptions about the reservoir. It assumes that the
2	reservoir and the area around these wells is a pancake, is
3	a flat pancake, with the properties that were measured at
4	the Apache "13" Number 1.
5	Q. All right, so
6	A. That's the reservoir-type assumption.
7	Q. All right. The drainage areas are not the actual
8	drainage areas of the wells, as simulated on Mr. Fant's
9	simulator?
10	A. No, Mr. Fant's is closer to the truth, and the
11	truth is that the The truth is that gas has been drained
12	from throughout this 65-BCF reservoir, first by the James
13	Ranch Number 1, whatever, five miles to the south.
14	The Apache "13" Federal Number 1 is producing
15	alone in the north at this time, and it is draining gas
16	from throughout the north pod. Okay?
17	I have taken the gas that is draining from
18	throughout the north pod and concentrated it into an area
19	around the well, such that the gas that it's actually
20	draining from throughout the reservoir appears on my
21	pictures as gas around the well, and it's saying that
22	instead of taking, whatever, ten percent of the gas from
23	throughout the reservoir, it's taking essentially a hundred
24	percent of the gas from within the areas I have shown here.
25	It's intended Well, you know, in defending it,

it's intended to show the interference between the wells. 1 It's not intended to show how much gas has been produced 2 from some 40 acres in Section 13 somewhere or somewhere. 3 It's intended to show how these pseudo-drainage areas I've 4 got here from well 1 and well 2 and well 3 bounce off each 5 other. 6 And maybe you've put a label on it. They appear 7 Q. to me as a layman to be pseudo-drainage areas that are not 8 accurate depictions of the actual drainage areas for the 9 wells in the reservoir, as Mr. Fant has described it for 10 us? 11 The way Mr. Fant has described it, and the way 12 Α. that is right, is that gas is moving throughout the 13 reservoir. 14 My picture is that, first of all -- This well is 15 producing, and first of all it gets all the gas from within 16 one foot of that wellbore, and then it gets all the gas 17 from within two feet of that wellbore, and then it gets all 18 the gas from within three feet of that wellbore, et cetera. 19 And it completely sucks clean the gas in the drainage areas 20 I have, and those drainage areas have a volume equal to the 21 volume of the gas that's actually produced from a 22 23 distributed area throughout the reservoir. Is it your concept that the gas entitlement for 24 Q. 25 the Yates well represents its share of the original gas in

place which Mr. Fant calculated to be the 5.7 BCF of gas? 1 Are you contending that you're entitled to that much? 2 I'm not going to say that we're not entitled to Α. 3 But what I did here is related to the area where the it. 4 wells interact. And what happens behind a well, if that 5 makes any sense, what happens on the side of the well where 6 there's no competing other well, that gas is basically not 7 8 subject to competition. And if it goes for ten feet or ten miles beyond where my well -- where a particular well is 9 draining, then that well will eventually get that. 10 But I'm not worried about that. I'm worried 11 12 about giving you a -- some kind of qualitative picture about the area where the wells interact with each other. 13 My point is a simple one. You've talked at 14 0. 15 length about correlative rights and Yates's correlative I want to know what your contention is as to that 16 rights. 17 point in time. For example, are you contending that you have an 18 opportunity to remaining recoverable gas at the point in 19 time you have a wellbore in the reservoir by which, then, 20 21 to produce gas? 22 Α. I really am trying to answer your question. I'm 23 worried about us having an opportunity to recover gas in the area where Section 7 meets Section 12 and in the area 24 where Section 7 meets Section 18. 25

Are we dealing with --1 Q. I'm not worried about whether we recover the gas 2 Α. or how much there is in the northern part of Section 7 or 3 in Section 6, which is part of our lease, you know, and 4 whether the reservoir extends up there or not, you know, is 5 not of interest to what I'm trying to do here. 6 7 If there is gas up in Section 7, in the northern 8 part of Section 7 and up in Section 6, you know, the Apache "13" Federal Number 1 is not going to get it, because these 9 other two wells have blocked it off. But -- I mean, to me 10 that's not correlative rights. 11 Correlative rights is involved in the area where 12 13 the three wells are competing, and I've tried to draw these pictures to show how the wells compete in an area around 14 the wells. 15 My question for you, sir, is that correlative 16 Q. rights entitles you, does it not, to share in the remaining 17 recoverable gas in the reservoir at the time you exercise 18 your right to participate in that share? 19 I agree entirely, yes, sir. 20 Α. 21 MR. KELLAHIN: No further questions. CHAIRMAN LEMAY: Thank you. 22 23 Commissioner -- Do you have any more? 24 MR. ERNEST CARROLL: That completes our 25 presentation, Mr. Chairman.

CHAIRMAN LEMAY: We might have some questions up 1 2 here. Commissioner Weiss? 3 COMMISSIONER WEISS: I have no questions. 4 CHAIRMAN LEMAY: Commissioner Carlson? 5 COMMISSIONER CARLSON: 6 No. 7 EXAMINATION BY CHAIRMAN LEMAY: 8 I have one, only because it hasn't been explored. 9 Q. I guess it's more of a policy question. 10 Have you considered deviating that well in an 11 easterly direction when you decided to drill it or not? 12 13 At the first hearing, at the Division hearing, Α. Yates' position was opposed by Mitchell, and Mitchell's 14 contention was that we should do that. 15 We prepared -- At that time I prepared -- and my 16 testimony was directed to that at that time -- I prepared 17 some AFEs to drill it horizontally and -- I mean to drill 18 it vertically and to drill it deviated. And our numbers 19 20 were, it would cost an extra six-hundred-and-some-thousand dollars to do that, and our people didn't want to do that, 21 and I presented some economics that showed that obviously 22 spending an extra \$600,000 hurt the economics of your 23 project. 24 Our people do not want to drill it deviated, and 25

1	we're past the point where we could. We think, now, like I
2	said, we really wish we could have just drilled it
3	vertically at an orthodox location, but we were not able to
4	do that.
5	Q. Which way is the bottom of that hole going to go
6	now, do you think?
7	A. Well, actually we have One of our people
8	mentioned that the WIPP people require us to measure that
9	and submit it, and the last measurement I saw, we are about
10	30 feet south of our bottomhole location, kind of
11	corkscrewing down through the salt and et cetera.
12	CHAIRMAN LEMAY: That's all I have. Thank you.
13	MR. ERNEST CARROLL: Chairman LeMay, in the vein
14	that along the line that you were just questioning
15	about, I would ask the Commission and you must
16	understand, when at the original hearing before the
17	Division, the issue was raised concerning the drilling of a
18	directional well, and we prepared testimony directed toward
19	that.
20	Here, that issue was apparently dropped and it
21	was addressing only a penalty, and so Mr. Boneau did alter
22	his testimony.
23	But we would just ask that the Commission take
24	notice of the testimony of Mr. Boneau in Case 11,019 that
25	was given before the Examiner, if need be, because that

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testimony was down there. 1 And I would also ask -- I think -- In all 2 fairness, I think the case -- the previous Division 3 testimony in Case 11,022, which was Bass's case for the 4 pooling which was presented, should also be taken notice of 5 by the Commission. 6 CHAIRMAN LEMAY: Is that fair, Counselor? 7 8 MR. KELLAHIN: I have no objection to that, Mr. Chairman. 9 10 Just to footnote the topic, the presentation before Examiner Morrow was lengthy and took three or four 11 hours, and it was Mitchell's contention that the well had 12 13 not yet been drilled and could feasibly and economically be drilled to a standard bottomhole location. That was 14 contested, and we lost before the Examiner. 15 Now that the well is in the ground, we think 16 we're beyond the point where it could be deviated, and Bass 17 is seeking to have the vertical well then penalized --18 CHAIRMAN LEMAY: Thank you. 19 MR. KELLAHIN: -- is how we get out here. 20 CHAIRMAN LEMAY: Okay, thank you. 21 That's all we have. The witness may be excused. 22 23 MR. KELLAHIN: Thank you, Mr. Chairman. At this time we would call Bass's geologist, Mr. 24 25 George Hillis.

1	Mr. Hillis is Irish. He has an Irish brogue and
2	a west Texas deviation thereof. We, after several
3	hearings, have been able to communicate. If for some
4	reason you do not understand him, he's certainly not
5	bashful and he will repeat himself.
6	<u>GEORGE HILLIS</u> ,
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. Would you please state your name and occupation?
12	A. My name is George Hillis. I'm a geologist with
13	Bass Enterprises Production Company at Forth Worth, Texas.
14	Q. Mr. Hillis, on prior occasions have you testified
15	as an expert geologist before the Oil Conservation
16	Division?
17	A. Yes, sir.
18	Q. And as part of your geologic duties for your
19	company, have you made an examination and a study of the
20	geologies that surround this particular Application by
21	Yates?
22	A. Yes, sir.
23	Q. As part of your effort, have you reviewed in
24	detail the transcript and the geologic exhibits presented
25	by Mr. May at the Examiner hearing?

Yes, I have. 1 Α. And you were present here in the Commission 2 Q. hearing room and heard the Yates geologic presentation? 3 Α. Yes, sir. 4 In addition, independent of that entire 5 Q. 6 experience, you have made your own calculations with 7 regards to the size and the shape of this reservoir? 8 Α. Yes, I have. And have you satisfied yourself that you have 9 Q. utilized all available data in doing so? 10 Α. Yes, sir. 11 MR. KELLAHIN: We tender Mr. Hillis as an expert 12 geologist. 13 CHAIRMAN LEMAY: His qualifications are 14 15 acceptable. (By Mr. Kellahin) Let's deal with a couple of 16 Q. items first, Mr. Hillis. 17 I would like, first of all, to direct your 18 attention to the Yates Exhibit Number 6, which is Mr. May's 19 20 isopach of the reservoir. Let me show you a copy of that. 21 In addition -- and I don't know that anyone else 22 has to fold it out; I'm happy to pass this around -- I show 23 you a copy of Mr. May's cross-section. It's Exhibit Number 3, so that you have that before you. 24 When you look at Mr. May's isopach and look north 25

1	of his Section 7 and find your way up into Section 6, which
2	is that McKnight well, Mr. May has used that as a control
3	point for his Atoka Apache sand.
4	Do you agree with his correlation and inclusion
5	of the Mitchell Apache sand in the McKnight well?
6	A. No, I do not.
7	Q. What do you think Mr. May has done?
8	A. Mr. May, in my estimation, has miscorrelated the
9	reservoir sand from the Apache Federal "13" Number 1 to the
10	McKnight well.
11	Q. What significance is that to you?
12	A. The significance is that the number of that well
13	is actually a zero, and the well is beyond the sandbody in
14	question.
15	Q. Looking down into Section 36 to the south, within
16	Section 36 there is a Bass-operated James Ranch Unit Well
17	Number 11?
18	A. Yes, sir.
19	Q. And then on Mr. May's isopach, it is shown in
20	approximately the northwest quarter of that section with
21	about eight feet
22	A. Yes, sir.
23	Q of net pay?
24	Do you agree with what he has done in contouring
25	that eight feet of net pay on his isopach?

1	A. No, I do not.
2	Q. Why not, sir?
3	A. The reason is that the location where the data
4	point of Mr. May's is located in the southwest of the
5	northwest quarter is a surface location for the James Ranch
6	Unit 11.
7	That well, when we come to our own exhibits, you
8	will see, was a deviated hole by going to the northeast,
9	and the data point for the Atoka should almost be actually
10	into the northeast quarter of Section 36, a little over
11	2000 feet away from the data point represented on Yates
12	Exhibit Number 6.
13	Q. Have you taken information and used that
14	information to construct an isopach that, in your opinion,
15	accurately honors all of the available data and makes
16	reliable correlations of this Atoka sand that's produced in
17	the Mitchell well?
18	A. Yes, I have.
19	Q. I turn your attention now, Mr. Hillis, to what
20	was introduced at the Examiner hearing as Bass Enterprises
21	Exhibit 9. It's the Atoka isopach map that's got a
22	combination structural component on it
23	A. Okay.
24	Q which Mr. Fant testified that he had used it
25	to partially model the reservoir. I'm going to show it to
1	you first for identification, and then it's my only copy
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2	and I will give it to the Commission.
3	Can you identify that Exhibit 9 from the force-
4	pooling case?
5	A. Yes. I did not testify to the map at that
6	particular case, but I'm responsible for the construction
7	of the map.
8	Q. And at the Examiner hearing, in the force-pooling
9	case, what did you demonstrate with regards to the southern
10	boundary or the reservoir limits of this Atoka pool?
11	A. At that point we just stopped our map display at
12	the south part of Section 25 of 22-30.
13	Q. And why did you do that?
14	A. It was At that point we were three miles away
15	from the area of compulsory pooling and beyond the local
16	geology for the well we were compulsory pooling on.
17	Q. If the Chairman please, I'd like to show you for
18	the record Exhibit 9 from the force-pooling case, which is
19	the isopach to which both Mr. Fant and Mr. Hillis have
20	referred.
21	All right, sir, let's turn to your first exhibit
22	for today's hearing. It's marked as Bass Exhibit Number 1.
23	Identify that for us.
24	A. Bass Exhibit Number 1 has a scale of 1 to 2000
25	feet. It illustrates the structure of the Atoka sand
1	

reservoir, and superimposed on the structural contours are 1 net sand isopachs for the actual Atoka reservoir. 2 The net sand isopach we've used as a footage of sand less than or 3 equal to ten percent of clay as -- on the normalized gamma 4 rays for the well control in the area. 5 Now, the red dots on the map indicate the wells 6 7 producing from the Atoka sand, and I would point out that 8 we just refer to this as the Atoka sand. It's the same as what Yates Petroleum have referred to as the Apache sand 9 10 and, in the previous case, the sand that Mitchell has referred to as the "AC" sand. 11 The north part of the map in Section 12 shows the 12 proposed location for the BEPCo James Ranch Unit 70, which 13 is shown at an orthodox location in the south half of 14 Section 12 at 660 from the south, 1980 from the east. 15 This well is set to spud around the first week in October. 16 Just to the east of it, I've also indicated the 17 location of the Yates Number 1 Llama ALL Federal well, 18 which is currently drilling at a location of 330 from the 19 20 south, 950 from the west of Section 7, and also the four orthodox locations for that south-half unit. 21 22 Q. Describe the sand, the Atoka sand reservoir. 23 Α. The Atoka sand reservoir at the James Ranch Unit 24 area or Los Medanos field, we interpret it to be a marine 25 sandbar, trending north-south, with the marine conditions

being on your eastern side of the map and landward 1 conditions being to the west. 2 The sandbody is about six and a half to seven 3 miles long and approximately one mile in width. 4 Q. What kind of average porosities are you seeing 5 here? 6 Average porosity is around 13 percent. 7 Α. And what is the average water saturation? 8 Q. The water saturation is ranging between 15 and 20 9 Α. I think the Los Medanos field has only made 10 percent. 25,000 barrels of water in addition to the 37 BCF of gas, 11 so it was a very supersaturated reservoir. 12 13 Q. Do you still have in front of you Mr. May's Exhibit Number 6, which is his isopach? 14 15 Yes, sir. Α. Let's compare it to your isopach and have you Q. 16 describe for us how the sandbody geometry that you have 17 interpreted for the reservoir compares to the shape and 18 position of the reservoir as interpreted by Mr. May. 19 I'll just come in from the south part of our map. 20 Α. I can't compare south of Section 36 for the two miles to 21 the south that we have in Exhibit 1, because Yates have not 22 represented how the sand continues to the south. 23 In Section 36, we've already discussed the 24 25 differences between our James Ranch Unit Number 11 data

1	point. You can see where we have it located, its
2	bottomhole location for the Atoka just into the northeast
3	quarter of Section 36.
4	As we continue north, the major difference is
5	that Yates have represented the Atoka sandbody's axis to be
6	east of the Apache "13" Federal Number 1, whereas we find
7	the axis of the sand to be west of that well.
8	Q. What is your basis for your conclusion that your
9	interpretation is ore accurate and reasonable than Mr.
10	May's interpretation?
11	A. Two key wells.
12	The first one, that's been discussed earlier in
13	Section 6 of 22-31, the McKnight well, where we recognize
14	there to be no reservoir, whereas Yates recognized there to
15	be at least five feet of net sand.
16	And the second critical well, to me, is in
17	Section 2 of 22 South, 30 East, the Phillips Number 1 A
18	James, located in the southeast quarter of that Section 2,
19	which we believe and can demonstrate is on the edge of
20	the western edge of the reservoir sand.
21	Q. Any other differences that you wish to illustrate
22	to the Commission?
23	A. The only other minor difference would be that Mr.
24	May has used an H for net sand less than 50 API units. The
25	gamma-ray logs out here vary quite a lot because of the
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1	hole size and the mud weight, so they really all require
2	normalization. We have done that, but
3	Q. Did Yates do that on their map?
4	A. No, they did not. But in the overall scheme of
5	things, the differences are overall negligible when we're
6	looking at the actual position of the sandbody.
7	Q. Within this specific area of concern, do you find
8	the potential reservoir limits for the eastern boundary of
9	the reservoir to extend to any significant degree into the
10	south half of 7?
11	A. No, I do not.
12	Q. What is your concern about the Yates location as
13	they are now drilling it?
14	A. My concern, after many years of drilling, even
15	though I know that the sandbody's located to the west of
16	the Apache "13", I've been burned before where My fear
17	is that Yates may come in and pick up two or three feet of
18	this sand and have enough permeability to be into the
19	reservoir.
20	Q. And what happens then if that should occur?
21	A. They'll start to drain gas from Bass's lease.
22	Q. Let's turn now to Exhibit Number 2, Mr. Hillis.
23	That's your stratigraphic cross-section. Identify it, and
24	then let's talk about some of the wells.
25	A. Exhibit 2 is a stratigraphic cross-section of the

Atoka section, and the line of cross-section is shown on 1 the previous Exhibit Number 1, extending from the west from 2 the Phillips Number 1 A James in Section 2 of 22-30, going 3 to the southeast through the proposed BEPCo James Ranch 4 Unit 70. The central well in the cross-section is the 5 Apache "13" Federal Number 1 in Section 13 of 22-30, and 6 7 then going northward to the McKnight well in Section 6 of 22-31. 8 Describe for us why you've selected these three Q. 9 wells to put on your cross-section. 10 The Apache is selected because it's one of the 11 A. critical wells we're coming off and playing off here, and 12 it obviously contains a reservoir sand. 13 The McKnight and the Phillips well are included 14 because they are critical wells in defining the 15 configuration of the sandbody, or the most critical wells. 16 Q. Let me hand you Mr. May's cross-section again. 17 The McKnight well log that he used is on the far left of 18 19 his display. That same well is on the far right side of 20 your display? That's correct. 21 Α. 22 Q. Let's line those up and compare as to what you 23 each did. 24 Do you have a difference with Mr. May, or an agreement with him, at the point in which you used to hang 25

the logs to construct the cross-section? 1 No, but we hang them on the same datum point. 2 Α. All right. Your datum point is illustrated how 3 Q. 4 on your cross-section? 5 It's the uppermost blue or turquoise color. Α. That's shaded in, and then there's a little 6 Q. 7 porosity indicated in blue above that line? We're just shading in the correlation line with Α. 8 the blue felt-tip. 9 All right. So the blue line is the correlation 10 Q. line? 11 12 Yes, sir. Α. 13 Q. When you move vertically down on your crosssection on the McKnight well, there's a horizontal black 14 line --15 The first one or the second one? Α. 16 Q. The first one down below the horizontal blue 17 line. 18 Okay, yes, at 12,710? 19 Α. Yes, sir. What's that represent? 20 Q. That is an internal correlation marker on a 21 Α. stratigraphic interval within the wellbore. 22 All right. Now, let's move down to the point on 23 Q. your log where you have concluded Mr. May has miscalculated 24 25 or miscorrelated the Atoka sand.

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Well, let me just go into the Apache "13" Federal 1 Α. 1. 2 The reservoir sand, which I've defined by two 3 correlation lines bounded by the orange -- and that's the 4 interval that's perforated in the well -- is from 12,832 5 6 through 12,846 measured depth in that wellbore. 7 Q. All right. Now, let me make sure --Α. Okay. 8 What does that indicate to you? 9 Q. Those are my two correlation markers, the upper Α. 10 one being the top of the Atoka reservoir and the lower line 11 being the base of the Atoka reservoir. 12 Are those the lines that are shaded orange? 13 Q. Yes, sir. Α. 14 That's the Atoka reservoir? 15 Q. 16 Α. Yes, sir. How does that equate with what Mr. May 17 Q. characterized as the Mitchell Atoka sand? The Apache sand? 18 On this exhibit, with the use of dashed lines, I 19 Α. have reproduced Mr. May's correlation from the Apache 13 20 reservoir sand northward to the McKnight, and basically 21 22 Yates have correlated that to the interval in the McKnight 23 which is 12,770, the top of it, and colored pink on this exhibit. 24 25 Q. How were you able to do that?

1	A. By simple correlation between these two wells.
2	Q. Well, you had his cross-section from the Examiner
3	hearing, didn't you?
4	A. Yes.
5	Q. All right, the dashed black lines represent what?
6	A. The black dashed lines?
7	Q. Yes, sir.
8	A. They are the correlation represented by Yates on
9	their exhibits.
10	Q. And your correlation represents what, then?
11	A. My correlation is the orange, going from the
12	Apache "13" Federal 1 across to the McKnight, where the
13	Atoka sand interval would actually be an interval above the
14	one that Yates believes it to be.
15	Q. All right. When you look at the McKnight log on
16	Mr. May's cross-section
17	A. Yes, sir.
18	Q describe for us what you think he did that was
19	wrong.
20	A. Tough to say, because to me this is a pretty
21	simple correlation, and I would say they miscorrelated
22	you just weren't taking a lot of time to do it.
23	Q. The What he has correlated is not the
24	equivalent of the Apache sand that you have found in your
25	correlations?

1	A. Definitely not.
2	Q. All right. The end result of that is what, sir?
3	A. The end result is that when you look at the
4	McKnight well on Exhibit 2 here, the pink interval is the
5	interval that Yates Petroleum believed to be the Apache
6	sand equivalent, and when you look at the gamma-ray scale
7	on this well, it's actually from zero to 100, so there's
8	like five feet below the 50 API gamma-ray units, and that's
9	how on their isopach map they define five feet of net sand
10	in that wellbore, whereas, in effect, when you take the
11	correct correlation, there is zero feet of net sand in that
12	wellbore.
13	Q. Mr. May told us earlier today that there was a
14	gas show out of the sand in the McKnight well that he had
15	correlated to be the Apache sand?
16	A. Yes, he did.
17	Q. Well, what about that gas flow?
18	A. Well, there was a gas flow. I've indicated the
19	perforations on the McKnight well on this well. There were
20	three intervals perforated.
21	The first one is in an interval that Yates
22	believed to be the Apache sand, and is actually a marine
23	limestone below the Atoka sand. That's the perforations
24	that were made from 12,773 through -76. Now, the porosity
25	log on this well this is a neutron density log

indicates that rock to be tight. 1 2 However, the lower-two-most perforations, being that well at 12,932 to -936 and 12,952 to -56, have four to 3 five percent porosity. This is in the lower Atoka section, 4 5 and that's where the gas came from. 6 Q. How is this miscorrelation critical to you? 7 Α. It's extremely critical, because by using -- or 8 thinking it was five feet of pay, one would automatically then use that to be your western edge of the Atoka sand 9 body. 10 What then happens as a result of that mistake? Q. 11 Your whole representation of the sandbody is 12 Α. wrong as you go south. 13 Let's turn to Exhibit 3, Mr. Hillis, and have you 14 Q. 15 identify that for us. If I could just go back to Exhibit 2 a second and 16 Α. discuss the well on -- the other critical well on the 17 cross-section? 18 19 I'm sorry, that's my mistake. I failed to let Q. you describe the Phillips James "A" Number 1. 20 Α. The Phillips Number 1 "A" James in Section 2 of 21 22-30 is the one on the left of our cross-section. 22 23 Yates Petroleum have a zero net sand represented 24 on this well, so I really don't know what their correlation was, whether -- It obviously was not what I've colored pink 25

at 12,450 on the vertical depth, and it wasn't what I've 1 colored in with the two yellow streaks, the orange-colored 2 sand, the Apache sand. I really don't know what they have 3 to come up with the zero. 4 However, the Apache sand or the Atoka sand in the 5 Phillips "A" 1 is at a depth of 12,426 to 12,440, as 6 7 colored in the orange. And of interest is the fact that 8 there are three feet of sand with less than ten percent clay in this well. There was a show that was DST'd from 9 12,387 to -547, DST'd to recover 3600 feet of heavy gas-cut 10 water cushion and 2000 feet of gas-cut mud. 11 This is a washover fan characteristic from the 12 gamma ray on the Phillips well, and this well is located on 13 14 the western extremity or western edge of the Atoka sand reservoir. 15 Why is that significant to you? 16 Q. It's significant to me because it helps me 17 Α. control the western edge of the sand as I go into the Cabin 18 Lake area. 19 All right, sir. Now, let's turn to Exhibit 20 Q. 21 Number 3. 22 Α. Exhibit 3 is also a 1-to-2000-foot scale. It's a 23 structural map on the top of the lower Morrow, 100-foot contour interval, and superimposed on that is a net sand 24 isopach of what we at Bass call the middle Morrow "C" sand. 25

The middle Morrow "C" is one of four objectives we have in 1 the James Ranch Unit 70 well in the south half of Section 2 12. 3 And a little -- We've only represented the middle 4 Morrow "C" here. We found that each of the four sands 5 follow this general trend for their net isopachs. 6 The 7 actual sands producing from the middle Morrow "C" here are 8 indicated by red dots. Yates intends to total this well to the Morrow 9 Q. formation, as I understand it? 10 Α. The Llama well, yes. 11 And if that well is successful as a Yes. 12 Q. producer in the Morrow, would you propose to have it 13 penalized? 14 Α. 15 Yes. On what basis, sir? 16 Q. On the basis that once again they would have just 17 Α. got into the edge of the sand -- in other words, the edge 18 of my map would be wrong -- and there would be a severe 19 amount of drainage coming from our location. 20 21 The Morrow to us -- Although the Atoka is a 22 primary objective to us too, we have downplayed the Morrow, 23 at least the hearings seem to have. However, the average 24 production in the Morrow right here has ranged from -- on the producers from .7 BCF to 7.7 BCF, and the average of 25

the eight Morrow producers in our study area is a little 1 over 3 BCF per well. 2 So it is still a lucrative target to us, and I 3 guess to Yates, because we're both going to go and drill to 4 it. 5 MR. KELLAHIN: Thank you, Mr. Chairman. 6 That 7 concludes my examination of Mr. Hillis. We move the introduction of his Exhibits 1, 2 and 3. 8 CHAIRMAN LEMAY: Without objection, Exhibits 1, 2 9 10 and 3 will be entered into the record. Mr. Carroll? 11 CROSS-EXAMINATION 12 13 BY MR. ERNEST CARROLL: Mr. Hillis, I may kind of jump around with some 14 Q. of the items that you testified to, but that's -- and I 15 apologize. I will try to go in the same order that you 16 discussed, but I'm going to have a little problem with 17 that. 18 That's okay, I'll try and keep up. 19 Α. Let's first look at -- Do you still have in front 20 Q. of you the -- What was Exhibit 9 at the original hearing of 21 Bass? 22 23 Α. No, I don't. I have to get that back. Okay. Well, let me -- I'll just walk up, as long 24 Q. as the Commission has a copy, and they can look at it, and 25

1 we can use my copy. I was just noticing that when you look down here 2 in the bottom area of the map and it's -- It appears to be 3 the ten-foot and the eight-foot contour lines as they 4 appear down in Section 25. Do you see those two lines? 5 Yes, sir. 6 Α. Would you look at your Exhibit Number 1? Do you 7 Q. 8 have that in front of you? Α. Yes, sir. 9 You have changed the shape, have you not, between 10 Q. Exhibit 9 and the map you're presenting today, Exhibit 10? 11 That's the only change between the two maps, yes, 12 Α. sir. 13 All right. Now, in fact, you have enlarged the 14 Q. area that the eight- and ten-foot would encompass. Why? 15 And upon what basis did you do it? 16 The basis would be the fact that we have went 17 Α. ahead and extended the map and introduced other data points 18 to the site and mapped them together. 19 The closing off -- Section 25 for the previous 20 case 11,022, was as much being -- almost three miles away 21 from our primary concern, which was the compulsory pooling 22 23 for the 70 to be just cleaning up the map at the bottom half. 24 25 Well, what dictated the enlargement of that? I'm Q.

not sure that I understood. By just enlarging the map or 1 putting more area -- Why did you feel compelled to change 2 that? 3 When I introduced the data points from down to 4 Α. the south, we had not all those data points calculated on 5 the logs prior to making the exhibit back in -- for the 6 7 Case 11,022, and with calculations of the data to the 8 south, it helps me refine the contouring in the south half of Section 25. 9 All right. So apparently you found something in 10 Q. the James Ranch -- I guess it's Number 11 well, this well 11 right here -- something in the data points which caused you 12 to pull or adjust the eight-foot line closer to it; is that 13 correct? 14 Yes, sir, and the other wells around it. 15 Α. All right. Well, how much -- what footage of --16 Q. Well, I see, I think, on the map you -- it encountered 17 approximately six foot; is that correct? 18 The James Ranch 11 encountered seven feet of net 19 Α. sand. 20 So where the line falls, this eight-foot and the 21 Q. ten-foot contour line, it just is basically your 22 23 interpretation of the data and where you think it might 24 logically fall; is that correct? 25 Α. No.

Well, then, what dictated the change, then? 1 Q. Did 2 someone else tell you or some other data, or what told you that the contour line for the eight and ten should be 3 enlarged? 4 Well, I guess my Irish must have got to you Α. 5 6 there, because I've just said to you that when preparing for the volumetric look at this reservoir --7 Uh-huh. Q. 8 Α. -- we went ahead and made our calculations to 9 continue our map to the south. Now, the James Ranch 11, as 10 you say, has seven -- I said, is seven feet, and when you 11 12 start contouring your southern control data, that you have looked at, then where you meet into Section 25, yes, you're 13 obviously going to recontour because of the new data or 14 additional data you've brought in from the south. 15 So what you're telling me is that your geologic 16 Q. 17 picture was influenced by volumetric calculations that were probably prepared by engineers? Is that correct? 18 No, the geology map was made and given to the 19 Α. engineers. 20 0. Well, which came first? 21 22 Α. The geology map came first. 23 Q. Well, then, how would you know that that line had 24 to be adjusted to correlate for the increased volumetric that you anticipated in this reservoir? 25

Okay, I'll go back to day one for you. Α. 1 When the map was constructed for Case Number 2 11,022, the compulsory pooling case, there were no 3 volumetrics involved. We did not have to understand the 4 volumetrics of the complete sandbody. We were representing 5 to the Commission at the time where we believe the sand ran 6 7 through in the south half of Section 12. In preparing, then, the need for defining the 8 9 sandbody definition to give to the engineering department for volumetrics, we then had to go down to the south of 10 Section 25 to calculate the net sand data for those wells 11 down there, to continue our map and make a map of the 12 13 entire sandbody, which was then given to the engineers for the volumetrics. 14 I'm not sure I fully understand, but let's move 15 0. on just a moment and look at the bottom of Exhibit Number 16 1. 17 Yes, sir. 18 Α. You have a line across there that says "Area of 19 0. Reduced Permeability (Marine Channel)"? 20 Yes, sir. 21 Α. How and from what data do you draw that Q. 22 conclusion? 23 Α. There are wells to the south of that which I have 24 not represented on this map, which drill stem tested the 25

James Ranch unit, the Atoka sand reservoir back in the mid Eighties and did not find the reduced pressure. In other
words, they are not in pressure communication with the
sandbody to the north.

Q. Well, how do you know where to draw the littlesquiggly red lines?

7 Α. When -- I hate to give away my trade secrets, but when we do other maps in this area, for example, on the 8 Atoka bank or reef, which is located below the sand, there 9 are certain areas where that bank is totally not a 10 carbonate anymore, it's completely filled with shale, and 11 those are marine breaks in the reef. Likewise, the sand 12 has a marine break which continued through till that time, 13 and the two marine channels are pretty close together here. 14 15 Q. Well, there are no wells within the area of those red squiggly lines, are there? 16 17 Α. There is -- Within the two lines, no, there are not any wells within the two red lines. 18 So again, the placement of those red lines and 19 Q. the cutoff of -- and I assume that you're using these red 20 21 squiggly lines to show the end of the reservoir, are you 22 not? 23 Α. Effectively so, yes. So -- But you have no data points to actually put 24 Q.

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it in that position? Again, it's your interpretation where

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1	you think it ought to lie?
2	A. I have a data point just off this map. The
3	eastern part of those red squiggly lines is at the west
4	half of Section 8; and the east half of Section 8 I have a
5	well very close to where, on my workhouse map in the
6	office, that line continues just to the north of, and that
7	well drill-stem tested, as I referred to earlier, with no
8	significant pressure reduction from the production to the
9	north.
10	So I have some other control that's just off this
11	map.
12	Q. But again, in the area where you place it, you
13	have no control?
14	A. I'm extending it from that well and also
15	referring to where my marine break is in the Atoka bank
16	below there to locate it.
17	Q. Let's We may come back to that, but let's turn
18	to your stratigraphic cross-section, 2, Exhibit 2.
19	A. Yes.
20	Q. This was not a well that was drilled by Bass, was
21	it?
22	A. Which well?
23	Q. The McKnight, excuse me, I'm sorry, the McKnight
24	Campana Number 1.
25	A. No, it was not, it was drilled in 1974, I

1	believe, by McKnight and Troporo.
2	Q. Is this the only log that you have looked at from
3	this well?
4	A. No, I've looked at the entire log suite, the log
5	that's on the cross-section is a gamma ray CNL density log.
6	There was also a resistivity log run across this section.
7	I believe there was an SNP, but it was a little further up
8	the holes.
9	Q. What about mud log?
10	A. I have not examined a mud log on this well. I
11	don't I didn't have one available.
12	Q. It is curious that apparently the people that
13	drilled this well, the McKnight Company or whoever it is,
14	chose to perforate the well in the same area that Mr. May
15	picks as being the Atoka; is that correct?
16	A. That's the uppermost interval of the three
17	perforations they made, yes.
18	Q. They did not perforate in the interval that you
19	had picked as the Atoka; is that correct?
20	A. They have not, and neither would I have.
21	Q. Well, is there another pay zone associated with
22	the Atoka in that close of proximity that you're aware of
23	out in this area?
24	A. Within ten feet of the Atoka sand there's not a
25	major pay zone, but typically in these thin marine
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limestones you'll get small gas shows. The results of the 1 perforations, the three zone of perforations in this well, 2 would kind of typify that it was a pretty short-lived 3 event. 4 But one of the conclusions that we can draw from 5 Q. what we've just talked about, isn't it true, Mr. Hollis --6 7 Hillis. Α. -- Hillis, excuse me -- that it's quite possible 8 0. that the company that actually drilled this well agreed 9 with Mr. May, rather than your interpretation? 10 I don't believe so. I don't know Mr. McKnight or Α. 11 Campana, but -- or Troporo -- but they attempted to 12 perforate an awful lot in this well that looks pretty doggy 13 on the logs, including the Morrow, these Atoka sections, 14 the Strawn, before they plugged and abandoned the well. 15 But the point is, you have no -- There's no one Q. 16 else that you can point to that has agreed with your 17 interpretation or that would agree with your 18 interpretation; is that correct? 19 My correlation? 20 Α. Your correlation, yes. 21 Q. I would like to think that most geologists Α. Whoa. 22 would correlate this cross-section the way that we are 23 representing it here in Exhibit 2. 24 25 But we know at least one geologist in this room Q.

does not agree with you? 1 I understand that. Α. 2 Now, also looking at this particular log, one 3 Q. could -- Isn't it a fair interpretation that the sand that 4 you see picked here, that you're picking here, could very 5 well just be a dirty sand on the edge of the reservoir; is 6 that correct? 7 8 Α. The sand I'm coloring in orange? That you're coloring in orange? 9 Q. This is a silty remnant of the Atoka sandbar on Α. 10 the marineward side of the reservoir. 11 And in fact, if -- and you might want to refer to 12 ο. the Yates Exhibit Number 6. 13 Which one is that? The isopach map? A. 14 That's the isopach of the Atoka. 15 Q. 16 Α. Okay. Really, to honor even your interpretation, all 17 Q. you would have to do is move the five-foot line just a 18 little farther to the west, couldn't you? 19 I don't follow you. Α. 20 21 Q. All right. The McKnight well --22 Α. Yes. 23 -- the information there from the log, as Q. testified by Mr. May, he used that to set the boundary 24 where he drew -- or the location of where he drew the five-25

foot interval; is that correct? 1 Yes, he's used that five-foot as a control point. 2 Α. All right. And quite frankly, though, with the 3 Q. way you're -- You could legitimately just move that line 4 slightly farther to the west, could you not, using the 5 interpretation that you've used? 6 The five-foot line? 7 Α. 8 0. Yes. Well, I have it at zero. 9 A. I know you have it at zero, but there is no other 10 Q. data out there to the west of the McKnight well that tells 11 you that there is not at least that -- excuse me, east, I'm 12 getting my directions mixed up. 13 That's why I was getting confused there. Α. 14 Let's start all over again. 15 Q. Okay. 16 Α. My point is, and I apologize, is that the 17 Q. location of this western line of the sandbody could be 18 moved slightly to the east and still honor your 19 interpretation? 20 We're talking apples and oranges because the 21 Α. five-foot is not a valid point, it's not a data point that 22 relates to the data points to the south on Mr. May's map, 23 it's an incorrect correlation. That five-foot should be a 24 25 zero.

1	Q. But Mr. Hillis, that line could be moved over.
2	Based on some of the other wells, we know that there is a
3	five-foot line in there, and that is Mr could be Mr.
4	May's interpretation.
5	That line could be slightly moved over, and it
6	would not contradict the information found on the log from
7	the McKnight well; is that correct?
8	I understand you would interpret it different,
9	but is it contradicted by the information?
10	A. It's contradicted by geological mapping. You
11	don't map just using that one well. I mean, the well is
12	zero. But while mapping, then, you take all your data
13	points into consideration, and the data points to the west
14	of the McKnight well critically dictate to you that the
15	sandbar would go to the west, well away from the McKnight
16	well. The McKnight well is at least a mile beyond, on the
17	marineward side, beyond this bar.
18	Q. How do you know it is a mile beyond? There is no
19	control data to the east.
20	A. I've got a zero in Section 1 of the Troporo
21	Number 1 Campana, and I fully admit the edges as I've
22	depicted here, my last blue line is a two-foot line can
23	undulate a little bit. But we're a good distance away from
24	the Campana. It would have to take a dramatic turn for
25	that sand to come close to the Campana well.

And this is a very dirty sand in the Campana 1 which is very reflective, but it's not close to the edge. 2 The --3 Well, let's -- Excuse me. 4 Q. Yeah. 5 Α. Let's turn to your Exhibit 1 again. 6 Q. 7 Okay. Α. Now, you have told us that the reason that you 8 Q. have drawn the zero line up through the edge of Section 7 9 is because of the important data that you get from the 10 McKnight well and the Phillips 1 A James; is that correct? 11 Well, first of all, my last blue line in Section 12 Α. 7 is not a zero line; it's a two-foot line. 13 Secondly, the two wells I've discussed to the 14 north, the McKnight and the Phillips Number 1 A James, 15 tells me that the sandbody axis is to the west of the 16 Apache "13" 1. 17 However, the placement of the two-foot line on 18 the south half of 7 is dictated from the control off to the 19 south in the reservoir, where we have better control to 20 define the contour for -- the contour interval or thickness 21 decrease as you go away from the wellbore. 22 So I'm using that spacing as I go away from the 23 six feet in the Mitchell Apache well to determine where 24 25 that two-foot line is located.

1	Q. Again, that's your personal interpretation that's
2	causing you to move that line westward; is that correct?
3	A. It's my mapping of the data, yes.
4	Q. All right. Now, you have stated now, you
5	A. That was eastward again, eastward from the
6	Mitchell well.
7	Q. All right.
8	A. Yeah.
9	Q. Well, I was talking about the body of the sand,
10	and that's what I had in mind, and that's what I next want
11	to question you about.
12	The axis of this producing body, you have put to
13	the west of the Mitchell 13 well; is that correct?
14	A. That's correct, sir.
15	Q. You have seen the Mitchell mapping where they
16	have actually put the axis closer to the middle where the
17	Apache well lies, much in agreement with Yates; is that
18	correct?
19	A. Yes, sir.
20	Q. Now, one of the reasons you pull the axis away is
21	because of the influence that you said that the 1 A James,
22	the Phillips 1 A James, plays on this; is that correct?
23	A. Yes, sir.
24	Q. Well, you also made a statement that the 1 A
25	James could have been a washover area. How what

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influence -- If this could possibly be a washover, what 1 influence could it exert to move the axis of the entire 2 producing body westward? 3 Okay, the two gamma-ray profiles on the Phillips 4 Α. A Number 1 James, going back to Exhibit 2, bounded by the 5 orange felt tips from 12,426 to 12,440, I've colored the 6 two intervals of less than ten percent clay yellow. 7 Those are two very thin, very clean sand intervals, which are 8 very typical -- As you come over on the landward side or 9 lagoonal side of one of these sandbars, you're going to get 10 a little storm or something washes the sand, and cleans it 11 up on the western edge, and that profile is quite typical 12 13 of that on the western side of such a sandbody. But what from this data, from the Phillips James 14 Q. A Number 1 log, allows you to predict the width of the 15 sandbody that sits out here? 16 From the Phillips well? 17 Α. I mean, you've apparently made a prediction 18 Q. Yes. as to width. What allows you to do that? 19 There's three feet of clean sand in the Phillips 20 Α. well. And once again, going south into where we have --21 Geologists always like to go and study the elephant first 22 where you have a lot of data points. So down here in 23 Section 36 or where the historical production has been, you 24 25 have more data points.

Those data points and contouring those data 1 points helps you determine how the contour interval runs. 2 So when I come up to the Phillips Number 1 A James and 3 see -- have three feet of sand on the sandbody there, I 4 then know how to determine where my four, my six, my eight 5 6 line goes in the eastward direction. 7 ο. Well, what is the spacing that you say this log tells you that you ought to have between your contour 8 lines? 9 It's a spacing between each blue line on this Α. 10 map, which are two-foot contours. 11 So you have dogmatically said that every contour 12 Q. is going to be equal, that the distance between the two-13 and the four-foot line ought to equal the distance between 14 the four- and the six-foot line and the six- and the eight-15 foot line? 16 Some geologists and people do want to just make 17 Α. all these distances equal. I tend -- Nature is not that 18 way, so I never take one of these equal dividers to make 19 that contour interval exactly equal. And if you look at my 20 21 map, it's not equal in every part as you look through. 22 So there's geological mapping incorporated into it there. 23 Well, Mr. -- Simply tell me, when you look at the 24 Q. two-foot contour line over in Section 14, directly west of 25

1	the Mitchell "13" well, and the six-foot contour line that
2	goes through the Mitchell well, how do you know that there
3	should be just that roughly one-mile space between?
4	In other words, you have limited this body of
5	sand to almost one mile or slightly over. How do you know
6	it's that way?
7	A. Based on the production I mean the well data
8	to the south again. Where you see all the red dots down
9	there, center of Section 36, that's where we have our most
10	well control. That's where we can best define the geometry
11	of the sandbody.
12	A sandbar is going to remain pretty consistent in
13	itself along its track. In this case, to the north it's
14	sometimes going to get a little wider, sometimes get a
15	little narrower. So we're taking an average width of that
16	sandbody for where we have the data control and taking up
17	to our control points there in the north.
18	So that's how I end up with the contouring that
19	you're referring to in the east half of Section 14.
20	Q. Well, Mr. Hillis, the only red spots I see at the
21	bottom of Exhibit 8 [sic], they don't exist on the outside
22	edges of this sandbody. How do you know that the sandbody
23	is just that width?
24	A. I've got well, let's Okay, well, let's talk
25	some. Let's go down to Section 1, south of that James
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Ranch Number 1. That will be in Township 23 South, 30 1 East. You've got two red dots in the north half of that 2 The one in the northeast quarter is the James section. 3 Ranch Unit 10, the one in the northwest quarter is the 4 Belco Number 1 Hudson Federal, and the one other location 5 without a red dot in the southeast quarter is the James 6 Ranch Unit Number 3. 7 The net sand in that last well, the Number 3 8 James Ranch, is one foot. It's two feet in the Hudson 9 Federal and six feet in the James Ranch Unit 10. 10 That's an example of the contouring going from 11 one to two to four to six feet to divide up that contour 12 13 interval thickness. And there's other ones we can discuss if you're not fully clear on it. 14 Mr. Hillis, you're quite certain of your 15 Q. interpretations, are you not? 16 For the general configuration of the sandbody, 17 Α. the axis being west of the Apache "13" 1, I feel extremely 18 confident with. The edges, nature will -- can take her 19 20 course. That two-foot line near the Yates Llama well 21 could easily move a few hundred feet. And as I said 22 earlier, that wellbore may end up -- get into a little 23 skinny piece of sand and be in contact with the reservoir. 24 If the Yates productive area is as small as you 25 Q.

depict it, isn't it true that in all likelihood the 1 Mitchell "13" Federal well has already drained what gas 2 might have been there and that you're arguing a moot 3 question with respect to penalty because there's no gas 4 left under the Yates acreage, they're going to drill a dry 5 6 hole? If they are lucky, and my map on that edge is a 7 Α. little bit wrong, when they get into a couple feet of sand 8 this thing is permeable enough that they will be in the 9 reservoir; it will be the same as drilling a ten-foot-thick 10 11 sand. On what basis do you make that last statement? 12 0. Ι have seen nothing in your testimony which tells and equates 13 -- And in fact, when you look at the production 14 capabilities of these wells, there is no -- like in the 25 15 well, it doesn't produce with near the capacity of the 16 James 1 Ranch well or anything like the "13" well, the 17 So what do you base that last statement on, 18 Apache "13". that two foot is equal to ten foot? 19 Because that two feet may have 15- to 17-percent 20 Α. porosity, and that would interpolate into a tremendous 21 amount of permeability, and that permeability will then 22 communicate very easily westward into the sandbar. 23 But under your experience, isn't it highly 24 Q. 25 unlikely and improbable that you will experience that kind

of porosity that close to the edge of a sandbody? 1 If we were on the west side of the sandbody, I 2 Α. would agree with you, on the lagoonal side. On the 3 marineward side, I would not. The marineward side is a lot 4 more inundated with wave energy. There's a lot more 5 cleaning up of the sand, so it's a very clean sand, all the 6 7 way to the edge. Do you have one of the wells along this eastern 8 0. edge of this sandbody which shows 17-percent porosity, Mr. 9 10 Hillis, in accord with your interpretation? Α. Not on this map. 11 In other words, your hypothesis there, you have 12 Q. 13 no proof of anywhere within the area of study? Α. South of the area where we have studied, but not 14 presented here, are wells -- there is a well similar to 15 that. But my interpretation is on the edge and has about 16 15-percent porosity. 17 But that is below your cutoff line as you have 18 Q. arbitrarily drawn it on your Exhibit Number 1? 19 Yes, it would be on the south continuation of 20 Α. this sandbody, off the map on Exhibit 1. 21 Mr. Hillis, you won't disagree with me when I Q. 22 make the statement that Mitchell disagrees with your 23 correlations also? 24 25 Α. They were incorrect too.

1	MR. ERNEST CARROLL: Thank you.
2	CHAIRMAN LEMAY: Mr. Kellahin?
3	MR. KELLAHIN: No, sir.
4	CHAIRMAN LEMAY: Commissioner Weiss?
5	COMMISSIONER WEISS: I think I'll wait until I
6	hear the engineer testimony.
7	Thank you, I have no questions.
8	CHAIRMAN LEMAY: Commissioner Carlson?
9	EXAMINATION
10	BY COMMISSIONER CARLSON:
11	Q. I'm not familiar with Mitchell's interpretation,
12	but your last statement, why are they incorrect?
13	A. Their cross-section They did not have a cross-
14	section connecting the Mitchell Apache to the McKnight
15	well. They did have a cross-section connecting the
16	Mitchell Apache up to the Phillips Number 1 A James. And
17	on my Exhibit Number 2 I have demonstrated their
18	correlation with the dashed line between the Apache "13"
19	and the James A 1.
20	And like I've testified, I just have a lot of
21	difficulty understanding why people would make this
22	mistake, because to help you follow what I've colored in
23	pink, the true correlation just below the Atoka sand and
24	if you look at the gamma-ray profile on that, it's a thin
25	marine limestone underlining the sand.

And all the correlation lines I have represented 1 on the cross-section are running parallel to my Atoka sand 2 correlation, whereas the dashed lines representing the 3 Yates and Mitchell correlation are, at this local area, at 4 an angle to the parallel nature of all the other 5 correlations. 6 And I've attempted with a felt-tip to color some 7 of the gamma-ray profiles, the shaley zones, the limestone 8 intervals. There's a lot more internal correlation one 9 could do to satisfy themselves that our correlation is 10 correct. 11 But I really don't know why it was miscorrelated, 12 13 I really don't. Your guess is that if Yates had been allowed to 14 Q. drill the orthodox locations, that those would be dry 15 holes? 16 Yes, sir. 17 Α. And that their proposed unorthodox location may 18 Q. or may not be dry? 19 It may or may not be. 20 Α. Like I testified, their -- I'm a realist, too, on 21 the edge of some of these reservoirs, what's going to 22 23 happen. And that's just my fear, that it may encounter just enough footage there to get into the reservoir. 24 25 Q. And if it does, it will drain Bass acreage?

In my opinion, yes, sir. Α. 1 COMMISSIONER CARLSON: That's all I have, thank 2 3 you. EXAMINATION 4 BY CHAIRMAN LEMAY: 5 What's the problem with the Mitchell Energy 6 Q. 7 Apache "24" Federal, with one foot of pay on your marine side of that sandbar? Shouldn't that have high porosity, 8 9 according to your interpretation? It had one foot of net sand. The porosity was 10 Α. around ten percent for that one foot, and that's the only 11 12 really pay in that well. 13 But Mitchell, to my knowledge, has not perforated that yet. But I wouldn't be surprised if they did not 14 perforate it when the come up the hole. 15 The resistivity log shows separation, it has 16 permeability. So to me it is a -- it's pay behind pipe, 17 it's currently in the Morrow. 18 So you think that's a well there? 19 Q. 20 Yes, sir. Α. I guess your Phillips James A Number 1 bothers me 21 Q. a little bit. That little bit of sand there sure looks 22 kind of ratty to me and not much of a reservoir. You put 23 it in three foot, and actually as the basis for your 24 sandbar coming up the axis, coming up there to the --25
1	A. It's my basis for the western side or the
2	lagoonal side of my sandbar. Your sand is not going to be
3	as cleaned up over there, and I wouldn't expect that you
4	could get like one or two or three feet in there that
5	necessarily would be pay.
6	In this particular case, that is not pay. I
7	mean, they had a little gas-cut mud on the DST, but very
8	limited permeability from the resistivity log.
9	Q. But there again, that DST covered how many
10	hundred feet?
11	A. It covered about 170 feet. But I've looked
12	through the log out here, and there's nowhere else on the
13	porosity log where there's any porosity development.
14	Q. Well, you called some porosity development in
15	that sand that you colored yellow?
16	A. The Let's see. Not very much. I'm trying to
17	find a number here. It's maybe just about three to four
18	percent, and one foot in that upper in the upper lobe.
19	Q. But wouldn't that be just I mean, that What
20	kind of log is that?
21	A. This is a sonic log.
22	Q. Okay. And you're coming off a shale stringer and
23	going back to another shale. You expect it to zero out in
24	there? Wouldn't you expect a little bit of
25	A. There's a little shaley effect on that

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1	Q. Yeah, a little shale effect on that sand?
2	A. Yes, I do agree there's a little shaley effect on
3	it.
4	Q. So
5	A. But if you notice, I mean, there's quite a lot of
6	thin-bed resolution on that sonic just about 40 feet below
7	there, at about 12,480, that area I've colored blue.
8	On the gamma ray, if you That's a little
9	limestone stringer. The gamma ray isn't even really
10	getting down to it. But the sonic is getting down to, you
11	know, 55, 54 microseconds.
12	So the sonic seems to be working pretty good in
13	that well.
14	Q. Did they have a permeability tool run in that
15	James Ranch Unit, a microlog, microlateral log?
16	A. No, there was not a microlog run, just the
17	geolateral log.
18	Q. Nothing to indicate permeability?
19	A. No, there's no real separation of the Mechem or
20	the
21	CHAIRMAN LEMAY: That's the only all the
22	questions I have.
23	Additional questions of the witness? If not, he
24	may be excused.
25	You may call your next witness.

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1 C. RONALD PLATT, 2 the witness herein, after having been first duly sworn of 3 his oath, was examined and testified as follows: 4 DIRECT EXAMINATION 5 BY MR. KELLAHIN: 6 Q. Mr. Platt, would you please state your name and 7 occupation for the record? 8 A. Yes, my name is Ronnie Platt, P-1-a-t-t. I'm 9 consulting petroleum engineer and President of Platt, 10 Sparks and Associates, a consulting petroleum engineering 11 firm. 12 Q. On prior occasions, have you testified before 13 Oil Conservation Commission as an expert petroleum 14 engineer? 15 A. Yes, I have. 16 Q. Describe for us what you were hired to study F 17 your client, Bass Enterprises Production Company? 18 A. Yes, I was asked to make a study of the reserver 19 area of the applied-for Yates Petroleum Application,	
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19 area of the applied-for Yates Petroleum Application,	oir
20 focusing primarily on the Atoka reservoir that was the	
21 subject of that Application, and to conduct studies of t	hat
22 reservoir and to, if necessary, conduct a reservoir-	
23 simulation study in order to understand the reservoir ar	d
24 to describe the reservoir.	
25 Q. Is this the type of study that you ordinarily	

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perform as a consulting engineer for Bass and other 1 2 clients? Α. Yes. 3 Give us a summary of your education and Q. 4 employment experience. 5 I graduated from the University of Texas in 1962 6 Α. 7 with a bachelor of science in petroleum engineering, employed by Standard Oil Company of Texas, later known as 8 Chevron, for 14 years, resigned in 1976, established a 9 practice as a consulting petroleum engineer, formed Platt, 10 Sparks and Associates in 1980. 11 The firm has grown from basically a sole 12 proprietorship to a staff of 34 professionals at this time. 13 We have offices in Austin, Texas, and Midland, Texas. 14 You have testified before this Commission in 15 Q. association with the potash hearings that were conducted 16 when Commissioner Ramey was the Commissioner, and we were 17 looking for drilling islands in the potash area? 18 Α. That's correct. 19 And you have testified before the Division for 20 Q. other kinds of cases? 21 Yes, I testified in this James Ranch area in 22 Α. regard to tight gas sand designations in the Morrow, to get 23 the area designated as tight gas sand. 24 25 Q. Based upon your experience and expertise,

1	describe for us the type of study that you felt was needed
2	for this particular issue.
3	A. It looked like one was the proper
4	characterization of the reservoir, to understand
5	configuration.
6	So the basic study that I did was to gather all
7	of the well information, look at the well-production
8	histories, the well-pressure history, look at the
9	performance history of the wells, and to understand the
10	data.
11	And I looked at the well pressures and saw the
12	development wells after the James Ranch 1 had been on
13	production. All of the subsequent development wells were
14	coming in at lower pressures.
15	I then thought about doing a reservoir simulation
16	study, and for that
17	Q. Before you started the simulation, did you
18	satisfy yourself that you had sufficient engineering data
19	from which to perform an accurate simulation study?
20	A. No, not with just the data I had. I would have
21	to have a reservoir description from a geological
22	standpoint.
23	Q. And where did you get that geologic description?
24	A. Mr. Hillis.
25	Q. And is the geologic description you've used for

1	your simulation the one that he presented for us in his
2	exhibits, including Exhibit Number 1?
3	A. That's correct. I took Mr. Hillis's what is
4	the exhibit in this hearing. It was furnished to me.
5	I digitized that on a grid network, and that was
6	the input into the simulation. I did not change it. I
7	used Mr. Hillis's net-pay thickness map. I did not change
8	any of his contours. I put that map into a reservoir
9	simulator.
10	Q. Were you able to simulate the reservoir
11	performance and satisfy yourself that you had a history
12	match on certain important points of data that were of
13	significance to you?
14	A. Yes, sir.
15	Q. And as a result of that effort, were you able to
16	come to certain ultimate engineering conclusions?
17	A. Yes.
18	MR. KELLAHIN: At this point, Mr. Chairman, we
19	tender Mr. Platt as an expert reservoir engineer.
20	CHAIRMAN LEMAY: His qualifications are
21	acceptable.
22	Q. (By Mr. Kellahin) Describe for us the simulation
23	methodology that you went through to take Mr. Hillis's
24	geologic interpretation and then to input it into your
25	model and to end up with the process that led you to an

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ultimate conclusion. 1 I started with Mr. Hillis's isopach map of the 2 Α. I superimposed on that a grid in order to input 3 reservoir. the data into a grid network for reservoir simulation. 4 I then combined that with other reservoir 5 properties as described by Mr. Hillis, as far as the 6 7 porosity. I then looked for other input data, such as 8 permeabilities. Then I looked at other production records 9 that I had available, and they're the same data that 10 everybody has as far as the production histories of the 11 wells and the pressure histories of the wells, and all of 12 that went into the reservoir simulation. 13 But the key fundamental is Mr. Hillis's geology 14 went in, and I didn't change any of his geology. 15 Based upon that work, were you able to estimate 16 Q. the original gas in place in the reservoir, using the size 17 and the shape of the reservoir that Mr. Hillis provided 18 you? 19 Yes, sir. 20 Α. And what did you conclude? 21 Q. The gas in place is approximately 65 BCF, and 22 Α. 23 that's from the reservoir simulation that's based on Mr. 24 Hillis's map. 25 You and Mr. Fant apparently come to close Q.

agreement about the original gas in place. 1 I believe that's approximately the same number he 2 Α. has in his simulator, yes, as far as the volume. 3 0. You have each matched a substantially different 4 shape of the reservoir? 5 Apparently so, yes, based on the maps that I've 6 Α. seen in this hearing. His volume is contained in a 7 different-shaped reservoir, a reservoir that extends 8 further east than his geologist's maps. 9 Well, you had the opportunity to sit through this 10 Q. afternoon's hearing and to see the presentation by Mr. May 11 12 and Mr. Fant, did you not, Mr. Platt? 13 Α. Yes, yes, I did. Help us understand wherein lies the basic 14 Q. disagreement, then, between the two reservoir engineers 15 that have done the work, you and Mr. Fant. 16 I don't know that I could describe where the 17 Α. differences are. What I've tried to do was to basically 18 take a description of the reservoir, very detailed, put it 19 into the simulator and work with that. 20 I have not tried to go in and take a geologic 21 description and then move it around or change parameters to 22 23 try to get a match. My idea of reservoir simulation is to start with 24 the proper characterization of the reservoir and then work 25

with that and change other type of parameters, keeping in
 mind not changing the basic characterization or geological
 configuration of the reservoir.

Q. In having done that, to what degree were you able to validate and verify the size and the shape of the map presented by Mr. Hillis?

7 Α. It matched the performance. I was concentrating 8 primarily on the northern area of the field to see what --9 if there was enough volume in the northern area of the field or the volume, and how it responded to the two wells 10 that were drilled in the northern area of the field, and 11 did the reservoir simulator predict the communication in 12 that northern area of the field caused by the production 13 from the wells in the south, and did the simulator predict 14 the reservoir pressure in the areas that were found by the 15 two wells drilled in 1993 up in the northern area of the 16 field? And they did. 17

18 Q. What were you using for the initial reservoir19 pressure?

A. I used -- Oh, there's a difference. I used a reservoir pressure, as an initial reservoir pressure, of 8426. That's about 200 pounds higher than the pressure used by Mr. Fant.

I used what is a measured original pressure,
bottomhole pressure, in the Shell -- what was the original

Shell James Ranch 1. There's a document that shows that 1 measured bottomhole pressure. 2 The pressure that corresponds with the pressure 3 that's 200 pounds lower that Mr. Fant used to basically 4 initialize the reservoir pressure is approximately 8200 5 pounds, was a pressure measured after about 180,000 MCF of 6 gas had been produced from the well, and it was about --7 the original pressure was measured in March at 180,000 MCF 8 of gas withdrawn, and then a pressure of about 8200 pounds 9 10 was measured. And that appears to be the pressure that Mr. 11 Fant used as an original pressure. So that to some degree mischaracterizes the 12 original starting pressure which would impact the gas in 13 place. It actually -- his volumetrics, it would put --14 with 200 pounds higher pressure it would about a BCF more 15 gas in place, if you use the data for original reservoir 16 pressure. 17 All right, sir, let's look at the details of your Q. 18 work. If you'll turn to Bass Exhibit Number 4, identify 19 and describe that display for us. 20 Exhibit Number 4, I've just shown the -- on 21 Α. Exhibit 4, the pressure depletion history, just from 22 23 measured bottomhole pressures versus time in the well. And if you'll notice, the pressures in the very 24 25 initial period, the three pressure points above 8000

pounds, the very top pressure is the initial pressure in 1 the reservoir. It's 8426. That was measured in March. 2 And then the next pressures, there were some 3 additional pressures that were measured in July, and they 4 were lower, but gas had been withdrawn from the well. 5 So I used the original reservoir pressure of 8426 6 7 as datum. This shows that the Unit 1, as previously 8 testified -- I'll just briefly go over this rather than 9 repeat some of it. But the wells are coded as to which 10 wells. The subsequent wells were not drilled, and 11 development wells, until the Eighties, and, as you'll see, 12 13 they came in at much lower than the original pressure, and those are so indicated by the codes. 14 And then the last two pressure points on the far 15 right-hand side of the graph are the initial pressures 16 recorded in the two wells drilled up in the northern 17 portion of the field in 1993. 18 Let's turn to the booklet. It's -- The cover 19 0. sheet is marked as Exhibit 5. Let's have you identify and 20 describe that information. 21 This is a binding of the individual well 22 A. depletion history. 23 I have a -- for each well, a graph of gas 24 production versus time, bottomhole pressure versus time. 25

1	And then I have the production data in tabular form for
2	each well showing the cum for each well.
3	I won't go into detail. That's some of the
4	background data that I used for my study.
5	Q. And there's other background data and information
6	that you're not presenting here that you utilized in your
7	work?
8	A. Yes.
9	Q. Let's turn to Exhibit 6 and have you identify and
10	describe that.
11	A. Exhibit 6 is a graph showing the bottomhole
12	pressure divided by Z, the gas deviation factor. And here
13	I plotted the pressure history in the reservoir against the
14	cumulative gas production, and then I've got a line that's
15	drawn to the 65 BCF.
16	What this shows is that the pressures that
17	periods of time after especially in the northern
18	portion, were higher than in the southern portion. So in
19	making some sort of an extrapolation with just trying to
20	guess at some average pressure or working with average
21	pressures, this would not be a reliable extrapolation for
22	use because of the variation in pressures. You would have
23	to try and determine what is the weighted average pressure
24	at some time.
25	But this is just to get and I looked at this

to get some feel for the order of magnitude of gas in 1 2 place. How did you overcome the complexity, then, of the 3 Q. varying pressure points in your study? 4 I used the reservoir characterization in a 5 Α. reservoir simulation, basically the reservoir volume as 6 depicted by Mr. Hillis, and then combined that with the 7 8 withdrawals out of the reservoir to see how the pressure 9 would vary with time in the reservoir in response to those 10 withdrawals. And you could use his size and shape of the 11 Q. container and match the production and pressure points of 12 the data that we have from the existing wells? 13 Α. Yes. 14 Q. Let's turn now to Exhibit 7. Identify and 15 describe Exhibit 7 for us, Mr. Platt. 16 Exhibit 7 is Mr. Hillis's isopach map, but I've 17 Α. superimposed on there -- There's a lot of black lines on 18 here, but there's a grid network that's imposed on here, 19 and this is the reservoir simulation area that has been 20 superimposed on Mr. Hilty's [sic] map. 21 And the grid basically is in an X direction, an 22 east-west direction, would be 12 grids across in an east-23 west direction, and 29 in a north-south direction. 24 All right. Let's look at the input data sheet. 25 Q.

1	that's Exhibit 8. Describe that for us.
2	A. Yes, this is the input data for the reservoir
3	simulation.
4	As I indicated, the basic input was the reservoir
5	description of Mr. Hillis. It's a reservoir volume, as far
6	as thickness, that was input with the grid that I've shown
7	on Exhibit 7.
8	The other parameters, the porosity, I started out
9	initially to just try to keep from varying as many of the
10	parameters as I could. I used 13 percent initially
11	throughout the model.
12	In one area, down in the south, I changed the
13	porosity, reduced it slightly down to 11.7. The initial
14	water saturation, I started out initially at 19 percent,
15	constant throughout the entire simulation area, and left it
16	at that.
17	The permeability varies I might just take a
18	second to or as quickly as I can. The permeability, the
19	14 millidarcies, if you refer back to Exhibit 7, basically,
20	in a Y direction, as you move down and count down ten
21	cells, and then all the way across in an east-west
22	direction, that entire region I put in at 14 millidarcies.
23	Then as you move south from that, beginning at
24	Number 10, and then moving on down to Number 14, that would
25	be a band in the center portion there. I put in a reduced-

permeability area of 4 millidarcies. And I believe that's 1 consistent with other work that shows that there's a lower 2 permeability in the center portion of this reservoir, 3 between the north end and the south end, and this shows the 4 region that I put in the 4 millidarcies. 5 Then in the southern region, the 10 millidarcies 6 was used. 7 What type of model did you select to run this Q. 8 simulation on? 9 It's what we refer to as a gas model. It was 10 Α. developed by Dr. McDonald with my firm, who specializes in 11 reservoir simulations and developed many reservoir 12 13 simulations with his work with Interior prior to joining my 14 firm. It is a model that he's developed. It's what we 15 refer to as our gas model to work with gas reservoirs. 16 All right, sir. Describe the other data points 17 Q. that you introduced into the model. 18 We used the -- We initialized it in 1958, and Α. 19 initialized at initial pressure of 8426. 20 Then we actually had a direct input at the 21 location of each one of the withdrawal wells, the actual 22 production history of the wells. 23 And then we would go in to look at various time 24 periods or time steps and see what was the reservoir 25

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22 primarily trying to look at the northern region where there 23 seemed to be some controversy or difference in what was the	21	But this match that I did have And I was
23 seemed to be some controversy or difference in what was the	22	primarily trying to look at the northern region where there
	23	seemed to be some controversy or difference in what was the
24 proper reservoir characterization for the north. I looked	24	proper reservoir characterization for the north. I looked
25 to see if I was matching these measured pressures that we	25	to see if I was matching these measured pressures that we

1	had for the Apache "25" Federal 1 and the Apache "13"
2	Federal 1. And I have a very good match.
3	I probably could have gotten closer by changing
4	some permeabilities and making some other small adjustments
5	in some parameters.
6	Q. In response to Mr. Carroll's question a while
7	ago, Mr. Fant said smaller grid size will give you better
8	results, more accurate, something to that effect.
9	A. It I don't agree with that. I think the A
10	smaller grid size on a model is used where you have rapidly
11	changing parameters.
12	If you have porosity that's going to rapidly
13	change in a very short distance and you want to match that,
14	or have the computer account for changes in very short
15	distances, then you would go to a finer grid so you could
16	input those variable parameters.
17	But in here, we don't have We've got large
18	distances between wells, so we don't have any basis for
19	getting a fine detail for changing porosity, we don't have
20	data to show that there's a fine detail change in between
21	those. So it wouldn't improve the accuracy.
22	Q. Well, do you have any comments or observations on
23	Mr. Fant's conclusion that based upon his modeling it did
24	not matter whether the Yates well was at a standard
25	location or its proposed unorthodox location, the end

1	result was going to be the same?
2	A. It may not make a great deal of difference with
3	his characterization of the reservoir, but I don't believe
4	that characterization is correct.
5	The characterization of Mr. Hillis appears to be
6	correct, and it would make a difference. It appears this
7	well would be located on the very edge of the reservoir and
8	would either be a dry hole or else would have extremely
9	limited productive reservoir under the tract.
10	And by having very limited productive reservoir
11	and current reserves under the tract, the well could
12	produce that equivalent reserves in a very short period of
13	time.
14	Q. And if it's connected in the reservoir, where
15	then will it get its production?
16	A. It will be drained from offsetting tracts where
17	the productive reservoir lies, as depicted on Mr. Hillis's
18	maps.
19	Q. Do you have an engineering explanation why Mr.
20	Fant, in his modeling, is able to construct the model in
21	such a way that it is not apparent to the simulator that
22	there's a difference when he positions his well at the
23	standard location versus the unorthodox location?
24	A. In his characterization of the reservoir, there
25	is a large reservoir volume over to the east, to the east
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of their well. So therefore, that well is drawn on a very 1 large mapped reservoir east of that location. 2 So therefore, if you have a very large reservoir over to the 3 east, then that well that has a large eastern reservoir to 4 draw on. 5 If it's, as Mr. Hillis has depicted, a reservoir 6 limit, very close to that well, east of that well or a very 7 short distance east of the well, then the well would have 8 to produce any gas -- The gas it would produce would come 9 10 from an area west of the well. Turn with me now to Exhibit 9 and identify and Q. 11 describe that for me. 12 Exhibit 9 shows -- By running the reservoir 13 A. simulation, I looked to see at the location of the "25" 14 Federal Number 1 of Mitchell Energy, this Apache well, in 15 1993, where we have a measured pressure, an actual pressure 16 was 2424, and the simulator predict -- would have a 17 pressure in the reservoir at that time, at that location, 18 of 2514. I've plotted the two points; they're very close 19 together. 20 What's the significance to you of that 21 Q. information? 22 This shows that the reservoir simulation, with 23 Α. the withdrawals from the wells in the south, and with the 24 reservoir characterization based on Mr. Hillis to the 25

1	north, that it predicts with that reservoir
2	characterization it accurately predicts the pressure that
3	was found in the Apache "25" Number 1 well.
4	Q. Turn to Exhibit 10. Would you identify and
5	describe Exhibit 10?
6	A. Exhibit 10 is the same comparison where we
7	compare the actual measured pressure for a well that was
8	later drilled in the reservoir. After we've been running
9	the simulation from 1958 to 1993 we'd go look, and in the
10	reservoir simulator at the spot that well was drilled, the
11	simulated pressure was 3132. I realize you can't read it
12	on the graph, but that's the number. It's 3132. And the
13	actual measured pressure was 3119.
14	So there's just 13 p.s.i. difference between what
15	was in the reservoir simulator after running it from 1958
16	to 1993 at that location, versus drilling a well and
17	measuring what was there before you start withdrawal.
18	COMMISSIONER CARLSON: Haven't you got those
19	numbers backwards?
20	COMMISSIONER WEISS: Yes.
21	CHAIRMAN LEMAY: Yeah, Apache "13" has got the
22	31, and the Apache
23	Q. (By Mr. Kellahin) Yeah, I'm sorry, I could have
24	confused you. Exhibit 9 is the Apache "13", and that's got
25	the 3132?

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Α. 1 Yes. Give us the numbers on Exhibit 10 for the Apache 2 0. "25" Federal 1. Do you have those available? 3 COMMISSIONER WEISS: He did that earlier. 4 THE WITNESS: I did. 5 6 Q. (By Mr. Kellahin) All right, so we've covered 7 both --8 CHAIRMAN LEMAY: We've covered both. THE WITNESS: Yes. 9 COMMISSIONER CARLSON: Just reversed those. 10 THE WITNESS: I went through without referring 11 12 back to specific exhibits there. (By Mr. Kellahin) How would you characterize the 13 Q. quality of the pressure match versus the actual pressure 14 15 and the simulated pressure? I think it's a very close -- very good match. 16 Α. And as I indicated, I probably could have made 17 additional runs with further refinements of some 18 permeabilities and gotten even closer, but I didn't see 19 20 that was necessary. To me, it confirmed the geology and reservoir -- characterization of the reservoir. 21 Summarize for us your conclusions, based upon 22 Q. 23 your reservoir simulation study, Mr. Platt. I think the characterization of the reservoir of 24 A. 25 Mr. Hillis's fits the performance of the reservoir, and

1	I've checked that with the reservoir simulation. So I have
2	not changed any of his thickness values that he's contoured
3	on his maps. So his reservoir characterization fits the
4	performance of the reservoir.
5	Q. You saw the displays from Yates. Was Mr. Fant
6	able to match the reservoir description that Mr. May
7	presented in his isopach?
8	A. Apparently not. There was I think he started
9	with the geology, but my quick review of the map, he wound
10	up with a different looking map as far as the thickness
11	map.
12	Q. During the regular course of your consulting
13	business, do you testify before regulatory agencies on
14	matters dealing with oil and gas production?
15	A. Yes.
16	Q. Have you testified in other cases that involved a
17	dispute between operators in which each had diametrically
18	opposed geologic descriptions and each of which achieved
19	some level of success in simulating that reservoir
20	performance and matching independently their geologic
21	conclusions?
22	A. Yes.
23	Q. What are we going to do?
24	A. Well, I think two things.
25	One, reservoir simulations. To me, you've got to

start with the characterization of the reservoir and put 1 that characterization of the reservoir in and stay with 2 3 that, and then change whatever other parameters, such as permeabilities or water saturations or others, others that 4 5 may change. But you stay with the basic characterization of the reservoir. 6 7 To me, you don't use the reservoir simulator backwards to characterize the reservoir. So I think --8 There's sort of a difference there in how these simulators 9 10 are used. You can get a match with a reservoir simulator for several characterizations of the reservoir. 11 So I think you need to start with an independent 12 characterization and work with that. 13 Are we at a point in time in the drilling and 14 Q. development of this area -- When we look at the south half 15 of 7, the south half of 12, and the east half of 13, those 16 are the spacing units that are about to compete with other. 17 Are we at the point where we can allocate remaining 18 recoverable gas on some correlative-rights basis that is 19 20 predicated on productive acreage? I don't believe so at this time. I think there's 21 Α. two wells being drilled, which will give the answers as to 22 23 the productive acreage under each tract. So I think the drilling will give the answer. 24 25 Well, what do we do in the meantime, then, Mr. Q.

1	Platt, to get us beyond this issue?
2	A. I believe the reasonable characterization of the
3	reservoir that matches the performance history indicates a
4	very limited amount of reserves under Section 7.
5	So in an interim period before those well data
6	To me, it would be extremely important to have the well
7	curtailed through a normal type of penalized allowable in
8	order so the well doesn't If it does come in, finds a
9	very thin edge of the reservoir, before we could have
10	another hearing to come back in and say the Bass geology
11	was in fact right, that's what they found, they may have
12	already recovered more than the recoverable gas under the
13	tract, and it would be sort of too late.
14	You might be able to impose some curtailment on
15	it at that time.
16	Q. Why do you suggest the imposition of a penalty at
17	this point in the life of the development?
18	A. I think this What I would suggest is a normal
19	penalty. Apparently this is The penalty of this well,
20	based on its unorthodox location, using several types of
21	parameters that have been previously used by the OCD, would
22	result in about a 50-percent penalty factor on the
23	allowable.
24	I think that was recognized in the last hearing.
25	Several people discussed a 50-percent. In fact, in this
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1	hearing the comparison has been full allowable or 50-
2	percent allowable. So it appears to be that the penalty
3	factor is A normal penalty factor would be 50 percent.
4	Q. What does the imposition of a penalty factor
5	obtain for all the parties involved if that penalty is
6	imposed on the Yates well?
7	A. It would assure that that well, if the Bass
8	geology is correct, that well would not be given an undue
9	advantage by being in an unorthodox location, possibly
10	having, as Bass believes, very limited reserves and
11	producing at a full allowable for an extended period of
12	time.
13	Q. Do you have illustrations of calculations of
14	penalties?
15	A. Yes, sir.
16	Q. Let's turn to Exhibit Number 11 and have you
17	identify and describe that calculation.
18	A. On Exhibit Number 11, I looked at considering a
19	north-south nonstandard factor in one way that I've seen
20	used in other type of proceedings.
21	The north-south factor comparing a standard
22	orthodox location from the south line with the actual will
23	be a 50-percent factor.
24	Comparing the east-west factor would be a 48-
25	percent factor with this type of methodology.

And then combining the two would indicate a 1 combined 49-percent factor, considering the unorthodox 2 location in regard to standard as far as distances from the 3 lines. 4 Let's turn to Exhibit 12. Identify and describe 5 Q. that. 6 This is another way, but this looks at just the 7 A. east-west lease line factor, and looking at it another way, 8 9 that you could consider how far off it is in expressing that as a percentage from the orthodox, regular location, 10 versus the actual location, in looking at the variation 11 12 there. 13 So this is another way of looking at -- And there are other ways, but all of these seem to indicate that a 14 reasonable factor based on the location, the unorthodox 15 location, would be on the order of 50 percent. 16 Q. Have you reviewed Dr. Boneau's economic analysis 17 from the Examiner hearing with regards to the potential 18 effect on the Yates well if a 50-percent penalty is 19 imposed? 20 Yes, sir. 21 Α. Let's turn to Exhibit 13. What is this? 22 Q. This is a copy of -- It's an exhibit from this 23 Α. 24 same document in the Examiner hearing. I don't -- I might have covered up the exhibit number. But it is, as I 25

1 understand, part of the record in the Examiner hearing. What this shows, calculations made by Yates -- it 2 was introduced in the Examiner hearing -- that has a 3 vertical well with a 50-percent penalty. And the economics 4 here, it shows that -- The next-to-last column on the right 5 is a cash flow before tax, after considering the well 6 investment, and it shows \$2.5 million as the total over the 7 life. 8 9 Looking under Present Worth Profile, as you see where the number -- Under these discount rates that begin 10 at zero, five, ten, when it gets to between 75 and 100, the 11 number goes to a negative number. That would actually be 12 13 the rate of return on the well, where you would have a negative present worth profit. So it indicates greater 14 than a 75-percent return on the investment on the well. 15 And this is a Yates calculation for the well with 16 a 50-percent penalty. 17 What's your conclusion? Q. 18 Well, this looks like a very -- still a very 19 Α. profitable venture, even with a 50-percent penalty. 20 Summarize for us what you recommend the 21 Q. Commission do with regards to this case, Mr. Platt. 22 My recommendation would be to consider the --23 Α. Bass's geological and engineering study that indicates a 24 25 very small volume of reserves exist under Section 7 where

1	the unorthodox well location is proposed and actually
2	drilling, and in recognition of that, impose the penalty
3	that would normally go with that unorthodox location.
4	Q. Subsequent to the imposition of that type of
5	penalty, would the opportunity exist for the parties to
6	return thereafter to the Commission for adjustments in that
7	penalty, based upon new data from these wells once they're
8	drilled?
9	A. Yes, sir, I think if the if the Bass geologist
10	confirm Bass may be in if the well has one or two feet
11	of pay and is a high-deliverability well, Bass may be in
12	here asking for even further limitations on that well's
13	allowable, based on, at that time, a productive reservoir
14	area.
15	But I think it would be premature to limit it to
16	the less than 50 percent at this time, until that well is
17	drilled. But I think it should at least be limited to 50
18	percent in this interim period.
19	MR. KELLAHIN: That concludes my examination of
20	Mr. Platt.
21	We move the introduction of his Exhibits 4
22	through 13.
23	CHAIRMAN LEMAY: Exhibits 4 through 13 will be
24	admitted into the record without objection.
25	Mr. Carroll?

1	CROSS-EXAMINATION
2	BY MR. ERNEST CARROLL:
3	Q. Mr. Platt, in your Exhibit Number 7 you showed
4	the grid process that you used superimposed over the map of
5	the structure made by Mr. Hillis; is that correct?
6	A. Yes, sir.
7	Q. Now, how many grids did you actually utilize,
8	total numberwise, in your simulation?
9	A. 348.
10	Q. And that is a substantially less number than the
11	simulation that Mr. Fant used in his simulation?
12	A. I believe it is. I didn't see the number of
13	grids on his exhibit, but
14	Q. Would you agree with me, Mr. Platt, that the
15	larger the number of grids, the more accurate the number
16	that you can draw upon for your reservoir capacity or what
17	have you with respect to the overall simulation effort?
18	A. No, that doesn't necessarily follow.
19	Q. So you disagree with Mr. Fant when he stated that
20	the entire number of grids would not when he said the
21	higher number would allow you to do to get a better or a
22	fine-tuned number?
23	A. No, I agree that if you have if you had a very
24	close well spacing and you had porosity data changing
25	between wells that were very closely spaced, you would

1	probably want to go to a smaller grid so you could
2	recognize that.
3	Q. Let's talk about your Exhibits Number 9 and 10.
4	One of the things that I think you have testified that
5	makes you very pleased with the maps that or the
6	simulation that you've done, is that you've got an accurate
7	history match; is that correct?
8	A. No, I didn't say that. I said That's not my
9	testimony.
10	Q. Okay. Well, let me try again. I believe you
11	testified that you felt that your reservoir simulation was
12	accurate because you tested it, and the way you tested it
13	was based on history matching?
14	A. No. Would you like me to state what I said?
15	Q. Why don't you state
16	A. No, what I said was, I put in the reservoir
17	history and depleted it. The way I was testing, I was
18	looking at the northern area, and I looked to see what the
19	simulator predicted in the area, where I then later had a
20	pressure measurement, and that's what I was showing on
21	Exhibits 9 and 10.
22	I wouldn't refer to that as a history match;
23	that's just simply running the simulator and then testing
24	it at that point in time with the measured data.
25	Q. All right. You talked about history matching.

What history matches did you do or perform if these are not 1 2 them? I don't think I talked about history matching. Α. 3 But I have done -- What I did was, I input the production 4 history from each of the wells, the actual withdrawals and 5 the withdrawal points, and then looked at the pressure 6 performance versus time for the entire history, looking 7 8 primarily at what was the pressure being predicted in the area where I had some wells up in the northern that were 9 later drilled? 10 So I put in the production history, is what I 11 said, of the actual withdrawals from 1958 to 1993, and 12 looked to see what the reservoir characterization --13 I want to show you Exhibit Number 12, Yates 14 Q. Do you recall when Mr. Fant testified about how 15 Exhibit. he had created his reservoir simulation and then he had 16 performed history matching or testing? 17 Yes, I heard that testimony. 18 Α. Now, if you look at the Exhibit Number 12 and 19 Q. compare it to your 9 and 10, you see similar information 20 21 here. On his Exhibit Number 12, he has -- what he has 22 done is, he has predicted what the Federal "13" Number 1 23 well should come in based on his reservoir analysis, and 24 then he compared it to the drill stem test analysis. 25

Basically, is that what you've got on your two 1 marks, I guess, with respect to Exhibit Number 9? 2 What he shows on Exhibit 12 -- He doesn't 3 Α. No. show what he predicts. In the area of the two wells, the 4 red -- the Apache "13" and the Apache "25" Federal, the two 5 dots, he doesn't show what he predicts on this thing. 6 7 What he's showing on here, as I understand it, is not what the simulator is predicting at that point. 8 He's showing here what is indicated in the legend as a southern 9 region average pressure. And I don't know how he's -- He 10 said he didn't really define a region to average that, so I 11 don't know where in the simulator he's defined this 12 southern region. But the blue line is some southern region 13 14 average pressure --Well, Mr. --15 Q. -- in the simulator. So I'm saying that it's not 16 Α. 17 displaying -- What I'm displaying is what, in the area of those two wells, what the simulator predicted as the 18 reservoir pressure. 19 Well, let me ask --20 Q. This Exhibit 12 does not show that. 21 Α. Well, Mr. Platt, I totally disagree with you, but 22 Q. 23 let's explore just something that you just --24 MR. KELLAHIN: Counsel is arguing with the 25 witness, talking --

MR. ERNEST CARROLL: Well, I think the witness 1 2 is --MR. KELLAHIN: -- and he's doing it with me. 3 MR. ERNEST CARROLL: I think he's arguing with 4 me, and it's getting late in the day, and I just --5 6 CHAIRMAN LEMAY: Gentlemen, if you settle down 7 and not produce arguments, I think what we're doing is asking the witness for what he said. I don't think it's 8 anyone's place to argue with what he said. He'll tell you 9 what he said, Counsel. You'll have to accept that and ask 10 questions. 11 12 (By Mr. Ernest Carroll) Looking at, first, Q. Exhibit Number 9, you have the actual pressure, and I take 13 it that would be from a bottomhole pressure test; is that 14 15 correct? That's correct. 16 Α. And then you have the pressure that your 17 Q. reservoir simulation said would be predicted; is that 18 19 correct? 20 Α. That's correct. 21 Now --Q. 22 Α. Now -- Let me just clarify. That's what the 23 simulation pressure is in the simulator at that well 24 location. That's not some average throughout the 25 simulator; that's at that point in the reservoir what the

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1	simulator shows.
2	Q. All right. Now at that point in time, have you
3	checked, in any way verified, what the pressures were at
4	any other place in the reservoir?
5	A. Oh, yes.
6	Q. It does not appear on this graph.
7	A. No, I've got I've looked throughout the I
8	have The reservoir simulation shows at any time step I
9	want to look at, I can get the pressure in every grid cell,
10	and I've looked at all of that, and I've got all that data.
11	I've looked at it in every What I was doing
12	here was looking in the grid cell in which this well is
13	located.
14	At all of these time steps, I have the pressure
15	in all, throughout this entire grid that's shown, and I've
16	compared that with the other pressures that were measured
17	in other wells at other times. So I've compared all of
18	that.
19	Q. Look at your Exhibit Number 8.
20	A. All right.
21	Q. These are assumptions, I take it, that you
22	cranked into your reservoir simulation?
23	A. They're input. This is
24	Q. Input.
25	The standard that much into the merone in

simulation.

1

5

Q. You have assumed porosity, except for one point
in the southern region, of 13 percent throughout this area;
is that correct?

A. That's correct.

Q. Did you determine from the well data actual
porosities and determine what variances there were?

A. I have not done a detailed well by well. I asked
Mr. Hillis, based on his geologic work -- he had done a
much more detailed analysis of the wells -- I asked him
what was his average porosity, and -- to use, as the first
pass, and it was 13 percent.

So I used that throughout. And then I did modify 13 it down to the 11 in that southern area, as I testified. 14 Now, that porosity, average porosity, is just an 15 Q. average; it's not -- a linear average. You don't know --16 Or did you get that information from Mr. Hillis as to 17 volumes or areas covered by -- In other words, was it a 18 weighted average, or was it just a straight linear average? 19 I used that as the average throughout the entire 20 A. 21 reservoir on the first pass. Do you know, though, how Mr. Hillis arrived at 22 Q. 23 that? Was that a straight or a weighted average?

24 A. I don't know.

25

Q. Apparently the greatest millidarcies of

permeability that you used was 14; is that correct? 1 2 Α. That's correct. Did you check the actual millidarcies as measured 3 Q. 4 on the logs of the various wells? 5 Α. It's not measured on the logs. It is measured on the Apache "13", is it not, Mr. 6 Q. 7 Platt? It's not measured on the logs. You don't -- Logs 8 Α. 9 don't measure permeability. Well, excuse me. Was it measured for that well, 10 Q. do you know? 11 12 Α. The "13"? 13 Q. The Apache "13"? Α. I don't know. 14 Well, Mr. Platt, doesn't it surprise you that a 15 Q. well that is producing at the rate that the --16 17 Never mind, go ahead. I was going to expand, but Α. go ahead. I'll just drop it. 18 Well, Mr. Platt, doesn't it surprise you that the 19 Q. Apache "13" would be producing at the rate that it is 20 producing with a permeability of only 14 millidarcies? 21 Α. 22 No. Well, would it surprise you to find out that the 23 Q. Apache "13" actually has a millidarcy rate of 60? 24 When you say "a millidarcy rate", you don't 25 Α.
actually measure --1 Q. A measurement? 2 -- the permeability. An engineer can make a 3 Α. calculation and make some assumptions in his calculations 4 as to permeability. 5 Well, would it surprise you that the calculation 6 Q. had been made and it was 60? 7 8 Α. I've heard that testified to. I think Mr. Fant testified he made a calculation and he estimated it to be 9 60. 10 Does that affect your calculation at all? Q. 11 Does it affect my calculation? I didn't 12 Α. calculate the permeability in that way. 13 So you just took the millidarcy rate that Mr. 14 Q. Hillis gave you; is that correct? 15 I calculated the permeability from some buildup Α. 16 tests on the James Ranch Unit 1, and I calculated 17 permeability for the James Ranch Unit 1 as 10 millidarcies, 18 based on a buildup test. And that's in the southern 19 region, so I used that in the southern region. 20 21 I then had it reduced as I moved to the north, in 22 what's been referred to as the lower permeability area, I reduced it below 10. And then as I got up into the 23 northern area, I went up -- I saw those wells were higher 24 permeability, so I went above ten in the northern region. 25

That's how I got to the permeability distribution. 1 On this sheet you report that the original 2 Q. reservoir pressure was 8426 p.s.i. 3 Α. That's correct. 4 5 What document -- You said you referred to a Q. document? 6 7 Α. Yes. What document are you referring to? 8 Q. 9 It's the bottomhole pressure document in there. Α. 10 It's a Shell document that reports the pressure measurements on that well conducted on a 132-hour shut-in 11 in March. 12 And I think you --13 Q. I have the document if you'd like to -- I'd be 14 Α. 15 happy to furnish it. Well, that's fine right now, Mr. Platt. I'm more 16 Q. interested in the other numbers that you're talking about. 17 You stated that you thought that you had -- and 18 19 I'm not exactly sure on this. You said that there was --20 the difference in the reservoir pressure that Mr. Fant was 21 using was some 200 p.s.i., and you -- that was a result of a certain amount of production, or you testified something 22 23 about additional production. 24 Could you -- Do you recall what you -- the 25 numbers that you testified to?

1	A. Yes, sir.
2	Q. Would you mind repeating those for me?
3	A. No. The original pressure measured in the well
4	prior to any production was the 8426 p.s.i., adjusted to
5	datum.
6	There was another measured bottomhole pressure
7	after the well had been placed on production, and it was
8	approximately 8216. I believe Mr. Fant used 8219.
9	But that At that time, approximately 180,000
10	MCF of gas had been produced from the well when the second
11	pressure was measured, which was the lower pressure.
12	Q. Did you perform any calculations to determine if
13	180,00 MCF would be a reasonable amount of production to
14	reduce the bottomhole pressure by some 200 pounds?
15	A. No, I just simply used an earlier pressure prior
16	to any production as the initial pressure.
17	Q. Mr. Platt, did you, in using your user model,
18	your simulation model Well, let's ask a question. Let
19	me back up before I ask that question.
20	Based on your simulation model, at the location
21	that Yates drills the well, it's going to drill a dry hole;
22	isn't that correct?
23	A. Yes, sir.
24	Q. There would be no need to penalize a dry hole; is
25	that correct?

It would be a moot question if the well is 1 Α. plugged and abandoned. 2 Now, in the -- Did you use your simulation model 3 Q. at all to predict the effect that the Yates well would have 4 upon the Bass well? 5 No, because the -- My simulator would not have 6 Α. 7 the well on production. It would be outside of the 8 productive limits of the reservoir. Okay. So your model just couldn't predict that 9 Q. at all anyway? 10 The model shows a very small reservoir volume 11 Α. would exist in Section 7, so I didn't run any predictions 12 with that. 13 I understood, I think, some of the -- what you Q. 14 were proposing that the Commission do, and again I 15 apologize if I didn't fully catch everything. 16 But it seemed to me that you were advocating to 17 the Commission that the Commission should adopt a 50-18 percent penalty as an interim penalty and wait and see what 19 happens with the well, and then maybe adjust it upwards. 20 21 Is that a fair --22 Α. Or down. Or downward. Yes, I'll agree with that 23 characterization. 24 Now, what if the picture that Bass has painted Q. before the Commission today is totally wrong and that the 25

true picture is the Yates picture? 1 In effect, you would have penalized Yates from 2 the very beginning, would you not, when they should not 3 have been penalized? 4 I don't know that they should not have been 5 Α. It's still an unorthodox location, and there's 6 penalized. 7 still -- Even if the well has some pay, it's still a question of the reserves that might underlie that tract and 8 9 an opportunity to try to recover those. 10 Well -- So the basis of your advocation of a Q. penalty is strictly based upon the closeness of the well, 11 not the effect that that well would have upon the proposed 12 Bass well? 13 No, that's not correct. Rather than effect on 14 Α. proposed Bass well, based on the reservoir characterization 15 as I see it, based on the work of Mr. Hillis and my work, 16 17 the well has a very limited reservoir volume that extends in the neighborhood of that well and under that tract. 18 But it could have a very small -- It could be 19 productive but yet still have a very small volume of 20 21 reserves. 22 And that's what the Bass picture shows, that it 23 may -- It has a small volume of reserves, but it may be 24 able to produce gas with the very limited reserves 25 underlying the tract. And that's what we see -- protection

1 problem. If that's the case, then the production from that 2 well would come predominantly from the offsetting Bass 3 tract. 4 Well, have you done any prediction of what is 5 Q. required in terms of thickness, of porosity, permeability 6 7 and what have you, to show under what scenario that the Yates would actually -- the Yates well would actually harm 8 or hurt the Bass well? 9 Well, I've just -- The reservoir simulation shows 10 Α. just a very few acres that contain gas. But I assume that 11 if it had 40 acres of two feet of pay, it would have in the 12 neighborhood of 1 BCF -- 1.8 BCF of gas. 13 Assume there's 40 acres over there of two feet, 14 and the well at the rates shown on the Yates exhibit would 15 produce that volume of gas in 11 months without a penalty. 16 If the Yates well is capable of producing the Q. 17 allowable now that's set for that well, then Bass's picture 18 has to be wrong? 19 20 Α. I don't follow that. For the well to produce the kind of volumes that 21 Q. 22 you're talking about when you made -- You made the 23 statement that if the well was capable of producing the 24 allowable, then Bass is going to be hurt. But if the well is actually capable of that, your picture or Bass's picture 25

would have to be wrong? 1 2 Α. No. A well on the very edge of this reservoir, as 3 Q. depicted in the picture that Bass has made, then, in your 4 estimation and opinion, would be capable of producing the 5 allowable? 6 I don't know. I haven't made that comparison. 7 Α. I'm saying the well could have a very few feet of pay, and 8 assuming that there were 40 acres of two foot of thickness, 9 at the rates shown on the Yates exhibits for the monthly 10 production that were in this record today, it would produce 11 that volume of gas in 11 months. 12 MR. ERNEST CARROLL: That's all I have. 13 CHAIRMAN LEMAY: Thank you. 14 Commissioner Weiss? 15 EXAMINATION 16 BY COMMISSIONER WEISS: 17 Yeah, I'm confused on this question of a history Q. 18 match. 19 My understanding of history matching, you use it 20 to calibrate the simulator and verify that you have 21 something that you can predict with. I didn't see your 22 23 history match. I did see that you predicted static pressures at 24 25 these two wells, Apache "13" and "15" [sic], exactly as the

Yates predicted on Figure 12, if I'm reading Figure 12 1 right. Maybe that's my problem. 2 Plus, they had a calibrated model, it appears. 3 Yes, sir. Yes, that is correct. On their 4 Α. Exhibit 12, yes, they do show that pressure in that region. 5 At the two --6 Q. 7 Α. Yes. 8 Q. -- two locations? That's correct. 9 Α. Just as you do, similar? 10 Q. That's correct. 11 Α. But yet I don't see your history match, can't 12 Q. 13 find it. No, I didn't introduce that. I have a graph for 14 Α. each of the producing wells in the field through history 15 that I've looked at as part of the model predictions. I 16 just didn't introduce in time all of these -- all the runs 17 that I've made. 18 But I have made a look at each individual well's 19 20 history versus what the simulation would -- on an individual-well basis. I believe what's shown in Exhibit 21 12 is some composite history, but I've looked at each 22 individual well. 23 24 Q. Yes. 25 Α. Not just the two wells, the two new wells.

Q. But I can't see that, so... 1 You both have the same original gas in place, 2 And the question is, where is the reservoir? And 3 roughly. so simulation from one point shows that it's there, and 4 your comments say that it's not there, along with your 5 geologist. That's -- And of course, we have a Yates 6 7 geologist who says the opposite. I guess my question is, how come you didn't show 8 9 the history match? 10 Α. I have them actually prepared in exhibit form. Because of the time, I tried to not duplicate or put in --11 I have a lot of other exhibits that I had prepared, and 12 13 I'll be happy to introduce these now. I have all of the wells, individual well graphs 14 showing the production, predicted versus actual production, 15 the pressure predicted versus the simulation for each 16 individual well, not just the two wells that were later 17 drilled. I have it for the other four wells throughout 18 their history. 19 MR. KELLAHIN: Mr. Chairman, Commissioner Weiss, 20 if I might supplement his presentation, if Mr. Platt's got 21 them there, with your permission, we'll mark them and 22 introduce them, and that way you'll have them to 23 independently look at. 24 25 That's my mistake. We ran out of time last night

copying things, and I should have done it, and I didn't do 1 it. We seek permission to do that at this point. 2 CHAIRMAN LEMAY: Commissioner Weiss? Would you 3 like to have it? 4 5 COMMISSIONER WEISS: Yes. MR. KELLAHIN: All right, sir. 6 MR. ERNEST CARROLL: Mr. Chairman, I would --7 8 Unless we get to look at them and comment on them, it makes it very unfair, unless you would allow us some time to 9 comment on them after --10 CHAIRMAN LEMAY: Would it be fair to have him 11 supply that -- copies to you, and you submit written 12 comments to us in the record that we can --13 MR. ERNEST CARROLL: That would help. 14 CHAIRMAN LEMAY: Okay. Would that seem fair to 15 If Commissioner Weiss --16 you? MR. ERNEST CARROLL: Yeah, and I --17 CHAIRMAN LEMAY: -- would like to have it, I'd 18 19 like to --MR. ERNEST CARROLL: -- I agree that they should 20 21 have -- that's one of the things that was very -- But I 22 think it's necessary. 23 MR. KELLAHIN: I'm happy to do that, and if you'll allow us after the hearing, I'll put those together 24 with Mr. Platt. He's got them. 25

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CHAIRMAN LEMAY: Fine, why don't we do it that 1 2 way? MR. KELLAHIN: They'll be marked for the record 3 and submitted for introduction as Exhibit 14. 4 COMMISSIONER WEISS: That was my only question. 5 Thank you. 6 CHAIRMAN LEMAY: Commissioner Carlson? 7 8 EXAMINATION BY COMMISSIONER CARLSON: 9 Yeah. Now, we have the Yates experts saying that 10 0. there's, I guess, ten or more feet of pay, and the Bass 11 experts are saying there's two feet or less. Bass 12 recommends a 50-percent penalty. 13 I think Mr. Carroll asked, what if Bass is wrong? 14 And I don't think you answered that. 15 What do you recommend this Commission do if we 16 imposed, as Bass requests, a 50-percent penalty, the well 17 starts producing, and there is ten feet of pay, as Yates 18 predicted? What would you advise us to do? 19 The -- if it does come in -- I think it's more 20 Α. 21 than -- If it has ten feet of pay and there's a penalty, 22 they may be in here, but I think it would be the character of that log and what it shows about how the rest of --23 whether or not there's sufficient reserves to this entire 24 eastern area to justify. 25

I think on some of the Yates exhibits they showed 1 even with -- even with the large area mapped to the east, 2 that that well, even under their interpretation, with a 50-3 percent penalty, will recover more than the current 4 recoverable gas under that 320-acre unit, even with a 50-5 6 percent penalty. 7 Now, again, that's a Yates exhibit. But I think 8 even their own -- with their geology, with ten feet, shows that they'll recover more than the recoverable gas under 9 10 that 320 with a 50-percent penalty.

11 So therefore, imposing a 50-percent penalty for 12 an interim period -- To me, I don't see how it would hurt 13 them, even if their geology is right, because they show 14 that even with the 50-percent penalty, they'll recover more 15 than the current recoverable gas that underlies that 320, 16 and that's on one of their exhibits. I believe Mr. 17 Kellahin pointed that out. It's on Exhibit 18 of Yates.

So that shows that even if the 50 percent remained in there for the life of that well and their geology is totally right, they're going to recover more than the gas that they believe -- even if their interpretation is right, more than the recoverable gas under that 320.

Q. Well, they still -- Yeah, but so would everybody,
under their interpretation, because of the WIPP gas and

their -- You know, they have that 1000 acres in the two 1 sections that they can't recover anything for, or at least 2 can't drill; is that correct? 3 Yeah, I believe that's correct. But my point was Α. 4 to show that for the 320, for the entire -- if that 50 5 percent remained for the life of the well, they would 6 7 recover more than under that 320. 8 So therefore, if it was in place for an interim period, their geologist was right, they could show that 9 10 there was large gas under the WIPP area after the drilling of that well, they could, maybe, if they can justify it by 11 reservoir volume under their tract, maybe get an increase. 12 But they would still be out a certain amount of 13 Q. gas if they were not able to produce during that period, 14 the time for them to come back in here and have that 15 penalty removed; is that correct? 16 They would produce less. Now, whether or not 17 Α. they're out -- where that gas, that reduced gas comes from, 18 which tract, I don't know. 19 Okay. Now let's take the adverse of that. Q. You 20 said that if you're right and there's two feet of pay and 21 they have 40 acres that they can still produce -- that they 22 would be out of gas under that 40 acres in 11 months, but 23 that would give Bass 11 months to come in here and request 24 a penalty, even if your interpretation is correct; is that 25

right? 1 But then they would have already recovered in 11 2 Α. months the total recoverable gas, again, in the 40-acre 3 area --4 Uh-huh. 5 Q. -- and then you would come in for some 6 Α. 7 reduction. So then all of the gas in the future would be 8 total drainage, even with -- unless you shut them in 9 10 completely. But is there anything wrong with that? 11 Q. Shutting them in completely? 12 Α. Yeah. 13 Q. I don't know. There may be other legal 14 Α. considerations on a total shut-in. I don't know. 15 But Bass would still have some period of time to Q. 16 come in here and ask this Commission for an appropriate 17 penalty? 18 Bass would have the opportunity to come in. 19 I'm Α. not sure the timing on that, but they -- and then how long 20 21 the well would produce uncurtailed. But yes, Bass would have the opportunity to come 22 23 in and ask for another consideration, when more information from these wells is gathered about the productive area. 24 25 Q. Uh-huh. Your Exhibit 13, you say those are

Yates' own numbers? 1 2 Yes. Α. Where did you get those? 3 Q. That's an exhibit they submitted in this docket, 4 Α. in the Examiner hearing. 5 In the Examiner hearing? 6 Q. 7 Yes, that's correct. Α. All the numbers on this, this is their exhibit? 8 Q. I didn't change a thing. 9 Α. You didn't change a thing? 10 Q. I just added an exhibit tag. 11 Α. COMMISSIONER CARLSON: I have no further 12 13 questions. Thank you. 14 EXAMINATION BY CHAIRMAN LEMAY: 15 16 I've got to follow up a little bit on your Q. argument of retroactive penalty. 17 Would you recommend to Bass that they recommend a 18 penalty on that Mitchell well? Because it's crowding you, 19 20 it's retroactive after they've drilled it and are producing 21 it. I don't know. It would depend on after Bass 22 Α. drills -- has the well down in Section 12, and then it 23 would be looking at the balance of reserves between those 24 wells, and there may be some consideration given to that. 25

I've been involved in other hearings where -- To 1 2 me, the best is to look at -- once you have the wells down and all the data that's available, is to look at the 3 recoverable reserves that underlie the tract and try to 4 balance the allowables based on that. 5 Here, we don't have all of the final data in. 6 7 We've got some new data coming in that may confirm one 8 interpretation or another. It may well be that after the Bass's well is down, we'll look and there may be some 9 10 consideration given the Mitchell well. I don't know. Ι haven't addressed that. 11 Well, do you recommend that if we have no penalty 12 Q. 13 on the Yates well, do you recommend to Bass that they crowd that lease line, try and get the same deal? 14 That's difficult. I think Bass should -- My 15 Α. first recommendation to Bass is drill the well at the 16 orthodox location where their geology believes they have 17 the best chance of drilling the well. 18 However, I hate to tell them to not protect their 19 tract from drainage, so I'd be a little bit at odds there. 20 To me, the better way to protect from drainage is to set 21 appropriate allowables, rather than move wells crowding 22 23 each other. So do you recommend that we prorate the field 24 Q. 25 based on what might be a productive acreage interpretation

after the wells are drilled?

1

A. If the reservoir was both starting out -- all the
wells were starting out at the same time, my answer would
be yes.

5 The fact that some of these wells are getting in 6 at different periods of time -- I would think if you looked 7 at productive acres and current recoverable reserves, yes, 8 start everybody out on the same consideration, give 9 everybody a reasonable opportunity to recover the 10 recoverable reserves underlying their tract.

Yes, I would recommend that from a technicalstandpoint.

Q. Well, let me make one other assumption, because it's been stated here that the productive acreage interpretations are nonresolvable. And if you use that assumption, you're talking about relative positions of these wells in the reservoir, the interference, one well versus another, one well crowding another.

19 If you just throw out productive acreage as being nonresolvable, would you agree somewhat with Mr. Boneau's 20 interpretation? Exhibit 22, I guess, is the one I was 21 referring to. Do you have a comment on that, or --22 23 Α. Yes, if their --24 -- is that an acceptable presentation to you? Q. 25 It's a very simplified assumption, and that Α.

simplifying assumption is what causes me some doubt in
 heavy reliance on it.

That simplifying assumption is that there are no reservoir boundaries, that these -- Those circles can go out in any direction. There are no reservoir boundaries.

To me, I see that, as Mr. Hillis has mapped, and as the simulator indicates, this reservoir has limits. And when a well hits these reservoir boundaries, it's going to reconfigure; it's not going to be nice, uniform circles.

And those, to me -- I believe the description was "pseudo-drainage areas". Those are not really drainage areas. Those are what I've referred to in the past as equivalent drainage areas. Those are just some tank in the reservoir that contains a certain volume of gas, assuming it's depleted to zero at that period of time you're looking at and that there's no flow outside that circle.

So those really aren't the drainage boundariesthat are in effect.

Q. But without discernible drainage boundaries, if we were to agree that you cannot predict the limits of this reservoir -- Assuming it has limits but we don't know where they are, therefore we don't know which well will bump up against that limit when it's trying to drain the reservoir, would this be a logical interpretation of that assumption? An equitable interpretation, maybe, more than logical?

1	A. Well
2	Q. You don't know what
3	A if you assume that you can't determine the
4	reservoir limits.
5	But Mr. Hilty [sic], I believe has defined some
6	reservoir limits that that interpretation that there are
7	some zero limits up in Section 6 that would prohibit those
8	nice circles from being there. So I believe there are
9	some
10	Q. Well, so does the opposition, but with different
11	areas.
12	What I'm saying is, you could throw both
13	interpretations out, or at least admit that neither one can
14	be scientifically validated. Therefore, that's not a
15	criteria for judging the limits.
16	Would this be a fair interpretation, with that
17	assumption?
18	A. I would still be reluctant, technically, to
19	recommend that that approach be used to allocate or to
20	determine fair share or allowable penalties in there.
21	To me, I think well, even though there may be
22	differing opinions, that At least use the best evidence
23	that's there as to what is the most reasonable picture of
24	what is the recoverable reserves underlying the tract and
25	try to give some match and consideration to the most

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1	what is the most reasonable reservoir characterization of
2	it, and not just fall back on the circles.
3	Q. So you'd recommend to this Commission that we use
4	the best speculation that's available?
5	A. Yes. And there's some speculation. I think in
6	two weeks there will be some data on the Yates well. And
7	obviously, if it has one or two feet, there's not going to
8	be a lot of speculation as to how far out that reservoir
9	limit goes.
10	CHAIRMAN LEMAY: Okay, thank you. That's all the
11	questions I have.
12	Additional questions of the witness?
13	You may be excused. Thank you very much. We
14	appreciate your testimony, Mr. Platt.
15	Do you all want to sum up in just a few minutes,
16	or
17	MR. KELLAHIN: I'm not sure just what I'd like us
18	to do. That concludes our presentation of evidence.
19	CHAIRMAN LEMAY: Okay.
20	MR. ERNEST CARROLL: Chairman LeMay, I would like
21	to put on just a little bit of rebuttal evidence as to two
22	exhibits. I just want to get a proper explanation on them.
23	CHAIRMAN LEMAY: Okay.
24	MR. ERNEST CARROLL: I'll and use two
25	witnesses: first Mr. Boneau and then Mr. Fant.

CHAIRMAN LEMAY: Is it all right if I ask Mr. 1 Boneau a question that's not in the record? I think it's 2 important to be there. I need a Yates witness for it. 3 It's real quick. 4 MR. ERNEST CARROLL: I have no problem with it if 5 Mr. Kellahin has no --6 7 CHAIRMAN LEMAY: Is that okay? MR. KELLAHIN: It's your hearing, Mr. Chairman. 8 CHAIRMAN LEMAY: Thank you. I need to establish 9 the fact that this well is drilling. I see a 9-1-94 10 expiration on the lease. 11 Is the reason why you drilled it because it had 12 an expiring lease and you didn't want to wait till the de 13 novo, you couldn't wait? Or is there another --14 MR. BONEAU: Couldn't wait. 15 CHAIRMAN LEMAY: Could you have waited? 16 MR. BONEAU: No, we couldn't wait. 17 CHAIRMAN LEMAY: Okay. 18 MR. BONEAU: The lease was expiring. the well 19 was spudded two days before the expiration of the lease. 20 CHAIRMAN LEMAY: I assumed that, but -- It's 21 never in the hearing, in the record --22 MR. ERNEST CARROLL: This was not --23 CHAIRMAN LEMAY: -- so I wanted to --24 25 MR. ERNEST CARROLL: -- you know, there is a way,

1	if the potash companies object to the drilling of the well,
2	that you can suspend the lease. That was not the case,
3	there was no suspension.
4	CHAIRMAN LEMAY: Well, I just wanted that in the
5	record. I assumed that was the case, but it wasn't in the
6	record.
7	DAVID F. BONEAU,
8	the witness herein, after having been first duly sworn upon
9	his oath, was examined and testified as follows:
10	DIRECT EXAMINATION
11	BY MR. ERNEST CARROLL:
12	Q. Mr. Boneau, we have had testimony concerning a
13	prior exhibit. It is this The exhibit that was talked
14	about in Mr. Platt's testimony is his Exhibit Number 13.
15	Do you have that before you?
16	A. Yes, sir.
17	Q. You're familiar with that exhibit, are you not?
18	A. Yes, sir.
19	Q. Are you the person that prepared that exhibit for
20	presentation at the earlier hearing?
21	A. It was a portion of an exhibit I prepared for the
22	earlier hearing, yes, sir.
23	Q. The characterization that was given to it by Mr.
24	Platt, do you think that is accurate an accurate one,
25	based on what you know about the exhibit and the reason it

was prepared? 1 Α. I think it might help to clarify that 2 3 representation. At the prior hearing, I presented nine economic 4 5 runs, an exhibit that contained nine pages like this Exhibit 13, and my purpose was to present risk-weighted 6 7 economics for drilling this well. And those risk-weighted economics showed that the 8 rate of return was 24 percent and the profit-to-investment 9 ratio was 0.44, payout 2 1/2 years. Relatively mediocre 10 economics on a risk-weighted basis. 11 Pretty much the story, that the Bass people took 12 one of those nine and presented it to you, but they did not 13 present the other supporting... 14 MR. ERNEST CARROLL: That's all I have with 15 respect to that exhibit. 16 CHAIRMAN LEMAY: Thank you. Are there any other 17 questions of the witness? 18 MR. KELLAHIN: No, sir. 19 CHAIRMAN LEMAY: You may be -- Oh, sorry. 20 Commissioner --21 EXAMINATION 22 BY COMMISSIONER WEISS: 23 Q. I didn't understand. The case that we were 24 seeing is a non-risk weighted. Is that it? Or --25

Yeah, if you take the data you saw as the total 1 Α. story, that's equivalent to using non-risk-weighted 2 economics. 3 COMMISSIONER WEISS: Okay. 4 MR. ERNEST CARROLL: Recall Mr. Fant, please. 5 CHAIRMAN LEMAY: Okay. 6 7 You may be excused, Mr. Boneau. ROBERT S. FANT, 8 the witness herein, after having been first duly sworn upon 9 his oath, was examined and testified as follows: 10 DIRECT EXAMINATION 11 BY MR. CARROLL: 12 13 Q. Mr. Fant, you heard testimony as to your Exhibit Number 12 given by Mr. Platt? 14 Yes, sir, it is --15 Α. With respect to what -- the purpose of that 16 Q. exhibit, did Mr. Platt accurately recall what you had 17 testified with respect to that Exhibit? 18 Α. Not really. He did not -- He was not able to 19 recall what I was trying to convey. 20 This, again, is my pressure match, my history 21 match of the reservoir. 22 He indicated that the two points on the right 23 side, the comparison of the DST in the Apache "13" 1 and 24 25 the Apache "13" Federal Number 1 prediction, he said those

were not cell values. They are. They are -- That is the 1 pressure predicted at the location of that well. And the 2 same for the other well. 3 I just wanted to clarify that, because that is an 4 important point. 5 6 0. Also, he stated that he was not sure about what 7 the blue heavy line, which is the southern region average 8 pressure -- Would you describe what that is and what wells are involved? 9 Okay, that may have conveyed a little confusion 10 Α. in my terminology. 11 The southern region I'm speaking of here is just 12 13 a region surrounding the productive wells, the four productive wells in the south. It is not the entire south 14 pod, as I would call it. It is a -- I use the term 15 "region" because that is something that is within -- It's a 16 term you use inside the model, the program. That is, you 17 define a region, and it calculates you some special 18 19 properties on that area, and that's the average pressure 20 for that. That's what that blue line is. And so that is 21 basically the average pressure for the four wells in the 22 23 southern region, just to clarify. This Exhibit 12 is, I guess, a summation of your 24 Q. 25 history matching; is that correct?

1	A. Yes.
2	Q. Could you again because we have an issue with
3	respect to history matching. What were you history
4	matching?
5	A. Okay. Again, in this particular model, you
6	describe the reservoir, put in your parameters, you input
7	production, you require that the model produce the volumes
8	of gas from the wells. And then what comes out of The
9	parameter that you read and look at is the pressure.
10	And that's what we have done here. The pressure
11	is the output and what you check to make sure matches
12	history.
13	We know that the production matches history;
14	that's an input. But the pressure is an output, and we
15	wanted to check to make sure that we match this rise in
16	pressure from 1986 to 1991. That is critical. And You
17	know, within the description we have.
18	MR. ERNEST CARROLL: That's all I have.
19	CHAIRMAN LEMAY: Thank you. Anything additional
20	in the case?
21	Can you all sum it up quick? Or would you rather
22	submit written comments?
23	MR. KELLAHIN: I think it might be more helpful
24	to and meaningful to you, to let us prepare draft orders
25	that would summarize the position.

CHAIRMAN LEMAY: That's fine with us. Is that 1 fine with you, Mr. Carroll? 2 MR. ERNEST CARROLL: I have no objection to that 3 in light of the fact that we're going to have the 4 additional exhibits and allow a comment time on that. 5 So I think we ought -- I don't know -- We need to 6 set a time, I think, for the comment period, and then the 7 draft order should follow at some reasonable time after 8 that, I would think. 9 MR. KELLAHIN: Well, let me just make a short 10 11 statement --CHAIRMAN LEMAY: Sure. 12 MR. KELLAHIN: -- and you decide how you want to 13 14 handle this. CHAIRMAN LEMAY: Okay. 15 MR. KELLAHIN: I'm certainly happy to prepare a 16 draft order to suggest solutions. 17 The case has had a long history. It's an unusual 18 circumstance. 19 The operator sought standard well locations, 20 which their geologic evidence confirmed were equivalent to 21 or better than the unorthodox location. 22 The issue is what to do. 23 The BLM is determining well spacing in the 24 hydrocarbon reservoir by circumstances separate and apart 25

from the placement of those wells, and it's a potash issue. 1 The Division doesn't have very good rules to 2 handle that. 3 104 is the unorthodox well locations, and it 4 talks about granting exceptions for wells for topographical 5 reasons. However, in the presence of an objection, even if 6 there's a topographical excuse, those wells can be 7 penalized if they're at unorthodox locations in the 8 reservoir. 9 The argument before the Examiner and what 10 Mitchell presented was that for another \$300,000, Bass 11 could solve the predicament they had for their tract with 12 13 the potash by drilling directionally to the standard location. And that's their problem, and that would have 14 been their solution. 15 Now, Bass is drilling at a standard location in 16 the spacing unit, and they become the victim of the 17 We think the encroachment is significant. 18 process. Diametrically opposed geologic opinions when you 19 look at the area of importance, and you need to tell us 20 what to do. 21 We're certainly happy to come back when the 22 well's got data to tell us where it is in the reservoir. 23 It simply leads to further hearings. 24 25 We've struggled with this for years. We have

sometimes decided when you can't quantify productive 1 acreage, when there is a dispute like this, you set aside 2 productive acreage because you can't resolve the conflict, 3 and you simply use the footage encroachment penalty, and 4 5 that's the penalty that results to Yates for being unorthodox. 6 If you want to struggle with the geology, we 7 think there's a way to look at that and decide in your own 8 technical opinions the reliability of that McKnight well. 9 10 Mr. Hillis is firmly convinced that Mr. May made a miscorrelation of significance, and if you agree with Mr. 11 Hillis, there's substantial things wrong with Mr. May's 12 13 geology. And look how Yates gets to the point where there 14 is no inequity, if you will. They calculate by simulation 15 that their well will recover the same amount of gas at the 16 standard location versus the unorthodox. And the only way 17 they can get there is, the simulator has to add reservoir 18 volume of significance on the eastern boundary of the pool. 19 You know, it's -- It looks like witchcraft and 20 voodoo. These simulations -- God bless them, but it looks 21 like you can make them do most anything you want. 22 I've got a recognized engineering consultant that 23 does this for a living throughout the southwest, and he has 24 25 validated Mr. Hillis's geology. I don't know what to do.

I think the solution is, you put the burden on 1 Yates, you establish a temporary penalty of 50 percent, 2 because that's typically what we do, and in two weeks or 3 three weeks we can have an emergency hearing. You 4 certainly have the authority to make the people come back. 5 We don't have to wait till Christmas. We can come back 6 here and do this again. We can provide the data to you in 7 8 some fashion, and you can decide if it matters. 9 I suggest what it does is, it leads you into more engineering calculations. They'll take the logs and they 10 will decide where the productive acreage lies, and that may 11 not be a solution. 12 13 It's a dilemma that we have solved in the past by simply putting the footage encroachment penalty and saying 14 that's as good as we can do. And in this case, I think 15 that's appropriate, and we ought to do that. 16 17 CHAIRMAN LEMAY: Thank you. Mr. Carroll? 18 19 MR. ERNEST CARROLL: Rule 104, I think, provides 20 guidance for what the Commission must and can only do. Subparagraph G of that rule states that "Whenever 21 an exception is granted, the Division may take such action 22 23 as will offset any advantage which the person securing the 24 exception may obtain over other producers by reason of the 25 unorthodox location."

The real area of inquiry today was the one that was addressed by Yates and never addressed by Bass. The real area of inquiry was what effect would this well have on the other producer that is affected? That was the issue, I think, that was decided by the Examiner when we had the evidence presented by Mitchell in the Division hearing.

8 The evidence, which is basically undisputed, is 9 that there is no real effect. By looking at what we would 10 have with an orthodox well and what we would have with an 11 unorthodox well, there's the problem with the whole debate 12 today.

13 The issues that they raise are not changed by the 14 fact that we move the well from the orthodox location to 15 the unorthodox location. They haven't addressed that 16 issue. We have.

What this commission and the Division has always done in the past, is that you address the rules and the problems that are faced by them, and you make the decision.

20 What is being proposed by Bass, and even 21 Mitchell, is that we're going to have to -- we're going to 22 do away with all the procedures that we've developed for so 23 many years, and we're going to go to a productive-acre 24 computation, we're going to say that you're just entitled 25 to so much gas.

You notice that Mr. Platt totally did not want to 1 deal with the issue, that all of the wells out here are 2 producing more gas than -- that's in place. 3 This is a one-of-a-kind problem. And it's a one-4 of-a-kind problem because we're dealing with federal 5 acreage, and we're dealing with a very, extremely large 6 area of unknown that no one will ever get to tap and, in 7 all likelihood, a lot of the gas is coming there. We have 8 on our well that was drilled a number of years ago --9 That's produced 26 BCF, almost one half of the total gas. 10 This is -- There is no way that you can sit there 11 and say, You should produce so much gas, this is what 12 you're entitled to. 13 And I don't care how long we look at it or debate 14 that issue, we're never going to solve that because there's 15 no way of absolutely knowing. 16 Therefore, you're relegated to what we do in the 17 past, and that's found in Paragraph G. 18 How are they being unfairly affected? 19 The advantage -- Again, Bass has not presented 20 any testimony about that. That's what was called for. 21 That's what Yates has advocated in the Division hearing, 22 23 and that's what they advocated again today, and they produced testimony. 24 25 We feel that no penalty is appropriate in this

case under the facts that are unique to this one well, 1 knowing that this is never going to happen again, and we 2 would ask that the Commission not impose a penalty, based 3 on its own rules. 4 CHAIRMAN LEMAY: Thank you, Mr. Carroll. 5 6 Anything further in the case? Let's submit that additional information that 7 Commissioner Weiss needs on the reservoir matching within a 8 week, hopefully, or -- You can do it pretty quick, I --9 MR. ERNEST CARROLL: If we can -- if you have 10 11 a --CHAIRMAN LEMAY: Yeah, just get a day or two, 12 and --13 MR. KELLAHIN: I have a set right here. I 14 mismarked them, and I'll hand them to you. 15 CHAIRMAN LEMAY: Okay. 16 17 COMMISSIONER WEISS: What about tomorrow morning? We're going to be here. 18 CHAIRMAN LEMAY: Yeah, just submit it tomorrow 19 morning and then submit a copy to Mr. Carroll, and 20 21 hopefully within a week you can get some comments back on 22 that. We want a couple of draft orders within a couple 23 weeks, two weeks. And then with that we'll leave the 24 record open for that, and we'll take the case under 25

1	advisement in two weeks.
2	Thank you.
3	Meet tomorrow morning at eight o'clock.
4	(Thereupon, these proceedings were concluded at
5	6:11 p.m.)
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1	CERTIFICATE OF REPORTER
2	
3	STATE OF NEW MEXICO)
4) ss. County of Santa FE)
5	
6	I, Steven T. Brenner, Certified Court Reporter
7	and Notary Public, HEREBY CERTIFY that the foregoing
8	transcript of proceedings before the Oil Conservation
9	Commission was reported by me; that I transcribed my notes;
10	and that the foregoing is a true and accurate record of the
11	proceedings.
12	I FURTHER CERTIFY that I am not a relative or
13	employee of any of the parties or attorneys involved in
14	this matter and that I have no personal interest in the
15	final disposition of this matter.
16	WITNESS MY HAND AND SEAL October 4th, 1994.
17	Juin 1 13 Binon
18 19	STEVEN T. BRENNER CCR No. 7
20	
21	My commission expires: October 14, 1994
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23	
24	
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1	STATE OF NEW MEXICO
2	ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
3	OIL CONSERVATION COMMISSION
4	
5	IN THE MATTER OF THE HEARING)
6	COMMISSION FOR THE PURPOSE OF)
7	CONSIDERING:) CASE NO. 11,019)
8	CORPORATION OF VATES PETROLEOM)
9	· · · · · · · · · · · · · · · · · · ·
10	<u>ORIGINAL</u>
11	REPORTER'S TRANSCRIPT OF PROCEEDINGS
12	COMMISSION HEARIND EGEIVED
13	
14	BEFORE: WILLIAM J. LEMAY, CHAIRMAN
15	GARY CARLSON, COMMISSIONER
16	
17	September 22nd, 1994
18	Santa Fe, New Mexico
19	
20	This matter came on for hearing before the Oil
21	Conservation Commission on Thursday, September 22nd, 1994,
22	at Morgan Hall, State Land Office Building, 310 Old Santa
23	Fe Trail, Santa Fe, New Mexico, before Steven T. Brenner,
24	Certified Court Reporter No. 7 for the State of New Mexico.
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1	Mr. Hillis is Irish. He has an Irish brogue and
2	a west Texas deviation thereof. We, after several
3	hearings, have been able to communicate. If for some
4	reason you do not understand him, he's certainly not
5	bashful and he will repeat himself.
6	GEORGE HILLIS,
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. Would you please state your name and occupation?
12	A. My name is George Hillis. I'm a geologist with
13	Bass Enterprises Production Company at Forth Worth, Texas.
14	Q. Mr. Hillis, on prior occasions have you testified
15	as an expert geologist before the Oil Conservation
16	Division?
17	A. Yes, sir.
18	Q. And as part of your geologic duties for your
19	company, have you made an examination and a study of the
20	geologies that surround this particular Application by
21	Yates?
22	A. Yes, sir.
23	Q. As part of your effort, have you reviewed in
24	detail the transcript and the geologic exhibits presented
25	by Mr. May at the Examiner hearing?

1	A. Yes, I have.
2	Q. And you were present here in the Commission
3	hearing room and heard the Yates geologic presentation?
4	A. Yes, sir.
5	Q. In addition, independent of that entire
6	experience, you have made your own calculations with
7	regards to the size and the shape of this reservoir?
8	A. Yes, I have.
9	Q. And have you satisfied yourself that you have
10	utilized all available data in doing so?
11	A. Yes, sir.
12	MR. KELLAHIN: We tender Mr. Hillis as an expert
13	geologist.
14	CHAIRMAN LEMAY: His qualifications are
15	acceptable.
16	Q. (By Mr. Kellahin) Let's deal with a couple of
17	items first, Mr. Hillis.
18	I would like, first of all, to direct your
19	attention to the Yates Exhibit Number 6, which is Mr. May's
20	isopach of the reservoir. Let me show you a copy of that.
21	In addition and I don't know that anyone else
22	has to fold it out; I'm happy to pass this around I show
23	you a copy of Mr. May's cross-section. It's Exhibit Number
24	3, so that you have that before you.
25	When you look at Mr. May's isopach and look north

1	of his Section 7 and find your way up into Section 6, which
2	is that McKnight well, Mr. May has used that as a control
3	point for his Atoka Apache sand.
4	Do you agree with his correlation and inclusion
5	of the Mitchell Apache sand in the McKnight well?
6	A. No, I do not.
7	Q. What do you think Mr. May has done?
8	A. Mr. May, in my estimation, has miscorrelated the
9	reservoir sand from the Apache Federal "13" Number 1 to the
10	McKnight well.
11	Q. What significance is that to you?
12	A. The significance is that the number of that well
13	is actually a zero, and the well is beyond the sandbody in
14	question.
15	Q. Looking down into Section 36 to the south, within
16	Section 36 there is a Bass-operated James Ranch Unit Well
17	Number 11?
18	A. Yes, sir.
19	Q. And then on Mr. May's isopach, it is shown in
20	approximately the northwest quarter of that section with
21	about eight feet
22	A. Yes, sir.
23	Q of net pay?
24	Do you agree with what he has done in contouring
25	that eight feet of net pay on his isopach?

1	A. No, I do not.
2	Q. Why not, sir?
3	A. The reason is that the location where the data
4	point of Mr. May's is located in the southwest of the
5	northwest quarter is a surface location for the James Ranch
6	Unit 11.
7	That well, when we come to our own exhibits, you
8	will see, was a deviated hole by going to the northeast,
9	and the data point for the Atoka should almost be actually
10	into the northeast quarter of Section 36, a little over
11	2000 feet away from the data point represented on Yates
12	Exhibit Number 6.
13	Q. Have you taken information and used that
14	information to construct an isopach that, in your opinion,
15	accurately honors all of the available data and makes
16	reliable correlations of this Atoka sand that's produced in
17	the Mitchell well?
18	A. Yes, I have.
19	Q. I turn your attention now, Mr. Hillis, to what
20	was introduced at the Examiner hearing as Bass Enterprises
21	Exhibit 9. It's the Atoka isopach map that's got a
22	combination structural component on it
23	A. Okay.
24	Q which Mr. Fant testified that he had used it
25	to partially model the reservoir. I'm going to show it to

1	you first for identification, and then it's my only copy
2	and I will give it to the Commission.
3	Can you identify that Exhibit 9 from the force-
4	pooling case?
5	A. Yes. I did not testify to the map at that
6	particular case, but I'm responsible for the construction
7	of the map.
8	Q. And at the Examiner hearing, in the force-pooling
9	case, what did you demonstrate with regards to the southern
10	boundary or the reservoir limits of this Atoka pool?
11	A. At that point we just stopped our map display at
12	the south part of Section 25 of 22-30.
13	Q. And why did you do that?
14	A. It was At that point we were three miles away
15	from the area of compulsory pooling and beyond the local
16	geology for the well we were compulsory pooling on.
17	Q. If the Chairman please, I'd like to show you for
18	the record Exhibit 9 from the force-pooling case, which is
19	the isopach to which both Mr. Fant and Mr. Hillis have
20	referred.
21	All right, sir, let's turn to your first exhibit
22	for today's hearing. It's marked as Bass Exhibit Number 1.
23	Identify that for us.
24	A. Bass Exhibit Number 1 has a scale of 1 to 2000
25	feet. It illustrates the structure of the Atoka sand

1	reservoir, and superimposed on the structural contours are
2	net sand isopachs for the actual Atoka reservoir. The net
3	sand isopach we've used as a footage of sand less than or
4	equal to ten percent of clay as on the normalized gamma
5	rays for the well control in the area.
6	Now, the red dots on the map indicate the wells
7	producing from the Atoka sand, and I would point out that
8	we just refer to this as the Atoka sand. It's the same as
9	what Yates Petroleum have referred to as the Apache sand
10	and, in the previous case, the sand that Mitchell has
11	referred to as the "AC" sand.
12	The north part of the map in Section 12 shows the
13	proposed location for the BEPCo James Ranch Unit 70, which
14	is shown at an orthodox location in the south half of
15	Section 12 at 660 from the south, 1980 from the east. This
16	well is set to spud around the first week in October.
17	Just to the east of it, I've also indicated the
18	location of the Yates Number 1 Llama ALL Federal well,
19	which is currently drilling at a location of 330 from the
20	south, 950 from the west of Section 7, and also the four
21	orthodox locations for that south-half unit.
22	Q. Describe the sand, the Atoka sand reservoir.
23	A. The Atoka sand reservoir at the James Ranch Unit
24	area or Los Medanos field, we interpret it to be a marine
25	sandbar, trending north-south, with the marine conditions

being on your eastern side of the map and landward 1 2 conditions being to the west. 3 The sandbody is about six and a half to seven miles long and approximately one mile in width. 4 5 Q. What kind of average porosities are you seeing 6 here? 7 Α. Average porosity is around 13 percent. And what is the average water saturation? 8 Q. The water saturation is ranging between 15 and 20 9 Α. 10 percent. I think the Los Medanos field has only made 25,000 barrels of water in addition to the 37 BCF of gas, 11 12 so it was a very supersaturated reservoir. Do you still have in front of you Mr. May's 13 Q. Exhibit Number 6, which is his isopach? 14 Yes, sir. 15 Α. Let's compare it to your isopach and have you 16 Q. 17 describe for us how the sandbody geometry that you have interpreted for the reservoir compares to the shape and 18 19 position of the reservoir as interpreted by Mr. May. I'll just come in from the south part of our map. 20 Α. I can't compare south of Section 36 for the two miles to 21 the south that we have in Exhibit 1, because Yates have not 22 23 represented how the sand continues to the south. 24 In Section 36, we've already discussed the 25 differences between our James Ranch Unit Number 11 data

1	point. You can see where we have it located, its
2	bottomhole location for the Atoka just into the northeast
3	quarter of Section 36.
4	As we continue north, the major difference is
5	that Yates have represented the Atoka sandbody's axis to be
6	east of the Apache "13" Federal Number 1, whereas we find
7	the axis of the sand to be west of that well.
8	Q. What is your basis for your conclusion that your
9	interpretation is ore accurate and reasonable than Mr.
10	May's interpretation?
11	A. Two key wells.
12	The first one, that's been discussed earlier in
13	Section 6 of 22-31, the McKnight well, where we recognize
14	there to be no reservoir, whereas Yates recognized there to
15	be at least five feet of net sand.
16	And the second critical well, to me, is in
17	Section 2 of 22 South, 30 East, the Phillips Number 1 A
18	James, located in the southeast quarter of that Section 2,
19	which we believe and can demonstrate is on the edge of
20	the western edge of the reservoir sand.
21	Q. Any other differences that you wish to illustrate
22	to the Commission?
23	A. The only other minor difference would be that Mr.
24	May has used an H for net sand less than 50 API units. The
25	gamma-ray logs out here vary quite a lot because of the
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1	hole size and the mud weight, so they really all require
2	normalization. We have done that, but
3	Q. Did Yates do that on their map?
4	A. No, they did not. But in the overall scheme of
5	things, the differences are overall negligible when we're
6	looking at the actual position of the sandbody.
7	Q. Within this specific area of concern, do you find
8	the potential reservoir limits for the eastern boundary of
9	the reservoir to extend to any significant degree into the
10	south half of 7?
11	A. No, I do not.
12	Q. What is your concern about the Yates location as
13	they are now drilling it?
14	A. My concern, after many years of drilling, even
15	though I know that the sandbody's located to the west of
16	the Apache "13", I've been burned before where My fear
17	is that Yates may come in and pick up two or three feet of
18	this sand and have enough permeability to be into the
19	reservoir.
20	Q. And what happens then if that should occur?
21	A. They'll start to drain gas from Bass's lease.
22	Q. Let's turn now to Exhibit Number 2, Mr. Hillis.
23	That's your stratigraphic cross-section. Identify it, and
24	then let's talk about some of the wells.
25	A. Exhibit 2 is a stratigraphic cross-section of the

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1	Atoka section, and the line of cross-section is shown on
2	the previous Exhibit Number 1, extending from the west from
3	the Phillips Number 1 A James in Section 2 of 22-30, going
4	to the southeast through the proposed BEPCo James Ranch
5	Unit 70. The central well in the cross-section is the
6	Apache "13" Federal Number 1 in Section 13 of 22-30, and
7	then going northward to the McKnight well in Section 6 of
8	22-31.
9	Q. Describe for us why you've selected these three
10	wells to put on your cross-section.
11	A. The Apache is selected because it's one of the
12	critical wells we're coming off and playing off here, and
13	it obviously contains a reservoir sand.
14	The McKnight and the Phillips well are included
15	because they are critical wells in defining the
16	configuration of the sandbody, or the most critical wells.
17	Q. Let me hand you Mr. May's cross-section again.
18	The McKnight well log that he used is on the far left of
19	his display. That same well is on the far right side of
20	your display?
21	A. That's correct.
22	Q. Let's line those up and compare as to what you
23	each did.
24	Do you have a difference with Mr. May, or an
25	agreement with him, at the point in which you used to hang
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1	the logs to construct the cross-section?
2	A. No, but we hang them on the same datum point.
3	Q. All right. Your datum point is illustrated how
4	on your cross-section?
5	A. It's the uppermost blue or turquoise color.
6	Q. That's shaded in, and then there's a little
7	porosity indicated in blue above that line?
8	A. We're just shading in the correlation line with
9	the blue felt-tip.
10	Q. All right. So the blue line is the correlation
11	line?
12	A. Yes, sir.
13	Q. When you move vertically down on your cross-
14	section on the McKnight well, there's a horizontal black
15	line
16	A. The first one or the second one?
17	Q. The first one down below the horizontal blue
18	line.
19	A. Okay, yes, at 12,710?
20	Q. Yes, sir. What's that represent?
21	A. That is an internal correlation marker on a
22	stratigraphic interval within the wellbore.
23	Q. All right. Now, let's move down to the point on
24	your log where you have concluded Mr. May has miscalculated
25	or miscorrelated the Atoka sand.

1	A. Well, let me just go into the Apache "13" Federal
2	1.
3	The reservoir sand, which I've defined by two
4	correlation lines bounded by the orange and that's the
5	interval that's perforated in the well is from 12,832
6	through 12,846 measured depth in that wellbore.
7	Q. All right. Now, let me make sure
8	A. Okay.
9	Q. What does that indicate to you?
10	A. Those are my two correlation markers, the upper
11	one being the top of the Atoka reservoir and the lower line
12	being the base of the Atoka reservoir.
13	Q. Are those the lines that are shaded orange?
14	A. Yes, sir.
15	Q. That's the Atoka reservoir?
16	A. Yes, sir.
17	Q. How does that equate with what Mr. May
18	characterized as the Mitchell Atoka sand? The Apache sand?
19	A. On this exhibit, with the use of dashed lines, I
20	have reproduced Mr. May's correlation from the Apache 13
21	reservoir sand northward to the McKnight, and basically
22	Yates have correlated that to the interval in the McKnight
23	which is 12,770, the top of it, and colored pink on this
24	exhibit.
25	Q. How were you able to do that?

1	A. By simple correlation between these two wells.
2	Q. Well, you had his cross-section from the Examiner
3	hearing, didn't you?
4	A. Yes.
5	Q. All right, the dashed black lines represent what?
6	A. The black dashed lines?
7	Q. Yes, sir.
8	A. They are the correlation represented by Yates on
9	their exhibits.
10	Q. And your correlation represents what, then?
11	A. My correlation is the orange, going from the
12	Apache "13" Federal 1 across to the McKnight, where the
13	Atoka sand interval would actually be an interval above the
14	one that Yates believes it to be.
15	Q. All right. When you look at the McKnight log on
16	Mr. May's cross-section
17	A. Yes, sir.
18	Q describe for us what you think he did that was
19	wrong.
20	A. Tough to say, because to me this is a pretty
21	simple correlation, and I would say they miscorrelated
22	you just weren't taking a lot of time to do it.
23	Q. The What he has correlated is not the
24	equivalent of the Apache sand that you have found in your
25	correlations?

1	A. Definitely not.
2	Q. All right. The end result of that is what, sir?
3	A. The end result is that when you look at the
4	McKnight well on Exhibit 2 here, the pink interval is the
5	interval that Yates Petroleum believed to be the Apache
6	sand equivalent, and when you look at the gamma-ray scale
7	on this well, it's actually from zero to 100, so there's
8	like five feet below the 50 API gamma-ray units, and that's
9	how on their isopach map they define five feet of net sand
10	in that wellbore, whereas, in effect, when you take the
11	correct correlation, there is zero feet of net sand in that
12	wellbore.
13	Q. Mr. May told us earlier today that there was a
14	gas show out of the sand in the McKnight well that he had
15	correlated to be the Apache sand?
16	A. Yes, he did.
17	Q. Well, what about that gas flow?
18	A. Well, there was a gas flow. I've indicated the
19	perforations on the McKnight well on this well. There were
20	three intervals perforated.
21	The first one is in an interval that Yates
22	believed to be the Apache sand, and is actually a marine
23	limestone below the Atoka sand. That's the perforations
24	that were made from 12,773 through -76. Now, the porosity
25	log on this well this is a neutron density log

indicates that rock to be tight. 1 However, the lower-two-most perforations, being 2 that well at 12,932 to -936 and 12,952 to -56, have four to 3 five percent porosity. This is in the lower Atoka section, 4 and that's where the gas came from. 5 6 Q. How is this miscorrelation critical to you? 7 Α. It's extremely critical, because by using -- or 8 thinking it was five feet of pay, one would automatically then use that to be your western edge of the Atoka sand 9 10 body. What then happens as a result of that mistake? 11 Q. 12 Α. Your whole representation of the sandbody is 13 wrong as you go south. Let's turn to Exhibit 3, Mr. Hillis, and have you 14 Q. identify that for us. 15 If I could just go back to Exhibit 2 a second and 16 Α. discuss the well on -- the other critical well on the 17 cross-section? 18 I'm sorry, that's my mistake. I failed to let 19 Q. you describe the Phillips James "A" Number 1. 20 21 Α. The Phillips Number 1 "A" James in Section 2 of 22-30 is the one on the left of our cross-section. 22 23 Yates Petroleum have a zero net sand represented on this well, so I really don't know what their correlation 24 25 was, whether -- It obviously was not what I've colored pink

1	Those data points and contouring those data
2	points helps you determine how the contour interval runs.
3	So when I come up to the Phillips Number 1 A James and
4	see have three feet of sand on the sandbody there, I
5	then know how to determine where my four, my six, my eight
6	line goes in the eastward direction.
7	Q. Well, what is the spacing that you say this log
8	tells you that you ought to have between your contour
9	lines?
10	A. It's a spacing between each blue line on this
11	map, which are two-foot contours.
12	Q. So you have dogmatically said that every contour
13	is going to be equal, that the distance between the two-
14	and the four-foot line ought to equal the distance between
15	the four- and the six-foot line and the six- and the eight-
16	foot line?
17	A. Some geologists and people do want to just make
18	all these distances equal. I tend Nature is not that
19	way, so I never take one of these equal dividers to make
20	that contour interval exactly equal. And if you look at my
21	map, it's not equal in every part as you look through.
22	So there's geological mapping incorporated into
23	it there.
24	Q. Well, Mr Simply tell me, when you look at the
25	two-foot contour line over in Section 14, directly west of

1	the Mitchell "13" well, and the six-foot contour line that
2	goes through the Mitchell well, how do you know that there
3	should be just that roughly one-mile space between?
4	In other words, you have limited this body of
5	sand to almost one mile or slightly over. How do you know
6	it's that way?
7	A. Based on the production I mean the well data
8	to the south again. Where you see all the red dots down
9	there, center of Section 36, that's where we have our most
10	well control. That's where we can best define the geometry
11	of the sandbody.
12	A sandbar is going to remain pretty consistent in
13	itself along its track. In this case, to the north it's
14	sometimes going to get a little wider, sometimes get a
15	little narrower. So we're taking an average width of that
16	sandbody for where we have the data control and taking up
17	to our control points there in the north.
18	So that's how I end up with the contouring that
19	you're referring to in the east half of Section 14.
20	Q. Well, Mr. Hillis, the only red spots I see at the
21	bottom of Exhibit 8 [sic], they don't exist on the outside
22	edges of this sandbody. How do you know that the sandbody
23	is just that width?
24	A. I've got well, let's Okay, well, let's talk
25	some. Let's go down to Section 1, south of that James

Ranch Number 1. That will be in Township 23 South, 30 1 You've got two red dots in the north half of that 2 East. The one in the northeast quarter is the James 3 section. Ranch Unit 10, the one in the northwest quarter is the 4 Belco Number 1 Hudson Federal, and the one other location 5 without a red dot in the southeast quarter is the James 6 7 Ranch Unit Number 3. The net sand in that last well, the Number 3 8 James Ranch, is one foot. It's two feet in the Hudson 9 Federal and six feet in the James Ranch Unit 10. 10 That's an example of the contouring going from 11 12 one to two to four to six feet to divide up that contour 13 interval thickness. And there's other ones we can discuss 14 if you're not fully clear on it. Q. Mr. Hillis, you're quite certain of your 15 16 interpretations, are you not? For the general configuration of the sandbody, 17 Α. the axis being west of the Apache "13" 1, I feel extremely 18 confident with. The edges, nature will -- can take her 19 20 course. That two-foot line near the Yates Llama well 21 could easily move a few hundred feet. And as I said 22 earlier, that wellbore may end up -- get into a little 23 skinny piece of sand and be in contact with the reservoir. 24 If the Yates productive area is as small as you 25 Q.

1	depict it, isn't it true that in all likelihood the
2	Mitchell "13" Federal well has already drained what gas
3	might have been there and that you're arguing a moot
4	question with respect to penalty because there's no gas
5	left under the Yates acreage, they're going to drill a dry
6	hole?
7	A. If they are lucky, and my map on that edge is a
8	little bit wrong, when they get into a couple feet of sand
9	this thing is permeable enough that they will be in the
10	reservoir; it will be the same as drilling a ten-foot-thick
11	sand.
12	Q. On what basis do you make that last statement? I
13	have seen nothing in your testimony which tells and equates
14	And in fact, when you look at the production
15	capabilities of these wells, there is no like in the 25
16	well, it doesn't produce with near the capacity of the
17	James 1 Ranch well or anything like the "13" well, the
18	Apache "13". So what do you base that last statement on,
19	that two foot is equal to ten foot?
20	A. Because that two feet may have 15- to 17-percent
21	porosity, and that would interpolate into a tremendous
22	amount of permeability, and that permeability will then
23	communicate very easily westward into the sandbar.
24	Q. But under your experience, isn't it highly
25	unlikely and improbable that you will experience that kind

1 of porosity that close to the edge of a sandbody? If we were on the west side of the sandbody, I 2 Α. would agree with you, on the lagoonal side. On the 3 marineward side, I would not. The marineward side is a lot 4 more inundated with wave energy. There's a lot more 5 cleaning up of the sand, so it's a very clean sand, all the 6 7 way to the edge. Do you have one of the wells along this eastern 8 Q. edge of this sandbody which shows 17-percent porosity, Mr. 9 Hillis, in accord with your interpretation? 10 11 Α. Not on this map. In other words, your hypothesis there, you have 12 Q. no proof of anywhere within the area of study? 13 South of the area where we have studied, but not 14 Α. presented here, are wells -- there is a well similar to 15 16 that. But my interpretation is on the edge and has about 17 15-percent porosity. But that is below your cutoff line as you have 18 Q. arbitrarily drawn it on your Exhibit Number 1? 19 Yes, it would be on the south continuation of 20 Α. 21 this sandbody, off the map on Exhibit 1. Mr. Hillis, you won't disagree with me when I 22 Q. make the statement that Mitchell disagrees with your 23 correlations also? 24 They were incorrect too. 25 Α.

1	MR. ERNEST CARROLL: Thank you.
2	CHAIRMAN LEMAY: Mr. Kellahin?
3	MR. KELLAHIN: No, sir.
4	CHAIRMAN LEMAY: Commissioner Weiss?
5	COMMISSIONER WEISS: I think I'll wait until I
6	hear the engineer testimony.
7	Thank you, I have no questions.
8	CHAIRMAN LEMAY: Commissioner Carlson?
9	EXAMINATION
10	BY COMMISSIONER CARLSON:
11	Q. I'm not familiar with Mitchell's interpretation,
12	but your last statement, why are they incorrect?
13	A. Their cross-section They did not have a cross-
14	section connecting the Mitchell Apache to the McKnight
15	well. They did have a cross-section connecting the
16	Mitchell Apache up to the Phillips Number 1 A James. And
17	on my Exhibit Number 2 I have demonstrated their
18	correlation with the dashed line between the Apache "13"
19	and the James A 1.
20	And like I've testified, I just have a lot of
21	difficulty understanding why people would make this
22	mistake, because to help you follow what I've colored in
23	pink, the true correlation just below the Atoka sand and
24	if you look at the gamma-ray profile on that, it's a thin
25	marine limestone underlining the sand.

1	And all the correlation lines I have represented
2	on the cross-section are running parallel to my Atoka sand
3	correlation, whereas the dashed lines representing the
4	Yates and Mitchell correlation are, at this local area, at
5	an angle to the parallel nature of all the other
6	correlations.
7	And I've attempted with a felt-tip to color some
8	of the gamma-ray profiles, the shaley zones, the limestone
9	intervals. There's a lot more internal correlation one
10	could do to satisfy themselves that our correlation is
11	correct.
12	But I really don't know why it was miscorrelated,
13	I really don't.
14	Q. Your guess is that if Yates had been allowed to
15	drill the orthodox locations, that those would be dry
16	holes?
17	A. Yes, sir.
18	Q. And that their proposed unorthodox location may
19	or may not be dry?
20	A. It may or may not be.
21	Like I testified, their I'm a realist, too, on
22	the edge of some of these reservoirs, what's going to
23	happen. And that's just my fear, that it may encounter
24	just enough footage there to get into the reservoir.
25	Q. And if it does, it will drain Bass acreage?

1	A. In my opinion, yes, sir.
2	COMMISSIONER CARLSON: That's all I have, thank
3	you.
4	EXAMINATION
5	BY CHAIRMAN LEMAY:
6	Q. What's the problem with the Mitchell Energy
7	Apache "24" Federal, with one foot of pay on your marine
8	side of that sandbar? Shouldn't that have high porosity,
9	according to your interpretation?
10	A. It had one foot of net sand. The porosity was
11	around ten percent for that one foot, and that's the only
12	really pay in that well.
13	But Mitchell, to my knowledge, has not perforated
14	that yet. But I wouldn't be surprised if they did not
15	perforate it when the come up the hole.
16	The resistivity log shows separation, it has
17	permeability. So to me it is a it's pay behind pipe,
18	it's currently in the Morrow.
19	Q. So you think that's a well there?
20	A. Yes, sir.
21	Q. I guess your Phillips James A Number 1 bothers me
22	a little bit. That little bit of sand there sure looks
23	kind of ratty to me and not much of a reservoir. You put
24	it in three foot, and actually as the basis for your
25	sandbar coming up the axis, coming up there to the

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1 It's my basis for the western side or the Α. lagoonal side of my sandbar. Your sand is not going to be 2 as cleaned up over there, and I wouldn't expect that you 3 could get like one or two or three feet in there that 4 necessarily would be pay. 5 In this particular case, that is not pay. Ι 6 mean, they had a little gas-cut mud on the DST, but very 7 limited permeability from the resistivity log. 8 But there again, that DST covered how many Q. 9 hundred feet? 10 It covered about 170 feet. But I've looked 11 Α. through the log out here, and there's nowhere else on the 12 porosity log where there's any porosity development. 13 Well, you called some porosity development in 14 Q. 15 that sand that you colored yellow? 16 A. The -- Let's see. Not very much. I'm trying to 17 find a number here. It's maybe just about three to four 18 percent, and one foot in that upper -- in the upper lobe. Q. But wouldn't that be just -- I mean, that -- What 19 20 kind of log is that? This is a sonic log. 21 Α. Okay. And you're coming off a shale stringer and 22 Q. 23 going back to another shale. You expect it to zero out in there? Wouldn't you expect a little bit of --24 There's a little shaley effect on that --Α. 25

1	Q. Yeah, a little shale effect on that sand?
2	A. Yes, I do agree there's a little shaley effect on
3	it.
4	Q. So
5	A. But if you notice, I mean, there's quite a lot of
6	thin-bed resolution on that sonic just about 40 feet below
7	there, at about 12,480, that area I've colored blue.
8	On the gamma ray, if you That's a little
9	limestone stringer. The gamma ray isn't even really
10	getting down to it. But the sonic is getting down to, you
11	know, 55, 54 microseconds.
12	So the sonic seems to be working pretty good in
13	that well.
14	Q. Did they have a permeability tool run in that
15	James Ranch Unit, a microlog, microlateral log?
16	A. No, there was not a microlog run, just the
17	geolateral log.
18	Q. Nothing to indicate permeability?
19	A. No, there's no real separation of the Mechem or
20	the
21	CHAIRMAN LEMAY: That's the only all the
22	questions I have.
23	Additional questions of the witness? If not, he
24	may be excused.
25	You may call your next witness.

1	C. RONALD PLATT,
2	the witness herein, after having been first duly sworn upon
3	his oath, was examined and testified as follows:
4	DIRECT EXAMINATION
5	BY MR. KELLAHIN:
6	Q. Mr. Platt, would you please state your name and
7	occupation for the record?
8	A. Yes, my name is Ronnie Platt, P-l-a-t-t. I'm a
9	consulting petroleum engineer and President of Platt,
10	Sparks and Associates, a consulting petroleum engineering
11	firm.
12	Q. On prior occasions, have you testified before the
13	Oil Conservation Commission as an expert petroleum
14	engineer?
15	A. Yes, I have.
16	Q. Describe for us what you were hired to study by
17	your client, Bass Enterprises Production Company?
18	A. Yes, I was asked to make a study of the reservoir
19	area of the applied-for Yates Petroleum Application,
20	focusing primarily on the Atoka reservoir that was the
21	subject of that Application, and to conduct studies of that
22	reservoir and to, if necessary, conduct a reservoir-
23	simulation study in order to understand the reservoir and
24	to describe the reservoir.
25	Q. Is this the type of study that you ordinarily

perform as a consulting engineer for Bass and other 1 clients? 2 Α. Yes. 3 Give us a summary of your education and Q. 4 employment experience. 5 I graduated from the University of Texas in 1962 6 Α. with a bachelor of science in petroleum engineering, 7 employed by Standard Oil Company of Texas, later known as 8 Chevron, for 14 years, resigned in 1976, established a 9 practice as a consulting petroleum engineer, formed Platt, 10 11 Sparks and Associates in 1980. The firm has grown from basically a sole 12 13 proprietorship to a staff of 34 professionals at this time. 14 We have offices in Austin, Texas, and Midland, Texas. You have testified before this Commission in 15 0. 16 association with the potash hearings that were conducted when Commissioner Ramey was the Commissioner, and we were 17 looking for drilling islands in the potash area? 18 That's correct. 19 Α. And you have testified before the Division for 20 Q. other kinds of cases? 21 Yes, I testified in this James Ranch area in 22 Α. regard to tight gas sand designations in the Morrow, to get 23 the area designated as tight gas sand. 24 Q. Based upon your experience and expertise, 25

1	describe for us the type of study that you felt was needed
2	for this particular issue.
3	A. It looked like one was the proper
4	characterization of the reservoir, to understand
5	configuration.
6	So the basic study that I did was to gather all
7	of the well information, look at the well-production
8	histories, the well-pressure history, look at the
9	performance history of the wells, and to understand the
10	data.
11	And I looked at the well pressures and saw the
12	development wells after the James Ranch 1 had been on
13	production. All of the subsequent development wells were
14	coming in at lower pressures.
15	I then thought about doing a reservoir simulation
16	study, and for that
17	Q. Before you started the simulation, did you
18	satisfy yourself that you had sufficient engineering data
19	from which to perform an accurate simulation study?
20	A. No, not with just the data I had. I would have
21	to have a reservoir description from a geological
22	standpoint.
23	Q. And where did you get that geologic description?
24	A. Mr. Hillis.
25	Q. And is the geologic description you've used for

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1	your simulation the one that he presented for us in his
2	exhibits, including Exhibit Number 1?
3	A. That's correct. I took Mr. Hillis's what is
4	the exhibit in this hearing. It was furnished to me.
5	I digitized that on a grid network, and that was
6	the input into the simulation. I did not change it. I
7	used Mr. Hillis's net-pay thickness map. I did not change
8	any of his contours. I put that map into a reservoir
9	simulator.
10	Q. Were you able to simulate the reservoir
11	performance and satisfy yourself that you had a history
12	match on certain important points of data that were of
13	significance to you?
14	A. Yes, sir.
15	Q. And as a result of that effort, were you able to
16	come to certain ultimate engineering conclusions?
17	A. Yes.
18	MR. KELLAHIN: At this point, Mr. Chairman, we
19	tender Mr. Platt as an expert reservoir engineer.
20	CHAIRMAN LEMAY: His qualifications are
21	acceptable.
22	Q. (By Mr. Kellahin) Describe for us the simulation
23	methodology that you went through to take Mr. Hillis's
24	geologic interpretation and then to input it into your
25	model and to end up with the process that led you to an

ultimate conclusion. 1 I started with Mr. Hillis's isopach map of the 2 Α. reservoir. I superimposed on that a grid in order to input 3 the data into a grid network for reservoir simulation. 4 I then combined that with other reservoir 5 properties as described by Mr. Hillis, as far as the 6 7 porosity. I then looked for other input data, such as 8 permeabilities. Then I looked at other production records 9 that I had available, and they're the same data that 10 everybody has as far as the production histories of the 11 wells and the pressure histories of the wells, and all of 12 13 that went into the reservoir simulation. But the key fundamental is Mr. Hillis's geology 14 went in, and I didn't change any of his geology. 15 16 Q. Based upon that work, were you able to estimate the original gas in place in the reservoir, using the size 17 and the shape of the reservoir that Mr. Hillis provided 18 19 you? Yes, sir. 20 Α. And what did you conclude? 21 Q. The gas in place is approximately 65 BCF, and Α. 22 that's from the reservoir simulation that's based on Mr. 23 Hillis's map. 24 You and Mr. Fant apparently come to close 25 Q.

1	agreement about the original gas in place.
2	A. I believe that's approximately the same number he
3	has in his simulator, yes, as far as the volume.
4	Q. You have each matched a substantially different
5	shape of the reservoir?
6	A. Apparently so, yes, based on the maps that I've
7	seen in this hearing. His volume is contained in a
8	different-shaped reservoir, a reservoir that extends
9	further east than his geologist's maps.
10	Q. Well, you had the opportunity to sit through this
11	afternoon's hearing and to see the presentation by Mr. May
12	and Mr. Fant, did you not, Mr. Platt?
13	A. Yes, yes, I did.
14	Q. Help us understand wherein lies the basic
15	disagreement, then, between the two reservoir engineers
16	that have done the work, you and Mr. Fant.
17	A. I don't know that I could describe where the
18	differences are. What I've tried to do was to basically
19	take a description of the reservoir, very detailed, put it
20	into the simulator and work with that.
21	I have not tried to go in and take a geologic
22	description and then move it around or change parameters to
23	try to get a match.
24	My idea of reservoir simulation is to start with
25	the proper characterization of the reservoir and then work

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with that and change other type of parameters, keeping in 1 mind not changing the basic characterization or geological 2 configuration of the reservoir. 3 In having done that, to what degree were you able 4 Q. to validate and verify the size and the shape of the map 5 presented by Mr. Hillis? 6 7 It matched the performance. I was concentrating Α. primarily on the northern area of the field to see what --8 if there was enough volume in the northern area of the 9 field or the volume, and how it responded to the two wells 10 11 that were drilled in the northern area of the field, and did the reservoir simulator predict the communication in 12 that northern area of the field caused by the production 13 from the wells in the south, and did the simulator predict 14 15 the reservoir pressure in the areas that were found by the two wells drilled in 1993 up in the northern area of the 16 17 field? And they did. What were you using for the initial reservoir 18 Q. pressure? 19 I used -- Oh, there's a difference. 20 Α. I used a reservoir pressure, as an initial reservoir pressure, of 21 That's about 200 pounds higher than the pressure 22 8426. used by Mr. Fant. 23 I used what is a measured original pressure, 24 bottomhole pressure, in the Shell -- what was the original 25

Shell James Ranch 1. There's a document that shows that 1 2 measured bottomhole pressure. The pressure that corresponds with the pressure 3 that's 200 pounds lower that Mr. Fant used to basically 4 initialize the reservoir pressure is approximately 8200 5 pounds, was a pressure measured after about 180,000 MCF of 6 gas had been produced from the well, and it was about --7 the original pressure was measured in March at 180,000 MCF 8 of gas withdrawn, and then a pressure of about 8200 pounds 9 was measured. And that appears to be the pressure that Mr. 10 11 Fant used as an original pressure. So that to some degree mischaracterizes the 12 original starting pressure which would impact the gas in 13 It actually -- his volumetrics, it would put --14 place. with 200 pounds higher pressure it would about a BCF more 15 16 gas in place, if you use the data for original reservoir 17 pressure. All right, sir, let's look at the details of your Q. 18 If you'll turn to Bass Exhibit Number 4, identify 19 work. and describe that display for us. 20 Exhibit Number 4, I've just shown the -- on 21 Α. Exhibit 4, the pressure depletion history, just from 22 measured bottomhole pressures versus time in the well. 23 And if you'll notice, the pressures in the very 24 initial period, the three pressure points above 8000 25

1	pounds, the very top pressure is the initial pressure in
2	the reservoir. It's 8426. That was measured in March.
3	And then the next pressures, there were some
4	additional pressures that were measured in July, and they
5	were lower, but gas had been withdrawn from the well.
6	So I used the original reservoir pressure of 8426
7	as datum.
8	This shows that the Unit 1, as previously
9	testified I'll just briefly go over this rather than
10	repeat some of it. But the wells are coded as to which
11	wells. The subsequent wells were not drilled, and
12	development wells, until the Eighties, and, as you'll see,
13	they came in at much lower than the original pressure, and
14	those are so indicated by the codes.
15	And then the last two pressure points on the far
16	right-hand side of the graph are the initial pressures
17	recorded in the two wells drilled up in the northern
18	portion of the field in 1993.
19	Q. Let's turn to the booklet. It's The cover
20	sheet is marked as Exhibit 5. Let's have you identify and
21	describe that information.
22	A. This is a binding of the individual well
23	depletion history.
24	I have a for each well, a graph of gas
25	production versus time, bottomhole pressure versus time.

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1	at 12,450 on the vertical depth, and it wasn't what I've
2	colored in with the two yellow streaks, the orange-colored
3	sand, the Apache sand. I really don't know what they have
4	to come up with the zero.
5	However, the Apache sand or the Atoka sand in the
б	Phillips "A" 1 is at a depth of 12,426 to 12,440, as
7	colored in the orange. And of interest is the fact that
8	there are three feet of sand with less than ten percent
9	clay in this well. There was a show that was DST'd from
10	12,387 to -547, DST'd to recover 3600 feet of heavy gas-cut
11	water cushion and 2000 feet of gas-cut mud.
12	This is a washover fan characteristic from the
13	gamma ray on the Phillips well, and this well is located on
14	the western extremity or western edge of the Atoka sand
15	reservoir.
16	Q. Why is that significant to you?
17	A. It's significant to me because it helps me
18	control the western edge of the sand as I go into the Cabin
19	Lake area.
20	Q. All right, sir. Now, let's turn to Exhibit
21	Number 3.
22	A. Exhibit 3 is also a 1-to-2000-foot scale. It's a
23	structural map on the top of the lower Morrow, 100-foot
24	contour interval, and superimposed on that is a net sand
25	isopach of what we at Bass call the middle Morrow "C" sand.

1	The middle Morrow "C" is one of four objectives we have in
2	the James Ranch Unit 70 well in the south half of Section
3	12.
4	And a little We've only represented the middle
5	Morrow "C" here. We found that each of the four sands
6	follow this general trend for their net isopachs. The
7	actual sands producing from the middle Morrow "C" here are
8	indicated by red dots.
9	Q. Yates intends to total this well to the Morrow
10	formation, as I understand it?
11	A. The Llama well, yes.
12	Q. Yes. And if that well is successful as a
13	producer in the Morrow, would you propose to have it
14	penalized?
15	A. Yes.
16	Q. On what basis, sir?
17	A. On the basis that once again they would have just
18	got into the edge of the sand in other words, the edge
19	of my map would be wrong and there would be a severe
20	amount of drainage coming from our location.
21	The Morrow to us Although the Atoka is a
22	primary objective to us too, we have downplayed the Morrow,
23	at least the hearings seem to have. However, the average
24	production in the Morrow right here has ranged from on
25	the producers from .7 BCF to 7.7 BCF, and the average of
the eight Morrow producers in our study area is a little 1 over 3 BCF per well. 2 So it is still a lucrative target to us, and I 3 guess to Yates, because we're both going to go and drill to 4 it. 5 MR. KELLAHIN: Thank you, Mr. Chairman. That 6 7 concludes my examination of Mr. Hillis. We move the introduction of his Exhibits 1, 2 and 3. 8 CHAIRMAN LEMAY: Without objection, Exhibits 1, 2 9 and 3 will be entered into the record. 10 Mr. Carroll? 11 12 CROSS-EXAMINATION 13 BY MR. ERNEST CARROLL: Mr. Hillis, I may kind of jump around with some 14 Q. of the items that you testified to, but that's -- and I 15 I will try to go in the same order that you apologize. 16 discussed, but I'm going to have a little problem with 17 that. 18 That's okay, I'll try and keep up. 19 Α. Let's first look at -- Do you still have in front 20 Q. 21 of you the -- What was Exhibit 9 at the original hearing of Bass? 22 23 Α. No, I don't. I have to get that back. Okay. Well, let me -- I'll just walk up, as long 24 Q. 25 as the Commission has a copy, and they can look at it, and

1	we can use my copy.
2	I was just noticing that when you look down here
3	in the bottom area of the map and it's It appears to be
4	the ten-foot and the eight-foot contour lines as they
5	appear down in Section 25. Do you see those two lines?
6	A. Yes, sir.
7	Q. Would you look at your Exhibit Number 1? Do you
8	have that in front of you?
9	A. Yes, sir.
10	Q. You have changed the shape, have you not, between
11	Exhibit 9 and the map you're presenting today, Exhibit 10?
12	A. That's the only change between the two maps, yes,
13	sir.
14	Q. All right. Now, in fact, you have enlarged the
15	area that the eight- and ten-foot would encompass. Why?
16	And upon what basis did you do it?
17	A. The basis would be the fact that we have went
18	ahead and extended the map and introduced other data points
19	to the site and mapped them together.
20	The closing off Section 25 for the previous
21	case 11,022, was as much being almost three miles away
22	from our primary concern, which was the compulsory pooling
23	for the 70 to be just cleaning up the map at the bottom
24	half.
25	Q. Well, what dictated the enlargement of that? I'm

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not sure that I understood. By just enlarging the map or 1 putting more area -- Why did you feel compelled to change 2 that? 3 When I introduced the data points from down to Α. 4 the south, we had not all those data points calculated on 5 the logs prior to making the exhibit back in -- for the 6 Case 11,022, and with calculations of the data to the 7 south, it helps me refine the contouring in the south half 8 of Section 25. 9 0. All right. So apparently you found something in 10 11 the James Ranch -- I guess it's Number 11 well, this well right here -- something in the data points which caused you 12 to pull or adjust the eight-foot line closer to it; is that 13 14 correct? Yes, sir, and the other wells around it. 15 Α. All right. Well, how much -- what footage of --16 Q. Well, I see, I think, on the map you -- it encountered 17 approximately six foot; is that correct? 18 The James Ranch 11 encountered seven feet of net 19 Α. sand. 20 So where the line falls, this eight-foot and the Q. 21 ten-foot contour line, it just is basically your 22 interpretation of the data and where you think it might 23 logically fall; is that correct? 24 25 Α. No.

1 Q. Well, then, what dictated the change, then? Did someone else tell you or some other data, or what told you 2 that the contour line for the eight and ten should be 3 enlarged? 4 Well, I guess my Irish must have got to you 5 Α. there, because I've just said to you that when preparing 6 for the volumetric look at this reservoir --7 Uh-huh. ο. 8 -- we went ahead and made our calculations to 9 A. continue our map to the south. Now, the James Ranch 11, as 10 you say, has seven -- I said, is seven feet, and when you 11 12 start contouring your southern control data, that you have 13 looked at, then where you meet into Section 25, yes, you're 14 obviously going to recontour because of the new data or 15 additional data you've brought in from the south. 16 Q. So what you're telling me is that your geologic 17 picture was influenced by volumetric calculations that were probably prepared by engineers? Is that correct? 18 No, the geology map was made and given to the 19 Α. 20 engineers. Well, which came first? 21 Q. The geology map came first. 22 Α. Well, then, how would you know that that line had 23 Q. 24 to be adjusted to correlate for the increased volumetric that you anticipated in this reservoir? 25

Okay, I'll go back to day one for you. 1 Α. When the map was constructed for Case Number 2 11,022, the compulsory pooling case, there were no 3 volumetrics involved. We did not have to understand the 4 volumetrics of the complete sandbody. We were representing 5 to the Commission at the time where we believe the sand ran 6 7 through in the south half of Section 12. In preparing, then, the need for defining the 8 sandbody definition to give to the engineering department 9 for volumetrics, we then had to go down to the south of 10 11 Section 25 to calculate the net sand data for those wells down there, to continue our map and make a map of the 12 13 entire sandbody, which was then given to the engineers for 14 the volumetrics. I'm not sure I fully understand, but let's move 15 Q. on just a moment and look at the bottom of Exhibit Number 16 17 1. Yes, sir. 18 Α. You have a line across there that says "Area of 19 Q. Reduced Permeability (Marine Channel)"? 20 Yes, sir. 21 Α. How and from what data do you draw that 22 Q. conclusion? 23 There are wells to the south of that which I have 24 Α. 25 not represented on this map, which drill stem tested the

1 James Ranch unit, the Atoka sand reservoir back in the mid-Eighties and did not find the reduced pressure. In other 2 words, they are not in pressure communication with the 3 sandbody to the north. 4 Well, how do you know where to draw the little 5 Q. squiggly red lines? 6 When -- I hate to give away my trade secrets, but 7 Α. when we do other maps in this area, for example, on the 8 Atoka bank or reef, which is located below the sand, there 9 are certain areas where that bank is totally not a 10 11 carbonate anymore, it's completely filled with shale, and those are marine breaks in the reef. Likewise, the sand 12 has a marine break which continued through till that time, 13 and the two marine channels are pretty close together here. 14 15 Q. Well, there are no wells within the area of those 16 red squiggly lines, are there? 17 Α. There is -- Within the two lines, no, there are not any wells within the two red lines. 18 So again, the placement of those red lines and 19 Q. the cutoff of -- and I assume that you're using these red 20 21 squiggly lines to show the end of the reservoir, are you not? 22 Effectively so, yes. 23 Α. So -- But you have no data points to actually put 24 Q. it in that position? Again, it's your interpretation where 25

1	you think it ought to lie?
2	A. I have a data point just off this map. The
3	eastern part of those red squiggly lines is at the west
4	half of Section 8; and the east half of Section 8 I have a
5	well very close to where, on my workhouse map in the
6	office, that line continues just to the north of, and that
7	well drill-stem tested, as I referred to earlier, with no
8	significant pressure reduction from the production to the
9	north.
10	So I have some other control that's just off this
11	map.
12	Q. But again, in the area where you place it, you
13	have no control?
14	A. I'm extending it from that well and also
15	referring to where my marine break is in the Atoka bank
16	below there to locate it.
17	Q. Let's We may come back to that, but let's turn
18	to your stratigraphic cross-section, 2, Exhibit 2.
19	A. Yes.
20	Q. This was not a well that was drilled by Bass, was
21	it?
22	A. Which well?
23	Q. The McKnight, excuse me, I'm sorry, the McKnight
24	Campana Number 1.
25	A. No, it was not, it was drilled in 1974, I

 Q. Is this the only log that you have looked at from this well? A. No, I've looked at the entire log suite, the log that's on the cross-section is a gamma ray CNL density log that's on the cross-section is a gamma ray CNL density log. There was also a resistivity log run across this section. I believe there was an SNP, but it was a little further up the holes. Q. What about mud log? A. I have not examined a mud log on this well. I don't I didn't have one available. Q. It is curious that apparently the people that drilled this well, the McKnight Company or whoever it is, chose to perforate the well in the same area that Mr. May picks as being the Atoka; is that correct? A. That's the uppermost interval of the three perforations they made, yes. Q. They did not perforate in the interval that you had picked as the Atoka; is that correct? A. They have not, and neither would I have. Q. Well, is there another pay zone associated with 	1	believe, by McKnight and Troporo.
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Q. Well, is there another pay zone associated with	20	A. They have not, and neither would I have.
	21	Q. Well, is there another pay zone associated with
22 the Atoka in that close of proximity that you're aware of	22	the Atoka in that close of proximity that you're aware of
23 out in this area?	23	out in this area?
A. Within ten feet of the Atoka sand there's not a	24	A. Within ten feet of the Atoka sand there's not a
25 major pay zone, but typically in these thin marine	25	major pay zone, but typically in these thin marine

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1 limestones you'll get small gas shows. The results of the perforations, the three zone of perforations in this well, 2 would kind of typify that it was a pretty short-lived 3 4 event. But one of the conclusions that we can draw from 5 Q. 6 what we've just talked about, isn't it true, Mr. Hollis --7 Α. Hillis. -- Hillis, excuse me -- that it's quite possible 8 Q. 9 that the company that actually drilled this well agreed with Mr. May, rather than your interpretation? 10 I don't believe so. I don't know Mr. McKnight or 11 Α. Campana, but -- or Troporo -- but they attempted to 12 13 perforate an awful lot in this well that looks pretty doggy 14 on the logs, including the Morrow, these Atoka sections, the Strawn, before they plugged and abandoned the well. 15 16 But the point is, you have no -- There's no one Q. 17 else that you can point to that has agreed with your interpretation or that would agree with your 18 interpretation; is that correct? 19 20 My correlation? Α. 21 Your correlation, yes. Q. I would like to think that most geologists 22 Α. Whoa. would correlate this cross-section the way that we are 23 representing it here in Exhibit 2. 24 25 But we know at least one geologist in this room Q.

does not agree with you? 1 Α. I understand that. 2 Now, also looking at this particular log, one 3 Q. could -- Isn't it a fair interpretation that the sand that 4 you see picked here, that you're picking here, could very 5 well just be a dirty sand on the edge of the reservoir; is 6 7 that correct? The sand I'm coloring in orange? 8 Α. That you're coloring in orange? 9 Q. This is a silty remnant of the Atoka sandbar on 10 Α. the marineward side of the reservoir. 11 And in fact, if -- and you might want to refer to 12 Q. 13 the Yates Exhibit Number 6. 14 A. Which one is that? The isopach map? That's the isopach of the Atoka. 15 Q. Okay. 16 Α. Really, to honor even your interpretation, all 17 Q. you would have to do is move the five-foot line just a 18 little farther to the west, couldn't you? 19 I don't follow you. 20 Α. All right. The McKnight well --21 Q. Yes. 22 Α. -- the information there from the log, as 23 Q. testified by Mr. May, he used that to set the boundary 24 where he drew -- or the location of where he drew the five-25

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<pre>foot interval; is that correct? A. Yes, he's used that five-foot as a control point. Q. All right. And quite frankly, though, with the way you're You could legitimately just move that line slightly farther to the west, could you not, using the interpretation that you've used? A. The five-foot line? Q. Yes. A. Well, I have it at zero. Q. I know you have it at zero, but there is no other</pre>
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Q. I know you have it at zero, but there is no other
data out there to the west of the McKnight well that tells
you that there is not at least that excuse me, east, I'm
getting my directions mixed up.
A. That's why I was getting confused there.
Q. Let's start all over again.
A. Okay.
Q. My point is, and I apologize, is that the
location of this western line of the sandbody could be
moved slightly to the east and still honor your
interpretation?
A. We're talking apples and oranges because the
five-foot is not a valid point, it's not a data point that
relates to the data points to the south on Mr. May's map,
it's an incorrect correlation. That five-foot should be a

	1/2
1	Q. But Mr. Hillis, that line could be moved over.
2	Based on some of the other wells, we know that there is a
3	five-foot line in there, and that is Mr could be Mr.
4	May's interpretation.
5	That line could be slightly moved over, and it
6	would not contradict the information found on the log from
7	the McKnight well; is that correct?
8	I understand you would interpret it different,
9	but is it contradicted by the information?
10	A. It's contradicted by geological mapping. You
11	don't map just using that one well. I mean, the well is
12	zero. But while mapping, then, you take all your data
13	points into consideration, and the data points to the west
14	of the McKnight well critically dictate to you that the
15	sandbar would go to the west, well away from the McKnight
16	well. The McKnight well is at least a mile beyond, on the
17	marineward side, beyond this bar.
18	Q. How do you know it is a mile beyond? There is no
19	control data to the east.
20	A. I've got a zero in Section 1 of the Troporo
21	Number 1 Campana, and I fully admit the edges as I've
22	depicted here, my last blue line is a two-foot line can
23	undulate a little bit. But we're a good distance away from
24	the Campana. It would have to take a dramatic turn for
25	that sand to come close to the Campana well.

And this is a very dirty sand in the Campana 1 which is very reflective, but it's not close to the edge. 2 The --3 Well, let's -- Excuse me. 4 Q. Α. Yeah. 5 Let's turn to your Exhibit 1 again. 6 Q. 7 Okay. Α. Now, you have told us that the reason that you 8 Q. have drawn the zero line up through the edge of Section 7 9 is because of the important data that you get from the 10 McKnight well and the Phillips 1 A James; is that correct? 11 Well, first of all, my last blue line in Section 12 Α. 7 is not a zero line; it's a two-foot line. 13 Secondly, the two wells I've discussed to the 14 north, the McKnight and the Phillips Number 1 A James, 15 tells me that the sandbody axis is to the west of the 16 Apache "13" 1. 17 However, the placement of the two-foot line on 18 the south half of 7 is dictated from the control off to the 19 south in the reservoir, where we have better control to 20 define the contour for -- the contour interval or thickness 21 decrease as you go away from the wellbore. 22 So I'm using that spacing as I go away from the 23 six feet in the Mitchell Apache well to determine where 24 that two-foot line is located. 25

1	Q. Again, that's your personal interpretation that's
2	causing you to move that line westward; is that correct?
3	A. It's my mapping of the data, yes.
4	Q. All right. Now, you have stated now, you
5	A. That was eastward again, eastward from the
6	Mitchell well.
7	Q. All right.
8	A. Yeah.
9	Q. Well, I was talking about the body of the sand,
10	and that's what I had in mind, and that's what I next want
11	to question you about.
12	The axis of this producing body, you have put to
13	the west of the Mitchell 13 well; is that correct?
14	A. That's correct, sir.
15	Q. You have seen the Mitchell mapping where they
16	have actually put the axis closer to the middle where the
17	Apache well lies, much in agreement with Yates; is that
18	correct?
19	A. Yes, sir.
20	Q. Now, one of the reasons you pull the axis away is
21	because of the influence that you said that the 1 A James,
22	the Phillips 1 A James, plays on this; is that correct?
23	A. Yes, sir.
24	Q. Well, you also made a statement that the 1 A
25	James could have been a washover area. How what

1	influence If this could possibly be a washover, what
2	influence could it exert to move the axis of the entire
3	producing body westward?
4	A. Okay, the two gamma-ray profiles on the Phillips
5	A Number 1 James, going back to Exhibit 2, bounded by the
6	orange felt tips from 12,426 to 12,440, I've colored the
7	two intervals of less than ten percent clay yellow. Those
8	are two very thin, very clean sand intervals, which are
9	very typical As you come over on the landward side or
10	lagoonal side of one of these sandbars, you're going to get
11	a little storm or something washes the sand, and cleans it
12	up on the western edge, and that profile is quite typical
13	of that on the western side of such a sandbody.
14	Q. But what from this data, from the Phillips James
15	A Number 1 log, allows you to predict the width of the
16	sandbody that sits out here?
17	A. From the Phillips well?
18	Q. Yes. I mean, you've apparently made a prediction
19	as to width. What allows you to do that?
20	A. There's three feet of clean sand in the Phillips
21	well. And once again, going south into where we have
22	Geologists always like to go and study the elephant first
23	where you have a lot of data points. So down here in
24	Section 36 or where the historical production has been, you
25	have more data points.

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1	And then I have the production data in tabular form for
2	each well showing the cum for each well.
3	I won't go into detail. That's some of the
4	background data that I used for my study.
5	Q. And there's other background data and information
6	that you're not presenting here that you utilized in your
7	work?
8	A. Yes.
9	Q. Let's turn to Exhibit 6 and have you identify and
10	describe that.
11	A. Exhibit 6 is a graph showing the bottomhole
12	pressure divided by Z, the gas deviation factor. And here
13	I plotted the pressure history in the reservoir against the
14	cumulative gas production, and then I've got a line that's
15	drawn to the 65 BCF.
16	What this shows is that the pressures that
17	periods of time after especially in the northern
18	portion, were higher than in the southern portion. So in
19	making some sort of an extrapolation with just trying to
20	guess at some average pressure or working with average
21	pressures, this would not be a reliable extrapolation for
22	use because of the variation in pressures. You would have
23	to try and determine what is the weighted average pressure
24	at some time.
25	But this is just to get and I looked at this

1	to get some feel for the order of magnitude of gas in
2	place.
3	Q. How did you overcome the complexity, then, of the
4	varying pressure points in your study?
5	A. I used the reservoir characterization in a
6	reservoir simulation, basically the reservoir volume as
7	depicted by Mr. Hillis, and then combined that with the
8	withdrawals out of the reservoir to see how the pressure
9	would vary with time in the reservoir in response to those
10	withdrawals.
11	Q. And you could use his size and shape of the
12	container and match the production and pressure points of
13	the data that we have from the existing wells?
14	A. Yes.
15	Q. Let's turn now to Exhibit 7. Identify and
16	describe Exhibit 7 for us, Mr. Platt.
17	A. Exhibit 7 is Mr. Hillis's isopach map, but I've
18	superimposed on there There's a lot of black lines on
19	here, but there's a grid network that's imposed on here,
20	and this is the reservoir simulation area that has been
21	superimposed on Mr. Hilty's [sic] map.
22	And the grid basically is in an X direction, an
23	east-west direction, would be 12 grids across in an east-
24	west direction, and 29 in a north-south direction.
25	Q. All right. Let's look at the input data sheet.

1	that's Exhibit 8. Describe that for us.
2	A. Yes, this is the input data for the reservoir
3	simulation.
4	As I indicated, the basic input was the reservoir
5	description of Mr. Hillis. It's a reservoir volume, as far
6	as thickness, that was input with the grid that I've shown
7	on Exhibit 7.
8	The other parameters, the porosity, I started out
9	initially to just try to keep from varying as many of the
10	parameters as I could. I used 13 percent initially
11	throughout the model.
12	In one area, down in the south, I changed the
13	porosity, reduced it slightly down to 11.7. The initial
14	water saturation, I started out initially at 19 percent,
15	constant throughout the entire simulation area, and left it
16	at that.
17	The permeability varies I might just take a
18	second to or as quickly as I can. The permeability, the
19	14 millidarcies, if you refer back to Exhibit 7, basically,
20	in a Y direction, as you move down and count down ten
21	cells, and then all the way across in an east-west
22	direction, that entire region I put in at 14 millidarcies.
23	Then as you move south from that, beginning at
24	Number 10, and then moving on down to Number 14, that would
25	be a band in the center portion there. I put in a reduced-
1	

permeability area of 4 millidarcies. And I believe that's 1 consistent with other work that shows that there's a lower 2 permeability in the center portion of this reservoir, 3 between the north end and the south end, and this shows the 4 region that I put in the 4 millidarcies. 5 Then in the southern region, the 10 millidarcies 6 7 was used. What type of model did you select to run this Q. 8 simulation on? 9 It's what we refer to as a gas model. It was Α. 10 11 developed by Dr. McDonald with my firm, who specializes in reservoir simulations and developed many reservoir 12 simulations with his work with Interior prior to joining my 13 14 firm. It is a model that he's developed. It's what we 15 16 refer to as our gas model to work with gas reservoirs. 17 Q. All right, sir. Describe the other data points that you introduced into the model. 18 Α. We used the -- We initialized it in 1958, and 19 initialized at initial pressure of 8426. 20 Then we actually had a direct input at the 21 location of each one of the withdrawal wells, the actual 22 production history of the wells. 23 And then we would go in to look at various time 24 periods or time steps and see what was the reservoir 25

1	pressure in the area of some of the wells where we had a
2	check as to measured reservoir pressure. So that's what we
3	did.
4	Mr. Hilty's
5	Q. Hillis.
6	A. Mr. Hillis's. Mr. Hillis's geology and his
7	thickness of the reservoir, unchanged, and then I had the
8	porosity, basically Mr. Hillis's porosity, at 13 percent.
9	I did change it in the south very southern pod or the
10	southern region in the reservoir, reduced it slightly. And
11	then the permeability.
12	And then I put in the actual withdrawal rates
13	that we have reported on each of the wells.
14	Q. Were you able to achieve an accurate and reliable
15	history match to your engineering satisfaction?
16	A. Yes, sir. I have a very close match. The I
17	probably could have gotten even closer, had I gone in and
18	made some additional runs by varying the permeabilities in
19	areas of wells, or varying porosities in other cells in the
20	region, I probably could have gotten even closer.
21	But this match that I did have And I was
22	primarily trying to look at the northern region where there
23	seemed to be some controversy or difference in what was the
24	proper reservoir characterization for the north. I looked
25	to see if I was matching these measured pressures that we

1	had for the Apache "25" Federal 1 and the Apache "13"
2	Federal 1. And I have a very good match.
3	I probably could have gotten closer by changing
4	some permeabilities and making some other small adjustments
5	in some parameters.
6	Q. In response to Mr. Carroll's question a while
7	ago, Mr. Fant said smaller grid size will give you better
8	results, more accurate, something to that effect.
9	A. It I don't agree with that. I think the A
10	smaller grid size on a model is used where you have rapidly
11	changing parameters.
12	If you have porosity that's going to rapidly
13	change in a very short distance and you want to match that,
14	or have the computer account for changes in very short
15	distances, then you would go to a finer grid so you could
16	input those variable parameters.
17	But in here, we don't have We've got large
18	distances between wells, so we don't have any basis for
19	getting a fine detail for changing porosity, we don't have
20	data to show that there's a fine detail change in between
21	those. So it wouldn't improve the accuracy.
22	Q. Well, do you have any comments or observations on
23	Mr. Fant's conclusion that based upon his modeling it did
24	not matter whether the Yates well was at a standard
25	location or its proposed unorthodox location, the end

1	result was going to be the same?
2	A. It may not make a great deal of difference with
3	his characterization of the reservoir, but I don't believe
4	that characterization is correct.
5	The characterization of Mr. Hillis appears to be
6	correct, and it would make a difference. It appears this
7	well would be located on the very edge of the reservoir and
8	would either be a dry hole or else would have extremely
9	limited productive reservoir under the tract.
10	And by having very limited productive reservoir
11	and current reserves under the tract, the well could
12	produce that equivalent reserves in a very short period of
13	time.
14	Q. And if it's connected in the reservoir, where
15	then will it get its production?
16	A. It will be drained from offsetting tracts where
17	the productive reservoir lies, as depicted on Mr. Hillis's
18	maps.
19	Q. Do you have an engineering explanation why Mr.
20	Fant, in his modeling, is able to construct the model in
21	such a way that it is not apparent to the simulator that
22	there's a difference when he positions his well at the
23	standard location versus the unorthodox location?
24	A. In his characterization of the reservoir, there
25	is a large reservoir volume over to the east, to the east

of their well. So therefore, that well is drawn on a very 1 large mapped reservoir east of that location. So 2 therefore, if you have a very large reservoir over to the 3 east, then that well that has a large eastern reservoir to 4 draw on. 5 If it's, as Mr. Hillis has depicted, a reservoir 6 7 limit, very close to that well, east of that well or a very short distance east of the well, then the well would have 8 to produce any gas -- The gas it would produce would come 9 from an area west of the well. 10 Turn with me now to Exhibit 9 and identify and 11 Q. describe that for me. 12 Exhibit 9 shows -- By running the reservoir 13 Α. simulation, I looked to see at the location of the "25" 14 Federal Number 1 of Mitchell Energy, this Apache well, in 15 1993, where we have a measured pressure, an actual pressure 16 17 was 2424, and the simulator predict -- would have a pressure in the reservoir at that time, at that location, 18 of 2514. I've plotted the two points; they're very close 19 20 together. 21 Q. What's the significance to you of that 22 information? Α. This shows that the reservoir simulation, with 23 the withdrawals from the wells in the south, and with the 24 reservoir characterization based on Mr. Hillis to the 25

1	north, that it predicts with that reservoir
2	characterization it accurately predicts the pressure that
3	was found in the Apache "25" Number 1 well.
4	Q. Turn to Exhibit 10. Would you identify and
5	describe Exhibit 10?
6	A. Exhibit 10 is the same comparison where we
7	compare the actual measured pressure for a well that was
8	later drilled in the reservoir. After we've been running
9	the simulation from 1958 to 1993 we'd go look, and in the
10	reservoir simulator at the spot that well was drilled, the
11	simulated pressure was 3132. I realize you can't read it
12	on the graph, but that's the number. It's 3132. And the
13	actual measured pressure was 3119.
14	So there's just 13 p.s.i. difference between what
15	was in the reservoir simulator after running it from 1958
16	to 1993 at that location, versus drilling a well and
17	measuring what was there before you start withdrawal.
18	COMMISSIONER CARLSON: Haven't you got those
19	numbers backwards?
20	COMMISSIONER WEISS: Yes.
21	CHAIRMAN LEMAY: Yeah, Apache "13" has got the
22	31, and the Apache
23	Q. (By Mr. Kellahin) Yeah, I'm sorry, I could have
24	confused you. Exhibit 9 is the Apache "13", and that's got
25	the 3132?

e.

Α. Yes. 1 Give us the numbers on Exhibit 10 for the Apache 2 Q. "25" Federal 1. Do you have those available? 3 COMMISSIONER WEISS: He did that earlier. 4 THE WITNESS: I did. 5 (By Mr. Kellahin) All right, so we've covered Q. 6 7 both --CHAIRMAN LEMAY: We've covered both. 8 THE WITNESS: Yes. 9 COMMISSIONER CARLSON: Just reversed those. 10 THE WITNESS: I went through without referring 11 back to specific exhibits there. 12 13 Q. (By Mr. Kellahin) How would you characterize the 14 quality of the pressure match versus the actual pressure and the simulated pressure? 15 Α. I think it's a very close -- very good match. 16 And as I indicated, I probably could have made 17 additional runs with further refinements of some 18 permeabilities and gotten even closer, but I didn't see 19 that was necessary. To me, it confirmed the geology and 20 reservoir -- characterization of the reservoir. 21 Summarize for us your conclusions, based upon 22 Q. your reservoir simulation study, Mr. Platt. 23 I think the characterization of the reservoir of 24 Α. 25 Mr. Hillis's fits the performance of the reservoir, and

1	I've checked that with the reservoir simulation. So I have
2	not changed any of his thickness values that he's contoured
3	on his maps. So his reservoir characterization fits the
4	performance of the reservoir.
5	Q. You saw the displays from Yates. Was Mr. Fant
6	able to match the reservoir description that Mr. May
7	presented in his isopach?
8	A. Apparently not. There was I think he started
9	with the geology, but my quick review of the map, he wound
10	up with a different looking map as far as the thickness
11	map.
12	Q. During the regular course of your consulting
13	business, do you testify before regulatory agencies on
14	matters dealing with oil and gas production?
15	A. Yes.
16	Q. Have you testified in other cases that involved a
17	dispute between operators in which each had diametrically
18	opposed geologic descriptions and each of which achieved
19	some level of success in simulating that reservoir
20	performance and matching independently their geologic
21	conclusions?
22	A. Yes.
23	Q. What are we going to do?
24	A. Well, I think two things.
25	One, reservoir simulations. To me, you've got to

start with the characterization of the reservoir and put 1 that characterization of the reservoir in and stay with 2 that, and then change whatever other parameters, such as 3 permeabilities or water saturations or others, others that 4 may change. But you stay with the basic characterization 5 of the reservoir. 6 To me, you don't use the reservoir simulator 7 backwards to characterize the reservoir. So I think --8 There's sort of a difference there in how these simulators 9 are used. You can get a match with a reservoir simulator 10 for several characterizations of the reservoir. 11 So I think you need to start with an independent 12 13 characterization and work with that. Q. Are we at a point in time in the drilling and 14 development of this area -- When we look at the south half 15 of 7, the south half of 12, and the east half of 13, those 16 are the spacing units that are about to compete with other. 17 Are we at the point where we can allocate remaining 18 recoverable gas on some correlative-rights basis that is 19 predicated on productive acreage? 20 I don't believe so at this time. I think there's 21 Α. two wells being drilled, which will give the answers as to 22 the productive acreage under each tract. So I think the 23 drilling will give the answer. 24 Well, what do we do in the meantime, then, Mr. 25 Q.

1	Platt, to get us beyond this issue?
2	A. I believe the reasonable characterization of the
3	reservoir that matches the performance history indicates a
4	very limited amount of reserves under Section 7.
5	So in an interim period before those well data
6	To me, it would be extremely important to have the well
7	curtailed through a normal type of penalized allowable in
8	order so the well doesn't If it does come in, finds a
9	very thin edge of the reservoir, before we could have
10	another hearing to come back in and say the Bass geology
11	was in fact right, that's what they found, they may have
12	already recovered more than the recoverable gas under the
13	tract, and it would be sort of too late.
14	You might be able to impose some curtailment on
15	it at that time.
16	Q. Why do you suggest the imposition of a penalty at
17	this point in the life of the development?
18	A. I think this What I would suggest is a normal
19	penalty. Apparently this is The penalty of this well,
20	based on its unorthodox location, using several types of
21	parameters that have been previously used by the OCD, would
22	result in about a 50-percent penalty factor on the
23	allowable.
24	I think that was recognized in the last hearing.
25	Several people discussed a 50-percent. In fact, in this

1	hearing the comparison has been full allowable or 50-
2	percent allowable. So it appears to be that the penalty
3	factor is A normal penalty factor would be 50 percent.
4	Q. What does the imposition of a penalty factor
5	obtain for all the parties involved if that penalty is
6	imposed on the Yates well?
7	A. It would assure that that well, if the Bass
8	geology is correct, that well would not be given an undue
9	advantage by being in an unorthodox location, possibly
10	having, as Bass believes, very limited reserves and
11	producing at a full allowable for an extended period of
12	time.
13	Q. Do you have illustrations of calculations of
14	penalties?
15	A. Yes, sir.
16	Q. Let's turn to Exhibit Number 11 and have you
17	identify and describe that calculation.
18	A. On Exhibit Number 11, I looked at considering a
19	north-south nonstandard factor in one way that I've seen
20	used in other type of proceedings.
21	The north-south factor comparing a standard
22	orthodox location from the south line with the actual will
23	be a 50-percent factor.
24	Comparing the east-west factor would be a 48-
25	percent factor with this type of methodology.

And then combining the two would indicate a 1 combined 49-percent factor, considering the unorthodox 2 location in regard to standard as far as distances from the 3 lines. 4 Let's turn to Exhibit 12. Identify and describe 5 Q. that. 6 This is another way, but this looks at just the 7 Α. east-west lease line factor, and looking at it another way, 8 that you could consider how far off it is in expressing 9 that as a percentage from the orthodox, regular location, 10 versus the actual location, in looking at the variation 11 there. 12 So this is another way of looking at -- And there 13 are other ways, but all of these seem to indicate that a 14 reasonable factor based on the location, the unorthodox 15 location, would be on the order of 50 percent. 16 17 Q. Have you reviewed Dr. Boneau's economic analysis from the Examiner hearing with regards to the potential 18 19 effect on the Yates well if a 50-percent penalty is 20 imposed? 21 Α. Yes, sir. Let's turn to Exhibit 13. What is this? 22 Q. This is a copy of -- It's an exhibit from this 23 Α. same document in the Examiner hearing. I don't -- I might 24 have covered up the exhibit number. But it is, as I 25

1	understand, part of the record in the Examiner hearing.
2	What this shows, calculations made by Yates it
3	was introduced in the Examiner hearing that has a
4	vertical well with a 50-percent penalty. And the economics
5	here, it shows that The next-to-last column on the right
6	is a cash flow before tax, after considering the well
7	investment, and it shows \$2.5 million as the total over the
8	life.
9	Looking under Present Worth Profile, as you see
10	where the number Under these discount rates that begin
11	at zero, five, ten, when it gets to between 75 and 100, the
12	number goes to a negative number. That would actually be
13	the rate of return on the well, where you would have a
14	negative present worth profit. So it indicates greater
15	than a 75-percent return on the investment on the well.
16	And this is a Yates calculation for the well with
17	a 50-percent penalty.
18	Q. What's your conclusion?
19	A. Well, this looks like a very still a very
20	profitable venture, even with a 50-percent penalty.
21	Q. Summarize for us what you recommend the
22	Commission do with regards to this case, Mr. Platt.
23	A. My recommendation would be to consider the
24	Bass's geological and engineering study that indicates a
25	very small volume of reserves exist under Section 7 where

the unorthodox well location is proposed and actually 1 drilling, and in recognition of that, impose the penalty 2 that would normally go with that unorthodox location. 3 Subsequent to the imposition of that type of 4 Q. penalty, would the opportunity exist for the parties to 5 return thereafter to the Commission for adjustments in that 6 7 penalty, based upon new data from these wells once they're 8 drilled? Yes, sir, I think if the -- if the Bass geologist 9 Α. confirm Bass may be in -- if the well has one or two feet 10 of pay and is a high-deliverability well, Bass may be in 11 here asking for even further limitations on that well's 12 13 allowable, based on, at that time, a productive reservoir 14 area. But I think it would be premature to limit it to 15 the less than 50 percent at this time, until that well is 16 But I think it should at least be limited to 50 17 drilled. percent in this interim period. 18 19 MR. KELLAHIN: That concludes my examination of Mr. Platt. 20 We move the introduction of his Exhibits 4 21 22 through 13. CHAIRMAN LEMAY: Exhibits 4 through 13 will be 23 admitted into the record without objection. 24 25 Mr. Carroll?

1	CROSS-EXAMINATION
2	BY MR. ERNEST CARROLL:
3	Q. Mr. Platt, in your Exhibit Number 7 you showed
4	the grid process that you used superimposed over the map of
5	the structure made by Mr. Hillis; is that correct?
6	A. Yes, sir.
7	Q. Now, how many grids did you actually utilize,
8	total numberwise, in your simulation?
9	A. 348.
10	Q. And that is a substantially less number than the
11	simulation that Mr. Fant used in his simulation?
12	A. I believe it is. I didn't see the number of
13	grids on his exhibit, but
14	Q. Would you agree with me, Mr. Platt, that the
15	larger the number of grids, the more accurate the number
16	that you can draw upon for your reservoir capacity or what
17	have you with respect to the overall simulation effort?
18	A. No, that doesn't necessarily follow.
19	Q. So you disagree with Mr. Fant when he stated that
20	the entire number of grids would not when he said the
21	higher number would allow you to do to get a better or a
22	fine-tuned number?
23	A. No, I agree that if you have if you had a very
24	close well spacing and you had porosity data changing
25	between wells that were very closely spaced, you would

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1	probably want to go to a smaller grid so you could
2	recognize that.
3	Q. Let's talk about your Exhibits Number 9 and 10.
4	One of the things that I think you have testified that
5	makes you very pleased with the maps that or the
6	simulation that you've done, is that you've got an accurate
7	history match; is that correct?
8	A. No, I didn't say that. I said That's not my
9	testimony.
10	Q. Okay. Well, let me try again. I believe you
11	testified that you felt that your reservoir simulation was
12	accurate because you tested it, and the way you tested it
13	was based on history matching?
14	A. No. Would you like me to state what I said?
15	Q. Why don't you state
16	A. No, what I said was, I put in the reservoir
17	history and depleted it. The way I was testing, I was
18	looking at the northern area, and I looked to see what the
19	simulator predicted in the area, where I then later had a
20	pressure measurement, and that's what I was showing on
21	Exhibits 9 and 10.
22	I wouldn't refer to that as a history match;
23	that's just simply running the simulator and then testing
24	it at that point in time with the measured data.
25	Q. All right. You talked about history matching.

What history matches did you do or perform if these are not 1 2 them? I don't think I talked about history matching. 3 Α. But I have done -- What I did was, I input the production 4 history from each of the wells, the actual withdrawals and 5 the withdrawal points, and then looked at the pressure 6 7 performance versus time for the entire history, looking primarily at what was the pressure being predicted in the 8 area where I had some wells up in the northern that were 9 10 later drilled? So I put in the production history, is what I 11 said, of the actual withdrawals from 1958 to 1993, and 12 13 looked to see what the reservoir characterization --14 Q. I want to show you Exhibit Number 12, Yates 15 Exhibit. Do you recall when Mr. Fant testified about how 16 he had created his reservoir simulation and then he had performed history matching or testing? 17 Yes, I heard that testimony. 18 Α. Now, if you look at the Exhibit Number 12 and 19 Q. compare it to your 9 and 10, you see similar information 20 21 here. On his Exhibit Number 12, he has -- what he has 22 done is, he has predicted what the Federal "13" Number 1 23 well should come in based on his reservoir analysis, and 24 then he compared it to the drill stem test analysis. 25

1	Basically, is that what you've got on your two
2	marks, I guess, with respect to Exhibit Number 9?
3	A. No. What he shows on Exhibit 12 He doesn't
4	show what he predicts. In the area of the two wells, the
5	red the Apache "13" and the Apache "25" Federal, the two
6	dots, he doesn't show what he predicts on this thing.
7	What he's showing on here, as I understand it, is
8	not what the simulator is predicting at that point. He's
9	showing here what is indicated in the legend as a southern
10	region average pressure. And I don't know how he's He
11	said he didn't really define a region to average that, so I
12	don't know where in the simulator he's defined this
13	southern region. But the blue line is some southern region
14	average pressure
15	Q. Well, Mr
16	A in the simulator. So I'm saying that it's not
17	displaying What I'm displaying is what, in the area of
18	those two wells, what the simulator predicted as the
19	reservoir pressure.
20	Q. Well, let me ask
21	A. This Exhibit 12 does not show that.
22	Q. Well, Mr. Platt, I totally disagree with you, but
23	let's explore just something that you just
24	MR. KELLAHIN: Counsel is arguing with the
25	witness, talking
MR. ERNEST CARROLL: Well, I think the witness 1 2 is --MR. KELLAHIN: -- and he's doing it with me. 3 MR. ERNEST CARROLL: I think he's arguing with 4 me, and it's getting late in the day, and I just --5 CHAIRMAN LEMAY: Gentlemen, if you settle down 6 and not produce arguments, I think what we're doing is 7 8 asking the witness for what he said. I don't think it's anyone's place to argue with what he said. He'll tell you 9 what he said, Counsel. You'll have to accept that and ask 10 questions. 11 (By Mr. Ernest Carroll) Looking at, first, 12 Q. Exhibit Number 9, you have the actual pressure, and I take 13 it that would be from a bottomhole pressure test; is that 14 15 correct? That's correct. 16 Α. And then you have the pressure that your 17 Q. reservoir simulation said would be predicted; is that 18 correct? 19 That's correct. 20 A. Now --21 Q. Now -- Let me just clarify. That's what the 22 Α. simulation pressure is in the simulator at that well 23 location. That's not some average throughout the 24 simulator; that's at that point in the reservoir what the 25

1	simulator shows.
2	Q. All right. Now at that point in time, have you
3	checked, in any way verified, what the pressures were at
4	any other place in the reservoir?
5	A. Oh, yes.
6	Q. It does not appear on this graph.
7	A. No, I've got I've looked throughout the I
8	have The reservoir simulation shows at any time step I
9	want to look at, I can get the pressure in every grid cell,
10	and I've looked at all of that, and I've got all that data.
11	I've looked at it in every What I was doing
12	here was looking in the grid cell in which this well is
13	located.
14	At all of these time steps, I have the pressure
15	in all, throughout this entire grid that's shown, and I've
16	compared that with the other pressures that were measured
17	in other wells at other times. So I've compared all of
18	that.
19	Q. Look at your Exhibit Number 8.
20	A. All right.
21	Q. These are assumptions, I take it, that you
22	cranked into your reservoir simulation?
23	A. They're input. This is
24	Q. Input.
25	A. This the data that went into the reservoir

1	simulation.
2	Q. You have assumed porosity, except for one point
3	in the southern region, of 13 percent throughout this area;
4	is that correct?
5	A. That's correct.
6	Q. Did you determine from the well data actual
7	porosities and determine what variances there were?
8	A. I have not done a detailed well by well. I asked
9	Mr. Hillis, based on his geologic work he had done a
10	much more detailed analysis of the wells I asked him
11	what was his average porosity, and to use, as the first
12	pass, and it was 13 percent.
13	So I used that throughout. And then I did modify
14	it down to the 11 in that southern area, as I testified.
15	Q. Now, that porosity, average porosity, is just an
16	average; it's not a linear average. You don't know
17	Or did you get that information from Mr. Hillis as to
18	volumes or areas covered by In other words, was it a
19	weighted average, or was it just a straight linear average?
20	A. I used that as the average throughout the entire
21	reservoir on the first pass.
22	Q. Do you know, though, how Mr. Hillis arrived at
23	that? Was that a straight or a weighted average?
24	A. I don't know.
25	Q. Apparently the greatest millidarcies of

1	permeability that you used was 14; is that correct?	
2	A. That's correct.	
3	Q. Did you check the actual millidarcies as measure	۶d
4	on the logs of the various wells?	
5	A. It's not measured on the logs.	
6	Q. It is measured on the Apache "13", is it not, Mr	:.
7	Platt?	
8	A. It's not measured on the logs. You don't Log	js
9	don't measure permeability.	
10	Q. Well, excuse me. Was it measured for that well,	,
11	do you know?	
12	A. The "13"?	
13	Q. The Apache "13"?	
14	A. I don't know.	
15	Q. Well, Mr. Platt, doesn't it surprise you that a	
16	well that is producing at the rate that the	
17	A. Never mind, go ahead. I was going to expand, bu	ıt
18	go ahead. I'll just drop it.	
19	Q. Well, Mr. Platt, doesn't it surprise you that the	ıe
20	Apache "13" would be producing at the rate that it is	
21	producing with a permeability of only 14 millidarcies?	
22	A. No.	
23	Q. Well, would it surprise you to find out that the	3
24	Apache "13" actually has a millidarcy rate of 60?	
25	A. When you say "a millidarcy rate", you don't	

1	actually measure
2	Q. A measurement?
3	A the permeability. An engineer can make a
4	calculation and make some assumptions in his calculations
5	as to permeability.
6	Q. Well, would it surprise you that the calculation
7	had been made and it was 60?
8	A. I've heard that testified to. I think Mr. Fant
9	testified he made a calculation and he estimated it to be
10	60.
11	Q. Does that affect your calculation at all?
12	A. Does it affect my calculation? I didn't
13	calculate the permeability in that way.
14	Q. So you just took the millidarcy rate that Mr.
15	Hillis gave you; is that correct?
16	A. I calculated the permeability from some buildup
17	tests on the James Ranch Unit 1, and I calculated
18	permeability for the James Ranch Unit 1 as 10 millidarcies,
19	based on a buildup test. And that's in the southern
20	region, so I used that in the southern region.
21	I then had it reduced as I moved to the north, in
22	what's been referred to as the lower permeability area, I
23	reduced it below 10. And then as I got up into the
24	northern area, I went up I saw those wells were higher
25	permeability, so I went above ten in the northern region.

1	That's how I got to the permeability distribution.
2	Q. On this sheet you report that the original
3	reservoir pressure was 8426 p.s.i.
4	A. That's correct.
5	Q. What document You said you referred to a
6	document?
7	A. Yes.
8	Q. What document are you referring to?
9	A. It's the bottomhole pressure document in there.
10	It's a Shell document that reports the pressure
11	measurements on that well conducted on a 132-hour shut-in
12	in March.
13	Q. And I think you
14	A. I have the document if you'd like to I'd be
15	happy to furnish it.
16	Q. Well, that's fine right now, Mr. Platt. I'm more
17	interested in the other numbers that you're talking about.
18	You stated that you thought that you had and
19	I'm not exactly sure on this. You said that there was
20	the difference in the reservoir pressure that Mr. Fant was
21	using was some 200 p.s.i., and you that was a result of
22	a certain amount of production, or you testified something
23	about additional production.
24	Could you Do you recall what you the
25	numbers that you testified to?

1	A. Yes, sir.
2	Q. Would you mind repeating those for me?
3	A. No. The original pressure measured in the well
4	prior to any production was the 8426 p.s.i., adjusted to
5	datum.
6	There was another measured bottomhole pressure
7	after the well had been placed on production, and it was
8	approximately 8216. I believe Mr. Fant used 8219.
9	But that At that time, approximately 180,000
10	MCF of gas had been produced from the well when the second
11	pressure was measured, which was the lower pressure.
12	Q. Did you perform any calculations to determine if
13	180,00 MCF would be a reasonable amount of production to
14	reduce the bottomhole pressure by some 200 pounds?
15	A. No, I just simply used an earlier pressure prior
16	to any production as the initial pressure.
17	Q. Mr. Platt, did you, in using your user model,
18	your simulation model Well, let's ask a question. Let
19	me back up before I ask that question.
20	Based on your simulation model, at the location
21	that Yates drills the well, it's going to drill a dry hole;
22	isn't that correct?
23	A. Yes, sir.
24	Q. There would be no need to penalize a dry hole; is
25	that correct?

1	A. It would be a moot question if the well is
2	plugged and abandoned.
3	Q. Now, in the Did you use your simulation model
4	at all to predict the effect that the Yates well would have
5	upon the Bass well?
6	A. No, because the My simulator would not have
7	the well on production. It would be outside of the
8	productive limits of the reservoir.
9	Q. Okay. So your model just couldn't predict that
10	at all anyway?
11	A. The model shows a very small reservoir volume
12	would exist in Section 7, so I didn't run any predictions
13	with that.
14	Q. I understood, I think, some of the what you
15	were proposing that the Commission do, and again I
16	apologize if I didn't fully catch everything.
17	But it seemed to me that you were advocating to
18	the Commission that the Commission should adopt a 50-
19	percent penalty as an interim penalty and wait and see what
20	happens with the well, and then maybe adjust it upwards.
21	Is that a fair
22	A. Or down. Or downward. Yes, I'll agree with that
23	characterization.
24	Q. Now, what if the picture that Bass has painted
25	before the Commission today is totally wrong and that the

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ı	true picture is the Yates picture?
2	In effect, you would have penalized Yates from
3	the very beginning, would you not, when they should not
4	have been penalized?
5	A. I don't know that they should not have been
6	penalized. It's still an unorthodox location, and there's
7	still Even if the well has some pay, it's still a
8	question of the reserves that might underlie that tract and
9	an opportunity to try to recover those.
10	Q. Well So the basis of your advocation of a
11	penalty is strictly based upon the closeness of the well,
12	not the effect that that well would have upon the proposed
13	Bass well?
14	A. No, that's not correct. Rather than effect on
15	proposed Bass well, based on the reservoir characterization
16	as I see it, based on the work of Mr. Hillis and my work,
17	the well has a very limited reservoir volume that extends
18	in the neighborhood of that well and under that tract.
19	But it could have a very small It could be
20	productive but yet still have a very small volume of
21	reserves.
22	And that's what the Bass picture shows, that it
23	may It has a small volume of reserves, but it may be
24	able to produce gas with the very limited reserves
25	underlying the tract. And that's what we see protection

1 problem. If that's the case, then the production from that 2 well would come predominantly from the offsetting Bass 3 tract. 4 Well, have you done any prediction of what is Q. 5 required in terms of thickness, of porosity, permeability 6 and what have you, to show under what scenario that the 7 Yates would actually -- the Yates well would actually harm 8 or hurt the Bass well? 9 Well, I've just -- The reservoir simulation shows Α. 10 11 just a very few acres that contain gas. But I assume that if it had 40 acres of two feet of pay, it would have in the 12 neighborhood of 1 BCF -- 1.8 BCF of gas. 13 Assume there's 40 acres over there of two feet, 14 and the well at the rates shown on the Yates exhibit would 15 produce that volume of gas in 11 months without a penalty. 16 Q. If the Yates well is capable of producing the 17 allowable now that's set for that well, then Bass's picture 18 has to be wrong? 19 I don't follow that. 20 Α. For the well to produce the kind of volumes that 21 0. you're talking about when you made -- You made the 22 statement that if the well was capable of producing the 23 allowable, then Bass is going to be hurt. But if the well 24 is actually capable of that, your picture or Bass's picture 25

would have to be wrong? 1 2 Α. No. A well on the very edge of this reservoir, as 3 Q. depicted in the picture that Bass has made, then, in your 4 estimation and opinion, would be capable of producing the 5 allowable? 6 7 Α. I don't know. I haven't made that comparison. I'm saying the well could have a very few feet of pay, and 8 assuming that there were 40 acres of two foot of thickness, 9 at the rates shown on the Yates exhibits for the monthly 10 production that were in this record today, it would produce 11 that volume of gas in 11 months. 12 MR. ERNEST CARROLL: That's all I have. 13 CHAIRMAN LEMAY: Thank you. 14 Commissioner Weiss? 15 EXAMINATION 16 BY COMMISSIONER WEISS: 17 Yeah, I'm confused on this question of a history 18 Q. match. 19 My understanding of history matching, you use it 20 to calibrate the simulator and verify that you have 21 something that you can predict with. I didn't see your 22 history match. 23 I did see that you predicted static pressures at 24 these two wells, Apache "13" and "15" [sic], exactly as the 25

1	Yates predicted on Figure 12, if I'm reading Figure 12
2	right. Maybe that's my problem.
3	Plus, they had a calibrated model, it appears.
4	A. Yes, sir. Yes, that is correct. On their
5	Exhibit 12, yes, they do show that pressure in that region.
6	Q. At the two
7	A. Yes.
8	Q two locations?
9	A. That's correct.
10	Q. Just as you do, similar?
11	A. That's correct.
12	Q. But yet I don't see your history match, can't
13	find it.
14	A. No, I didn't introduce that. I have a graph for
15	each of the producing wells in the field through history
16	that I've looked at as part of the model predictions. I
17	just didn't introduce in time all of these all the runs
18	that I've made.
19	But I have made a look at each individual well's
20	history versus what the simulation would on an
21	individual-well basis. I believe what's shown in Exhibit
22	12 is some composite history, but I've looked at each
23	individual well.
24	Q. Yes.
25	A. Not just the two wells, the two new wells.

1 Q. But I can't see that, so... You both have the same original gas in place, 2 And the question is, where is the reservoir? And roughly. 3 so simulation from one point shows that it's there, and 4 your comments say that it's not there, along with your 5 geologist. That's -- And of course, we have a Yates 6 7 geologist who says the opposite. I guess my question is, how come you didn't show 8 the history match? 9 I have them actually prepared in exhibit form. 10 Α. 11 Because of the time, I tried to not duplicate or put in --I have a lot of other exhibits that I had prepared, and 12 I'll be happy to introduce these now. 13 I have all of the wells, individual well graphs 14 15 showing the production, predicted versus actual production, 16 the pressure predicted versus the simulation for each 17 individual well, not just the two wells that were later drilled. I have it for the other four wells throughout 18 their history. 19 MR. KELLAHIN: Mr. Chairman, Commissioner Weiss, 20 if I might supplement his presentation, if Mr. Platt's got 21 them there, with your permission, we'll mark them and 22 introduce them, and that way you'll have them to 23 24 independently look at. That's my mistake. We ran out of time last night 25

copying things, and I should have done it, and I didn't do 1 it. We seek permission to do that at this point. 2 CHAIRMAN LEMAY: Commissioner Weiss? Would you 3 like to have it? 4 COMMISSIONER WEISS: Yes. 5 MR. KELLAHIN: All right, sir. 6 7 MR. ERNEST CARROLL: Mr. Chairman, I would --Unless we get to look at them and comment on them, it makes 8 it very unfair, unless you would allow us some time to 9 comment on them after --10 CHAIRMAN LEMAY: Would it be fair to have him 11 supply that -- copies to you, and you submit written 12 13 comments to us in the record that we can --14 MR. ERNEST CARROLL: That would help. CHAIRMAN LEMAY: Okay. Would that seem fair to 15 you? If Commissioner Weiss --16 MR. ERNEST CARROLL: Yeah, and I --17 CHAIRMAN LEMAY: -- would like to have it, I'd 18 19 like to --MR. ERNEST CARROLL: -- I agree that they should 20 have -- that's one of the things that was very -- But I 21 think it's necessary. 22 MR. KELLAHIN: I'm happy to do that, and if 23 you'll allow us after the hearing, I'll put those together 24 with Mr. Platt. He's got them. 25

CHAIRMAN LEMAY: Fine, why don't we do it that 1 2 way? MR. KELLAHIN: They'll be marked for the record 3 and submitted for introduction as Exhibit 14. 4 5 COMMISSIONER WEISS: That was my only question. 6 Thank you. 7 CHAIRMAN LEMAY: Commissioner Carlson? 8 EXAMINATION BY COMMISSIONER CARLSON: 9 10 Q. Yeah. Now, we have the Yates experts saying that there's, I guess, ten or more feet of pay, and the Bass 11 experts are saying there's two feet or less. Bass 12 13 recommends a 50-percent penalty. I think Mr. Carroll asked, what if Bass is wrong? 14 And I don't think you answered that. 15 What do you recommend this Commission do if we 16 imposed, as Bass requests, a 50-percent penalty, the well 17 18 starts producing, and there is ten feet of pay, as Yates predicted? What would you advise us to do? 19 20 The -- if it does come in -- I think it's more Α. than -- If it has ten feet of pay and there's a penalty, 21 they may be in here, but I think it would be the character 22 of that log and what it shows about how the rest of --23 whether or not there's sufficient reserves to this entire 24 25 eastern area to justify.

1 I think on some of the Yates exhibits they showed even with -- even with the large area mapped to the east, 2 that that well, even under their interpretation, with a 50-3 percent penalty, will recover more than the current 4 recoverable gas under that 320-acre unit, even with a 50-5 6 percent penalty. Now, again, that's a Yates exhibit. But I think 7 even their own -- with their geology, with ten feet, shows 8 that they'll recover more than the recoverable gas under 9 that 320 with a 50-percent penalty. 10 So therefore, imposing a 50-percent penalty for 11 an interim period -- To me, I don't see how it would hurt 12 them, even if their geology is right, because they show 13 that even with the 50-percent penalty, they'll recover more 14 15 than the current recoverable gas that underlies that 320, 16 and that's on one of their exhibits. I believe Mr. 17 Kellahin pointed that out. It's on Exhibit 18 of Yates. 18 So that shows that even if the 50 percent 19 remained in there for the life of that well and their geology is totally right, they're going to recover more 20 than the gas that they believe -- even if their 21 interpretation is right, more than the recoverable gas 22 under that 320. 23 Well, they still -- Yeah, but so would everybody, 24 Q. under their interpretation, because of the WIPP gas and 25

1	their You know, they have that 1000 acres in the two
2	sections that they can't recover anything for, or at least
3	can't drill; is that correct?
4	A. Yeah, I believe that's correct. But my point was
5	to show that for the 320, for the entire if that 50
6	percent remained for the life of the well, they would
7	recover more than under that 320.
8	So therefore, if it was in place for an interim
9	period, their geologist was right, they could show that
10	there was large gas under the WIPP area after the drilling
11	of that well, they could, maybe, if they can justify it by
12	reservoir volume under their tract, maybe get an increase.
13	Q. But they would still be out a certain amount of
14	gas if they were not able to produce during that period,
15	the time for them to come back in here and have that
16	penalty removed; is that correct?
17	A. They would produce less. Now, whether or not
18	they're out where that gas, that reduced gas comes from,
19	which tract, I don't know.
20	Q. Okay. Now let's take the adverse of that. You
21	said that if you're right and there's two feet of pay and
22	they have 40 acres that they can still produce that they
23	would be out of gas under that 40 acres in 11 months, but
24	that would give Bass 11 months to come in here and request
25	a penalty, even if your interpretation is correct; is that

1	right?
2	A. But then they would have already recovered in 11
3	months the total recoverable gas, again, in the 40-acre
4	area
5	Q. Uh-huh.
6	A and then you would come in for some
7	reduction.
8	So then all of the gas in the future would be
9	total drainage, even with unless you shut them in
10	completely.
11	Q. But is there anything wrong with that?
12	A. Shutting them in completely?
13	Q. Yeah.
14	A. I don't know. There may be other legal
15	considerations on a total shut-in. I don't know.
16	Q. But Bass would still have some period of time to
17	come in here and ask this Commission for an appropriate
18	penalty?
19	A. Bass would have the opportunity to come in. I'm
20	not sure the timing on that, but they and then how long
21	the well would produce uncurtailed.
22	But yes, Bass would have the opportunity to come
23	in and ask for another consideration, when more information
24	from these wells is gathered about the productive area.
25	Q. Uh-huh. Your Exhibit 13, you say those are

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Yates' own numbers? 1 2 Α. Yes. Where did you get those? 3 Q. That's an exhibit they submitted in this docket, 4 Α. in the Examiner hearing. 5 In the Examiner hearing? 6 Q. Yes, that's correct. 7 Α. All the numbers on this, this is their exhibit? 8 Q. I didn't change a thing. 9 Α. You didn't change a thing? 10 Q. Α. I just added an exhibit tag. 11 COMMISSIONER CARLSON: I have no further 12 13 questions. Thank you. EXAMINATION 14 15 BY CHAIRMAN LEMAY: 16 Q. I've got to follow up a little bit on your 17 argument of retroactive penalty. Would you recommend to Bass that they recommend a 18 penalty on that Mitchell well? Because it's crowding you, 19 it's retroactive after they've drilled it and are producing 20 21 it. It would depend on after Bass Α. I don't know. 22 drills -- has the well down in Section 12, and then it 23 would be looking at the balance of reserves between those 24 wells, and there may be some consideration given to that. 25

I've been involved in other hearings where -- To 1 me, the best is to look at -- once you have the wells down 2 and all the data that's available, is to look at the 3 recoverable reserves that underlie the tract and try to 4 balance the allowables based on that. 5 Here, we don't have all of the final data in. 6 We've got some new data coming in that may confirm one 7 interpretation or another. It may well be that after the 8 Bass's well is down, we'll look and there may be some 9 10 consideration given the Mitchell well. I don't know. Ι 11 haven't addressed that. Well, do you recommend that if we have no penalty 12 Q. on the Yates well, do you recommend to Bass that they crowd 13 that lease line, try and get the same deal? 14 15 Α. That's difficult. I think Bass should -- My 16 first recommendation to Bass is drill the well at the orthodox location where their geology believes they have 17 the best chance of drilling the well. 18 However, I hate to tell them to not protect their 19 tract from drainage, so I'd be a little bit at odds there. 20 To me, the better way to protect from drainage is to set 21 appropriate allowables, rather than move wells crowding 22 each other. 23 So do you recommend that we prorate the field 24 Q. based on what might be a productive acreage interpretation 25

1 after the wells are drilled? If the reservoir was both starting out -- all the 2 Α. wells were starting out at the same time, my answer would 3 4 be yes. The fact that some of these wells are getting in 5 6 at different periods of time -- I would think if you looked 7 at productive acres and current recoverable reserves, yes, start everybody out on the same consideration, give 8 9 everybody a reasonable opportunity to recover the recoverable reserves underlying their tract. 10 Yes, I would recommend that from a technical 11 standpoint. 12 Well, let me make one other assumption, because 13 Q. 14 it's been stated here that the productive acreage interpretations are nonresolvable. And if you use that 15 assumption, you're talking about relative positions of 16 these wells in the reservoir, the interference, one well 17 versus another, one well crowding another. 18 If you just throw out productive acreage as being 19 20 nonresolvable, would you agree somewhat with Mr. Boneau's interpretation? Exhibit 22, I quess, is the one I was 21 22 referring to. Do you have a comment on that, or --Yes, if their --23 Α. -- is that an acceptable presentation to you? 24 Q. 25 It's a very simplified assumption, and that Α.

1	simplifying assumption is what causes me some doubt in
2	heavy reliance on it.
3	That simplifying assumption is that there are no
4	reservoir boundaries, that these Those circles can go
5	out in any direction. There are no reservoir boundaries.
6	To me, I see that, as Mr. Hillis has mapped, and
7	as the simulator indicates, this reservoir has limits. And
8	when a well hits these reservoir boundaries, it's going to
9	reconfigure; it's not going to be nice, uniform circles.
10	And those, to me I believe the description was
11	"pseudo-drainage areas". Those are not really drainage
12	areas. Those are what I've referred to in the past as
13	equivalent drainage areas. Those are just some tank in the
14	reservoir that contains a certain volume of gas, assuming
15	it's depleted to zero at that period of time you're looking
16	at and that there's no flow outside that circle.
17	So those really aren't the drainage boundaries
18	that are in effect.
19	Q. But without discernible drainage boundaries, if
20	we were to agree that you cannot predict the limits of this
21	reservoir Assuming it has limits but we don't know where
22	they are, therefore we don't know which well will bump up
23	against that limit when it's trying to drain the reservoir,
24	would this be a logical interpretation of that assumption?
25	An equitable interpretation, maybe, more than logical?

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1	A. Well
2	Q. You don't know what
3	A if you assume that you can't determine the
4	reservoir limits.
5	But Mr. Hilty [sic], I believe has defined some
6	reservoir limits that that interpretation that there are
7	some zero limits up in Section 6 that would prohibit those
8	nice circles from being there. So I believe there are
9	some
10	Q. Well, so does the opposition, but with different
11	areas.
12	What I'm saying is, you could throw both
13	interpretations out, or at least admit that neither one can
14	be scientifically validated. Therefore, that's not a
15	criteria for judging the limits.
16	Would this be a fair interpretation, with that
17	assumption?
18	A. I would still be reluctant, technically, to
19	recommend that that approach be used to allocate or to
20	determine fair share or allowable penalties in there.
21	To me, I think well, even though there may be
22	differing opinions, that At least use the best evidence
23	that's there as to what is the most reasonable picture of
24	what is the recoverable reserves underlying the tract and
25	try to give some match and consideration to the most

1	what is the most reasonable reservoir characterization of
2	it, and not just fall back on the circles.
3	Q. So you'd recommend to this Commission that we use
4	the best speculation that's available?
5	A. Yes. And there's some speculation. I think in
6	two weeks there will be some data on the Yates well. And
7	obviously, if it has one or two feet, there's not going to
8	be a lot of speculation as to how far out that reservoir
9	limit goes.
10	CHAIRMAN LEMAY: Okay, thank you. That's all the
11	questions I have.
12	Additional questions of the witness?
13	You may be excused. Thank you very much. We
14	appreciate your testimony, Mr. Platt.
15	Do you all want to sum up in just a few minutes,
16	or
17	MR. KELLAHIN: I'm not sure just what I'd like us
18	to do. That concludes our presentation of evidence.
19	CHAIRMAN LEMAY: Okay.
20	MR. ERNEST CARROLL: Chairman LeMay, I would like
21	to put on just a little bit of rebuttal evidence as to two
22	exhibits. I just want to get a proper explanation on them.
23	CHAIRMAN LEMAY: Okay.
24	MR. ERNEST CARROLL: I'll and use two
25	witnesses: first Mr. Boneau and then Mr. Fant.

CHAIRMAN LEMAY: Is it all right if I ask Mr. 1 Boneau a question that's not in the record? I think it's 2 important to be there. I need a Yates witness for it. 3 It's real quick. 4 MR. ERNEST CARROLL: I have no problem with it if 5 Mr. Kellahin has no --6 7 CHAIRMAN LEMAY: Is that okay? MR. KELLAHIN: It's your hearing, Mr. Chairman. 8 CHAIRMAN LEMAY: Thank you. I need to establish 9 the fact that this well is drilling. I see a 9-1-94 10 11 expiration on the lease. Is the reason why you drilled it because it had 12 13 an expiring lease and you didn't want to wait till the de novo, you couldn't wait? Or is there another --14 MR. BONEAU: Couldn't wait. 15 CHAIRMAN LEMAY: Could you have waited? 16 MR. BONEAU: No, we couldn't wait. 17 CHAIRMAN LEMAY: 18 Okay. MR. BONEAU: 19 The lease was expiring. the well was spudded two days before the expiration of the lease. 20 CHAIRMAN LEMAY: I assumed that, but -- It's 21 never in the hearing, in the record --22 MR. ERNEST CARROLL: This was not --23 CHAIRMAN LEMAY: -- so I wanted to --24 MR. ERNEST CARROLL: -- you know, there is a way, 25

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1	if the potash companies object to the drilling of the well,
2	that you can suspend the lease. That was not the case,
3	there was no suspension.
4	CHAIRMAN LEMAY: Well, I just wanted that in the
5	record. I assumed that was the case, but it wasn't in the
6	record.
7	DAVID F. BONEAU,
8	the witness herein, after having been first duly sworn upon
9	his oath, was examined and testified as follows:
10	DIRECT EXAMINATION
11	BY MR. ERNEST CARROLL:
12	Q. Mr. Boneau, we have had testimony concerning a
13	prior exhibit. It is this The exhibit that was talked
14	about in Mr. Platt's testimony is his Exhibit Number 13.
15	Do you have that before you?
16	A. Yes, sir.
17	Q. You're familiar with that exhibit, are you not?
18	A. Yes, sir.
19	Q. Are you the person that prepared that exhibit for
20	presentation at the earlier hearing?
21	A. It was a portion of an exhibit I prepared for the
22	earlier hearing, yes, sir.
23	Q. The characterization that was given to it by Mr.
24	Platt, do you think that is accurate an accurate one,
25	based on what you know about the exhibit and the reason it

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